CLIMATE CHANGE IN LITERATURE AND CULTURE:

CONVERSION, SPECULATION, EDUCATION

by

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A DISSERTATION

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DISSERTATION ABSTRACT

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This dissertation examines an emergent archive of contemporary literary and cultural texts that engage with the wicked problem of anthropogenic climate change. Following cultural geographer Michael Hulme, this project works from the assumption that climate change is as much a constellation of ideas as it is a set of material realities. I draw from a diverse media landscape so as to better understand how writers, artists, and activists in the global north are exploring these ideas and particularly what it means to be human in a time of climate change. How do individuals learn to live *with* climate change, that is, with a daily commitment to navigating these chaotic and unprecedented times? Whether a memoir or a novel, an alternate-reality storytelling game or a collection of agitprop posters, each of these texts call on us to imagine different kinds of selves, different kinds of communities, or different kinds of futures. Just as the modes of inquiry practiced in the Environmental Humanities ask us to question the political, economic, and cultural status quo that has led to climate chaos, these texts also call on their audiences to engage in modes of transformative learning incited by this ongoing disorienting dilemma.

The project thus also offers a set of ideas and practices for teaching climate change in literary and cultural studies. I argue that climate change poses both challenges

and opportunities for educators in the Humanities, particularly in the context of its psychological impacts and emotional contours, and I suggest that transformative learning is a productive framework through which to understand such education. Ultimately, transformative climate change learning requires that students question their own assumptions and identities as well as exercise their cultural agency as a way of generating hope and working together to imagine and enact more just and sustainable futures.

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"We need to slip on the oil and trust our fellow friends and family and strangers to help us up; we need to feel the wind in our hair and reach deep for strength. I do not think we have the time, the luxury, to wait for perfection. Rather, I think we might be better served by diving in, getting messy, and trying over and over as we fight our way forward."

- M Jackson, *While Glaciers Slept*

For students, past, present, and future.

TABLE OF CONTENTS

INTRODUCTION:

CLIMATE CHANGE AND THE PERSONAL

I. The Challenge

As greenhouse-gas emissions increase, as carbon sinks are further degraded or destroyed, and as average global temperatures continue to rise, the impacts of climate change increasingly touch every aspect of planetary function and human life, from what and how much we eat, to where we live and how we die, to our basic economic, political and societal stability. We have entered a new reality, which scholars across disciplines now call "the Anthropocene," a geological epoch in which the human species has acquired a power equal to that of the Earth's bio- and geophysical systems.

Consider, for example, how humanity has damaged the planet's soil (roughly half the earth's topsoil has been lost in the past 50 years), heated the atmosphere past tipping points (scientists say the melting polar ice caps are now irreversible), acidified the oceans (some ecologists predict saltwater fish will be gone by 2048), and ushered in the greatest mass extinction since dinosaurs were wiped out (the planet is losing species at between 1,000 to 10,000 times the normal background rate) (Arsenault; Notz; Worm; Barnosky). Consider too how small invisible changes—such as parts-per-million increases in particular atmospheric gases—can upset the flow of heat energy into and out of the global atmosphere and thus alter long taken-for-granted climatological and biophysical systems everywhere on the planet. The consequences of such irreversible changes can be overwhelming and often frightening. Cascading shifts in ecological systems cause

unpredictable social impacts, particularly in the context of food production, water availability, emergency relief, infrastructure integrity, economic stability, and international relations. Climate change is what policy analysts and scholars refer to as "a threat multiplier," exacerbating existing conflicts and increasing global political instability, and the Pentagon and top military officials warn that climate change is the greatest threat to U.S. national security in the twenty-first century (Campbell et. al). To echo the environmental writer Naomi Klein, the seemingly simple fact that CO_2 and other greenhouse gases pause for varying lengths of time in both the lower and upper atmosphere, changes everything. And despite the trumpeting of techno-optimists or proponents of grand geoengineering schemes, neither can we return to a pre-anthropogenic-climate-changed world nor can we rely on technology alone to create a "good" Anthropocene.[1]

However, although impacts are proliferating both near and far, it remains difficult to acknowledge the extent to which climate change is imbricated into every aspect of our lives. There are many reasons why individuals have been slow to recognize these interconnected realities. For one, climate change is often perceived as a set of complex and intangible phenomena, representable only through difficult-to-decipher datasets or graphs. Climate change is also assumed to be a distant problem, with impacts experienced only elsewhere and in the future, and its enormity is beyond easy comprehension. According to Timothy Morton, climate change is a "hyperobject," a

[1] The question of whether there could be a "good" Anthropocene has been a contentious one among scientists, journalists, and environmental activists (Revkin; Hamilton). That is, does climate change, and the problems of the Anthropocene more broadly, represent a possible opportunity for human social and technological development? While I see in climate change a conceptual opening for rethinking and reforming social, political, and economic systems, I am dubious of the opportunistic "good Anthropocene" framing, and, like Simon Dalby, am interested in how framings like this one exclude certain groups and communities from the conversation (Dalby 33).

phenomenon that involves profoundly different temporalities and spatial scales than those we are used to on a day-to-day basis. As a hyperobject, climate change is something that cannot be realized in any specific instance and so is simply too big to see (Morton, *Hyperobjects* 2). Many scholars have similarly pointed out that humans simply aren't evolved to be able to comprehend and respond to a threat like climate change. Environmental philosopher Dale Jamieson notes that "evolution built us to respond to rapid movements of middle-sized objects, not to the slow buildup of insensible gases in the atmosphere" (4). It's easy to be concerned about a snake that has suddenly slithered its way into your living room. It's harder to be concerned about something that's mostly undetectable by the naked eye, a threat that's gradual, invisible, and diffuse.

Further compounding the conceptual difficulties posed by climate change are the difficulties posed by its ideological baggage. Given the long history of energy companies and far-right think tanks spreading doubt and misinformation, climate change has become a highly partisan issue, particularly in the U.S., with the contentious "debate" being largely a function of conflicts in individual ideology (Bliuc et al. 226; Hulme 18-28).[2] For a majority of people, then, climate change is an abstract, impersonal, and ideologically-charged issue and thus not a topic to be brought up in regular conversation. A 2015 study conducted by the Yale Project on Climate Change Communication reported that only four percent of Americans hear a friend or relative talk about climate change at

[2] There have been many articles and books about the particular context of institutional climate denial in the U.S., most notably Naomi Oreskes and Erik M. Conway's compelling 2010 *Merchant of Doubt* and James Hoggan and Richard Littlemore's 2009 *Climate Cover-Up*. Michael E. Mann's 2012 *The Hockey Stick and the Climate Wars* more specifically examines how climate scientists have been targeted by the far-right.

least once a week (Leiserowitz 10).[3] Just four percent. Environmental writer and activist George Marshall identifies the dearth of climate change conversations as part of a pervasive "meta-silence" about the issue ("meta" because it is so silent, people can't even talk about not talking about it): "The most influential climate narrative of all may be the non-narrative of collective silence" (Marshall, *Don't Even Think* 82). Bruno Latour similarly calls this culture of silent denial "climato-quietism" and recognizes it as one of the most fundamental barriers to building a more just and sustainable world ("War and Peace" 54). In this context the cliché is correct: The first step to addressing a problem is recognizing that there is one. The second step is talking about it.

Given that climate change is an abstract, complex, multi-scalar, multi-temporal, and ideologically divisive issue that resists integration into everyday conversation, one might assume that what's needed is to better inform the public: that is, more climate change information more of the time. This "information deficit" approach holds that people are uneducated and so need more information in order to care more about the issue and subsequently to take action. It is an appealing conceptual framework, one in which the public is unknowledgeable and uncaring and activists and communicators must diligently fill in this knowledge-care gap. However, a range of scholars, including environmental communication researchers such as Susanne Moser, Lisa Dilling, and Harriet Bulkeley have questioned this model, challenging the claim that the apparent gap between caring and actions arises from a lack of knowledge or understanding. By contrast, as these and other researchers have demonstrated, simply communicating the facts of climate change in more convincing or compelling ways does not lead to greater

[3] I am grateful to SueEllen Campbell, Professor of English at Colorado State University and founder of the "Changing Climates Project" (www.changingclimates@colostate.edu), who pointed me to this upsetting, yet sadly unsurprising, statistic.

public engagement, more support for climate change policy, or a stronger commitment to taking individual action. More information does not lead people to think, feel, or act more regularly in response to climate change. And in fact, the assumptions behind this claim might themselves be flawed. As Kari Norgaard's important sociological and anthropological work has shown, many people *already do* think, and feel, regularly about climate change. Counter to the dominant narrative that people simply don't care, more and more people are in fact already grappling with the personal and emotional dimensions of climate change, even if they are not taking action. To put it more succinctly, the care's already there.

But when people confront the realities of climate change, they often experience difficult emotions such as guilt, shame, sadness, anger, and anxiety. As psychologist Rosemary Randall explains, "climate change is a disturbing subject that casts a shadow across ordinary life," but who would want to discuss, let alone acknowledge, such a shadow? That is, feelings about climate change often function as their own barrier to action. In her research and writing on climate denial in Norway and the U.S., Norgaard offers a more complicated and nuanced view of the relationship between people's feelings about climate change, their identities, and their positions in social structures and communities. Questioning the commonly held assumption that climate change is an impersonal issue, Norgaard suggests that one of the challenges to fostering greater public engagement and personal commitment is precisely that climate change is so emotional, so freighted with caring. Norgaard explains that scholars and activists alike must revise their viewpoint "from one in which *understanding* climate change and *caring* about ecological conditions and our human neighbors are in short supply to one whereby these

qualities are acutely present but actively muted in order to protect individual identity and sense of empowerment and to maintain culturally produced conceptions of reality" (207). In other words, scholars need to stop operating within the "information deficit" and "caring deficit" models that dominate much mainstream environmental thinking about climate change solutions. By contrast, Norgaard uncovers how feelings about climate change are *already present* yet are normalized through political institutions, social patterns, and cultural narratives: what she calls "socially organized denial" (9).

Taking cue from Norgaard's research, this dissertation attempts to move beyond the information deficit and emotion deficit models to focus instead on those stories, or cultural narratives, that people use to make sense of climate change and to understand their own feelings about it. My own approach acknowledges that climate change is, according to cultural geographer Mike Hulme, "already shifting the ways we think, feel and act," and as such I argue that the Environmental Humanities have an important role to play in helping us explore, understand, and archive these shifts (xxvii). As Yale University climate researcher Anthony Leiserowitz has explained, the world urgently needs scholars in the humanities to contribute to the collective understanding of climate change in order to explore the narratives and feelings at the root of our shared climate change imagination (Leiserowitz). "Our behaviors and actions are invariably the result of our beliefs—our story—about who we are and our purpose for being," writes Christopher Uhl, biology and environmental studies professor, "And this, it turns out, has everything to do with climate change" (Uhl). Following Hulme, Leiserowitz, Uhl, and others, I suggest that in a time of climate change, one task for the environmental humanist is to explore how writers, artists, activists, scholars, and educators are responding to climate

change and particularly how literary and cultural texts register what it feels like to dwell with the realities of climate change and to live under such weight and darkness on a daily basis.

It is also crucial to recognize that stories about climate change are sites where different social, political, and ethical projects are articulated, endorsed, and/or challenged. That is, thinking about climate change ultimately requires addressing important questions about representation, power, and justice. Bringing the humanities, and humanistic scholars and educators, into the conversation is crucial, not just to help scientists and activists communicate better but to respond to such important questions and to think critically about the stories we tell about climate change. In the context of humanistic research, we must always be asking: Who gets to tell stories in, and of, the Anthropocene? Whose stories are heard? And more broadly, whose Anthropocene is it?

Throughout this project, I often use first-person plural pronouns when discussing climate change. I do so for rhetorical force or stylistic reasons, though I am aware that when writing in the context of climate change, "we" becomes an extra-slippery pronoun. Who is we? Who is the we to blame for climate change? Who is the we to take action? These are complex and ethically-freighted questions, and I will do my best to unpack them in the space that I have here. Throughout, I will often deploy "we" in three senses, though sometimes these will invariably overlap or even become conflated. In one sense, "we" refers to the entire human species with its collective Anthropocene agency. In the context of climate change, many differences between people and communities melt away, and all those alive today face the core problems of rising global temperatures. Yet the uneven and thus unjust impacts of climate change should not be underestimated. This

totalizing "we" discourse of the Anthropocene often conceals differences in power and privilege as well as elides histories of injustice, colonialism, and violence. It implies that everyone is equally to blame for causing the problem, equally responsible for solving it, and equally affected by its impacts. In reality, the individuals, communities, and nations that have contributed the least to the atmospheric buildup of CO_2 bear the worst of its consequences. Thus, I use "we" in a second sense to refer not to humanity as a whole but to the privileged few in the global north who are the main drivers of climate change. On average, a U.S. citizen's carbon footprint is four times the global norm, and from a historical perspective, the U.S. alone contributed 27% of all human CO_2 emissions from the years 1950 to 2000 (Dow and Downing 40). Compared to island nations in the South Pacific, Arctic villages that rely on a subsistence economy, and others of the most vulnerable global communities, the majority of citizens in the U.S. and other developed nations are as yet insulated from the most dramatic impacts of climate change, though as Hurricanes Katrina and Sandy vividly demonstrated, climate change disproportionately affects lower class communities and communities of color in the Global North. Using "we" in this second sense is thus meant to draw attention to both the differential impacts and differential responsibilities of climate change, both globally and within nations.

Lastly, and in its most specific sense, I use "we" to refer to educators and scholars working in the emerging transdisciplinary field of the Environmental Humanities. I do this in part with the hope that some of the suggestions I offer throughout this dissertation, particularly in terms of classroom practice and approaches to teaching and learning climate change, might prove useful for others in the field. I also interpellate a we in this sense because buttressing the claims I make in this dissertation is a story of how I

personally have made sense (or rather, attempted to make sense) of climate change through my work as an environmental humanist. Therefore, in a project in which I examine how and why the stories of climate change are being told by others, I center my discussion around my own story of learning about, writing about, and teaching climate change.

I turn to my own experiences, and stories of teaching and learning, with an awareness of their connection to larger systems, processes, and phenomena—whether those be in the context of crises in higher education or in the context of social and ecological problems. As I engage in such personal musings and narrative reflections, I am mindful of Robert Graham's caution that pedagogical practices that "encourage exploration in autobiography as a gesture toward the achievement of a greater self-consciousness can remain doomed to futility if [they] simply operate in a vacuum, unconnected to any layer of social transformation" (75). Similarly, education scholar Kate Bride argues that teacher biography analysis, or what she calls "pedagogical self-study," holds potential for discovering more about the relationship between education and social and environmental justice, particularly when such self study is understood as part of larger narratives (e.g. the story of climate change) (128). Following from Bride's and Graham's observations, I am aware of my own privilege in being able to engage with climate change primarily as a philosophical, cultural, and educational issue, and that I am shielded from the most devastating ecological impacts. Including the personal or autobiographical is not meant to universalize my experience or suggest that it is self-evident support for my claims about climate change and literature and culture, or claims about the practices of teaching and learning more broadly. Rather, my emphasis on the

autobiographical and the personal takes part in the robust tradition in the field of ecocriticism and the Environmental Humanities of what Scott Slovic has called "narrative scholarship," a particular approach that blends scholarship with story, the critical interpretation of texts with personal reflection. Slovic argues that doing work in the Environmental Humanities without narrative is like "stepping off the face of a mountain—it's the disoriented silence of freefall, the numb, blind rasp of friction descent"; stories are thus our "best bet," he suggests, for teaching and writing about the environment (Slovic, *Going Away* 35). I would add to Slovic's claim that narrative scholarship may also be one of the most important resources environmental humanists have for addressing complex socio-environmental imbroglios like climate change. At its best, narrative scholarship offers opportunities to investigate the constitutive nature of one's own assumptions and how they speak to one's subject position and self-location in the context of climate change. It helps uncover deeply held cultural narratives that guide the work one does as a scholar, activist, educator, and citizen. Lastly, it opens spaces for imagining potentially new modes of teaching and learning.

II. Coming to Climate Change

As an undergraduate majoring in English, I became familiar with writing about literature as if it were an object to be dissected and analyzed. Certainly, this is not exactly how all my professors described and modeled the type of analysis students were supposed to conduct, but across all my courses, from Shakespeare to Modernism to contemporary literary theory, I came to understand the customs of the field in this way. Admittedly, my training in this approach began long before college, having been drilled

as a high school student in the importance and necessity of close reading and critical analysis. English teachers told me never to use the words "I" or "me" in my writing (many of my own students explain to me that such dictums are still passed on by their middle and high school teachers). By the time I arrived in graduate school, objective and impersonal writing appeared to be the standard for the type of work I had committed my life to undertaking. I rarely thought twice about this, assuming that such an approach was, if not the best way to write about literature and culture, then the way that would take me the farthest in my academic work.

One of the effects of all this training is that I became convinced (hubristically so) that I could write objective literary criticism for just about any piece of literature or culture or any topic that I encountered. However, in my third year of graduate school and first year as a student in the University of Oregon English PhD program, two things happened. The first was that I discovered the fields of ecocriticism and the Environmental Humanities and read a piece of scholarship that knitted together the critical and the personal: Slovic's *Going Away to Think*. The second was that I attended a talk given by Professor Mary Wood of the University of Oregon Law School titled "Act Locally, Think Globally: How Nature's Trust Can Seed Relocalization and Pollinate Planetary Patriotism." Together, that book and talk were formative in my development as a scholar, writer, and teacher.

Wood's talk was imaginative, inspiring, and hopeful. Drawing on the history of victory gardens and victory speakers on the home front during WWII, Wood explained how the climate crisis calls for a simultaneously historically attuned and future-focused grassroots movement that can engage people across divides of ideology, race, religion,

geography, and age. Those sitting next to me in the audience listening to Wood passionately present her "climate change victory speech" were a diverse group of students, teachers, community members, and environmental stakeholders. Though we may have all been from different backgrounds and been there for different reasons, Wood interpellated us as individuals concerned about the climate crisis, about the future, and about how our own identities and lives were caught up in that crisis. And she called us into being a particular climate change community. As such, throughout her talk, Wood wove an imaginative narrative about what kind of future we could build together if we joined together and reanimated the public sphere.

Indeed, Wood's entire approach to climate law, which she was then in the early stages of developing, is rooted in this story of community and the public sphere. In particular, Wood establishes the atmospheric trust doctrine, an approach to climate jurisprudence with historical roots in ancient Roman law, specifically Virgil's oft-quoted declaration, "The noblest motive is the public good." Specifically, Wood yokes public trust doctrine with conceptions of intergenerational justice to argue that the atmosphere is a public resource that must be protected for current and future generations. Wood's vision of an engaged and diverse climate public is crucial to this approach because, as she explains, judges, and the entire system of law, don't exist in a vacuum, but respond to the will of the people and recognize the people's moral authority (Wood, *Nature's Trust* 272). Wood's legal scholarship has since provided the ground from which young people and students all around the country have brought legal action against national and state governments and fossil fuel corporations, calling on them to force emissions reductions and protect the climate. The nonprofit group, *Our Children's Trust,*

now works with these young people, establishing a powerful connection between Wood's imaginative legal theory and grassroots climate activism, youth engagement, and public education.

Wood's talk sparked me to imagine, too. I imagined for the first time a future in which present climate change impacts continued to worsen, causing additional ecological devastation, political instability, and social inequality. That is, I realized for the first time the seriousness of climate change. But I imagined also a different kind of future, neither apocalyptic nor dystopian, but one in which people came together, worked together, neighbors and strangers, negotiating differences in race and class and ability, and transcending political indifference. As David Collings explains, in this time of climate change we are required "to do something we seldom imagine: fighting for the planet *even if* it may be too late, sticking with all our efforts—and increasing them—precisely when we begin to admit that the cause may be lost. The developments of these recent years suggest that our whole way of imagining the crisis must change" (Collings 13). In the months and years after Wood's talk and my realization about the seriousness of climate change, I have also come to imagine differently my own role as a teacher and scholar in the humanities. Wood's talk inspired me to consider what role an academic and scholar has in meeting the challenges of climate change. According to the American Academy of Arts & Science, the Humanities are comprised of "disciplines of memory and imagination, telling us where we have been and helping us envision where we are going" (American Academy of Arts & Sciences 17). How could I, just beginning in my work as a writer and teacher, contribute to a movement to imagine, envision, and bring to fruition more just, sustainable, and resilient communities in response to climate change?

Similarly, how could I engage academically with an issue that touched me—really that touches all of us—so personally, shaping my identity, shaping my relationship to students, colleagues, friends and family, shaping how I work and live, shaping my future?

Wood's talk prompted in me a realization not only that climate change was an incredibly important issue but also that I should find modes of engaging with the issue both professionally and personally, ideally merging the two together. To apply some of the terms that I will use throughout this project, hearing Wood speak of victory speakers and planetary patriotism was my own "climate change conversion moment" and also the beginning of a process of strengthening commitment and attachment that still continues for me today. But though I felt a conviction of purpose, I also felt unprepared to contend with the issue. Climate change presented a new set of challenges in my work as a scholar, ones for which my undergraduate and graduate training in literary studies had not fully prepared me up to that point.

Encountering climate change challenged (and continues to challenge) my disciplinary training. After attending Wood's talk I began reading widely about the issue. I watched *An Inconvenient Truth* for the first time, and I was shocked that I hadn't seen it before. I read Bill McKibben's 1989 *The End of Nature*, the first ever book about global warming written for a popular audience. I read the most recent IPCC report alongside climate novels, watched documentaries alongside Hollywood blockbusters. At the time, there wasn't much work in literary or cultural studies, or in the Humanities broadly, about climate change, and so I turned to other disciplines. I labored through scholarship beyond my disciplinary ken—dense articles on climatological impacts, environmental ethics, or the fossil fuel economy. Every time I researched or studied one aspect of

climate change, I was pulled in a different direction, moving from the technical explanations of ecological feedback loops to the ethical implications of climate change refugees to the psychology of climate denial. Climate change is not a neatly circumscribed topic or set of questions. It is, as many researchers and activists have pointed out, the ultimate "wicked problem," in that it is difficult to define and can't be addressed by traditional, linear solution thinking. It is, as I often explain to my students, not a simple knot that needs to be untied but rather a snarl of fishing line, where when one pulls on any one loop, the whole thing just snags further. As a wicked problem climate change thus cannot be understood or addressed adequately by any single discipline. Delineating the challenges that climate change poses for researchers, David Collings advises that "nearly all of us are forced to examine realities well outside our expertise, to read, learn, and judge scientific findings for which we often have little preparation. Previous crises did not demand this task of us" (14). Pushing beyond the confines of one's disciplinary education is a difficult though necessary task in a time of climate change.

Climate change also challenged those assumptions I had learned concerning academic objectivity—that is, the rules of academic writing I had internalized as an undergraduate and graduate student. Could I really write about climate change in a way that was detached from my emotions and personal commitments? I attended more of Mary Wood's talks and also attended events sponsored by the still nascent climate change group 350.org (This was before they had organizational chapters in cities and towns all over the world, including now a particularly vibrant and active group in Eugene, Oregon). Given these and other experiences, I felt like I could not separate my

personal experiences with climate change from my academic work. I wrote my first doctoral seminar paper on the rhetoric used by 350.org and climate victory speakers, and I attempted to incorporate both an academic and personal tone into my writing, to a limited degree of success. At the end-of-year departmental graduate student conference at which all first-year students were required to present, I gave not a traditional academic paper but my own version of a "climate victory speech."[4]

However, even while making forays into new realms of knowledge and expertise and even while experimenting with a simultaneously more personal and more activist scholarly stance, I still wondered whether my work as an academic was an adequate response to climate change, which I had come to believe was the defining problem of our time. What other work could, or should, I be doing? How could I marshal my skills as an environmental humanist to respond to climate change? How could I reimagine my writing so as to speak to my multiple roles as a critic, an educator, and even a creative practitioner, and similarly, how could my work speak to multiple audiences? As I struggled with these questions, I was also beginning to teach in earnest (as a sole instructor rather than as a teaching assistant), and I found I now had the opportunity to test out some of my ideas about climate change and the Environmental Humanities in the classroom. This was also when I came to poetry for the first time and thus began to see creative practice as an important dimension of my work. Together, poetry and teaching

[4] In this and other projects I have tried to contribute to the field of ecocriticism's long-standing "intellectual zest and activist edge" (Buell, *The Future* 28). Karen Kilcup argues that "Practicing environmental criticism may not mean that as individuals we can safeguard coral reefs or ensure environmental justice, but it might mean that we cultivate enough hearts and minds, and spark enough action, to help accomplish such goals together" (853). While I do not think a dissertation project can accomplish such goals, I nevertheless am convinced that environmental scholars in the Humanities can, and do, perform important social and political work.

provided two important avenues through which I engaged, and continue to engage, with climate change, and it is to these two practices that I now turn.

III. Hope, Poetry, and Transformative Learning

Before walking across campus to teach a class, I will often take a few minutes to read a poem quietly to myself. I have a folder on my office desk and a folder on my laptop, each filled with Word files, magazine clippings, or faded photocopies of poems I have saved for just such occasions. I frequently reread some of my favorite poems by Wendell Berry (e.g. "The Real Work"), Jane Hirshfield ("Against Certainty"), and Gary Snyder ("For the Children"), or turn to poems about the practice of listening, like Franz Kafka's "Learn to Be Quiet" or John Fox's "When Someone Deeply Listens to You." Sometimes, I will read poems explicitly about teaching, such as Phillip Levine's "Among Children" or William Stafford's "A Course in Creative Writing." All of these poems, regardless of their subject matter or their tone, from Levine's melancholy to Hirschfield's Zen-like playfulness, prepare me for entering the classroom. Reading poetry helps me enter a state of mindfulness and intentionality, which is so necessary for the exhausting yet thrilling work of teaching.

Reading a poem is a hopeful gesture, predicated on the belief that the act can bring more beauty, truth, or pleasure into the world than existed before. To a certain degree, every poem wants to be read, and thus when we read poems, we are tapping back into the original energy and hope of their composition. The practice of reading and then re-reading a poem is like a car engine that recharges its battery each time it's turned on. Or to use a less mechanical image, the practice is like the rain that brings out the blooms

of the desert-dwelling mallow flower. When I think about poetry's capacity for hope, I imagine Paul Celan's famous description of a poem as a message in a bottle sent out with a "belief that somewhere and sometime it could wash up on land, on heartland perhaps" (396). Poetry, as Edward Hirsch explains, "sacramentalizes experience," and for me, it makes sacred again the experience of teaching (xv). It helps me locate the "heartland" of teaching by reminding me of the hope that is latent in every classroom.

Writing and sharing poetry has become integral to both my research and my teaching because it provides space for me to explore questions about climate change education. Poems, dense in both thought and affect, provide an ideal means for posing questions that are fraught with paradox and for arriving at answers (when they do arrive at answers) that are provisional and open-ended. Thus, throughout the remainder of this section, I will be weaving together narrative reflections about teaching climate change with my own poems, written at various times over the past two years. I include these poems as a complementary mode of thinking through (and feeling through) the Anthropocene. Small, daily practices of reading and writing poetry have even greater significance when I am teaching classes explicitly focused on climate change, a topic that presents a particular set of challenges to both teachers and students.

Hope

sounds like a bell struck
hard in cold, clear air

where the water ripples
and runs fast, equanimity—

a river stone resting
in my pocket

sometimes heavy
sometimes catching

air between its folds,
sometimes buoyant

like a poem—
like a fly just before

the strike.

Grappling with climate change in the classroom can be both conceptually overwhelming and emotionally disheartening, as it requires cultivating an awareness of loss at multiple scales. Ocean acidification, bleaching coral reefs, melting permafrost, melting glaciers, the melting of the Greenland ice sheet, the sixth great mass extinction… the ecological impacts of climate change are everywhere proliferating and worsening. Not just the impacts, but the causes of climate change too are ubiquitous. It is difficult to map the convoluted causal chains that link, for instance, the energy I use while writing with my laptop to the extraction of tar sands in Alberta, Canada to global increases in atmospheric CO_2 levels to changes to warbler migration patterns on the east coast of the United States. Indeed, students and teachers alike can find it challenging to synthesize such data and information about interconnected human-natural systems, that is, to exercise what ecocritic Gillen D'Arcy Wood describes as "the teleconnected imagination" (G. Wood).

Climate change is also affecting the places we are most familiar with in ways both drastic and subtle. In my own state of Oregon, and in the Pacific Northwest region more broadly, summer water levels in rivers have been far below "normal" (a word we can no longer take for granted in the Anthropocene), and salmon are fighting to migrate

upstream in sometimes only a few inches of water. Wildfires have been burning more frequently on the usually wet west side of the Cascades, blanketing with smoke cities hundreds of miles away. All along the Pacific Coast, starfish are dying in tide pools and on beaches, a phenomenon that marine biologists correlate with rising ocean water temperatures due to climate change (Crane).

In the context of grappling with the multiple scales and connections of climate change, I write poems to orient myself in the chaos. Poems are buoys marking the shallows and the deeps. They help me chart a course in this strange, and potentially risky, emotional and cognitive bathymetry.

All Along the Pacific Coast

The sea stars are rotting
Thousands of them, maybe millions
Losing pieces of themselves to a world
Where the invisible flings the visible
Like a small, wind-shorn craft.

Sometimes beside a dark pool
We kneel, try to count the bodies
Before they melt into grey chum.
Sometimes we turn away,
Sometimes we bargain.

I am told that though most stars die
On occasion the young ones fight
Against their cells' own wasting. I am told
Yet only half-believe, that some re-grow
Their limbs again and again, and again and again
Watch them dissolve, becoming nothing.

As an environmental educator, I have come to recognize that like myself, my students too are charting this difficult terrain, especially since young people are fronting futures of greater risk and uncertainty. With such recognition I consider anew the purposes and practices of climate change education in the Humanities. For instance, what kinds of

practices should Environmental Humanities educators specifically employ in their classrooms to teach climate change? How are teachers preparing students for futures of increasing climate risks and vulnerability? What is the role of a teacher in this time of planetary turbulence?

I have not found all the answers, but through the practice of writing poetry, I have been able to keep these questions more clearly in the foreground of the work that I do, both inside and outside the classroom. Writing poetry provides me not only with an outlet for working with my own emotional responses to climate change but also with lenses through which I can clarify (or complicate) my role as a climate change educator. Each poem I write shifts, albeit slightly, my approach to teaching climate change. Pedagogical observations garnered from one poem refract off others, enabling a sort of double-loop learning. Some poems contradict or complement each other. Some reaffirm prior beliefs while others open new paths and suggest different practices. Kenneth Burke famously explained that literature could be "equipment for living" (61). I have similarly learned to make poetry part of my equipment for teaching.

Six years ago, when I began teaching climate change in Humanities courses (at that time mainly composition and writing courses), I considered my primary role as teacher to be the expert, a kind of "climate change sage." At the beginning of the term, I often administered surveys to solicit feedback from the students about their existing understanding of climate change. The results from these surveys usually disappointed. These were not seasoned students long experienced in the nuances of environmental science, policy, or ethics. Rather, for most of these students, my courses represented their first experiences learning about climate change in a formal educational setting, and

they were thus arriving with many misconceptions and gaps in their knowledge. In this context, it became easy to think my main task was to provide students with enough information (clearly and candidly delivered) to increase their climate change literacy. Students had questions. I had the answers.

Teaching Climate Change

is a lot like searching
for lucky stones after storms
on the beaches of Lake Erie—

"Otoliths" my grandma called them—
tiny ear bones of long dead fish
looking like ivory scrabble tiles

grooved with the letters 'g' or 'l'
that now, arranged on my desk,
convey some ancient message—

Good luck, good luck, good
luck, you're gonna need it.
You are like a small man gone

to find balance in miles
of sand and dark water,
then returned to a room, expecting

to feel bigger than before.
My students arrive asking questions—
"How worried should we be?"

Swiftly my voice rolls out "very"—
like a wave breaking over
then pulling back.

"So what should we do?" they ask—
and I try to hear goodness and grace,
a little luck, the sounds of a lake falling

through trees at night, and any words
that might begin an answer.

As with its counterpart in the field of environmental communication, the "information deficit model" of climate change education rests on the assumptions that climate change is the domain of experts and that agency is born from the mastery (and a particular conception of mastery) of the topic. It is an appealing model, one in which the students (like the public at large) are cast as uninformed, and their teachers tasked with filling in the information-knowledge gap. Of course, understanding the material, and in this case, understanding the science of climate change, is important, particularly when students are growing up in a culture in which the agents of institutional climate denial actively spread climate misconceptions and misinformation. Thus, I always include in my courses opportunities for students to learn the science and address gaps in their understanding. Sometimes that means assigning particular articles or videos. Sometimes that means asking a colleague from the natural sciences to guest teach a class or to lead a question and answer session with the students. Sometimes that means offering extra group office hours, so students can ask questions in a more intimate setting without feeling like they're alone or somehow less-than for not understanding the complexities of this wicked problem. Nevertheless, although recognizing the importance of helping students achieve a baseline competency in understanding the science and policy, I recognized that the information deficit approach to teaching climate change is at best incomplete and at worst, ineffective.

In part, I made the choice of pursuing a content-centric approach to teaching because of how I viewed the students, or rather, how I didn't view them. Sometimes, my own emotions about climate change blinded me to my students. A study conducted by teaching and learning scholar Keith Trigwell found that when teachers experience worry

or anxiety at high levels, those teachers are less likely to engage in student-centered teaching approaches and are more likely to approach teaching as a transmission of knowledge from expert to novice (607). When I felt anxious or worried about climate change, it was comforting to tell myself that transference of my own knowledge and expertise was how students were going to become climate literate. At other times, I did "see" my students, but I viewed their lack of knowledge and interest as symptom of the problem: a public that doesn't know very much and doesn't care very much about climate change. It is easy to see in students the rampant cynicism, political disengagement, and fetishizing of consumer culture that so seem to define younger generations, or at least define our stereotypes of them. More difficult is to see students as the creative, witty, imaginative, and engaged young people they really are—and as intellectuals in their own right. As I have discovered over time, and continue to discover every time I walk into a classroom, the majority of students want to learn about climate change.[5] Students elect to take these courses, and they choose to stick with them. They want to reweave from the fraying threads of social and environmental crises a better world for themselves, their peers, their elders, and even their own children. They are committed to righting social and environmental injustice. They are committed to building a more just and sustainable society. In the context of a climate change education that emphasizes the transfer of

[5] In their 2011 study, "American Teens' Knowledge of Climate Change," the Yale Project on Climate Change reported that in general, American teenagers know about the same or less than American adults about climate changes, its causes, impacts, and solutions. For example, 54% of teenagers said that global warming is happening, compared to 63% of adults. However, the study also found that American teens are also more likely than adults to recognize their own limited understanding of the issue; fewer than 1 in 5 reported that they were "very well informed" and only 27% reported that they had learned "a lot" about the issue in school. Moreover, 70% of teenagers said they'd like to know more, which should be the most hopeful finding for educators everywhere (Leiserowitz, Smith, and Marlon 2-3).

content, teachers can have difficultly seeing all that students bring with them to the learning encounter.

Notes for a Lecture on Climate Change

Striding across campus
to an afternoon lecture, thinking
I can change the world—

no, not the world, but maybe
adjust the lens so students will see
a little more clearly

the inner workings
of capitalism, colonialism,
power and climate—

I pause beneath cedars
hundreds of years old
and begin to worry:

If only I were more prepared, more patient,
more like someone I once believed
I could grow into.

When I arrive at class
I am afraid—
being stranded with nothing

in front of students who I expect
expect answers to a wicked problem.
"But it can't be solved!"

I want to yell.
"Let me tell you how
we have already lost days

not seeing the weather change."
Yet their faces do not say
Give us answers, or

Tell us the way.
They say, *We are scared.*
We are sad. We want

to work. See us
here on this day, in this
room, listen to us—

We will wait.

When I tell other environmental educators that I am working on a project about teaching climate change, the questions I most often hear are those that have to do with hope: How do you maintain hope in the classroom, and in your own life? How do you combat despair? I welcome these questions, knowing that I too often turn to my fellow teachers for help, for hope. To echo the well-known environmental educator David Orr, hope is an imperative. But what *is* hope? Is it a feeling? A cognitive state? A virtue? Is it an attribute of a person's or a community's or a culture's personality? Or is it a story we tell to ourselves and to others? In the context of teaching climate change, I see hope as a simultaneously critical and creative practice, one that is communal and embodied in places where teaching and learning happen. I thus want classrooms to be spaces for practicing *together* what Joanna Macy and Chris Johnstone have called "active hope." According to these authors, active hope is something we do rather than something we have, and it involves three steps: "First, we take a clear view of reality; second, we identify what we hope for in terms of the direction we'd like things to move in or the values we'd like to see expressed; and third, we take steps to move ourselves or our situation in that direction" (Macy and Johnstone 3). Considered in this context, hope is not a static cognitive or emotional state, but rather an ongoing process: from sight to imagination to movement. Hope is work. Hope is, according to Orr, "a verb with its sleeves rolled up" (324).

In order for students to succeed at, let alone attempt, this kind of difficult work, teachers need to focus on cultivating agency. Joel Pfister argues for the need to incorporate more "agency studies" in the classroom, with teachers continually reminding students that they have agency and are not merely passive victims or passive colluders to social and environmental problems. As an environmental humanist teaching in the context of climate change, I believe I have a responsibility not only to remind students of their agency, as Pfister suggests, but to create opportunities for students to exercise that agency. Or as literary critic Elizabeth Ammons claims, teachers must not only show students that there is such a thing as agency and that they "have" it, but also "teach them how to use that agency as progressive activists" (35). In this context then, what is generally defined as "climate literacy" involves more than acquiring a set of facts or frameworks.[6] Rather, climate literacy involves exploring the emotional and ethical ramifications of climate change; telling and interpreting stories; and engaging in both historical analysis and speculation. And it requires doing all these things with an emphasis on exercising individual and collective agency.

When agency, and not expertise, becomes the core principle of climate change education, teachers can better see the skills, knowledges, and passions that students already have to offer the world, and not be overly-focused on those students' lack of climate change information. Such an approach doesn't mean eschewing the critical, the rigorous, or our own expertise, but it means beginning with a different orientation to the material, the students, and ourselves. It necessitates beginning with compassion and

[6] For example, the United States Global Change Research Program defines the "climate-literate person" as someone who "understands the essential principles of Earth's climate system; knows how to assess scientifically credible information about climate; communicates about climate and climate change in a meaningful way; and is able to make informed and responsible decisions with regard to actions that may affect climate" (*Climate Literacy*).

empathy, a stance of active "feeling into" in which the teacher suspends his or her own assumptions in order to open radically to the needs, beliefs, and feelings of the student/s. To engage such a stance within the complex affective ecosystem of a classroom requires both acuity and intuition, as well as a commitment to moving forward into the unknown.

In fits and starts I have thus come to see my main role in the climate change classroom as being more of a guide, helping students traverse the difficult emotional and intellectual terrain of climate change, supporting them through the processes of discovery. That is, I view myself as being a climate change mentor. In his recent work on higher education in the United States, William Deresiewicz describes the tasks of the mentor as the following: "You do not talk to your students; you listen to them. You do not tell them what to do; you help them hear what they themselves are saying. You ask the kinds of questions… those 'why' questions that help people connect with what they care about" (178). Being a climate change mentor isn't about answering questions, but rather about asking questions—particularly those questions that students seem on the cusp of asking themselves. It isn't about getting students to care, but rather recognizing that they already do. Most importantly, perhaps, being a climate change mentor means seeing students as co-creators in the educational experience, a view that works to break down assumptions about who has expertise and authority and who doesn't. In this sense, mentorship depends on a mutuality in which the mentor and mentee bring out the potential in one another. Mentorship germinates unforeseen possibilities. It is a collaborative practice in futurity.

The approach to teaching and mentoring that I've begun to outline here, and that I will explore in more practical detail throughout the remaining chapters of this

dissertation, might come across as overly idealistic, even naïve, especially considering that many students are encountering this topic (climate change) for the first time and thus have few existing critical frameworks with which to make sense of such difficult material. So, let me temper such idealism by suggesting that the kind of climate mentorship I have in mind is not optimistic in the sense that I *know* it will turn out well. The process is often painful, both for me and for the students, and I never know exactly where we will end up as individuals or as a class. Climate change is huge, complex, uncertain, and fraught with what Sianne Ngai calls "ugly feelings." There are no easy answers. We can model and imagine futures but can't predict them.

In this respect, learning about climate change can be a "disorienting dilemma," as Jack Mezirow calls those experiences that are fundamental to "transformative learning" and that challenge the usually invisible and unquestioned assumptions by which students know themselves and the world around them ("Learning to Think" 21). Such disorientation can be painful as students recognize their own imbrication in systems of social and environmental injustice and then often feel like their identities are being challenged.[7] Students often begin to see their communities, families, friends, and their own identities, in a new, more critical light. Attending that talk by Mary Wood was one of my own encounters with the disorienting dilemma of climate change, and it forced me to examine my own assumptions about who I was and what work I did. Such self-examination was, as I previously suggested, difficult in that it challenged me to move

[7] Edmund O'Sullivan explains that transformative learning experiences necessarily and permanently alters our modes of being in the world, involves our understanding of ourselves and our self-locations; our relationships with other humans and with the natural world; our understanding of relations of power in interlocking structures of class, race and gender; our body awareness, our visions of alternative approaches to living; and our sense of possibilities for social justice and peace and personal joy" ("Emancipatory Hope" 76).

beyond the familiar and the comfortable. As bell hooks observes, there is always "some degree of pain involved in giving up old ways of thinking and knowing and learning new approaches," and she suggests that teachers must "talk about the discomfort it can cause," within the classroom and beyond it (*Teaching to Transgress* 43). Comfort in the classroom is overrated and often can get in the way of critical thinking—the rigorous structural analyses of injustice and discussions of the inequitable distribution of power and privilege. But disorienting dilemmas are potentially injurious when left unacknowledged by the teacher. If teachers find this material difficult, both conceptually and emotionally, then they should be especially empathetic to the hostility and fear (often resulting in denial) that their students feel when journeying past places of comfort, questioning their assumptions, shifting their perceptions, and transforming their identities and lives (Martusewicz 17). A student in the throes of transformative learning is no longer a passive consumer of climate change knowledge, but rather a transdisciplinary scholar-practitioner deeply engaged in self-determination and transformation of his or her social and ecological worlds. This requires students to explore the perspectives of others, question their own deeply held assumptions, and be able to reflect on these shifts in worldview.[8] They must be ready and open for change, and ready too to make self-reflection an integral part of their learning and lives. In this context, mentorship becomes even more important, as teachers must be keenly attuned to their students' cognitive and emotional development.

[8] In another context, I have explored the importance of cultivating empathy and perspective taking in the climate change classroom and outlined practices for doing so, including specific activities and assignments. (Siperstein, "Engaging in Climate Change Conversations").

When will the posture of wisdom become wisdom?

We cannot predict what happens
next, the future a home we never
come home to, a classroom
with no desks, no chalkboards
no answers, no wisdom, only
this—the empty place
of imagination.
Each season, more species becoming
shapeless spaces in the landscape.
Yet our pose cannot be static
my students show me,
like the cloud whose shapes are not
its own but the wind's.
In every moment, the cloud listens
for the words we call it—
humpback whale, polar bear
monarch, tree frog, crested newt.
The cloud tries to oblige.
Does the cloud need practice,
encouragement? Does the wind?

When I provide students with opportunities to reflect on the transformative process, to acknowledge together their disorientation, and to think *with* their difficult emotions, they often begin finding footholds and handholds with which to climb. Some of these I offer—through assignments, activities, assessment, and feedback that is both intellectually rigorous and emotionally supportive. Other points of leverage students seek out themselves. For example, in my winter 2015 climate change fiction course at the University of Oregon, a group of students decided to volunteer at the 350.org sponsored Global Divestment Day Rally on campus. The occasion for activism turned into an opportunity for unplanned, out-of-class learning as the students and I met afterwards to discuss the issue of divestment, its potential to effect change, and the history of how the

tactic influenced the struggle against apartheid in South Africa.[9] This pedagogical anecdote also points to the crucial element of Pfister's model of agency studies as well as the final stage of the transformative learning process: providing students with opportunities to act and to reflect on the "real world" efficacy of their actions.

By the middle of the term, students were also taking initiative to complete self-directed research, discover solutions to climate change (the course itself was not heavily focused on "solutions" in the narrow sense of that word), and then post about them on our public course blog. Upon my suggestion (though it was not required), many students then had conversations about climate change with people not in the course and wrote on the blog about their experiences doing so.[10] Overwhelmingly, students were shocked and disheartened by how little people knew, but these feelings became the impetus for them to teach their friends, roommates, siblings, or parents about what they were learning in class and to practice the same kind of work I was doing in class: meeting people where they already were and engaging with them personally about climate change. Students feel empowered when they become the teachers, and many of these students in particular were energized knowing that they were addressing that culture-wide "meta-silence" around the issue of climate change.

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[9] Given these students' interest in divestment, the following week I decided to assign to the entire class a short article on the topic, even though I had not originally planned to do so as part of the course schedule. That particular group of students was then able to share their experiences as part of a broader discussion in class. In moments like these I recognize not only the importance of connecting the learning that happens in the course to students' experiences outside the classroom but also the importance of teachers being open to serendipity and willing to make impromptu adjustments. In the context of climate change especially, teachers are best served by being nimble and flexible in their approaches.

[10] I also offered students additional credit if they wrote for other public venues, including the blog of a similar course, "Popular Fiction: Cli-Fi" (http://sites.temple.edu/clifi/category/blog/), that Ted Howell, a PhD student at Temple University, happened to be teaching concurrently with my own course.

The course's final project assignment asked students to work in groups to create their own works of climate change literature or culture (an assignment that I will describe in further detail in Chapter 3). For me, the creative action that generates hope in the context of climate change is writing and sharing poetry. Through their projects, students discovered a multitude of their own practices, some which they were already expert in (such as the group of students majoring in journalism who produced a climate-change-themed radio drama) and some which they were trying for the first time (like the student with no experience in game design who created a mock-up version of a new climate change videogame). In his 2006 book *Radical Hope*, philosopher Jonathan Lear defines the poet in a broad sense as one who is a "creative maker of meaningful space": "The possibility for such a poet is precisely the possibility for the creation of a new field of possibilities. No one is in a position to rule out that possibility" (52). In the context of exploring multiple possibilities, all my students were poets, whether or not they worked in the medium of poetry. By exercising what I will describe later in this dissertation as "cultural agency in the context of climate change," the students were able to create new fields of possibilities, and likewise, new fields for hope.

Hope and poetry have always dwelled together. As the poet and critic Gregory Orr has pointed out, poetry is a tool for survival: "Human culture 'invented' or evolved the personal lyric as a means of helping individuals survive the existential crises represented by extremities of subjectivity and also by outer circumstances [in the world]" (*Poetry as Survival* 4). But poetry's survival function comes not from its capacity to numb or provide escape, not from any miraculous transmutation of grief into easy optimism. Rather, poems, as well as other forms of literature and culture too, help us

survive because they teach us to struggle, to hope. Literature, Orr writes, "allows us to anticipate possibilities and options—material, emotional, spiritual—and thus…move forward into the unknown" (*Poetry as Survival* 18).

A poet in the Anthropocene

could be a collagist or a compositionist
bringing together many things of air and earth
could dream of wild futures, of crows
congregating in the spruce trees, or conversations
between lichen and granite.
A poet in the Anthropocene
could make mosaics
could write geology, ecology, history
in many languages, human and nonhuman both.
A poet in the Anthropocene
could be a poet in the Holocene
only more mournful
only more joyful.
Poets in the Anthropocene could walk
across flooded coastlines, across
flooded main streets, across flooded
kitchens, across the flooded valleys
Poets in the Anthropocene could swim.

I receive the honesty and warmth of a poem's hope as a form of grace, without the expectation or requirement of reciprocity. However, when I receive hope from students, I have a responsibility to reciprocate, not simply with my own hope and my own imagination, but with gratitude as well. This responsibility is rooted not in a prescriptive code of right pedagogical behavior. Nor is it spelled out on a course syllabus. Rather, it is a responsibility born of care, born of the awareness that we must dwell together, and imagine together to survive and thrive in a chaotic world. Imagination is, Paul Loeb notes, a form of generosity: "It creates an expansive vision of what's possible and helps us recognize the fundamental bonds that exist between us" (162). For those of us who choose to teach climate change, along with many other social and environmental

problems that can draw down our emotional reservoirs, imagination is, ultimately, a form of hope that connects us to others. Shared imagination, as Loeb explains, "leads outward, to other people and new possibilities" (164).

IV. Overview of Argument and Chapters

This dissertation takes as a given that imaginative works of all kinds—poetry, novels, public art, podcasts, student-generated projects—should be taken as seriously in climate change conversations as are scientific findings and policy arguments. I am continually amazed by the diverse and imaginative ways that writers, artists, activists, academics, scientists, and students choose to respond to climate change. They use literature and film; music, radio and digital storytelling; painting, sculpture and photography; dance and drama; new media projects and creative tactics of climate activism. The canon of climate change culture is growing daily, with the rise of global climate change literature and culture paralleling the rise of greenhouse gases, as ecocritic Michael Ziser and environmental justice scholar Julie Sze suggest, and it often feels impossible to keep track of it all (Ziser and Sze 385). The panoply of climate change texts signals the resilience and creativity of individuals, communities, and perhaps even the entire human species in responding to the ecological and social challenges of the Anthropocene. Though the dissertation focuses at times on particular literary forms, such as the memoir and the novel, my overall arguments and beliefs about the importance of the literary and cultural spheres in the context of climate change emerge out of this broad and diverse media landscape.

During one of the worst drought seasons that the usually water-abundant Pacific

Northwest region has experienced in recent times, the apple tree in my backyard produced a bumper crop. I didn't know what to do with the abundance of the little Gravensteins, so I slowly simmered them, then canned some sauce and butter, and also baked a pie. Most of the crop, however, ended up as windfall, feeding the squirrels and the scrub-jays, and providing much-needed liquid to the wasps and soil creatures. Even my chickens pecked at the sugary flesh. This kind of fructiferous return is common among plants: When environmental conditions challenge a plant's survival, it produces more seeds, nuts, or fruit than usual—a resilient response to trauma that sustains the organism, the species, and perhaps even the wider community of beings.

Can we imagine the burgeoning cultural, artistic, and literary texts in a similar way? Are these responses to social and environmental traumas and injustices a survival mechanism? In his 2009 article "Climate Art is Hot," Bill McKibben argues that the artistic and cultural responses to climate change are akin to the "immune system of the planet finally kicking in" ("Climate Art"). Artists and writers, McKibben explains, "are the antibodies of the cultural bloodstream. They sense trouble, and rally to isolate and expose and defeat it, to bring to bear the human power for love and beauty and meaning against the worst results of carelessness and greed and stupidity" ("Climate Art"). Like McKibben, I want to believe that art, literature, culture, and humanistic thought in general can be a panacea for addressing climate change and building more just and sustainable futures. Yet I am also aware that this view might idealize, or worse, fetishize, the power of literature and the arts. Can it really be so powerful? Is it really an immune system? To echo the title of John Felstiner's 2009 volume, can poetry save the Earth? I'm not so sure. Yet I do believe that, as McKibben comments in a backflap review of

Felstiner's book, while literature "may not save the Earth… it surely helps."

Even if works of literature and culture cannot "save the Earth," they can be our teachers. I make this claim not to instrumentalize literature or to suggest that it works only through the didactic mode, offering answers and moral absolutes. Such a view would too easily reaffirm the information and emotion deficit model and impose ahead of time the kind of educational work that texts perform. Rather, literary and cultural texts can be our teachers because they help us explore what it means to live, feel, and think in a time of climate change and by so doing encourage us to imagine the world differently. They facilitate engagement with the world in its manifold complexies, enabling different types of critical examination, imagination, self-reflection, and sociality. For example, literary memoirs help us empathetically connect with lives of others or see our own lives as bound up in systems of power and privilege, and works of speculative fiction can lead us to envisioning other possible futures. While not every text included in this dissertation is speculative in the sense of gazing explicitly towards the future, every text is interested in opening up imaginative possibilities for thinking and acting in ways that challenge our current fossilized forms of thought and action. Whether a memoir or a novel, an alternate-reality storytelling game or a collection of agitprop posters, each calls on us to imagine different kinds of selves, different kinds of communities, or different kinds of futures. Just as the modes of inquiry practiced in the Environmental Humanities ask us to question the political, economic, and cultural status quo that has led to climate change, these texts call on their audiences to engage in modes of transformative learning incited by the ongoing disorienting dilemma that is climate change.

Each chapter in this dissertation addresses, to a greater or lesser degree, climate

change education in the humanities, and my arguments about literary and cultural texts are always grounded in the specific practices of teaching and learning. Each chapter provides a slightly different perspective on the project's overarching argument by marshaling a diverse range of texts that variously explore the material and psychological impacts of climate change. In the first two chapters, I return to many of the questions raised in the introduction and address in greater detail the ways in which writers, artists, teachers, and students are responding to the psychological impacts of climate change. In Chapter 1, I turn to an archive of cultural texts that represent what I call "climate change conversion moments," instances in which individuals first come to know about, and ostensibly care about, this wicked problem. I then contrast these individualized moments with a set of philosophical texts and a recent transmedia project, *Dear Climate*, which together imagine a different mode of living together in the Anthropocene. *Dear Climate* also provides a potential model for using contemplative practice in the climate change classroom. In Chapter 2, I pivot from cataloging a diverse media landscape to analyzing an emerging literary genre: the climate change memoir. I examine how authors are exploring the psychological frontlines of climate change and how their autobiographical accounts perform a particular kind of affective work in helping their readers grapple with loss and vulnerability. The chapter also takes these memoirs as a provocation to teach climate change in ways that are attuned to students' emotional transformations and individual and shared vulnerability. Like many of the texts included throughout this project, these memoirs examine the meaning of vulnerability, asking what it means to welcome climate change into our day-to-day lives, and into our life stories, not in order to be destroyed or overwhelmed by it, but to learn how to survive and thrive with it.

In the final chapter, I investigate the genre of speculative climate change fiction, now popularly referred to by some as cli-fi, thus shifting from texts that engage with the present impacts of climate change to those of imagined futures. First I provide an overview of this developing genre, focusing on the kinds of arguments marshaled by activists, writers, and scholars when they advocate for the transformative power of climate fiction. I then turn to recent examples of cli-fi, including Nathaniel Rich's 2013 novel, *Odds Against Tomorrow* and Ken Eklund's *FutureCoast*, an interactive and collaborative storytelling game that allows users to participate in the process of creating and curating possible climate change futures. The chapter also analyzes works of student-created cli-fi and my own experiences in a cli-fi classroom. I argue that the genre is powerful because of its unpredictable educational *possibilities*, and particularly its potential for cultivating in students the cultural agency and openness towards the future necessary for imagining, and ultimately building, a better world.

I recognize that though the project's archive is diverse in terms of medium, form, and genre, it is less so in terms of geographic and racial representation. This dissertation is just one possible path for understanding the heterogeneous literary and cultural responses to climate change, and so I choose to begin this work and construct my archive from those texts that emerge from necessarily privileged positions. My project identifies key figures who have been recognized as contributing to the field of climate change culture, such as McKibben and Nathaniel Rich, as well as new voices such as M Jackson, Ken Eklund, and even my own students. Yet the overall archive emphasizes United States and global north texts, that is, perspectives of climate change dependent on a certain level of socioeconomic and racial privilege. I foreground questions of privilege in

Chapter 1 specifically, arguing that vicarious climate conversion moments are often narrated from a position of relative climate safety, but that nonetheless they are important texts to understand. I argue that looking at the cultural production of the culture largely responsible for the problem of climate change is an important project because, as Carolyn Merchant suggests, the grand narratives of white, patriarchal, western civilization have played a significant role in bringing us to our current moment of social and ecological crisis (3). Those of us living in the dominant, fossil-fuel intensive cultures of the global north are the ones perpetuating the problem of climate change, and we are thus the ones that must reevaluate our ways of being in the world, and find different stories that reject the logics of perpetual growth, extractivism, and mastery.

However, equally important is to analyze the stories and listen to the voices from the global south and other marginalized communities. I do this in Chapter 2 in my analysis of Inuit writer-activist Sheila Watt-Cloutier's memoir *The Right to Be Cold*, which situates climate change within a longer history of colonial violence and environmental injustice. I imagine that other chapters would similarly have benefitted from this dual focus on privilege and precarity. For example, the project would have been quite different had I included instead of, or in addition to, Rich's *Odds Against Tomorrow*, Cherokee author Thomas King's recent novel *The Back of the Turtle*, a speculative novel that addresses climate change obliquely through a magical realist representation of the fossil fuel extraction industry in Canada and thus offers a fundamentally different vision of climate change futures. Or perhaps instead of McKibben's *The End of Nature*, which I analyze in Chapter 2 as a canonical work of climate change literature and the precursor to more recent climate change memoir, I

could have examined the work of Indian writer-activist Vandana Shiva as inaugurating a tradition of global climate activist writing. When further developing the project in the future (as well as when teaching climate change in the future), I plan to include a wider range of texts that more diversely represent the multiple experiences of, and responses to, climate change beyond the borders of the U.S. and outside the perspectives of socioeconomic and environmental privilege. Voices and stories from the global south and communities of color are crucial for understanding how climate change impacts are unevenly and unjustly distributed across communities based on differences in race, gender, and class. Moreover, such stories can help interrogate the different forms of expertise and authority that have long directed climate change knowledge production.

Finally, I suggest that the critical and curatorial work done in the Environmental Humanities can itself shape the future by generating new narratives in the classroom and beyond. This is one avenue through which the field will continue to form part of what Richard Kerridge and Neil Sammells call a "coherent and useful response to the climate crisis" (5). I am hopeful that this dissertation's archive of climate change texts might function as a call for future research, as well as for future curricula, programs, and projects in climate change education. The dissertation is meant to be not only a piece of scholarship but also a teaching text, one that is yet unfinished. The narratives that we assign and teach in our classrooms and the narratives of our own pedagogical practices, however incomplete those narratives might be, shape what stories our students will tell about climate change and by proxy, the future worlds that we will build together.

CHAPTER 1

FROM #MYCLIMATEMOMENT TO LIVING IN THE ANTHROPOCENE

"We are not converted only once in our lives but many times."
Thomas Merton

Broadening awareness of global environmental change takes time. It requires reflection, imagination, deliberation, and experience. It's not a conversion experience, although some will explain it that way. It's not an awareness that emerges from a single exposure, or an outrageous transgression, although it can happen that way. It's a slower, cumulative, cultural process.
Mitchell Tomashow, "Environmental Learning in the Anthropocene"

"Knock knock.
Who's there?
The climate.
The climate who?"
Dear Climate

I. Beginnings

Maybe it begins with a photograph of a polar bear. Maybe it begins with a conversation about the "strange" weather. Maybe it begins with a magazine article about Arctic ice loss. Maybe you read a book of journalism, like Elizabeth Kolbert's *Field Notes from a Catastrophe*, or a novel, like Barbara Kingsolver's *Flight Behavior*. Or maybe you watch a documentary about Katrina, or about the Alberta Tar Sands, or about

the disappearing islands of the Maldives. Maybe it begins with a Tweet, or a friend's post on Facebook. Maybe it begins with a dramatic hockey-stick-shaped graph. Maybe it begins with the sonorous tones of Al Gore's voice or the cacophony of a calving glacier. Maybe, as it did for me, it begins at a lecture.

How does an individual first come to climate change? How does one come to recognize the import and seriousness of this complex, wicked problem? What kinds of climate change experiences—direct or indirect, real or virtual—provoke transformations of emotions, attitudes, and behaviors? What does it mean and what does it feel like to experience one of these "climate change conversion moments," as I will call them? Do such moments evolve into long-term engagement and commitment? And, ultimately, how do individuals learn to live *with* climate change, that is, with a daily commitment to navigating these chaotic and unprecedented times? These are some of the central questions for activists, scholars, and policy-makers who are interested in understanding public engagement (or lack thereof) with climate change and the relationship between attitudes, emotions, and behaviors. Answering such questions calls on disciplines in the social sciences such as communication studies, psychology, and sociology, among others. Literary and cultural studies, and the Environmental Humanities more broadly, also can contribute to addressing the ways in which individuals are "converted" to climate change, particularly by examining the literary and cultural texts that narrate, model, and engender such conversions. In this chapter, I argue that stories of conversion moments are appealing and persuasive in that they provide narrative coherence to a wicked problem that defies narrative closure. Narrating a conversion moment is a way to make sense of one's own relationship to the larger story of climate change and even, potentially, to take

part in a shared practice of storytelling. However, stories of conversion moments also reinscribe the ideology of individualization, limiting the ways in which we can imagine responding to climate change.

As the catalog of moments with which I opened this chapter suggests, I am particularly interested in those climate change conversion moments that are indirect, vicarious, and engendered by encounters with climate change texts. In their 2014 article, "Encountering Climate Change: 'Seeing' is More Than 'Believing,'" Joseph Reser, Graham Bradley, and Michelle Ellul address questions concerning the nature and impacts of what they call "climate change experiences" and examine "the personal *significance* of such experiences—in the sense of being salient, moving, and meaningful in both emotional and realisation terms—and the psychological and behavioural *influence* of such encounters—in terms of motivation, intention, resolve, and behavioural engagement" (521). The authors note that there has been significant research on the effects (and affects) of individuals' direct experiences of events attributable to climate change. For example, studies have demonstrated that between a quarter and a half of the populations in developed nations have directly experienced a climate-change-related impact, such as an extreme weather event or a change in seasonal patterns, that then comes to influence the extent to which individuals care about the issue (Reser, Bradley, and Ellul 521).[11] There are important differences, however, between a direct encounter with climate change (as through a visceral experience of extreme weather events) and an indirect encounter with "climate change" (as through an experience of watching a

[11] The Yale Program on Climate Change Communication Research Group recently reported that 39% of the U.S. population have had a direct climate change experience, and other studies have reported even higher percentages in India (50%) and China (60%) (Leiserowitz et. al; Thaker and Leiserowitz; Wang and Li).

documentary film or reading an magazine article), but fewer studies have tracked the effects of these latter experiences "in which the individual is physically distant from, but hearing about, reading about, or viewing the phenomenon" (Reser, Bradley, and Ellul 522). That is, though there has been significant research about framing and the rhetorical power of particular climate change images/stories, not as much work has been done with a particular focus on the actual individual outcomes of such indirect experiences (Smith and Joffe; Nisbet, "Communicating Climate Change"). Reser, Bradley, and Ellul note that this topic is an important one that deserves additional attention:

> As with direct experiences, virtual and vicarious exposure to and experience of climate change also raise multiple and unresolved questions relating to subjective versus objective vulnerability, direct versus virtual and vicarious exposure and experience, and the largely uncharted risk domain of climate change, reflecting not only individual and collective experience, but pervasive social construction and social representation processes, and powerful and symbolic cultural meaning systems. (522)

What does it feel like to have a virtual or vicarious experience of climate change? Who gets to have those kinds of indirect experiences? How are different types of risk experiences shaped by cultural expectations as well as integrated into larger narratives of climate change? Such questions are intimately tied up with the issue of climate privilege. Thinking about how individuals come to indirectly experience climate change necessarily brings to the foreground an awareness of the unequal distribution of climate change impacts. Or in other words, is it problematic that many of these virtual or vicarious climate change conversion experiences occur from the privileged and safe distance of encountering a text rather than from a position of climate risk?

Climate change conversion narratives are usually the stories of those individuals who are privileged and who live in communities relatively sheltered from the most

devastating impacts of climate change. Considering this observation, I draw from Kari Norgaard's suggestion that focusing on the issue of privilege is a crucial component of environmental justice studies. Norgaard writes: "Figuring out why and how middle-class and wealthy people in the global north perpetuate environmental problems is as crucial to the field of environmental justice as critical white studies is to the field of race or masculinity studies to the field of gender" (216). As I suggested in the introduction, attending to the narratives that individuals use to make sense of their environmental privilege is an important task for understanding the contours of socially organized denial as well as socially organized knowledge and affect. As Norgaard also notes, we must look at environmental privilege through the lenses of both critique and compassion recognizing that "privilege is a precarious position" and "people occupying privileged social positions encounter 'invisible paradoxes'—awkward, troubling moments that they seek to avoid, pretend not to have experienced…and forget as quickly as possible once those moments have passed" (217). Though my own analysis of texts in this first chapter is admittedly skewed to thinking about individuals who predominantly experience climate change vicariously and from a distance, I argue that such analysis is crucial for uncovering *how* individuals with privilege come to see themselves as connected to the issue of climate change. In particular, I am interested in how individuals choose to engage with (rather than avoid, ignore, or forget) with those troubling moments of paradox in which they are confronted by their own complicity in the wicked problem of climate change. Norgaard points out that "Privileged people around the world will be faced with more and more opportunities either to develop a moral imagination and imagine the reality of what is happening or to construct their own innocence from the

resources of their culture's particular tool kit" (222). Stories of climate change conversion moments offer opportunities for individuals to see their experiences as part of larger cultural narratives and to understand their role(s) as moral agents. In this sense, I focus on how stories of conversion moments are conduits for socially-organized knowledge, affect, and ethics. That is, sudden and epiphanic moments of encountering climate change, even if indirect, can be a potent vehicle for belief and acceptance. To begin unpacking these claims, I turn to one woman's melodramatic recounting of her climate change conversion.

II. Converting Climate Change Subjects

60-year-old Lolly Hellman experienced her climate change conversion moment at an advanced screening of James Balog's 2012 climate change documentary *Chasing Ice*, a film that blends an adventure narrative with dramatic visual evidence of climate change impacts on glaciers (dir. Jeff Orlowski). Upon leaving the theatre, Hellman was interviewed by Justin Kanew, an environmental reporter attending the film screening to collect audience reactions, and in the interview Hellman testifies to the transformation she underwent while watching the film. Kanew posted a video recording of the interview online, and it soon became a sensation among activist and environmental websites. Given its celebratory reception, the video bares the social and political assumptions that underpin the appeal of climate change conversion moments.

At the beginning of the interview, Hellman launches into an impassioned response to what she has just seen in *Chasing Ice*:

> Just let me say what I have to say. That I watch Bill O'Reilly every day. I love Bill O'Reilly. I'm proud to be an American. But I saw this movie *Chasing Ice* today and it hasn't just changed me about global warming. It has changed me as a person. And there is something—I don't know what I can do. I'm 60 years old. There must be something I can do to help this, to help our children, to help my grandkids. But I'm going to change it, because this movie was fantastic. Every human being in this world should watch this movie. Everyone. (Kanew)

Hellman looks directly into the camera, speaking with conviction, and when she explains that the film changed her as a person, her voice cracks and she seems to become visibly emotional. Hellman identifies as a conservative climate denialist (an admitted Bill O'Reilly follower), as a patriotic American, and as a mother and grandmother. Considering her resolutely positive reaction to the documentary, it is unsurprising that environmental websites touted the interview as a compelling case in point about the power that this documentary specifically, and climate change communication in general, has to effect change in an audience. In this context, the interview becomes an emotionally-rich testimony of how an environmental documentary can change both minds and hearts. When Kanew asks the follow-up question, "And you didn't believe in global warming?", Hellman responds with a pledge to live differently and undo "the damage" that she believes she has caused:

> I did not believe in global warming… Every time someone mentioned global warming to me, I told them if they wanted to remain in my home, they needed to step out. Because I said it was bullshit—I didn't believe it. Excuse my language. And I apologize to anyone I ever talked into believing there was no global warming. I talked every friend, every person I know into believing there is no global warming, and now I have to undo my damage. And I will. It has changed my life. (Kanew)

Many environmental thinkers and activists might agree that Hellman's conversion experience while watching *Chasing Ice* is the ultimate (albeit difficult to reach) goal of climate change communication and messaging. A not-yet-concerned viewer sits through

a 75-minute documentary and emerges eye-opened, guilt-ridden, repentant, and convinced she must change her ways. Lolly Hellman's description of her own transformation suggests not just an increase in awareness, but a full-fledged global warming awakening: A change that includes both her recognition of a problem in the world and her self-identification as someone complicit in, and with a role to play in solving that problem. Lolly Hellman's experience watching *Chasing Ice* is the climate change activist's dream. It is also perhaps the dream of defenders of the humanities, who tout the transformational power of literary and cultural texts.

After various commentators (mostly on right-wing websites) claimed that the interview was a scam, Kanew responded by including on the video's YouTube page his own testimony that the interview was in fact genuine and not staged. However, whether or not the video is true—that is, whether or not Hellman is honestly depicting herself as a former climate change denier who has now "seen the light"—makes no difference, at least for the purposes of my argument. In fact, the chance that the interview could have been faked illustrates even more clearly the appeal of climate change conversion narratives. With its reception and circulation through environmentalist channels on the Internet, the video speaks powerfully to a set of shared assumptions and expectations about what it means for an individual to "come to climate change," that is, to adopt particular attitudes and take particular actions as an environmentally-conscious citizen.

The dominant political, economic, and activist discourses of global climate change in the U.S. turn on a logic of hyper-responsibility in tasking contemporary societies with the creation of self-reflexive carbon-counting individuals. These "climate change subjects," as I refer to them, are aware of themselves as being carbon-emitters and

are aware too that they are expected to assume responsibility for knowing and reducing their own CO_2 emissions: Measure your carbon footprint; then change your light bulbs, the climate change subject's credo might go. Such an approach to imagining the relationship between individual agency and global phenomena suggests that climate change is a problem fixable through individual choices and lifestyle management.

This framing of an environmental problem in terms of individual responsibility is not new. The dominant environmentalist discourses of the twentieth century, both in the global north and the global south, as political ecologist Arun Agrawal's important work documents, have concentrated on the creation of environmentally conscious subjects. Historian Daniel J. Kevles similarly suggests that environmental thought in the era of global climate change has not diverged from prior frameworks, but rather has adapted old approaches to new problems, most notably this focus on the individual citizen or consumer. That is, the dominant environmentalist discourses of the twentieth century have primarily concentrated on the creation of rational and responsible consumer subjects who are bound up in a set of institutional infrastructures that Timothy Luke, drawing on the work of Michel Foucault, terms "environmentality," ("The Politics" 1811). Environmentality refers to how individuals come to care for, act, and conceptualize their activities in relation to "the environment," or particular environmental issues. These are individuals who are guided by particular patterns of thought and action and whose attitudes about climate change are shaped by assumptions about what it means to be a "good" environmental citizen. Through these shared assumptions and structures, climate change is imagined primarily as a problem that needs individual-centered solutions and that such solutions must begin with getting *individuals* to know more and care more, a

framework that Michael Maniates terms “the individualization of responsibility” (33). This framework touts the importance of green consumerism, and, as Timothy Clark aptly notes, “the focus on the individual…reinforces the illusion that reality and power remain a matter of individuals pursuing their rights and opinions” (141). Maniates goes even farther than Clark in his critique, suggesting that the individualization of responsibility is itself responsible for the erosion of the public sphere, “narrowing, in dangerous ways, our 'environmental imagination' and undermining our capacity to react effectively to environmental threats to human well-being" (34).

One of the ways that the individualization of responsibility is limiting our collective environmental imagination is by overemphasizing the importance and efficacy of climate change conversions. Stories of climate change conversions reinforce a confidence in the rational-actor individual who, in the Anthropocene, will find inspiration not from an experience of the divine but from time-lapse videos of melting glaciers, photographs of polar bears, or giant hockey stick graphs. The term “climate change subject” thus also functions as a shorthand for the kind of individual who has experienced textually-mediated and indirect encounters with climate change and who has thus recognized that he or she is living in, and must come to terms with, a profoundly changing world. It is often assumed by environmental activists, policymakers, and academics alike that individuals are converted to being good climate change subjects, and that such conversions can happen through encounters with powerful representations (i.e. literary and cultural texts) of climate change. The shared logic of individual responsibility is thus intimately connected with that of conversion moments.

If approaches to environmental communication and policy have come to turn on the notion of "the climate change subject," then perhaps no single individual has come to stand for such approaches more than Al Gore. Gore's work on climate change has straddled the political, activist, and cultural spheres and has been influential in framing climate change as an issue of individual responsibility. In particular, his 2006 documentary *An Inconvenient Truth* tells the story of, and actively takes part in, the legitimation of the climate change subject as a cultural dominant. The film tells two interlinked stories. The first story is the planetary story of climate change, and it takes the form in the film of an aesthetically glossy TED Talk-like presentation that Gore gave to a live audience. The second story is that of how Gore himself came to learn about, and care about, climate change. The film is thus as much about the citizen-activist Al Gore's own conversion as it is about climate change. As Daniel Shea points out in his discussion of the history of the spiritual conversion narrative, stories of conversion are never strictly autobiographical or individuated. Instead, such stories depict how an individual's experiences follow certain proscribed patterns of feeling and behavior, and as such, these narratives become models for future conversions (xxvii). In charting Gore's journey towards climate enlightenment, a kind of climate bildungsroman marked by a series of conversion moments, such as when he recounts his first epiphanic experiences encountering climate change data, *An Inconvenient Truth* also offers a model for its audience's own development into climate change subjects.

In one of the film's most illustrative and most referenced scenes, Gore presents a giant line graph that charts 650,000 years of atmospheric CO_2 levels and average mean global temperatures. The graph comes at an important moment in the film's narrative

when Gore must demonstrate conclusively the link between CO_2 levels and the earth's surface temperatures, as well as the link between witnessing dramatic representations of climate change and transforming into a climate change subject. When Gore uses a mechanical lift to rise theatrically to the top of this giant graph, the symbolism conveyed to the audience is transparent: Rise up with Gore and experience your own conversion.[12] Once again standing at stage level at the scene's close, Gore makes a final gesture upwards to remind the audience of both the great height of climate data and the heightened position which he himself had just a moment ago occupied and claims that if "we allow *that* to happen, it is deeply unethical," thus explicitly invoking a morally potent discourse of personal responsibility. The film closes with suggestions of individual actions that its viewers can take: "Change your light bulbs," "Walk to work or ride the bus," "Eat less meat." These and other admonitions flash across the screen to serious yet lively background music, Melissa Etheridge's song "I Need to Wake Up," thus yoking together individual responsibility and individual conversion ("I've been asleep and I need to wake up," Etheridge sings).

The assumptions of climate change subjects and the conversion narrative are not just confined to what we might think of as expert-driven texts like the films by Gore and Balog but have come to permeate our collective environmental imagination, our shared climate change "structure of feeling" (R. Williams 12), even becoming a meme on social media platforms. In early December, 2015, in concert with the COP21 Paris climate talks, *Yes! Magazine*, a non-profit alternative print and online publication that covers

[12] The giant screen that Gore uses, which was specially commissioned for the film, measures a whopping seventy feet along the diagonal, twenty-five feet high and sixty-five feet long (Golson). Thus, when Gore projects what the CO_2 line will look like in fifty years and makes his own upward movement on a scissor lift, he reaches a position about thirty feet above the live audience.

topics of sustainability, environmental justice, alternative economics, and peace movements, published a short piece online called "#MyClimateMoment." The author, Liz Pleasant, reflects on her own recent experience with climate change, which had always been for her an abstract, distant issue. For Pleasant, the moment came when reading a *CNN* news article, "Global Temperature Hike Already Halfway to Two Degree Warming Limit," which noted, among other jarring statistics, that seven of the ten warmest months ever recorded in human history occurred in 2015. Pleasant recalls how this report terrified and stuck with her, and she wonders:

> What is it about certain experiences that makes you feel and understand something in a new way? Why do some things—articles, glaciers, conversations, ideas—hit you in a way that changes how you see? How is it that, after years of intellectualizing climate change, unpredictable bouts of clarity make it suddenly deep, urgent, and personal? (Pleasant)

After approaching some of her colleagues at the magazine to see if they ever had similar "conversion moments," Pleasant suggests that these moments, which helped her and her fellow writers confront the seriousness of climate change, also "have the potential to inspire others." She ends the piece by querying her readers: "So, have you ever had a climate moment? Let's share them. #MyClimateMoment" (Pleasant). In the days after the article first appeared, hundreds of Facebook and Twitter users posted about their own experiences using Pleasant's suggested hashtag, #MyClimateMoment. Taken together, these tweets suggest the force and appeal of Pleasant's initial questions. They also represent an evolving archive of climate change conversion moments.

People want to share their climate moments. They want to offer testimonials about their epiphanic moments—how they came to care deeply about climate change and how climate change became real for them. For an individual who has been converted,

sharing a pithy story of that experience demonstrates to others one's own accomplishment of individual growth: from ignorance and perfidy to knowledge and responsibility. A collection of individual climate testimonies then become part of a broader communal story, a shared framework for thinking about conversion. Having a climate change conversion marks an individual as being a member of a particular group: the community of climate change subjects. Given this socializing function of climate change conversions, it is unsurprising that the collection of #MyClimateMoment tweets exhibit specific patterns and cultural scripts. Most notably, a majority of people describe their conversion experiences as encounters with various climate change texts: from documentary films to newspaper articles to graphs and other visual representations of climate data. For example, @sgleason posts, "MyClimateMoment: @algore's An Inconvenient Truth made an impact when I saw it—and, overused or not, the stranded bear made my heart ache," and @BetziHitz writes, "#MyClimateMoment For me it was early on in my second Chasing Ice viewing" (Gleason; Hitz). Other contributors to the hashtag thread attest that their climate moments occurred when they attended lecture events or presentations about climate change. For example, user @MCSearing explains, "MyClimateMoment went to a Crone lecture at SUNY several yrs ago – billmckibben speaker" (Searing). The four most often referenced speakers/writers who engendered climate change moments were Al Gore, James Balog, Bill McKibben, and Naomi Klein, evidence of both the power of charismatic communicators in the climate movement and the social capital that individuals acquire when they cite one of these recognizable names in their conversion story.

In the context of these tweets, I am reminded of my own climate change conversion moment, a story that I shared in the introduction. I am reminded of how I attended Mary Wood's inspiring lecture and seemed suddenly to care about climate change; how I went home that evening and used an online carbon calculator to analyze my monthly contribution to global climate change; and how in the weeks that followed I rode my bike (instead of driving), changed the light bulbs in my apartment to an energy efficient model, and made a personal pledge to stop eating meat. I am reminded of how ever since attending that lecture I have been a committed and self-reflexive climate change subject.

But that story is a fiction, albeit an appealing one. Not only do I still drive my car (and even worse, fly) and sometimes still eat meat, my care and concern for climate change has vacillated. Sometimes I am obsessively hyper-alert, connecting everything I perceive in the world to climate change, but at other times I forget about climate change entirely, or actively ignore it. Then I encounter climate change all over again, whether in a novel, a news story, or a casual conversation, and experience what feels like another powerful conversion moment. I move from concern to fear to guilt to fatigue to apathy and back again. Coming to accept climate change as a daily presence in one's life does not happen through a sudden conversion or one-time event. It is not a sudden seeing of the light on the road to Damascus, however appealing and dramatic such a story might be. In what is an outlier to the dominant themes of the #MyClimateMoment hashtag, one Twitter user in particular aptly comments, "#MyClimateMoment isn't a moment. It's a lifelong buildup of faith in an idea. Truthfully, it's the amalgamation of info and culture" (Scott). Environmental writer Marina Schauffler similarly notes when explaining her

concept of "ecological conversion" that coming to dwell with the realities of environmental crisis is a process that is "both more circuitous and more gradual than we might expect, having come to associate conversion with revival-meeting accounts of sudden and dramatic transformations" (8). Though activists, policymakers, and even writers might want to believe otherwise, #MyClimateMoment is not a complete depiction of how privileged individuals come to experience climate change as part of their lives. Conversion moments cannot fully account for the ongoing negotiations of knowledge, emotion, and habit that characterize being a climate change subject. Lolly Hellman's experience was powerful—there's no denying that—but it most likely wasn't the end of her own climate change story. Or, in other words, learning to live with climate change is a lot more complex than experiencing a single conversion moment or cultivating a carbon-counting, climate-friendly lifestyle might suggest. To explore such complexities, I turn to a set of texts that eschew the singularity of purpose and fervent conversion—i.e. to become an individual who saves the world from climate change—of a text like *An Inconvenient Truth*, and instead playfully imagine what it feels like to dwell with climate change. These are texts that widen the focus from what it means to experience a conversion moment to what it means to live one's life in the context of climate change.

III. Living with Climate Change

Maria Price-Hanson, a student in a climate change literature course, reflects in one of her many droll contributions to our course blog about what it feels like to live in a time of climate change. She explains that it is analogous to living with a bad roommate, perhaps one who we didn't even ask to move in in the first place, but who just shows up.

"Not only is climate change a person, but it is a sloppy, seemingly college-aged dude," Price-Hanson explains:

> Now think about what you would do in this situation if it got way out of hand: tons of parties and never cleaning up and breaking some of your appliances, maybe even your heater. Would you try to get rid of them? Probably, unless you did not have the option or were friends with them. If you did not try to get rid of them, would you live with them again? Definitely not! (Price-Hanson)

Later in her blog post, Price-Hanson suggests that using the roommate metaphor to frame climate change makes the problem more relatable, particularly to young people. She concludes, in a tone that is both humorous and somber: "We cannot wait until the point at which we are forced to make a change, like when your roommate burns down your apartment complex because they can not figure out the stove or something. We have to act before things get too bad" (Price-Hanson).

I want to take up Price-Hanson's insightful, and potentially useful, extended metaphor and ask: What if we really did imagine climate change as a messy and inconsiderate roommate, always interrupting our plans and provoking our ugly feelings? And what if it were, as Price-Hanson suggests, also our friend, and as such we didn't have the option to evict it? What if we instead welcomed climate change as a part of our lives? What if we cooked it dinner, let it use all the hot water, or wrote it a thoughtful letter expounding our friendship (not a passive-aggressive note taped to the fridge)?

Such questions are meant, like Price-Hanson's blog post, to be both playful and serious. They are questions meant for life in the Anthropocene, for learning, individually and collectively, how to survive and thrive with climate change. In posing such questions I draw on Elizabeth Bragg's work in the field of ecopsychology, and particularly her suggestions that we approach climate change as an ally, as a friend who could help us

create a world that is more sustainable and just (Bragg 231). This would not mean merely accepting the devastating and uneven impacts of climate change, nor would it mean giving up on mitigation efforts. We would continue to act with urgency in response to such challenges and injustices. However, learning how to live with climate change would mean imagining new modes of being and new modes of conceptualizing individual responsibility. That is, it would require new and more imaginative models for understanding how individuals can, and should, act in response to climate change—ones that don't emphasize riding a bike, eating less meat, calculating one's carbon footprint, or signing petitions (important though those behaviors are). In search of such models we might turn to a diverse group of activist, philosophical, and cultural texts that attempt to imagine otherwise our relationship with climate change.

In his 2012 book, *Mobilizing the Green Imagination*, activist and environmental educator Anthony Weston advocates for a kind of thinking about climate change that is imaginative and exuberant, and that emphasizes working *with* its problems rather than against them. For example, instead of building higher flood walls and heavier dikes to respond to sea level rise, Weston wonders, why not invent new modes of living that cooperate with surging waters (73-4)? Or, instead of installing more powerful air conditioning systems to deal with heat waves, why not implement modes of neighborhood design and construction that draw on biomimicry—like office buildings modeled after self-cooling termite mounds (72)? These examples are illustrative of a broader approach that Weston calls "adaptation with sass" (63). He dreams of a world "that embraces the changing elements—the waters, the winds, the rains—that are currently framed as threats," and he urges his readers to "receive, celebrate, *welcome* the

elemental forces even as they rise" (75). Weston does not support abandoning mitigation efforts, and elsewhere in his argument he outlines the steps necessary for challening the extractive, consumerist economy premised on infinite growth. But rather than dwell in negative arguments about what we need *not* to do, Weston advocates for an approach to addressing climate change that puts its faith in the combination of human creativity and human humility: that is, a simultaneous recognition of both human agency and the agency of other more-than-human beings and systems. Weston's arguments about specific adaptation strategies are thus part of his larger vision of individual and collective transformation in the Anthropocene. In this context, Weston invites his readers to embrace climate change with "deft, elegant, and loving adaptation" and suggests that our global social and environmental crises require not a hardening of divisions between the human and the more-than-human worlds but rather a breaking down of barriers (25). Offering suggestions both metaphoric and literal, he asks us, for example, to remove screens, doors, and windows from our homes so as to welcome an array of sights, sounds, and smells from the world. Underlying these suggestions is a profound approach to thinking about the kinds of *emotional* and *attitudinal* changes necessary in a time of climate chaos.

> A heart in such a world would not have to be heavy. How spectacular, what an unexpected and unaccountable joy, that we live within the matrix of enormous, timeless, incomprehensible forces, awesome wheels turning right here and now! Our job in the end is not to bemoan or blame or even resist all of this, but to embrace climate change—with all our skill and creativity and also, surely, all our hearts. (79)

Framing his arguments in an inspirational tone that borders on the sublime, Weston eschews both sadness and guilt. Instead, he suggests that climate change can be an

occasion to break down walls (literal and metaphoric), to receive the world, and perhaps even to find joy when we do so.

As a critical humanist dubious of techno-optimistic climate change discourse (especially claims for complex adaptation or geoengineering schemes), I experience something of a judgmental knee-jerk reaction in response to Weston's faith in human ingenuity and creativity, particularly in how such faith seems to gloss over questions of privilege and difference. Weston does not unpack who he means by "we," and thus he does not acknowledge how his charge to "welcome climate change" might look differently to the most vulnerable or marginalized communities. For example, when he exhorts that New Orleans could be rebuilt in such a way as to embrace the city's "watery future" with entire neighborhoods engineered to rise up and float when the floodwaters arrive, he doesn't seem aware of the racial injustices of uneven resource allocation and infrastructure maintenance (26). His claims do not fully address the interlocking systems of social and environmental injustice that have exacerbated the impacts of climate change and will likely continue to ensure that such imaginative adaptation efforts will likely benefit first (and maybe only) those individuals and communities in society who can afford them, whether because of class, race, gender, or other dimensions of social privilege. I find it challenging to get past such elisions. In particular, Weston's argument for breaking down the barriers and embracing climate change seem somewhat disingenuous when one considers that much of the world's population *already* lives without screens, doors, and windows (or even without a stable home, or any home at all).

However, even while recognizing these social and environmental justice blind spots, I also must admit that Weston's creative arguments, as well as his lively, at times

boisterous prose, are a welcome respite from the usual conversations about climate change, which environmental journalist Carrie Saxifrage evocatively describes as "a relentless combination of terrifying data and the lack of political will to address it, with some small bright spots along the way" (136). As with the overall tone of his book, Weston's specific suggestions offer a refreshing alternative to the discourses of individual responsibility, which task us to become better, more conscientious, climate change subjects. Similarly, not content to imagine the future as either an apocalypse or a recovery of some pre-climate change, prelapsarian past, Weston's vision is one of messy interconnections and emergent socialities where human and nonhuman actors interact in unforeseen and unpredictable ways. More than a feel-good or bright-green alternative unconcerned with questions of justice, Weston's claims, when considered in the context of new materialist philosophy, particularly the work of feminist philosopher Nancy Tuana, point towards a radical ontology for living in a time of climate change, one that doesn't disregard but rather centers questions of ethics and dwelling together.

In her essay, "Being Affected by Climate Change: The Anthropocene and the Body of Ethics," Tuana proposes a framework for thinking about agency, responsibility, and vulnerability in a time of climate change and argues for a different mode of ethics, or what she calls a new moral imagination, based on a recognition of the interconnection of all beings, places, and biophysical systems. She explains that "the Anthropocene has the potential to usher in an onto-ethical transformation in which an appreciation of the nature and extent of human impacts on global environmental processes can be the catalyst for a radical transformation—a shift of habits, affective dispositions, and ways of conceiving—of the magnitude required to live differently" (3). In other words, Tuana

notes that fully accepting, and even embracing, the realities of our contemporary age can lead to new ways of thinking, feeling, and acting. Building on her own earlier conception of "viscous porosity," as well as other work in the field of new materialism, Tuana argues for a shift away from traditional conceptions of being in the world to what she calls "relational ontology," the idea that beings and environments are co-constituted (2). In coming to terms with our co-dependence on human and nonhuman, past and present others, we are necessarily confronted, Tuana suggests, with our own corporeal vulnerability (11).

This focus on corporeal vulnerability is at the heart of Tuana's approach to ethics in the Anthropocene, an approach that is radically unlike prescriptive frameworks for right behavior. Given the openness and uncertainty of living in the Anthropocene, Tuana argues, we cannot rely on an "apply normative rule then act" approach to responsibility. Rather, corporeal vulnerability "serves not as a prescription for action—follow this rule now—but a wellspring for ethical habits and a passion for the good. We learn to become intimate with the world through mutual indwelling" (Tuana 15). In this framework, vulnerability functions not as the premise of a singular behavioral code but as a fount for a variety of affects, attitudes, and habits. Applying Tuana's framework then to climate change, the ethical provocation of our time would be "to learn to live in ways that acknowledge this openness and interrelationality, and to enhance well-being while appreciating that it, well-being, is an always emerging state of being, informed by historical contexts, biological interconnections, social institutions, ecological dynamics, interests, and aims" (16-17). This provocation to learn differently is necessarily grounded in both human history and a more-than-human web of interactions. Tuana's

final ethical suggestion is an educational one in the sense that rather than following strictures and acting correctly (e.g., following the implicit rules of being a good climate change subject) we must—and here Tuana echoes the work of Bruno Latour— "learn to be affected":

> We must *learn* to be affected by uncertainty and develop ways of knowing and living attuned to it. We must *learn* to be moved by, animated by, attuned to the threads of inextricable interconnections between consumption practices and ice sheets, between agricultural practices and species flourishing, between ocean currents and energy choices, between the way we live with the earth and the earth's becoming. (Tuana 21, emphasis added).

Tuana calls for individuals to develop affective and epistemic habits of living with uncertainty, vulnerability, and radical interconnection on multiple scalar levels. Earlier in this project I cited Gillen D'Arcy Wood in referring to the conceptual side of this "living with" as the "teleconnected imagination." Here, Tuana is offering the ethical and ontological complement to Wood's framework. Yet Tuana leaves unacknowledged the fact that such habits might be difficult to learn, especially in a culture that emphasizes conversion, right behavior, and individual responsibility. That is, given that her essay is more provocative than prescriptive, Tuana leaves unanswered the important questions of *how*: How are we going to develop such habits? How are we going to learn to be affected? To answer such questions, at least provisionally, I turn from Tuana's philosophy to a recent work of emergent transmedia climate change culture that incites (and excites) audiences to imagine capaciously their own connections to the climate, that is, their co-dependence with a multiplicity of human and nonhuman beings and systems.

The *Dear Climate* project, comprised of a collection of agitprop posters and reflective audio experiences, functions as a kind of cultural apparatus for learning to be affected in the Anthropocene. It is emblematic of various emergent forms of culture that

attempt to explore the personal dimensions of climate change while also challenging audiences to contemplate both the possibilities and limits of individual agency. Though educational, *Dear Climate* is not narrowly didactic. It teaches through paradox and playfulness, subtly modeling a set of attitudes and advancing an ethical framework based on porosity and interconnection. Specifically, the project does this by encouraging its audience to meet, befriend, and become climate change. In other words, *Dear Climate* hopes to foster the kind of exuberant embracing of climate change as called for by Weston, and likewise provokes its audience into associative and meditative thinking that is radically different from dominant ways of engaging with climate change. Framed as a "training program," *Dear Climate* thus helps its audience/users practice a profoundly different ontology and ethic for the Anthropocene by inviting individuals into what Tuana terms "the space of the ethical" (Tuana 4). Rather than framing it as a problem to be "solved away," *Dear Climate* imagines the climate as a site of emerging connections, affects, and socialities. Within this imaginary, climate change becomes a provocation for meditating on the interrelational and co-dependent ethics that bind together human and nonhuman agents.

Created by a team of environmental humanities scholars and practitioners at New York University—Marina Zurkow, Una Chaudhuri, Oliver Kellhammer, and Fritz Erl—*Dear Climate* attempts to reach and appeal to a wide audience. All of the materials are freely accessible online through the project's website and on various social media platforms, and also occasionally as part of installation exhibits at art galleries, science museums, and universities (the project itself debuted at the Dumbo Arts Festival in Brooklyn, NY in the fall of 2014). The creators explain that "the work is designed to flex

its nimble agitation/meditation muscles in a variety of urban and urbane formats" (Zurkow et al. 439). Meant to inspire both critical (agitative) and contemplative (meditative) thinking that differs from the usual climate change discourses, these visual and audio experiences offer audiences opportunities to recognize the relationships between their inner emotional landscapes and the shifting ecological and social landscapes of climate change.

As the project creators have suggested, "Taking up the challenge of the new weather means we have to understand our human selves in ways that go beyond biography, even beyond history" (*Dear Climate*). While much climate change discourse emphasizes the dimensions of climate change that affect, and are affected by, the individual, often relying on conversion narratives to tell the story of the privileged individual's connection to climate change, *Dear Climate* conceptualizes the personal in more capacious—and, frankly, more interesting—terms by going "beyond biography" to explore what it means to be human in a time of climate change. One of the taglines on the project's website instructs us to "retool [our] inner climate," and in the artist statement for the piece, the creators explain how they were motivated in part by a desire to bring a more spacious sense of "the personal" into climate politics:

> Instead of imagining mass movements or calling for community action, we were interested in finding a more personal relationship to climate change. Remembering the Sixties slogan, 'the personal is political,' we wondered if the politics of climate change had evaded the personal for too long. (Zurkow et al. 439)

Though touting the importance of engaging with the personal, the creators also keenly recognize that the environmental movement has, to its detriment, long emphasized personal responsibility: "the injunctions to practice simplicity, recycle paper and plastic,

avoid waste, and reduce consumption" (Zurkow et al. 440). Thus, they make sure to distinguish *Dear Climate's* focus on the personal from this tradition of the individualization of responsibility, asking, "But what about deeper realms of the personal, like pleasure, fantasy, fear, desire, sensation, vision, imagination?" (Zurkow et al. 440). These "deeper realms" of the personal, the embodied emotions not often associated with climate change and its abstracted representations, are crucial for *Dear Climate,* as the project emphasizes the individual and the personal, but does so in a different way than more mainstream environmental discourses or popular texts. Even those emotions that are often associated with climate change, such as fear, are, as I describe below, differently imagined by *Dear Climate*.

Dear Climate playfully surprises with new modes of making climate change personal. For example, in the audio track titled "Herb," we are guided through a meditative experience in which a narrator, whose voice is soothing, even hypnotic, asks us to imagine taking all of our personal photographs (of every memory we might have), piling them on the outside windshield of a car, and watching as the rain liquefies them into pulpy substrate. Then, the narrator directs, watch as a seed takes root in that substrate and sprouts a tiny herb flower. On first listen, this audio track might not seem to have anything to do with climate change. However, the ambient weather sounds establish an ominous atmosphere, and we are told that the car is abandoned, the road is abandoned, and both are near "our shelter." Are we in some kind of post-disaster landscape or in the midst of an extreme weather event? Is our shelter a permanent home, or are we in the process of migrating somewhere? Perhaps we need to make preparations for extreme weather events, as we are later told that we should expect "days and days and

days of rain." Yet despite the portentous tone, *Dear Climate* nimbly avoids the hallmarks of apocalyptic discourse, for example opting to welcome the nonhuman world, rather than struggle against it. It would be as if the Hollywood blockbuster *The Day After Tomorrow* ended with the characters not solemnly trekking across an icy apocalyptic landscape but rather with them making snow angels or feeling snowflakes melt on their tongues. "Feel the humidity embrace you," the *Dear Climate* narrator suggests, then asks us to get to know the tiny herb, to dwell with it:

> What about this herb makes you smile? What makes you want to have the herb in for dinner, or tea? See in herb's face the face of your loved ones. See in herb's face the strength to face your mother's death… See in herb's face how herb is inviting you in, inviting you over. (*Dear Climate*)

This incantatory audio track, and the project as a whole, asks its audience to contemplate the connections between the self and the more than human world and the ways in which such connections make the self vulnerable. *Dear Climate* draws attention to the fact that any boundaries that might exist between humans and nonhumans, nature and culture, self and climate, are permeable, and that such porosity can be both terrifying and enlivening. It is humbling to imagine all of one's photographs dissolve into a mass of moldy organisms, as if one's own self was dissolving with them. To be humbled is to be brought low, from the Latin *humilus*, which is also the root of *humus*, the soil, the place where we go to decompose, but also where life begins, where connections are formed. To be humbled is nourishing, but also discomfiting, melancholic, self-defeating. *Dear Climate* advocates for a humility that requires recognizing and re-narrating our place within the vast climatological and biological history that produced us.

In pushing beyond traditional conceptions of the personal, the project opens space for considering, or even feeling, the presence of nonhuman others, including the climate

itself. Navigate to the project homepage, and you will be greeted by a letter addressed to the climate. "Dear Climate, We Know: we blew it," the note begins, in a tone that seems both guilty and drolly self-aware: "We got distracted, as usual. By ourselves, as usual. We're sorry" (*Dear Climate*). The "we" of the letter refers not just to the project's creators (who incidentally sign the letter) but also to all of humanity, invoking a kind of Anthropocene species agency: "We never really thought about you. We thought about (and we loved to complain about) The Weather. But now, because of all the sphere-abuse that's gone on, we've become super aware of you, The Climate" (*Dear Climate*). At first, it might seem odd to think about the climate itself as an entity that deserves our emotional attention, even our apologies.

As the project's opening epistolary salvo reminds us, we often personify "The Weather," but rarely in our conversations about climate change do we address/feel for/apologize to/personify the climate itself. Perform a Google search for the phrase "dear climate," and you might discover politically- or ideologically-charged sites that announce, "Dear climate change deniers," "Dear climate change alarmists," or "Dear climate change scientists." *Dear Climate* is the only text or occasion I have encountered that addresses the climate itself. Why is that? Is the climate too abstract? Too complex? It certainly is not something that we encounter as such in our everyday experiential lives. Is it too distant and dispersed across time and space to warrant such specific personification? Or is there something deeper and potentially emotionally risky about addressing, and thus having to acknowledge, the climate as an entity or process (having its own entitlement to beingness) demanding of our attention?

One might dismiss the letter, and thus the premise of the project as a whole, as a gimmicky, or worse, insidious, instance of the pathetic fallacy. As ecocritic John Tallmadge has explained, personification of this sort does not always equate with perceiving the nonhuman world as more than an object and can instead serve to reinscribe the sovereignty of human agency and the invisibility of other material or nonhuman agencies. That is, personification does not necessarily lead to acknowledging fully the presence and agency of the more-than-human world, and can instead lapse into anthropocentric hubris (Tallmadge 353-4). Yet *Dear Climate's* imaginative invocation of the climate's agency and even personhood—as a being to which we might address a letter, or an apology—is more radical than mere personification. It seems to suggest an underlying ethical attitude based on an acknowledgment of the climate as an assemblage of agents that deserve our attention, and, ultimately, our care. As Lawrence Buell argues in *The Environmental Imagination*, "The promise of the image of nature's personhood lies in the extent to which it mobilizes what feminist ecological thinkers have come to call an ethics of care. At its best, the ethics of care promises to quicken the sense of caring for nature and to help humans compensate for the legacy of mind-nature dualism while at the same time respecting nature's otherness" (Buell, *Environmental Imagination* 218). The climate system is not the same thing as "nature," and it doesn't have the same long history of personifying nature, with all the attendant baggage that comes with that term. Yet Buell's point about the personification of nature is nonetheless instructive as a model for thinking about what kinds of ethical roles and attitudes the *Dear Climate* project performs. Personifying the climate is imaginatively compelling when it inculcates an ethical stance based not in a rational accounting of good and bad but rather

in a kind of empathy; the individual welcomes the other (in this case, the climate) into the self, perhaps even allows the other to become the self and the self to become the other. While Buell points out that the rhetoric of nature's personhood does not always induce these results, no more than any other system, and that such tropes might "deflected back into narcissism instead," he nevertheless wouldn't have us give up the pathetic fallacy (were such a thing possible), since banning it would be worse than permitting its unavoidable excesses (*Environmental Imagination* 218). Indeed, as Buell notes, without the trope of "nature's personhood," environmental care might not find its voice. Similarly, the climate cannot function as a mere receptacle for our ideologies and technological fantasies if it is an agent deserving of our attention and even care.

By using personification in this context, *Dear Climate* does more than tell its audience to care *about* climate change. Rather, it asks its audience to consider what it would mean to care *for* the climate. That is, *Dear Climate* differs from mainstream discourses of climate change ethics by avoiding any prescriptive claims altogether: care more, do more, change your light bulbs. *Dear Climate* offers the kind of onto-epistemic habits of living called for by Tuana by "using a tone, aesthetic and vocabulary that's the opposite of the prevailing ones" and aiming to animate "the familiar and ordinary" (Zurkow et al. 440). Instead of conversion, heroism, or desperation, the creators explain, the project is meant to foster playfulness, friendliness, and intimacy. In this context, the various components of the project function as tools to guide the audience/users through three "movements of mind: *Meeting Climate Change, Befriending Climate Change,* and *Becoming Climate Change*" (Zurkow et al. 441). These movements refer to how users interact with the project over time and to how they experience their own significant,

internal transformations. It is instructive here to quote the creators' full description of these three movements:

> When you make acquaintance with something, you invite it into your mental world. Then it's only a matter of time before you get to know it better. The imagination gets seriously involved now, the conversation deepens, the plot thickens. Being hospitable—truly hospitable—involves opening oneself to the unknown, and the gifts of the guest can change the host profoundly. Becoming follows. Becoming disturbs the existing set-up, crosses 'clear' boundaries, confuses convenient categories. Becoming is about mixing, spilling, leaking, seeping, suffusing, pervading. It's about sleeping around, telling strange tales, making nonsense: it's about weathering the weather, claiming the climate, taking the temperature of our times. (*Dear Climate*)

Encountering with the climate is simultaneously an encounter with ourselves and an encounter with otherness. What happens, the creators wonder, when we welcome climate change into our mental and emotional homes? How do we get to know climate change better? How do we set a place for it at the table? How do we have a conversation? Will it offer us gifts, and if so, will we accept them? Exuberantly invoking dialogue, the imagination, and narrative in one rhetorical sweep, the creators then suggest a framework for developing an ethical relationship between self and the climate, one at first predicated on the relationship of host and guest and then becoming a more radical melding of self and other. The description ends with a vision of the self both literally and metaphorically becoming the climate. Such a porous vision is both terrifyingly uncomfortable (as the litany of mixing words seems to suggest—something that spills, seeps, pervades, etc.) and unconventionally playful (as the passage's reference to nonsense and its final alliterative phrasings evoke). Claiming we are the climate is different from claiming that we are *responsible* for climate change, insofar as such assertions usually engender guilt. It's not that we are responsible for something outside of ourselves; rather, we are

inescapably enmeshed in a world that is both larger and more intimate than we could imagine. By the end of the third movement, we are the climate and the climate is us.

Dear Climate thus models a profoundly different ontology and ethic for the Anthropocene. Rather than being seen as a problem to be "solved away," the climate itself is imagined as a site of connections, possibilities, and emerging socialities. Within such an imaginary, "climate change" becomes a provocation for meditating on the interrelational and intercorporeal ethics that bind together human and nonhuman beings. It demands that we engage in a kind of thinking that is more open, and thus potentially riskier. *Dear Climate* enacts this riskiness in its very form, by asking its audience to acknowledge vulnerability and engage in a difficult kind of contemplative practice.

IV. The Contemplative Classroom

When I present at conferences or otherwise talk about my work teaching climate change, educators often approach me with similar questions: What strategies and classroom practices do you employ so that students understand climate change as an issue meaningful to their own lives? How do you get students, especially those who are not particularly drawn to environmental issues and even those who are skeptical of anthropogenic climate change, to understand and feel climate change as a deep, urgent, and personal issue? Or more bluntly, how do you get your students to care about climate change? These questions take many forms, but after hearing them (and repeatedly asking them of myself too), I have come to wonder what it is we are really hoping for. Are we talking about how to facilitate our students' climate change conversions? Do we want them to become good climate change subjects? In their provocative 2011 book, *The*

Failure of Environmental Education, Charles Saylan and Daniel Blumstein argue that environmental education in the U.S. has so far failed disastrously because it hasn't brought about "the changes in attitude and behavior necessary to stave off the detrimental effects of climate change" (1). While there is much to like about Saylan and Blumstein's argument, particularly their clarion call to reinvigorate environmental education at all levels, from primary schools to universities, they never move past the idea that the ultimate goal of such education is to create better, more committed environmental subjects. They even emphasize that "one way for teachers to effect grassroots change is to teach students how to vote with their dollars" (Saylan and Blumstein 180). It is not surprising that within this framework, these authors' estimation of literary studies, and the humanities more broadly, is at best indifferent and at worst condescending. As I suggested in the introduction, as an environmental humanist and climate change educator I am less interested in ensuring that students have all the facts (though again, a certain baseline of climate science literacy is important) or that students come to care about climate change (in the sense of becoming good climate change subjects), than I am in helping students learn to live *with* climate change, and to care *for* themselves and others in the Anthropocene.

Though I have not yet included *Dear Climate* as a text in one of my courses, I speculate that it could be a useful tool in this context, helping students both connect personally with climate change and practice the skills of living with. Specifically, because the project opens space for contemplative thinking, it can afford students and teachers alike occasions to build internal resilience and strengthen their relationships with the human and nonhuman world. For example, the posters, which wittily reference

natural and cultural phenomena from Tibetan sky burials to nineteen-sixties popular culture to biodiversity, can be used as conversation starters and occasions for open-ended thinking in the classroom, particularly those that seem to address climate change obliquely or through koan-like paradoxes. These "agit-prop" posters are unlike the environmental propaganda that is often characterized by scare tactics or moral superiority. Though the posters appear to present simplistic allegorical or political messages, upon further meditation those messages cleave into multiple meanings and emotional registers. What does it mean to "woo the wetlands"? Does "stay close to home" advocate for a kind of rooted localism or for finding a home wherever you might be? Does it suggest fixity or mobility? And how many tsunamis *does* it take to change a light bulb (*Dear Climate*)? Similarly, the podcasts can function to incite discussion, or they can be used as actual guided meditations in the classroom. Taking as a model the project as a whole, teachers can even ask students to compose their own letters to the climate. Though practices in contemplative teaching and learning vary greatly, from direct meditation to walking exercises to storytelling, they all have the potential, as Daniel Barbezat and Mirabai Bush explain, "to integrate students' own rich experience into their learning… When students engage in these introspective exercises, they discover their internal relationship to the material in their courses" (Barbezat and Bush 5). Fostering an internal relationship is particularly important in the context of teaching abstract and seemingly impersonal topics like climate change.

In his chapter on teaching deconstruction in a time of climate change and planetary ecological crisis, ecocritic Timothy Morton draws a parallel between the critical work we do as literary scholars and the practices of meditation. Both, he claims, derive

from a similar mode of reflection, which is itself a form of ecological action, not, as certain environmental activists might claim, a form of deferment, avoidance, or worse, navel gazing.[13] Morton argues that in practicing meditation, one can "avoid the greener-than-thou and you sidestep having to produce yet another reason why to care. You just teach how to care, directly. What to care about simply begins to arise spontaneously" ("Practicing Deconstruction" 160). Or in other words, when engaging in meditative practice one escapes the trap of having to find more, new, or better, reasons to care about issues like climate change, ocean acidification, or species extinction. Instead, one simply (or perhaps not so simply) practices—care directed inward towards the self and outward towards the world. The *Dear Climate* project is a rare example of a climate change text that doesn't explain what caring is or preach its importance but rather has the explicit goal of getting its audience to actually practice caring.

In addition to its potential for teaching and learning climate change, and providing students with the skills needed for grappling with the psychological and emotional impacts of ecological crisis, contemplative practice, particularly meditation, can also be useful in teaching students how to use the tools of literary study. "Experiential contemplative practices are marvelous ways to begin to teach close reading of literary texts or other kinds of art," Morton explains. "They force you to slow down... [they are] an environmentally sensitive way of reading" ("Practicing Deconstruction" 163). Incorporating contemplative practice into the classroom can be a way to teach slow, close, mindful reading skills. But again, more than just a strategy for teaching skills,

[13] In their 2007 graphic novel, *As the World Burns: 50 Things You Can Do to Stay in Denial,* Derek Jensen and Stephanie McMillan include a humorous but ultimately misguided indictment of Buddhism, mocking a character who simply chooses to meditate while the world is destroyed around him, thinking that his contemplation is bringing good into the world.

contemplative practice opens space for students to encounter anew something as complex, vast, and seemingly disempowering as climate change. As Morton points out, when you meditate, contemplate, or reflect, "you develop some kind of courage to be welcoming to strangeness… [and] welcoming strangeness is the essence of 'close reading,' the careful analysis of cultural artifacts" ("Practicing Deconstruction" 164). *Dear Climate* welcomes students into the strangeness and otherness of the world, ultimately helping them recognize their vulnerability and learn to live with climate change. It also welcomes us into its own strangeness as a cultural artifact, as a radical mode of collaborative cultural production and dissemination befitting the Anthropocene.

In its publicness, the project pushes beyond the realm of individual emotion into the creation of shared structures of feeling. For one, the project is not only meant for private consumption. The creators suggest that *Dear Climate* "might find its way into an alleyway or a gallery, as a graffiti-walled midnight wheat-paste operation, or as a mysterious alien listening pod floating in a city park pond" (Zurkow et al. 439). That is, they expect, and hope, that the posters will be reproduced and dispersed across many public spaces. They similarly recommend that the podcasts are not just for people to listen privately on their iPhones or through headphones, but rather they can be integrated into social practices. They explain: "The podcasts may be used for group meditations at weddings, picnics, concerts, sports events, raves and retreats" (Zurkow et al. 439). *Dear Climate* thus aims not only to create the shared sense that we are part of a community (or communities) of climate change affect but to actually bring those communities together. It's not that we're going to "solve" climate change together (this may or may not happen), but rather that we're going to "feel" climate change together, or that we *already*

are feeling climate change together. In the next chapter I take up further questions having to do with affect, vulnerability, and the personal, pivoting from the transmedia form of *Dear Climate* to a traditional literary form: the memoir.

CHAPTER 2

ON THE PSYCHOLOGICAL FRONTLINES WITH THE CLIMATE CHANGE MEMOIR

"That was the crux of our problem: biographical times gets overwhelmed by geological time. But even biographical time seems overwhelming."
Carrie Saxifrage, *The Big Swim*

"Not to make loss beautiful,
but to make loss the place
where beauty starts. Where
the heart understands
for the first time
the nature of its journey"
Gregory Orr, "Not to Make Loss Beautiful"

"And so we fight. Sure we screw in the new light bulb, but mostly we screw up our courage. Screw up our courage to well and truly love. That's what this book is about, I think; I hope you read it in the spirit of openness it deserves, making yourself vulnerable to both hurt and joy."
Bill McKibben, foreword to *While Glaciers Slept*

I. Introducing the Climate Change Memoir

That the more-than-human world and the human self are inextricably linked is a foundational trope in environmental literature, as well as a key interpretive frame in the scholarly field of ecocriticism. In his ecocritical essay, "Landscape and Narrative," nature writer Barry Lopez characterizes the connections between "the external landscape" and the "interior landscape," the latter being a "kind of projection within a person of a

part of the exterior" (Lopez 62). For Lopez, one mode for exploring these connections is storytelling, a practice that can illuminate how the two landscapes are linked and even co-constitutive. Such stories have long been at the heart of what Lawrence Buell famously termed the "environmental imagination," a mode of imaging the more-than-human world and humanity's relationship to it that doesn't make one subservient to the other (Buell, *Environmental Imagination* 2). From canonical nature writing texts like Thoreau's *Walden* and Annie Dillard's *Pilgrim at Tinker Creek* to more contemporary environmental justice literature such as work by Sandra Steingraber and Linda Hogan, and from classic ecocritical essays by SueEllen Campbell and Scott Slovic to more recent scholarly explorations in the environmental humanities, creative and critical texts alike have delved into the connections between inner and outer, self and place, emotional and ecological.[14]

The field of environmental education has also long emphasized the inextricability of the landscape and the self, and I have drawn on the assumption in my own teaching in the field of environmental literature. I often ask students to reflect on how the external landscapes that they move through on a daily basis shape their internal landscapes—their emotions and identities. To provide students with space for this kind of reflection, I assign place-based journaling or other reflective activities as well as set aside time during class for intimate discussions of self and place. One of my students explained, in

[14] See especially Sandra Steingraber's *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment*; Linda Hogan's 2002 memoir, *The Woman Who Watches Over the World: A Native Memoir*; SueEllen Campbell's essay "The Land and Language of Desire: Where Deep Ecology and Post-Structuralism Meet" included in the 1996 landmark collection *The Ecocriticism Reader*; and Scott Slovic's 2008 collection of hybrid personal and critical essays, *Going Away to Think: Engagement, Retreat, and Ecocritical Responsibility* (cited earlier in this dissertation's discussion of narrative scholarship). More recently, journals like *The Environmental Humanities*, *Resilience: A Journal of the Environmental Humanities*, as well as *ISLE: Interdisciplinary Studies in Literature and Environment* have continued in the publishing of cutting-edge scholarship that blends critical analysis, personal reflection, and an acute awareness of place/landscape.

response to a reflective assignment in an Environmental Writing course that I taught, "In my field journal, I tried to include both the physical manifestations of nature as well as the emotional perspective through which I perceived things" (Papuga 15). Environmental educator Mitchell Thomashow identifies the process alluded to by this student as that of developing one's "ecological identity"—that is, a sense of one's self as imbricated with the more-than-human world and a visceral, emotional engagement with that world (*Ecological Identity* xv). For students, especially those new to such thinking, exploring their ecological identities is a key step in fostering environmental literacy.

But what happens to the relationship between interior and exterior in a time of climate change? How does our understanding of personhood change in the Anthropocene? As greenhouse-gas emissions increase, as carbon sinks are further degraded or destroyed, and as average global temperatures continue to rise, the impacts of climate change increasingly touch every aspect of both ecological systems and human life—from what and how much we eat, to where we live and how we die, to our basic economic, political and social stability. Climate change is affecting some of the most striking landscapes around the world, what we might call the charismatic topographies of melting glaciers and bleached coral reefs. Many writers, scientists, and engaged citizens are also beginning to witness the ways in which climate change is affecting the landscapes more often taken for granted or ignored, such Cornelia Mutel's recent exploration of the impacts of climate change on her local Iowan woodlands or the web-based *iSeeChange* project, which asks users to contribute observations about how climate change is affecting their home places (Drapkin). But less often acknowledged is how climate change is impacting our emotional landscapes, those "unsettled landscapes of

ecological and emotional changes," as Thomashow puts it (*Ecological Identity* 13). David Collings suggests that climate change "represents a stunning change in the climate of all human emotion" (12). Such psychological impacts are especially devastating for those individuals who are facing the brunt of the physical impacts (Willox; World Health Organization; Morrissey). But even those who may be thus far insulated from the most drastic material impacts of climate change—because they are privileged or because their homes or communities have not yet been touched in strikingly noticeable ways—are nonetheless already feeling its emotional and psychological effects (its *affects*).[15] As Matthew Schneider-Mayerson has argued, we are all located on "the psychological frontlines of climate change" whether we acknowledge it or not (Schneider-Mayerson). A recent government report on the impacts of climate change on human health in the United States includes an entire section on mental health and well-being:

> Mental health consequences of climate change range from minimal stress and distress symptoms to clinical disorders, such as anxiety, depression, post-traumatic stress, and suicidality. Other consequences include effects on the everyday life, perceptions, and experiences of individuals and communities attempting to understand and respond appropriately to climate change and its implications. (United States Global Change, *The Impacts*)

As the report outlines, our mental health and emotional well-being, as individuals and as communities, is everywhere being shaped by climate change in ways both dramatic and, at times, invisible.

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[15] In 2008, the American Psychological Association established a task force on the interface between psychology and global climate change and in 2010, released the report, "Psychology and Global Climate Change: Addressing a Multifaceted Phenomenon and Set of Challenges." The report offers recommendations for how practitioners can/should work with patients who are dealing with the psychosocial impacts of climate change. Similarly, a 2012 report released by the National Wildlife Federation's Climate Education Program predicts a steep rise in social and mental disorders resulting from climate change-related events, estimating that "200 million Americans will be exposed to serious psychological distress from climate related events and incidents" and that the nation's therapists, counselors, and trauma specialists currently are ill-equipped to respond to this social-psychological challenge (Coyle and Van Susteren v).

This chapter ventures vicariously onto these psychological frontlines by examining literary texts that offer vivid depictions of how climate change is impacting emotional landscapes, both individually and collectively. Climate change is inciting new forms of personal writing, and a new interest in the memoir as a possible form for engaging with a set of ecological-social crises we might refer to as an Anthropocene world. Climate change memoirs, as I refer to them, incorporate a personal dimension into what is often framed as an overwhelmingly abstract and complex issue. They humanize climate change, intertwining it with the writers' life stories, depicting how climate change impacts these writers' day-to-day lives and also how it interweaves with other challenging life events such as personal illness, caring for family, and the loss of loved ones. In fact, these are texts that find it impossible to separate the representation of selves from the representation of climate change.

Given the extent to which the canon of environmental literature has historically incorporated the forms and strategies of life writing, the emergence and proliferation of what I'm calling "climate change memoirs" is unsurprising. Though signaling a new genre, these climate change memoirs can thus nevertheless be situated in a long tradition of works that blend autobiography with nature writing, a tradition that Cecilia Konchar Farr has designated as the "American ecobiography" (94), and that Nathan Straight refers to as the flowering of "natural biography" in contemporary American life writing (3). These are works that aim to, as Brook Libby puts it, "write about the natural world and about oneself simultaneously, to look mutually outward and inward," to explain the inner landscape of the writer's psyche and the relationships between that landscape and the changing landscapes of a home place (252). In addition to representing their authors'

unsettled inner landscapes, climate change memoirs also aim to help their readers grapple with the psychological impacts of climate change. Climate change memoirs thus have the potential to perform a particular kind of work in the world, fashioning new kinds of selves and identities that are coming into being in a time of climate change.

According to Jerome Bruner, whose work on the connection between narrative and self-making has been formative in the field of life writing studies, "we constantly construct and reconstruct our selves to meet the needs of the situations we encounter, and we do so with the guidance of our memories of the past and our hopes and fears for the future" (Bruner 64). Selves are facile, squirrely things: adaptable and potentially resilient. Guided by our pasts, our futures, and the complex emotional investments we have in both, we do not only tell our life stories but also construct and reconstruct selves again and again. Yet we rarely notice this process of "making selves," as Paul John Eakin has explained, "not only because we want to get on with the business of living our lives, but also because identity formation is not available for conscious inspection as it happens" (Eakin x). Understood in this context, climate change memoirs, a form of writing that is engendered by an unresolved crisis, do not simply represent selves that already exist, but rather teach their readers about the processes, and pitfalls, of self-making in the Anthropocene. [16]

The term "climate change memoir" first appeared on the back cover of Carrie Saxifrage's 2015 *The Big Swim: Coming Ashore in a World Adrift*, a volume of loosely connected personal essays that explore the author's personal connections to climate change. In a short blurb for the book, environmental writer and journalist J.B.

[16] Philip Dodd suggests that autobiographical discourse has always registered the important ideological, cultural, and ecological facets of its time (Dodd 8).

MacKinnon remarked that "In a flash of inspiration, Carrie Saxifrage has invented the *climate change memoir*… here is your handbook to living deeply in perilous times" (qtd. in Saxifrage). Following the book's publication, an article in the Canadian news magazine *The National Post* picked up on MacKinnon's coinage and suggested that Saxifrage (along with other contemporary writers like Sheila Watt-Cloutier, whom I will discuss later in this chapter) had invented a new genre to address "the personal consequences of a warming planet" (Besner). Like MacKinnon and Besner, I am interested in the climate change memoir as an emerging sub-genre of environmental life writing that explores what it means, and what it feels like, to be an individual in the Anthropocene, entangled in communities of human and nonhuman beings.

Yet I am interested also in investigating the genre of climate change memoirs through a series of scholarly and pedagogical questions. Do these texts share common tropes, themes, and arguments? How do these climate change memoirs function as "handbooks," as MacKinnon puts it, for navigating the personal and emotional turbulence of climate chaos? Can memoirs open space for addressing the ethical, political, and community-focused dimensions of climate change, particularly in the context of the uneven and unjust distribution of its impacts? What kinds of work can such texts perform in the classroom and what kinds of insights can they offer in regards to teaching and learning about climate change? Saxifrage's *The Big Swim* provides a useful starting place for unpacking some of these questions.

Having previously worked as an environmental journalist for the *Vancouver Observer,* with some of her most noteworthy work reporting on First Nations resistance to the proposed Northern Gateway Pipeline and other fossil fuel infrastructure projects,

Saxifrage offers in *The Big Swim* an intimate account of how climate change has affected her life. This account includes explaining how she first learned about climate change and describing the low-carbon and community-centered life that she and her family have cultivated while living on the remote Cortes Island, British Columbia. The book thus draws on some of the tropes of a climate conversion narrative, for instance by describing the moment when Saxifrage first came to care about climate change (it happened when she read Elizabeth Kolbert's famous series of *New Yorker* articles called "The Climate of Man"), but the book differs from other conversion narratives in that it includes a broader and explicit focus on community. That is, the ostensible focus of *The Big Swim* is Saxifrage's own life, with sections dealing variously with her difficulties working on the local school board, her marriage, and her mother's illness and subsequent death, but through its form, themes, and motifs, the book emphasizes the importance of both recognizing and fostering interconnection in a time of climate change.

Although Saxifrage employs an authoritative voice that both stylistically and thematically reasserts the self (the "I"), the book is also filled with other voices, human and nonhuman alike. As a whole, the book illuminates the extent to which the self, and the self's multiple subject positions (mother, homesteader, activist, writer, white, privileged), cannot be understood outside the self's interdependence with other beings who equally have a stake in remediating climate change. *The Big Swim* is a narrative about communities: a family as a community that strives to reduce its carbon footprint and live simply; an island as a community that heals a divide between its two camps, "redneck and treehugger"; and a bioregion as a community of non-human others that must adapt to the shifting ecological baselines of a changing climate. Throughout the

book, Saxifrage imagines the self's imbrication with these communities, whether through an ecocentric description of her connection with the tiny mountain Pikas that are threatened by seasonal disruption, an anecdote of how she befriended the Cortes Island logging community, or reflection on quantum entanglement theory and how what happens to the climate "affects who *I* am" (76). Taken together, these and other literary moments speak to the book's underlying argument (albeit an implicit one) about the type of ethical stance that an individual should cultivate in a time of climate change. Though Saxifrage at times does claim the importance of individual solutions based on lifestyle changes and even offers her readers specific suggestions about how to implement such solutions in their everyday lives, her overall approach to climate ethics and climate action assumes the individual as always already acting in communities and thus responsible for keeping those communities resilient, sustainable, and just. Saxifrage thus shifts the discussion of climate change solutions from individual action to community engagement.

Climate change memoirs are interested in the representation and creation of selves, while some, like Saxifrage's, also include moments that move beyond the self to suggest different social practices and potentially new forms of connection. But even if these books don't explicitly or thematically emphasize the importance of community (and again, most of them do), it is, perhaps paradoxically, through their emphasis on self-making that these climate change memoirs have the potential to create communities based on what literary scholar Timothy Aubry, in his analysis of middlebrow fiction, calls "disaggregated solidarities of affect" (Aubry 202). For Aubry, these solidarities—intangible communities based not on any organized gathering—are brought about by the second-order feelings, oftentimes feelings of satisfaction, that derive in part from readers'

sense that others are responding similarly (Aubry 202). Aubry analyzes novels that marshal what he calls "therapeutic discourse." They turn social or political problems into personal, psychological ones, the result being that such problems are imagined as "psychological maladies rather than the symptoms of an unjust system" (Aubry 201). Though Aubry's archive of texts is much different from my own, his arguments about literature's power to generate communal affect provide a useful model for claims about climate change literature and culture and specifically climate change memoirs.

The unspoken imperative behind most memoir writing is to lift specific, individual experience into the collective psyche, and stories of such experiences are often meant to help readers better understand their own. In particular, memoirs about loss, or what scholars have called "grief memoirs," offer descriptions of how the authors made their way through the trauma of loss so as to provide readers with generalized maps for their own healing or recovery (Gilbert; Fowler). For example, Saxifrage's descriptions of losing her mother, especially the somewhat voyeuristic and soul-bearing scenes at a hospital, function as an emotional map for readers' struggles and losses, a type of reader-author affective symbiosis. Saxifrage's descriptions of the "unbearable" feelings she had when first learning about the devastating impacts of climate change—an experience that for her also represents a kind of loss—can function similarly for her readers, who may be learning about climate change for the first time when reading her book (55). We may experience feelings of sadness while reading a book about climate change and loss, but knowing that others (particularly the author) are feeling similarly may help leaven that experience.

As with the individualistic impulse of therapeutic discourse in general, one might assume that through their privileging of the individual's personal feelings, climate change memoirs perpetuate the problematic individualization-impulse of much mainstream environmental discourses and the concomitant turn away from community and the public sphere. Moreover, the ascendancy of what is often called "therapeutic culture" is linked historically and ideologically to the rise of the white middle class and the elision of social justice concerns having to do with class, race, and ethnicity. As Joel Pfister and Nancy Schnog specifically point out, discourses of the therapeutic, while often presuming their own importance for repairing emotional distress, often in fact contribute ideologically to the same unjust systems that have caused such distress in the first place (Pfister and Schnog 36). However, the climate change memoirs I analyze in this chapter are often self-reflexively critical of the project of individualization, even if they are at the same time taking part in that project. Similarly, they often foreground their own privilege, drawing attention to the differential impacts of climate change. For example, Saxifrage might discuss the specific steps she took to reduce her carbon footprint, but she also explains how individual responses aren't adequate. She then contrasts those individual solutions (such as buying a Prius, eating local and organic food, or installing solar panels on a house—solutions that may be available only to those who can afford them) with descriptions of how she worked in community organizing, bringing together low-income logging families with First Nations communities. Other climate change memoirs, as I will discuss later in this chapter, are even more self-reflexive, questioning the efficacy and ethics of memoir writing itself.

The "problem of memoir," according to Margo Jefferson, is "figuring out how to examine and dramatize ourselves without forgetting to pay the same attention to the larger historical and spiritual forces that have made us" (Jefferson). So while climate change memoirs can certainly perpetuate the individualization-impulse because they, in Jefferson's words, "emphatically dramatize the self," some also perform the opposite function, attending to larger systems and forces and imagining other, non-individualistic, modes of responding to climate change (Jefferson). Just as Aubry strives to recuperate the therapeutic function of middlebrow novels by emphasizing the communal character and social purchase made possible by such discourse, I too do not want to discount the political power of climate change memoirs, therapeutic though they might be. These texts often imagine forms of interconnection made more salient because of climate change, and they have the potential to bring together communities of reading and witnessing that are rooted in the sense that others are responding to climate change in similar ways and with similar feelings.

In the remainder of this chapter, I look at additional examples of climate change memoirs, starting with Bill McKibben's 1989 *The End of Nature*, which I argue was instrumental in setting the stage for the recent proliferation of works in the genre. I demonstrate that McKibben attempts to make climate change personal for his readers by using his own sadness as a guiding rhetorical strategy and that, as such, the book offers a guide to understanding loss in a time of climate change. The next section takes up Inuit author and community advocate Sheila Watt-Cloutier's recent memoir, *The Right to Be Cold*, which, as an overtly activist narrative, links the personal, the political, and the ecological. In doing so, Watt-Cloutier challenges hegemonic ways of knowing climate

change by situating its psychological and material impacts within a longer history of social and environmental injustice. Finally, I turn to M Jackson's *While Glaciers Slept*, which, together with its foreword by McKibben, demands a kind of reading practice grounded in openness, a shared feeling of vulnerability, and the sense that loss can be the place where beauty begins. With all of these texts, I ask: What do memoirs have to teach us about being human in a time of climate change? And what do they call on us to do? My interest in how memoir can address the problems of climate change and how it can inform work in the classroom emerges from my conviction about the communal value and potential of memoir, both as a cultural form and as a field of study. Who am I? Where am I? How should I live? Such questions have always been central to the various projects of life writing, and they gain added urgency in the context of interlocking social and environmental challenges such as climate change, which can profoundly challenge assumptions about the self. These and other questions about the individual self, when considered deeply, also open up to questions about community. Who are we? Where are we? How should we respond to climate change? How should we live? A central task for surviving in a time of climate chaos with our humanity intact is to discover new relationships between self and community. This is a task taken up by climate change memoirs. It is also a task central to the work we do in Environmental Humanities classrooms, as I will address more specifically at the end of the chapter.

II. Loss, Privilege, and *The End of Nature*

In 1989, environmental writer and activist Bill McKibben published *The End of Nature*, the first-ever book about climate written for a general audience. The book

appeared at a time of heightened, and perhaps even hopeful, concern towards the global environment: James Hansen had recently testified before the U.S. Congress about the effects of global warming, the U.N. Montreal Protocol tackling ozone depletion had been written (and would soon be ratified), and momentum was building towards the upcoming and first-ever Earth Summit in Rio. Taking advantage of this promising cultural, political, and scientific climate, McKibben's book introduced its readers to the then-emerging scientific consensus about global warming and advanced a strong argument for taking action in response to the problem.

Reprinted in multiple editions and more than twenty languages since its initial publication, *The End of Nature* is arguably on par with Aldo Leopold's 1949 *A Sand County Almanac* and Rachel Carson's 1962 *Silent Spring* in its importance to both the environmental movement and the field of environmental literature (Luke, "Collective Action"; Eckersley). As Matthew Nisbet suggests, *The End of Nature* established McKibben as a preeminent public intellectual (Nisbet, "Nature's Prophet"), and in *The Norton Book of Nature Writing*, Robert Finch and John Elder write that the book has "earned a place in the great prophetic tradition of American environmental writing" (Finch and Elder, 1120). McKibben's work has also faced its fair share of criticism (Vogel; Gelbspan). Ecocritics Michael Ziser and Julie Sze point out that the book marshals the imagery and rhetoric of the frontier (particularly in its depictions of Arctic landscapes as devoid of human communities) and that such an approach problematically elides the social and environmental justice dimensions of climate change, while nature writer David Gessner has suggested that "maybe what is needed isn't a raging prophet of doom" like McKibben, whose book, according to Gesner, started the trend of framing

climate change as apocalyptic, a trend, Gesner points out, that has led not to action but greater social and political paralysis (Ziser and Sze 390; Gessner 9). Even McKibben himself, in his later writings and reflections, has accepted much of this criticism, reconsidering and reappraising parts of the book's original argument (McKibben, "Emotional Core"). McKibben has also noted that for all the accolades *The End of Nature* has received as a groundbreaking work in the canon of American environmental literature, the book obviously didn't do very much since the problems identified in the book are, in all estimates, worse today than they were when the book first appeared (McKibben, "Afterword").

McKibben, I believe, undersells in these reflections the importance and power of his book, especially as it has inspired an entire canon of climate change nonfiction literature (as well as inspired some fictional works as well). While we can point out the critical gaps in the book (as in Ziser and Sze's keen argument) and debate its impact (or lack thereof) on processes of social and political change, doing so shouldn't diminish the book's role in establishing a set of guiding themes and tropes for a robust lineage of popular climate change writing of which the climate change memoir is part. Most noteworthy in this regard is that *The End of Nature* attempts to make climate change personal for its readers by drawing on examples from McKibben's own life; by using a conversational, sometimes even folksy, tone to discuss climate change; and most importantly by delving into both the physical and the psychological impacts of climate change. *The End of Nature* is a psychologically complex book, thick with McKibben's emotions, and because of this, it is a crucial starting point for understanding the recent appearance of climate change memoirs.

The End of Nature is not explicitly framed or marketed as a memoir, and it does not tell the story of McKibben's own life or maturation, yet it is productive to think about the text in the context of memoir to illuminate how popular climate change discourse has been, from the very beginning, dependent on a particular set of emotions and a particular conception of the self. The book weaves threads of McKibben's personal experiences throughout its more didactic discussions of the science of global warming, and the rhetorical force of the book grows out of McKibben's observation that the effects of anthropogenic climate change have already eliminated the possibility of experiencing the natural world as wholly other from human influence, and thus that the very idea of "nature" (as a space apart) has itself gone extinct. According to McKibben, just as a species can go extinct, so too can an idea (*End of Nature* 48). With the end of the idea of nature, McKibben can no longer enjoy its mystery and beauty in the same way. Overall, in its moments of personal reflection, which usually dramatize McKibben's experiences connecting (or not connecting, as the case might be) with the last remnants of this disappearing nature, the book explores the emotional ramifications of climate change: "what it feels like to live on a planet where nature is no longer nature" (*End of Nature* 85).

Some cultural critics have pointed to McKibben's reliance on apocalyptic discourse (Thompson), but the dominant emotion of *The End of Nature* is not fear or worry, but rather grief. That is, the book's affective force grows from McKibben's melancholic observations about the end of nature, and as ecocritic Alex Lockwood has noted, the book is a "centrifugal storm of sadness" and a "prolonged lament for the death of both nature and the feelings that can be engendered only by nature" (Lockwood 132-

3). Reflecting on the book more than fifteen years after its initial publication, McKibben himself has explained that the central emotion of *The End of Nature* was "much less fear than mourning" (McKibben, "Emotional Core" 185). We might even consider the book to be an environmental version of the "grief memoir," where the object being grieved is not a parent, partner, or beloved family member, but nature itself.

Whereas Lockwood ultimately sees *The End of Nature* as overly reliant on its author's own negative affect, with such grief overpowering everything else in the book and thus obstructing "wider positive resolutions set against the sheer scale of climate change," I see the book's grief as opening up a space for shared affect and inviting its readers to feel *with* (if not for) McKibben (Lockwood 135). As such, far from being only therapeutic, McKibben's grief is politically potent. Like Lockwood, I draw from Catriona Mortimer-Sandilands' arguments formed in queer theory to suggest that McKibben's sadness functions as "nature-nostalgia," a kind of melancholy that is "not only a denial of the loss of a beloved object but also a potentially politicized way of preserving that object in the midst of a culture that fails to recognize its significance" (Mortimer-Sandilands 333). McKibben's melancholy grows out of a refusal to tolerate the impacts of climate change and move on to a "new nature." The refusal to 'let go' of the lost object, simply to replace it with another one, and continue blindly with the processes of consumer capitalism suggests that such melancholy is "a non-normalizing relationship to the past and the world" and represents "a holding-on to loss in defiance of bourgeois (and capitalist) imperatives to forget, move on, transfer attention to a new relationship/commodity" (Mortimer-Sandilands 354). McKibben is not willing simply to

move on to the "new nature," which "offers none of the consolations—the retreat from the human world, the sense of permanence, and even of eternity" (*End of Nature* 96).

> For me, it is sad to live in a world where everything reflects us—not just sad because of all the human costs of global warming, but sad because so much of the mystery and deep beauty of the planet seems to me to be at risk. At risk, ultimately, because meaning is at risk. But that risk also gives rise to our great opportunity: Summoned to bring our gift of restraint to the fore, we might learn in the face of this sadness to limit ourselves, to back off a little. (McKibben "Emotional Core", 185)

In *The End of Nature*, melancholy thus becomes the ground from which McKibben can launch an argument against an extractivist culture that overvalues consumerism and can then advise his readers that we all need to "change our habits" (*End of Nature* 70).

> From the top of the hill, if I stand on a certain ledge, I can see my house down below, white against the hemlocks. I can see my whole material life—the car, the bedroom, the chimney above the stove. I like that life, I like it enormously. But a choice seems unavoidable. Either that life down there changes, perhaps dramatically, or this life all around me up here changes—passes away. (*End of Nature* 187)

This passage is representative of how the book tracks McKibben's growing awareness that his own life, with its material and emotional investments in a particular standard of living, is starkly opposed to the very existence of nature. Drawing on his personal progression in this regard, McKibben calls on his readers to draw similar conclusions about their own lives. The narrative McKibben presents in *The End of Nature* is rooted in a particularly pastoralized local place—his home and surrounding natural environs in the Adirondacks—and is dependent on his own ability to spend time observing the changes in his local environment, a capacity that might not be available (or very appealing) to all readers. Moreover, on the surface McKibben's suggestions to change the contours of that "whole material life," which even he likes so much, smack of the

individualization of responsibility: each individual doing his or her part by getting rid of the second family car or by drying clothes with the sun.

Yet there is something more to McKibben's suggestions than simple lifestyle change. His recommendations are rooted in a radical decentering of the human: An awareness that we are only one among many other species can "strikes at the root of our identities" (*End of Nature* 175). As Julia Martin notes, McKibben's arguments in *The End of Nature*, and in particular his emotional engagement with the world he grieves for as lost, "can serve to renew an understanding of our inextricable connections with living systems, an understanding which modern industrial societies have tended to obscure more effectively than their predecessors" (J. Martin 6). While mourning the loss of an external nature, McKibben's melancholy is ironically predicated on the assumption that the human self (and particularly the self as a privileged white male subject) is always already interconnected with that nature. McKibben's grief is thus caused, at least in part, by the loss of a particular facet of his identity: He can no longer be the kind of person who finds sustenance and meaning in the natural world. Though this thinking remains unacknowledged in *The End of Nature,* in his more recent work, McKibben takes up questions about the connection between loss and identity more directly.

In his 2013 book, *Oil and Honey: The Education of an Unlikely Activist*, McKibben continues some of the themes of *The End of Nature* by emphasizing the restorative and aesthetic importance of the natural world and exploring feelings that come with its loss. Unlike *The End of Nature*, however, *Oil and Honey* is more explicitly framed as a story about McKibben himself, blending personal reflection with insights about political and activist strategizing in the grassroots climate change movement that

McKibben launched with the founding of the group 350.org in 2007. Furthermore, whereas *The End of Nature* stresses the importance of being connected to the more-than-human world, *Oil and Honey* also emphasizes the importance of being connected with human communities.

The book does this by weaving together two narratives. The first is the story of McKibben's transformation from a writer to an activist, that is, from the noteworthy but somewhat secluded author of *The End of Nature* to the outspoken leader of the global grassroots climate change movement. As he explains, "Sometime in the course of the past decade I figured out that I needed to do more than write—if this fight was about power, then we who wanted change had to assemble some" (*Oil and Honey* 10). The second story, which parallels the first, centers around McKibben's struggle to enact his vision of a new world, one in which economies and food systems are localized, and to ensure a secure (or as secure as possible) future in this chaotic world for his daughter, by purchasing a farm: "Given what I knew about climate change, the gift of productive land seemed like the best thing I could hope to pass on to her" (*Oil and Honey* 6-7).

Like in *The End of Nature*, the conclusions McKibben reaches in *Oil and Honey* are made possible by a privileged mode of living: a type of rural localism in a relatively climatically and economically stable region. Yet McKibben productively balances his emphasis on local living with examples of environmental justice concerns and with an acute awareness of global climate ethics, discussing how other communities and groups around the world are being impacted unevenly by climate change and how developed nations and their citizens are morally bound to address such inequities. The book blends a cosmopolitan perspective and attention to the vulnerabilities of communities around the

world with a deep sense of personal loss. The melancholy in *Oil and Honey* explicitly takes as its object not just what is being lost in the natural world but the parts of McKibben's own identity that are also being lost due to climate change.

Throughout the book, McKibben explores the tensions between what he refers to as his two identities: his public persona as a climate change activist and his private persona as an author and family man. Whereas the activist McKibben travels around the globe, learning to act "in the moment" (for instance, by taking part in civil disobedience) and mobilizing others to join him in resisting the powerful fossil fuel interests, the writer McKibben stays rooted in his rural Vermont town, reflecting on the mystery of the natural world and the resilience of local communities (*Oil and Honey* 238-9). McKibben always seems partial to this latter authorial part of his identity: "I've spent my time on the computer and the airplane and the phone, giving speeches and leading marches. I've willed myself to be someone other than who I had been… I miss, sometimes desperately, the other me: the one who knew lots about reason and beauty and very little about the way power works; the one with time to think. But time, as I say, is what we're lacking" (*Oil and Honey* 14). Throughout the book, McKibben grieves for, and tries to recapture, his former self while recognizing that such schizophrenia is a necessary part of his work.[17] Yet he also makes clear to readers that the deep urgency of climate change, the fact that we have no time left, requires us all to change our selves and risk new identities. What McKibben does not acknowledge is that risking new identities is, for many

[17] By describing the affective quality of *Oil and Honey* as schizophrenic, I do not mean to minimize or trivialize the significant pain and challenges faced by individuals who are medically diagnosed with the condition. Moreover, research has found that individuals with schizophrenia are at greater risk for acute exacerbation of their illness during periods of climatic disruption or negative environmental changes (Lang).

individuals and communities on the material frontlines of climate change, not a choice but a necessity with greater consequences than feelings of personal sadness or perceived schizophrenia.

III. An Arctic Memoir

As a child, Inuit activist and author Sheila Watt-Cloutier's name was Sheila E8-352. The "E" signified that she lived east of Gjoa Haven, a village on King William Island in present-day Nunavut in northern Quebec, and eight was the number the Canadian government had assigned to her tiny community, New Fort Chimo—a group of families who survived on subsistence hunting and traveled only by dogsled. As Watt-Cloutier explains in the opening of her 2015 memoir, *The Right to Be Cold: One Woman's Story of Protecting Her Culture, the Arctic and the Whole Planet*, when she was identified as a "promising future Inuit leader" and left her home to attend residential school in Churchill, Manitoba, and then Nova Scotia, the number traveled with her, stamped on a red dog tag that she had to wear around her neck.

Only years later when she returned to her home community did Watt-Cloutier take what is now her current surname, a reference to her father's French heritage. Spurred in part by an Inuk-headed initiative called Project Surname, begun in the nineteen-sixties, many other Inuit began adopting last names as well. Yet Watt-Cloutier and her fellow activists to this day still struggle to convince politicians and government officials in the south to treat the Inuit as people rather than numbers. This is a central conflict Watt-Cloutier explores in her memoir: Given that they have historically been viewed as numbers rather than as individuals and given that the total Inuit population,

comprised of communities in northern Canada, Alaska, Greenland, and Siberia, is only around 160,000 people (a number lacking in political clout), how can they convince the world, and specifically those in power in developed nations such as the US and Canada, that their communities and their cultures matter? How can they convince the world that climate change threatens their very existence? Watt-Cloutier's memoir offers a rhetorically powerful and emotionally moving rejoinder to these and similar questions.

The Right to Be Cold explores the cultural, economic, political, and ecological impacts of climate change on Arctic communities and advances a specific set of arguments in the context of climate change. The book protests extractivist culture, short-term economic interests, and the continued burning of fossil fuels, and it advocates for alliance-building, a human rights approach to environmental activism, and an ethical framework grounded in a sense of shared vulnerability, interconnection, and empathy.[18] Yet the book is not a work of climate change polemic; rather, by including technical explanations of the processes of international climate policy side by side with Watt-Cloutier's own life stories, *The Right to Be Cold* is simultaneously part autobiography, part cultural history, and part manifesto. Through this amalgamation of genres, the book challenges the tendency to treat climate change as some new and singular "environmental" threat, and instead situates it within a long history of colonialism, social injustice, and human rights abuses faced by the Inuit people.

The book similarly challenges assumptions about the memoir form itself. Specifically, the book exemplifies what ecocritic and postcolonial scholar Rob Nixon calls a "movement memoir," in that it focuses as much on the story of how Inuit

[18] Watt-Cloutier offers a more academic version of these arguments in her chapter, "The Inuit Right to Culture Based on Ice and Snow" in the 2010 edited volume, *Moral Ground: Ethical Action for a Planet in Peril*.

communities have responded politically and culturally to the threat of climate change as it does on the story of Watt-Cloutier's own life (Nixon 129). As Nixon points out, this sub-genre of memoir can open up provocative questions about "the relationship between singular autobiography and the collective history of a social movement," albeit, in Watt-Cloutier's case, one that is only in its nascent stages (Nixon 129). Moreover, while *The Right to Be Cold* is a profoundly emotional and vulnerable book, it is not because Watt-Cloutier bares her soul or marshals the affective potency of therapeutic discourse. Rather, Watt-Cloutier narrates her life experiences in a restrained manner, eschewing the kind of affective divulgences so common to memoirs, and she focuses more on her community than on herself. Given Watt-Cloutier's personal experiences with settler colonial violence and the suppression of her own voice, it is understandable that her memoir would take what might on the surface seem to be a more objective tone in recounting her life and work. At times, the style of the writing comes across as reportage, and there are few if any intensely lyrical passages. *The Right to Be Cold* offers something different, and complementary, to other climate change memoirs; it offers the lamentation, conviction, and hope of someone who survives on the physical front lines of climate change and who has also witnessed the traumas that colonialism and economic modernization have brought to her community for over a hundred years.

As with McKibben's *The End of Nature* and *Oil and Honey*, the central affect of Watt-Cloutier's *The Right to be Cold* is grief. Both authors emphasize in great detail what is being lost, both materially and culturally, because of climate change, and both authors draw on their own stature as activists in the global community. Like McKibben, Watt-Cloutier has become something of a superstar in the climate change movement,

particularly because of her advocacy work for indigenous Arctic communities on the frontlines of climate change. In 2007, Watt-Cloutier was co-nominated along with Al Gore for the Nobel Peace Prize, and in 2012, she was honored with her portrait on a Canadian stamp. More recently, in acknowledgment of her lifelong work fighting for all life and culture in the Arctic, Watt-Cloutier won a Right Livelihood Award, also referred to by many as the "alternative Nobel" (incidentally, McKibben won this same award the year before) (Sahar Zerehi). Watt-Cloutier has campaigned tirelessly to bring a human rights approach to the foreground of climate change policy discussion, not only by explicitly advocating for the Inuit people but also by more generally framing climate change as a social and cultural issue, rather than as only an "environmental" problem. Watt-Cloutier seeks to integrate and advance the causes of environmental, women's, and human rights both by building stronger community institutions and by pursuing policy changes on the national and global scale. In this context, the ice becomes for Watt-Cloutier a material and symbolic nexus for an intersectional Inuit-led movement for environmental justice and human rights. That is, as the title of the book suggests, a major focus of *The Right to Be Cold* is how climate change impacts all elements of Inuit society and thus poses a profound existential threat to a culture dependent on ice and snow.[19]

[19] The phrase, "right to be cold," originated at the COP 9 Milan convention in 2003 when Watt-Cloutier was trying to articulate to the press and other delegates the unique challenges that climate change presents to Inuit communities. Watt-Cloutier acknowledges that though it is a "wonderfully evocative expression," the term is certainly "open to misunderstanding too" (*The Right* 231). A right to be cold is not as immediately relatable to audience in the south compared to something like a right to clean water. However, it has been crucial to Watt-Cloutier's work to bring together concerns for environmental issues with concerns for human rights issues, and the phrase provides that kind of conceptual bridge. In 2005, Watt-Cloutier presented a "right to be cold petition," along with sixty-two Inuit hunters and elders from communities across Alaska and Canada, to the Inter-American Commission on Human Rights, and though the IACHR ultimately chose not to hear the petition, the group invited Watt-Cloutier to testify at their first hearing on climate change and human rights in 2007. More important, the phrase and the petition helped raise awareness of climate change as a human rights issue, that is, as an issue "about people as much as about the earth and the science" (Watt-Cloutier, *The Right* 259).

Though Watt-Cloutier and McKibben are equally concerned with the impacts of climate change, autobiographical differences between the two—including differences in gender, race, nation, and class—complicate their works' affective similarities. Watt-Cloutier's grief emerges from a much more vulnerable position than McKibben's, one in which she has witnessed, and continues to witness, the loss of her people's land, culture, traditional foodways, and sovereignty: In short, the total loss of security, for both current communities and future generations of Inuit. McKibben's *Oil and Honey* registers a similar kind of awareness of the loss of security, but his loss is either purely imagined or projected forward as worry for his daughter and future generations. Discussing how losing the ability to feed oneself because of the impacts of climate change has impacted her and her people, Watt-Cloutier explains:

> The prospect of losing our food turned our world upside down… Now anything could be taken away from us by distant strangers. It is impossible to describe just how vulnerable this made us feel. And we didn't just *feel* vulnerable. We *were* vulnerable. (*The Right* 138)

The impacts of climate change are, for Watt-Cloutier and her fellow Inuit, not philosophical, metaphorical, or only about the future, but rather are material realities in the present: "We are all accustomed to the dire metaphors used to evoke the havoc of climate change, but in many parts of the Arctic the metaphors have already become a very literal reality... The land that is such an important part of our spirit, our culture, and our physical and economic well-being is becoming an often unpredictable and precarious place for us" (*The Right* viii-ix). Climate change threatens the very ground on which Watt-Cloutier's people depend for their livelihood and their culture's endurance.

In *Slow Violence and the Environmentalism of the Poor*, Rob Nixon emphasizes that environmental scholars must extend frameworks for thinking about displacement and

loss of place to take into account those peoples and communities who are not removed (or otherwise forced to migrate) from their land, but whose land is irrevocably taken away from right under their feet. Nixon calls this "displacement without moving," and explains that this more subtle form of environmental violence refers not to "the movement of people from their places of belonging," but to "the loss of the land and resources, a loss that leaves communities stranded in place stripped of the very characteristics that made it inhabitable… a threat [that] entails being simultaneously immobilized and moved out of one's living knowledge as one's place loses its life-sustaining features" (*Slow Violence* 19). *The Right to Be Cold* bears witness to a long history of this kind of displacement in place, an ongoing removal of knowledge and life.

As a child, Watt-Cloutier was taken away from her Arctic community of Kuujjuaq, Nunavik in Northern Quebec, Canada and forced to attend school in the south. After returning to her home as a teenager, she began noticing the ways in which the place was changing. For example, for hundreds of years, sled dogs had allowed Inuit to develop a reciprocal relationship with the land, supporting traditional hunting culture and providing people with mobility. But the dogs were now gone, replaced by loud, gas-guzzling snowmobiles. Why was this the case? Federal and provincial police had slaughtered the dogs, ostensibly to control disease and for public safety purposes, but more likely to force the Inuit off the land and into federal programs and villages. "Numerous families who lost their teams couldn't hunt in the winter for many seasons, creating great suffering and dependence on social assistance," Watt-Cloutier recalls, "It took a long time for us to accept that it had happened, and it left us with a feeling of vulnerability that we hadn't known before. Sadly, this kind of tragedy would become all

too familiar as the years passed" (*The Right* 74). The loss of their sled dogs not only impacted Inuit hunting culture but also changed the Inuit relationship to the land, in fact taking the land away right from under the people's feet (or right from under their traditional hunting sleds). "What does it mean," Nixon asks, "for subsistence communities to discover they are goners with nowhere to go, that their once-sustaining landscapes have been gutted of their capacity to sustain by an externalizing, instrumental logic?" (Nixon, *Slow Violence* 19). The impacts of climate change on Arctic ecosystems and thus on Inuit communities are, in Watt-Cloutier's estimation, only the most recent of a series of environmental and social injustices perpetrated on her people. That is, climate change is the ultimate expression of the same threats that have been ravaging this part of the world for a very long time.

Such historical injustices and ongoing threats have caused (and continue to cause) deep traumas in Inuit communities, traumas that are passed down from one generation to the next; as Watt-Cloutier explains, "the wounding of the previous generations" has a "dire impact on the next generation" (81). These wounds include the traumas of forced resettlement; the traumas of children being taken away and required to attend schools in the south; the traumas of new diseases (such as TB, flu, polio, and typhus) that ravaged Inuit communities; the traumas of sick people being unwillingly transferred to hospitals in the south and often never heard from again; the traumas of the loss of traditional hunting activities and traditional foodways; the traumas of the resulting domestic violence, alcohol and drug abuse; the traumas of childhood malnutrition and respiratory health problems due inadequate living conditions in newly developed "company towns"; and the traumas of sled dogs being brutally slaughtered. Watt-Cloutier explains that

"Today, people are still trying to heal from these horrific experiences… Families were torn apart and unable to pass on tradition and culture… This has resulted in generations of trauma suffered by Aboriginal families across Canada" (*The Right* 47).

Understood in the context of these historical traumas, the impacts of climate change on Inuit communities gain added emotional resonance. Environmental philosopher Glenn Albrecht's recent concept and neologism "solastalgia" is particularly illuminating in the context of how indigenous Arctic communities, because of the long history of environmental and social injustices perpetrated against them, experience such displacement in place.[20] The term itself has etymological origins in the concepts of nostalgia**,** solace**,** and desolation, and it refers to the "lived experience of negative environmental change manifest as an attack on one's sense of place... in direct contrast to the dislocated spatial and temporal dimensions of nostalgia, it is the homesickness you have when you are still located within your home environment" (Albrecht 227). While nostalgia is usually stems from physical separation from a loved home environment, solastalgia relates specifically to the "place-based distress that is delivered from the lived experience, within a home environment, of unwelcome change" (Albrecht 218). Albrecht points to various ethnographic studies conducted in communities experiencing drastic environmental disruptions, which have shown that such changes usually challenge people's sense of place, their identity, their physical and mental health, and their general

[20] Albrecht explains his reasoning behind coining this new term: "There seemed to be a real need and justification for the creation of a new concept/term (in English) that captured the conceptual space or territory connected to this existential constellation of factors that define place and identity distress. The situations I have focused on are where people are still within a home environment in a state of transition but feel a similar melancholia as that caused by genuine nostalgia.... What these people lack is solace or comfort derived from their present relationship to 'home.' This is a specific form of melancholia" (Albrecht 225).

wellbeing.[21] Moreover, when experiencing solastalgia, many people feel powerless to influence the outcome of the change process even as they also have a great sense of the injustices being perpetrated against them (Albrecht et al. 96).

This feeling of powerlessness is something Watt-Cloutier has committed her life to combatting, as in her tireless work to improve community schools and provide better and more-empowering care to Inuit women who have faced domestic abuse. The feeling is also one that she addresses throughout the memoir. In particular, Watt-Cloutier frames climate change not only as an environmental problem but also as a social and cultural problem that Inuit people can help address. That is, though taking seriously the impacts and risks of climate change for her people, Watt-Cloutier does not frame Inuit as helpless victims but rather as powerful actors who can contribute to improving not only their own communities but the global community as well. In making claims about the agency of Inuit individuals and communities, the book also addresses the politics of visibility and recognition. Who counts as a climate change witness? Who is recognized as an expert? Who has the scientific and social capital to participate in official discourses of climate change?

To begin answering these questions, Watt-Cloutier first emphasizes that it is no longer viable to view environmentalism as a Western luxury, and furthermore, that environmentalism, as it has come to be defined in the West (i.e. the United States, Canada, and other developed nations), must be expanded so as to include a recognition of the interlocking social and environmental injustices being experienced by First Nations Arctic communities. In other words, Watt-Cloutier gives powerful voice to Nixon's

[21] Albrecht notes that the experience of solastalgia can result not only in generalized emotional distress but also more acute "health and medical problems such as drug abuse, physical illness and mental illness (depression, suicide)" (Albrecht 228).

claim that "the notion that environmental politics are a luxury indulgence available only to the world's wealthy—a boutique politics for the well-off—is utterly untenable" (Nixon, *Slow Violence* 253). Watt-Cloutier challenges the center-periphery model of dominant environmental discourse, in which social justice and human rights issues are considered secondary to more traditional environmental values such as wilderness preservation and animal rights. For example, while former Beatle, Sir Paul McCartney, and his wife come to the Arctic to advocate for a total ban on all seal hunting in Canada, Watt-Cloutier has to advocate on behalf of Inuit communities and on behalf of the seals themselves. She explains that laying down on the ice and frolicking with seal pups (as McCartney and his wife did for a photo-op) is not respectful of the otherness of wildlife, and that advocating for a ban on all seal hunting without recognizing the ways in which Inuit communities and seal communities have been living together for hundreds of years and the ways in which Inuit are dependent on seals for sustaining their local economies, cultures, and foodways is at best misguided, and at worst, unjust. Watt-Cloutier points out that McCartney's brand of environmentalism treats the Arctic as an empty, wilderness space with animals that are in need of protection of southern activists, and by so doing erases the presence of Inuit communities. Such erasure also ignores the rights of Inuit communities to continue their respectful hunting practices and to sustain their local economies and food cultures. Watt-Cloutier resists having the version of environmentalism invented at the center simply exported to, or imposed upon, the periphery. She explains that if Paul McCartney wants to "save the seals," he should collaborate with Inuit communities to mitigate and adapt to the increasing impacts of

climate change, which include the destruction of large areas of seal habitat and cascading shifts in trophic interactions.

Recounting this and other similar experiences, Watt-Cloutier challenges readers to think both more critically and more capaciously about the environmental movement and human rights movements. First, she dispels the notion that she is an "environmentalist":

> My work with… climate change has led many to see me as an environmentalist first and foremost, something that I do not consider myself to be. Although I wouldn't deny for a minute that the protection of the environment has been a huge focus of my life and work for the last several decades, I came to this particular mission through the concern I had for our people and my great desire to protect the Inuit way of life. (Watt-Cloutier, *The Right* 316)

It is both rhetorically and politically important that Watt-Cloutier refuses the title "environmentalist" even as she advocates for what people outside the Arctic might think of as strictly "environmental" causes. For one, in emphasizing that Watt-Cloutier's motivations for pursuing her life work have not been to protect the environment but to protect her community, her culture, and her people, the book's human rights argument shares much in common with legal cases lodged by several First Nations against highly polluting resource development: If the water is poisoned and the animals are sick, our courts have been told, then legally protected rights to hunt and fish are being violated. Watt-Cloutier's innovation was extending this argument, which had previously focused on site-specific mines and dams, to the planetary-scale crisis of climate change. With the help of a team of legal advisers and backed by an extensive list of Inuit elders, she submitted a landmark petition to the Inter-American Commission on Human Rights arguing that by failing to prevent climate change the United States violated Inuit rights. Watt-Cloutier points out that human rights activists from the south oftentimes do not fully comprehend the Inuit idea that "ice is life":

> Indeed, the idea of 'the right to be cold' is less relatable than 'the right to water' for many people. This isn't meant to denigrate the people on the human rights commission and in the warmer countries, but rather to point out that the global connections we need to make in order to consider the world and its people as a whole are sometimes lacking. Because as hard as it is for many people to understand, for us Inuit, ice matters. (*The Right* 258)

As Watt-Cloutier here suggests, there is something less tangible about claiming a right to coldness; it is a climatic right, an atmospheric right, and hard to visualize without understanding the complex interconnections of Arctic landscapes and ecologies. In response to a woman at a climate change conference who dismisses as unimportant the "right to be cold," Watt-Cloutier thoughtfully explains, "The rights we're fighting for are her rights too. Just as our environment is her environment too… We all have the right to be protected from climate change" (*The Right* 273).

As the subtitle of the book suggests, Watt-Cloutier explores not only how the impacts of climate change are affecting Inuit communities but also how such impacts create a link between the Inuit, indigenous communities in the global south, and even communities in developed nations that are, as of now, more insulated from those impacts. That is, Watt-Cloutier connects the plight of Arctic peoples and beings to the fate of all communities around the world, and particularly other, equally vulnerable communities, and in doing so, she makes strategic use of what Nixon calls "intersectional environmentalism" (Nixon, *Slow Violence* 133). She explains:

> When I say *we*, I do not mean only Inuit. It is true, we are already among the first to be devastated by climate change, but we are not the only ones. Everything is connected through our common atmosphere, not to mention our common spirit and humanity. What affects one affects us all. The Arctic, after all, is the cooling system, 'the air conditioner,' if you will, for the entire planet. As its ice and snow disappear, the globe's temperatures rise faster and erratic weather becomes more frequent. This results in drought, floods, tornadoes, and more intense hurricanes. Sea levels around the world rise, and small islands from the Caribbean to Florida to the South China Sea slip into the ocean. From the farmers in Australia to the fishermen in the Gulf of Mexico or the homeowners of New Orleans, the devastation escalates. The future of Inuit is the future of the rest of the world—our home is a barometer for what is happening to our entire planet. (Watt-Cloutier, *The Right* xi)

Intersectional environmentalism, as Nixon explains in his discussion of Wangari Maathai and the Green Belt Movement in Kenya, enables localized indigenous environmental groups to broaden their base and credibility by aligning themselves with other environmental, social justice, and human rights campaigns. In this case, Watt-Cloutier invokes the very real interconnected nature of the global climate system itself (with the Arctic as "the air conditioner") to establish a ready symbolic connection between her own community and frontlines communities around the world. Just as Watt-Cloutier imagines the Arctic as a barometer for the world, we might consider her climate change memoir as a kind of barometer too—albeit one that registers the psychological impacts of climate chaos.

To further dramatize this environmental, social, and even spiritual alignment between distant communities, the sense that "what affects one affects us all," Watt-Cloutier invokes the trope of the "Inuit sentinel," a figure that speaks both to the vulnerability of Inuit people and to the importance of the Inuit, and particularly their traditional ecological knowledge, in the fight against climate change: "The Inuk sentinel was the human face of climate change, but also a figure of traditional knowledge. The

image represented our fight to depoliticize the climate change discussion, to have the health of the planet and its people, rather than national interests, determine target emissions for greenhouse gases" (*The Right* 205). As Watt-Cloutier documents in the memoir, the image of the Inuit as sentinel became a powerful campaign tool and was instrumental to building an Inuit-based political strategy for combatting climate change. Yet, as this quote also suggests, there is a paradox at the core of how Watt-Cloutier invokes the sentinel image since the "Inuit sentinel" is simultaneously meant to provide the symbolic force for an Inuit-based political strategy and, at the same time, to "depoliticize the climate change discussion" (*The Right* 205). This tension between politicizing and depoliticizing is not a flaw of the memoir but rather is representative of Watt-Cloutier's powerful ability to weave together different discourses and different activist strategies. As Watt-Cloutier elsewhere argues, "The Inuk hunter is the sentinel — the guardian, if you will — not only for the Arctic environment, but also for people who have never even thought about the Arctic" ("Convocation Address"). The trope of the Inuit sentinel also crystallizes the importance of expanding who gets to participate in climate change knowledge production. Precisely because the Inuit are facing the trauma caused by the impacts of climate change, they are in an important position to contribute to global discussions about the issue. In both her policy work and her writing, Watt-Cloutier strives to expand the notion of who counts as a climate change expert, and what counts as climate change data, by including traditional ecological knowledge and the voices of other Inuit community members in her arguments. She explains how, during various UN climate change policy meetings, she and other Inuit delegates "wanted a seat at the table for both the policy work and the science assessment," particularly because

they believed that they had something crucial to offer both conversations (the policy and the science):

> It came down to what we mean when we talk about science. Science is a body of knowledge and a way of knowing based on rigorous observation. By this definition, the hunters who crisscross the ice and snow and embody centuries of observation are scientists. When they describe what is happening to their landscape, the world needs to listen. (Watt-Cloutier, *The Right* 199)

Specifically, Watt-Cloutier argues that the Arctic Climate Impact Assessment (ACIA), which is led by the U.S. but includes contributors and input from all the Arctic nations, should include traditional Inuit knowledge as part of its research as well as "address the health and cultural impacts that climate change [is] having on Indigenous peoples in the circumpolar North" (*The Right* 202). The Inuit sentinel focuses attention on system interdependencies—biological systems, cultural systems, economic and political systems, colonial systems, the climate and other geophysical systems. "Placing traditional knowledge together with scientific data and community action," Watt-Cloutier explains, "creates an alignment of interests, a shared consciousness of our biggest challenges, and a clearer focus on a way forward for Iqaluit, Nunavut" (299). By witnessing what is happening (and has happened in the past) to indigenous communities in the Arctic, groups and coalitions like ACIA can better understand and consider in their decision-making how such systems interconnect and interpenetrate not only in the lives of the Inuit people but in the lives of all people around the world.

In addition to her emphasis on bringing traditional knowledge systems into international policy conversations, what is perhaps most striking about Watt-Cloutier's approach to climate change advocacy and activism is her deep commitment to cultivating a non-adversarial, and even empathetic, approach for dealing with those who disagree

with her, or even those who have seemingly wronged her and her community. The truth is that most people south of the Arctic aren't concerned (or concerned enough) with the well-being of Inuit populations and Inuit culture to take steps to limit CO_2 emissions. The majority of the world most likely will wait until it is *their* rights that are being directly threatened by increasing climate change: the right to clean water, to food, to safety. Bringing a human rights approach to the foreground of climate change discussions illuminates the brutal truth that as a global society, we are more invested about the human rights of some people than those of others. This backdrop of structural, ongoing injustice makes the empathy that Watt-Cloutier cultivates in *The Right to Be Cold* is so profound.

When Watt-Cloutier was sent away to school in the south, she stayed with a white Canadian family called the Rosses, who, when they discovered that Watt-Cloutier was writing home to her family to say she was miserable and didn't enjoy living in the south, decided to censor the girl's letters. In one of the most unsettling and anger-inducing passages in the memoir, Watt-Cloutier describes how she discovered all of the letters, these intimate expressions, that she had thought had gone into the mail to her family, "opened and spread out on the dining-room table," having never been sent (*The Right* 30). "The effects of this censorship were profound," Watt-Cloutier explains. "It took me a long, long time after that experience to feel comfortable or even *able* to express myself, my thoughts and my feelings. In one simple act, the Rosses helped to weaken my voice for years to come" (*The Right* 31). Watt-Cloutier is clearly traumatized by this event in her life, and *The Right to Be Cold*, as well as her vocal advocacy over the years on issues ranging from community education to climate change, stands as a

testament to her reclaiming her once-silenced voice. Yet in her memoir she does not express anger or resentment towards the Ross family as we might expect, but instead emphasizes the good things that the Rosses did:

> To be fair, despite the harshness of their actions, I believe the Rosses' intentions were honourable... In fact, we called them Uncle Joe and Aunt Peggy. But they felt that they needed to educate us and push us to excel in school, which they assumed depended on assimilating us into southern culture. And the Rosses also clearly felt it was their job to ensure that our families didn't worry about us. (*The Right* 31)

Watt-Cloutier takes the perspective even of those who have wronged her and her community. In this case, she tries to understand why the Rosses did this seemingly terrible thing to her. Her perspective taking allows her to achieve some form of healing, even as we as readers might never be able to empathize with what they did to her.

Later in the memoir, Watt-Cloutier describes what it is like for her working in the realm of international climate policy and particularly what it is like when she has to engage with people (or countries) who actively deny the science of climate change or discount the needs and voices of her people:

> Over the years, I've been asked by a number of people how I felt talking with John McCain and dealing with George W. Bush's administration. 'Aren't they the enemy?' they'll sometimes say. I always tell them, no, I don't think that way. I've never found an adversarial approach very helpful. Instead, I've tried to put my faith in people's innate concern for others. I reason that if I can connect with them on a personal level, if I can appeal to their heart with solid facts to back up my story, I may be able to change their attitudes and opinions. And the only way I know how to do this is to speak from *my* heart. (*The Right* 209)

For Watt-Cloutier, politicians from the south—even those who might otherwise be considered "the enemy" in the fight against climate change—are not adversaries. Though Watt-Cloutier argues against the extractive industries, whether they are engaged in economic extraction, educational extraction, cultural extraction, or the extraction of

material resources (or all of the above), she resists taking a combative position in her arguments: "My stance in these issues is not intended to demean or demonize those who lead and work in these industries" (*The Right* 293). Watt-Cloutier's approach to policy advocacy and activism could thus best be described as non-adversarial bridge building. Though many times this approach fails or doesn't result in meaningful change, such as in her failed attempt to bring together American conservationists and Inuit leaders to find common ground about climate change, adhering to this non-adversarial approach allows Watt-Cloutier to uphold her Inuit values. Her empathy seems to know few bounds. This is because Watt-Cloutier's empathy flows from an embodied connection in the world, an imbrication in both human and nonhuman communities. She characterizes the Inuit and all communities in the Arctic as building bridges "between North and South, between western scientists, biologists and conservationists and Aboriginal traditional knowledge" (Watt-Cloutier, *The Right* 324).

Moreover, just as Watt-Cloutier works to build bridges between multiple stakeholders, she also works to connect different ways of knowing: specifically, western modes of rational thinking and Inuit modes of intuition or emotional knowledge. The head and the heart, appeals to facts and appeals to emotions, are inextricably linked in both Watt-Cloutier's political strategies and representation strategies in the context of climate change. This outlook is reflected in how she views her own life, which she sees as "being made up not just of political wins, but equally of spiritual wins" (Watt-Cloutier, *The Right* 284-5). That is, though the book focuses mainly on Watt-Cloutier's public work, her community involvement and activism in the context of education, women's health, POPs, climate change and other issues affecting the Inuit people, her descriptions

of that work are infused with personal resonances. "Looking back at my work, as public as it has been," Watt-Cloutier writes, "I have to say that it has been, above all, a deeply personal journey" (*The Right* 285).

The kind of personal, inner healing that Watt-Cloutier has embarked on during her life, including the healing of historical trauma and the loss of family members, provides the ground from which her approach to politics and activism grows. She explains that "all of us have what it takes to move toward healing, work through our issues and woundings, rewrite those histories and change our perspectives. That kind of inner work gets reflected in the outside world. For me, the accolades and awards I've received are really about my inner mirroring" (Watt-Cloutier, *The Right* 269). It is this kind of mirroring of inner and outer landscapes that Watt-Cloutier calls on her readers to engage in as well, suggesting that it is everyone's responsibilities not just to decrease carbon footprints but to follow the Inuit sentinels and "move how we conceptualize this issue from the head to the heart, where all change happens" (*The Right* 325). *The Right to Be Cold* calls on its readers to reckon with the deep truth that "climate change is as much about *humanity* as it is about industry or the environment" (325). One could interpret Watt-Cloutier's concluding invocation of humanity in double valences, alluding both to the global collective of the species and to how each of us might approach particular interactions and relationships with kindness and humility. Ultimately then, Watt-Cloutier dramatizes the complex theatre of ice, not as mere setting or empty backdrop to "one woman's story" and not only as an index of ecological and climatic changes, but rather as a site of struggle for both planetary healing and personal meaning-making. Landscapes of ice are places of vulnerability, but they are also spaces of

interconnection, and thus empathy. Watt-Cloutier's own great capacity for empathy exists because of her vulnerability, not in spite of it. In that alone, there is something deeply valuable for us to learn.

IV. Reading from the Heart

It is unsurprising, given his own work in the genre of the climate change memoir, that Bill McKibben would have contributed the foreword to one of the most recent and most representative works in that genre: M Jackson's *While Glaciers Slept: Being Human in a Time of Climate Change*. Published in 2015, the book, her first, has established Jackson as an emerging climate change writer-activist, in addition to her important work as a glaciologist and National Geographic trip leader. I will also admit up front that Jackson is a colleague and fellow Ph.D. student at the University of Oregon, and I have long admired her as a scholar and teacher. I expect that my interpretation of her book is colored by this, though as I will suggest in this project's conclusion, the emotional investments and the personal attachments cultivated through the work that we do as environmental humanists may be something to be acknowledged and cultivated, not discounted.

McKibben's foreword to Jackson's book begins by invoking a common refrain about climate change: It is everywhere, an "elephant always present in every room on our planet right now," yet so thoroughly disregarded (3). McKibben suggests that we have ignored the elephant because of the human tendency to try to understand such massive, abstract, and global phenomena with our "brains" instead of trying to feel it with our "hearts," a tension that he says is at the center of Jackson's book:

> At the core, somehow, is the question of whether the big brain was a good adaptation. Or, more precisely, if it came attached to a big enough heart to get us out of the trouble we're in. To get us out of the habit of staring at the shiny object nearest by, and to look instead at the mountain, the forest, my wife, your mother, our meaning. (McKibben, "Foreword" 4)

McKibben here echoes themes from much of his earlier work: the importance of making climate change a personal issue and the importance of helping people see value beyond consumerism and technological optimism. Where we should look to instead, McKibben argues, is the more-than-human world (the mountain, the forest) and the human relationships (my wife, your mother) that together imbue our lives with meaning. McKibben explains that the deepest questions about climate change, about being human in the Anthropocene, are "easiest to answer in the company of caribou and humpback, or of family and friends. The real company, not the virtual, pretend, screen-based company. We live in an abstracted, mediated world, and in that kind of world it seems possible that all that is real and beautiful might slip right by us" (McKibben, "Foreword" 4). Holding onto the beautiful and the real requires cultivating our relationships with the humans and more-than-human beings with which we share the planet. Such relationships, moreover, will illuminate answers to the most pressing questions about climate change, the future, and our shared vulnerability.

While Glaciers Slept addresses such issues through its profound and at times heartbreaking story of family loss, climate change, and personal and planetary vulnerability. In the opening pages of the memoir, Jackson explains that both her parents died of cancer within two years of one another while she was in her twenties. Her experiences losing them, and the grief, mourning, and eventual hope that followed, provide the central emotional current of the book. Speaking about her goals for the book

in a 2015 interview with *Yes! Magazine*, Jackson explained that she "wanted to explore our capacity to experience personal loss—the loss of family, the loss of lovers, the loss of a local landscape, the loss of certainty in the weather—to grieve profoundly while simultaneously not giving in" (Finke). Jackson embraces the entanglement of the personal and the ecological, at times implicitly and at times explicitly conflating the "outer climate" with her inner, "personal climate," and early on in the book, Jackson writes:

> I cannot untangle in my mind the scientific study of climate change and the death of my parents…I cannot understand realistically what has happened to my family without stepping back and seeing what is happening to this world. There are too many parallels, and, at times, there is too much darkness. They can't be separated. The language and, to some extent, the experiences for both remain deeply similar. (21)

Such entanglement is painful, at times obscuring everything in "too much darkness." Each time Jackson confronts the deaths of her parents she also confronts climate change, and vice versa. "The myth of two separate, different worlds, ours and theirs…the human and the more-than-human," Jackson declares, "isn't true" (41).

As the book weaves together the story of her parents' struggles with cancer and the story of climate change, inevitable slippages begin to occur. For example, throughout the book, Jackson couples her deep knowledge of glacial science with intensely lyrical prose that links the vulnerability of the glaciers to the vulnerability of her mother's body:

> Where the ice buckles, where it is rough and jagged, where the surface shows a wide field of crevasses and cuts, then underneath, sub rosa, there has been a disturbance, a stress, a sudden newness to the known topography… the stress might be a leftward or rightward flow around a mountain, a sudden uphill or downhill, a change in earth material, an unsettling rumor or a doctor's diagnosis; it might even be the invasion of another glacier, intruding, overtaking… The scars don't last, though, unlike in people. (43)

Such moments in the text that draw analogical connections between the two threads, for instance, weaving together the story of a mother's prosthetic leg with an exploration of geoengineering schemes meant to combat global warming, begin to have a cumulative effect over the course of the entire narrative. That is, it becomes easier to read everything that happens in the personal sphere as having some meaning in the context of climate change, and all the explanations of climate change having some resonance in the personal sphere. Thus, when Jackson recounts confronting the woman who caused the accident that took her mother's leg and admits having wanted so badly to inflict on the woman a physical pain equal to the pain her mother felt, readers might wonder, what is the greater meaning of this for our understanding of climate change? That forgiveness might be an impossible task? That confronting one's traumatic past is difficult? That the future is dark only because it is unknown, not because it is terrible? Or maybe there is no connection to climate change, and readers must simply take the moment as it is, in all its gut-wrenching pain. The notion of looking for universal meanings in a text is not new. Students learn to do as such in middle school English classes. In *While Glaciers Slept*, as in many other climate change memoirs, the "universal" seems to have been replaced by "climate change." Or in other words, once climate change enters a text, it can often—under the pressure of a particular kind of interpretive practice—take over everything, dominating both the narrative and our processes of meaning making.

The beauty, and nuance, of Jackson's narrative is that she so willingly lets this happen, so willingly lets climate change in, just as she lets in grief, even while struggling not to let it take over. The most interesting moments in the text come when a reader (and, I would argue, Jackson too) senses climate change pushing in at the edges of the

personal. Instead of pushing it away, Jackson, like the *Dear Climate* project, invites climate change in, sets a place for it at the family table, because it is here to stay. She recognizes this truth about the times we live in, just as she knows all too well that being human necessitates becoming well-practiced in mourning:

> Mourning is the digesting of food, the early light, the red panties under all that black, the pouring of jasmine tea in an unlit room, the awareness of soil. Mourning is continuous and endless, a birthing of emotion in a closed brain. It is the willingness to pour words from mouth, the automatic reaching across the bed; it is buying a gift for someone who is dead. It is an act of surviving. (Jackson 64)

Unlike grief, which is, Jackson writes, "unsurvivable," mourning requires that we pay attention, that we delight in the beauty that is always present, even with great loss. And ultimately, by mourning, by paying attention, we are able to hope. But Jackson doesn't give readers hope until she herself finds it after fully feeling the grief and pain of familial and planetary loss. Even then, *While Glaciers Slept* does not end with easy optimism but with a recognition that loss and mourning will continue, and that hope only comes through struggle and connection. As Jackson's memoir makes salient, in an age of increasing climate change, grief will have few effective outlets, little space for meaningful resolution or its transformation through mourning. Ultimately, we might find, as David Collings bleakly points out, "that there is nothing beyond this loss to move on to" (150). What would it feel like, Collings wonders, to abandon anything that might heal or renew us and instead embrace trauma and loss themselves without reserve? We might find, as Jackson does, that "through embracing trauma more fully we can accept the broken world without being haunted and distressed by it" (Collings 154-5). Such acceptance does not, for Jackson, mean acquiescence, but rather an active welcoming of the world, in all its pain, loss, and chaos.

In the short epilogue, Jackson relates a cherished family anecdote about her late father. Jackson describes that while her father is in the hospital recovering from a complicated cancer surgery, one of his nurses tells him that she felt her life had amounted to nothing, even though she'd been a nurse for eighteen years and was the mother of two small children. Jackson's father exclaims to her, "'But look at what you've done, what you've accomplished!'" and then, for reasons still unknown to Jackson, asks the nurse to dance (Jackson 217-8). "No one has ever asked me to dance before," the nurse tells him as he shuffles out of bed to take her hands in his. Jackson reflects:

> This single moment tells me that even when we are at our most beleaguered, we are still capable of making this world a better place. That even when the way before us is dark; when we feel the cards are stacked against us; when we're left with nothing but temporary measures to ease the pain; when, ultimately, we feel powerless—we are still incredibly, miraculously capable of action. We are audacious. (218)

As Jackson does throughout the book, she tells stories about herself, about her family, about the communities she is part of and the places she loves so as to illuminate the larger emotional truths about being human in a time of climate change: the despair, the pain, and the miraculous audacity. In this example, Jackson acknowledges that pain and loss are inevitable but that such feelings are not anathema to action. Rather they are its preconditions. Opportunities to act decisively, boldly, bravely arise from pain and powerlessness—from vulnerability.

At the close of his foreword, McKibben calls on readers to approach Jackson's book with "the spirit of openness it deserves, making yourself vulnerable to both hurt and joy" (4). In the past, McKibben has often written about what good climate change texts can do to us, or for us, as readers. For instance, in his foreword to Amy Seidl's *Early Spring: An Ecologist and Her Children Wake to a Warming World*, another recent

contribution to the climate change memoir genre, McKibben explains that books like hers will "rouse us to save what we can and savor what we can't" (Seidl x). Similarly, his introduction to the short story collection *I'm With the Bears* lays out a particular argument about what makes for powerful climate change literature: writing that jolts us, that helps us bear witness, that helps us understand "what things *feel* like" (McKibben, "Introduction" 3). Yet his foreword to Jackson's memoir is the only instance in which McKibben offers an argument for a particular kind of *reading* practice befitting a time of climate change—a practice that is based in both compassion and generosity. Reviewers on literary sites like Goodreads and Amazon have echoed such sentiments about their experiences with *While Glaciers Slept*. One reviewer explains that the book will likely help readers "find bridges between the world they inhabit on a global scale and their everyday lives" (Gillian), and another describing the book as "a memoir to keep you company, a book to reread and refer to when you need reassurance and companionship in difficult times" (Weed). I do not cite these reviews as conclusive in support of any one particular interpretation of the book, but rather as evocative of the different kinds of expectations and reading practices that are being brought to bear on climate change memoirs like Jackson's.

McKibben's call for a certain kind of reader also suggests a particular kind of teaching practice for the ecocritic or Environmental Humanities educator. What would it mean to teach climate change memoirs in such a way that students are allowed to acknowledge, explore, and share their vulnerabilities as they encounter both the text and the extra-textual realities (material and psychological) of a warming world? We might, for example, ask students to begin researching the impacts of climate change on their

communities and home places. We might have students create a class vulnerability map, through which students could see themselves as connected to their classmates through different climate risks (e.g. "The increase in wildfires near my home is linked to the drought affecting farmers in your community"). While always working to create a safe and supportive classroom environment, we might then ask students to compose their own climate change memoirs or personal essays, and then share them with their peers, or even with audiences outside the classroom.[22] Lastly, we might pose questions to students not only about what these texts *do* or how they *function* but about what kinds of gifts they *give* us and how, in our roles as environmental humanists, we might help spread those gifts further through the world. McKibben concludes:

> We may or may not be able to slow down climate change (I hope we are able, and so I devote my days to that task). But we are definitely able to witness the world, and ourselves on it, in these fragile and lovely moments. That is our task, too. (McKibben "Foreword", 4)

Climate change memoirs like Jackson's perform the difficult and oftentimes emotionally devastating work of witnessing not only the physical impacts of climate change, but the psychological impacts as well. At their best, they provoke their readers to witness both the fragility and the loveliness, to echo McKibben, of being human together in a time of climate change. We too as environmental critics, scholars, and educators must witness these impacts, as they are felt by the texts that we encounter, by the students we teach, and by our own psyches. That is our task, too.

Climate change memoirs, along with essays, poetry, and personal climate change testimony in multiple forms and genres, teach readers about the importance of being

[22] In the past, I have found success using various blogging activities as platforms for students to share their own climate stories. Instructors can also encourage students to submit their stories to one of the many online climate change storytelling platforms that encourage submissions from users, for example, The Climate Stories Project (www.climatestoriesproject.org).

open, and thus vulnerable, to a world that is even more chaotic, unpredictable, and potentially violent because of the proliferating impacts of climate change. Jackson explains how, over the years, she has "garnered the courage to step off the proverbial edge and commit myself to people, ideas, organizations, schools, identities. To hope" (58). By modeling emotional openness, climate change memoirs teach us how to mourn, how to heal, and ultimately how to find beauty in a broken world. I gratefully borrow this phrase from Terry Tempest Williams' heartbreaking and mosaic-like book, which, though not explicitly about climate change, offers a thesis of sorts for understanding climate change memoirs: "Finding beauty in a broken world is creating beauty in the world we find" (385). Climate change memoirs not only address the world's brokenness, but also take it upon themselves to recuperate beauty. That is, through their encounters with the realities of climate change, these texts teach us how to dwell with the full range, however painful, of emotions that arise in response to the dilemmas of our time, and by doing so, perhaps at last overcome the denial, apathy, and disassociation habitual to our everyday lives and culture. Whether that is Bill McKibben in *Oil and Honey* surveying the gorgeous resilience of the people and the land in his Vermont Communities, or Sheila Watt-Cloutier in *The Right to Be Cold* illuminating her own inner strength in being able to forgive those who have harmed her and her community, or Jackson in *While Glaciers Slept* describing the enigmatic beauty of disappearing ice, these are books that struggle to find beauty and goodness in a chaotic and unpredictable world, and invite us to do the same.

Such texts have the potential to be useful tools in the classroom, as they invite readers to reflect more deeply on their own relationships and personal experiences in the

context of climate change. Sometimes, with their busy, already complicated lives that include juggling multiple interests, jobs, or family responsibilities, students can find it challenging to connect to climate change personally. The problem often feels too abstract or too overwhelming to engage with on a daily basis. It is easier to focus on what already seems already connected to their well-being and everyday emotional landscapes. Other times, though, students are engaging emotionally with climate change beyond the classroom, are registering its psychological impacts. In a first year writing seminar themed around the topic of climate change, for example, a number of students mentioned to me during office hours that their experiences learning about climate change and thinking critically about the imbrication of their lives with the fossil fuel economy was affecting them personally and was even affecting their relationships with roommates, friends, parents and family members. Other students shared similar sentiments on our course blog and in their reading journals (which they had the option to share or to keep private), communicating that learning about this material was depressing, sad, terrifying, or overwhelming.[23] Giving students opportunities to navigate this potentially unstable personal and emotional landscape in relation to confronting the climate crisis is a vital task not just for the environmental educator, but for all educators. David Palumbo-Liu has pointed out that many students have gotten the message from both the dominant culture and their own educations "that to stop and think and reflect on sadness, disappointment, grief, is either an indulgence, or, worse yet, a sign of weakness"

[23] As research has demonstrated, children, adolescents, and young adults are more susceptible to and less able to cope with the emotionally devastating realities of climate change specifically, and environmental problems in general (Stokols; Hicks and Bord; Searle and Gow). One 2012 study in particular found that the most effective means for helping young people address these difficult emotions is through "meaning-focused coping": That is, helping youth discover in the problems of climate change personal meaning, life purpose, and even spiritual beliefs (Ojala). One could imagine the genre of climate change memoir as potentially useful for helping students engage in this kind of work.

(Palumbo-Liu). The arts and the humanities, Palumbo-Liu suggests, can give students "the space and freedom and consolation to share [their] sadness, as well as joy, puzzlement, imaginings of different worlds" (Palumbo-Liu). I thus invite my students to engage in ongoing conversations about their emotional experiences learning and teaching climate change. By consciously recognizing the shared emotional labor that we (both teacher and students) put into the material and the educational endeavor more broadly, we are able to engage in more frank and more productive conversations.

The task of opening up and embracing shared vulnerability can be challenging as it requires acknowledging not just that the world is in crisis but also the fact that such crisis is distributed unevenly. Teachers thus need to reocgnize that some students are more vulnerable (or vulnerable in different ways) than otherrs. The kind of reading and interpretative practice I am talking about here can be difficult to teach, in part because it requires thinking beyond, or perhaps beneath, the comfortable stance of critique. The fetishizing of critique can be a form of evasion, an easy out from the psychological turbulence of climate change, and as ecocritic SueEllen Campbell points out, such critique is business as usual in humanities disciplines:

> We so often focus on what is wrong. We analyze, critique, interrogate, problematize. We blame gigantic faceless forces: corporations, capitalism, neoliberalism. We talk about how everything is constructed—by faceless forces… When we emphasize critical thinking, we may be doing so at the expense of thinking that is practical, compassionate, and creative. (S. Campbell, "Making Climate Change")

Cultivating in students the skills of "critical thinking" is crucial in this time of climate change, particularly to help students question the assumptions and claims of a business as usual status quo that perpetuates climate change. But "critical thinking," as Campbell points out, cannot come at the expense of "compassionate thinking," as the latter is

equally necessary for responding to climate change (S. Campbell, "Making Climate Change"). I do not want to fall prey to overly-critiquing critique, and my own expectation is always that students will engage in meaningful and profound critical reflection, of both their own and others' worldviews. But ultimately I want students to surpass cynicism and be able to arrive at what Joanna Macy and Molly Brown refer to as, the compassionate "work that reconnects" (Macy and Brown 63).

Recognizing that "the decisions, the dreams, the imaginings of each individual person, gradually, and in both known and unknown ways, reach out and touch each and all of us in turn," Jackson argues that "we have to believe anew in the sacredness of the collective dreamer, the unlimited imagination of a nation and a planet" (179). Climate change memoirs provide models of how other individuals are navigating the psychological frontlines. They are handbooks for being human in the Anthropocene, and together they are weaving a new collective climate change imagination. In the following chapter I will look more specifically at this kind of hopeful and imaginative work and the possibilities it holds for teaching and learning about climate change.

CHAPTER 3

TEACHING CLI-FI: LESSONS IN AFFIRMATIVE SPECULATION

"The challenge of our time is to discover how to live in a world
with a disappearing future."
David Collings, *Stolen Future, Broken Present*

"It's hard to imagine what the world will look like, and I also really don't want to
speculate about it because it terrifies me."
Student in ENG 104: Introduction to Climate Fiction, Winter 2015

"What works? What is! Vision of the possible.
Vision of the future!"
Pat Hutchings, "Approaching the Scholarship of Teaching and Learning"

"There are no right answers,
only possibilities"
Jeffrey T. Kiehl, *Facing Climate Change*

I. Introduction

In a time when the impacts of global climate change are worsening and the disparities of global social inequality are widening—the twin challenges of "the great acceleration" and "the great divergence," according to Rob Nixon—one of the key problems humanity faces is the future itself (Nixon, "Great Acceleration"). How to imagine the future of a world everywhere exceeding the comfortable limits of a Holocene

climate? What stories to tell about the future? And how to realize a future in which all beings, human and nonhuman alike, have the opportunity not just to survive but to flourish? In this chapter, I argue that works of climate change fiction, otherwise known as cli-fi, are not only sites to encourage instrumental attitudinal or behavioral change, but are also where different social, political, ethical, and pedagogical projects of futurity are articulated, endorsed, and/or challenged. Or in other words, works of cli-fi are locations for conversation and contestation, not consensus and conformity.

This chapter does not offer an argument about cli-fi in which its value and outcomes are taken for granted at the outset. That is, I do not want to instrumentalize this literary and cultural genre. Cli-fi is powerful because of its unpredictable educational *possibilities,* not because of its ability or inability to convert individuals into becoming more informed or more caring climate change subjects (though this can happen, and when it does, we should embrace it) or its aesthetic qualities (though we can certainly welcome some works for their literary or critical merit). Yet I do not aim to give up entirely the notion that cli-fi in its many forms, and climate literature and culture more generally, has some instrumental value, especially because works of cli-fi, especially those that are participatory and playful, can be sites for empowering modes of teaching and learning about climate change. In particular, cli-fi offers a venue for exercising our individual imaginations and perhaps even makes possiible a transformation of our shared imagination about climate change. As Kathryn Yusoff and Jennifer Gabry point out, exercising the imagination is "a way of seeing, sensing, thinking and dreaming that ultimately creates the conditions for material interventions in, and political sensibilities of

the world" (1). Cli-fi helps us address the problem of the future, and by doing so, recuperate the present.

In the contemporary moment, the future is something that, paradoxically, we both see everywhere yet refuse to look at. According to Bruno Latour, we (as moderns), have yet to truly face our collective future: "What the Moderns called 'their future' has never been contemplated face to face, since it has always been the future of someone fleeing their past looking *backward*, not *forward*" ("An Attempt" 486). Perhaps we look backwards because looking forward is terrifying or perhaps we look back because the past is so appealing. Or perhaps we have not contemplated our future face to face because it has already disappeared. Indeed, as David Collings suggests, we live in a time in which the future is consistently being foreclosed by the forces of global neoliberalism and a rapacious speculative economy (13). Yet paradoxically, whether we choose to face the future itself, visions and narratives of climate changed futures confront us daily, from Hollywood disaster films to the unending images of crisis that we receive through our Twitter feeds. Two dominant narratives of climate changed futures—narratives of progress (particularly techno-optimistic progress) and narratives of apocalypse—play equally into the hands of market forces, making invisible ongoing histories of injustice and what Nixon calls "slow violence," thus also limiting what kinds of futures we can possibly imagine (Nixon, *Slow Violence*). Frederic Jameson famously remarked that it has become "easier to imagine the end of the world than the end of capitalism" (76). We may find it more comfortable or more convenient imagine a world in which geoengineering solves the climate crisis, or conversely, a world of total social and ecological collapse than to imagine alternatives to the dominant logics of consumerism,

colonialism, structural racism, and extractive capitalism. Contemporary dystopian and apocalyptic narratives, particularly those that envision climate changed futures, might try to trouble the status quo, but as ecocritic Ursula Heise notes, "by failing to outline a persuasive alternative, they end up reconfirming it" (Heise, "What's the Matter"). Given this unsettling and unfortunate truth about the limitations of our collective imagination, Collings explains that our goal in a time of climate change should not only be to "safeguard the future of the biosphere…[but] also to preserve our *idea* of the future, on which so much of our lives and traditions are based" (72). We are fighting not only for the resilience and well-being of the ecosystems in which we live, Collings claims, but for "the hope for an expansive and joyous life for ourselves and others" (72). In a similar vein, political theorist Cheryl Hall has noted that "a story of doom and gloom is insufficient," but so too is "a purely optimistic message" (137). Instead, Hall calls for an imaginative repertoire of future stories that both fortify us in the face of chaotic change and inspire us as we think about larger questions of living in the Anthropocene. Could we make a conscious effort to move beyond (or perhaps beneath) comforting fantasies of both endless progress and inevitable apocalypse? What would it mean to imagine otherwise?

Taking as a conceptual starting place Latour's challenge to contemplate and compose multiple futures and Collings' appeal to preserve the *idea* of the future itself, this chapter investigates how the genre of speculative cli-fi can intervene in this problem of the future, especially as it offers a repertoire of stories and a vehicle for imagining otherwise. Specifically I analyze recent examples of cli-fi: Nathaniel Rich's 2013 novel, *Odds Against Tomorrow*, which explores the psychological and material impacts of

climate change and risk society; Ken Eklund's *FutureCoast* project, an interactive and collaborative storytelling game that allows users to participate in the processes of creating and curating possible climate change futures; my own experiences in an introductory general education literature course that I reimagined as a cli-fi laboratory; and lastly, *Climate Anxiety Counseling*, a public arts projects that straddles a line between creative practice and social service.[24] I choose these texts not because they are necessarily the most characteristic examples of the cli-fi genre, but because taken together, this archive of cultural texts and pedagogical encounters exemplify the practices of what Uncertain Commons, an anonymous group of scholars, mediaphiles, and activists, describes as "affirmative speculation."

Whereas most forms of speculation today are *firmative*—that is, imagining and then exploiting potential futures within the calculus of neoliberal capitalism (for the purpose of control and foreclosure)—narratives of *affirmative* speculation instead open up many possible futures without trying to reduce those futures to manageable certainties (Uncertain Commons). As explained in *Speculate This!,* the group's collaboratively written manifesto that was distributed freely online in 2013, "If firmative speculation produces, exploits, and forecloses potentialities…affirmative speculation *sabotages* the exploitation of potentialities, *produces* the common, and *opens* up innumerable possibilities" (72). The authors make clear that firmative and affirmative speculation are not wholly separate but are rather two ends of a spectrum. Some practices tend more towards the firmative in their attempts to capitalize on the future through expert

[24] In what follows, I refer to students either by their own name or by a pseudonym the student has chosen, whichever they prefer. All students quoted herein signed forms granting me permission to cite their work in potential research (both written and conference papers). In fact, several students mentioned to me how much they liked the idea that their work would be included in this project, and they hoped their reflections might influence how I (or other instructors) design similar classes in the future.

knowledge (think futures trading on Wall Street or the predatory student loans market). Other practices tend more towards the affirmative in their attempts to imagine the many potentialities of what the present could become (think the hacktivist collective Anonymous or Donna Haraway's essay "A Cyborg Manifesto"). As these examples suggest, affirmative speculative practices allow for the emergence of more just and sustainable futures whereas firmative speculative practices shore up structures of inequality, violence, and dispossession. Deploying this framework of firmative and affirmative speculation as a provocation to imagine otherwise in the Environmental Humanities, this chapter argues that speculative cli-fi is a form of affirmative practice that can perform important kinds of affective and educational work, even if such work cannot always be predicted ahead of time.

When activated by the collaborative energies of a student-centered classroom, cli-fi can be a powerful learning tool, helping students develop climate change literacy that involves not only understanding and applying important scientific concepts, but also, as I have argued earlier in this project, exploring the emotional and ethical ramifications of climate change and imagining futures that are more resilient, sustainable, and just. At its best, teaching cli-fi is about bringing the future (back) into the educational commons and expanding the number and type of people who can take part in conversations about climate change, not about pinning the future down and shoring up existing ideologies. Cli-fi can thus be a starting point for imagining anew the work we do as educators in the environmental humanities and even (re)conceptualizing the role of the teacher. As scholar of teaching and learning Pat Hutchings urges, education is always in part a form of speculation, a practice of visioning the future and the possible. Moreover, teaching in

what Stephanie LeMenager and Stephanie Foote call the "sustainable humanities," is, they claim, "a sustaining exercise in collaborative narrative or even confabulation, and as such it renews our contract with the future" (577). For me, teaching cli-fi has become a practice in affirmative speculation, both future- and present-oriented, inciting me not only to question my own assumptions but also to engage in pedagogical experimentation, which requires a kind of collaboration with students themselves—a co-making of the educational experience (LeMenager and Foote 576). As such, my claims and hypotheses throughout this chapter, whether or not explicitly signaled, all emerge from experiences in the classroom. As Uncertain Commons explains, "the future has been bundled, defined, and sold by speculators" (1). How are we going to take it back? In such a world, teaching cli-fi can be a force to salvage speculation as a creative, participatory, and potentially liberatory force.

II. Why Cli-Fi?

Earlier this year, I sat down at a local coffee shop for a conversation with Mark Trexler, an Oregon-based climate change analyst who advises businesses, nonprofits, and governmental organizations on climate future scenarios and risks. Trexler runs a consulting group called the Climatographers (a portmanteau of climate and cartography), which specializes in mapping "alternative paths through the knowns and unknowns of climate change to support risk-based societal and corporate responses" (Trexler and Kosloff). Trexler and I were meeting to discuss his most recent project, *The Climate Web*, a multidisciplinary climate information mapping program designed to improve climate change learning and personal and organizational decision-making (Trexler and

Kosloff). I was particularly interested in how students could use *The Climate Web* to conduct their own environmental research projects, especially in the context of imagining potential climate-changed futures. Trexler was interested in learning more about the genre of cli-fi, as he was in the process of developing a literature and arts section for *The Climate Web*. We arrived at the meeting each with our own disciplinary backgrounds and sets of assumptions.

I approached the meeting with Trexler as an opportunity to discuss the importance of considering literature and genre with someone completely outside the field of literary studies, the humanities, and academia. Moreover, as I knew that Trexler often advised individuals and groups with the power to enact significant change in the world, I saw this as a chance to expand my role as an engaged humanities scholar and to find out whether I had anything to contribute to conversations and debates about climate policy. We had barely sat down and exchanged pleasantries when Trexler dove in with the question most on his mind: "So, what can cli-fi actually do?"

I quickly discovered that Trexler was somewhat skeptical of the genre, particularly since many of the examples he had read were by his own judgment, "not very good." My answer to his question ranged from explaining how genres can shape public imaginaries, how cli-fi in particular can both reinforce the standard ways that we tell the story of climate change as well as introduce new modes of storytelling, and how such literature can humanize climate change, making it more emotionally potent for readers. Yet my off-the-cuff answers were unsatisfying, both to him, and ultimately, to me too. Perhaps that was a result of not having at my disposal the kinds of evidence necessary to sway someone used to making policy recommendations based on quantitative and

qualitative data sets. That is, I could describe to him (i.e. close read) particular works of cli-fi, but I didn't have survey responses or study results about how people responded to cli-fi. Trexler nodded along but wanted more: "But…can cli-fi *do* anything? Can it actually change people's minds, get them to care more, to act more? Can it lead to direct activism? Can it 'shift the needle' of climate change policymaking?" Although I was struck by the zeal of Trexler's response, I was not surprised by its premise. His question—what can climate change fiction *do*? —has been central to the formation and ongoing proliferation of the genre.

Anthropogenic climate change has centrally featured in various literary and cinematic forms for over two decades—in novels such as Octavia Butler's 1993 *Parable of the Sower* and Norman Spinrad's 1999 *Greenhouse Summer*. Moreover, climate change itself (of the not-explicitly anthropogenic kind) has been a thematic concern in literature for an even longer period of time, from ancient flood myths to Mary Shelley's 1826 novel *The Last Man* to more recent works of science fiction such as Arthur Herzog's 1977 novel, *Heat* and J.G. Ballard's 1962 novel, *The Drowned World* (Trexler and Johns-Putra).[25] As climate change fiction draws on narrative patterns and rhetorical modes from prior periods of environmental discourse and from other genres of environmental literature, it also often redeploys traditional tropes with variations and in new contexts (Ziser and Sze 386). These tropes include, among others: the pastoral, eco-apocalypse, wilderness and American exceptionalism, and a formula for combining global thinking with local action ("think global, act local") (Garrard 15).

[25] Policy-analyst Mark Trexler has no relation to the Adam Trexler cited here, who is a literary scholar and author of the 2015 critical work *Anthropocene Fictions: The Novel in a Time of Climate Change*.

However, even with this long and varied tradition, cli-fi as a distinct genre has only recently begun to proliferate. Dan Bloom, a blogger and climate activist, first coined the term "cli-fi" in 2007, and he has continued to play an instrumental role in popularizing the genre. His "Cli-Fi Report" blog and "Cli-Fi Central" Facebook page, which he moderates, are two central online locations to keep up with news about the genre and learn about new texts (Bloom 2013). Bloom is an archivist and activist, pundit and promoter, spreading the cli-fi hype across multiple media platforms and even helping aspiring cli-fi writers connect with publishers. In fact, in various interviews Bloom has referred to himself as a public relations advocate, his sole mission being to create "a platform for others to use cli-fi to change the world" (Bloom, "Interview"). Whether or not cli-fi can, or will, change the world, it is certainly having an effect on the literary landscape with dedicated cli-fi websites (for example, www.eco-fiction.com), a Goodreads cli-fi group, a popular Twitter hashtag (#clifi), cli-fi book clubs, and cli-fi reading programs at public libraries (Bussjaeger; Meador; Naughton). One might even find cli-fi sections at local bookstores, like the one that recently appeared at Foyle's independent bookstore in downtown London ("London Bookstore").

Recently, cli-fi has also received significant attention from the popular press, with stories about the genre appearing in major media outlets such as *The Guardian*, *The New Yorker, Popular Science*, and *National Public Radio*, among many others. In 2014, *The New York Times* included a discussion page in its online opinion section posing the question, "Will fiction influence how we react to climate change?", and inviting authors and climate change activists alike to comment and debate. Some saw climate fiction as a way to make the issue more palatable to the general public in order to motivate them to

take action (Cullen) or to help audiences reflect on their anxieties (Telotte), while others argued that such works likely only reinforce people's existing viewpoints (Marshall, "Climate Fiction"). Generally, and as with much of the attention that the genre has received, the focus of the *New York Times* debate was on what cli-fi can or can't *do*, and more specifically on how cli-fi will or will not mobilize people to take action in response to the threat of climate change. Naomi Oreskes, a historian of science and co-author of the 2014 cli-fi novella, *The Collapse of Western Civilization*, goes so far as to explain that climate fiction can do what works of nonfiction that foreground scientific data and facts have failed to do: get people to understand climate change and then respond (Bajak).

As such perspectives suggest, climate change fiction is often judged on the basis of its didactic efficacy (MacFarlane; Kramb). When novels deliver in detail an overt political or ethical message about climate change, they are often criticized for lacking a story or being too polemical (or more generally, being poorly written). By contrast, when they focus on story and emphasize literary craft over propounding a climate change message, they are criticized for lacking specificity, accuracy, or the capacity to change readers' minds. As literary critic Axel Goodbody notes, the tensions between the aesthetic requirements of the novel as art and the didactic requirements of the climate change theme are all too apparent in these commentaries (93). A similar dynamic has played out in the recent upsurge of academic studies about the cli-fi genre. Scholars have sought to approach the role of climate change fiction through diverse methodologies, including, for example, ecocriticism (Potter; Johns-Putra), postcolonial theory (Maxwell; Chakrabarty), and studies of race, gender, and disability (Fiskio; Gaard). Though diverse

in methodology much of this scholarship has fundamentally been driven by the desire for climate fiction both to be "good" and to be able to change minds (to convert individuals). That is, both academic and popular arguments about cli-fi are often framed around either its didactic function (Can cli-fi shift its audience's attitudes or behaviors in the context of climate change?) or its aesthetic valuation (Is it good or interesting literature?). In this context, critics and readers alike are often confined by their own expectations, waiting for that first great work of cli-fi that will achieve both instrumental success and literary merit.[26] For example, ecocritic Richard Kerridge notes the excitement that scholars of environmental literature felt while awaiting the release of Ian McEwan's 2010 climate change novel *Solar*: "For the first time, a leading literary novelist had made global warming the explicit and central subject of a work. The novel would show what literature could do with that subject" (155). Ultimately (and perhaps expectedly), *Solar* disappointed Kerridge, who judges that the novel lacks "the full emotional and moral range of which the realistic novel is capable" and thus will be unlikely to effect any meaningful change in its readers (159). Such an estimation of this novel and of cli-fi more generally has the perhaps unintended consequence of limiting the field of environmental literary and cultural studies with the sole task of "assessing how accurately

[26] It should be noted that cli-fi can actually be a hindrance to engendering public care and action around the issue of climate change. As Scott Slovic argues in the context of climate change fiction and the psychological of trust, "sometimes this literature can *help* readers formulate their own understanding of the science and politics of this issue, and other times a vivid fiction narrative… can *diminish* the public's capacity to process information about this subtle and complex phenomenon" (105). Slovic cites as indicative of this kind of literary work, Michael Crichton's best-selling 2004 novel *State of Fear*, which marshals a rhetoric of trustworthiness to case doubt on the reality of climate change and which caricatures environmentalists as fear-mongers who will go to any lengths in order to terrify the public and secure funding for their climate change agendas. Slovic argues that in the context of contemporary climate change literature, "the eloquent—or at least *vivid*—mis-use of science has ominous implications, especially because of the ease with which public trust in the scientific community can be eroded" (111). Or in other words, climate change literature—and cli-fi specifically—is powerful, but it is also (potentially) risky in its ideological flexibility.

climate change has been represented in particular texts and how useful those texts might be in the 'fight' against 'climate chaos'" (Gabriel and Garrard 117).

As I sat speaking with Mark Trexler, I sensed that the answers he was hoping for would limit both the purpose and the importance of my own work in the field precisely in the way that Gabriel and Garrard caution against. I thus grasped for an alternative perspective for thinking about what cli-fi can do. I wanted to offer Trexler a convincing answer, to make a case for the instrumental value of cli-fi, but I also wanted to move beyond the binary (of didacticism versus literary merit) altogether. To attempt this, I turn again, perhaps paradoxically, to the person who has done the most to promote the instrumental value of cli-fi: Dan Bloom.

Although Bloom has been the fiercest advocate of cli-fi, often arguing with those people who doubt its importance, his most recent writings about the genre unexpectedly point towards an alternative perspective on what cli-fi can do. In 2016, Bloom self-published *100 Literary and Philosophical Ruminations about Cli-Fi: The Rise of a New Literary Genre,* a short eBook available through Amazon. The book, which Bloom notes is modeled on the the 17th century mathematician Blaise Pascal's theological volume *The Pensées*, includes a fragmented collection of Bloom's philosophical musings about the cli-fi genre. Each of Bloom's "cli-fi bullets," as he refers to them, first appeared as a Tweet, but collected together in this volume (and on his blog), they function as a cli-fi manifesto, a provocative argument by the self-described individual who "created the genre" (Bloom, "An Open, Friendly Letter"). Bloom's ruminations are enigmatic, paradoxical, and challenging not only in their non-standardized typography and syntax but also in the logical contradictions between statements. They read at times like a

collection of cli-fi koans:

> • Cli-fi is more than a genre term, much more than that: it's a code word, a password, a secret handshake; it is bringing us together as one.
> • Cli-fi wasn't just a case of slapping a new name on an old genre. It's much deeper and existential than that. Think game-changer, new directions.
> • If by some remote chance you find yourself reading a cli-fi novel without realizing it's cli-fi, you have arrived.
> • I never met a future I didn't like. No, that can't be true. Some futures spell the end of humankind. It's in the cards. Choose your exit.
> (Bloom, "cli-fi bullets")

What does the password unlock? What are the new directions? Where will we arrive? I don't have answers to these questions, and I'm not sure Bloom does either. In addition to being enigmatic, the book's emotional tenor swings wildly between despair and hope. Some statements are apocalyptic, as when Bloom explains that "you might not want to go down the cli-fi road, and that's okay. It's not a pretty picture, not a happy selfie. It's disaster, writ large" (*100 Literary and Philosophical Ruminations*). Others are more positive: "Cli-fi can, and will, shine a light on the darkness that is about to befall us. Let's stick together and shoulder the burden" (Bloom, *100 Literary and Philosophical Ruminations*). Similarly, Bloom vacillates between claiming that cli-fi has a special kind of power and admitting that cli-fi ultimately can't *do* anything. So while he refers to cli-fi as a game-changer, he also notes that "People want cli-fi to offer solutions, comfortable happy fixes; ain't gonna happen" (Bloom, *100 Literary and Philosophical Ruminations*).

In the messy middle of such emotional and rhetorical paradoxes Bloom arrives at a provisional conclusion: "Cli-fi cannot, will not, lead the way. This is a clean-up action, and way too late. But it matters nonetheless" (Bloom, *100 Literary and Philosophical Ruminations*). Contradicting his own sometimes-dogmatic attempts to define what counts as cli-fi, Bloom's ruminations here exemplify a kind of playful and spirited

approach for thinking about cli-fi, one which does not purport to pin down and dissect the genre, but rather frees it from our expectations and from the need to define and control. Genres can sometimes appear to have the solidity of natural fact, but in truth they are always emerging out of complex and ongoing interactions between authors, audiences, technologies, cultural institutions, and genre-shapers like Bloom. That is, genres are fluid things, constantly shifting. Cli-fi is no exception, as it continues to be an evolving cultural phenomenon.

In speaking with Mark Trexler, I did not mention Bloom or his enigmatic statements, though perhaps I should have, just to mix things up a little bit. Eventually, sensing that the meeting was approaching an impasse, I steered the conversation to a topic I knew that we both cared about: climate education. I shared with him some of my experiences teaching cli-fi in an undergraduate literature course and also detailed the ways in which teachers all over the world—across different institutions and levels—have been incorporating cli-fi into their own pedagogies. Indeed, state universities, liberal arts colleges, community colleges, and high schools are all now incorporating cli-fi into their environmental studies curricula, and major news outlets such as *The New York Times*, *The Associated Press*, and *Reuters* have recently included stories about this new educational trend (Pérez-Peña; Ring; Plantz). For example, at Holyoke Community College, English professor Elizabeth Trobaugh and environmental science professor Steven Winters created an interdisciplinary co-taught cli-fi course (Gordon), and at Wesleyan University, a group of undergraduates designed their own environmental humanities seminar with a unit on climate change fiction. On the institutional scale, Arizona State University's recently-established Imagination and Climate Futures

Initiative brings together scholars, creative practitioners, and policymakers to explore the relationships between literature, the imagination, and political decisions and behavior in response to climate change (*Imagination*).[27]

On a more personal note, in the past year alone, I have contacted or been contacted by over thirty educators, including professors, graduate students, and secondary school teachers, who are planning on incorporating cli-fi into their courses—ranging from upper division literature courses to team-taught natural science courses to first year writing seminars. A recent article in *The Chronicle of Higher Education* proclaimed cli-fi a new "subfield that is changing the landscape of literary studies" (Fernandes). Perhaps the most striking evidence of the educational power of this genre comes from the realm of rightwing climate skeptics and denialists, who have attacked the genre and some of the educators who use it in their classrooms. My own cli-fi course was satirized on a right-leaning education news website (I admit this somewhat proudly), with the writer sarcastically assuming that I would probably make my students watch movies about climate change like *Sharknado* (Piper).

So what is next for cli-fi? One could imagine a future in which cli-fi eliminates the remaining bastions of climate denial and skepticism in our culture or incites a broad swath of society into knowing more and acting better in response to climate change. One could even imagine a future in which, as professor and legal scholar Edward Rubin ambitiously proposes, cli-fi "contribute[s] to rescuing our planet, and our own nation,

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[27] The ASU initiative includes graduate and undergraduate courses taught by instructors across campus, supports research by local and visiting scholars, and sponsors events such as imagination and climate storytelling workshops and readings by creative writers such as Paolo Bacigalupi, author of the cli-fi novels *The Windup Girl* and *The Water Knife*. Additionally, this past winter, the initiative sponsored the first-ever cli-fi short story contest judged by the acclaimed cli-fi and sci-fi novelist Kim Stanley Robinson. The contest received over 700 stories from writers around the world, and later this year the initiative will be publishing an online anthology of the best submissions (*Imagination*).

from a dreadful future." Cli-fi certainly *could* do these things, though it is important to remind ourselves that the purpose of literature and art is not necessarily (or not only) to fix or to solve. That is, stories are "instrument[s] not so much for solving problems as for finding them" (Bruner 15). But even if cli-fi doesn't *do* these things, even if it isn't the kind of silver bullet that Mark Trexler and other environmental critics seem to hope for, the genre certainly "matters nonetheless," precisely because it calls on us to contemplate, agitate, and speculate otherwise. Moreover, cli-fi brings to the foreground of public debates the important educational experiments being undertaken in the Environmental Humanities, specifically by climate change teachers both inside and outside the classroom.

III. Entering the Cli-Fi Classroom

On the first day of class, I informally poll the thirty-five students in my ENG104: Introduction to Fiction course on three questions. The first: "Who here has taken an English or literature class in college before this one?" No one raises a hand. In a course that exists mostly for non-majors trying to fulfill the University's general education requirement, this is an expected, albeit somewhat dispiriting, outcome. Then the second question: "Who here has taken a course about climate change?" Again, no hands go up, until one student in the front row asks, "What if I spent two weeks studying climate change in a chemistry course?" "Absolutely," I affirm, "that's great, and that certainly pertains." So I revise the question: "Who here has ever learned about climate change while in college?" This time, a response only slightly more encouraging: Four students raise their hands. (It is in moments like these that I often think to myself that every

school should include a sustainability, or even climate change, general education requirement).

Then I ask a third question: "Who has heard of climate change fiction, otherwise known as the genre of 'cli-fi'?" As one might expect given the students' responses to the first two questions, no hands go up, and I see on many of the students' faces befuddlement and skeptical looks. So I follow up on this question, asking, "How many of you have seen, or want to see, the movie *Interstellar*?" (At the time, Christopher Nolan's blockbuster was a hit at the theatres.) Almost half of the students raise their hands. "OK," I tell them, "Keep your hands up." Then I ask, "How many of you saw *Godzilla*? How many of you saw *Snowpiercer* or *The Day After Tomorrow,* or, going back even further, that 1995 movie with Kevin Costner, *Waterworld*?" Almost the entire class has their hands raised at this point (even though students are mystified by the *Waterworld* reference, a film released before many of them were even born).

Then I explain: "Whether you know it as such or not, all of you are familiar with cli-fi in its filmic forms, these movies that, whether about climate change explicitly, speak to our culture's emotional investments in imagining climate-change-related disasters, dystopias, and futures of all kinds. I am guessing that all of you are also familiar with other forms of climate change culture too—popular nonfiction books, magazine articles, documentaries like Al Gore's *An Inconvenient Truth*. In fact, climate change is everywhere in our culture, and in this course we will be looking at the many forms the cli-fi genre can take—from short stories and novels to podcasts, alternate reality games, and transmedia storytelling projects. What we are going to try to discover in this course is how narrative and fictional forms of culture can complement and

challenge dominant modes of understanding climate change, such as those offered in the context of climate policy or climate science."

Over the remainder of this first day of class, the students and I continue discussing these various examples of cli-fi with which they are already familiar (*Interstellar* is a particularly popular topic of conversation given its cultural currency). The students work in small groups to brainstorm the importance of narrative (stories) in general to their lives, independent of whether those stories have to do with climate change. This short activity is meant to encourage students to consider the omnipresence of narrative, about how their own lives are shaped by the stories they tell and are told. I explain to students that this is not just a course about literature and not just a course about climate change, but rather a course about how narrative shapes the way that we as humans experience and understand the world, and in this case, how we experience and understand a world that is everywhere affected by climate change.

The course has stated learning outcomes focusing both on literary/cultural studies and on climate change. Describing the overall aim of the course, the syllabus states: "This course will help you develop the necessary tools and skills for thinking, writing, and speaking critically about literature, culture, and climate change." The goals of the course are thus to ground students in the tools and methods of literary studies while also introducing them to the issue of climate change and the genre of climate change fiction. The specific learning outcomes as excerpted from the syllabus read as follows:

> This course is designed to help you learn key concepts and skills in literary studies so that you can engage fiction and climate change in meaningful, transformative ways. If you invest yourself fully, you should finish the course being able to:
>
> - Read, summarize, and analyze complex fictional texts with discernment and comprehension and with an understanding of their conventions—both formal and stylistic;
> - Draw on relevant political, historical, and scientific information to situate literary and cultural texts within wider debates and discourses about climate change;
> - Identify how literary and cultural texts complement or challenge other ways of understanding climate change;
> - Reflect on and critically analyze your own understandings of, and feelings about, climate change and the future;
> - Employ logic, creativity, and interpretive skills to produce persuasive and imaginative arguments about literature, culture, and climate change.

In retrospect, I may have been trying to tackle too much in the range and diversity of these outcomes, particularly in the context of a general education course. Representing multiple majors and class years, from first year freshmen to soon-to-be-graduating seniors, the students demonstrated a range of abilities and knowledge bases, and as the results from a beginning of the term survey soon revealed, most students neither understood nor cared very much about climate change.[28] Moreover, this was the first time I had taught this particular class, as well as much of the material. Though I had taught climate change courses and I had taught literature courses in the past, I had never taught the two together. I'm going to have my work cut out for me, I thought on that first day. How am I possibly going to teach students how to close read climate graphs and literary texts, understand both climate change concepts (such as mitigation) and literary

[28] In a particularly provocative blog post, one student honestly admits that her initial reaction after the first class period "was to get myself out of the class as soon as possible. All of my knowledge about global warming and climate change could be wrapped up in a couple Al Gore videos I had to watch in high school, and even then I couldn't tell you much other than the fact I remember him saying the words 'global' and 'warming'" (McEwen). Other students commented on this blog post, echoing that they had had similar reactions at the beginning of the term.

terms (like metonymy), develop both their climate literacy and their facility interpreting texts and then creating their own, all in only ten weeks?

Flash forward to the last week of class. Students sit around the room in small groups, taking turns sharing with the class their own collaboratively or individually created works of cli-fi. Some students read selections from their short stories or novels, and those who created audio or video projects, such as radio dramas and podcasts, play short excerpts of these works on the room's overhead projector and sound system. A group of students, inspired in part by several of the cli-fi works that we read during the term and by their own experiences the previous summer in Oregon when wildfires and drought decimated parts of the state, has created an audio drama about three friends who, thirty years in the future, must navigate even worse wildfires and drought and try to migrate to Canada. One student reads a selection from his speculative short story set in a now-flooded coastal city in Japan. Another posts about everyone's projects on various social media platforms, and this in turn becomes part of her own ongoing project to tell a cli-fi story on Twitter (inspired by the novelist Jennifer Egan's short story "Black Box," which, before its inclusion in *The New Yorker,* was originally published in the form of Tweets). Many students explain how different published works of cli-fi—such as short stories by Paolo Bacigalupi and Warren Cariou or the podcast series *After Water*—influenced their own approaches, and they provide details for how they would expand their creations if they had more time. One student walks the class through his mock-up version of the "Climate Trail" video game, a reimagining of the popular (particularly with this group of mostly Oregonian students) computer game, *The Oregon Trail*, and another group of students gives a demonstration of their cli-fi board game, a climate change

themed version of the classic game of *Life*. The students are applauding each other's successes. They are smiling, sometimes even laughing (as they teach me too that teaching and learning about climate change can be an occasion not just for despair, but for humor and joy too). The students also seem to be taking seriously the idea that they are themselves cli-fi creators and thus have license to imagine and speculate about the future (or multiple futures).

As part of this assignment, I asked students not only to create cli-fi but then to close read it as they would any other of our course texts. In her final project analysis, Kelsey reflected on her engagement with the future: "During the class we learned by reading and discussing different possible worlds in different novels and short stories, but until I had to create my own fictional world I never fully appreciated exactly how many different futures might be possible as the climate warms." Another student, Brooke, similarly examined her own capacity to imagination possible futures and analyzed how completing the class project shifted the way she thought about climate change and about her method of literary creation:

> Writing this work of cli-fi made me look more critically at my own life, future, siblings, and parents. I am of the same age range as the narrator of this story, living in the same states, with two parents and a brother. I was forced to put myself into the future and think, "What would I do? How would I handle these situations?" and, more importantly, "How can I prevent this fiction from becoming reality?" It is easy to sit in class without really absorbing or applying the information presented to us. Or, we may briefly relate to the information in class only to not internalize it and then brush it off later. However, in writing this story, it was impossible for [my group members] and I not to relate. As we sat and worked together, we found ourselves beginning sentences with, "What I would do is…" This was a direct interaction with the issue of climate change. The reality is that if we, as a society, do not start to make changes, we will be forced to live in these hypothetical situations. This is exactly the effect that we wanted to share with our readers and what makes climate fiction so important in spreading the messages of the dangers of climate change. It forces readers, just as it forced me, to face reality and reflect on themselves and society as a whole.

Like others in the class, this student discovered a direct connection to climate change through the speculative and imaginative processes involved in creating her own cli-fi. Her comments highlight the process through which she and her group members discovered the empathetic and collaborative potency of using fictional narratives to pose "what if" and "if then" questions and explore counterfactuals. Significantly, this student emphasizes how important it was for her and her group mates to consider their audience, and how they better understood the need to share climate changed futures and connect with potential readers by humanizing the issue. Yet the student clarifies that she wrote for an audience not primarily with the purpose of knowledge transfer; rather she characterizes cli-fi's impact on its audience as a kind of deep transformative experience, arguing that cli-fi's task is not mainly to communicate the facts of climate change, but to provide fertile affective ground for those facts to sink in, to speak to readers where they live and feel. That is, imaginative works of cli-fi personalize and concretize climate change, opening space for readers to dwell with its large, complex realities. Concluding her reflection, the student parallels the transformation that she underwent in writing cli-fi with the transformation she hopes readers will undergo as well.

I include these bookended pedagogical vignettes not to idealize my own teaching, nor to suggest that the course was flawless. It wasn't. Teaching cli-fi includes many challenges and pitfalls, many false starts and dead ends: texts that students simply don't like, emotionally difficult conversations, and learning goals that just can't come to fruition. For example, based on responses to an end of term questionnaire, I discovered that some students left the course still unclear about some of the most important aspects of climate change, including even the basics of climate science and climate policy.

Similarly, at the end of the term, even with my occasional lectures and the ongoing small group work focusing on literary concepts and the skills of close reading, some students still confused terms such as "protagonist" with "antagonist" or were unable to explain the distinction between "story" and "narrative discourse." Or in other words, though in my own recounting of the course it may seem at times that student learning fit into a neat, compact arc (an educational conversion narrative from not knowing to knowing), it was nothing of the sort. Transformations (including my own) did occur, but they weren't always expected, nor were they as simple as a linear conversion narrative might suggest.

Rather, I contrast these classroom moments to suggest that cli-fi has the *potential* to incite indirect and unpredictable transformative learning, both for students and teachers.[29] As transformative learning theorist Christine Jarvis points out, works of narrative fiction, and more broadly, the elements of fiction—imagery, characterization, figurative language, symbolism, plot, metafictional elements—whatever form they take, can become "the disorienting dilemma, the trigger for transformation that is central to the literature surrounding the constantly evolving theories of transformative learning" (Jarvis 486). Such transformative learning is predicated on an encounter with a disorienting dilemma, but it also includes (as this student's reflection speaks to) the critical interrogation of one's own assumptions and worldviews, empathetic perspective taking,

[29] Jack Mezirow, the first scholar to theorize transformative learning, outlines ten discrete stages in the process of transformation, though he importantly notes that the progression is never as direct or easily mapped as these steps would suggest: 1. A disorienting dilemma; 2. A self-examination with feelings of guilt or shame; 3. A critical assessment of epistemic, sociocultural, or psychic assumptions; 4. Recognition that one's discontent and the process of transformation are shared and that others have negotiated a similar change; 5. Exploration of options for new roles, relationships, and actions; 6. Planning a course of action; 7. Acquisition of knowledge and skills for implementing one's plans; 8. Provisional trying of new roles; 9. Building of competence and self-confidence in new roles and relationships; and 10. A reintegration into one's life on the basis of conditions dictated by one's perspective (*Learning as Transformation* 290).

and a reintegration into society (in the terms of the student reference above, by thinking about how to "prevent this fiction from becoming a reality").

Teaching cli-fi too became my own disorienting dilemma, and throughout the semester, just as many of the students were undergoing transformative learning experiences, I too experienced a kind of transformation. In particular, I questioned my assumptions about my own role as a climate change educator and how I viewed my students' roles in the classroom and beyond. I began the term by seeing the students as individuals whom I could poll about their climate change knowledge and feelings and then adjust my teaching accordingly in order to address gaps and deficiencies. I ended the term by seeing the students as equal co-creators in climate change knowledge, and, more specifically, as co-creators of climate change futures. Overall, I approached the course as a testing ground for thinking about the possibilities and limitations of the cli-fi genre as well as the possibilities and limitations of my own teaching practices. Edmund O'Sullivan explains that transformative teaching and learning is a process that "has a sense of adventure… a journey less concerned with trying to find fixed facts and more concerned with identifying what we need to learn to live well—ecologically, peacefully, and justly ("Deep Transformation" 176). Again, as Sullivan, Mezirow, and others suggest, transformative teaching and learning is not a smooth or streamlined process. It happens in fits and starts, if it happens at all. It is difficult, and it is messy. It is affirmative in the sense of imagining futures that are more just and more sustainable. In the next two sections, I unpack further some of the messy middle parts of this particular cli-fi course, which was for me nothing short of an educational adventure.

IV. Speculating with *Odds Against Tomorrow*

Nathaniel Rich's 2013 cli-fi novel *Odds Against Tomorrow* opens by situating its readers not in a dystopian or post-apocalyptic landscape (as might be expected given the cover image of a flooded Manhattan), but rather in the seemingly banal setting of a college classroom. Undergraduate students in a University of Chicago Introduction to Russian Literature course (humorously referred to by the narrator as "Sputnik for Nudniks") sit in a large lecture hall listening to their tweed-jacketed professor drone on about Alexander Pushkin (Rich, *Odds* 5). Soon though, this academic idyll is disrupted when students' smartphones and laptops begin buzzing with alerts that a massive earthquake has struck the city of Seattle. After one student interrupts the professor to let him know what is happening and another student shrieks, "My brother lives in Seattle," and runs out of the room, the curmudgeonly instructor becomes so frustrated that he pounds the lectern and storms out, telling the class, "For anyone who is serious about this course, I will conduct the rest of the lecture across the hall" (Rich, *Odds* 7). Soon after the professor leaves the room, a student patches a live news feed into the projector, and the class watches in silence as the spectacle of fiery and chaotic disaster plays out for all to witness: "The reporter's voice was loud and hoarse in the speakers. We saw incoherent flashes of flame, glass, metal, sea. No one spoke. We were trying to understand what we were watching" (Rich, *Odds* 7).

From a moment of satirically bad teaching to a moment of spectacular disaster: Sometimes this is what it feels like when I'm teaching climate change, as I imagine students are simultaneously experiencing both the fear of climate change and the absurdity of my pedagogical foibles. It is week six, just over halfway through the

semester, and enthusiasm is low in our Introduction to Cli-Fi course. Students have recently completed the course midterm exam and are still in the throes of taking tests, writing essays, or completing lab reports for their other courses. So it's understandable that energy might be dragging at this point in the term. However, the morose atmosphere in the class has a different valence. Its causes are not, or not only, the usual stresses and anxieties of college life. Nor are its causes the long drag of a dark and rainy Oregon winter; the temperatures have been in the sixties and the sun has been shining unseasonably (many students are coming to class in shorts and flip flops). There seems to be something else at stake in the students' malaise. And in fact, the weather—or rather, the climate—might have something to do with it too.

For five weeks, students have been experiencing viscerally the impacts of an ongoing drought in Oregon and an unusually mild and unpredictable winter, while simultaneously reading and discussing examples of speculative cli-fi, works that imagine potential near futures impacted by climate change. Mainly these have been pieces of short fiction that might generously be described as pessimistic (and ungenerously as depressing or terrifying): for instance, Paolo Bacigalupi's "The Tamarisk Hunter," Helen Simpson's "Diary of an Interesting Year," and David Mitchell's "The Siphoners," stories from the collection *I'm With the Bears: Short Stories From a Damaged Planet*, one of our key course texts. The volume, published in 2011 with the goal of raising money for the climate change group 350.org, includes an introduction (referenced briefly in the previous chapter) by Bill McKibben in which he offers a preamble for the short stories included in the volume. Though he doesn't explicitly use the term cli-fi, McKibben also advances a set of arguments about the genre more generally.

Explaining the connection between fiction and a world impacted by climate change, McKibben points out about the specific stories in the volume that "many of these pieces conjure up that world, and a tough world it is, not the familiar one we've loved without even thinking of it" ("Introduction" 4). The world that McKibben refers to is one in which the human drama is caught up in larger planetary changes; earlier in his introduction he ruefully refers to these as the "carnage" and "cataclysm" of climate change ("Introduction" 2). For McKibben, fiction's power comes from its being about both the future and the present, and his evocation of speculative practice echoes the work of literary critic Darko Suvin, whose concept of "cognitive estrangement" has been formative for understanding how speculative literature functions on the human psyche. Suvin explain that speculative fiction is always as much about the present as it is about the future, and it can thus help us *feel* as strange the familiar social and power structures of our lives (7). In other words, speculative fiction, and in this case speculative cli-fi, has a particular affective potency, an ability to make us feel different about both the future and the present (and the relationship between the two). As such, emotion is key for McKibben, who sees the role of the writer/artist to "help us understand what things *feel* like" ("Introduction" 3). Cli-fi stories, according to McKibben, then become the emotional "jolts we dearly need" especially given that "this is serious business we're involved in" ("Introduction" 4). Accepting, for the moment, McKibben's claim that cli-fi should provide serious jolts to our emotions and consciousness, I wonder whether that means teaching cli-fi should be the same.

Looking back now, I can see that for five weeks, one of my implicit goals as a climate change educator had been to shock my students—most of whom had never before

learned about, let alone regarded, climate change. But did I shock too hard? Did the constant barrage of dark futures presented by these works of cli-fi take a toll on the students' capacities for imagination? Casey, a particularly bright and dedicated student in the course, reflected in her reading journal that imagining the future is hard, not just because imagination itself is difficult, but because the future—and the process of speculating about it—is terrifying. The majority of students in the class expressed similar sentiments, both in their private journaling assignments and on the course blog (see http://blogs.uoregon.edu/eng104/). Even the titles of the students' blog posts from that part of the term speak to the overall affective state of the class: "The Pits of Despair?", "Disaster for the Future?", "Is There Any Hope?", and, perhaps the most unambiguous, "Why Global Warming Scares Me." For the first five weeks of the term, the students had been equating the practice of speculation with fear, sadness, despair, and hopelessness. This is why I had turned with positive expectations to *Odds Against Tomorrow*, the next text on the syllabus and a novel that includes disaster, yes, but also satire and humor.

It is not surprising that *Odds Against Tomorrow* begins with a scene in which the spectacle of disaster enters the space of a classroom, and particularly a humanities classroom, because the novel is interested in questions having to do with learning and the imagination. A bildungsroman married to a catastrophe plot, *Odds Against Tomorrow* tells the story of Mitchell Zukor, a recent college graduate (he was sitting in that Russian Literature class when the Seattle earthquake struck) who begins working for a financial company in New York City. The company, Future Days, exploits an insurance loophole to indemnify companies against climate change risks. Mitchell, who has always dwelt with his own fears of imagining worst-case scenarios, discovers that he has as

preternatural talent for convincing clients that they should protect themselves against future threats—from Chinese cyber terrorism to flu epidemics to tsunamis. He is a futurist, and people pay significant amounts of money for him to share with them his terrifying visions.

Except for the opening and closing chapters, which are narrated in the first person by a character tangential to the plot, the rest of the novel is written in limited omniscient and internally focalized through Mitchell's consciousness. Mitchell's emotions dominate both the novel's plot and its overall affective register. Mitchell graphically imagines his own emotional landscape as a dilapidated tenement building crawling with cockroaches: "He could feel his old pursuers, the cockroaches, feasting on him… Their food was fear, and they ate ravenously, lip-smackingly" (Rich, *Odds* 20). In a *New York Times* article that appeared just after the novel's publication, Rich explains what he sees as the role of the fiction writer in a time of climate change:

> Novelists may be powerless to change this terrifying new world, but they can make a greater effort to understand how it is changing us. Isn't this, after all, why we read novels—to see ourselves more clearly? A great novel holds a mirror to our secret desires and fears; it allows us to confront our long-term crises. It helps us to understand how the vast, complex problems of our time connect with our private inner lives. Novelists therefore have an obligation to pose the intimate questions: How does all this bad news affect our relationships with our loved ones, our hopes for the future, the way we go about our daily lives? Do we ignore it, turn cynical, or become overwhelmed by dread? What is all this information doing to our minds? What is it doing to our hearts? (Rich, "Writing the End")

Odds Against Tomorrow may try to hold up a mirror to its readers' own emotions, but when they gaze at the reflection, they can only see, and feel, Mitchell Zukor. As the narrator remarks in the first chapter when he and the other students are witnessing Seattle's destruction, "I felt that I had entered Mitchell Zukor's head… I felt as if I were eavesdropping on one of Mitchell's nightmares" (Rich, *Odds* 8). Though at times

nightmarish, dwelling in Mitchell's consciousness is also somewhat pleasurable. As some students in our class noted, fear can be appealing, even addictive, particularly when it is experienced vicariously and with the privilege of safety, as through a narrative or fictional text.

Mitchell develops his own theory about why people in a disaster-prone world love his worst-case scenarios, one that hinges on power and money. "Frightened people didn't want bromides, expressions of hope, happy predictions," Mitchell reflects. "They craved dread, worst-case scenarios, end times. What would the future cost them? They wanted to hear that the price would be exorbitant" (Rich, *Odds* 109). Mitchell's dark scenarios are only appealing for a certain class of people—the ones who can helicopter out of New York when the floods come—and he soon realizes that "the more strongly he believed his prophecies, the more strongly they did. It helped that anxiety was in the air" (Rich, *Odds* 108). Eventually, some of Mitchell's prognostications come true as a devastating drought hits the east coast, followed by a Sandy-like hurricane of epic proportions.[30] The parched or paved-over lands around the city can't absorb the water fast enough, so the flooding is rapid and overwhelms the urban infrastructure. Mitchell and his colleague, the junior futurist Jane, who do not heed Mitchell's own predictions and leave ahead of time, end up having to navigate out of the city in a canoe as a real disaster unfolds around them.

While not self-reflexively critical about its own contribution to the speculative economy that it purportedly parodies, the novel does offer an instructive commentary on the processes of speculation. What differentiates *Odds Against Tomorrow* from other cli-

[30] Rich completed the manuscript of *Odds Against Tomorrow* before Hurricane Sandy hit New York, but following the publisher's urging, he made revisions to the novel so as to reflect the reality of Sandy more accurately (Wayne). Considering the strange confluence of fiction and reality, after the novel's publication, Rich made sure to clarify that he wasn't prophetic, that is, that *he* wasn't like Mitchell Zukor. In particular, Rich notes that "I can't take credit for having seen it coming" (Rich, "Writing the End").

fi is that it explicitly satirizes the speculative market economy, which again, according to Uncertain Commons, is one of the root drivers of climate change. The novel does this by making visible the inherent contradictions of that futurist economy and unmasks its destructive physical and psychological impacts. That is, the novel speculates on speculation. After first reading *Odds Against Tomorrow*, I thus hypothesized that the novel could be a useful teaching text in the context of climate change because it offered a starting place for students to think more critically about the processes of speculation and about the imagination's role in those processes. In teaching the novel in the Introductory Cli-Fi course, I put this pedagogical hypothesis to the test, with mixed results.

For many students, this was their first experience reading a novel since their high school English classes. During class time, I asked students to work in groups to close read particular passages, map the novel's different settings and character relationships, and delineate the novel's similarities and differences to works of cli-fi we had previously encountered during the term. Our large class discussions often revolved around questioning the ethics of Mitchell's speculative practice (and the shady insurance scheme that capitalized on such practice) and situating the novel within the students' own experiences with financial speculation (for instance, by discussing the ethics of college loans and the debt crisis). Overall, given the students' lack of familiarity with literary analysis, it took longer than expected to make our way through the novel as a class, and we did not always have time to engage in the kind of critical unpacking that I had planned. However, it was the ending of the novel, to which I will now turn, that students struggled with the most, as they found it both unsatisfying and unbelievable. Many seemed to prefer not to talk about it, as doing so would ruin how they felt about the rest

of the novel. Yet citing literary critics Andrew Bennett and Nicholas Royle, I told students that when we want to reflect critically on our overall reading of a literary text, "thinking about the end is a good way of starting" (357).

At the close of the novel in a post-hurricane New York City, and in an explicit echo of what happened in reality post-Sandy, the government has prioritized cleaning up Manhattan's Wall Street District but has decided to let some of the worst-hit areas in Brooklyn, what they called the "Zone 5 neighborhoods," return to nature (Rich, *Odds* 285).[31] Leaving a FEMA disaster camp on Randall's Island, Mitchell and Jane journey to the destroyed neighborhood of Canarsie where they take up residence in an old marble-walled bank that has survived the storm. Jane soon returns to the city to assume control of the Future Days company, but Mitchell stays in the post-apocalyptic-like landscape, recovering groceries and supplies from other destroyed neighborhoods and practicing a post-disaster homesteader lifestyle of self-reliance and creative salvaging.

From one perspective, the end of the novel is a playful, open-ended, and ultimately hopeful imaginative vision of a different mode of speculative living, one that is not based on the hubristic illusion of control and the pursuit of even greater profits but rather is based on building anew in the ruins of a capitalist society and moving away from firmative, predictive modes of speculation. This different mode of speculative living is exemplified by Mitchell's own emotional and epistemological shift. Over the last third of the novel he undergoes a slow transformation from a mode of hyper-calculation, in which

[31] The novel's depiction of environmental and social injustice in the context of the uneven post-storm clean-up efforts speak powerfully to the similar injustices that happened before and after Hurricane Sandy, and that continue to be an ongoing problem in certain communities. As many critics and journalists noted, Sandy and the uneven recovery after the storm made visible the city's existing economic inequalities and structural racism (Rohde). While Wall Street was cleaned up immediately and the stock markets reopened within two days (Schaefer), some communities in New York and New Jersey are still, years later, working to recover from the storm's impacts (Schuerman and Palazzolo).

he fearfully analyzes the probabilities of potential futures, to a mode of embodied living in which he makes decisions based on hunches, intuition, and his body's needs. That is, Mitchell's approach to engaging with the world shifts from rational to instinctual. This transformation comes to a head in one of the final scenes of the book when Mitchell experiences a nature-induced revelation that offers him emotional catharsis, and specifically a salvo for his fear. Going out to bathe in a saltwater marsh that has reclaimed parts of the formerly inhabited neighborhood, Mitchell lowers himself down into the post-flood muck and enacts an ecocentric fantasy of merging with the more-than-human world:

> Even as the swamp flies, or whatever they were, started flapping around his eyes, as the bark beetles scaled his bare arms and the grass scratched at his neck, he would stay there. This was his land now. If he wanted to lie on it all night long, or even for weeks, until he wasted away and his flesh sloughed free from his bones—well, if he wanted to lie there for eternity, nobody could stop him. (Rich, *Odds* 293)

As Mitchell becomes one with the real insects, his internal cockroaches disappear. Environmental activists, writers, and educators alike have long imagined that nature revelations of this sort could engender environmental action, conscientious stewardship of the more-than-human world, and even potentially a kind of ecocentric progressive politics. Yet in this case, Mitchell's transformation seems only to result in a patriarchal and privileged reaffirmation of ownership and power over others and the landscape as he imagines that nobody and nothing can stop him. This emphasis on control doesn't challenge but rather echoes Mitchell's previous work as a futurist helping powerful companies try to control the future by predicting it and hedging against it.

Thus, from a different perspective (and the one taken by most of my students), the end of the novel secures dominant speculative practices, albeit couched in a semi-

wilderness, semi-pastoral back-to-the-land vision. It does not offer a convincing alternative to those practices. The ending of *Odds Against Tomorrow* pushes back against any hope that the disaster may have opened space for a new kind of community, suggesting instead that while Mitchell's own internal cockroaches of fear and anxiety might be exterminated, the external cockroaches (so to speak) of the speculative economy that feeds on (and functions through) the processes of slow and structural violence will go on climbing the real walls of marginalized communities. That is, Mitchell's personal transformation does nothing to interrupt the larger status quo. Low-income communities may never be rebuilt; Wall Street is still the locus of power; and under Jane's new leadership the Future Days corporation will continue without Mitchell, trading on his name, if no longer on his fear-mongering. Eventually we learn that Mitchell can survive on his new land because Jane comes out every few weeks with new supplies, which she is easily able to afford with the massive profits from Future Days. Mitchell connects with his earthy animality, and an intuitive mode of being in the world, but where does that leave the rest of us? Similarly, the young (and one might assume white) homesteading hipsters join him in establishing a makeshift community in the ruins of Canarsie, but where are the individuals and families who were displaced from their homes? Are they still living in the dehumanizing conditions of the FEMA camp, and if so, for how much longer? The end of the novel thus seems to offer no alternate possibilities for how to live after disaster, for how to build just and sustainable communities in a time of climate change. Nevertheless, even with its limitations and environmental justice blind spots, the novel's ending is potentially liberatory if considered within an educational context.

If, as I suggested at the outset of this chapter, one of the key challenges of climate change is the future itself, then we might also say that the problem of endings seems to be the key problem of cli-fi. "Endings" have long been an interest of literary theorists, and in some sense, we could say that the the problem of endings has always been one of the key problems of the novel—and possibly of all narrative. In *Reading for the Plot*, Peter Brooks proposes that a desire for closure is what carries readers of narrative "forward, onward, through the text," and that such desire can only be fulfilled retrospectively, with the understanding that the ending brings: "Those shaping ends… that promise to bestow meaning and significance on the beginning and the middle (37, 19). Endings undoubtedly necessitate reinterpretations of events earlier in the plot, as Brooks suggests, and they also provide the closure that enables meaning making. That is, readers move forward in a narrative with the anticipation of retrospection. But climate change doesn't allow for this kind of anticipation of narrative closure; in fact, it actively resists it. As David Collings points out, "[Climate change] doesn't destroy us outright, nor does it let us live on as we are. It combines devastation and survival… It's as if climate change tells us that the world ends, yet it goes on—or that it ends, gradually, *as* it goes on" (Collings 130). How is a novelist to offer the kind of closure readers desire while also doing justice to the creeping and incomplete nature of climate change futures? Without such closure, as Frank Kermode asks, how are readers expected to engage in meaning making?

Critics have pointed out that very few, if any, cli-fi novels have a happy or satisfying ending (Milkoreit). My students similarly noticed the lack of closure in the cli-fi stories we were encountering, with one student in particular perceptively describing this phenomenon in a blog post:

> A lot of theses stories end with a message of hopelessness. It seems in most genres of literature, and in most forms of entertainment, there is an ending where everything falls back into place and for the most part, everything is "how it should be" again. That is the issue with cli-fi; it makes you feel as though something is missing. But when you think about it, that makes sense because nobody knows how to totally resolve the issues that have arisen from global warming. So when writing about it, it would be untrue and a bit too fictitious to have an "and they all lived happily ever after" ending. (McEwen)

As this student keenly identifies, including happy endings in cli-fi narratives would be disingenuous. That is, the unhappy endings of various works of cli-fi might be unsatisfying, but at least they're not unconvincing. Given the students' dislike of *Odds Against Tomorrow* and their observation that few works of cli-fi seem to have what we might find to be satisfactory closure, I steered our final discussion of the novel to the idea that what counts is what we do with this feeling of being unsatisfied. For students, teachers, and critics alike, it is appealing to read these cli-fi endings as flawed. Yet such flawed or conditional endings are precisely what makes cli-fi an important contribution to climate change education. Particularly powerful are works like *Odds Against Tomorrow*, which avoid the imagination-limiting apocalyptic and techno-optimist futures so common to environmental discourse. Students are instead forced to confront the simultaneously unsettling and empowering truth that the ending (and our ending) is open and unfinished, even as there are forces in the world yet trying to foreclose it. The world doesn't end, but neither does capitalism. They both go on, albeit, we might hope, moving a little farther on the long arc towards justice. In this context, works of cli-fi like *Odds Against Tomorrow* are not only good to think about, but also good to think *with*. The task of meaning making is more difficult when one doesn't have the luxury of moving forward with the anticipation of retrospection, with the anticipation of an easy ending. Students

would be grappling with these and other challenges more directly as we moved into the next stage of the course and began actively imagining possible futures.

V. Voicemails from the Future and Creating Cli-Fi

Students are spread out around the classroom, talking on their phones. No, I do not have a lax classroom technology policy, and no, students are not blatantly disrespecting our learning community. Rather, today in class I have specifically asked students to call the *FutureCoast* hotline (321-732-6278) and record voicemail messages from possibly climate changed worlds 10, 20, 30, 40, or 50 years in the future. Some students are sitting clustered around tables in small groups, brainstorming and laughing together. Other students need a quieter space or become too bashful having to "perform" in front of others and so step out into the hall to make their calls. The room's atmosphere is lively, if not at times cacophonous. The class's energy is at an all-time high, just a few days after we finished discussing *Odds Against Tomorrow* and were all feeling a bit demoralized by the onslaught of climate disasters and unsatisfying endings. Students know that their voicemails will soon be published on the *FutureCoast* website for the world to listen to, and even perhaps one day coded onto "chronofacts" and geocached by some intrepid Futurecoaster (a *FutureCoast* role player). Today, students are beginning to see themselves not just as readers or consumers of cli-fi, but as scholars and planetary citizens (Siperstein, Hall, LeMenager 14). They are authors, engaging in potent short-form storytelling about possible futures. They are part of a community of cli-fi creators, exploring "what if" scenarios in a collaborative narrative environment, and *FutureCoast* is what has enabled this educational transformation to happen.

But let me back up, because perhaps this all sounds a little too fanciful. In February, 2014, veteran immersive game designer Ken Eklund teamed with the Polar Partnership at Columbia University, to launch the *FutureCoast* project, an alternate reality game (or ARG) that invites audiences to explore, create, and curate possible climate change futures and take part in collaborative storytelling. Eklund is the original designer of the game world, but he does not consider himself the author. As he explains regarding his own role in this process, "As a storyteller, as long as you keep it your story, your audience won't regard it as their story – and will be less affected by it" (Eklund). By becoming co-creators in the narrative process, participants take more ownership over the direction of the story and are likewise more invested in the game's success. As game theorist Jane McGonigal explains, an ARG is "an interactive drama played out online and in real world spaces, taking place over several weeks or months, in which dozens, hundreds, thousands of players come together online, form collaborative social networks, and work together to solve a mystery or problem that would be absolutely impossible to solve alone" (McGonigal, "Alternate Reality"). The ARG is a relatively new cultural form, and with its simultaneous emphasis on collaboration, drama, play, and narrative, it can be difficult to define or fit into existing typologies of cultural form or genre. Yet within this context, we might productively conceptualize *FutureCoast* as a form of interactive cli-fi that blends drama, play and narrative, and by so doing encourages a collaborative practice of affirmative speculation.

The game builds on the conceptual framework Eklund first established with his award-winning alternate reality game *World Without Oil* (2007), which immersed participants in a fictional peak oil scenario and then asked them to document across a

range of traditional and new media platforms their various experiences playing and living within this reality. That is, participants imagined what it would be like to live through an oil crisis, made choices in their day to day lives *as if* that crisis were happening, and then shared their stories with others. *Future Coast* is similarly built on an imaginary premise: that there has been a "leak" in the space-time continuum and that voicemails from the future are now appearing in our own present reality. Participants—that is, game players—can either call the automated phone number or navigate to the project's website and record, either as themselves or playing the role of a fictional character, a voicemail from a climate-changed future. The game leverages the power of the voicemail as a familiar cultural form to help participants grapple with the present and future impacts of climate change.

Considered as a cultural genre with a set of shared patterns and expectations about sociality, the voicemail is both ephemeral and ubiquitous. Few people save voicemails, or at least save them for very long. If we did, our phones might run out of memory quite quickly. Voicemails are also intangible, fleeting packets of data and emotion, designed to be disposable. Impossible really to imagine holding a voicemail in our hands. Eklund solves this problem in the game by having the voicemails take a physical form called "chronofacts." These small futuristic looking objects were sent to participants around the world to geocache in their communities during the six months in 2014 when the game was actively running . The participants would then broadcast across social media platforms the GPS locations of the chronofacts so that others could find and decode them by uploading discrete serial numbers onto the *FutureCoast* website. Doing this would "unlock" the voicemail for everyone to hear. *FutureCoast* marries a fanciful meta-

narrative about a rupture in space-time with a cultural form that almost everyone understands and uses on a daily basis, even if, as many students humorously tell me, only their parents and grandparents leave them voicemails anymore.

Despite their ephemerality and ubiquity, or perhaps because of it, voicemails can also be incredibly important and personal. We receive voicemails from family members and friends, doctors and colleagues, and strangers bringing unexpected news. Listening to some of the voicemails that my students recorded, and that were later posted to the *FutureCoast* site, it was clear just how intimate and emotional these micro-stories could be. For instance, a young daughter leaves a message for her mother during a powerful hurricane, saying through tears that this is the last time she will probably speak to her. In another voicemail, a young man says hello to his friend, then notices a "wall of water" moving rapidly and unexpectedly toward him. There's static, followed by panicked yells and swooshes, until the line eerily cuts out. Voicemails are rich with drama, information, and affect, often able to evoke in only one or two minutes an entire story world, with a set of characters, a plot, a setting. In reflecting later on their experiences with the project, many students remarked on how much could be communicated just through the sound of one's voice:

> I loved this activity because it was personal and I could connect with some of the voicemails. One of the voicemails was someone calling their family to say goodbye because they don't think they will make it out of the disaster. It puts you in the shoes of someone else and you imagine if that will actually happen. (Vitrano)

By encouraging empathy and perspective-taking, as this student points out, voicemails are thus useful in foregrounding the personal and emotional dimensions of climate change. That is, voicemails engage "both hearts and minds" (Eklund). Another student

similarly explained how the voicemail as medium helped her connect emotionally with the future:

> By using these voicemails, these problems seem real because you can relate to the emotions that are in the voices of the people leaving these voicemails. There were a few voicemails that were so raw and emotional that I found myself really caring for these people and wanting to help them. That is why *FutureCoast* is so powerful. (T. Campbell)

Uploaded and collected on the *FutureCoast* website, these short, emotionally-potent voicemails become part of a larger, anonymous collective of stories. They are no longer a private form, no longer locked onto a single cellphone, no longer "mine" or "yours." Instead, they become everybody's, a narrative archive of how people all over the world feel about climate change and the future.

In this respect, the game's curatorial function is just as important as the more active dimensions of gameplay (roleplaying, recording voicemails, geocaching and searching for chronofacts). Visitors to the website, whether or not they record their own voicemails, can create playlists known as "timestreams" by selecting and organizing voicemails into categories. These could be based on theme, year, mood, or any other variable, or could simply include an individual's favorite voicemails. For example, the website features timestreams such as "Extreme Events," "Technology Marches On," "Water, Water Everywhere," "Too Late," and "Before They Are All Gone…" (the last a collection of voicemails about extinct or endangered species). After spending the day in class creating and recording voicemails, I required every student, in preparation for our next meeting, to create their own timestream. We were then able to discuss as a class the different ways in which one might choose to organize the voicemails (for example, based on similar thematic concerns or based on chronology), and this then opened up into a

larger conversation about cli-fi genre conventions. What are the common themes and tropes in these voicemails? What do such commonalities say about our collective approaches to imagining futures? How are they similar or different from the themes and tropes seen in cli-fi short stories and novels? Later in the term, I would ask students to complete a similar task (creating a cli-fi mix tape), but this time using all of the texts we had encountered throughout the course, both the official course texts listed on the syllabus and students' own works of cli-fi.

Drawing on McGonigal's notion of gaming for good, Eklund has described both *FutureCoast* and *World Without Oil* as "authentic" and "serious" games. Authentic games, Eklund notes, are those that are "multi-authored, textured in the way only diverse minds can supply; but also reality-based, painting reality within a playfully fictional frame" and serious games are those "that intend more than entertainment for player[s]" and instead "aim to teach or train, often by realistically simulating some aspect of a world system" (Eklund and Thacher). In describing his hoped-for outcomes of *World Without Oil*, Eklund explained the relationship between systems thinking and affect:

> In serious games, people get to play with complex systems that have a direct relationship to real-life systems. And these systems are complex and forbidding and yes, even scary, in the case of a global oil shortage. And so being able to experience them in an alternate reality helps us learn about them, and learning unravels fear. (Eklund)

Research has shown that the experience of serious gaming can have significant impacts on players, including, for instance, heightened empathy and understanding of social and environmental injustices (Peng, Lee, and Heeter 723; Pfirman). Such games have the potential both to enhance systems thinking and effect emotional or attitudinal transformations. Unlike the game *World Without Oil*, in which players could explore the

global oil system and learn about energy concepts through an alternate reality scenario, *Future Coast* does not have a specific content focus other than asking players to think about the future, broadly conceived. On its website, in promo videos, and in the press, the game is framed as focusing on climate change, but that focus is broadly conceived, and almost none of the voicemails that players have contributed to the game reference the climate system explicitly. Many of the voicemails aren't even "about" climate change impacts in any obvious way, such as the voicemails about hover cars and other techno-optimistic futures. Yet despite not being explicitly didactic and not prescribing content, *Future Coast* is an important intervention into the field of climate change education, and not just because it was funded through Columbia University and the climate education division of the National Science Foundation. As Eklund notes, "serious games can be very effective at education, because they allow players to test and experiment with systems, which leads to better understanding of the relationships that comprise the system" (Eklund). *Future Coast* requires that its players test out and experiment with the practices of speculation, or in other words, with the ultimate complex system: the future.

Moreover, because it's a game, albeit a serious one, *FutureCoast* is accessible and welcoming as it provides a platform for engaging with multiple perspectives concerning climate change. Eklund claims that one of his motivations in creating this game was to open up spaces for individuals from diverse audiences to contribute their ideas to a collaborative/collective vision of possible futures. "I think that there are a lot of people who want to have an invitation to say something about climate change," Eklund explains, "and I think this is the opportunity. It is this sort of creative challenge—you say it, but you say it in your future voice" (qtd. in Minchew). Or in other words, *FutureCoast*

exploits the potential of cli-fi to open up how people think about climate change—and invites them to talk about it:

> The challenge with climate change as a subject is the polarized state of its discussion. It's made people wary of engaging with anything that has the global warming or climate change label. Less well recognized, it's also disenfranchised people from the story—a scorched-earth war of talking points with no safe place left for the common person to venture hopes and fears or express what they know. (Eklund)

FutureCoast invites people, regardless of background, ideological leaning, or worldview. to participate in imagining the stories of climate change. Or in other words, *FutureCoast* brings climate change into the commons, as a topic of discussion and as a site for collaboration. Whereas much climate change discourse is global, abstract, polarized, and expert-driven, *FutureCoast* localizes, personalizes, depoliticizes, and democratizes the climate change conversation, thus breaking the "meta-silence" surrounding the issue (Marshall, *Don't Even Think* 82). The game turns the future into a site for play. As one reviewer of *World Without Oil* remarked, "If you want to change the future, play with it first" (Olsen). Ultimately then, the crucial component of *FutureCoast* is perhaps its most obvious: It's fun!

Eklund characterizes *FutureCoast* as a game not because there is competition (there isn't) and not because there are winners and losers (there aren't), but because of its emphasis on play. In the context of teaching climate change, the game opens a space for students to play with the future rather than only worrying about it or only critiquing particular visions/narratives of it. This connects to a question I believe should be central to climate change education: How can we cultivate playfulness, joy, and even humor during encounters with such an overwhelming, terrifying, and silencing topic? *FutureCoast* offers what is at least a provisional answer to this question by expanding

who counts as a climate change expert and by empowering individuals to speculate about the future. As McGonigal proposes, "The great challenge for us today, and for the remainder of the century, is to integrate games more closely into our everyday lives, and to embrace them as a platform for collaborating on our most important planetary efforts" (McGonigal, *Reality is Broken* 354). In the months since the game's initial release, it has been used in classrooms and communities around the world (including here in Eugene, Oregon), and hundreds of participants have contributed voicemails. *FutureCoast* has also spawned a podcast (https://itunes.apple.com/us/podcast/futurecoast-podcast/id794245103?mt=2), an art exhibit (https://vimeo.com/93575293), a collection of FutureCoaster videos and blogs created by intrepid players (https://www.youtube.com/user/FutureCoastdotorg), and a FutureCoast Youth advocacy initiative through the University of Brighton (https://futurecoastyouth.wordpress.com/). Through all of these offshoots, as well as its integration into various educational contexts, both formal and informal, the project has thus generated what Stephanie LeMenager calls a "climate change public." As LeMenager explains, cli-fi has the potential to "break academia's fourth wall and make a more robust climate change public—a public open to the science of climate change and committed to remembering, rather than denying, the conditions in which we live" (LeMenager, forthcoming). Earlier in the term, students seemed to be craving a wider audience for their ideas and their work. They voted unanimously to make our course blog available for public consumption, and as individuals outside the course (including Dan Bloom) started commenting on posts, the students began seeing themselves not only as part of a broader climate change public but

also as cli-fi experts in their own right. In this context, *FutureCoast* provided a useful next step on their way to creating their own long-form cli-fi projects.

Given how the experience of playing *FutureCoast* seemed to activate the students' creative energies, I dedicated the last weeks of the term to the final course project of creating cli-fi. As part of this assignment students conducted research about possible climate changed futures, created their own work of cli-fi, situated that work within the genre more broadly by comparing it to other texts, closely interpreted parts of their own work, presented their creations as part of a mini-conference on the last day of class, and then reflected on their own learning experience through the process. Up until that point in the term, the coursework had emphasized analysis and the critical close reading of literary and cultural texts, and had included few opportunities for students to exercise their own creative powers. In asking students to produce their own narratives, this final assignment aimed to nurture the creativity students first exercised while participating in *FutureCoast*. "Far too often," Elizabeth Tisdell writes, "we teach the importance of critique almost as if this is a form that transforms thinking, but we do not invite learners often enough to call upon the wonder of their own creativity... This is about engaging more aspects of oneself that can lead to the transformation of *being* as well as thinking" (Tisdell 27). Creating cli-fi, as many students' end-of-term reflections attested to, can indeed lead to the kind of ontological and emotional transformation that Tisdell describes here. Yet such transformation is not easy. Students who are used to being passive consumers of their education can find it especially difficult to shift to a

model of learning in which they are responsible for designing something from scratch, in this case, having to create a cultural artifact with few restraints on content or form.[32]

Creating one's own work of cli-fi mere weeks after learning about climate change and encountering examples of the genre for the first time is an incredibly difficult proposition, I soon realized. Though certainly meant to be fun, this creative undertaking was time-consuming and serious, in Eklund's sense of the word. As someone who had been studying climate change intensively for over five years as well as, for most of that time, responding to my climate change experiences creatively (by writing poetry), I did not fully grasp the challenges of what I was asking my students to do in such a short timeframe. As such, I had to shift my expectations for the students' projects as well as recalibrate my own approaches to teaching in the final weeks of the course.[33]

Most importantly, I had to revise my expectations that students would (or could) make original interventions into the genre. In his discussion of teaching nature writing, Randall Roorda notes that when we encourage students to engage in creative work in the context of a course primarily focused on a particular genre, we can sometimes over-

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[32] One student explained that creating cli-fi not only enhanced her learning in the classroom, but also changed her behavior outside of it: "Engaging in this creative process influenced my learning by allowing me to research various issues in respect to climate change and how they can affect a certain location… It made me more passionate about the issue of climate change and has created a need for me to make a change not only in my personal lifestyle but also in my community. Creating my own work of cli-fi has shown me how fiction is an important tool that can and should be used to address global issues because it gives readers a chance to imagine similar scenarios and to build personal connections with characters."

[33] I ultimately discovered that in supporting students throughout their journeys of creating cli-fi, my role as a teacher needed to include three tasks: 1) Provide students with a toolbox for engaging in this kind of creative and critical speculative practice. That is, I performed the role of a model expert, providing modelling and mastery experiences. 2) Promote positive climate change-related attitudes, values, and beliefs. That is, I performed the role of a co-participant in establishing a learning community where students could take risks and play with new ideas and skills. 3) Enhance students' self-efficacy as climate change learners. That is, I performed the role of an intellectual coach, facilitating both self-directed and collaborative learning (as through the individual or group climate research students were conducting outside of class) as well as ongoing metacognitive reflection about the learning process.

privilege the notion of originality and by so doing undervalue students' own creative interventions. Specifically, Roorda explains that by "privileging originality, teachers may overlook how generic forms may enable, motivate, and conduce to commitment of certain orders, not least to the act of writing itself" (214). When we approach student texts with the kind of generous critical faculty that we would use to engage with published texts, Roorda suggests, we can discern virtues in student work that we might otherwise miss. As composition and rhetoric scholar Lad Tobin more generally argues, "by making the case for student writing as texts worthy of respect, study, interpretation, discussion, and debate, we make the case for our students as writers worth reading" (29). Following Roorda and Tobin, I have since come to see student work as warranting critical attention, and in the context of cli-fi, as being important interventions into the genre. That is, students' difficult and creative acts of imagining future worlds need to be given due credit. Even the student-created cli-fi that seemed to "fail" in one way or another illuminated larger questions having to do with the challenges of literary production and speculative practice.

One of the biggest hurdles that students faced in this project was how to construct a convincing and immersive fictional space in which climate change presents itself as an immediate and pressing problem. The ecological and social impacts projected by the Intergovernmental Panel on Climate Change and compellingly represented by transmedia websites like the Global Weirding Project stretch to multiple volumes and uncountable links (*Global Weirding)*. Incorporating climate change into a work of fiction—whatever medium or form that work takes—is not a straightforward task, as students must consider

how climate change affects landscapes both real and imagined, the political realm, economic systems, culture, human psychology, etc.

In his short story, "A New Dawn," a student named Alec draws on the conventions of cli-fi disaster narratives like *Odds Against Tomorrow* and the film *The Day After Tomorrow* as well as information about the connections between climate change and the ongoing droughts on the west coast. Written in the first person and employing a suspenseful tone modeled in part on the action thriller genre, "A New Dawn" tells the story of an individual who must grapple with the impacts of climate change, a fractured U.S. government (with the country now split between "The Confederated Christian Republic," "The United Republic of North America," and "The Cascadian Free State"), and the discovery that biotech companies are genetically altering humans so that they can manufacture energy through photosynthesis. The story is filled with disaster narrative clichés, but it is also thick with rich exposition about environmental politics and biotechnological developments. Alec conducted a significant amount of research, making use of both scientific sources and other literary works. In his project reflection he admits that it was difficult weaving exposition into the plot, and he expresses a concern that "I felt I may have added too much information, and with that I fear I may have weakened [the story's] overall effectiveness as a piece of literature." Nevertheless, what Alec saw as a concern, I read as one of the story's strengths. Throughout the narrative, the protagonist slowly uncovers information about his world, both in terms of local places and the global biotech-economic system, including insights into the connections between climate change and political corruption, and this process models for readers how they too might engage in such discovery about their own world.

"A New Dawn" is thus representative of the kind of fictional work that Ursula Heise describes as "ecocosmopolitan" in how it maps, but ultimately doesn't provide easy answers to, complex socio-ecological problems that interweave the local and the global (Heise, *Sense of Place* 205-6). Alec's story suggests the potential for climate change fiction to not only imagine possible futures but to yoke commitments to local places (in this case, the Pacific Northwest) with global imaginaries.

Another cli-fi short story, Shinal's "Survival of the Fittest," also incorporates elements of disaster narratives, but uses them to explore a future in which the dual threats of climate change and gentrification force some residents in the city of Portland, Oregon to become climate refugees. For Shinal, climate change is a pressing issue insofar as it acts as a threat multiplier, exacerbating existing structures of social and environmental inequalities. Like Alec and Shinal, most students chose to locate their cli-fi in places already familiar to them, and many reflected in their analyses that doing so helped them write with specificity and passion, regardless of the form of the work. For example, Chris's cli-fi in the form of a video blog from the future speculates on the multiple devastating climate change impacts on the Pacific Northwest region, thus functioning both as a kind of speculative warning call and as a bioregional mapping of climate change impacts in the present. Other students created games or audio drama podcasts, children's books or the storyboards for novels they would have written had they more time. Overall, instead of telling students what forms or mediums they should use, I asked them to explore, make choices, and reflect on the successes and failures of those choices.

As many of these cli-fi projects and reflections point to, one of the crucial outcomes of this process was that the students were able to exercise creative agency in

making decisions not just about the form of their project, but about the future itself. From their very first choices about story and plot, students faced innumerable questions about the relationship between climate change facts, their own imagination, and the future. Which set of predictions should I follow? Should I set my work in the near future, when changes might be more difficult to discern, or in a distant, harder-to predict future, when changes might be drastic and more visible? Which threats are most serious or most likely? How do changing predictions about tipping points, extreme weather events, or rising sea levels affect my work's imaginative possibilities? Is it acceptable to oversell climate change threats or not adhere to scientific predictions to provide more drama in the plot? Where should I set the story—in one location or many? Who are the characters and how will they experience the material and psychological impacts of climate change? Will I include exposition, and if so, how much? Will I mention climate change explicitly or will its impacts be only partially visible? Do I trust readers to connect the dots themselves? Will I include potential solutions—political, economic, technological, cultural or otherwise? Will the ending be hopeful or cynical, conclusive or open? This list of questions is not meant to be exhaustive of everything the students had to consider, nor is it meant to suggest that every student considered all of these questions. Rather, these questions foreground the transdisciplinary, synthetic, and imaginative dimensions of cli-fi with which students had to engage. Ryan, the student who in his final project re-envisioned the classic *Oregon Trail* computer game and created a cli-fi version of the game set fifty years in the future (as referenced earlier in the chapter), sums it up best in his project reflection:

> After completing the entire process of creating my own work of cli-fi, I have come to the conclusion that this may have been the most important assignment in the class. It is easy to look at a story objectively and critically, but the process of creating your own work is entirely different. Here I was able to draw on all the stories, all the resources, and everything we talked about in class. It made me widen my scope not only on the issue [climate change], but on the teaching of the issue as well. I was able to become the Nathaniel Rich, the Bill McKibben. I was the one in charge of the creative decisions and choosing how climate change will or will not affect the world.

VI. Cli-Fi, Emotions, and The Engaged Humanities

Throughout this examination of cli-fi, I have stressed that even though we should not expect cli-fi to function didactically, converting its readers into more informed or more conscientious climate change subjects (counting their carbon, for example), the genre can, and often does, perform important kinds of educational work, from teaching students the skills of close reading to creating classroom communities. Nine months after my ENG 104 cli-fi course ended, I contacted the students individually over email asking if they could take a few moments to answer some questions about the course. This was long after the course had ended and grades were submitted, and I made it clear in my emails that their responses would help me with my own research and with a cli-fi and climate literacy presentation I was giving a month later at the American Geophysical Union conference. I emphasized that since they were themselves now experts in cli-fi and part of a growing climate change public, they could play an important role in spreading the word about the genre and about the potential of teaching and learning cli-fi. In my email, I posed the following four questions:

1. What do you remember most about the course?
2. Since our course ended have you pursued any opportunities to learn more about climate change (either formally, such as taking another environmental course, or informally, such as reading or having

conversations with people), or have you become more involved with the issue of climate change? If so, how?
3. Have you continued to read (or watch films/other media) about climate change since our course, and if so, what have you read/watched?
4. Is there anything else you'd like to share about your experience in the course or what you've done since then?

Unfortunately, I only received nine responses (just less than a third of the students from the class), and so I make no pretenses that the feedback is representative or conclusive. The students who did choose to reply were obviously a self-selecting group, willing to reflect on their own learning, even months after its official end. However, their answers were, if not conclusive, then evocative for thinking about what we might imagine as the afterlife of cli-fi.

Overall, the students who responded seemed to fit into one of two groups. The first group included four students who explained that they had continued their engagement with the issue of climate change, either through talking with people, taking additional environmental-focused courses, or reading more cli-fi or other climate change literature. One student in particular described his experiences working for a wildland firefighting company in eastern Oregon during the summer after our course ended. Inspired by some of the short stories that we had read in class and which featured climate change-caused wildfires, he explained that he had taken it upon himself to educate his fellow employees on the links between climate change and the ongoing drought and wildfire epidemic in the region. This student further remarked that climate change literature is powerful because it "forces us to engage the issue, removes us from our comfort zone, and finally makes us acknowledge that this truly is an issue that we have to face, and one that will likely impact us in our own lifetimes." Interestingly, though

perhaps unsurprisingly, all of the students in this first group mentioned the final project assignment and the experience of creating their own cli-fi.

The second group of students, by contrast, reported not having pursued any opportunities to engage with climate change since the course had ended (though obviously given that they responded to my email, they were still willing to engage if prompted, and all of them offered some version of the comment, "I would get involved if I had more time"). What stands out from these five students' responses is that they recalled feeling overwhelmed, afraid, or hopeless in the course. None of them mentioned the final project, though several remarked that particular readings or course experiences scared them. One student's response described such experience in particularly intense language:

> What stuck with me most from the course is the sense of inevitable doom. It was almost as if the class taught me that there is hardly anything we can do to stop the destruction of our planet because of the long and ongoing history of human negligence and stupidity. The stories we read in the course changed how I look at the future though because I am now constantly terrified to see what will happen to this beautiful planet.

As a teacher, I do not mind hearing that a course has had significant emotional impact on students. In fact, it is an outcome that I hope and strive for. However, I was somewhat troubled by this particular student's response. Even though cli-fi, and the course as a whole, had a profound emotional effect on this student, it seemed that as a teacher I had not done enough to create the kind of support or hopeful outlets for exercising agency in the context of climate change. I have long believed that the despair and other ugly feelings that live in the climate change classroom can be good to think about and think with. But I have also held the conviction that there is a difference between thinking with and working through. That is, my goal for learning in the climate change classroom was

that it be critical and creative, not therapeutic or healing. However, looking back now I wonder whether perhaps I did need to offer students additional resources for coping not only with the psychological impacts of climate change, but with the psychological impacts inherent in *learning* about climate change (especially when learning about it for the first time). As I begin to plan a similar course for the coming year, I am speculating more and more about whether cli-fi itself, in one or several of its many forms, could, like the climate change memoirs I detailed in the previous chapter, provide such an emotional resource.

In May, 2014, Kate Schapira, a poet, climate activist, and writing instructor at Brown University set up a booth in Burnside Park in Providence, RI with a sign that advertised: "Climate Anxiety Counseling, 5¢—The Doctor is In." Though having no formal psychological or psychiatric training Schapira wanted to get people talking intimately about a subject that troubled her greatly: climate change. Could a public park become an intimate setting for people to safely share their climate change-related anxieties, fears, sorrows, and perhaps even hopes? In part a whimsical tribute to Lucy's psychiatric booth from the Charles Schulz created *Peanuts* comic strip, Schapira's project aimed to create a welcoming space for people to talk about their personal feelings concerning climate change. At first, she didn't know what to expect, and, as she details on her website, not many people stopped to speak with her, and she received her fair share of odd looks from passerby. Yet eventually people started stopping by and talking (Schapira often waived the nickel fee). Thus began Schapira's impromptu climate change therapy sessions.

Schapira has since expanded her project, setting up the booth in other locations, including parks and farmer's markets around Rhode Island. With the permission of some of her "patients," she includes on the project's blog stories about her experiences working as an informal climate change counselor. As she explains, one of her goals is to "make climate change personal" and thus "contribute to a shared language for talking about and responding to climate change and its effects" (Schapira, "In These Times"). Schapira isn't using the booth as an instrument to preach about climate science or to educate; rather, she simply wants to start conversations about climate change that are personal. For example, one older woman spoke with Schapira for ten minutes about her psychiatric problems, the abuses she has suffered in her lifetime, and how she sees those abuses as connected to what is happening to the planet.[34]

Yet Schapira's role in the project is not only as listener, healer, and archivist, but as creator and author. She does not only write about what happens and what she hears during these sessions, but also extrapolates people's personal stories into what she calls "alternate histories," and what we might identify as a form of speculative cli-fi. Schapira starts with the climate anxieties that a patient shares and then composes a fictional story set in a future world in which that particular anxiety would no longer be an issue. "By outlining some of what we could change or do differently in order to make that world possible," Schapira explains, the purpose of these alternate histories is to "reconsider what's necessary, what's habitual, what's structure and what's mutable about the world we live in now, and to help me, and hopefully you, imagine worlds that work better for more people, nonhuman creatures, and ecosystems" (Schapira, "Next Phase"). Schapira

[34] As another dimension to the project, Schapira also asks patients to locate their worries ("Put your worry on the map") on a large map of Rhode Island as a kind of place-based visualizations of the psychological impacts of climate change.

makes the leap from hearing a personal story, or a personal worry, to imagining an alternative future. For example, in one story she imagines a Northeast region knitted together by high speed rails as a response to the patient who worries about CO_2 emissions from cars and her own commute. In another, she imagines a world with no more industrial monoculture farms in response to a patient who worries about the effects of climate change on migrant agricultural workers (Schapira, "Alternate Histories"). Schapira's "Climate Anxiety Counseling" is thus not only a kind of grassroots mental health care but also a creative venture: a collaborative speculative project (perhaps we could call it counseling booth-based cli-fi) that blurs the lines between imaginative art and radical social service. While we might question the ethics of Schapira, an untrained medical professional, offering such treatment, we should also recognize the deep public service that she offers to her community.[35]

I end this chapter with Schapira's project and this unexpected and rather encouraging scene of strangers talking intimately and personally about climate change in a city park as a provocation to think otherwise about how creative practice, and even the specific practices of interpreting and creating literature specifically, could function as an emotional and public resource in these difficult times. Schapira explains that "we can take care of each other differently by turning some of the dials of expertise, intimacy, effort and protection to different levels" (Schapira, "Points of Service"). More broadly then, *Climate Anxiety Counseling* exemplifies how the humanities can help us encounter

[35] Schapira acknowledges that she doesn't have any formal training in mental healthcare, and she emphasizes that "the booth is not set up for deep healing—if anything, it offers microhealings, sort of the opposite of microagressions, things that are small on their own but that I hope have the potential to add up" (Schapira, "Points of Service"). However, it is precisely Schapira's non-threatening and unofficial appearance that often draws people in and encourages them to open up: "In my little cardboard ramshackle booth, I don't look like I have a lot of power over other people—I don't look official—and I think for some people that might be what frees them to stop, and to speak" (Schaipira, "Points of Service").

possible futures, no matter how scary, *together* as a community of patients and practitioners, creators and caregivers. We all can learn new to inhabit new roles: as artists, writers, activists, educators, listeners, even healers.

In her wide-ranging discussion of the engaged humanities, Harvard scholar Doris Sommer suggests that "learning to think like an artist and an interpreter is basic training for our volatile times" (Sommer 11). The process of creating cli-fi, whether by contributing fictional voicemails to a collaborative storytelling game, writing on a public course blog, or inventing their own cli-fi forms from scratch, opens a space for students not only to imagine possible futures but also to reappraise their own agencies. Ultimately, this was a goal I only in retrospect discovered I had had for my students and myself: to exercise what Sommer calls "cultural agency" as a mode of grappling with the many challenges of climate change. According to Sommer, anyone, not just the experts, can be a cultural agent, practicing the dialogue and co-production of art that is at the heart of the engaged humanities.

Climate change education that emphasizes cultural agency and the production of creative artifacts (such as cli-fi) brings students together as authors and sharers, generating robust dialogue and collaboration in the classroom. The next step in developing the educational potential of cli-fi would be for students to collaborate with individuals and communities beyond the classroom. For instance, could the group of students who created a cli-fi children's book and a plan for using that book in elementary classrooms have worked with teachers from a local school to bring the book in line with existing curricula and then pilot it in actual classrooms? Or could they have helped elementary students create their own cli-fi books? Could the student who created mock-

ups for a set of cli-fi-themed murals have worked with local community groups looking to incorporate more public art in the downtown area? Could the students who created mock-ups of different imaginative cli-fi games have collaborated with game designers outside academia to develop their ideas further? Or could they have brought their games to the many local game night events (at coffee shops and bookstores) around the city to work with actual game players? Yes, yes, yes, yes, and yes. If only we had had more than ten weeks.

In their treatise on the sustainable humanities, LeMenager and Foote argue that scholars and intellectuals in literary and cultural studies—including students—can take their work "further into the public sphere by acting more self-consciously as culture producers or allies of contemporary arts projects that reach communities outside the academy" (573). This requires reaffirming the work we and our students do as "a kind of making," in which we practice "the kind of collaboration that is established in other activist and scholarly communities" (LeMenager and Foote, 574-5). To reach its pedagogical potential, transformative learning cannot happen in a vacuum solely through the free will of a group of autonomous learners. Rather, as Arnd-Michael Nohl points out, it is contextually bounded, influenced by relationships with a multiplicity of other learners and energized by connections with communities outside the classroom (288). In addition to the important role that community plays in the cognitive processes of transformative learning, for my students in ENG 104, and especially those students who left the course feeling overwhelmed, scared, or hopeless, I speculate that this emphasis on working with communities beyond the classroom also would have emotional benefits as well. Sommer refers to this as an "optimism of the will" that "drives life toward social

commitments and creative contributions," or in other words, the kind of "active hope" I described in the introduction (6).

This then, is one answer to that thorny yet ultimately galvanizing question: What can cli-fi *do*? "It won't do to indulge in romantic dreams about art remaking the world," Sommer explains, but neither "does it make sense to stop dreaming altogether and stay stuck in cynicism. Between frustrated fantasies and paralyzing despair, agency is a modest but relentless call to creative action, one small step at a time" (Sommer 4). It's about middle spaces and small steps. Cli-fi may or may not influence policy makers. It may or may not be considered "good" literature or art (as judged by critics, scholars, and readers). It may or may not convert individuals into more committed climate change subjects. Similarly, teaching cli-fi may or may not transform students into environmental studies majors or environmentally-conscious citizens. But among such idealistic unknowns is where the work of imagining futures—and ultimately bringing those futures to fruition—happens. Reading, writing, creating, and playing with cli-fi are practices not only for cutting through into possible worlds but also for reshaping the present. "My booth feels like action to me, though insufficient action," Schapira notes. "But maybe [it's] a way to model the habits and interactions that can make our *present* more livable, more open, whatever it does for our future" (Schapira, "Points of Service"). This "making more livable" is what cli-fi does too, in the classroom and beyond.

AFTERWORD:

LOVE IN A TIME OF CLIMATE CHANGE

"The story of the Anthropocene begins with geology, but is ultimately a story of the human heart."
Dale Jamieson and Bonnie Nadzam, *Love in the Anthropocene*

"Love is the extremely difficult realization that something other than oneself is real."
Iris Murdoch, "The Sublime and the Good"

I. What I Love

"To love a thing means wanting it to exist," declares The Climate Reality Project as preamble to its online *What I Love* initiative. Appropriating this oft-quoted piece of Confucian wisdom into the context of contemporary global environmental crisis, the initiative encourages people to think about the things they love the most in the world, the things they couldn't live without, and about how climate change is threatening those things. A description on the project's website explains:

> We know who we are by the things we love. The passions that fill our hearts and define our world. The people that shape our every interaction. The moments that we simply couldn't live without. And whether it's the buzz of the city streets, an early morning coffee, or sitting down to a family meal, climate change will affect them all. *What I Love* is an interactive experience that makes climate change personal. It takes the abstract and seemingly distant issue of climate change and makes it relevant to every man, woman and child. (*What I Love*)

Making visible the connections between climate change and what people already care about, this interactive multimedia venture attempts to transform climate change from a

global abstraction into a deeply personal reality. When I first navigate to the *What I Love* homepage, I am prompted to select the eight things that I love the most by choosing from an archive of roughly one hundred short video loops, photographs, or created interactive animations that represent a range of categories, including places, people, foods, and activities. Although I am suspicious of the website's visually arresting and sleek online interface, which seems like a marketing tactic, for the moment I surrender my critical impulses and instead indulge in this virtual accounting of my ardor.

I love taking long walks along the Willamette River in Eugene, Oregon, occasionally stopping at a good pool to cast in a fishing line, and so my first choice is the category "rivers." I also enjoy hiking, and I often remember the awe I experienced during trips to Yosemite and the Sierra Nevada range. Thus, my second choice is "mountains." I love my wife, and so select the category "partners." Thinking then about all those other people in the world whom I love, people who are both nearby and far away, I decide to choose the two categories "friends" and "family." I am often most at peace when working outside in my backyard, feeling the soil catch in the creases of my palms or smelling tomato plants on a late-summer afternoon. So I choose "gardening." I also choose my favorite food, "bread." I love the yeasty smell of dough proofing under a damp cloth, and the crunch of crust just out of the oven. Finally, I choose the category "equality," which seems more a value than a love. But of course "to love" has many meanings, and I suppose I do love equality in a similarly strong albeit less visceral way than those other, more tangible things.

After choosing my eight loves, I am directed to what the website calls my "canvas," where I can learn about the impacts of climate change, and specifically carbon

pollution, on those things that I love. For example, I learn (or rather am reminded) that carbon pollution is threatening mountain ecosystems by increasing the risk of intense wildfires and insect outbreaks. Decreases in snowfall and long-term droughts are negatively affecting rivers everywhere in the world. I also learn that the climate-change-related increase in heat waves threatens Americans; on average, 150,000 die of heat-related causes every year, and many of those people are someone's loved one or partner. Rising global temperatures due to carbon pollution could make wheat fungus a major problem for bread production, and it might also make gardening more difficult with water shortages and the spread of aggressive weeds and pests. Carbon pollution is increasing levels of inequality, both globally and within nations, as climate change impacts are disproportionately affecting low-income communities.

With every explanation of how carbon pollution threatens one of my loves, I am prompted with a choice: do I want to protect it, or not? Of course I do! Of course I want these things to continue to exist. The website then tells me the best way to ensure that what I love continues in the future is to "add my voice" to the Climate Reality Project listserv and by so doing "join the movement to end carbon pollution and stand up for what I love" (*What I Love*).

There is much not to like about the *What I Love* initiative. For one, it treats its users like consumers with clickable preferences, and its predetermined categories are both too generic and too few. Yes, I love tea, but what I really love is drinking a cup of Chai at my favorite local coffee shop with Louis Armstrong playing over the speakers in the background. And what about my love for old typewriters? What's the correct category for that? What about my love for literature, my love for Edward Hopper

paintings, my love for building driftwood forts? And what about my desire to take long road trips in fast cars—in a time of climate change and for a project that targets carbon pollution, would it be OK for me to admit that as one of my loves?[36] The project similarly limits the ways in which users imagine the threat of climate change. Climate change is not just about carbon pollution. People we love are threatened by petro-related toxins in food and water supplies. Mountains and rivers are threatened by many different kinds of extractive industries, which may or may not have a direct connection to carbon pollution. Equality is similarly threatened by resource extraction as well as the predations of speculative neoliberal economics. Overall, in delimiting what users can choose as their loves and by only framing the threat in terms of carbon pollution, the project advances an over-simplified narrative about how climate change is affecting our lives. In this context, then, it's unsurprising that the solutions *What I Love* suggests are also limited.

While it is a potentially empowering gesture to ask users to join a movement, when one reads a bit further on the website, one learns that The Climate Reality Project, which was founded by Al Gore, unsurprisingly champions market-based solutions to climate change, particularly a global carbon-trading scheme. Additionally, as in Gore's film *An Inconvenient Truth*, the *What I Love* initiative advocates for pursuing the types of consumer-based solutions that elsewhere in this dissertation I have discussed as the individualization of responsibility. The individual as consumer model permeates every level of the website, from its rhetoric and graphics to its arguments about carbon pollution. Users are even given the opportunity to share their canvases on Facebook,

[36] I confess that though I felt constrained by the selection process, part of me enjoyed discovering that three of my loves—friends, rivers, and mountains—were on the top-ten list of loves most often selected by users over the project's three-year history.

Twitter, and other social media platforms, thus broadcasting to the world that yes, I am a person who loves things, and that yes, I too am a good climate change subject.

However, I will admit that the process of using the *What I Love* website is pleasurable. It is a vicarious and fundamentally non-threatening way of exploring the impacts of climate change. There is something deeply appealing too about this low-stakes exercise in identity expression, in choosing things that help me, according to the website, know who I am and specifically who I am in relation to climate change. This is a premise that I have also used in the classroom. For example, I ask students in sustainability-themed writing courses to conduct research about how climate change is affecting the places, people, and things to which they feel most attached. For people like those students, who have rarely or never before considered the topic, a project like *What I Love*, even with all its flaws, offers a useful starting place for making such connections between climate change and one's attachments.

II. Carbon Capture

Author Jonathan Franzen would hate the *What I Love* initiative. In fact, maybe he's already seen it and already does hate it. However, his reasons for doing so would go beyond disliking its emphasis on consumer action and market solutions. What he would most take issue with is the fact that the project seems to make everything about climate change.

What I Love includes no category for birding, an activity (or perhaps more a lifestyle) that Franzen loves and has written about at length in both his journalism and fiction. But Franzen might appreciate this omission, especially since his position on the

connections between birding and climate change has always been a complicated one, and he has vacillated between resignation and outrage. In his 2005 *New Yorker* essay, "My Bird Problem," Franzen describes how his obsession with birds unfortunately makes him "inconveniently obliged to care" about the species that will disappear with rising temperatures. Franzen doesn't take an activist stance at the end of the article, as we might expect of a more climate-minded writer, but he does suggest that even the "inactivists" like himself may too have a role to play in addressing climate change ("My Bird Problem"). Franzen is the climate change subject who doesn't want to be one, but feels like it's a requirement, like he would be a bad person for not changing his light bulbs, not driving a Prius, and not framing every environmental issue/environmental conversation in the context of climate change.

In his more recent article, "Carbon Capture," also published in the *New Yorker*, Franzen shifts his position on climate change towards the more-contentious and excoriates what he feels is the overwhelming dominance of climate change as *the* issue in the environmental movement. The subtitle of the article poses the question, "Has climate change made it harder for people to care about conservation?" Franzen's vehement answer: Yes, and that's a bad thing. Throughout the article, Franzen makes the case that climate change has come to eclipse every other environmental issue and concern, and he laments that no one cares about saving birds anymore. All anyone cares about, Franzen bemoans, is the climate:

> It's not that we shouldn't care whether global temperatures rise two degrees or four this century, or whether the oceans rise twenty inches or twenty feet; the differences matter immensely," Franzen writes. "The question is whether *everyone* who cares about the environment is obliged to make climate the overriding priority. ("Carbon Capture")

Franzen's problem with climate change is that it is a bully of an issue, taking attention (and resources) away from other environmental issues like conservation and bird advocacy.

On a practical level, Franzen worries that alternative energy projects such as monoculture agribusiness to produce biofuels or giant dam projects to generate hydroelectric power will further destroy bird habitats and the beautiful natural places that the birds depend on, and that he loves. He explains that "As long as mitigating climate change trumps all other environmental concerns, no landscape on earth is safe" ("Carbon Capture"). On a more conceptual level, Franzen points out that climate change is a future problem, not an immediate threat to the birds he unapologetically cares about more than humans. Climate change is too distant and too abstract, and as such it makes assigning blame more difficult, or even impossible: "Climate change is everyone's fault—in other words, no one's. So we can all feel good about deploring it" (Franzen, "Carbon Capture"). Climate change is too big to grasp in its entirety, Franzen argues, echoing though not directly citing Timothy Morton's theory of hyperobjects, and when we try to do so, we can congratulate ourselves for denouncing it while simultaneously forgetting about all the other issues that are important to us.

The immediate public response to the article was fractious. Supporters, mainly fellow conservationists, loved it. They cheered Franzen for saying what they had long thought and felt (Clarke). Detractors, mainly climate-minded environmentalists, decried it, pointing out all of Franzen's misstatements (there were many), uncovering his lapses in journalistic objectivity, and questioning the underlying premises of his argument (Romm; Jannot). I am less interested in this debate or the specific critiques of the article,

compelling though they are, and more interested in what Franzen's argument can teach us about love, attachment, and the importance of considering narrative in a time of climate change.

Jonathan Franzen loves birds, and he feels that climate change threatens that love. For Franzen, the threat derives not from carbon pollution or the actual uptick of CO_2 in the atmosphere but rather from the story of climate change, the fact that it has come, in his estimation, to dominate all other stories. Or in other words, Franzen's root problem with climate change, perhaps unsurprising coming from a novelist, has to do with narrative:

> As a narrative, climate change is almost as simple as "Markets are efficient." The story can be told in fewer than a hundred and forty characters: We're taking carbon that used to be sequestered and putting it in the atmosphere, and unless we stop we're fucked. Conservation work, in contrast, is novelistic. No two places are alike, and no narrative is simple. (Franzen, "Carbon Capture")

Franzen does not very much like the story of climate change. It's too totalizing, not novelistic enough (or at least not like a Franzen novel). To a certain extent, Franzen is right. Climate change is overwhelming and omnipresent. The issue can even be imperialistic, trumping other concerns, as when we discount problems such as ocean acidification and imagine marine ecosystems as valuable only insofar as they can act as carbon "sinks," or when market-based solutions to carbon pollution displace harms onto indigenous or low-income communities (as has happened recently with California's carbon trading bill, AB 32) ("California's Cap and Trade"). As Naomi Klein reminds us, viewing climate change as an opportunity or arguing that carbon pollution is the only problem that needs to be solved can result in additional social and environmental injustice and the further entrenchment of neoliberal and extractive ideologies. But as

Klein also reminds us, the narrative of climate change is not itself inherently simple, totalizing, or imperialistic, and in this sense, Franzen gets it wrong. Addressing the many challenges of climate change requires a "this changes everything" transition, Klein explains, a big leap into the future (*This Changes Everything* 461). But it doesn't require that we abandon our attachments or devalue other crucial stories, like those about economic inequality, structural racism, or yes, the destruction of bird habitat. These stories all matter, and they matter more because of climate change, not less.

Not only does climate change not subsume all other issues, it powerfully connects them. It is, as Klein puts it, "a movement of many movements" (*This Changes Everything* 290). You can care about birds, and the climate too. Or, to echo other texts I've explored in this dissertation, you can care about your family, cancer, the Arctic, New York City, Oregon, or the future. You can care about the nature in your backyard wherever that might be and the wellbeing of others. You can care about what happens in a classroom. You can care about all these things *and* the climate. The conjunction "and" is powerful here, a capacious word that neither implies equivalence nor forces us to choose one side or the other. There are many possible stories of climate change, and they are expansive and connected enough to include all of these things, and to do so without reducing them to a hundred and forty characters, as Franzen worries will happen. What is needed is more diverse and complex texts that move beyond the expected and imagine new modes of love and interconnection. Ultimately, that is what this dissertation has been about: exploring the many stories, and thus attachments, of climate change.

How does climate change shift how we feel, how we act in the world? Do we respond alone or together, as individuals or as communities? Do we respond with

security or with vulnerability, with fear or with love? I have tried to offer a brief glimpse of how various literary and cultural texts are asking such questions. My archive has been limited both by space and by my own oversights, and I am hopeful that future projects will take up similar questions with a wider view of the range of literature and culture being produced in response to climate change. Texts, just like teachers, don't always have the answers to these questions, yet the asking matters in and of itself. To care about how these questions are being asked shows that we care about the future, and have the potential to care for the present too.

III. Stories of Love

The root problem of the *What I Love* project is not that it treats users as consumers and it's not, contra Franzen, that it makes everything about climate change. Rather, the problem with *What I Love* is that it's not really about love. It's about framing climate change as personal, as if it weren't already. Yes, we can, and probably should, search for better ways to frame the issue of climate change, even as recent research has demonstrated that perhaps framing doesn't matter as much as we might expect (Bernauer and McGrath). However, to overemphasize the importance of framing is to fall prey to another kind of deficit model, treating individuals as passive consumers of narrative rather than as cultural agents (or having the potential to be cultural agents) themselves, creating and offering their own stories. It oversimplifies the story of climate change. It oversimplifies the idea of connection. And it oversimplifies the notion of attachment.

Living in a time of climate change requires cultivating the attachments we already care for and reckoning with the many other attachments that are either newly emerging or

that have for too long been ignored. Bruno Latour suggests that the story of the Anthropocene is a story about attachment, about dependency and responsibility. The advances of our society, Latour argues, "have amplified, for at least the last two centuries, not only the scale at which humans and nonhumans are connecting with one another in larger and larger assemblies, but also the intimacy with which such connections are made" ("It's Development" 5). In this context, climate change represents a grand educational experiment in which we are learning again how to be intimate, how to be attached with each other and the world.

Love isn't as simple as making choices about what we do or do not care about, as we can choose to care or not to care about climate change. Rather, love is the more difficult act (not a choice) of caring *for* and being *with*. As Dale Jamieson and Bonnie Nadzam point out in their discussion of what it means to love in the Anthropocene, to love is to deeply know and coexist with the other:

> There is an intellectual kind of knowing we're all familiar with, and then there is a deep knowing that entails bodily experience and intimacy... This kind of knowing can sometimes happen with a single life-changing experience, but more often it takes continual resolve over time, and requires us to look again and again even when we think we already know what we're seeing. Everyday at 7 pm your partner walks through the door after her work day; what greater kindness, what greater act of love than to greet her with a mind open enough to ask yourself: and who is this? (Jamieson and Nadzam 208-9)

Love in a time of climate change, as these authors point out, is not premised on intellectually knowing something, nor is it engendered by moments of sudden conversion. Love is the slow work of dwelling together—in ways that are sustainable, just, and encompassing of all beings, human and nonhuman alike. It involves being open and vulnerable, and it means daily welcoming the world, the climate, our love.

This is what teaching in a time of climate change is about too.

Why, some people ask me, given the enormity and complexity of climate change, do I focus so narrowly on teaching? What happens in any one classroom won't help reduce fossil fuel use, build new sustainable energy infrastructure, or limit ocean acidification to any measurable degree. It won't influence policy or decision-making, even if all my students became committed climate activists or march to the state capitol (and again, that is not my goal for them). Nor will one transformative classroom help right the wrongs of global social inequality that are at the root of all kinds of environmental injustices. Why then, if climate change is a wicked snarl of a problem, do I tug on this particular piece of thread?

My first answer has to do with scale and agency. If one's goal is a world with less inequality and less slow violence, a world with more justice, more sustainability, and more resilience, one can start small in a classroom, a place in which to imagine, discuss, model, and put into practice different ways of being. Rather than feeling overwhelmed and oppressed by climate change and all its interconnected impacts, I choose to be active (and perhaps even an activist) in the realm where I have some agency. That realm is teaching and learning.

My second answer has to do with attachment. Though there's no category for it on the *What I Love* website, teaching is the thing that I love. It's what I couldn't live without. It defines who I am. And it's my ingress to living with climate change. But what I love most about teaching and learning climate change is not the material or the topic. It is always the students. I recognize that to refer to what we do in the classroom, particularly in higher education, in the context of love is often looked on as inappropriate, or out-of-place. In an academic world in which expertise and objectivity are paramount,

the idea of love can seem at best irrelevant and at worst uncritical or naïve. Yet I take wisdom from bell hooks, who sees love not as the antithesis of critical thinking but as its necessary complement. Together, the two create supportive and transformative learning environments:

> When as teachers we teach with love, combining care, commitment, knowledge, responsibility, respect, and trust, we are often able to enter the classroom and go straight to the heart of the matter. That means having the clarity to know what to do on any given day to create the best climate for learning. (hooks, *Teaching Community* 134)

As I've suggested throughout this dissertation, sometimes explicitly, sometimes implicitly, teaching climate change is about what all good teaching is about: the students. Young people bring to the classroom their own energy, hope, visions, and stories. These are precious things that are too routinely ignored in our society. Sometimes students are apathetic or worse, cynical, but more often they are earnest and trusting, ready to follow us down paths to more sustainable and just futures, or better yet, to lead the way.

On the Last Day

When the room emptied of your voices
I sat in the back row to read again
what you'd left behind—visions, stories
scrawled across the blackboard:

Less consumption, less disease.
Trains of light connecting everywhere
to everywhere else. Justice and good food
for all creatures, a tiny house for each

to make its home. Lives of peace.
No war, no cages, no razor wire, no prisons
no corporate money, no student debt.
Instead, more forgiveness, more love

more conversation, more compassion
more things powered by the sun.
Better education and a planetary government,
spaces for wildness, spaces for wonderment.

I wanted to leave your words
to instruct passerby that what they think
can't be, you chose to see anyway, offered free
not knowing the value of your gift.

Yet for some easy routine,
and the thought that if not me
someone else surely would
I erased the board. Then walked out

into the long shadows of late afternoon.
But your stories stayed with me
in the gathering darkness, stayed then
and still do, and all this is just to say

thank you.

REFERENCES CITED

Agrawal, Arun. *Environmentality: Technologies of Government and the Making of Subjects*. Durham, NC: Duke UP, 2005. Print.

"Al Gore, Climate Reality Project Launch Two Major Initiatives to Identify the Costs of Carbon Pollution." *The Climate Reality Project*. Climate Reality Project, 24 Sept. 2013. Web. 25 Apr. 2016.

Albrecht, Glenn. "Solastalgia and the Creation of New Ways of Living." *Nature and Culture: Rebuilding Lost Connections*. Eds. Sarah Pilgrim and Jules N. Pretty. London: Earthscan, 2013. 217-234. Print.

Albrecht, Glenn, et al. "Solastalgia: The Distress Caused by Environmental Change." *Australasian Psychiatry: Bulletin of Royal Australian and New Zealand College of Psychiatrists*. 15 (2007): 95-8. Print.

American Academy of Arts & Sciences. *The Heart of the Matter: The Humanities and Social Sciences for a vibrant, competitive, and secure nation.* Cambridge, MA: American Academy of Arts & Sciences, 2013. Web. 22 Mar. 2016.

American Psychological Association Task Force on the Interface between Psychology and Global Climate Change. "Psychology and Global Climate Change: Addressing a Multifaceted Phenomenon and Set of Challenges." *American Psychological Association*. 2009. Web. 18 Sept. 2015.

Ammons, Elizabeth. *Brave New Worlds: How Literature Will Save the Planet.* Iowa City: U of Iowa P, 2010. Print.

Arsenault, Chris. "Only 60 Years of Farming Left If Soil Degradation Continues." *Scientific American.* 5 Dec. 2014. Web. 1 Apr. 2016.

Aubry, Timothy. *Reading as Therapy: What Contemporary Fiction Does for Middle-Class Americans*. Iowa City: U of Iowa P, 2011. Print.

Bajak, Aleszu. "Climate Fiction: Reading Readers Where Science Can't." *UnDark*. 28 Mar. 2016. Web. 28 Mar. 2016.

Ballard, J.G. *The Drowned World*. New York: W.W. Norton, 1962. Print.

Barbezat, Daniel, and Mirabai Bush. *Contemplative Practices in Higher Education: Powerful Methods to Transform Teaching and Learning*. San Francisco: Jossey-Bass, 2014. Print.

Barnosky, Anthony D., et al. "Has the Earth's Sixth Mass Extinction Already Arrived?" *Nature* 471.7336 (2011): 51-57. Print.

Bennett, Andrew, and Nicholas Royale. *An Introduction to Literature, Criticism, and Theory, Fifth Edition.* London: Routledge, 2016. Print.

Bernauer, Thomas, and Liam F. McGrath. "Simple reframing unlikely to boost public support for climate policy." *Nature Climate Change* 7 Mar. 2016. Web. 27 Apr. 2016.

Besner, Linda. "Changing Face: The Emergence of a New Genre of Memoir Addressing the Consequences of a Changing Planet." *The National Post*. 2 Apr. 2015. Web. 28 Dec. 2015.

Bliuc, Ana-Maria, et al. "Public Division About Climate Change Rooted in Conflicting Socio-Political Identities." *Nature Climate Change* 5 (2015): 226-9. Print.

Bloom, Dan. "Thanks to TeleRead and NPR, "Cli-fi" is now an official literary term." *TeleRead*, 28 May 2013. Web. 24 Mar. 2016.

---. Interview by David Holmes. *The Conversation*, 20 Feb. 2014. Web. 15 Feb 2016.

---. "Movies Like 'Snowpiercer' Can Sound the Alarm." *The New York Times,* 30 Jul 2014. Web. 24 Mar. 2016.

---. "An Open, Friendly Letter to My Climate Activist Friend Bill McKibben." Web blog post. *Do You Cli-Fi?* 23 May 2014. Web. 20 Apr. 2016.

---. "•cli-fi bullets." Web blog post. *Do You Cli-Fi?* 30 Jan 2016. Web. 15 Feb 2016.

---. *100 Literary and Philosophical Ruminations about Cli-Fi: The Rise of a New Literary Genre*. eBook. Amazon Digital Services. 26 Feb. 2016. AZW file. 27 Mar. 2016.

---. "A Cli-Fi Manifesto—A Call to Arms: 10 More Generations to Get It Right." Web blog post. *Do You, or Would You Like to "Cli-Fi"?* 2 Mar. 2016. Web. 9 Mar. 2016.

Bragg, Elizabeth. "'What If…?': Climate Change as Ally." *Ecopsychology* 7.4 (2015): 231-7. Print.

Bride, Kate. "Pedagogical Crisis... Again. Reflections on the Work of Learning to Teach." *Narrating Transformative Learning in Education*. Eds. Morgan Gardner and Ursula A. Kelly. New York: Palgrave Macmillan, 2008. 127-143. Print.

Brooks, Peter. *Reading for the Plot: Design and Intention in Narrative*. Cambridge, MA: Harvard UP, 1984. Print.

Bruner, Jerome. *Making Stories: Law, Literature, Life.* New York: Farrar, Straus and Giroux, 2002.

Buell, Lawrence. *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture.* Cambridge, MA: The Belknap Press of Harvard UP, 1995. Print.

---. *The Future of Environmental Criticism.* Malden, MA: Blackwell, 2005. Print.

Bulkeley, Harriet. "Common knowledge? Public understanding of climate change in Newcastle, Australia." *Public Understanding of Science*, 9 (2000): 313-333. Print.

Burke, Kenneth. *The Philosophy of Literary Form: Studies in Symbolic Action, 3rd ed*. Berkeley: U of California P, 1974. Print.

Bussjaeger, Jackie. "Cli-Fi Book Club to Hit Libraries This Spring." *The Lowdown*. 5 Feb. 2016. Web. 24 Mar. 2016.

Butler, Octavia. *Parable of the Sower*. New York: Grand Central Publishing, 1993. Print.

"California's Cap and Trade Program: Fighting for Just Climate Change Policy." *The Center on Race, Poverty, and the Environment*, n.d. Web. 29 Apr. 2016.

Campbell, SueEllen. "The Land and Language of Desire: Where Deep Ecology and Post-Structuralism Meet." *The Ecocriticism Reader: Landmarks in Literary Ecology*, eds. Cheryll Glotfelty and Harold Fromm. Athens, GA: U of Georgia P, 1996. 124-136. Print.

---. "Making Climate Change Our Job." *Teaching Climate Change in the Humanities.* Eds. Stephen Siperstein, Stephanie LeMenager, and Shane Hall. London: Routledge. Forthcoming 2016.

Campbell, Kurt M., et al. *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change.* Washington, DC: Center for Strategic and International Studies, 2007. Web. 2 Apr. 2016.

Campbell, Tasha. "FutureCoast Brings Out Real Emotions." Web blog post. *ENG 104: Climate Change Fiction.* 7 Mar. 2015. Web. 28 Mar. 2016.

Celan, Paul, and John Felstiner. *Selected Poems and Prose of Paul Celan*. New York: W.W. Norton, 2001. Print.

Chakrabarty, Dipesh. “Postcolonial Studies and the Challenge of Climate Change.” *New Literary History* 43.1 (2012): 1-18. Print.

Clark, Timothy. "Some Climate Change Ironies: Deconstruction, Environmental Politics and the Closure of Ecocriticism." *The Oxford Literary Review* 32.1 (2010): 131-49. Print.

Clarke, Chris. “Orthodoxy in the Climate Movement: Franzen and His Deniers.” Web blog post. *Coyote Crossing*. Chris Clarke, 11 Apr. 2015. Web. 26 Apr. 2016.

Collings, David. *Stolen Future, Broken Present: The Human Significance of Climate Change*. Ann Arbor, MI: Open Humanities Press, 2014. Web. 13 Mar. 2016.

Coyle, Kevin J., and Lise Van Susteren. “The Psychological Effects of Global Warming on the United States: And Why the U.S. Mental Health Care System is Not Adequately Prepared.” *National Wildlife Federation*. Feb. 2012. Web. 18 Sept. 2015.

Crane, Magan. “Starfish Wasting Disease May Be Tied to Warming Waters.” *Discovery News*, 22 Sept. 2015. Web. 25 Apr. 2016.

Cullen, Heidi. “Personal Stories About Global Warming Change Minds. *The New York Times*, 30 Jul 2014. Web. 24 Mar. 2016.

Dalby, Simon. "Framing the Anthropocene: The Good, the Bad and the Ugly." *The Anthropocene Review* 3.1 (2016): 33-51. Web. 24 Apr. 2016.

Dear Climate. New York University, n.d. Web. 30 Apr. 2016.

Deresiewicz, William. *Excellent Sheep: The Miseducation of the American Elite and the Way to a Meaningful Life*. New York: Simon & Schuster, 2014. Print.

Dobson, Andrew. “The Fiction of Climate Change.” *Open Democracy*, 17 Sept. 2010. Web. 24 Mar. 2016.

Dodd, Philip. “Criticism and the Autobiographical Tradition.” *Modern Selves: Essays of Modern British and American Autobiography*. Ed. Philip Dodd. Totowa, NJ: Frank Cass, 1986. 1-13. Print.

Dow, Kirstin, and Thomas E. Downing. *The Atlas of Climate Change: Mapping the World’s Greatest Challenge, 2nd Edition.* Berkeley, CA: U of California P, 2007. Print.

Drapkin, Julia Kumari. *iSeeChange*. iSeeChange, n.d. Web. 29 Apr. 2016.

Eakin, Paul John. *How Our Lives Become Stories: Making Selves*. Ithaca, NY: Cornell UP, 1999. Print.

Eckersley, Robyn. "Translating Science and Restoring Our Sense of Wonder: The End of Nature as a Landmark." *Organization & Environment* 18.2 (2005): 193-97. Web.

Eklund, Ken. Interview by Dee Cook. *WorkBook Project*. 2 Mar. 2009. Web. 3 Apr. 2016.

Eklund, Ken and Sara Thacher. "Participatory Cli-Fi: The Making of FutureCoast." Interview by Stuart Candy. *Situation Lab* 12 Feb. 2014. Web. 25 Mar. 2016.

Evancie, Angela. "So Hot Right Now: Has Climate Change Created a New Literary Genre?" *NPR*, 20 Apr. 2013. Web. 24 Mar. 2016.

Felstiner, John. *Can Poetry Save the Earth?: A Field Guide to Nature Poems*. New Haven: Yale UP, 2009. Print.

Fernandes, Rio. "The Subfield That Is Changing the Landscape of Literary Studies." *The Chronicle of Higher Education*. 21 Mar. 2016. Web. 25 Mar. 2016.

Finch, Robert and John Elder, eds. *The Norton Book of Nature Writing*. New York: W.W. Norton, 2002. Print.

Finker, Christopher Zumski. "Staying Human in a Time of Climate Change: New Author on Science, Grief, and Hope." *Yes! Magazine* 2 July 2015. Web. 4 Feb. 2016.

Fiskio, Janet. "Apocalypse and Ecotopia: Narratives in Global Climate Change Discourse." *Race, Gender & Class* 19.1 (2012): 12-36. Print.

Fowler, Kathleen. "'So new, So new': Art and Heart in Women's Grief Memoirs." *Women's Studies* 36.7 (2007): 525-549. Print.

Franzen, Jonathan. "My Bird Problem." *The New Yorker* 8 Aug. 2005. Web. 27 Apr. 2016.

---. "Carbon Capture: Has Climate Change Made It Harder for People to Care About Conservation?" *The New Yorker* 6 Apr. 2015. Web. 17 Apr. 2016.

Gaard, Greta. "From 'cli-fi' to critical ecofeminism: Narratives of climate change and climate justice." *Contemporary Perspectives on Ecofeminism*. Eds. Mary Phillips and Nick Rumens. New York: Routledge, 2015. 169-192. Print.

Gabriel, Hayden, and Greg Garrard. "Reading and Writing Climate Change." *Teaching Ecocriticism and Green Cultural Studies*. Ed. Greg Garrard. New York: Palgrave Macmillan, 2012. 117-29. Print.

Garrard, Greg. *Ecocriticism*. London: Routledge, 2012. Print.

Gelbspan, Ross. "Global Warming and Political Power: The End of Nature and Beyond." *Organization & Environment* 18.2 (2005): 186-92. Web.

Gertz, Emily. "What Are Your Picks for the Best in Cli-Fi? *Popular Science*, 20 June 2014. Web. 24 Mar. 2016.

Gessner, David. *My Green Manifesto: Down the Charles River in Pursuit of a New Environmentalism*. Minneapolis: Milkweed Press, 2011. Print.

Gilbert, Sandra M. *Death's Door: Modern Dying and the Ways We Grieve.* New York: Norton, 2006. Print.

Gillian. "Review of *While Glaciers Slept* by M Jackson." *Goodreads*. 23 Jan. 2016. Web. 25 May 2016.

Gleason, Susan (sgleason). "MyClimateMoment: @algore's An Inconvenient Truth made an impact when I saw it—and, overused or not, the stranded bear made my heart ache." 3 Dec. 2015, 3:34 p.m. Tweet.

Global Weirding. The Research Council of Norway, n.d. Web. 29 Apr. 2016.

Golson, Blair. Interview by Lawrence Bender. *Truthdig: drilling beneath the headlines*. 25 May 2006. Web. 1 May 2016.

Goodbody, Alex H. "Melting Ice and the Paradoxes of Zeno: Didactic Impulses and Aesthetic Distanciation in German Climate Change Fiction." *Ecozon@* 4.1 (2013): 92-102. Web. 24 Mar. 2016.

Gordon, Ronni. "HCC Takes Lead in 'Cli-Fi' Education." *Holyoke Community College News*. Holyoke Community College, 2 Apr. 2015. Web. 14 Apr. 2016.

Gore, Albert, et al. *An Inconvenient Truth*. Hollywood, CA: Paramount, 2006. Film.

Graham, Robert J. *Reading and Write the Self: Autobiography in Education and the Curriculum*. New York: Teachers College Press, 1991. Print.

Griffin, Emilie. *Turning: Reflections on the Experience of Conversion.* Garden City: Doubleday, 1980. Print.

Hall, Cheryl. "What Will It Mean to Be Green? Envisioning Positive Possibilities Without Dismissing Loss." *Ethics, Policy and Environment* 16.2 (2013): 125-41. Print.

Hamilton, Clive. "The Delusion of the 'Good Anthropocene.'" Web blog post. *Clive Hamilton blog*, 17 June 2014. Web. 24 Apr. 2016.

Heigeartaigh, Seán. "Hollywood Global Warming Dramas Can Be Misleading." *The New York Times*, 4 Aug. 2014. Web. 24 Mar. 2016.

Heise, Ursula K. *Sense of Place and Sense of Planet: The Environmental Imagination of the Global*. Oxford: Oxford UP, 2008. Print.

---. "What's the Matter with Dystopia?" *Public Books*. 1 Feb. 2015. Web. 24 Mar. 2016.

Herzog, Arthur. *Heat*. New York: Simon and Schuster, 1977. Print.

Hicks, David, and Andy Bord. "Learning about global issues: why most educators only make things worse." *Environmental Education Research* 7.4 (2001): 413-25. Print.

Hirsch, Edward. *Poet's Choice*. Orlando: Harcourt, 2006. Print.

Hitz, Betzi (BetziHitz). "#MyClimateMoment For me it was early on in my second Chasing Ice viewing." 10 Dec. 2015, 4:16 p.m. Tweet.

Hogan, James, and Richard Littlemore. *Climate Cover-Up: The Crusade to Deny Global Warming*. Vancouver: Greystone Books, 2009. Print.

Hogan, Linda. *The Woman Who Watches Over the World: A Native Memoir*. New York: W.W. Norton, 2002. Print.

hooks, bell. *Teaching to Transgress: Education as the Practice of Freedom*. New York: Routledge, 1994. Print.

---. *Teaching Community: A Pedagogy of Hope*. New York: Routledge, 2003. Print.

Hulme, Mike. *Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity*. Cambridge, UK: Cambridge UP, 2009. Print.

Hutchings, Pat. "Introduction: Approaching the Scholarship of Teaching and Learning." *Opening Lines: Approaches.* Ed. Pat Hutchings. Menlo Park, CA: Carnegie Foundation for the Advancement of Teaching, 2001. 1-10. Print.

Imagination and Climate Futures Initiative. Arizona State University, n.d. Web. 13 May 2016.

Jackson, M. *While Glaciers Slept: Being Human in a Time of Climate Change*. Brattleboro, VT: Green Writers Press, 2015. Print.

Jameson, Frederic. "Future City." *New Left Review* 21 (2003): 65-79. Print.

Jamieson, Dale. *Reason in a Dark Time: Why the Struggle Against Climate Change Failed—and What It Means for Our Future*. London: Oxford UP, 2014. Print.

Jamieson, Dale, and Bonnie Nadzam. *Love in the Anthropocene*. New York: OR Books, 2015.

Jannot, Mark. "Friends Like These." Web blog post. *Audubon Climate*. Audubon 2 Apr. 2015. Web. 27 Apr. 2016.

Jarvis, Christine. "Fiction and Film and Transformative Learning." *The Handbook of Transformative Learning: Theory, Research, and Practice*. Eds. Edward W. Taylor and Patricia Cranton and Associates. San Francisco: Jossey-Bass, 2012. 486-502. Print.

Jefferson, Margo. "Facing Truth About Incest, in Memoir and Novel." *New York Times*, 29 May 1997. Web. 5 Feb. 2016.

Jensen, Derek, and Stephanie McMillan. *As the World Burns: 50 Things You Can Do to Stay in Denial.* New York: Seven Stories Press, 2007. Print.

Johns-Putra, Adeline. "Climate change in literature and literary studies: From cli-fi, climate change theater and ecopoetry to ecocriticism and climate change criticism." *Wiley Interdisciplinary Reviews: Climate Change* 7.2 (2016): 266-282. Web. 23 Mar. 2016.

Kadonaga, Lisa. "Depictions of global environmental change in science fiction: An overview of educational applications." *Climate Change Communication Conference*, 2000. Web. 24 Mar. 2016.

Kanew, Justin. "'Chasing Ice,' Changing Lives." Online video clip. YouTube. YouTube, 25 Nov. 2012. Web. 15 Mar. 2016.

Kermode, Frank. *The Sense of an Ending: Studies in the Theory of Fiction*. Oxford: Oxford UP, 1967. Print.

Kerridge, Richard. "The Single Source." *Ecozon@: European Journal of Literature, Culture, and Environment* 1.1 (2010). 155-161. Web. 24 Mar. 2016.

Kerridge, Richard, and Neil Sammells. *Writing the Environment: Ecocriticism and Literature*. London: Zed Books, 1998. Print.

Kevles, Daniel J. "The Contested Earth: Science, Equity & the Environment." *Daedalus*. 137.2 (2008): 80-95. Print.

Kiehl, Jeffrey T. *Facing Climate Change: An Integrated Path to the Future*. New York: Columbia UP, 2016. Print.

Kilcup, Karen L. "Fresh Leaves: Practicing Environmental Criticism." *PMLA* 124.3 (2009): 847-55. Print.

Klein, Naomi. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Metropolitan/Henry Holt, 2007. Print.

---. *This Changes Everything: Capitalism vs. the Climate*. New York: Simon & Schuster, 2014. Print.

Konchar Farr, Cecilia. "American Ecobiography." *Literature of Nature: An International Sourcebook*. Ed. Patrick D. Murphy. Chicago: Fitzroy Dearborn, 1998. 94-7. Print.

Kormann, Carolyn. "Scenes From a Melting Planet: On the Climate-Change Novel. *The New Yorker*, 3 July 2013. Web. 24 Mar. 2016.

Kramb, Daniel. "Climate Change Fiction Melts Away Just When It's Needed Most." *The Guardian*. 18 Oct 2012. Web. 24 Mar. 2016.

Lambert, Joe. *Digital Storytelling: Capturing Lives, Creating Community*. Berkeley, CA: Digital Diner Press, 2002. Print.

Lang, Chris. "Climate Change and Mental Health." *Psychiatric Times*. 26 Oct. 2015. Web. 4 Apr. 2016.

Latour, Bruno. "'It's development, stupid!' or: How to Modernize Modernization." *Postenvironmentalism*. Ed. Jim Proctor. Cambridge, MA: MIT Press, 2007. Print.

---. "An Attempt at a 'Compositionist Manifesto.'" *New Literary History* 41 (2010): 471-90. Print.

---. "War and Peace in an Age of Ecological Conflicts." Lecture at the Peter Wall Institute. Vancouver, 23 Sept. 2013. Web. 30 Oct. 2015.

Lear, Jonathan. *Radical Hope: Ethics in the Face of Cultural Devastation.* Cambridge: Harvard UP, 2006. Print.

Leiserowitz, Anthony. "Climate Change and the American Mind." University of Oregon Climate Change Research Group. Many Nations Longhouse, University of Oregon, Eugene, OR. 25 Apr. 2012. Lecture.

Leiserowitz, Anthony, Nicholas Smith, and Jennifer Marlon. *American Teens' Knowledge of Climate Change*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication, 2011. Web. 30 Oct. 2015.

Leiserowitz, Antony, et al. *Climate Change in the American Mind: March 2015.* Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication. Web. 30 Oct. 2015.

LeMenager, Stephanie. "The Humanities after the Anthropocene." *The Routledge Companion to the Environmental Humanities*. Ed. Ursula K. Heise, Jon Christensen, and Michelle Niemann. London: Routledge. Forthcoming.

LeMenager, Stephanie, and Stephanie Foote. "The Sustainable Humanities." *PMLA* 127.3 (2012): 572-578. Print.

Libby, Brooke. "Nature Writing as Refuge: Autobiography in the Nature World." *Reading Under the Sign of Nature: New Essays in Ecocriticism*. Eds. John Tallmadge and Henry Harrington. Salt Lake City: U of Utah P, 2000. 251-64. Print.

Lockwood, Alex. "The Affective Legacy of *Silent Spring*." *Environmental Humanities* 1 (2012): 123-40. Web. 1 Mar. 2016.

Loeb, Paul Rogat. *The Impossible Will Take a Little While: Perseverance and Hope in Trouble Times, New and Revised Edition.* New York: Basic Books, 2014. Print.

"London Bookstore Sets 'Cli-Fi' Table for Climate Books." *Teleread.* 26 Aug. 2013. Web. 15 Mar. 2016.

Lopez, Barry. "Landscape and Narrative." *Crossing Open Ground.* New York: Vintage Books. 61-72. Print.

Love, Orlan. "Iowa City ecologist's memoir touches on climate change." *The Gazette*, 14 Feb 2016. Web. 15 Feb 2016.

Luke, Timothy. "Collective Action and the Eco Subpolitical: Revisiting Bill McKibben and *The End of Nature*." *Organization & Environment* 18.2 (2005): 202-6. Print.

---. "The politics of true convenience or inconvenient truth: struggles over how to sustain capitalism, democracy, and ecology in the 21st century." *Environment and Planning.* 40 (2008). 1811-24. Print.

Macy, Joanna, and Molly Brown. *Coming Back to Life: Practices to Reconnect Our Lives, Our World.* Gabriola, Island, BC: New Society Publishers, 1998. Print.

Macy, Joanna, and Chris Johnstone. *Active Hope: How to Face the Mess We're in Without Going Crazy*. Novato, CA: New World Library, 2012. Print.

Maniates, Michael. "Individualization: Plant a Tree, Buy a Bike, Save the World?" *Global Environmental Politics* 1.3 (2001): 31-52. Print.

Mann, Michael. *The Hockey Stick and the Climate Wars: Dispatches from the Front Lines*. New York: Columbia UP, 2012. Print.

Marshall, George. *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*. Bloomsbury: New York. 2014. Print.

---. "Climate Fiction Will Reinforce Existing Views." *The New York Times*, 30 Jul 2014. Web. 24 Mar. 2016.

Martin, Julia. "New, with Added Ecology? Hippos, Forests and Environmental Literacy." *Interdisciplinary Studies in Literature and Environment* 2.1 (1994): 1-12. Print.

Martin, Mark, ed. *I'm With the Bears*. London: Verso, 2011. Print.

Martusewicz, Rebecca A. "Leaving Home: Curriculum as Translation." *Journal of Curriculum Theorizing* 13.3 (1997): 13-17. Print.

Maslin, Mark. *Climate Change: A Very Short Introduction, Third Edition*. Oxford: Oxford UP, 2014. Print.

Maxwell, Anne. "Postcolonial Criticism, Ecocriticism and Climate Change: A Tale of Melbourne Under Water in 2035." *Journal of Postcolonial Writing* 45 (2009): 15-26. Print.

McEwen, Maya. "Some Thoughts about a Climate Fiction Class." Web blog post. *ENG 104: Climate Change Fiction.* 25 Feb. 2015. Web. 28 Mar. 2016.

McFarlane, Robert. "The Burning Question." *The Guardian,* 24 Sep. 2005. Web. 24 Mar. 2016.

McGonigal, Jane. "Alternative Reality Gaming." PowerPoint presentation. MacArthur Foundation presentation, Nov. 2004. Web. 20 Apr. 2016.

---. *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. New York: Penguin, 2011. Print.

McKibben, Bill. *The End of Nature*. New York: Random House, 1989. Print.

---. "The Emotional Core of *The End of Nature*." *Organization & Environment* 18.2 (2005): 182-85. Print.

---. "Four Years After My Pleading Essay, Climate Art is Hot." *Grist Magazine*. 5 Aug 2009. Web. 5 Apr. 2016.

---. "Introduction." *I'm With the Bears: Short Stories from a Damaged Planet*. New York: Verso, 2011. 1-5. Print.

---. *Oil and Honey: The Education of an Unlikely Activist.* New York: Times Books, 2013. Print.

---. "Foreword." *While Glaciers Slept: Being Human in a Time of Climate Change.* M. Jackson. Brattleboro, VT: Green Writers Press, 2015. Print.

---. "Afterword." *Teaching Climate Change in the Humanities.* Eds. Stephen Siperstein, Stephanie LeMenager, and Shane Hall. London: Routledge. Forthcoming 2016.

Meador, Ron. "Nation's first book clubs about 'Cli-Fi,' or climate fiction, start in Stillwater." *MinnPost*. 18 Feb. 2016. Web. 24 Mar. 2016.

Merchant, Carolyn. *Reinventing Eden: The Fate of Nature in Western Culture, Second Edition*. New York: Routledge, 2013. Print.

Merton, Thomas. "Letter." *Information Catholiques Internationale*, Apr. 1973: back cover. Print.

Mezirow, Jack. *Learning as Transformation: Critical Perspectives on a Theory in Progress.* San Francisco: Jossey-Bass, 2000. Print.

---. "Learning to Think Like an Adult." *Learning as Transformation: Critical Perspectives on a Theory in Progress*. Eds. Jack Mezirow and Associates. San Francisco: Jossey-Bass, 2000. 3-33. Print.

Milkoreit, Manjana. "The Promise of Climate Fiction: Imagination, Storytelling, and the Politics of the Future." *Reimagining Climate Change*. Eds. Paul Wapner and Hilal Elver. New York: Routledge, 2016. 171-190. Print.

Minchew, Brandie. "Voicemails from the Future Explore the Impact of Climate Change." *Alternate Reality Gaming Network*. 4 Feb. 2014. Web. 24 Mar. 2016.

Morrissey, Shirley, and Joseph Reser. "Natural disasters, climate change and mental health considerations for rural Australia." *Australian Journal of Rural Health* 15.2 (2007): 120-125. Web. 5 Apr. 2016.

Mortimer-Sandilands, Catriona. "Melancholy Natures, Queer Ecologies." *Queer Ecologies: Sex, Nature, Politics, Desire*. Eds. Catriona Mortimer-Sandilands and Bruce Erickson. Bloomington: Indiana UP, 2010. 331-358. Print.

Morton, Timothy. "Practicing Deconstruction in the Age of Ecological Emergency." *Teaching Ecocriticism and Green Cultural Studies*. Ed. Greg Garrard. New York: Palgrave, 2012. 156-66. Print.

---. *Hyperobjects: Philosophy and Ecology after the End of the World*. Minneapolis: U of Minnesota P, 2013. Print.

Moser, Susanne C., and Lisa Dilling, eds. *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*. Cambridge: Cambridge UP, 2007. Print.

Mulkern, Anne C. "Will Prize-Winning Novels Shift Attitudes on Global Warming?" *New York Times*, 6 May 2011. Web. 11 Feb. 2014.

Murdoch, Iris. "The Sublime and the Good." *Chicago Review*, 13.3 (1959): 42-55. Print.

Mutel, Cornelia. *A Sugar Creek Chronicle: Observing Climate Change from a Midwestern Woodland.* Iowa City: U of Iowa P, 2016. Print.

Naughton, Patricia. "'Cli-Fi', A Fiction Genre for Climate Change." *The Buzz… About Books*. Toronto Public Library, 22 Apr. 2016. Web. 23 Apr. 2016.

Ngai, Sianne. *Ugly Feelings*. Cambridge, MA: Harvard UP, 2005. Print.

Nisbet, Matthew C. "Communicating Climate Change: Why Frames Matter for Public Engagement." *Environment Magazine* Mar./Apr. 2009. Web. 2 May 2016.

---. "Nature's Prophet: Bill McKibben as Journalist, Public Intellectual and Activist." Joan Shorenstein Center on the Press, Politics and Public Policy Discussion Paper Series. Harvard University. Mar. 2013. Web. 1 Mar. 2016.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor.* Cambridge: Harvard UP, 2011. Print.

---. "The Great Acceleration and the Great Divergence: Vulnerability in the Anthropocene." Presidential Forum, *MLA Profession*. 19 Mar. 2014. Web. 25 Mar. 2016.

Nohl, Arnd-Michael. "Spontaneous Action and Transformative Learning: Empirical Investigations and Pragmatist Reflections." *Educational Philosophy and Theory* 41.3 (2009): 287-306. Print.

Norgaard, Kari M. *Living in Denial: Climate Change, Emotions, and Everyday Life*. Cambridge, Mass: MIT Press, 2011. Print.

Notz, Dirk. "The future of ice sheets and sea ice: Between reversible retreat and unstoppable loss." *Proceedings of the National Academy of Sciences* 106.49 (2009): 20590-20595. Web. 5 Mar. 2016.

Ojala, Maria. "How do children cope with global climate change? Coping strategies, engagement, and well-being." *Journal of Environmental Psychology* 32.3 (2012): 225-233. Print.

Olsen, Stefanie. "Provocative Politics in Virtual Games." *C|NET*. 28 Mar. 2007. Web. 20 Apr. 2016.

Oreskes, Naomi, and Erik M. Conway. *Merchants of Doubt.* New York: Bloomsbury Press, 2010. Print.

---. *The Collapse of Western Civilization: A View from the Future.* New York: Columbia UP, 2014. Print.

Orlowski, Jeff, et al. *Chasing Ice*. New York: Docuramafilms, 2013. DVD.

Orr, David. *Hope is an Imperative: The Essential Orr*. Washington, DC: Island Press, 2011. Print.

Orr, Gregory. *Poetry as Survival*. Athens, GA: U of Georgia P, 2002. Print.

---. "Not to Make Loss Beautiful." *Concerning the Book that is the Body of the Beloved.* Port Townsend, WA: Copper Canyon Press, 2005. 164. Print.

O'Sullivan, Edmund. "Emancipatory Hope: Transformative Learning and the 'Strange Attractors.'" *Holistic Learning and Spirituality in Education: Breaking New Ground.* Eds. J. Miller et al. Albany: State U of New York P, 2005. 69-78. Print.

---. "Deep Transformation: Forging a Planetary Worldview." *The Handbook of Transformative Learning: Theory, Research, and Practice*. Eds. Patricia Cranton and Edward W. Taylor. San Francisco, CA: Jossey-Bass, 2012. 162-177. Print.

Papuga, Casey. *Reading Journal.* Advanced Nature Writing course. Stonehill College, Spring 2013. Print.

Palumbo-Liu, David. "On Sadness." Web blog post. *Arcade: Literature, the Humanities, & the World*. Stanford University, 30 Aug. 2012. Web. 9 Feb. 2016.

Peng, Wei, Mira Lee, and Carrie Heeter. "The Effects of a Serious Game on Role-Taking and Willingness to Help." *Journal of Communication* 60.4 (2010): 723-742. Print.

Pérez-Peña, Richard. "College Classes Use Arts to Brace for Climate Change." *New York Times*. 31 Mar. 2014. Web. 25 Mar. 2016.

Pfirman, Stephanie L., et al. "Engaging Systems Understanding through Games." *AGU Fall Meeting Abstracts*. Vol. 1. 2013. Web. 3 Apr. 2016.

Pfister, Joel. "Complicity Critiques." *American Literary History* 12 (Fall 2000): 610-32. Print.

Pfister, Joel and Nancy Schnog, eds. *Inventing the Psychological: Toward a Cultural History of Emotional Life in America.* New Haven: Yale UP, 1997. Print.

Piper, Greg. "Climate-Change Fiction Class To Be Taught At University Of Oregon." *The College Fix*. 7 Sept. 2014. Web. 24 Mar. 2016.

Plantz, Kyle. "Move Over Sci-Fi: 'Climate Fiction' Finds way Into Classrooms." *Reuters*. 10 Apr. 2015. Web. 26 Mar. 2016.

Pleasant, Liz. "#MyClimateMoment: When Was the Instant Climate Change Became Deep, Urgent, and Personal For You?" *Yes! Magazine.* 4 Dec. 2015. Web. 4 Apr. 2016.

Potter, Emily. "Climate Change and the Problem of Representation." *Australian Humanities Review* 46 (2009). Web. 24 Mar. 2016.

Price-Hanson, Maria. "Climate Change = Bad Roommate." Web blog post. *ENG 104: Climate Change Fiction*. 9 Feb. 2015. Web. 8 Sept. 2015.

Randall, Rosemary. "The Id and the Eco." *Aeon Magazine*. 5 Dec. 2012. Web. 8 Sept. 2015.

Reser, Joseph P., Graham L. Bradley, and Michelle C. Ellul. "Encountering Climate Change: 'Seeing' is More Than 'Believing.'" *Wiley Interdisciplinary Review: Climate Change* 5.4 (2014): 521-37. Web. 25 Mar. 2016.

Revkin, Andrew. "A Darker View of the Age of Us – the Anthropocene." *New York Times*, 18 June 2014. Web. 24 Apr. 2016.

Rich, Nathaniel. *Odds Against Tomorrow*. New York: Farrar, Straus and Giroux, 2013. Print.

---. "Writing the End." *The New York Times Book Review*, 21 Apr. 2013. Web. 24 Mar. 2016.

Ring, Wilson. "Schools Add Cli-Fi (Climate Fiction) to Literature Curriculums." *Associated Press*. 6 Mar. 2016. Web. 24 Mar. 2016.

Roberts, David. "Everybody Needs a Climate Thing." *Grist* 6 Apr. 2015. Web. 22 Apr. 2016.

Rohde, David. "A Hurricane's Inequality." *Reuters.* 31 Oct. 2012. Web. 15 Apr. 2016.

Romm, Joseph. "The Corrections: Jonathan Franzen's Deeply Irresponsible Climate Change Article." *Think Progress* 1 Apr. 2015. Web. 21 Apr. 2016.

Roorda, Randall. *Dramas of Solitude: Narratives of Retreat in American Nature Writing*. Albany, NY: State U of of New York P, 1998. Print.

Rubin, Edward. "On the Usefulness of the "Cli-Fi" Genre Term in the Climate Change Era." Web blog post. *Do You Cli-Fi?* 20 Mar. 2016. Web. 25 Mar. 2016.

Sahar Zerehi, Sima. "Sheila Watt-Cloutier Wins 'Alternative Nobel.'" *CBC News* 1 Oct. 2015. Web. 8 Jan. 2016.

Saxifrage, Carrie. *The Big Swim: Coming Ashore in a World Adrift*. Gabriola Island, BC: New Society. 2015. Print.

Saylan, Charles, and Daniel Blumstein. *The Failure of Environmental Education (And How We Can Fix It)*. Berkeley, CA: U of California P, 2011. Print.

Schaefer, Steve. "Stock Market to Reopen Wednesday After Hurricane Sandy Hammers New York." *Forbes* 30 Oct. 2012. Web. 15 Apr. 2016.

Schapira, Kate. "Alternate Histories: 6/6, 4/23." Web blog post. *Climate Anxiety Counseling.* 4 Apr. 2015. Web. 4 Sept. 2015.

---. "Next Phase." Web blog post. *Climate Anxiety Counseling*. 6 July 2015. Web. 3 Apr. 2016.

---. "Climate Anxiety Counseling is in These Times." Web blog post. *Climate Anxiety Counseling.* 10 Aug. 2015. Web. 4 Sept. 2015.

---. "Points of Service: Responsive Art-Making & Intimate Public Discourse." Web blog post. *Climate Anxiety Counseling.* 19 Oct. 2015. Web. 15 Apr. 2016.

Schauffler, Marina F. *Turning to Earth: Stories of Ecological Conversion*. Charlottesville: U of Virginia P, 2003. Print.

Schneider-Mayerson, Matthew. "Happiness, Climate Depression, and Political Engagement in the Anthropocene." Association of the Study of Literature and Environment (ASLE) Biennial Conference, Moscow, ID, June, 2015. Unpublished conference paper.

Schuerman, Matthew, and Alan Palazzolo. "An Uneven Recovery from Sandy." *WNYC News*. Radio broadcast. 24 Nov. 2015. Web. 15 Apr. 2016.

Scott, Joe (@JoeScott_writer). #MyClimateMoment isn't a moment. It's a lifelong buildup of faith in an idea. Truthfully, it's the amalgamation of info and culture." 4 Dec 2015, 12:08 PM. Tweet.

Searing, Margaret C. (MCSearing). "MyClimateMoment went to a Crone lecture at SUNY several yrs ago – billmckibben speaker. Nuff Said." 4 Dec. 2015, 5:25 p.m. Tweet.

Searle, Kristina, and Kathryn Gow. "Do concerns about climate change lead to distress?" *International Journal of Climate Change Strategies and Management* 2.4 (2010): 362-79. Print.

Seidl, Amy. *Early Spring: An Ecologist and Her Children Wake to a Warming World*. Boston: Beacon Press, 2009. Print.

Shea, Daniel B. *Spiritual Autobiography in Early America*. Princeton, NJ: Princeton UP, 1968. Print.

Siperstein, Stephen. "Engaging in Climate Change Conversations: A Role-Playing Exercise to Cultivate Effective Communication." *Learner-Centered Teaching Activities for Environmental and Sustainability Studies.* Ed. Loren B. Byrne. New York: Springer, 2016. 285-92.

Siperstein, Stephen, Shane Hall, and Stephanie LeMenager. "Introduction." *Teaching Climate Change in the Humanities*, eds. Siperstein, Hall, and LeMenager. London: Routledge. 1-22. Forthcoming 2016.

Slovic, Scott. *Going Away to Think: Engagement, Retreat, and Ecocritical Responsibility*. Reno, NV: U of Nevada P, 2008. Print.

---. "Science, Eloquence, and the Asymmetry of Trust: What's at Stake in Climate Change Fiction." *Green Theory & Praxis* 4.1 (2008): 100-112. Print.

Smith, Nicholas, and Helene Joffe. "How the public engages with global warming: A social representations approach." *Public Understanding of Science* 22.1 (2012): 16-32. Print.

Sommer, Doris. *The Work of Art in the World: Civic Agency and Public Humanities*. Durham, NC: Duke UP, 2014. Print.

Spinrad, Norman. *Greenhouse Summer.* New York: Tom Doherty Associates, 1999. Print.

Steingraber, Sandra. *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment*. Philadelphia: Da Capo Press, 2010. Print.

Stokols, Daniel, et al. "Psychology in an age of ecological crisis: from personal angst to collective action." *American Psychologist* 64.3 (2009): 181-93. Print.

Straight, Nathan. *Autobiography, Ecology, and the Well-Placed Self.* New York: Peter Lang, 2011. Print.

Suvin, Darko. *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*. New Haven: Yale University Press, 1979. Print.

Tallmadge, John. "John Muir and the Poetics of Natural Conversion." *North Dakota Quarterly* 59.2 (1991): 62-79. Print.

Teehan, Kay. *Digital Storytelling In and Out of the Classroom.* Lulu.com, 2006. Web.

Telotte, J. P. "Science Fiction Reflects Our Anxieties. *The New York Times*, 30 July 2014. Web. 24 Mar. 2016.

Thacker, Jagadish, and Anthony Leiserowitz. *Climate Change in the Indian Mind.* Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change, 2013. Web. 10 Dec. 2015.

"The Children's Climate Crusade." *Moyers and Company*. Public Square Media, 1 Jan. 2015. Web. 3 Apr. 2016.

Thomas, Sheree Renée. "Imagination Will Help Find Solution to Climate Change." *The New York Times*, 29 July 2014. Web. 24 Mar. 2016.

Thomashow, Mitchell. *Ecological Identity: Becoming a Reflective Environmentalist.* Cambridge, MA: MIT Press, 1996. Print.

---. "Environmental Learning in the Anthropocene, Part 2." *Terrain.org*. 5 Nov. 2015. Web. 1 Apr. 2016.

Tisdell, Elizabeth J. "Themes and Variations of Transformational Learning: Interdisciplinary Perspectives on Forms that Transform." *The Handbook of Transformative Learning: Theory, Research, and Practice*. Eds. Patricia Cranton and Edward W. Taylor. San Francisco, CA: Jossey-Bass, 2012. 21-36. Print.

Tobin, Lad. *Reading Student Writing: Confessions, Meditations, and Rants*. Portsmouth, NH: Boynton/Cook Publishers, 2004. Print.

Trexler, Adam. *Anthropocene Fictions: The Novel in a Time of Climate Change*. Charlottesville, VA: U of Virginia P, 2015. Print.

Trexler, Adam, and Adeline Johns-Putra. "Climate Change in Literature and Literary Criticism. *Wiley Interdisciplinary Reviews: Climate Change*, 2 (2011): 185-200. Web. 24 Mar. 2016.

Trexler, Mark, and Laura Kosloff. "About Climatographers." *Climatographers*. n.p. n.d. Web. 29 Apr. 2016.

Trigwell, Keith. "Relations between teachers' emotions in teaching and their approaches to teaching in higher education." *Instructional Science*, 40.3 (2012): 607-621. Print.

Tuana, Nancy. "Being Affected by Climate Change: The Anthropocene and the Body of Ethics." *Ethics and the Anthropocene*. Eds. Kenneth Shockley and Andrew Light. Cambridge, MA: MIT Press. Forthcoming.

Tyler, Jo A. and Ann L. Swartz. "Storytelling and Transformative Learning." *The Handbook of Transformative Learning: Theory, Research, and Practice*. Eds. Edward W. Taylor and Patricia Cranton. San Francisco: Jossey-Bass, 2012. 455-470. Print.

Uhl, Christopher. "The Root Cause of Climate Change?" *Minding Nature* 9.1 (2016). Web. 24 Feb. 2016.

Uncertain Commons. *Speculate This!* Durham, NC: Duke UP, 2013. Web. 4 Dec. 2015.

United States Global Change Research Program. *Climate Literacy, the Essential Principles of Climate Sciences: A Guide for Individuals and Communities, 2nd ed*. Washington, DC: U.S. Global Change Research Program/Climate Change Science Program, 2009. Web. 30 Oct. 2015.

---. *The Impacts of Climate Change on Human Health in the United States*. Washington: U.S. Global Change Research Program, 2016. Web. 16 Apr. 2016.

Vitrano, Hannah. "The Power of Voicemails." Web blog post. *ENG 104: Climate Change Fiction.* 5 Mar. 2015. Web. 26 Mar. 2016.

Vogel, Steven. "Environmental Philosophy After the End of Nature." *Environmental Ethics* 24 (2002): 23-39. Print.

Wang, Binbin, and Yufie Li. *Public Climate Change Awareness and Climate Change Communication in China.* China Centre for Climate Change Communications. New Haven, CT: Yale Project on Climate Change, 2012. Web. 10 Dec. 2015.

Watt-Cloutier, Sheila. "The Inuit Right to Culture Based on Ice and Snow." *Moral Ground: Ethical Action for a Planet in Peril.* Eds. Kathleen Dean Moore and Michael P. Nelson. San Antonio: Trinity UP, 2010. 25-29. Print.

---. "Convocation Address." Mount Allison University. Sackville, New Brunswick. 16 May 2012. Web. 27 Feb. 2016.

---. *The Right to Be Cold: One Woman's Story of Protecting Her Culture, the Arctic and the Whole Planet*. New York: Penguin. 2015. Print.

Wayne, Teddy. "Grave New World: 'Odds Against Tomorrow,' by Nathaniel Rich." *New York Times*, 11 Apr. 2013. Web. 15 Apr. 2016.

Weed, Tim. "Review of *While Glaciers Slept* by M Jackson." *Goodreads*. 16 Dec. 2015. Web. 25 May 2016.

Weston, Anthony. *Mobilizing the Green Imagination: An Exuberant Manifesto*. Gabriola Island, BC: New Society, 2012. Print.

What I Love. The Climate Reality Project, n.d. Web. 29 Apr. 2016.

Willox, Ashlee Cunsolo, et al. "Climate change and mental health: an exploratory case study from Rigolet, Nunatsiavut, Canada." *Climatic Change* 121.2 (2013): 255-270. Web. 5 Apr. 2016.

Williams, Raymond. *The Country and the City*. Oxford: Oxford UP, 1973. Print.

Williams, Terry Tempest. *Finding Beauty in a Broken World*. New York: Random House, 2009. Print.

Wood, Gillen D'Arcy. "Teaching Teleconnection." *Teaching Climate Change in the Humanities.* Eds. Stephen Siperstein, Stephanie LeMenager, and Shane Hall. London: Routledge. Forthcoming 2016.

Wood, Mary. "Act Locally, Think Globally: How Nature's Trust Can Seed Relocalization and Pollinate Planetary Patriotism." Wayne Morse Center for Law and Politics, University of Oregon School of Law, Eugene, Oregon, 22 Oct. 2009.

---. *Nature's Trust: Environmental Law for a New Ecological Age*. New York: Cambridge UP, 2014. Print.

World Health Organization. "Human health and climate change in Pacific Island countries." World Health Organization, 2015. Web. 5 Apr. 2016.

Worm, Boris, et al. "Impacts of Biodiversity Loss on Ocean Ecosystem Services." *Science* 314.5800 (2006): 787-90. Print.

Woynarski, Lisa. "Ecological Sentinels: Indigenous Heroes or Colonial Cliché?" *Ride-The Journal of Applied Theatre and Performance* 20.2 (2015): 186-90. Web. 4 Jan. 2016.

Yusoff, Kathryn, and Jennifer Gabrys. "Climate Change and the Imagination." *Wiley Interdisciplinary Reviews: Climate Change* 2.4 (2011): 516-34. Web. 27 Mar. 2016.

Ziser, Michael. "Home Again: Peak Oil, Climate Change, and the Aesthetics of Transition." *Environmental Criticism for the Twenty-First Century*. Eds. Stephanie LeMenager, Teresa Shewry, and Ken Hiltner. New York: Routledge, 2011. 181-95. Print.

Ziser, Michael and Julie Sze. ""Climate Change, Environmental Aesthetics, and Global Environmental Justice Cultural Studies." *Discourse: Journal for Theoretical Studies in Media and Culture* 29.2 (2007): 384-410. Print.

Zurkow, Marina, et al. "Unthinking Survivalism: Inner Climate Change." *Postmedieval: A Journal of Medieval Cultural Studies* 6.4 (2015): 439-56. Print.