Storm, Stress, and Solastalgia: 
Climate Change in the Undergraduate Literature Classroom

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Abstract

Climate change has become a major force in shaping human experience. Climate change affects not only the Earth's atmosphere, biospheres, glaciers, and oceans; it also affects our perception of humanity's role in the natural world. While the majority of the grand narratives on climate change is in the hands of scientists, the literary humanities have an important role to play in creating a forum in the English literature classroom for students to read fiction that stimulates critical thinking about climate change, its contexts and history, and the future. This paper examines literary trends that creatively explore and cope with the effects of climate change on society. While several literary genres directly address climate change, this paper will contextualize two examples of climate science fiction - Paulo Bacigalupi's *The Water Knife* and Octavia Butler's *Parable of the Sower* – with William Shakespeare's *King Lear*, Charlotte Brontë's *Wuthering Heights*, and Mary Shelley's *The Last Man*. These works address solastalgia, a neologism that describes profound sadness and frustration about irreversible changes to one's home environment and the feeling of powerlessness. Similar to the influential *Sturm und Drang* (storm and stress) movement in Romantic literature, today's environmental distress and human worries are reflected in genres like science fiction. Climate change fiction enables readers to process alarmist contemporary environmental issues by contextualizing the anxiety-inducing data generated by scientific research with the power of the human imagination and the emotional intelligence of reading fiction.

*Keywords:* Octavia Butler; Paolo Bacigalupi; climate change; solastalgia; cli-fi

Introduction: Climate Change in the Literature Classroom

When considering the effective uses of literature in English language classrooms, it is usually a good idea to assign texts that resonate with the *Zeitgeist* so that the readings meaningfully connect with current social and global concerns. The texts themselves don't have to be recent. The canon of English literature contains multiple titles that have stood the test of time precisely because they speak across the ages about common human concerns. Nevertheless, recent texts often speak more meaningfully to college undergraduates in theme and style than older texts whose antiquated language, embedded cultural knowledge, and obsolescent codes of conduct tend to alienate or confuse younger readers. Choosing contemporary texts may create greater accessibility to the topic and often also more immediate student engagement, especially for students who find themselves in an English literature classroom for general education requirements. However, older texts provide valuable historical depth in understanding current issues' contexts and scope. The topic of climate change is no exception. Climate and its excesses have attracted writers' and storytellers' attention for hundreds of years.
Climate change is a prominent current global concern, which engages and interests millennial students and at the same time challenges them to think critically not only about literature, but also about the environment, science, ideologies, politics, history, and the future. In this paper, I will explore literary trends in our current time of climate change by discussing the value of reading two climate-centered American novels, Octavia Butler's *Parable of the Sower* and Paolo Bacigalupi's *The Water Knife*, in the undergraduate literature classroom. I will provide a context for the study of these two dystopian novels in the current climate change debates about the Anthropocene, the lingering Romantic concept of *Sturm und Drang*, and offer a comparison to three examples from the literary canon, in which climate and extreme weather loom large as narrative plot devices: William Shakespeare's *King Lear*, Charlotte Brontë's *Wuthering Heights*, and Mary Shelley's *The Last Man*.

Climate has played a significant role in shaping human existence since the dawn of civilization. Seasonal changes mark crop and game cycles, extreme weather conditions like floods and droughts result in human misery and disease, and benevolent weather allows humans to prosper and grow. Humans have adapted to life in almost every climate zone on Earth, but even under the best circumstances, changes in weather patterns can cause sudden, devastating disruptions to human society. Thus, efforts to gain control over the weather with omens, spells, and predictions have occurred in societies across the globe through time.

Not surprisingly, climate conditions and weather patterns are central elements in narratives about places and the people who inhabit them. The stories we tell reflect the climate we live in. From the oral traditions of myths and legends to religious literature and narrative fiction, climate and weather influence the human experience of place in profound ways, including how humans perceive themselves in relation to the planet's ecosystems and biospheres. Our concept of nature rests on the idea that climate is part of the intricate fabric of natural forces that makes planet earth livable. The weather is a force almost entirely beyond the grasp of humans – almost because it now appears to be indisputable that the Earth's climate is changing due to human activity and that the climactic living conditions on which we depend are changing radically. It is argued that the human imprint on the planet's climate is detectable in geological time: we no longer live in the Holocene (the "new epoch" that began 11,500 years ago), but in the epoch of the Anthropocene, the age of humans, where human activity profoundly affects the natural environment, including the weather (Purdy, 2015, p. 1). Through the study of climate-focused literature, students will learn to intertwine multi-disciplinary perspectives on the causes and effects of climate change on human society.

**The Anthropocene's Competing Narratives**

The epoch of the Anthropocene rests on the premise that "the human imprint on the global environment has now become so large and active that it rivals some of the great forces of Nature in its impact on the functioning of the Earth system" (Steffen, Grinevald, Crutzen & McNeill, 2011, p. 842). In fact, "humanity has become a major geological force" and a major contributor to climate change (Bonneuil & Fressoz, 2017, p. 5). The concept of the Anthropocene represents a worldview in which human activities have permanently altered the Earth's climate for the worse and disrupted the natural order of ecosystems and biospheres. Scientists warn that the future of life on Earth as we know it looks bleak if we do not change the way we deplete natural resources, continue to increase greenhouse gasses, and pollute air, land, and oceans. Geologist Jan Zalasiewicz is one of the concerned scientists in the Anthropocene Working Group (AWG), who warns that "many of the changes are irreversible"
Zalasiewicz and the AWG find that the evidence of human-influenced climate change is indisputable. They note that environmental changes directly generated by human activity include:

- global warming, sea-level rise, ocean acidification and spreading oceanic 'dead zones';
- rapid changes in the biosphere both on land and in the sea, as a result of habitat loss, predation, the explosion of domestic animal populations and species invasions; and the proliferation and global dispersion of many new 'minerals' and 'rocks' including concrete, fly ash and plastics, and the myriad 'technofossils' produced from these and other materials. (Subcommission on Quaternary Stratigraphy, 2019, n.p.)

Not only are humans negatively affected. Already the diversity of species is threatened by humans' destruction of biospheres and natural habitats. In 2018, Swedish teenage climate activist Greta Thunberg, a descendant of chemist Svante Arrhenius who was awarded the Nobel Prize in 1903 for his work on greenhouse gas models, inspired environmental activists and rebuked world leaders for their lack of action to save the environment with incendiary statements like "How dare you? You have stolen my dreams and my childhood with your empty words"; "you are failing us" (Transcript, 2019, n.p.); and "our house is still on fire, and you're fuelling the flames" (World Economic Forum, 2020, n.p.). Not everyone accepts this worldview.

Global warming dissenters like political scientist Bjørn Lomborg (2019), for example, believes that while climate change is happening, it would be wrong to cut CO2 emissions, which are the leading cause of climate change, by reducing our reliance on fossil fuels. Instead, Lomborg argues, economic growth is made possible by fossil fuel energy, and economic growth is what the world needs. Lomborg warns, "doom and gloom distort our worldview and can lead to bad policies. The future is bright, and we need smart decisions to keep it so" (2019, n.p.). A somewhat different call for belief in a bright future, despite climate change, comes from so-called Earth Optimists like reef biologist Nancy Knowlton, who also is wary of doomsday talk about the effects of climate change. Knowlton wants to inspire hope to motivate people to get involved in ocean conservation efforts. Echoing Lomborg's word choices, she says in an interview, "doom and gloom without any solutions tends to lead to apathy and inaction" (Perrin, 2019, n.p.). Instead, she advocates for sharing success stories in conservation efforts and for scientists to work on solutions. An Ecomodernist Manifesto, written by eighteen mainly Euro-American scientists, declares that "a good Anthropocene demands that humans use their growing social, economic, and technological powers to make life better for people, stabilize the climate, and protect the natural world" (Asafu-Adjaye et al., 2015, n.p.). Ecomodernists believe in the power of human technologies to curb the negative effects of climate change. They, too, advocate for economic growth and state that "plentiful access to modern energy is an essential prerequisite for human development and for decoupling development from nature" (2015, n.p.). By decoupling, they mean to make more room for wild nature by intensifying existing agriculture and design human environments that rely less on nature's resources. "What decoupling offers is the possibility that humanity's material dependence upon nature might be less destructive" (2015, n.p.).

What emerges from these briefly outlined examples of dire worst-case scenarios for the world versus the competing narrative of hope and pragmatism is a schism in worldviews that influences the way we imagine the future and hence the way we talk and write about it. These opposing grand narratives connect historically with the Western concept of homo faber (man...
the maker) who forges his own destiny and controls – or ruins – the natural environment through the use of tools. Those who doubt the lasting damage of human activity on the environment celebrate *homo faber* as an expression of human intelligence and creativity and optimistically believe that humans can fix existing problems. Those worried about the industrious *homo faber*'s long-term damage to Earth's climate note his unstoppable greed and blind disregard for the environment we share with other species. As Umberto Eco (1989) points out, the concept of *homo faber* represents alienation and objectification of nature as being under the command of humans, rather than humans being under the command of nature, which many indigenous peoples believe (Salmón, 2000).

When considering the role of climate change as a theme in the undergraduate literature classroom, it is important to take a candid look at the global issues which form our students' outlook on the future. Local concerns pale when the issue is climate change because if nothing else unites humankind, it is our finite condition of living on just one planet. There is no other planet yet known in the universe that can sustain human life as we know it. And while it is abundantly clear that not all nations contribute equally to polluting and altering the Earth's biospheres and ecosystems, it is also evident that "climate change knows no borders," as German Chancellor Angela Merkel states (*Berlin Global*, 2014, n.p.). Climate change concerns us all because it affects the planet's future and all its life forms. In the words of former United Nations Secretary-General, Kofi Annan, "the world is reaching the tipping point beyond which climate change may become irreversible. If this happens, we risk denying present and future generations the right to a healthy and sustainable planet – the whole of humanity stands to lose" (Davis, 2015, n.p.). These dire predictions generate anxiety and fears about the future, in particular among university students and young people in general. We in the humanities must take an active part in articulating, debating, and weathering the storm, stress, and solastalgia associated with climate change. One way to do so in the university English classroom is to assign literature that incorporates issues on climate change past and present.

### Humanities' Role in Times of Climate Change and Solastalgia

Before I examine the constellation of storm, stress, and solastalgia as a literary trend, I will reflect on some of the misconceptions that plague the humanities' image and sometimes even our self-perception. As people within the humanities are aware, our field is a dynamic area of study with as much intellectual and academic rigor as in any other academic field. Working in the humanities means being in close contact with the *Zeitgeist* and with the issues that haunt and threaten our world. Human emotions find expression in the art (visual, literary, and expressive), and where there is emotion, there is action. Anthropologist Kay Milton observes, "without emotion, there is no commitment, no motivation, no action" (2002, p. 150). The humanities provide a special place for motivating students to think critically on how to commit their personal life choices to reverse the devastating effects of climate change.

However, there are a lot of misconceptions, both inside and outside the humanities, of how humanities scholars relate to changes in the world around us and what our role is. Even in academia, we in the humanities are often met with misconceptions about our remarkably rich, diverse, dialogic, and creative fields from colleagues in the sciences who are rather suspicious of how the research we do is not always easily quantifiable or trackable, doesn't present itself well in pie charts, and involves a large quantity of challenging overlaps in critical theory, with complex analytical approaches like Neo-Marxist Ecofeminist Studies, Ecopoetics, Race Studies, and Afrofuturism – all of which apply to the study of Bacigalupi's *The Water Knife*.
and Butler's *The Parable of the Sower* - not to mention tongue-twisting Francophone terminology and polyphonic portmanteaus and other kinds of conceptual neologisms.

I use one such portmanteau in the title of this paper: solastalgia, the evocative term encompassing the roots of *solacium* (solace) and *nostos* (return home) with *algia* (pain), meaning a feeling of sadness and loss for features that no longer exist in one's home environment. To use an example from Hawai'i Island, where I teach, the small community of Kapoho was buried under lava erupting from Kilauea volcano in 2018, causing much distress and solastalgia for the dislocated residents. A Kapoho fruit farmer, Ingrid Webb (2019), used the term "eruption mode" to express her solastalgia: "though the [lava] eruption has stopped, a lot of our neighbors have moved on, I and my ohana [family] are still in eruption mode, struggling to survive, worrying about where we will be in a year, worrying if we are going to be ok in the future now that our trees are dying" (n.p.). Solastalgia is the kind of homesickness you experience when your home environment is changed; in Webb's instance because the lava eruption had scorched her family's orchards and buried half of the landscape in lava. The term solastalgia was coined by Glenn A. Albrecht (2019), a professor at the School of Environmental and Life Sciences at the University of Newcastle in Australia. Solastalgia is associated with climate anxiety and eco-grief and is used to describe mental-health conditions occasioned by the way people, in particular young people, react to climate change. Surveys conducted by the University of Hawai'i System Sustainability Initiatives and the University of Hawai'i System Center for Sustainability gauge how worried the University of Hawai'i students are about climate change. The surveys show that 95% of students surveyed are "concerned" or "very concerned" about climate change (Lynch, 2019).

In narrative student surveys that I conducted in Fall 2019 at the University of Hawai'i at Hilo, students express deep concerns about the impact of climate change on food security, ocean acidification and sea-level rise, over-population, increasing temperatures, air quality, pollution, and plastic trash. A student comments, "sustainability and climate change have incredibly impacted my perspective in terms of viewing the world in a bigger picture". Several students question the wisdom of having children. For example, a student writes, "I want my grandchildren to live in a good environment," while another student comments that he will "probably not have children because of the uncertain future of the planet's ecosystems and overall health". Others express worry about "rising temperatures," "trash in the ocean," "food tainted with chemicals," "wildfires," and "increasing ocean water levels." Thus, from the personal worry about a sustainable future for one's children and grandchildren to the broader perspective of the world "in a bigger picture", students have climate change on their minds. Acknowledging and addressing the solastalgic finitude of the fact that there is no planet B, we in the humanities need to engage more directly with the issues of climate change and its effects on the human imagination as expressed in literature, language, and art. The undergraduate English literature classroom is a fertile setting for doing so as it will relate the study of literature meaningfully to current global concerns about climate change.

**Storm, Stress, and Solastalgia: King Lear, Wuthering Heights, and The Last Man**

Contemporary climate science fiction has significant overlaps with the celebrated *Sturm und Drang*, storm and stress, movement in Romantic literature, which reflected the social turmoil and emotional intensity in the early stages of the industrial revolution. Eighteenth-century German writers like Johann Wolfgang von Goethe, Friedrich Schiller, and Friedrich Maximillian von Klinger inspired contemporary European artists with intensely emotional
tales of gifted, unique individuals; passionate feeling; and rebellion against the Enlightenment's strict focus on conformity and reason. In literature, storm-and-stress protagonists are solitary figures of grandeur on a Shakespearean scale. They struggle against society's rules and strictures and find solace and meaning in wild, untouched nature, under the influence of violent and excessive weather. Storm-and-stress writers saw nature as pure and innocent, and humans as corrupting nature's pristine state of being. Goethe expressed this sentiment, which the Romantics would later adopt as their mantra and further entangle with social constructions like gender, race, and class. "Nature understands no jesting, she is always true, always serious, always severe; she is always right, and the errors and faults are always those of man. The man incapable of appreciating her she despises and only to the apt, the pure, and the true, does she resign herself and reveal her secrets" (Goethe quoted in Eckermann 1998, p. 293). The storm-and-stress movement was in many ways a reaction to - and a reflection of - the environmental and social conditions of the industrial revolution's large-scale fossil fuel extraction (especially coal mining); unregulated air and water pollution; crowded, unsanitary factory cities; and the disappearance of rural communities due to labor migrations. Like the Romantic writers who followed in their footsteps, storm-and-stress writers expressed solastalgia and distress about living in a changing environment.

The storm-and-stress movement serves as an important historical reminder for us today to recall that although global concerns about climate change have accelerated in recent years, worries about climate change and permanent damage to the natural environment are not new. Nor is the association between storm, stress, and solastalgia new. Some of the greatest works in English literature evoke catastrophic weather events and employ them figuratively to sharply criticize the way humans exhaust, pollute and destroy the environment. World mythologies abound with hailstorms, floods, and other climate disasters, but it is in Renaissance literature that we begin to see evidence of a broader awareness that human activity affects the natural world. Several of Shakespeare's plays involve severe and unusual weather, which correlates directly with the social disorder in the human world. For example, while King Lear rants and raves in impotent madness on the cliffs of Dover on the south coast of England, symbolically the edge of his realm and sanity, a violent storm tears through the landscape, mirroring the dynastic havoc that King Lear's hubris has produced. In King Lear, first staged in 1606, Shakespeare elucidates humans' relationship with nature. Indeed, his metaphorical uses of the Green World (Frye, 2000, p. 183), the benevolent nature in which characters in his comedies resolve their social conflicts, suggest that nature is sentient and that it reacts to human activities. This is taken to an extreme in the tragedy of King Lear, where nature turns chaotic, violent, and destructive as King Lear, followed by the Fool and Edgar, fumbles across the storm-lashed landscape, on the brink of losing his kingdom, his mind, and sense of self.

It has not escaped scholarly attention that Shakespeare and his contemporaries experienced natural disasters caused by extreme weather conditions. In an important study, Shakespeare's Representation of Weather, Climate, and Environment: The Early Modern "Fated Sky," Sophie Chiara (2018) argues that the atmospheric shifts causing the so-called Little Ice Age (a global cooling period from the late 1500s to the mid-1800s) coincide with Shakespeare's writing of King Lear. The bard realized that stormy weather has a great dramatic effect. Chiara writes, "as actor and playwright, Shakespeare was aware that the sky was as much theatrical as a natural element" (2018, n.p.). As a metaphor for social chaos in the human world in general and in King Lear's mind in particular, the play's powerful unleashing of thunder and lightning becomes a highly charged symbol. R. A. Foakes (2003) concludes that the storm is more than a frame for the scene: "the scene dramatized in King Lear functions in
much greater depth at the center of the actions, as an extension of the turmoil in Lear's mind, as a symbolic embodiment of the confusion and discord in the Kingdom, and potentially as an expression of the anger of the gods" (p. 184). However, Jennifer Mae Hamilton (2017) warns that it limits our critical understanding of King Lear to interpret the storm as "a reified thing with solid meaning – a symbol of madness, for example" (p. 8). Hamilton contends that the storm opens up multiple ecocritical perspectives on the play, including the fact of climate changes during the Renaissance.

Where Shakespeare wrote King Lear in the early part of the Little Ice Age, the late part of the Little Ice Age's frequently stormy, dark, wet weather inspired Gothic literature. Emily Brontë's Wuthering Heights (1849), which revolves around the wild, tormented love between Catherine and Heathcliff, is set in the harsh West Yorkshire hilly moors at a time when rapid industrialization was transforming cities like Manchester into so-called "shock cities" of unregulated expansion and environmental degradation (Platt, 2005). Brontë links the haunted lovers Heathcliff and Catherine to the stark landscape. Heathcliff's name means "hill on the moor." John Bowen (2014) observes that "nature is often deeply inhospitable in [Brontë's novel], not easily subdued to human purpose, comfort or design. The landscape is thus never simply a setting or something to be contemplated in Brontë's work, but an active and shaping presence in the lives of its characters" (n.p.). In Wuthering Heights, the hills are full of the mad, dark energy that dooms the tormented lovers as they struggle with their desires and erupts when Catherine spurns Heathcliff for a richer, socially more prominent suitor. Heidi M. Scott (2018) reads Heathcliff, with his intense, brooding masculine force, as a chthonic part of the Yorkshire landscape. "Heathcliff is cold coal, sparked to a flame by Catherine, and suffering her loss, he smolders down to embers and burns everyone who encounters him" (p. 145). At Brontë's time, Yorkshire was, literally, full of that dark energy: coal, which was extracted under extremely polluting circumstances in mines, while at the same time providing a measure of prosperity for the region.

As King Lear and Wuthering Heights exemplify, the concept of a sentient environment and the reciprocal relationships that exist between humans and the natural world mean that students in the literature classroom can view climate change as a category of social and cultural analysis, and hence examine it as a part of literary tradition. One literary genre stands out as highly influential in addressing environmental and climatic changes, namely a sub-branch of science fiction called climate change fiction, also known as cli-fi. This genre not only embraces the idea that "landscape is an active and shaping presence" in fiction, as Bowen (2014) states, but also that climate change is a real and present force of socio-economic and cultural transformation. Fiction in this genre has a knack for reaching audiences in a way that scientific data and historical documents cannot. At the same time, works like King Lear and Wuthering Heights offer excellent venues in the undergraduate literature classroom for critical thinking about the long view of climate-change literature.

Science fiction, which has forerunners in both Renaissance adventure tales and Gothic literature, also provides a rich literary forum for stimulating critical thinking about present-day climate change by way of imaginary narratives set in distant times, usually in the future, or in alternative worlds. Whether recent or older, climate change fiction puts into perspective the storms and stresses of the present solastalgic newsfeed detailing floods, hurricanes, wildfires, coral bleaching, melting glaciers, animal extinctions, and irreversible damage to ecosystems and the ecosphere.
An early example of climate science fiction, Mary Shelley's 1826 novel *The Last Man*, paints a dystopic picture of a world disintegrating as a result of a pandemic plague, which sets in motion mass migration and fights for resources. Like *Wuthering Heights*, *The Last Man* illustrates that in the early 1800s, Europe became increasingly aware of the devastating environmental effects of deforestation, coal mining, and air pollution and promulgated social consciousness that social inequity might lead to social unrest and the exhaustion of resources. Literature's role in raising awareness about environmental degradation was then, and is now, an important factor in the way we process and understand climate change. According to climate change historians Christophe Bonneuil and Jean-Baptiste Fressoz (2017), the early 1800s - when Shelley's novel was published - was the time when the "effect of emissions caused by the growing use of coal …[and] human activities … profoundly transformed the Earth system's biology and geology" (p. 16), thus inaugurating the epoch of the Anthropocene. Today, 97% of the Earth's vertebrate land biomass consists of humans (32%) and our domestic animals (65%), with only 3% consisting of the "remaining 30,000 land-dwelling vertebrate species" (Bonneuil & Fressoz, 2017, p. 7). At the current rate of extinction, our planet will see another 20% of all species go extinct by 2030, including insects that pollinate our food crops and plants that store carbon (Wilson, 2003). Indeed, many scientists believe that we are in the middle of a sixth extinction, the first such mass extinction since the demise of the dinosaurs at the end of the Cretaceous period some 66 million years ago, when a meteorite slammed into Mexico's Yucatan Peninsula, leading to the burning of forests, the darkening of the skies, the acidification of the oceans, and the extinction of about 75% of all living creatures. Contributing to this, the global human population had jumped from about 990 million in 1809 when Shelley published *The Last Man* to 7.7 billion in 2020. Today, it is not a meteorite, but humans that pound the Earth as a major geological force.

Shelley's *The Last Man* is not only prophetic in imagining what could result from humankind becoming a telluric force; it is also the first post-apocalyptic novel in English. It is set at the end of the twenty-first century when sudden climate change has unleashed a catastrophic plague of unknown origin. Amidst interminable warfare and societal breakdown, survivors cluster around fanatical doomsday cults or try to survive on their own. Eventually, the narrator Lionel Verney believes that he is the last man alive. At its publication in 1826, critics derided Shelley's novel as too dark and dystopic (Eschner, 2017). However, contemporary readers recognize the formula of horrific weather, floods, armed conflict, plague, and one last survivor as standard plot elements in a large number of modern science-fiction novels centered on viral outbreaks and pandemics, including modern classics like Albert Camus' *The Plague* (1947), Stephen King's *The Stand* (1978), Gabriel García Márquez's *Love in the Time of Cholera* (1985), José Saramago's *Blindness* (1995), Margaret Atwood's *Oryx and Crake* (2003), and Emily St. John Mandel's *Station Eleven* (2014). "Every plague novel is a parable" (Lepore, 2020, p. 24), and every parable is a moral lesson. Climate change fiction holds up a mirror to human society, which reflects and refracts both historical realities and imaginary scenarios, ultimately to stimulate critical thinking and stretch our imagination.

Our perception of present-day realities and our understanding of history are narratively produced, regardless of whether we look at archaeological finds, quantified data, visual arts, or fictional stories. As humanities scholars, we must keep a keen eye on the grand narratives about the Anthropocene and their underlying knowledge-power discourses (Bonneuil & Fressoz, 2017, pp. 65-96). I will now proceed to discuss two science fiction novels that allow students in the English literature classroom to consider how climate change fiction processes scientific data in creative and imaginary ways and how authors use language, dialogue, metaphor,
analogy, and other literary devices to prod and cajole readers into thinking critically about climate change and our own role in it as humans.


Water is a central motif in both Octavia Butler's 1993 novel *Parable of the Sower* and Paolo Bacigalupi's 2015 novel *The Water Knife*. In the United States' bible-based cultural tradition, water is a quintessential metaphor for life, baptism, resurrection, blessing, cleansing, as well as change. Henry Thoreau's conclusion to *Walden* contains the often-quoted simile, "the life in us is like the water in the river" (1992, p. 222). Thoreau believed in humans' potential for resurrection and immortality. Martin Luther King Jr. (1963), on the other hand, used water as a metaphor for social change and civil rights, stating in his "I have a dream" speech that African Americans "will not be satisfied until justice rolls down like water and righteousness like a mighty stream" (n.p.). As Gaston Bachelard (1999) explained in *Water and Dreams*, water is a central life necessity that simultaneously generates endless poetic configurations. As a motif in Butler and Bacigalupi's novels, water is a recurrent element that meaningfully bridges fact and fiction: access to and control over water signify power in the dry American West where both novels are set; at the same time, water is a potent future-oriented symbol of life, cleansing, prosperity, and harmony.

Climate science fiction evokes landscapes of excess: excessive heat, cold, rain, drought, and humans' fight over access to and control of resources such as freshwater. *Parable of the Sower* and *The Water Knife* both take place in the American West, a region prone to wildfires that is known for its arid climate, desert landscapes, and heavily populated urban sprawl. In the West, water is power. Butler and Bacigalupi both set their novels where once familiar urban centers in California and Nevada have become dusty deathtraps for desperate people whose lives are threatened by wildfires and violent gangs, and where powerful corporations control access to water and disregard human rights. Both novels are critical of capitalism, but neither promotes socialism as a viable option. Rather, in sync with social patterns in contemporary American society, guns, violence, and sectarian religious communities become viable pathways towards survival. These are important trends in contemporary American climate science fiction, which suggest social wariness, systemic racism, and mistrust of federal and institutional powers. These trends also resonate with millennials' anxieties about the implosion of social order as a consequence of catastrophic environmental changes as well as the race protests against police brutality, which have gained momentum in recent years. Students in the undergraduate literature classroom would benefit from critical engagement with these types of issues through the study of dystopian novels, whose motifs and plots resonate with the contemporary world's concerns.

*Parable of the Sower* was first published in 1993. It is set in Southern California in the 2020s, where lack of rain has effectively dried out the landscape and wreaked havoc on society. Illiteracy, malnutrition, hunger, violence, and slavery-like working conditions thwart people's hopes of a better future. Eerily prophetic in scope and vision, Butler's novel outlines how corporate greed, corrupt politicians, and wealth inequity have created a hyper-violent society with an imploded social infrastructure. Schools have been vandalized, attacked, and closed down. Teachers have been killed. Ambulances, police, and firefighters no longer respond to citizens' calls for help. Citizens have to take up arms to fend for themselves in crumbling, barricaded neighborhoods. They are constantly under attack by hordes of criminal gangs and
homeless people, who are high on drugs and desperate for food and possessions. Rape, murder, and cannibalism occur with impunity.

Butler's protagonist is 15-year-old Lauren Olamina, who sees her family killed and the neighborhood set on fire. Armed with guns, packs of seeds, and a stash of old roadmaps, Lauren starts trekking north along with other fearful survivors in the hope of finding landscapes with rain and living plants in Oregon or Washington. On the dangerous route north, Lauren refines her vision of starting a self-sustaining, agricultural commune called Acorn, which is based on her Earthseed philosophy. She recruits a few carefully selected people to join her, a multiracial cast of good people who are willing to kill to protect their little group. Lauren believes that humans will eventually start colonizing other planets in space to survive as a species because the Earth has been ruined by human-induced climate changes and become almost uninhabitable. She declares, "the destiny of Earthseed is to take root among the stars" (Butler, 1993, p. 85). Earth has become unlivable both spiritually and physically. What was once the United States has disintegrated into an environmentally exhausted dystopia, a lawless death zone without a future. That is why Lauren is adamant that humans must go "beyond Mars" to find "other star systems. Living worlds" (p. 222). In short, find planet B.

Where Butler's Parable of the Sower centers on a teenage girl's will to survive and her rise as a modern-day prophet bent on preserving human life, Bacigalupi's action-packed novel The Water Knife focuses on the political drama of access to water in a near-future setting. Bacigalupi's protagonist Angel Velasquez works as a so-called water knife for the nefarious Catherine Case, who controls the South Nevada Water Authority. Morally corrupt and coolly misanthropic, Angel is her handyman, spy, and assassin. His job is to make sure that no one but the South Nevada Water Authority can tap water from the shriveling Colorado River, its tributaries, and existing water reservoirs. Using drones, private military aircraft, and a generous dose of sophisticated weaponry, Angel the water knife and his crew enable Catherine Case to build an empire in the Nevada desert-based on water.

In Bacigalupi's dystopic vision of the United States, infrastructure has collapsed, and states have sealed their borders. Climate refugees from hard-hit dustbowl states like Texas try to sneak across the borders to Nevada and Arizona, only to be caught and trafficked as undocumented workers and sex slaves to the affluent, well-guarded Waterworld of Las Vegas, which has been turned into a domed utopia, with vertical farms, hydroponic greenery, and cool misted air. Outside, its former suburbs have become dead zones, where desert sands drift into dunes and bury the roads. Outside temperatures average about 120F (48C), dust storms rage, and water costs more than petrol. The only prophets in this landscape are the Merry Perry fundamentalist Christians, who preach "rain is coming" (p. 33), but it never does (this may be a satirical reference to Texas governor Rick Perry, who started "Days of Prayer for Rain" campaign to end a drought in 2011). Hence, spiritual enlightenment is not an option for escaping dystopia. Angel's brutal reign as a merciless water knife is challenged when he encounters two women, the journalist Lucy Monroe and the illegal water trafficker Maria Villarosa. Though supposedly weak and easy to manipulate in this hyper-violent patriarchal world, the two women end up sidetracking Angel from his mission, causing him to fail.

As these summaries of Butler's and Bacigalupi's novels and their water motifs suggest, student readers can make meaningful connections between them and similar climate-related classic American novels, for example, dustbowl novels like John Steinbeck's The Grapes of Wrath (1939) and Woody Guthrie's House of Earth (1947). Legendary folk singer Woody
Guthrie's only finished novel *House of Earth* also provides a searing portrait of a rural dustbowl landscape ruined by unsustainable farming practices and human corruption. In comparison, Steinbeck's novel chronicles the impossible living situation for poor tenant farmers in Oklahoma, who lose their land to banks, and set out for California as migrant workers. Steinbeck's and Guthrie's novels are realism, not science fiction, but their hard criticism of corporate greed and big money, in general, is shared by Butler and Bacigalupi. The storm, stress, and solastalgia characterizing these novels challenge readers to see the bigger picture of climate change through the emphatic lens of relatable literary characters. In the classroom, teachers can challenge students to identify literary themes, study literary and historical contexts, and make meaningful connections between the world of science fiction and salient issues in contemporary society.

**Conclusion: A New Vocabulary for Literary Analysis**

*Parable of the Sower* and *The Water Knife* offer ways to balance the grand narratives of political and scientific discourses on climate change with imaginary, provocative stories. Both novels effectively invoke some of the neologisms associated with the Anthropocene, which students in the English literature classroom can meaningfully apply in their analyses of the novels: the polemocene - the age of political struggle motivated by the fight for social justice and the environmentalism of the poor; the capitalocene, the age of capital, in which the economic system of capitalism structures the relationship between humans and nature; the phosphocene, the age of commodity fetishism and consumer-driven economic growth; the thanatocene, the age of death, meaning the deadly effects of war on the natural environment; and the thermocene, the age of thermo-industrial impact on ecosystems, driven by human self-interest and profit-making (Bonneuil & Fressoz, 2017). Concepts such as these will help students develop a critical understanding of "the bigger picture" of climate change and how it affects human society and the human psyche.

Novels like *Parable of the Sower* and *The Water Knife* function both as supplemental and alternative narratives to the grand narratives of climate change that politicians and the scientific community produce. The term "grand narratives" evokes François Lyotard's (1984) critique of the institutional and ideological forms of power expressed and normalized in master narratives, and hence the hegemonic control over systems of knowledge which Michel Foucault (1984) famously questioned. Climate science fiction like Butler's and Bacigalupi's novels gives college students ample opportunity to flex their analytical muscles and apply appropriate terms and concepts, which in turn will aid in developing their critical thinking skills, not just in literature but also in broader, global concerns like climate change.

Despite the mantra to reduce, reuse, and recycle, humans each year consume "one and a half times what the planet can produce on a sustainable basis" (Bonneuil & Fressoz, 2017, p. 9). How do humans relate to the natural environment from which we extract the nutrients and resources for our survival in such a world? What kind of future are we setting up for our descendants? The climate-change novels discussed here invite students in the undergraduate English literature classroom to consider the argument proposed by environmental scientists like Erle Ellis and Navin Ramankutty (2016), who argue that we no longer live in a world of natural ecosystems, but in a world of human-made systems "with natural ecosystems embedded in them" (p. 2). However, other perspectives on humans' relationship to nature, such as indigenous worldviews, do not ascribe to humans a role of dominance, but rather one of symbiosis (Salmón, 2000). As we examine fictional works that incorporate climate change and
environmental entities as agents, rather than objects, in plot development, we need to be critical of the cultural, political, and economic imperialism driving the grand narratives and silencing voices of dissent. That is why I suggest that we in the humanities need to engage more directly with the issues of climate change and its effects on the human imagination as expressed in literature, language, and art.

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