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Inevitability

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Beyond Inevitability

Telling Another Story about Climate

Donovan E. Tann

Abstract

Seeking to embody good character by making good choices about climate can be particularly challenging when people face contradictory or even misleading information, and this situation can lead many into either apathy or despair. By drawing on examples from climate scientists and the storytelling power of literature, I argue that telling a story beyond that of inevitable failure or doom is necessary for us to take collective action. I also contend that cultivating the imagination to see beyond simple stories of inevitability is necessary for our larger communities to discover new avenues for meaningful change.

Plastic pollution

Carry a reusable bag around or the earth is doomed. Remember, you have to use it 131 times just to break even with the equivalent plastic bag's carbon footprint. There's a giant island of plastic in the Pacific. There's a surprising amount of microplastics already inside of your body. Buy these organic bamboo shirts by clicking on our Instagram profile for a truly sustainable choice. You'll never believe how much laundry soap is left behind on your clothes. Is it fair trade? Have you heard how much water organic cotton uses? When it comes to making ethical choices about climate, it is hard not to feel like it is impossible to figure out the right one.[1]

At the same time, many of us have also developed a sneaking suspicion that none of these choices ultimately even matter. In just four years, *Washington Post* polling shows the number of Americans who believe that their actions can make a difference for climate change dropped from 66% to 52%.[2] Between the anxiety of choice fatigue and a growing sense that whatever happens is out of our hands, we can understand why many people have a growing sense that climate change is inevitable, whether or not we make the right choices.

We must confront the stories that produce our climate anxiety (or apathy) and discern together what it means to act wisely.

These unspoken narratives often tell stories of inevitable failure—a sense that making good choices is impossible or not worthwhile. As a literature professor, I'm often paying attention to the stories influencing our outlook on the world. Inevitability is one such story, but when it comes to climate, it is not the only story. When we face an immense challenge like global climate change, good character requires us to cultivate the imagination necessary to think beyond inevitability. As we do so, we must confront the stories that produce our climate anxiety (or apathy) and discern together what it means to act wisely in this crucial moment.

Challenging Inevitability

Inevitability is one of many stories that we use to make sense of our lives. Broadcasters regularly describe the influence of big-name athletes by referring to them as "inevitable." Elsewhere, our sense of mortality can lend structure to our lives. Surgeon and public health scientist Atul Gawande talks in *Being Mortal* about how researchers on aging found that we make different choices that reflect our outlook on the future, "[depending] on how much time we perceive ourselves to have."[3] Our decisions reflect the ending we anticipate—whether in the ebbs and flows of a game awaiting the referee's final whistle or in the broader story of a life.

For many college students, inevitability rolls around at the end of each semester. I regularly see students become frozen with catastrophic thinking about the future—what Buddhist blogger Toni Bernhard describes as "mocking up worst-case scenarios instead of just taking care of the business at hand."[4] Final projects balloon into impossible obstacles and small failures

threaten to crush weeks of progress. Students have to call upon tools like imagination to challenge inevitability's hold over them instead of diligently battling their own windmills. In these moments, students need a change of perspective as much as they need courage and resilience.

Telling stories about inevitability interacts with character because it places us in the messy territory of choosing for the future with only today's knowledge at hand. We exercise good or bad character—the alignment of our actions with our ultimate purposes or values—as we make choices, but also as we *discern what choices we have*.

Of course, doing so isn't easy.

Navigating Climate Confusion

Climate change itself remains a polarizing and controversial issue—one deeply connected to social and political identities. The Pew Research Center, for example, notes that political party affiliation is the biggest predictor of an individual's view on climate change.[5] Beliefs about climate—like many other issues relating to the common good—sometimes serve as a badge of community identity. Climate is controversial, we hear. Everyone is either going to be fine or doomed, and besides, there isn't much we can do about it.

These, too, are stories we've inherited. Science journalist Eugene Linden explains part of why discussing climate can feel like a hot-button issue, even in the face of overwhelming scientific consensus. Linden traces the origins of two radically different stories in present-day American culture—one in which future change is "likely to be moderate and incremental, a problem for future generations, and with the qualification that the best minds disagree about whether it's a threat at all"—and the other a growing scientific agreement that significant change is already underway and that climate feedback effects might equally be "violent and extreme."[6]

Anxiety and apathy in the face of climate inevitability become more understandable when doing the right thing becomes ever more muddled and unclear.

What Linden calls the "public story" of climate change arrives in a ready-made narrative that "begins with a peg—a collapsing ice shelf, a heat wave, retreating glaciers" before briefly turning to a scientist for comment, emphasizing the uncertain nature of climate science, highlighting disagreement,

and eventually pointing out how difficult or expensive solutions might be.[7] He argues that this is the narrative woven through the persistence of well-funded lobbying groups like the Global Climate Coalition. These groups have framed climate as an unresolved debate about a distant future and hounded journalists with "hired guns" to ensure naysayers were included in climate reporting—while internal documents at the companies bankrolling these organizations reveal broad agreement with the scientific consensus since the 1970s.[8] The success of this effort to sow confusion is visible in the 13% of all U.S. adults who report being "not sure" whether human activities were responsible for climate change.[9] The issue of climate, then, is a site of uncertainty for many: those who wish to act but don't know how and those who aren't certain whether alarms about climate are even justified.

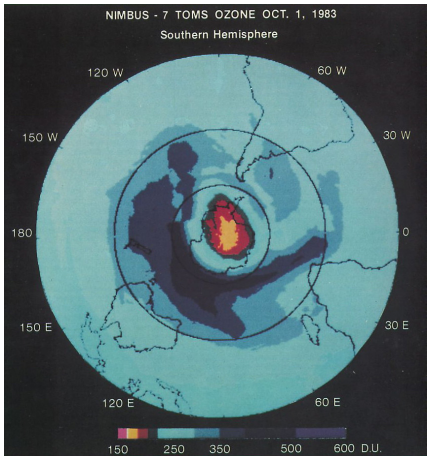
Confusion abounds when it comes to environmental issues, even for those who want to make careful and conscious choices. Kenny Torrella recently wrote about "'climate-friendly' beef" marketing that leaves consumers with a vague impression of positive environmental effects but obscures the outsized environmental effects of meat and dairy production.[10] The power of this classic example of greenwashing—environmental claims rooted more in advertising than reality—is apparent in polling showing that most Americans couldn't successfully identify meat and dairy production's significant environmental impact and incorrectly selected plastic packaging as a greater issue for global temperatures.[11] Anxiety and apathy in the face of climate inevitability become more understandable when doing the right thing becomes ever more muddled and unclear.

Protestors against greenwashing

Why We're Anxious

We can think about climate anxiety and apathy as two sides of a single coin in response to narratives of climate inevitability. On one hand, the sense that we need sudden and radical action can create choice fatigue with misinformation and pitfalls at every turn. On the other hand, even among those convinced of the scientific basis for alarm, a sense that we're already doomed could understandably produce apathy or cynicism. Something that

seems inevitable has a powerful persuasive force. It promises a resigned reassurance: whatever happens, at least we know what's coming.



Ozone hole over Antarctica, 1983

Speaking frankly about climate anxiety means facing difficult truths head-on. Pope Francis recently issued a second statement on climate change describing rising sea levels, increased extreme weather events, and melting glaciers—all visible within a single generation.[12] Organizations from the Intergovernmental Panel on Climate Change to NASA and even ExxonMobil have all reached the same conclusion: increasing global temperatures represent a global crisis with serious impacts yet to come.[13] Since the 1970s' first calls to action, we have a clearer picture of the earth's complex ecosystem and what it means to stand on the precipice. By sampling air trapped in ice, for example, climate scientists can compare today's atmosphere with the past, which reveals a sharp rise in the gases that trap solar energy.[14]

One challenge for predictions is that climate's damaging effects aren't immediately visible. In her explanation of climate predictions, Elizabeth Kolbert describes how scientists use complex calculations to model the impact of greenhouse gases. Kolbert notes that delays between emission and impact can be a double-edged sword: on one hand, we can anticipate the future, but on the other, a delay is "clearly disastrous" if we are lulled into a false sense of security while effects accumulate down the line.[15] Like a victim of radiation poisoning, we may feel fine today even if the damage is already done.

In *The Uninhabitable Earth,* David Wallace-Wells takes a hard look at projections for human life in a world experiencing climate's cascading effects, ranging from the optimistic targets of the Kyoto and Paris climate agreements to a disastrous "business as usual scenario." I will highlight just a few less-familiar impacts we can already see. Wallace-Wells reports on our threatened biodiversity:

> In just the last forty years, according to the World Wildlife Fund, more than half of the world's vertebrate animals have died; in just the last twenty-five, one study of German nature preserves found, the flying insect population declined by three-quarters.[16]

He later cites research connecting the destabilizing effects of strained fresh water supplies with large-scale conflicts, including "[t]he five-year Syrian drought that stretched from 2006-2011, producing crop failures that created political instability and helped usher in the civil war that produced a global refugee crisis."[17] This account demonstrates how cascading effects can quickly disrupt a seemingly permanent order: it is not the flood so much as the aftermath. [18]

Speaking in these terms feels impolite—as if we are better off not mentioning something we cannot change, better off not upsetting people who might get angry, and better off not interrupting the banquet to read the writing on the wall. In a sense, we're still driving the car with the "check engine" light on with a creeping sense of concern about what the mechanic might say. Those of us in the wealthier Global North can also be apathetic if we see climate as a problem that only affects poorer places, where we can be tempted to believe that suffering and disaster are just a matter of course.[19] Wallace-Wells reminds us, "as disproportionately as it will fall on the world's least, the devastation of global warming cannot be easily quarantined in the developing world . . . Climate disaster is too indiscriminate for that."[20] Here, both climate anxiety and apathy—both echoing the story we're told about the inevitability of climate change—keep us from taking determined and meaningful action. Handling this kind of uncertainty requires an imagination capable of telling a new kind of story.

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Need for new stories

Reimagining the story of climate inevitability allows us to face our climate anxiety more directly. Theologian Paul Tillich argues that while fears can be as clear and specific as a fire or a wild animal on the loose, the kind of generalized anxieties that sit in the pit of our stomach affect us so deeply because they threaten our sense of self with the threat of death, meaninglessness, or guilt.[21] For many of us, the climate crisis easily taps into

all three with a sense of inevitable doom, the potential meaninglessness of action, and the sense that we are personally responsible for a society-level problem.

However understandable its origins, this form of climate anxiety represents a serious problem for our ecological systems and even disrupts our best intentions. One popular solution that plays upon individuals' anxiety is the "easy" version of sustainability. Green, "clean," and "non-toxic" alternatives to everyday products make impassioned sales pitches in our supermarket aisles and social media ads.

Social critic Curtis White provocatively rejects this approach. White argues that "[w]hat no one is allowed to consider is the distressing possibility that no amount of tinkering and changing and greening and teaching the kindergartners to plant trees and recycle Dad's beer cans will ever really matter if our assumptions about what it means to be prosperous [and] what it means to be 'developed'" still embody what White calls "the Barbaric Heart: self-love and power. Profit and violence."[22] Ordinary sustainability, White suggests, falsely promises that our status quo can continue—harms safely tucked away—without addressing the deeper, more fundamental changes required. We need new stories rather than new products.

Overwhelming loads of plastic waste

The problem with the story in run-of-the-mill, consumer-focused sustainability is not only its exclusive focus on individual choices ("buy this and not that!") but also that it can prevent us from imagining alternatives. BP's 2004 public relations campaign, for example, popularized the idea of an individual's "carbon footprint," which largely succeeded in nudging public discourse towards individual consumer choices rather than industrial-scale producers.[23] Acting with character in the face of climate change requires more than just individual choices: it must also include improving our community's character by striving to imagine a new story beyond inevitability.

From Anxiety to Imagination

We need to cultivate an imagination, both individually and at a societal level, that can help us seek out new choices and new ways of working to address the challenges ahead. This type of thinking—which I describe here as imagination—is essential for us to respond to the climate crisis with good character. More than just critical thinking or creativity alone, I see "imagination" as the deeply human magic of breathing something wholly new into being. Imagination calls to mind the kind of storytelling, joy, or even inspiration sometimes forbidden in the application of serious, scientific work. While we still need to make wise and informed decisions, we urgently need to cultivate a vision big and ambitious enough that our wider community can see that meaningful change is possible.

Stories help us to imagine new ways of living together.

This imagination has everything to do with the stories we inhabit and the choices we see in front of us. As someone who loves literature, I argue that stories help us to imagine new ways of living together. When I think about stories that have challenged my own limited imagination, one of the best examples is speculative fiction writer N.K. Jemisin's short story, "The Ones Who Stay and Fight."[24] Jemisin dramatizes an exuberant, scandalously utopian world full of color and joy before directly challenging us to confront our imagination's limitations.

Jemisin describes the world of Um-Helat as "a city whose inhabitants, simply, care for one another." In this city, people from all backgrounds and ability levels live in harmony, work together for the good, and each person receives care and shelter. Like many utopian writers before her, Jemisin contrasts our world's barbarism with this one, a world "[w]ealthy with no poor, advanced with no war, a beautiful place where all souls know themselves beautiful," and we subtly, almost imperceptibly find the narrator sizing up our reactions as we read.[25]

After profiling the city and its festivals, Jemisin's narrator confronts readers' growing discomfort with Um-Helat by speaking our fears directly: "It cannot be, you say. Utopia? How banal. It's a fairy tale, a thought exercise. Crabs in a barrel, dog-eat-dog, oppression Olympics—it would not last, you insist. It could never be in the first place." When I first read the story, I remember being surprised by the way that Jemisin's narrator named my instinctual objections, which felt almost unconscious or visceral. She folds

our objections into the story of their ongoing battle against the creeping infection from our own world: "*It's possible.* Everyone—even the poor, even the lazy, even the undesirable—can matter. Do you see how just the idea of this provokes utter rage in some? That is the infection defending itself . . . because if enough of us believe a thing is possible, then it becomes so."[26]

The story finally ends as Jemisin folds us, as readers, into the story as characters facing the simple choice of walking away or staying to uproot the infection of greed by doing "what must be done to make the world better." In the end, Jemisin tasks us with building the world we want to see.[27] When I first read the story, I found it so striking because it so perceptively challenged my own limited imagination. It expertly anticipated my gut reactions to argue that another world was possible if I would participate in the struggle to make that vision possible.

Challenging stories of climate inevitability means continuing to tell stories of our past successes. When widespread industrial pollutants produced acid rain in North America (which threatened forests, lakes, and, yes, melted paint off of cars), scientists and concerned citizens fought for years to overcome misinformation and denials—a process requiring three decades and international cooperation.[28] Persistent work in educating and messaging eventually led to the passage of the 1990 Clean Air Act. Since then, North America has experienced significant reductions of acid rain and at least partial recovery of marine ecosystems, though the same problem is now emerging in other parts of the world. This story can be a blueprint for today's challenges: building broad support and challenging polarization can produce real change.

Pollution in Dubuque, Iowa, in the 1940s

Likewise, in the mid-1980s, scientists discovered that CFCs (chlorofluorocarbons)—used in everything from refrigerators to packing materials—disrupted the fragile ozone layer protecting the earth from UV radiation: "How do you raise crops for the few billion people on the planet if you've got so much . . . sterilizing UV radiation pouring in on the earth?"[29] I remember hearing all kinds of pessimistic stories—*our efforts won't make a difference, we'll never have good A/C units again*—but the reality was very different. Alarmed scientists and governments around the

world worked together to sign the 1987 Montreal Protocol, which has been a model for every climate agreement since. We met challenges like these through cooperation and by cultivating alternatives. These examples are the kinds of stories we need to tell if we are to respond to today's challenges in a way that opens the door for good character—not just for ourselves as individuals, but for the communities we live in.

Climate and Exercising Good Character

We need to cultivate this kind of imagination to respond to the challenge of climate change with good character. Over and over again, journalists and climate scientists alike return to the language of ethics and imagination when they talk about what our next steps must be. Scientist E. O. Wilson argues that our "success or failure [in addressing climate] will come down to an ethical decision, one on which those now living will be defined and judged for all generations to come."[30] If our choices reflect the options we are capable of seeing, then the task of making the right ethical decisions is inseparable from nurturing the imagination we need to discover those choices.

Sociologist James Davison Hunter reminds us that the very idea of character comes out of storytelling, and he describes "the horizons of the moral imagination" as "the expanse of the good that can be envisioned."[31] This idea that imagination is crucial for decision-making is both good and difficult news—good in the sense that we are continuing to learn, and difficult in the sense that learning more increases our responsibility.

The good and bad news is that making choices with limited future knowledge is as true for climate as it is of every other choice. If we want to exercise good character, the challenge is the same as ever—to try to see the path ahead as clearly as possible and to choose as wisely as we can. Well-intentioned efforts can't always live up to lofty goals—as demonstrated by failing urban trees planted at the wrong time of year and the ever-growing surplus of reusable grocery bags in our entryway.[32] We have to act swiftly, but we also have to continue learning and expanding our imagination as we go.

Action and Imagination Are Inseparable

Here's the good news, though: every positive action we take on climate is more meaningful (and necessary) than ever. Telling a story beyond inevitability means coming to recognize that we all can intervene in the

potential harms that we—and all our global neighbors—will face. Action and imagination are inseparable.

One positive spin on a pervasive, global crisis is that every action we take is part of the solution—and imagining new solutions is crucial to that work. Even within one of the most sobering books I've read on climate, Wallace-Wells reminds us:

> climate change is not an ancient crime we are tasked with solving now; we are destroying our planet every day, often with one hand as we conspire to restore it with the other . . . we can also stop destroying it, in the same style—collectively, haphazardly, in all the most quotidian ways in addition to the spectacular-seeming ones.[33]

One half of a degree Celsius marks the difference between a "straining global food supply" and "a global food deficit," while even small changes to air pollution levels have direct effects on respiratory health.[34]

I first suggest that we have to balance taking informed action while we still continue to learn and expand our imagination. Take the example of environmental scientists Stephen Pacala and Robert Socolow, who introduce the idea of "climate stabilization wedges" and describe fifteen individual and highly specific ways our global community can reduce our carbon emissions—from more efficient vehicles to reduced deforestation and better tillage in fields.[35] Some involve changes of behavior—like reducing driving—and others involve efficiency improvements or considering imperfect solutions, like nuclear power. Each wedge, "already implemented at an industrial scale," represents a roughly equal carbon benefit over the next 50 years.

Socolow emphasizes in a later interview, "These things can all be done" if our society decides they are worth doing.[36] The flat nature of their list—each has as much impact as the others—implies that each is equally urgent. Taking the first step means finding somewhere to contribute and diving in. In his retrospective on this influential research, biologist Anthony Barnosky explains how this demonstrates "that we're not helpless; if we want to, we can start fixing things today."[37] This change in attitude and perspective is as much a part of the solution as the actions we take.

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In my own experience, I agonized about the ethics of my own individual climate choices: is it better to insulate our older home here in Iowa or to install solar panels? Should we buy an electric car? One strategy that helped me reason through my choices was to resist the idea that we could wait around for one single, perfect choice. When I researched options for our home, I studied charts showing the environmental impact of individual choices with surprising results: if I was focused on saving money alone, I might have better return on investment using a bowl to conserve dishwater.[38] On the other hand, the same chart showed that residential solar had a larger carbon impact in spite of its cost—which has since continued to improve.

Rooftop solar panel installation

I could only make sense of my options by continuing to learn and expand my imagination to include overlooked and less-glamorous solutions—like adding home insulation or using less water—while we also took on some of the bigger projects.[39] Trying to exercise good character for us has meant recognizing that we have to act with imperfect knowledge, but that we still have to continue learning and imagining new possibilities.

Imagining as a Community

Thankfully, we do not have to reimagine climate inevitability on our own. Even some of the most prominent climate scientists emphasize that we have to cultivate the imagination of our broader community. Christiana Figueres and Tom Rivett-Carnac, authors of the 2015 Paris Climate Agreement, argue that each of us has a role to play in shaping our society's imagination: "Much of what we imagine to be permanent is more ephemeral than we realize. Sometimes imagination can seem naïve, but don't belittle thinking big. Time and again societies have turned seeming fantasies into realities when circumstances require something new."[40]

Imagining new possibilities at a community level can help us to challenge the story of climate inevitability. Figueres and Rivett-Carnac reject the narrative that disaster is already our "inevitable fate . . . the full story has not yet been written. We still hold the pen. In fact, we hold it more firmly now

than ever before."[41] Their manifesto concludes with ten specific actions we can take to improve the quality of human life in the future. The list includes practical recommendations (fossil fuel transition, targeted investment, and responsible technology use), but many of their suggestions are directed towards our society's shared imagination. Transitioning to clean energy and thinking carefully about machine learning or cryptocurrency's energy use is—of course—important to reducing our collective carbon output. They maintain, however, that addressing consumerism, gender inequality, and our attachment to the way we have done things in the past are "top ten" list items: in fact, their last and final recommendation is getting involved in the political process. These steps are ways we can help to guide and shape the possibilities our communities envision, and they are no less important than more technical fixes.

Imagining as a broader community means considering new or even unusual ideas. One so-called fringe idea is the idea of degrowth, or the "need to shrink global economic activity" and the idea that "policymakers serious about climate change should try to build a livable world without economic growth fueling it." A *Vox* profile objects that degrowth is too radical because it calls for deeper, more fundamental change and—simultaneously—not radical enough because implementing it would be difficult without fundamental change.[42] Is this concept truly beyond imagination? A 2001 *Nature Communications* article argues that "degrowth pathways exhibit the lowest relative risks for feasibility and sustainability" compared to pinning our hopes on future technological fixes. Rethinking growth and prosperity points directly to the unpredictable but "softer" barriers of "deeply embedded cultures, values, mind-sets, and power structures."[43] Cooperation very well may be less risky or unrealistic than conventional ideas about climate solutions that often rely on yet-to-be-developed technologies.

Imagining new possibilities at a community level can help us to challenge the story of climate inevitability.

Imagining together means recognizing that individuals *can* produce significant and meaningful change by shaping what our communities see as possible. Harvard political scientist Erica Chenoweth's research on nonviolent social moments suggests that "it takes around 3.5% of the population actively participating in the protests to ensure serious political change."[44] This number is both larger and smaller than we might think. David Robson notes that this is roughly the population of New York City.[45] At the

same time, it is roughly a third of the over 30 million people who reportedly tried to buy tickets for Taylor Swift's "Eras" concert tour.[46] Individuals and small groups have a collective power—one too easily lost in the story of inevitability.

Our task is simple although it isn't easy: imagining new stories that reveal our collective power. Ugandan climate activist Vanessa Nakete, for example, discusses a time when she was "feeling frustrated about how we continued to strike every Friday, and leaders continued not to do anything, and the climate disasters continued to happen, and people continued to suffer." She describes how speaking with a fellow activist helped her to see the big picture and look beyond her own piece of the puzzle. She counsels listeners to "know that you are not doing activism just by yourself, but you're speaking up and mobilizing and organizing with millions of people from different parts of the world."[47]

By expanding our imagination, we can tell a new story that empowers us.

Telling a new story and exploring what it means to act ethically—as much as it still matters to develop new technologies, to study climate's effects, and to take individual action—are essential if we want our global community to forge a new path. In the end, imagining together means seeking out new—and old—stories that help us to see beyond our anxiety and apathy. Our society's character reflects the kinds of choices we believe are possible. By expanding our imagination, we can tell a new story that empowers us to get involved and work towards change.

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Notes

1. See for instance Thompson, Claire, "Paper, Plastic or Reusable."
2. Selig and Guskin, "You're Doing It Wrong."
3. Gawande, *Being Mortal*, 97.
4. Bernhard, "How to Put a Stop to Catastrophic Thinking."
5. Lipka and Nortey, "Younger Evangelicals in the U.S."
6. Linden, *The Winds of Change*, 219-29.
7. Linden, 222, 222-223.
8. Hall, "Exxon Knew."
9. Lipka and Nortey, "Younger Evangelicals in the U.S."
10. Torrella, "'Climate-Friendly' Beef."
11. This point illustrates some of the challenges of setting priorities in the face of climate: plastics pollution and microplastics are important issues, but scale of impact for global temperatures may not reflect public discourse on issues such as reusable straws.
12. Fialka, "American Catholics Call for Climate Action."
13. On ExxonMobil Corp's scientific modeling of climate change, see Supran, Rahmstorf, and Oreskes. "Assessing ExxonMobil's Global Warming Projections."
14. Wilson, *The Future of Life*, 67-68. For a slightly simplified experiment demonstrating the effect of different atmospheric compositions, see EarthLabs, "Climate and Earth's Energy Balance."
15. Kolbert, *Field Notes from a Catastrophe*, 2015. 106, 107.
16. Wallace-Wells, *The Uninhabitable Earth*, 25-26.
17. Wallace-Wells, 92-93, 93.
18. Bill McKibben makes this point exactly twenty years earlier in his landmark work, *The End of Nature*. See Bill McKibben, *The End of Nature.*
19. See, for instance Sontag, *Regarding the Pain of Others*, 70-71.
20. Wallace-Wells, *The Uninhabitable Earth*, 24.
21. Tillich, *The Courage to Be,* 40.
22. White, *The Barbaric Heart,* 74, 75.
23. Schendler, "Worrying About Your Carbon Footprint."
24. N.K. Jemisin's short story responds to Usula Le Guin's famous story, "The Ones Who Walk Away from Omelas," which explores a very different set of moral

questions beyond this essay's scope.

25. Jemisin, "The Ones Who Stay and Fight."
26. Jemisin.
27. Jemisin.
28. Ogden, "The Bittersweet Story."
29. McQuilkin and Chakrabarti, "How the World Came Together."
30. Wilson, *The Future of Life*, 189.
31. Hunter, "Leading Children Beyond Good and Evil."
32. Gatten, "Trees Planted by Councils Die."
33. Wallace-Wells, *The Uninhabitable Earth*, 32.
34. Wallace-Wells, 55, 103.
35. Pacala and Socolow, "Stabilization Wedges."
36. Pacala and Socolow, 971; Kolbert, *Field Notes,* 143.
37. Barnosky, *Dodging Extinction*, 65.
38. Clarke, Grant, and Thornton, "Quantifying the Energy and Carbon Effects," 59
39. On the divide between perception and reality about the impact of climate choices, see Selig and Guskin. "You're Doing It Wrong."
40. Figueres and Rivett-Carnac, *The Future We Choose*, 99.
41. Figueres and Rivett-Carnac, 5-6.
42. Piper, "Can We Save the Planet?"
43. Keyßer and Lenzen, "1.5 °C Degrowth Scenarios Suggest the Need for New Mitigation Pathways," 9.
44. Robson, "The '3.5% Rule'".
45. Robson.
46. Gupta, "Didn't Get a Taylor Swift Ticket?"
47. Nakete and Goodman, "'A Bigger Picture.'"

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