



Imagining Global Climate Solutions: Reflections on *The Ministry for the Future* and *Eleutheria*

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Even though a scientific consensus has been building for many decades that the climate emergency is real, and despite many protests and conferences demanding action, global climate solutions remain elusive. What are the main sticking points to making climate progress, and how might they be overcome?

This article draws on two novels to imagine possible solutions: *The Ministry for the Future* by Kim Stanley Robinson and *Eleutheria* by Allegra Hyde. Both envision effective social change over the next few decades.

Themes and pathways discussed include influencing public opinion, new religious movements, politics at the global scale, tweaking the global economic system, geoengineering, and the various roles that people from all walks of life can play—especially young people—to deliver climate solutions. Not least, a common theme is how love can save the world.



Many scientists today warn that humanity faces a global “climate emergency” (see, e.g., Ripple et al. 2022), and yet progress in responding to the crisis has been relatively anemic (Smith 2022). The most recent annual climate conference sponsored by the United Nations in Dubai recognized an immediate need to phase out fossil fuels as an energy source, but it failed to adopt any binding commitments to move nation-states and other global actors, including large energy-producing businesses, toward this end (Ahmed 2023). Professor Michael Mann diagnosed the result as “weak tea.” “It’s like promising your doctor that you will ‘transition away from donuts,’ after being diagnosed with diabetes,” he said. “The lack of an agreement to phase out fossil fuels was devastating” (quoted in Ahmed 2023).

How does one find reason for pragmatic hope in the face of the possibility—perhaps now even the strong likelihood—of a dystopian future? This article begins with an assumption that the climate challenge qualifies as a moral imperative, perhaps “what now matters most” (Parfit 2011, 419; see also Larrabee 2018). It then draws on what might at first seem an unlikely source of inspiration: climate science fiction or “cli-fi.” I suggest that two recent books—*The Ministry for the Future* by Kim Stanley Robinson (2020) and *Eleutheria* by Allegra Hyde (2022)—can help us all imagine climate solutions in the spirit of pragmatic hope (Goldman 2023, 1, 19, 153).

Cli-fi novels and movies have proliferated as the climate crisis has intensified. One prominent progenitor is Octavia Butler, who wrote two searingly dystopian novels in this genre, *The Parable of the Sower* (1993) and *The Parable of the Talents* (1998). These books envision massive climate refugee migrations into North America and the consequence of a return of a white nationalist authoritarian government in the United States. In *The Parable of the Talents*, Butler even prophesied the rise of a presidential candidate who would promise to “make America great again” (Aguirre 2017). Many other cli-fi novels and movies fall into the dystopian category as well (see, e.g., Akkad 2021; Rubin 2015; *Mad Max* (Miller 1979); *Waterworld* (Reynolds 1995)).

There is a history of positive social influence from dystopian novels that send a warning to correct course. Classic examples are Margaret Atwood’s *A Handmaid’s Tale* (1985), Aldous Huxley’s *Brave New World* (1932), and George Orwell’s *Nineteen Eighty-Four* (1949). It is also true, however, that imagining dystopias can be disabling, especially when the imagined futures are not only very dark but increasingly likely. Dystopian visions can help people imagine the scale and terror of the climate threat, but obsessively thinking about a coming apocalypse does not contribute solutions that might prevent or mitigate it. Focusing on the dark side of the future, perhaps especially when it is an increasingly likely future, can have destabilizing psychological effects. Octavia Butler herself planned a series of four novels beyond *The Parable of the Sower* and *The Parable of the Talents* but then found them “too depressing”

to write (Canavan 2014).¹ Contemplating catastrophe can, for good reason, induce feelings of anxiety, depression, and listlessness (Clayton 2020; Pihkala 2018). These psychological effects may be particularly pronounced for children and younger people given that they are likely to experience adverse climate consequences more acutely than older generations (Clayton 2020; Wu, Snell, and Smaji 2020). One remedy may be to focus on the possibility—again, even if not the likelihood—of positive climate futures (Pikahla 2018, 554–55).

The Ministry for the Future and *Eleutheria* fit this bill. In *The Ministry for the Future*, Kim Stanley Robinson imagines a new United Nations ministry created in 2025 under the Paris Agreement. Mary Murphy, a lawyer and former Irish foreign minister, is appointed to head the ministry in Zurich. The press labels it the Ministry for the Future, and the name sticks. Murphy leads an international, interdisciplinary team, and by 2050, they succeed: “Because they were never going to give up, never never never. Lose, lose, lose, lose, lose, win” (Robinson 2020, 16, 18, 456). Along the way, this long and somewhat meandering book splices political, economic, and philosophical asides into the overall plot that provide a plausible set of climate solutions that, taken together, could save the world from at least the worst of imagined dystopian futures.

In *Eleutheria*, Allegra Hyde introduces the lead character of Willa Marks, an orphan of rural American survivalists who finds her footing as a young adult in Boston. She falls in love with a woman who is a sociology professor at Harvard, and Marks becomes enthralled with an outside-the-box climate plan that leads her to Eleutheria, an island in the Bahamas, to join a charismatic former military leader in a utopian community called Camp Hope. Not to spoil the surprise: suffice it to say that Marks ends up becoming responsible for a viral media event that decisively changes global opinion toward seriously addressing the climate challenge.

Neither novel shies away from the grimness of this challenge. Robinson opens *The Ministry for the Future* with the ominous words, “It was getting hotter.” This begins a jarringly physical description of a deadly heat wave in India that kills 20 million people (Robinson 2020, 1–12, 21–25). In fact, a disaster of this order is becoming increasingly plausible if present climate trends continue (Smith 2022, 42–43). The initial public response when this happens could well be, as Robinson imagines, “business as usual.” “For awhile,” Robinson writes, “it looked like the great heat wave would be like mass shootings in the United States—mourned by all, deplored by all, and then immediately forgotten or superseded by the next one, until they came in a daily drumbeat and became the new normal” (Robinson 2020, 25). In the novel, though, India soon radically shifts its position on climate—and the rest of the world eventually follows. The story unfolds at different levels, imagining the social vectors by which humanity at last gets a handle on the climate problem and begins to reverse the increasing greenhouse gases (mostly carbon dioxide and methane) spewed into

the atmosphere. It is not easy, and there are bumps on the road to net zero, but *The Ministry for the Future* imagines how a global victory can be achieved by 2050. Then, the fifty-eighth annual conference of the United Nations hosts a mid-century celebration when the famous Keeling Curve of ever-increasing carbon dioxide emissions peaks and begins to slope downward (Robinson 2020, 475–76). I will not spoil the details of the happy ending, but it includes an evocation of Jules Verne: a carbon-free airship cruising above a still beautiful, preserved planet (Robinson 2020, 519–35).

Similarly, Allegra Hyde is not sanguine about the climate challenge. In one scene in *Eleutheria*, she writes: “Sunshine seared the island, making every wisp of breeze a miracle. The heat reminded everyone of the species snuffed out by the minute, the coastlines swallowed by rising seas, the forests clear-cut, the methane belched into an atmosphere already thickened with fossil fuel fumes. Another march wouldn’t stop it all. Certainly not another petition. Legislation was a little too late. There were too many people with too much money tied up in the scrap-picking of Earth” (Hyde 2022, 87).

The main character, Willa Marks, has a toughness toward long odds borne of her upbringing: “Love for me has meant a bullet in a tree trunk: a slow-seeping sweetness. It has meant annihilation and paradise—two sides of the same coin. It has meant getting what you want, when what you want is the worst thing for you. It has meant my parents, who, for all the terrors they impressed upon me, also made me believe in impossible odds” (Hyde 2022, 35).

As in *The Ministry for the Future*, there is grit in the characters of *Eleutheria* who are committed to doing something serious about solving the climate emergency (cf. Duckworth 2016). Focusing on good, positive solutions was necessary too, as Willa Marks says: “Because without a vision of a better world, it was despair all the way down” (Hyde 2022, 249).

Both novels, then, provide themes for imagining futures that are positive even in dark times (cf. Beckert 2016; Jamieson 2014). They acknowledge the terrible climate reality humanity faces and forge hopeful stories. Sometimes, facts in real life can imitate fiction, and this article reviews several themes in these books in a spirit not of predicting success or projecting false optimism but rather of pragmatic hope—not a nice, easy, or unthinking feeling of hope but a realistic hope that comes from sustained commitment to “envision and call a better world into being” even against long odds (Goldman 2023, 19).

Perhaps in this kind of hope there is also a place for faith (cf. Tillich 1957). Neither *The Ministry for the Future* nor *Eleutheria* preaches a gospel, though religious movements are in the background of each story. Both books foresee a danger that new religious cults may arise that embrace either terrorism (a subplot *Ministry for the Future*) or charismatic militarism (a threat in *Eleutheria*). Danger also lies in reliance on an unguided or too-optimistic faith in technology, economics, politics as usual, individual lifestyle changes, or leaving our collective

fate in the hands of a supernatural divinity who most likely is not there to intervene. Instead, these two novels make room for a humanistic faith that finds a middle path between the eschatological extremes of apocalypse and utopia, and between irrational fear and unreasonable hope (Larrabee 2018, 516–17, 523–38, citing Moltmann 2012). Both novels tell helpful stories in this middle ground of how humanity can act progressively in the face of the current climate impasse to achieve a brighter, healthier, and happier future.

Changing Public Opinion

Both *The Ministry for the Future* and *Eleutheria* deal with one of the most difficult aspects of the current climate crisis: the intransigence of public opinion. Despite living in a post-Enlightenment age of science, the governance structures of human society are matched only very imperfectly to the progress of science. Scientists believe, based on a great deal of evidence from different scientific disciplines, that the main cause of global climate disruption is the cumulative, ongoing emissions of carbon dioxide and methane from the production and use of coal, oil, and so-called natural gas (which is mostly methane). The percentage of working scientists who hold this view today is between 90 and 100 percent, including virtually all climate scientists (Smith 2022, 297–98; see also Powell 2017).² Yet, most people around the world still believe that scientists themselves are divided on whether the actions of human beings are causing climate disruption. One reliable poll found a bell curve distribution: a vast majority of people in the United States, for example, believe there is no consensus among scientists and instead imagine great division among them (Smith 2022, 298–99, fig. 19.1). Given that the global climate problem is one that relies on science to identify and diagnose, this disconnect between science and public opinion is a major stumbling block to making progress.

A few primary reasons explain this disconnect between the climate consensus among scientists and the divided opinions among citizens. First and perhaps foremost, climate science is complex and ever-changing. The scientific consensus has been growing over time, and the reporting of current knowledge through international bodies, primarily the International Panel on Climate Change, is careful to observe scientific measurement standards of certainty and confidence—which are never 100 percent. Because too many people do not have enough education to grasp even a basic understanding of the science, however, they are left having to “trust the experts.” So, when these experts present dire warnings that call for big changes in government policies and individual lifestyles that would disrupt long-formed habits and entrenched economic interests, responses of recalcitrance and resentment are not surprising.³

A second major reason for the failure of public opinion to follow the scientific consensus is that very strong and organized collective groups—especially big petrostates and the fossil fuel industry—have enormous economic interests

in opposing the scientists. Effective global climate policies would, almost by definition, undermine the power of the petrostates and the profits of the fossil fuel industry. In response, these interests work to water down international agreements and oppose national and subnational climate-related regulations. Fake science has even been manufactured by “a climate denial industry” to make it appear that scientists disagree when they really don’t (Smith 2022, 302–5; see also Jamieson 2014, 4, 81–96). Anti-climate interests also use the mass media to promote climate denial and conspiracy theories (such as that scientists are conjuring the climate problem to get government grants). The fight between those who are calling attention to the scientific consensus and those who oppose any change that would disrupt their business models and profits has been aptly characterized as a “new climate war” for public opinion (Mann 2021).

In fact, the entrenched political and economic interests opposing effective climate policy finally appear to be losing the battle for public opinion in many places in the world, at least with respect to a belief in basic climate science. Overall, a recent global poll has shown that approximately 70 percent of the global population believes climate to be a “very serious” or “somewhat” serious threat; only 13 percent sees no threat and only 18 percent holds no opinion (Smith 2022, 297). However, there are large and significant geographical variations. At one end of the spectrum, around 90 percent of western and northern Europeans express strong concern, as do almost 95 percent of Chinese and around 85 percent of Latin Americans (Smith 2022, 297–98). Citizens in other nations are much less unified. The most polarized country is the United States, where 86 percent of left-leaning citizens (mostly Democrats) believe the climate is a serious problem, compared with only 22 percent of those who lean to the right (mostly Republicans) (Smith 2022, 299). Australia and Canada have divided opinions too, though not as extremely as in the United States. Many Asian countries such as Japan and South Korea report a high level of concern, but many other countries with low levels of education and economic have correspondingly low concern about the climate challenge (Smith 2022, 298–99).

The division of public opinion in the United States is especially concerning because of the country’s political and economic power in the world. There are signs public opinion is “grinding towards grudging agreement on the fundamental story,” though the favorite policy option seems to be the ineffective planting of trees (Smith 2022, 300–2). Because of “deep capture” of governments by lobbying and campaign finance, this emerging climate majority does not yet express itself very strongly or effectively in national elections (Hanson and Yosifon 2003). As of this writing, the most influential climate-denying politician, former president Donald Trump, seems poised to possibly return to power, which would, once again, seriously set back climate progress (Goldmacher 2023). Even if Trump should lose, there are tens of millions of American citizens who continue to simply deny the climate is a problem. Although a recent survey of

registered voters found that 56 percent would “prefer to vote for a candidate for public office who supports action on global warming,” only 13 percent of conservative Republicans would (Leiserowitz et al. 2023, 4).

The Ministry for the Future provides a positive story on the global front, imagining that the Paris Agreement allows for the founding of a “subsidiary body” that journalists quickly dub the Ministry for the Future (Robinson 2020, 15–16). The massive heatwave that kills 20 million people in India galvanizes at least some global citizens into action, and perhaps this kind of tragedy is what it will take. Human beings are not easily moved to significantly change their lives in response to predictions of the future—even by trusted scientists—because we are motivated by evolution to focus more primally on the immediate concerns of everyday life (e.g., finding food, drink, shelter, work, and sex; provisioning for oneself and one’s family; and seeking out entertainment that is programmed to satisfy our evolutionarily inherited sensory preferences) (see Marshall 2014). Climate disasters may therefore be required to spur an immediate recognition of danger—and then, just maybe, key leaders and citizens across various walks of life will be sufficiently motivated to take the serious steps needed toward climate solutions.

Without giving away the plot, *Eleutheria* concludes with a surprise ending that has great global impact on public opinion, in large measure because it succeeds in inspiring young people into concerted actions to demand change *now*. The book also imagines future disasters that catch public attention, including “Mass Mortality Events.” In one such event with an unknown cause, “birds dropped from the sky like feathery rain,” their “small bodies thumped onto windshields and sidewalks and park benches” (Hyde 2022, 105). At first, events like these were “treated like anomalies—odd as UFO sightings—rather than what they were: a pattern, a series, a sequence leading toward the unspeakable” (Hyde 2022, 105). Later in the book, “a series of calamities pundits called “The Ten Plagues”” occurs: a swine flu sending food prices up, toxic algae clogging major harbors, mass die-offs of mice and dolphins, a large spike in Lyme disease, and huge release of health-impairing pollen (Hyde 2022, 247). As in *The Ministry for the Future*, Hyde imagines that things must get a lot worse before public opinion shifts enough to start making things better.

Recently, real life events have often tracked these fictional accounts. Historic Canadian wildfires turned the air in New York City and other major cities on the United States’ East Coast a toxic orange (Roush 2023). These fires are said to be only one example of “angrier wildfires” in a “warming world,” especially in northern latitudes (Livingston 2023; see also Migliozzi et al. 2020). An epic flood inundated about one-third of the total land area of Pakistan (Jones 2022; UNICEF 2023). Disastrous heatwaves are also rising in frequency, with death tolls in the thousands and tens of thousands, if not yet the millions or tens of millions imagined in *The Ministry for the Future* (Goodell 2023, 10, 18, 114). As

one French politician observed following a spate of heatwaves: “Here in Paris, there are three options. We can roast, we can flee, or we can act.” (Goodell 2023, 286). The observation can be generalized. Despite the dystopian dreams of billionaires to escape to another planet (see, e.g., *Don't Look Up* (McKay 2021)), we have only one planet right now—and the only serious option is to act accordingly.

Doing so will not be easy, but cli-fi contributions such as *The Ministry for the Future* and *Eleutheria* may help to overcome the natural human tendency to focus on short-term rather than long-term risks and opportunities. If one or both books were optioned for a movie or TV series, future influence on public opinion might be further enhanced (though the ending of *Eleutheria* might be too dark for Hollywood to produce).⁴

New Religious Movements

Religion is a theme in both *The Ministry for the Future* and *Eleutheria*, but not in the manner of an intervention by Pope Francis or other religious leaders (*Laudato Si'* 2015; see also Fox 2018). Instead, the impending global climate catastrophe spurs grassroots religious or cult-like organizations, though not to the same depth and spiritual richness created in Octavia Butler's *Earthseed Parables* (Butler 1993; Butler 1998; see also Stillman 2003). One might hope for a translation of Butler's dystopic religious order into the more hopeful tones of the *Ministry* and *Eleutheria*, but they do not provide this sort of theological contribution, except perhaps for a few small touches or suggestions (Robinson 2020, 537–40, 545–46).

Instead, in *The Ministry for the Future*, a religious fervor seizes what is at first an organized group responding to the terrible heatwave and vowing to “declare an economic war” against those who continue to contribute greenhouse gases to the atmosphere. The time had come, they said, “for India to step onto the world stage, as it had at the start of history, and demand a better world. And then help to make it real” (Robinson 2020, 26). This group, called the Children of Kali, then organizes attacks on fossil-fueled ships and planes as well as power plants in a “War for the Earth,” rationalizing its violence by taking measures to save the “innocent ones” from “collateral damage” (Robinson 2020, 135–37, 229–30). The “guilty” ones, in their view, were the rich and those who participated most significantly in the fossil-fueled destruction of the climate. Soon, Kali was not just in India but “everywhere” and spun off other terrorist groups (Robinson 2020, 135–37, 130, 368–69). At a minimum, this imagined scenario raises serious concern that continued ineffective global inaction to address escalating climate damage could lead to widespread organized terrorism and war.

Eleutheria imagines a different kind of violence: a cult-like response organized by a charismatic former United States military leader. *Eleutheria* is an imagined island where this cult-like group assembles and plans for an authoritarian

right-wing takeover of the United States government. Again, not to spoil the ending by disclosing details: the protagonist foils the scheme. The author's depiction of the attractiveness of the pro-climate features of the militaristic utopia called Camp Hope is chilling in its believability (Hyde 2022, 203–5, 219).

Both novels raise the specter of a general fear that democratic governments may not be able to rise to the challenge of the climate crisis. But though there are tragedies along the way, both books offer happy endings in this respect. No new religious or secular authoritarianism arises, and dystopic outcomes such as imagined in Butler's *Parables* are averted. *Eleutheria* paints a scenario that, though tragic and disturbing, gives an example of heroic selflessness that in the novel provides a spiritual beacon to the world. In *The Ministry for the Future*, the power of global citizens and mechanisms of governance also succeed, more or less democratically, and establish within a space of several decades a new pro-climate world order.

Financial Leverage from Central Banks

One organizational method by which *The Ministry for the Future* imagines a peaceful climate transition of the global economy is through intervention by the world's central banks. The main idea is to use financial leverage to encourage more pro-climate investments, as well as discourage the further development and sale of fossil fuels. This strategy complements well-known (though difficult to accomplish) proposals for a global climate tax (e.g., Kotchen 2023). Climate-focused taxes can also have regressive effects, that is, hurt the poor more than the rich (because consumption taxes tend to represent a larger share of the personal budgets of people with lower incomes), but these regressive effects can be reversed if a "carbon tax" is coupled with a "carbon dividend" (see Metcalf and Goulder 2021). The proposed new innovation is to supercharge these measures—which today require national legislation, though countries could coordinate in a "climate club" (Nordhaus 2015)—by establishing a "carbon coin" issued by central banks, which have the power and authority to create money (Robinson 2020, 172–76). The idea is to adapt the "quantitative easing" central banks use to combat threats of economic depression by increasing money supply to instead finance certifiable greenhouse gas reduction projects (Robinson 2020; see also Chrobak 2021). A leading real-world proponent of the idea, whom Robinson name-checks, is Delton Chen (Patterson 2022; see also Global Climate Reward 2023).

There are some complex details I will omit here, but the basic idea of a carbon coin or carbon reward is to add a carrot of positive financial incentive for climate protection to the stick of financial penalties for climate damage. Or, to use another metaphor: a kiss rather than a kick (Robinson 2020, 173). Rather than the traditional method of asking national governments to invest in targeted subsidies, such as in the climate-oriented subsidies of the Inflation

Reduction Act adopted in the United States in 2022 (White House 2023), the idea of a carbon coin is to use the central banks' power to create money for the purpose. The hitch is that the reform requires a significant shift in the public's conception of the role of central banks to address the climate emergency as a serious threat to global economic stability.

Realistically, the first reaction to the idea from the central bankers is depicted as quite negative (Robinson 2020, 187–89, 211–14). “Not our purview,” says the chair of the United States Federal Reserve when Mary Murphy makes the pitch, reflecting the traditional role of central banks to focus on stabilizing currency rather than picking and choosing substantive policy priorities for investments. “Maybe it should be,” responds Mary, and eventually she and her team convince the central banks, led by China, to swing into action, forming a Climate Coalition of Central Banks (Robinson 2020, 188–89, 287–95, 341–45). A critically convincing but controversial step in the book is to make the carbon coin payments available to petrostates such as Saudi Arabia as well as big oil companies that promise to participate. They are paid to keep discovered but not yet exploited fossil fuel reserves in the ground. A centralized reporting and certification system run by the Ministry for the Future assures compliance (Robinson 2020, 342; Robinson 2023).⁵

Central banks in the world today have already put the climate crisis on their agenda. Proposals have been made and are gaining steam (so to speak) for vigorous financial disclosure of climate risks. The Financial Stability Board (2023), a global coalition of finance ministers and central banks, formed a Task Force on Climate-Related Financial Disclosures, which set disclosure standards now passed along to the International Sustainability Standards Board (IFRS Foundation n.d.). California and the European Union have been leading in the establishment of laws for greenhouse gas and internal climate policy reporting by large companies (Delmas, Gerrard, and Orts 2023). Some scholars argue that central banks such as the Federal Reserve should stick to their knitting and focus only on the traditional economic goals of financial stabilization—including inflation and employment rates (e.g., Skinner 2021). Given the long-term economic as well as environmental consequences of climate disruption, however, this position is untenable, at least from a point of view that appreciates the real existential stakes. As Mary Murphy argues to the central bankers in *The Ministry for the Future*, “stabilizing inflation rates and unemployment rates” will become impossible as “the climate [heats] up” and “could no longer be fulfilled if the climate emergency got out of hand” (Robinson 2020, 293). Other academics and policymakers are also examining different options for how to shape central bank interventions toward climate solutions in the real world today (Network for Greening the Financial System 2021).

In the end, the global banking system plays a major role in a successful “Great Turn” depicted in *The Ministry for the Future*. Mary Murphy smiles to herself at

the end of the book: “Saved by the fucking bankers” (Robinson 2020, 511). And why not? Those with the greatest power in the world today are those who also hold the greatest technological means—in this case, financial leverage—to make the essential global turn toward climate sustainability (Robinson 2020, 189).

Geoengineering

Some climate experts counsel humanity to put our faith in methods of geoengineering as a climate solution. Some recommendations are better than others, however, and it should be recalled that the human species has in fact been “geoengineering” our planet for at least several centuries (Frankopan 2023). Also, as Dale Jamieson points out, geoengineering seems to be more of “an attitudinal marker” rather than “a distinct category of responses” to the climate policy debate (Jamieson 2014, 207).

One candidate for a quick technological fix is solar radiation management (Smith 2022, 199–247; see also Kolbert 2022, 165–86). Some relatively low-tech solutions, such as painting roofs white, may make sense, but others, such as putting arrays of mirrors on satellites or firing aerosols into the stratosphere, are at best problematic. Because blocking solar radiation does not address the main underlying cause of climate warming (i.e., fossil fuel production and use), these technologies, once deployed, must be continued indefinitely to avoid a “termination shock” (see Stephenson (2021) for a dystopian account). It does not go too far to refer to some ideas, such as putting a massive solar umbrella in the middle of space between the Earth and the sun, as risking an Icarus effect for all of humanity (Orts 2024). In addition, these technologies would do nothing to address other problems caused by increasing greenhouse gas concentrations, such as ocean acidification (Williamson and Turley 2012). In short, most recommendations for solar radiation management are much too risky. Humanity has already been playing dice too often with our planet, so there is no good reason to roll them again with this kind of technological intervention.

Another candidate is the direct removal of carbon dioxide from the atmosphere (Smith 2022, 149–97; Kolbert 2022, 143–64). Again, some low-tech solutions, such as planting trees wisely, may make sense, though planting trees indiscriminately can have detrimental consequences, such as increasing the severity of wildfires (Cameron 2023; Leverkus et al. 2022). High-tech direct removal of carbon dioxide from the air has attracted large investments too, such as from billionaire Bill Gates (Rathi 2022), but its technological future remains uncertain—perhaps as uncertain as the carbon capture and sequestration technologies promoted mostly by the fossil fuel industry (Smith 2022, 171–97). Although touted as “the single best near-term” solution in “the entire geoengineering toolbox,” with modestly successful pilots in the United States and Norway (Smith 2022, 183–86), one must treat these carbon capture ideas with some degree of skepticism. Given that promoters of some large-scale

geoengineering proposals often hail from the aerospace and energy industries, one should at least pause before buying a pitch that “the same people who brought you climate change will be here to save you from it” (Jamieson 2014, 224). They may be more likely looking to save themselves and their climate-damaging business models.

The Ministry for the Future foresees that geoengineering experiments will be made by nation-states, beginning in the book with hard-hit India (Robinson 2020, 8–20, 37–39). Robinson is sanguine about the motivations of the business interests likely to support these geoengineering techno-fixes, which if successful would provide an unhelpful rationalization for the business-as-usual burning of fossil fuels (Cohen 2021). There is also no international legal authorization for global climate geoengineering under the Paris Agreement or elsewhere (Eliason 2022, 443–44), but nation-states may go forward anyway in the absence of law. *The Ministry for the Future* imagines a qualified success from India’s intervention (Robinson 2020, 355–56; see also Eliason 2022, 459).

More speculatively, *The Ministry for the Future* imagines a reengineering of Antarctica that repurposes oil rigging and drilling technology to lift fast-warming water from beneath the melting ice sheets to the surface—and then turns it into surface ice to reconstitute the glaciers and tack them back down to bedrock (Robinson 2020, 79–83, 179–81, 259–69, 355, 471–74). This kind of glacial geoengineering is not provably impossible, but there are substantial legal impediments under the governing Antarctic Treaty, and the science is still quite rudimentary (Corbett 2019; Meyer 2018; U.S. National Science Foundation 1959). This solution would also constitute only a temporary stop gap—slowing down the melting of the Antarctic icepack rather than arresting it.

In an earlier nonfiction contribution, Robinson correctly observed that “geoengineering the atmosphere looks iffy at best; geoengineering the oceans even worse” (Robinson 2012). The truth is that humanity has the technologies needed to make the transition to a net zero global energy and materials world, and these extant technologies are improving with respect to both efficacy and efficiency (Jacobson 2023). The main impediment remains the path dependence of a fossil-fuels based world and the businesses and petrostates that profit from the status quo (e.g., Aghion et al. 2019). In addition to the need to make a transition from fossil fuels toward renewable energy—including solar, wind, and geothermal, as well as the battery and storage systems needed to support them (Usher 2019)—new transportation technologies are also essential.

Innovation in Transportation

Technological solutions are already available in the transportation sector. Essentially, the message is to “electrify everything” and make a total transition away from the use of fossil fuels in powering the world’s electric grids (Smith 2022, 86–88; see also Doerr 2021, 1–61). All coal-fired electricity plants should be

eliminated as soon as possible (Jamieson 2014, 6, 236). China remains the largest national miscreant in this respect, approving the construction of an average of two new coal plants every week. China accounts for around one-third of the total annual carbon emissions today, though it is also the biggest producer of renewable energy (Davidson 2023). In the United States, landmark legislation passed by the Biden administration will lead to a supercharging (so to speak) of infrastructure for electric vehicles in the United States (White House 2023), though there is reason to worry about its progress (Plumer and Popovich 2024). The trend in Europe is generally in the same positive direction, exemplified by a sharp spike in the last few years in the number of electric vehicle registrations (European Environment Agency 2023). It is possible to imagine a relatively near-term future without coal and absent the choking massive pollution of internal combustion engines, but it will take sustained political commitment and economic investment. As *The Ministry for the Future* foretells, “the crux of the challenge” of a transition to “clean energy” can be met in the next several decades (Robinson 2020, 476).

Other technologies imagined in *The Ministry for the Future* include modernized, more efficient airships, perhaps powered by hydrogen (with the Hindenburg problem solved) as well as solar panels (Robinson 2020: 519–27; Thompson 2023). New twenty-first century wind- and solar-powered clipper ships are envisioned too—large passenger- and cargo-sized versions of the zero-emission sailboat Greta Thunberg used to cross the Atlantic for a climate conference in New York City in 2019 (Robinson 2020, 419–19, 528; Milman 2019). Electric-powered high-speed rail transportation networks that traveled everywhere would give renewed meaning to intercontinental railroad (Robinson 2020, 419; see also Shen, Pan, and Feng 2023).

Direct and Covert Political Action

Technological climate solutions of all sorts will require political interventions. Both *The Ministry for the Future* and *Eleutheria* are “political” books in that they understand that climate progress depends on political action to change course. Both books also recognize that traditional political pathways—such as organizing and voting in elections—have so far been insufficient.

The Ministry for the Future is named for a small subsidiary body imagined to be set up within the framework of the Paris Agreement, but its real influence takes place when reaching out to powerful central banks—and there is even a gesture toward covert action that may even involve violence. In an interview, Robinson said that he “obscured” what “the Ministry’s black wing was doing” (Laidman 2022). He skates close to the moral edge when one of his characters calls purveyors of violence most would call “eco-terrorists” “resistance warriors” (Robinson 2020, 368–69), and Robinson later admitted that he “should have done better [to] make a strong distinction between sabotage and murder.”

Violence, he says, “always blows back in your face,” and “the most vicious thugs take power” (Laidman 2022). An expansion of eco-terrorist violence would likely beget violent authoritarian responses and the reinforcement of what has been called “climate leviathan” governments (Wainwright and Mann 2018). One can even imagine authoritarian petrostates and large fossil fuel companies covertly financing eco-terrorists to rally public opinion in favor of the climate-destroying status quo.

One valid criticism of *The Ministry for the Future* is that it fails to grapple sufficiently with the worrying rise of populist authoritarianism in the world, including in India (Cohen 2021). At the same time, and in a more ecumenical spirit, Robinson emphasizes the need for “political coalitions” of progressives of all stripes given the scale and immediacy of the climate problem (Cohen 2021). Divisions among those who agree that humans need to work together to make climate progress only aid those who are working hard to maintain the status quo, which usually means power and profits for themselves.

Eleutheria is more politically realistic in this sense than *The Ministry for the Future*. *Eleutheria* sees the need for some cathartic event that would fire up public opinion in the world in our “age of spectatorship” (Green 2009; cf. Edelman 1988). It focuses on how major change most likely will come from the younger generation. The utopia of its depiction of Camp Hope—following a charismatic leader with a big plan—is not the message in the end. It is in fact a false and duplicitous hope that would lead to authoritarianism (Hyde 2022, 267–69). Instead, and again without giving away the ending, the story is one of how the world’s youngest citizens, those following in the footsteps of Greta Thunberg and others, could rise up in righteous anger and demand that older adults must act seriously. *Eleutheria* imagines the potential power of the youngest generation to galvanize climate action through their mastery of social media and the creation of viral events (Hyde 2022, 299–302, 320–21). Youth groups such as Sunrise in the United States and youthful leaders such as Thunberg and Luisa Neubauer in Germany provide good reasons to think that a political movement of this kind is yet possible and could achieve climate policy victories like those in previous generations that fought for civil rights as well as the first generation of environmental protection laws (Neubauer and Repenning 2023; Sunrise Movement 2020).

How Love Can Save the World

There are love stories too in both *The Ministry for the Future* and *Eleutheria*, and the details of these are probably better read in the original. Suffice it to say here that love—and friendships and mutual caring—is necessary for the imagined successes that occur through the social and political struggles imagined in both books. Both novels tell stories of how, drawing from the Hebrew tradition, there often emerges in critical moments in world history a small group of

Tzadikim Nistari or “hidden good people who keep the world from falling apart” (Robinson 2020, 117).

In *The Ministry for the Future*, the main protagonist, Mary Murphy, the lawyer and former Irish foreign minister named to head the United Nations subsidiary body, assembles a crack team of others from different vocations and geographic origins, including a hardcore chief of staff from Nepal, a lawyer from Russia, a climate scientist from France, an agriculturist from Argentina, an oceans expert from Chile, a geoengineering specialist from Indonesia, a citizen-of-the-world guru of artificial intelligence and social media, an indigenous peoples’ representative from Canada, a Jordanian expert on refugees, an Australian economist, a Swiss insurance and re-insurance expert, and ecologists from Hong Kong and the United States (the latter nicely named Bob Wharton) (Robinson 2020, 18, 53–54).

The adventure is how they work toward success, and at the end of the book, at annual the United Nations climate conference held in 2053, the world celebrates a “Great Turn” when the famous Keeling Curve of ever-increasing greenhouse gases spewed into the atmosphere (Rafferty 2023) levels off and begins a downward slope (Robinson 2020, 475). The Paris Agreement in this vision comes to be seen as “the greatest turning point in human history” (Robinson 2020, 475). Although it started off “weak,” it evolved to create an “unstoppable” momentum for a global clean energy transition, moving forward with the Half Earth project of reclamation and preservation of land and ocean, reforming economics to include new measuring systems of sustainable success, securing zero population growth, and reducing overall economic inequality (Robinson 2020, 475–79). In other words, as one reviewer described it, the novel is a feasible utopian story of “the world healing” (Frug 2021).

Eleutheria derives from the ancient Greek word for freedom (Domini 2022), and it is the story of how unlikely heroes can emerge from often-difficult upbringings that have steeled them to undertake feats of great bravery. The courage needed for political action “is not necessarily or even primarily related to a willingness to suffer the consequences,” Hannah Arendt has written, because “courage and even boldness are already present in leaving one’s private hiding place and exposing oneself” (Arendt [1958] 1998, 186). A lesson for all is that it is not too late to learn to love both each other and the Earth (Jamieson and Nadzam 2015; White 2018)—and to find the strength to act in our everyday lives to contribute to climate solutions.

Eleutheria’s Willa Marks provides good advice that comprehends many of the climate solutions mentioned here—and more!

Turn off your lights. Turn off your computers, your printers, your phones, your security systems, your air conditioning, your robot vacuums, your entertainment consoles, your microwaves, your heat-sensing pillows, your electric toothbrushes.

Pull all other plugs. Drive less, bike more, find alternatives to flying. Plant trees. Plant native trees. Plant flowers and vegetables and then eat the vegetables and some of the flowers. Clean your plate. Compost your scraps. Divert gray water for irrigation. Take shorter showers. Use biodegradable soap and make your own cleaning products. Air-dry laundry. Repair the clothes you have. Repair the shoes you have. Repair furniture. Repair houses. Repair friendships and have your friends over for dinner. Speak to strangers. Skill share. Ride share. Babysit. House sit. House share. Reuse, reduce. Work less. Buy nothing. No straws. Pick up litter. Keep bees.

Create bike lanes and pedestrian pathways. Limit tailpipe emissions and institute congestion pricing. Enforce energy efficient building codes. Promote zero-carbon construction. Generate electricity from renewable sources. Consider cogeneration, carbon capture, citizen-owned utilities. Promote public transport—better public transport—and make it free to all. Create community gardens. Stormwater gardens. Wastewater gardens. Create community forests and fields and rivers and lakes and marshlands. ... Fund environmental education. Make nature easy to love. Add green roofs, green walls, green sidewalks. Make spaces multifunctional. Give artists license to add beauty... .

Set binding international climate treaties. Set ambitious targets—the ones required to avert climate catastrophe—and do what it takes to meet those goals. Tax toxins, or better yet ban them. Prosecute offenders for crimes against the Earth. Decouple money from regulation. Decouple money from governance. Close loopholes. Close drill sites and fracking operations and ruinous mines. Decentralize the Internet and energy systems and power structures in every sense of the word... . Tell the truth. Represent the people. Take responsibility for the past, and for the future. Try.

I'm trying—

For all the cases that can be made against me, know that I'm trying, that I have been trying, and will continue to try, along with many others. In fact, more people are trying than ever before. (Hyde 2022, 291–93)

In novels like these can be found wisdom for everyday life that sometimes eludes humans when we rely only on scientists, academics, politicians, or religious figures. Perhaps literature qualifies as a kind of modern religion that can integrate science as well as the potential for the secular change and personal commitment necessary to address the planetary emergency we now face. In novels like *Eleutheria* and *The Ministry for the Future*, we can find some hope and inspiration.

Conclusion

It is too late for comprehensive solutions to the climate crisis because it is already here (Orts 2011). The truth is that humanity has, as a partially integrated global civilization, failed to adopt the necessary modifications that would have averted a significant amount of the climate damage that is now occurring and will inevitably continue to occur going into the near-term future (Jameison 2014). No silver bullet will solve the inherited climate problem, which is still accelerating. Even though the climate problem is wickedly complex (Peters 2018), it can be solved, or at least the impact lessened, through a portfolio of policies that require or encourage climate-friendly technologies—both the “hard” technologies of engineering and other physical sciences as well as the “soft” technologies of law and finance (Robinson 2020, 250–52; Nelson 2005, 153–65, 195–209; see also Hawken 2021; Doerr 2021). In short, humanity can act ethically and work hard to slow and—eventually, though perhaps not in all our lifetimes—halt the ongoing climate damage. There are no guarantees, but we must at least, as Hyde says, “try.”

The Ministry for the Future and *Eleutheria* are two books that chart directions forward for humanity collectively to take. Neither fails to appreciate the darkness and difficulty of the climate crisis, and both imagine opportunities for effective, practical action. I anticipate that similarly positive and hopeful imagining will follow in both nonfiction and fiction—with new available translations also into action. For, as Virginia Woolf has written, “we are not passive spectators doomed to unresisting obedience but by our thoughts and actions can ourselves change. . . . A common interest unites us; it is one world, one life” (Woolf 1938, 270).

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Notes

- ¹ This loss is much to our collective detriment. As Gerry Canavan (2014) observes, Butler tried multiple times to make progress on *The Parable of the Trickster*, the third in a planned series that would have embraced Christian symbolism. The three others in the series, to be titled *The Parable of the Teacher*, *The Parable of Chaos*, and *The Parable of Clay*, would have been set on other worlds and followed the symbolism of the “Earthseed” religion invented in her first two completed books.
 - ² Even scientific skeptics (who, it should be noted, have often worked for fossil fuel companies) agree that the consensus among climate scientists about the anthropogenic causes of climate disruption is around 97 percent (Skuce 2016; see also Cook et al. 2016). For an important discussion of kinds of uncertainty, especially regarding climate science, and the need to effectively communicate and engage with policymakers and citizens with respect to these different kinds, see Smith and Stern (2011).
 - ³ As an anonymous reviewer pointed out, the long-standing scientific consensus regarding the basic thermodynamics of climate change does not extend to the many significant uncertainties remaining about the circulation effects and consequences following from them. Periodic reports updating scientific progress in understanding and attributing climate consequences may provide an additional reason public opinion is confused. Casual followers of the news may interpret new climate discoveries as evidence of uncertainty and debate rather than the creation of new knowledge based on a firm foundation of scientific understanding.
 - ⁴ Some good news is that a movie version of Octavia Butler’s *The Parable of the Sower* is in the works (Kroll 2021).
 - ⁵ It is not clear why the additional complication of a “digital currency” needs to be added to this plan. Coordinating the major existing currencies, with distributions made through the established banking structures, seems to be a better bet given their already-established trading markets and regulatory oversight capacity. Robinson (2023) seems open to this suggestion. Digital currencies also have negative environmental effects, including on the climate, given their large demand for energy (Chamanara and Mada 2023).
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