Utopia, breakdown, repair

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Utopia, Breakdown, Repair

Failure and Success in Social Dreaming

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Abstract

A common charge against utopianism is that any attempt to create blueprints for a better future disregards a basic fact: humans' proclivity for failure. In response, defenders of social dreaming have argued that failure can become generative, once we abandon the perfectionism that ostensibly inheres in utopian visions. Building on this revaluation, the paper applies a crucial lesson from engineering and design studies – that often artificial failure modes are required to enhance the safety of tools and machines. To flesh out this point, I turn to utopian fiction and discuss Kim Stanley Robinson's *Science in the Capital*-trilogy, which rejects techno-optimism about our climate-changed world, yet hails the transformative potential of an anti-capitalist scientific community. Ultimately, the paper claims that, if we cannot have success in addressing the climate emergency without committing serious mistakes, then one

(but clearly not the only) path forward is to imaginatively prefigure the faultlines along which ecomodernist dreams for a "good Anthropocene" might rupture.

Keywords

Climate emergency; design and engineering studies; ecomodernism; failure; Kim Stanley Robinson; perfectionism; utopia.

1. Failed Dreams

Accusations of failure are frequently levelled against utopian projects. Modernist architecture, for example, is often derided as a failed or failing utopia, due to its fatally compromised aspiration to create a "new man"[1]. The bureaucratic state's effort to control a rationally planned society has been equally condemned for its utopian orientation – and its devastating impact on human welfare and freedom.[2] Finally, technological solutions to climate change are regularly attacked for their utopian ambitions, which leave the underlying problem of our species' reckless addiction to fossil fuels largely untouched.[3]

The ubiquity and pervasiveness of such failures has not escaped the attention of critics. Conservative commentators, such as Michael Oakeshott[4], trace the breakdown of utopias back to a defect that putatively disfigures all campaigns for systemic transformation – they neglect the fallibility and complexity of human nature when imagining an ideal commonwealth. From this perspective, the occurrence of failure merely confirms what these sceptical voices suspected all along, namely that "the dreams of a society from which coercion and power have been for ever removed – Marxist or anarchist, liberal or technocratic – are utopian in the strong sense that they can never be achieved because they break down on the enduring contradictions of human needs"[5].

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[1] Douglas Murphy, *Last Futures: Nature, Technology and the End of Architecture* (London/New York: Verso, 2016).

[2] James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998).

[3] Mike Hulme, *Can Science Fix Climate Change? A Case against Climate Engineering*, E-book, New Human Frontiers Series (Cambridge: Polity Press, 2014). Needless to say, the deeper causes of our addiction to fossil fuels are related to the global capitalist system.

[4] "On Being Conservative," in *Rationalism in Politics: And Other Essays* (London: Methuen, 1962), 168–96.

[5] John Gray, *Black Mass: Apocalyptic Religion and the Death of Utopia*, E-book (London: Penguin Books, 2011), para. 7.56.

This deterministic view can be contrasted with a more melancholic one, usually taken by left-wing commentators. On this account, the failure of revolutionary plans in the 20th Century is testament to a basic shift in mentality, from utopia to memory; from planning for a more egalitarian and freer society to lamenting the catastrophic demise of political experiments that sought to overthrow the socio-economic order of capitalism. On this account, the fact that the utopian spirit has been exhausted means that today we inhabit a never-ending present, forever stuck in "a suspended time between an unmasterable past and a denied future"[6].

In this paper, I open up an alternative perspective on failure by expanding on Fredric Jameson's claim that social dreaming's "deepest vocation is to bring home, in local and determinate ways, and with a fullness of concrete detail, our constitutional inability to imagine utopia itself"[7]. The core idea is that political agents are ultimately incapable of conjuring and enacting radical alternatives, due to their imprisonment within the ideological frameworks that dominate their everyday lives.[8] The twist that Jameson and others add to this observation is that the unavoidability of failure also affords an opportunity for novel experiments in thinking and acting.[9] From that premise, one might conclude that "the best utopias are those that fail most comprehensively"[10].

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[6] Enzo Traverso, *Left-Wing Melancholia: Marxism, History, and Memory* (New York: Columbia University Press, 2016), 8.

[7] Fredric Jameson, "Progress versus Utopia; Or, Can We Imagine the Future?," *Science Fiction Studies* 9, no. 2 (1982): 153; See also: Fredric Jameson, *Valences of the Dialectic* (London/New York: Verso, 2009), 361.

[8] In line with Sargent's influential definition, I use "social dreaming" synonymously with utopianism. See: "The Three Faces of Utopianism Revisited," *Utopian Studies* 5, no. 1 (1994): 1–37.

[9] Louis Marin, *Utopics: Spatial Play*, Contemporary Studies in Philosophy and the Human Sciences (Basingstoke: Palgrave MacMillan, 1984).

[10] Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (New York: Verso, 2005), xiii.

But what does it mean to fail "most comprehensively"? How would such a failure be distinguishable from the criticism levelled against utopianism by right-wing commentators? And can there be a type of failure that avoids the depression and nostalgia many on the left sense when considering the diminishing appeal of systemic transformation? In the following, I mobilize Henry Petroski's work on successful engineering and design and answer these questions by introducing a concept that has so far received little attention in the extant debate: that of a "predetermined faultline". This notion describes a feature whereby tools and machines can be made to break down safely – by inserting "well-defined and predictable failure modes and breaking points, so that such catastrophic physical phenomena as collapse or fracture happen in the way and at the time that they are supposed to"[11]. The paper argues that we can learn something essential about social dreaming if we contemplate its unavoidable shortcomings along these terms.

To tease out this argument, I home in on the ability of fiction writing to disclose the interconnections between imagination and action. My suggestion is that utopian storytelling harbours the potential of shaping real-world discussions, including those that grapple with the existential challenges of a climate-changed world. The underlying wager is that fiction writing can play a limited, but still significant, role in unsettling patterns of ideological domination. In the context I am interested here, one area where such domination may occur is when scant attention is paid to the non-trivial risks of plans for systemic transformation. The storytelling I shall be focusing on therefore stresses the multiple respects in which social dreaming is prone to failure. In so doing, the reader is prompted to assess both the benefits and the perils of engaging in social dreaming.

[11] Henry Petroski, *To Forgive Design: Understanding Failure* (Cambridge: Belknap Press of Harvard University Press, 2012), 49.

This idea has relevance both for discussions in political theory, which have recently begun to seriously engage with questions of utopianism[12], and for debates around environmental politics, which have for some time highlighted the perils of techno-optimistic approaches to the climate emergency[13]. Accounting for the complex place of failure in utopian projects addresses two shortcomings in the state of the art: On the one hand, political theorists, in their attempts to explore utopian thinking and acting, have thus far abstained from investigating the occurrence of failure in social dreaming. Students of environmental politics, on the other hand, have been excoriating the dangers of wishful thinking when it comes to solutionist techno-fixes, but they have not yet made inroads into better explaining (and addressing) the different kinds of failure that various responses to climate change will succumb to.

To fill these lacunae, I proceed via four steps. Section 2 surveys commentators who have asserted that failure should be fully incorporated into our reflections on utopia. Following in Jameson's footsteps, authors such as Ruth Levitas and Lucy Sargisson affirm the non-perfectionist character of utopianism. Failure thus occupies a prominent place in their accounts of social dreaming, but section 3 suggests that the underlying theorization of how utopian projects break down remains unsatisfactory. In order to remedy this, I draw on recent

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[12] Mathias Thaler, "Hope Abjuring Hope: On the Place of Utopia in Realist Political Theory," *Political Theory* 46, no. 5 (2018): 671–97, https://doi.org/10/gfck5k; Enzo Rossi, "Being Realistic and Demanding the Impossible," *Constellations* 26, no. 4 (2019): 638–52, https://doi.org/10/gg3mqv; Benjamin L. McKean, "What Makes a Utopia Inconvenient? On the Advantages and Disadvantages of a Realist Orientation to Politics," *American Political Science Review* 110, no. 4 (November 2016): 876–88, https://doi.org/10.1017/S0003055416000460.

[13] Anne Fremaux, *After the Anthropocene* (New York: Springer, 2019); Anne Fremaux and John Barry, "The 'Good Anthropocene' and Green Political Theory: Rethinking Environmentalism, Resisting Eco-Modernism," in *Anthropocene Encounters: New Directions in Green Political Thinking*, ed. Frank Biermann and Eva Lövbrand (Cambridge: Cambridge University Press, 2019), 171–90, https://doi.org/10.1017/9781108646673.009; Samuel Alexander and Jonathan Rutherford, "A Critique of Techno-Optimism: Efficiency without Sufficiency Is Lost," in *Routledge Handbook of Global Sustainability Governance*, ed. Agni Kalfagianni, Doris Fuchs, and Anders Hayden (London/New York: Routledge, 2020), 231–41.

findings from engineering and design studies that attend to the entwined nature of success and failure, concentrating more specifically on the notion of a "predetermined faultline". The subsequent step (section 4) returns from faults in engineering and design to failures in social dreaming, tapping into the ongoing controversy in environmental thought around ecomodernism. Through a compressed reading of Kim Stanley Robinson's *Science in the Capital*-trilogy, I demonstrate how an imaginary exploration of intrinsic breaking points permits this utopian narrative to consider its own conditions of possibility. In section 5, I conclude by unpacking the broader ramifications of my argument.

Before embarking on this analysis, a clarification. While I assume that utopian storytelling has a crucial role to play in this process, I do not hypostasize its purpose. As section 4 contends, in projects of social dreaming, imagination and action become enmeshed with one another. This has ramifications for how we conceive of meaningful responses to the climate emergency. Coordinated action alone – as important as it surely is – will be insufficient to trigger positive change. Conversely, even if imagining alternatives remains pivotal to all efforts at social transformation, by itself it degenerates into idle escapism. That is why my exploration of utopian storytelling can only ever amount to a first step toward examining the interconnections between imagination and action in the struggle against climate change.

2. Utopianism without Perfection

This section reconstructs why theorists have argued that failure needs to be integrated into accounts of utopianism. Their answer depends on correcting established interpretations according to which perfection is the stated goal of all utopian projects.[14] These interpretations correlate with a widely shared understanding of utopia as an ideal state that cannot be reached

[14] Lyman Tower Sargent, *Utopianism: A Very Short Introduction* (Oxford: Oxford University Press, 2010), chap. Utopianism and Political Theory.

in the real world. Yet, authors such as Ruth Levitas and Lucy Sargisson have pointed out that this conventional view is mistaken.[15]

Their claim is that, when writers or theorists construct utopian visions, they do not necessarily conceive of them as blueprints for static end points in history. Rather, they attempt to mobilize action by estranging their audience from ordinary perceptions of reality. Critique and transformation are two of utopianism's central functions. This is the reason Levitas elects to define social dreaming as the "education of desire"[16] for being and living otherwise – a desire that constantly arises from experiences of lack and deficiency, which then need to be mediated through various pedagogical interventions.

Now, why is the quest for perfection, on this picture of utopianism, misguided? The argument here is straightforward. If utopias were exclusively concerned with the portrayal of perfect states, then the (Cold War) liberal objections to social dreaming, emblematically expressed by the likes of Karl Popper[17], Isaiah Berlin[18] and Leszek Kołakowski[19], would be warranted: as the anti-totalitarian argument goes, once societal pluralism and individual freedom are sacrificed on the altar of an ideal commonwealth, violence and oppression will automatically ensue.

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[15] Levitas and Sargisson are not the only commentators who have made this claim about utopia being opposed to perfectionism. For other impactful voices, see: Miguel Abensour, "William Morris: The Politics of Romance," in *Revolutionary Romanticism: A Drunken Boat Anthology*, ed. Max Blechman (San Francisco: City Lights Books, 1999), 126–61; Miguel Abensour, "Persistent Utopia," *Constellations* 15, no. 3 (September 1, 2008): 406–21, https://doi.org/10.1111/j.1467-8675.2008.00501.x; Russell Jacoby, *Picture Imperfect: Utopian Thought for an Anti-Utopian Age* (New York: Columbia University Press, 2005).

[16] *The Concept of Utopia*, Student Edition (Oxford: Peter Lang, 2011), 140–41.

[17] "Utopia and Violence," *World Affairs* 149, no. 1 (1986): 3–9.

[18] "The Pursuit of the Ideal," in *The Proper Study of Mankind: An Anthology of Essays*, ed. Henry Hardy and Roger Hausheer (London: Chatto & Windus, 1997), 1–16.

[19] "The Death of Utopia Reconsidered," in *Modernity on Endless Trial* (Chicago: University of Chicago Press, 1990), 131–45.

The problem with this story is that it misconstrues the actual complexity of social dreaming. Sargisson demonstrates that the association of utopianism with perfectionism possesses an impressive pedigree in the history of political thought, which has led to the side-lining of other accounts of social dreaming.[20] Most important among these are utopias whose main goal it is to defamiliarize us from entrenched ways of being and living. An example for the critical purpose of social dreaming can be found in recent attempts to extend the scope of justice to more-than-human beings.[21]

Levitas, too, insists that "any actual imaginary reconstitution of society must fail adequately to articulate the desire for a better life, and is also bound to fail, even at the practical level, to resolve all present problems without producing new ones"[22]. But, again, this diagnosis of inevitable failure does not motivate the wholesale interdiction of social dreaming. Rather, Levitas ascribes to utopianism a heuristic function, enabling us to discover new procedures for interpreting and transforming the world as we know it. According to this perspective, instead of exclusively formulating final goals, social dreaming involves the creation of diverse methods for better comprehending (and changing) the status quo.[23]

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[20] *Fool's Gold? Utopianism in the Twenty-First Century* (Basingstoke/New York: Palgrave Macmillan, 2014), 30–40.

[21] See: Danielle Celermajer et al., "Justice Through a Multispecies Lens," *Contemporary Political Theory* 19, no. 3 (September 2020): 475–512, https://doi.org/10/ggvkrv; Danielle Celermajer et al., "Multispecies Justice: Theories, Challenges, and a Research Agenda for Environmental Politics," *Environmental Politics* 30, no. 1–2 (2021): 119–40, https://doi.org/10/ghd4fd; Petra Tschakert et al., "Multispecies Justice: Climate-Just Futures with, for and beyond Humans," *WIREs Climate Change* 12, no. 2 (2021): e699, https://doi.org/10/ghq9vw. Such conceptual redescriptions are utopian insofar as they subvert anthropocentric approaches to both morality and politics, summoning us to think anew about our species' place in a world shared with others. See: Mathias Thaler, "What If: Multispecies Justice as the Expression of Utopian Desire," *Environmental Politics* 31, no. 2 (February 23, 2022): 258–76, https://doi.org/10.1080/09644016.2021.1899683.

[22] "Looking for the Blue: The Necessity of Utopia," *Journal of Political Ideologies* 12, no. 3 (2007): 303, https://doi.org/10.1080/13569310701622184.

[23] More specifically, Levitas distinguishes between three modalities of her utopian method: "The first of these is an analytical, *archaeological* mode; the second an *ontological* mode;

Sargisson and Levitas thus offer explanations for *why* utopian visions must fail. What they then do is to interpret this structural feature of social dreaming – its intrinsic inability to transcend the world as it is – as a welcome opportunity, rather than a lamentable defect. Even though there is widespread agreement among commentators that utopias refrain from the manufacturing of blueprints for static end points in history, what is still missing in the scholarly literature is a more granular analysis of how failures occur concretely – and what could be done about them. By that I mean an analysis that accomplishes more than merely excavate the deep causes for utopianism's shortcomings, working instead toward an understanding of the circumstances in which particular utopian projects tend to break down. In order to debunk the objection of (Cold War) liberals that utopianism always and necessarily collapses into violent totalitarianism, it is not enough to correct the way we perceive failure, from denouncing it as a vice to cherishing it as a virtue. Moving beyond Jameson, Sargisson and Levitas, we need to scrutinize how specific expressions of social dreaming negotiate and sometimes even incorporate failure. My suggestion in the following section is that looking at engineering and design studies can help with this task.

3. Engineered and Designed to Fail

Appadurai and Alexander point out that studying failure has been a concern for at least four academic disciplines[24]: in the natural science, through the never-ending process of empirically falsifying hypotheses[25]; in business studies, through the veneration of failure as a vital characteristic of dynamic entrepreneurship[26]; in queer studies, through the probing of

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and the third a constructive, *architectural* mode." (*Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills/New York: Palgrave Macmillan, 2013), xvii.)

[24] *Failure* (Cambridge: Polity, 2020), 3–9.

[25] See: Karl Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge* (London/New York: Routledge, 2002).

[26] See: Donald R. Keough, *The Ten Commandments for Business Failure* (London: Penguin, 2008).

"cruel optimism"[27]; and, finally, in infrastructure studies, through an emphasis on upkeep rather than innovation alone.

While all these perspectives have something interesting to add to the discussion of utopianism, it is the last one that strikes me as most productive. This is the case because scholars of infrastructure have not only reflected on how to respond to the constant threat of breakdown, but also on how to engineer and design complex systems in such a way as to allow them to fail safely. It is this particular insight that will prove most generative for gauging the status of failure and success in social dreaming.

One of the most thought-provoking developments in recent research on engineering and design has been the rebuttal of prevailing mantras around innovation, stressing instead the significance of maintenance, repair and care for the continuous functioning of complex systems. According to this view, the majority of energy today is spent on keeping infrastructures going, all the while the public gets inundated with slogans advertising world-changing innovations. This lack of attention to the multiple ways in which maintenance needs to be ensured can have a damaging impact on the infrastructures upholding collective life, from railway lines to energy supplies.[28] In times of stalled or underfunded investment in infrastructures, we are experiencing the "slow disaster of deferred maintenance"[29].

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[27] See: Lauren Berlant, *Cruel Optimism* (Durham: Duke University Press, 2011).

[28] There are notable similarities here between the findings in engineering and design studies and the debate around care ethics. See: Andrew L. Russell and Lee Vinsel, "Make Maintainers: Engineering Education and an Ethics of Care," in *Does America Need More Innovators?*, ed. Matthew H. Wisnioski, Eric S. Hintz, and Marie Stettler Kleine, Lemelson Center Studies in Invention and Innovation Series (Cambridge: The MIT Press, 2019), 249–69.

[29] Scott Gabriel Knowles, "Learning from Disaster? The History of Technology and the Future of Disaster Research," *Technology and Culture* 55, no. 4 (October 2014): 980, https://doi.org/10/cwvf.

To cope with this issue, the historians of technology Andrew Russel and Lee Vinsel have not only published widely on this topic[30], they have also founded a research network dedicated primarily to "maintaining self and society through reflection, research, and advocacy in the hopes of achieving a more caring and well-maintained world"[31]. The target of their ire is not so much innovation per se – after all, maintenance, repair and care fundamentally rely on innovation as well – but rather "innovation-speak", the relentless invocation of being revolutionary and groundbreaking, which frequently obfuscates the rarity of scientific breakthroughs.

Devoting attention to the innumerable ways in which society facilitates the maintenance of complex systems leads to a renewed appreciation of failure: as an occasion for piece-meal and incessant improvement. One avenue for understanding how buildings adapt to changing circumstances, for example, is to highlight the pivotal role that maintenance plays in adjusting to the "flow" of the city.[32] Maintenance, according to this framework, is in the end the same as "learning".[33] From this observation, it follows that "we should have been looking at breakdown and failure as no longer atypical and therefore only worth addressing if they

[30] "After Innovation, Turn to Maintenance," *Technology and Culture*, 2018, 1–25, https://doi.org/10/cwrx; *The Innovation Delusion: How Our Obsession with the New Has Disrupted the Work That Matters Most* (New York: Currency, 2020).

[31] The Maintainers, "About," 2021, https://themaintainers.org/about/.

[32] This view of the cityscape as "flow" has given rise to a flourishing literature in architecture. See representatively: Nan Ellin, *Integral Urbanism* (New York: Routledge, 2006); Lee Stickels, "Flow Urbanism: The Heterotopia of Flows," in *Heterotopia and the City: Public Space in a Postcivil Society*, ed. Michiel Dehaene and Lieven De Cauter (London: Routledge, 2008), 247–57.

[33] Stewart Brand, *How Buildings Learn: What Happens After They're Built*, E-book (London: Penguin, 1995), para. 1.1087.

result in catastrophe and, instead, at breakdown and failure as the means by which societies learn and learn to re-produce"[34].

The trope of learning is well established in all the disciplines studying failure. Central to it is a distinction between two kinds of failure: the comprehensive, irrevocable breakdown on the one hand, which renders the complex system altogether dysfunctional; and the local, reversible breakdown on the other, which permits repeated endeavours to support the affected infrastructure. Samuel Beckett's famous dictum: "Fail again. Fail Better"[35], which serves as a guiding maxim to non-perfectionist utopianism, only makes sense against the backdrop of this distinction.

In a capitalist world of "planned obsolescence", holding these two kinds of failure apart has become increasingly difficult: When, in the pursuit of profit maximization and shareholder value, products are purposefully designed to fail after a short period of time and when consumers do not have easy access to repair procedures, then local breakdown can and will often morph into a comprehensive one, setting in motion a costly replacement cycle.[36] Among the many terrifying consequences of the business model behind planned obsolescence is that it generates enormous amounts of waste that are then dumped on poorer countries.

This reminder is vital because the unsustainable and destructive practice of planned obsolescence needs to be distinguished from another strategy: that of designing and engineering products such that they can fail safely, under somewhat controlled

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[34] Stephen Graham and Nigel Thrift, "Out of Order: Understanding Repair and Maintenance," *Theory, Culture & Society* 24, no. 3 (May 1, 2007): 5, https://doi.org/10/fvdqbn.

[35] "All of old. Nothing else ever. Ever tried. Ever failed. No matter. Try again. Fail again. Fail better." Samuel Beckett, *Nohow on: Three Novels*, 1st ed (London: John Calder, 1989), 101.

[36] Giles Slade (*Made to Break: Technology and Obsolescence in America* (Cambridge: Harvard University Press, 2006).) shows that "planned obsolescence" was originally a distinctly American invention, put to profitable use by the car industry.

circumstances. To comprehend this point, let us first return to the issue of innovation. It seems obvious that "the form of made things is always subject to change in response to their real or perceived shortcomings, their failures to function properly"[37] In that sense, engineering and design operate on a logic akin to the practice of scientific falsificationism – "each new building or bridge may be considered to be a hypothesis in its own right"[38]. This is true for objects large and small, essential and trivial. Even the history of an object as ubiquitous as the pencil, which can open a window into the microcosm of engineering and design challenges[39], reveals that hundreds of years of research and development went into producing something so basic that it is today virtually invisible.[40]

Whereas the importance of failure to innovation is thus demonstrable in manifold settings, there is another dimension to engineering and design where failure appears to be crucial, but which is yet poorly understood: "We actually want certain things to break, for otherwise we would be frustrated in their use and possibly even harmed by their very existence. Sometimes, a component must fail for the larger system to succeed, or at least survive an insult to its integrity."[41]

Examples for the insertion of such predetermined faultlines abound in today's technological world: a car's windshield is designed in such a manner as to be both sufficiently robust to

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[37] Henry Petroski, *The Evolution of Useful Things: How Everyday Artifacts - from Forks and Pins to Paper Clips and Zippers - Came to Be as They Are*, E-book (New York: Knopf Doubleday Publishing Group, 2010), para. 10.3.

[38] Henry Petroski, *To Engineer Is Human: The Role of Failure in Successful Design* (New York: St. Martin's Press, 2018), para. 9.12.

[39] Henry Petroski, *The Pencil: A History of Design and Circumstance* (New York: Knopf Doubleday Publishing Group, 2011).

[40] Pestroski has also studied the engineering and design history of various other small and mundane objects, from forks to toothbrushes. See: Henry Petroski, *Small Things Considered: Why There Is No Perfect Design* (New York: Vintage, 2007); Petroski, *The Evolution of Useful Things*.

[41] Petroski, *To Forgive Design*, 48–49.

withstand some damage from the outside, for instance through rock fall or hail showers; and brittle enough to fracture when hit from the inside, for instance with the driver's head. Engineering a shatterproof windshield might seem beneficial for protecting against outside harm, but would turn the passenger vulnerable to sudden death. That is why the windshield performs the function of a "sacrificial system"[42] that prompts the specific kind of breakdown required for the safe functioning of automobiles.

In sum, Petroski reasons that we "rely on desirable failures of all kinds. They are designed into many of the products we use every day, and we have come to depend upon things failing at the right time to protect our health and safety"[43]. Predetermined faultlines thus permit the designer and engineer to circumvent a comprehensive, irrevocable breakdown – by creating purposeful opportunities for a local, reversible one.

Note that the thinking behind such a management of failure is completely at odds with the wasteful short-termism of planned obsolescence. While the business model of planned obsolescence is premised on curbing a product's expected durability, embedding breaking points into specific tools or objects is animated by the reverse aspiration: to render their usage safe for a longer period of time, beyond their normal expiration date. Moreover, the mechanism outlined by Petroski also makes it in principle viable to maintain and repair what has broken down, thereby avoiding unmanageable levels of waste. This section has thus tried to elucidate that, far from being opposed, in complex systems, success and failure are in fact bound up with each other, to such an extent that you cannot have one without the other. This insight has important implications for our mitigation and adaptation strategies in the Anthropocene, as the next section shall demonstrate.

[42] Petroski, 50.
[43] Petroski, 74.

4. How to Fail Successfully in Our Climate-Changed World

Once we direct our gaze back to the issue of utopianism, we can draw out the general lessons of this picture of failure. Put succinctly, if failure is inescapable in all forms of social dreaming, then we need to reflect on how specific utopian projects can be constructed such that they break down along somewhat expectable faultlines. So far, so abstract. By turning to engineering and design studies, we have made some advances, but the emergent account of utopianism still remains too coarse-grained.

To proceed further, let us investigate more closely how a specific instantiation of social dreaming builds into its vision of the future opportunities for safe failure. My proposal in this section is to steer attention to utopian fiction in order to explore what it would mean to fail successfully in our climate-changed world. This move needs to be explained in more detail, for it shifts the discussion from the realm of real politics to the domain of storytelling. Why, then, would it make sense to focus on an imaginary depiction of utopia when our primary concern lies with the most severe challenges that humanity presently faces?

Answering this question goes to the heart of any attempt to recover the potential of social dreaming for our times. One promising way to answer would be to foreground the heuristic function that utopian fiction can perform in processes of social transformation. While it would be incorrect to assert that all types of storytelling in the utopian genre are geared toward social transformation[44], it is imperative to attend to the ways in which imagination and action are entwined in utopian projects. Indeed, a key wager of social dreaming entails that the conjuring of other worlds has a liberatory impact on ossified modes of being and living that perpetuate an unjust, unsustainable reality.[45] In declaring that "another world is

[44] On this point, see: Levitas, *The Concept of Utopia*.

[45] Paul Ricœur, *Lectures on Ideology and Utopia*, trans. George H. Taylor (New York: Columbia University Press, 1986).

possible"[46] – to refer to the much-quoted motto of the World Social Forum – utopian projects affirm the positive feedback loop between imagination and action.

Prefiguring radical alternatives to the status quo crucially depends on the ability to emancipate oneself from the shackles of common sense. In this process, narratives across various artistic genres can play a vital role insofar as they reveal novel ways of seeing the world that simultaneously prepare the ground for resistant action. On this account, imagination and action are so intimately enmeshed with one another that a new concept might be needed to "unite in one word what is indistinguishable in reality"[47]: *imaginaction*.

The point behind this neologism is to overcome the binary opposition of idealism and materialism that holds sway over much of the scholarly debate around social dreaming. When critics accuse utopian projects of dangerous "wishful thinking", they call into question their capacity to practically effect social transformation – an objection whose roots reach back to Marx and Engels' original critique of utopian socialism.[48] The framework used in this paper seeks to allay these concerns by foregrounding the mutual interdependence of imagination and action.[49]

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[46] Boaventura de Sousa Santos, "The World Social Forum and the Global Left," *Politics & Society* 36, no. 2 (June 1, 2008): 247–70, https://doi.org/10.1177/0032329208316571.

[47] Alfred Willener, *The Action-Image of Society: On Cultural Politicization* (London: Tavistock Publications, 1970), 134.

[48] Karl Marx and Friedrich Engels, "The Communist Manifesto," in *Selected Writings*, by Karl Marx, ed. David McLellan, 2nd ed. (Oxford/New York: Oxford University Press, 2000), 268–70. On the wider debate, see: Steven Lukes, "Marxism and Utopianism," in *Utopias*, ed. Peter Alexander and Roger Gill (London: Duckworth, 1984), 153–67.

[49] For a longer discussion of this aspect, see: Mathias Thaler, *No Other Planet: Utopian Visions for a Climate-Changed World* (Cambridge/New York: Cambridge University Press, 2022), 91–96. For a useful analysis of the role of imagination in environmental politics, see: Marit Hammond, "Imagination and Critique in Environmental Politics," *Environmental Politics* 30, no. 1–2 (February 23, 2021): 285–305, https://doi.org/10.1080/09644016.2021.1880062.

A consequence of this view is that we cannot vindicate social dreaming without also defending the emancipatory potential of the imagination. Imaginaction set in motion by utopian projects needs to be distinguished from the fantastical escapism that dominates so much of contemporary environmentalism. Kim Stanley Robinson, perhaps America's greatest political novelist[50], captures this idea when he observes in one of his recent novels:

> So we lived like sleepwalkers. But the world is not asleep, and outside our dream, things continued to change. Trying to shape that change is not a bad thing. Some pretend that making a plan is instant communism and the devil's work, but it isn't so. We always have a plan. Free market economics is a plan—it plans to give over all decisions to the blind hand of the market. But the blind hand never picks up the check. And, you know—it's blind. To deal with the global environmental crisis we now face without making any more plan than to trust the market would be like saying, We have to solve this problem so first let's put out our eyes. Why? Why not use our eyes? Why not use our brain?
> Because we're going to have to imagine our way out of this one.[51]

It is due to this stress on imagination's liberatory impact that Robinson's oeuvre seems an ideal candidate for exploring the role of failure in utopian projects: over the past 30 years, it has spanned a wide array of topics, from swashbuckling accounts of the century-long colonization of Mars[52] to an unlikely dramatization of scientific exploration in Antarctica[53]. What all his texts share is a commitment to utopianism of the kind described in section 2: not as the stipulation of a perfect end point in history, but as the imaginative modelling of alternative futures that can positively shape our actions in the here and now.[54] At the same

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[50] Tim Kreider, "Our Greatest Political Novelist?," *New Yorker*, December 12, 2013, https://www.newyorker.com/books/page-turner/our-greatest-political-novelist.

[51] Kim Stanley Robinson, *Sixty Days and Counting*, E-book, Science in The Capital Trilogy 3 (New York: Bantham, 2007), para. 58.10-58.11.

[52] *Red Mars*, E-book, Mars Trilogy 1 (New York: Bantam Spectra, 1993); *Green Mars*, E-book, Mars Trilogy 2 (New York: Bantam, 1995); *Blue Mars*, E-book, Mars Trilogy 3 (New York: Bantam Spectra, 1997).

[53] *Antarctica* (New York: Bantam Books, 1998).

[54] This sentiment is summarized in one of Robinson's early novels: "Must redefine utopia. It isn't the perfect end-product of our wishes, define it so and it deserves the scorn of those who sneer when they hear the word. No. Utopia is the process of making a better world, the name for one path history can take, a dynamic, tumultuous, agonizing process, with no end.

time, his fiction always engages with socio-economic challenges that contemporary societies confront: environmental disaster as well as global inequality are perhaps two of his most persistent preoccupations.[55]

Rather than focus on his latest book, which also tackles the contentious politics of climate change[56], I will home in on an earlier work from the 2000's: the *Science in the Capital*-trilogy turns around an existential challenge that has become even more pressing since the books' publication – how to inhabit a climate-changed world.[57] In stark contrast to the radical-democratic undertones of his *Mars*-trilogy, however, the emphasis here lies on the competing strategies of the Washington elite to address the ongoing climate emergency. These strategies exemplify the merits of pre-determined faultlines, through a fictional exploration of an Earth ravaged by disasters. While all of Robinson's books are animated by the desire to imagine radical alternatives, the *Science in the Capital*-trilogy is set in a (very) near future that is effortlessly recognizable as an estranged extension of our present right now.[58] Commenting on the trilogy's evolution, Robinson states:

Struggle forever." (Kim Stanley Robinson, *Pacific Edge*, Three Californias Triptych 3 (New York: Orb, 1995), para. 8.6-8.10.)

[55] Much of his recent writings can therefore be considered examples of "climate fiction". See: Adeline Johns-Putra, *Climate Change and the Contemporary Novel* (Cambridge: Cambridge University Press, 2019), https://doi.org/10.1017/9781108610162; Adam Trexler, *Anthropocene Fictions: The Novel in a Time of Climate Change*, Under the Sign of Nature: Explorations in Ecocriticism (Charlottesville: University of Virginia Press, 2015).

[56] *The Ministry for the Future* (New York: Orbit, 2020).

[57] *Forty Signs of Rain*, E-book, Science in The Capital Trilogy 1 (New York: Bantham, 2004); *Fifty Degrees Below*, E-book, Science in The Capital Trilogy 2 (New York: Bantham, 2005); *Sixty Days and Counting*.

[58] Robinson himself has theorized the different temporalities of utopian fiction: "Space operas set in the distant future use the whole Universe as a story space, sometimes to spectacular effect. Near-future science fiction is the proleptic realism […]. In between these, say from about one to three centuries from now, there exists a less-populated story zone that I find interesting. You could call it future history. Stories set in this zone resemble nineteenth-century social novels: the characters interact not just with each other, but with their societies and even their planets. Possibly, confronted with the mind-boggling complexity of our present, describing events a century from now allows us to de-strand chosen elements for

> I wanted to imagine the first step toward utopia, starting in our world now. If we could make a bridge across the Great Trench to utopia, what would be the first footing? I wanted to think about how utopia might start from our current conditions, to describe, in effect, the start of a scientific revolution: not the Scientific Revolution of the early modern period but, rather, a new revolution, enacted by scientists in the world we live in now.[59]

By following a small group of scientists, politicians and Buddhist monks as they face a mounting number of environmental disasters – from massive flooding to crippling snowstorms across the US – Robinson queries a variety of proposals that might potentially work as mitigation and adaptation measures. These range from internationally coordinated endeavours to prevent the Gulf stream from collapsing entirely, described as the "first major act of planetary engineering ever attempted"[60], to the playful experiments of one of the trilogy's main characters in upending his lifestyle by diminishing the dependency on modern luxuries: "The paleolithic pleasures, plus modern dental care; what could be nicer?"[61].

Robinson unravels how different models of living with climate change can be imagined, put into practice and eventually falter. In so doing, he transposes ideas about safe failure modes onto a fictional scenario. For example, through trial and error, the scientists at the heart of the story come up with numerous geo-engineering projects, alternating between the sinking of large amounts of salt into the Atlantic to kickstart the Gulf Stream to the provision of nuclear power to disaster-struck communities. Crucially, none of these interventions is presented as a silver bullet that would halt anthropogenic climate change once and for all. Rather, the *Science in the Capital*-trilogy models both the benefits and the risks of not only geo-engineering, but also other mitigation and adaptation measures. As such, it makes the readers

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closer examination." (Lauren Beukes et al., "Science Fiction When the Future Is Now," *Nature*, December 20, 2017, https://doi.org/10.1038/d41586-017-08674-8.)

[59] "Remarks on Utopia in the Age of Climate Change," *Utopian Studies* 27, no. 1 (March 11, 2016): 6.

[60] Robinson, *Fifty Degrees Below*, para. 51.83.

[61] Robinson, para. 14.110.

viscerally feel the enormous stakes of the current moment, where "business as usual" is simply not an option anymore. Instead of discouraging his audience from taking resistant action, Robinson's fiction depicts failure as a necessary component of learning how to inhabit a climate-changed world.

The same is true for the lifestyle changes that some of the main characters undergo: although the trilogy sympathizes with the degrowth paradigm of a palaeolithic way of living, Robinson contrasts such individual life choices with more bourgeois settings preferred by other key characters. In so doing, he points out that only a multiplicity of initiatives and options will allow for the flexibility needed to inhabit a climate-changed world. Once again, the iterative dimension of failing is strongly foregrounded in Robinson's multi-perspectival narrative. The purpose of this strategy is to encourage the reader not to shy away from systemic transformation.

The open-ended manner whereby the *Science in the Capital*-trilogy pursues its utopian desire requires unpacking. Robinsons renders rival responses to climate change as manifestations of "living thought"[62], ever-changing plans to dynamically adjust one's actions to adverse circumstances. One area where such living thought can be witnessed is at the intersection of science and politics.[63] The *Science in the Capital*-trilogy thus submits that our species' hope for planetary survival hinges on the fortuitous alignment of parallel vectors of progressive action, which span high politics on a global scale and everyday experiments in communal living. Only such an alignment enables humanity to avoid another possible pathway, which has recently gained notoriety in public discourse. When billionaire oligarchs like Elon Musk

[62] Gib Prettyman, "Living Thought: Genes, Genres and Utopia in the Science in the Capital Trilogy," in *Kim Stanley Robinson Maps the Unimaginable: Critical Essays*, ed. William J. Burling (Jefferson: McFarland Press, 2009), 181–203.

[63] Andrew Rose, "The Unknowable Now: Passionate Science and Transformative Politics in Kim Stanley Robinson's Science in the Capital Trilogy," *Science Fiction Studies* 43, no. 2 (July 2016): 260–86, https://doi.org/10.5621/sciefictstud.43.2.0260.

and Jeff Bezos fantasize about colonizing Mars, they plot an escape from a decaying Earth that they themselves have done so much to wreck. In contrast with his earlier writings, Robinson's contemporary utopianism is diametrically opposed to such fantasies, for it projects the desire for other ways of being and living "down to Earth"[64].

Despite frequent appeals to ecological stewardship, the trilogy hence does not uncritically embrace terraforming Earth as a chance for asserting human dominion over nature. Indeed, some of the proposed plans, such as the artificial creation of lakes in sparsely populated countries to control rising sea level, seem to be purposefully set up for failure, because the human costs of removing "statistically insignificant populations"[65] are not at all factored in. Thus, Robinson's fiction dramatizes well-established critiques of technologies that elude democratic control.[66]

Admitting that some of the envisioned initiatives will misfire puts a check on the unwarranted conviction that we could simply innovate our way out of the climate emergency – a point that has been frequently made by critics of Promethean tendencies in contemporary environmentalism.[67] On Robinson's view, technology has a limited role to play in the process of learning how to live in the Anthropocene, but it is by itself not capable of manufacturing blueprints for a more sustainable world.[68] Rather, given the unavoidability of failure, the

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[64] On this point, see: Bruno Latour, *Down to Earth: Politics in the New Climatic Regime*, E-book (Cambridge/Medford: Polity Press, 2018).

[65] Robinson, *Sixty Days and Counting*, para. 27.61.

[66] The literature on this issue is too vast to be comprehensively cited here. For two prominent accounts, see: Sheila Jasanoff, *The Ethics of Invention: Technology and the Human Future*, First edition, The Norton Global Ethics Series (New York: W.W. Norton & Company, 2016); Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 2001).

[67] Benoit Dillet and Sophia Hatzisavvidou, "Beyond Technofix: Thinking with Epimetheus in the Anthropocene," *Contemporary Political Theory* 21, no. 3 (September 1, 2022): 351–72, https://doi.org/10.1057/s41296-021-00521-w.

[68] As Roger Luckhurst observes regarding Robinson's endorsement of innovative technologies, "[i]t is 'our' contemporary science and technology that has to deal with

Science in the Capital-trilogy highlights the need for competing pathways into the future and thereby sidesteps a trap that many commentators today fall in to: what we have encountered in section 3 under the umbrella "innovation-speak" also afflicts the debate on scientific discoveries around climate change, especially in the guise of what Evgeny Morozov calls "solutionism" [69].

"Solutionism" refers to the process whereby ostensibly intractable problems can always be broken down into smaller, manageable ones that existing technologies will be able to resolve.[70] Many ecomodernists are guided by exactly this intuition when they invest hope in scientific discoveries to "decouple" human needs from natural resource systems.[71] Prominent authors, such as Steven Pinker[72], have joined the ecomodernist camp for a particular reason: technological progress, spurred by market-based incentives, is supposed to move us beyond an economic model dependent on fossil fuels. Importantly, the global capitalist system

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catastrophic climate change: there are no science-fictional mitigations invented in the course of the 1500 pages; they all sit inside the horizon of current scientific research." ("The Politics of the Network: The Science in the Capital Trilogy," in *Kim Stanley Robinson Maps the Unimaginable: Critical Essays*, ed. William Burling (Jefferson: Mcfarland Press, 2009), 171.)

[69] *To Save Everything, Click Here: The Folly of Technological Solutionism* (New York: PublicAffairs, 2013). The penchant for innovation-speak can perhaps be best illustrated through Bill Gates' recent contribution to the debate. See: Bill Gates, *How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need* (New York: Alfred A. Knopf, 2021).

[70] On solutionism's problematic grip on the current discussion around the Anthropocene, see: Mike Hulme, "One Earth, Many Futures, No Destination," *One Earth* 2, no. 4 (April 24, 2020): 309–11, https://doi.org/10/ggsnnr.

[71] John Asafu-Adjaye, et al., "An Ecomodernist Manifesto," 2015, http://www.ecomodernism.org/; for an analysis see: Jonathan Symons, *Ecomodernism: Technology, Politics and the Climate Crisis* (Cambridge: Polity Press, 2019).

[72] *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress*, E-book (New York: Penguin, 2018), chap. The Environment.

remains resolutely intact in this utopian vision of a "good Anthropocene" – it is, after all, one of the key drivers behind scientific discoveries, and human advancement more widely.[73]

What is distinctive about Robinson's rebuttal of techno-fixes is his staunch insistence on unravelling the bonds between technological progress and capitalism: only a scientific community unshackled from profit-driven corporations can truly reform a corrupt political system that exacerbates the ongoing climate emergency. One way of reading the *Science in the Capital*-trilogy (and indeed his late oeuvre altogether) is therefore in terms of an immanent critique of ecomodernism's propensity for failure; a critique rooted in an anti-capitalist, yet pro-scientific standpoint.[74] In other words, for Robinson, the problem is not with science and technology per se. Rather, the grave danger of ecomodernism manifests itself in its refusal to dismantle the social and political structures enabling the devastating impacts of the climate emergency.[75] As various authors have recently remarked, it would be futile for humanity to attempt to forge a pathway out of the ecological crisis, without also upending the belief systems and material circumstances facilitating the Anthropocene.[76] The

[73] For a critique of this argument, see: Anne Fremaux, "The Return of Nature in the Capitalocene: A Critique of the Ecomodernist Version of the 'Good Anthropocene,'" in *Rethinking the Environment for the Anthropocene: Political Theory and Socionatural Relations in the New Geological Epoch*, ed. Manuel Arias-Maldonado and Zev M. Trachtenberg (London/New York: Routledge, 2019), 19–36; Fremaux and Barry, "The 'Good Anthropocene' and Green Political Theory."

[74] Daniel Aldana Cohen, "How Will Humanity Endure the Climate Crisis? I Asked an Acclaimed Sci-Fi Writer," *The Guardian*, December 9, 2021, sec. Opinion, https://www.theguardian.com/commentisfree/2021/dec/09/climate-crisis-kim-stanley-robinson. There are several other voices on the left that have tried to recuperate the idea for a "good Anthropocene". See: Aaron Bastani, *Fully Automated Luxury Communism: A Manifesto* (London/New York: Verso, 2019); Leigh Phillips, *Austerity Ecology & the Collapse-Porn Addicts: A Defence of Growth, Progress, Industry and Stuff* (Winchester/Washington: Zero Books, 2015).

[75] As Robinson remarks in a later novel: "So look, the problem is capitalism. We've got the good tech, we've got a nice planet, we're fucking it up by way of stupid laws. That's what capitalism is, a set of stupid laws." (Kim Stanley Robinson, *New York 2140* (London: Orbit, 2018), 5.)

[76] For recent contributions to this rich debate, see: Dipesh Chakrabarty, *The Climate of History in a Planetary Age* (Chicago/London: The University of Chicago Press, 2021); Ajay

historical legacies and contemporary formations of both capitalism and colonialism continue to uphold a status quo that is as unjust as it is unsustainable. Putting one's trust in the self-correcting power of science and technology evokes precisely the kind of deleterious wishful thinking that Robinson's version of social dreaming seeks to disavow.

The affirmation of failure performs a central function in this objection to ecomodernism. While Robinson, too, is wedded to technological progress, as the celebration of the scientific elite makes clear, his delineation of competing pathways into the future foregrounds the fact that no single set of proposals will be able to successfully overcome the existential challenges posed by climate change. In the trilogy, failure is hence not envisioned as a comprehensive, irrevocable breakdown, but rather as an opportunity for reconstituting the relationships between humanity and the Earth system, concentrating our imaginative powers and hastening our willingness to embark on transformative action. Extreme weather events, such as the destructive deluge and the extreme cold wave in Washington, represent "contingent or partial apocalypses", facilitating "a way of thinking about climate change that acknowledges apocalyptic present realities and future possibilities while still actively inviting systemic action against it"[77].

In order to avert feelings of fatalistic resignation about climate change, which have become widespread over the past years[78], Robinson deploys precisely the mechanism that engineering

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Singh Chaudhary, "Sustaining What? Capitalism, Socialism, and Climate Change," in *Capitalism, Democracy, Socialism: Critical Debates*, ed. Albena Azmanova and James Chamberlain (Cham: Springer, 2022), 197–239.

[77] Rebecca M. Evans, "The Best of Times, the Worst of Times, the End of Times?: The Uses and Abuses of Environmental Apocalypse," *ASAP/Journal* 3, no. 3 (December 21, 2018): 517, https://doi.org/10.1353/asa.2018.0037.

[78] See, for example: Paul Kingsnorth, "Why I Stopped Believing in Environmentalism and Started the Dark Mountain Project," *The Guardian*, April 29, 2010, sec. Environment, https://www.theguardian.com/environment/2010/apr/29/environmentalism-dark-mountain-project; Roy Scranton, *Learning to Die in the Anthropocene: Reflections on the End of a Civilization*, E-book (San Francisco: City Lights Books, 2015).

and design studies associate with the deliberate insertion of breaking points. By creating openings for local, reversible failure, the *Science in the Capital*-trilogy seeks to make a comprehensive, irrevocable breakdown of the Earth system less likely. The intention behind this move is hard to miss: if we cannot have success in responding to the climate emergency without committing serious mistakes, then one (but clearly not the only) promising way forward would be to carefully anticipate the faultlines along which ecomodernist dreams might rupture.

The desired outcome of his utopian project is still to fundamentally alter an untenable status quo, as Robinson remarks in an interview: "The optimism that I'm trying to express is that there won't be an apocalypse, there will be a disaster. But after the disaster comes the next world on"[79]. This pointer is so vital because it demonstrates once again that Robinson's engagement with science and technology is fundamentally opposed to viewing our climate-changed world through rose-tinted glasses. Far from declaring a happy ending to the ecological crisis, the *Science in the Capital*-trilogy insists on the contingency and openness of human action.

To close this section, a note of caution: although I believe that Robinson's utopianism harbours important lessons about the prospects of emancipatory politics in the Anthropocene, it is not without problems. For one, the intersection of racial and economic justice receives only scant attention in the *Science in the Capital*-trilogy – a serious shortcoming given that differently positioned people suffer from environmental harms in radically uneven ways.[80] In this regard, his latest novel – *The Ministry for the Future* – seems more attuned to the

[79] José Luis de Vicente, "Angry Optimism in a Drowned World: A Conversation with Kim Stanley Robinson," *CCCB LAB* (blog), October 31, 2017, http://lab.cccb.org/en/angry-optimism-in-a-drowned-world-a-conversation-with-kim-stanley-robinson/.

[80] Matthew Schneider-Mayerson, "Whose Odds? The Absence of Climate Justice in American Climate Fiction Novels," *ISLE: Interdisciplinary Studies in Literature and Environment* 26, no. 4 (November 1, 2019): 944–67, https://doi.org/10/gjbv78.

profound inequalities built into our climate-changed world. Moreover, in the novels I have investigated, Robinson's view of politics is undoubtedly shaped by an elitist vision of systemic transformation. The wide variety of social actors embroiled in the struggle against climate change, from Indigenous populations around the world to ordinary citizens in many democracies, is side-lined via the sustained focus on the interplay between high-ranking politicians and truth-seeking scientists. In light of these limitations, it is imperative to recall what exactly I have tried to recuperate from the *Science in the Capital*-trilogy: the imaginary modelling of how success as well as failure may look like reveals an essential component of social dreaming.

5. Conclusion

A common objection to many forms of utopianism entails that the longing for perfection disregards an all-too human disposition: our proclivity for failure. That is why critics have maintained that social dreaming leads to a dangerous type of escapism. It paints too rosy a picture of the future and thereby makes the sacrifices that would have to be made to bring about a bright new world look somewhat trivial. In response, defenders of utopianism have tried to recuperate what is positive about failing, by eschewing the perfectionism that is usually assumed to inhere in social dreaming.

In this paper, my ambition has been to expand on this revaluation and apply a lesson from engineering and design studies – that sometimes we need to artificially produce failure modes and breaking points in tools and machines to enhance their safe usage. To illustrate the effectiveness of this procedure for our topic, I turned to fiction writing and introduced Kim Stanley Robinson's near-future story of our climate-changed world, which demystifies blind faith in techno-optimism, yet acclaims the immense power of a scientific community collaborating with a progressive political class.

It is important to remark that this utopian vision is so suggestive because it engages with failure on two separate levels: first, its exploration of multiple pathways into the future underscores that technological progress alone will not suffice to inaugurate a "good Anthropocene". That insight, however, has consequences for a second aspect that relates to the precarious appeal of social dreaming itself. In establishing how ecomodernist schemes may falter, Robinson also excavates a faultline running through the desire for other ways of being and living: that is, the danger of utopianism collapsing into escapism, into an idle fantasy that offers nothing but consolation about the dire state of the world, by magically transporting us into an alluring future. Rather than deny the existence of that danger, the *Science in the Capital*-trilogy confronts it head-on and folds it into the narrative.

What are the implications of my reading? The advantage of Robinson's imaginative approach is that it traces how one could grapple with the harsh realities of life in the Anthropocene, while leaving meaningful space for resistant action. In so doing, it navigates between two rival positions that hold sway over the current discussion around the climate emergency – namely a "comic faith in technofixes, whether secular or religious", on the one hand; and the "position that the game is over, it's too late, there's no sense trying to make anything any better, or at least no sense having any active trust in each other in working and playing for a resurgent world"[81], on the other.

The third way I have been advocating here is predicated on a contested hypothesis: that we can hold apart necessary failure from fatal breakdown. Given the enormously high stakes of some of the technological interventions pondered by ecomodernists, such a distinction might not always be feasible in practice. The planetary hazards associated with geoengineering

[81] Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016), 3.

measures clearly militate against overhasty adoption.[82] In this context, Robinson's writings intimate that we should not shy away from thinking through even the most audacious-seeming proposals – so long as we remain sensitive to the contingency and openness of human action.

Utopian visions are beneficial for narrating the visceral impacts of the wish to model alternative futures: part of what it means "to imagine our way out"[83] of the climate emergency is thus to prefigure the failures we will succumb to. This does not deny the need for collective action in the here and now.[84] Rather, it emphasizes how imagination and action always rely on each other. Without an honest recognition of what could go wrong with various attempts to inhabit a climate-changed world, social dreaming would have to capitulate to its critics. This paper has argued that these detractors need not have the last word. Another kind of failure is possible, one that might allow us to fail again, better.

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[82] Daniel Bodansky, "The Who, What, and Wherefore of Geoengineering Governance," *Climatic Change* 121, no. 3 (December 1, 2013): 539–51, https://doi.org/10/f5hmtp; Kevin Elliott, "Geoengineering and the Precautionary Principle," *International Journal of Applied Philosophy* 24, no. 2 (October 1, 2010): 237–53, https://doi.org/10/fz6vt3.

[83] Robinson, *Sixty Days and Counting*, para. 58.11.

[84] I have also tried to trace the same problem from the other side, so to say, by focusing on the contested views of so-called eco-miserabilists. See: Mathias Thaler, "Eco-Miserabilism and Radical Hope: On the Utopian Vision of Post-Apocalyptic Environmentalism," *American Political Science Review*, April 18, 2023, 1–14, https://doi.org/10.1017/S000305542300031X.

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