

Navigating Climate Change with a Heliotropic Perspective: A Transformative Path in Kim Stanley Robinson's Select Novels

Swarna S¹, Dr. C. Santhosh Kumar²

¹Ph.D. Research Scholar in English, Annamalai University, India

²Research Supervisor, Professor, Department of English, Annamalai University, India

Email: swarna.990@gmail.com

Kim Stanley Robinson's Science in the Capital trilogy explores the potential for ecological disasters, particularly the Gulf Stream stall, to catalyze transformative changes within capitalist society. The narrative introduces the concept of 'permaculture' as a utopian element, characterized by axioms and principles. Robinson's deliberate postponement of Utopia's manifestation allows for a focus on dismantling dystopia rather than constructing Utopia within the critical dystopian subgenre. The novel *Fifty Degrees Below* envisions human responses to catastrophic climate change as expressions of freedom, fostering collective enthusiasm and altruism amid societal upheaval. Global warming disrupts both the environment and time itself, invoking Walter Benjamin's concept of "homogeneous, empty time" and providing the potential for epoch-making changes (Benjamin 395). The controversial exploration of sociobiology, centered around protagonist Frank Vanderwal, is refunctioned to uncover the circumstances leading to the current state of a species. Robinson's trilogy culminates in a condensed period titled *Sixty Days and Counting*, marking the transition from hopelessness to active engagement. Spatial considerations gain prominence as Robinson explores the experimental nature of the wilderness in response to climate challenges. Utopia is redefined as needing construction within the present world for a transformative utopian society. The heliotropic perspective advocates for active engagement with the present world, embodying a hopeful outlook dedicated to improving existing conditions. This article focusses on how Robinson's trilogy intertwines ecological disaster, sociobiology, and climate change, presenting a critical dystopian narrative that challenges established norms and envisions opportunities for transformative change.

Keywords: Permaculture, Critical dystopian literature, Global warming,

Sociobiology, Spatial considerations, Heliotropic perspective, Environmental challenges

1. Introduction

Kim Stanley Robinson's Science in the Capital trilogy - *Forty Signs of Rain*, *Fifty Degrees Below*, and *Sixty Days and Counting* - explores the catastrophic consequences of abrupt climate change, particularly through the stalled Gulf Stream. This serves as both a dystopian warning and a catalyst for societal transformation, interrogating the intersections of science, politics, and human behavior in the face of ecological crisis. Central to the trilogy is permaculture, presented as a utopian framework that challenges capitalism's exploitative logic by promoting ecological sustainability. Rather than depicting a fully realized utopia, Robinson focuses on dismantling dystopia, positioning his work within the critical dystopian subgenre. *Fifty Degrees Below* highlights human resilience amid disaster, emphasizing collective action and solidarity. The trilogy also engages with time as a disrupted force, drawing on Walter Benjamin's concept of "homogeneous, empty time," framing climate change as both an environmental and temporal crisis. A key aspect of the narrative is its engagement with sociobiology through Frank Vanderwal, using it as a lens to examine the interplay of biological instincts and cultural evolution. The final novel, *Sixty Days and Counting*, shifts from despair to active engagement, advocating a heliotropic perspective—hopeful, pragmatic action within the present world. By focusing on dismantling dystopia rather than constructing utopia, Robinson offers a nuanced, critical vision of humanity's potential to navigate the Anthropocene and reshape society.

Climate Crisis as a Catalyst for Transformation

In *Fifty Degrees Below*, Kim Stanley Robinson paints a vivid picture of a United States grappling with the catastrophic consequences of abrupt climate change. The novel depicts a world plunged into chaos, with subzero temperatures, relentless blizzards, and devastating tornadoes becoming the new norm. This environmental collapse serves as a backdrop for exploring how humanity responds to existential threats, framing these responses as expressions of freedom. Robinson portrays individuals and communities navigating the upheaval with a mix of collective enthusiasm and altruism, suggesting that crises can reveal humanity's capacity for resilience and cooperation. As societal norms disintegrate, the destruction of social infrastructure paradoxically fosters flexibility, creating opportunities for individuals to choose between positive or negative responses in the face of adversity (*Fifty Degrees* 213-17).

Robinson's narrative refrains from moralizing these choices, instead presenting the post-apocalyptic setting as an estranged canvas for exploration. This approach aligns with Darko Suvin's concept of 'Cognitive Estrangement' in science fiction, where familiar realities are defamiliarized to provoke critical reflection (Suvin 59). By estranging the climate crisis, Robinson underscores the role of capitalism in fostering widespread apathy and complacency. The environmental catastrophe becomes a mirror reflecting the failures of the existing system, exposing how capitalist structures prioritize short-term profits over long-term sustainability. In doing so, Robinson positions the climate crisis as a catalyst for a systemic break with the capitalist paradigm, challenging readers to envision alternative ways of organizing society.

The disruption caused by climate change extends beyond the physical environment; it also fractures the temporal fabric of human experience. In *Fifty Degrees Below*, the collapse of familiar temporal rhythms forces characters to confront the urgency of the present moment, creating a sense of temporal dislocation that mirrors the environmental upheaval. This disruption serves as a call to action, urging individuals and societies to rethink their relationship with time and history. As Robinson writes, "The future was no longer a distant abstraction; it was here, now, demanding immediate attention" (*Fifty Degrees* 245). The novel also explores how the climate crisis fosters a sense of collective agency. Amid the chaos, characters like Frank Vanderwal and Anna Quibler demonstrate the potential for individuals to enact meaningful change through scientific innovation, community organizing, and political advocacy. Robinson highlights the importance of interdisciplinary collaboration, showing how scientists, policymakers, and ordinary citizens must work together to address the multifaceted challenges of climate change. This emphasis on collective action aligns with the principles of permaculture, which Robinson introduces as a utopian framework grounded in ecological interdependence and sustainable practices (*Sixty Days* 367). By framing the crisis as an opportunity for transformation, Robinson challenges the fatalism often associated with dystopian narratives, offering a hopeful vision of humanity's capacity to adapt and thrive.

Temporality and Utopian Time

Kim Stanley Robinson's *Science in the Capital* trilogy engages deeply with the concept of temporality, particularly in relation to the disruptions caused by global warming and the potential for utopian transformation. Drawing on Walter Benjamin's critique of "homogeneous, empty time"—a linear, progress-oriented conception of history—Robinson challenges the notion that time moves predictably toward a better future. Instead, he portrays global warming as a force that halts Earth's natural processes, introducing chaotic and nonlinear temporalities that disrupt humanity's relationship with time. This disruption, far from being solely destructive, opens up possibilities for epoch-making changes in both the ecosystem and human society (*Fifty Degrees* 245).

Robinson's engagement with temporality extends to Giorgio Agamben's concept of messianic time, which represents the fulfillment of historical time within secular time. Agamben describes messianic time as "the time that remains," a paradoxical temporality that simultaneously interrupts and completes the linear flow of history (Agamben 65). In *Sixty Days and Counting*, Robinson integrates this idea to depict the postapocalyptic era as a phase of operation where dystopian time is fully realized and transcended. The title itself, *Sixty Days and Counting*, symbolizes this condensed period of urgency and possibility, marking the transition from hopelessness to active engagement. This temporal compression reflects the need for immediate action in the face of climate catastrophe, while also suggesting that the crisis contains the seeds of a new, utopian temporality.

The trilogy's exploration of time is further enriched by its portrayal of the climate crisis as a rupture in the fabric of history. Robinson illustrates how global warming disrupts not only ecological systems but also the cultural and political structures that rely on a stable, predictable relationship with time. For instance, the stalled Gulf Stream in *Fifty Degrees Below* serves as a metaphor for the suspension of linear progress, forcing humanity to confront the fragility of its assumptions about the future. This disruption creates a space for reimagining time as a site

of potential rather than inevitability, echoing Benjamin's assertion that "every second of time [is] the strait gate through which the Messiah might enter" (Benjamin 266). Robinson's vision of utopian time is not a return to a prelapsarian past but a reconfiguration of the present. By integrating Agamben's messianic time into his narrative, he suggests that the climate crisis can serve as a catalyst for the emergence of a new temporal order - one that prioritizes ecological harmony and collective well-being over the exploitative logic of capitalism. This reconfiguration is exemplified in the trilogy's emphasis on permaculture, which embodies a cyclical, regenerative understanding of time that contrasts sharply with the linear, extractive temporality of industrial capitalism (Sixty Days 367).

Sociobiology and Human Adaptation

Robinson's engagement with sociobiology is both critical and reconstructive. Initially, sociobiology is portrayed as deterministic, fostering apathy and cynicism. However, through protagonist Frank Vanderwal, Robinson repurposes sociobiology, mapping the choices and circumstances that have shaped the species (Robinson 367). Frank, deeply influenced by sociobiology, perceives it as an enduring force shaping his thoughts. Robinson disrupts this state of consciousness by incorporating Buddhist perspectives on science, prompting Frank's quest for a new form of consciousness termed "passionate reason." Frank's embrace of permaculture principles reflects a shift toward a more holistic, interdependent understanding of human-environment relationships. However, Robinson also cautions against over-reliance on historical frameworks, emphasizing that permaculture must be future-focused and free from the constraints of past paradigms.

Robinson's critique of sociobiology aligns with scholars like E.O. Wilson, who defined the field as the study of social behavior in evolutionary contexts, often emphasizing biological determinism (Wilson 4). However, Robinson challenges this deterministic view, instead highlighting the adaptability of human cognition. This perspective is supported by contemporary research in neuroplasticity, which posits that the human brain is shaped by both genetic predispositions and environmental influences (Doidge 102). Robinson's depiction of Frank's intellectual transformation echoes Buddhist philosophies that emphasize mindfulness and adaptability in response to changing circumstances (Ricard 88). The novel underscores the intersection of evolutionary psychology and ethical decision-making. Frank's realization that human behavior is not solely dictated by genetic coding, but rather by an interplay of biology, culture, and conscious reasoning, aligns with critiques of traditional sociobiology by scholars such as Stephen Jay Gould. Gould argued that the tendency to attribute human behavior exclusively to evolutionary imperatives is reductive and overlooks historical and socio-cultural influences (Gould 59). Robinson's portrayal of Frank engaging with Buddhist ethics suggests that human behavior is not rigidly fixed but can be restructured through intentional action and expanded awareness.

Frank's embrace of permaculture serves as a metaphor for an alternative socio-biological paradigm. Rather than assuming competition as the driving force of evolution, Robinson aligns with scholars like Lynn Margulis, who emphasize symbiosis and cooperation as fundamental to biological and ecological evolution (Margulis and Sagan 117). This perspective reinforces Robinson's vision of a society that prioritizes ecological interdependence over exploitative capitalist frameworks. Thus, Robinson's depiction of sociobiology in his trilogy presents a

nuanced perspective that integrates evolutionary insights with a critique of deterministic frameworks. By engaging with Buddhist philosophy, neuroplasticity research, and ecological science, Robinson envisions a future where human adaptation is guided by conscious, ethical decision-making rather than passive acceptance of biological imperatives.

Spatial Justice and Capitalist Critique

Kim Stanley Robinson's *Science in the Capital* trilogy underscores the importance of spatial considerations in addressing climate change, drawing on critical spatial theory to critique the capitalist prioritization of temporal progress over spatial justice. Scholars like David Harvey and Edward Soja have argued that capitalism's focus on linear progress and economic growth often neglects the equitable distribution of resources and the lived experiences of marginalized communities (Harvey 129; Soja 6). Robinson extends this critique, illustrating how the stalled Gulf Stream - a central motif in the trilogy - disrupts not only the temporal rhythms of Earth's climate but also the spatial organization of human societies. This disruption forces a reevaluation of how space is conceptualized and utilized in the context of environmental crisis.

In response to these disruptions, Robinson posits the wilderness as an experimental space where new ways of existence can be imagined and tested. However, this wilderness is not the pristine, untouched nature of romanticized environmentalism. Instead, it is a postnatural entity, shaped by human-induced global warming and reflecting the impermanence of constructed environments. As Robinson writes, "The wilderness is no longer a place apart; it is a mirror of our own making, a space where the consequences of our actions are laid bare" (*Fifty Degrees* 213-17). This reconceptualization of the wilderness challenges traditional binaries between nature and culture, suggesting that human and environmental systems are deeply intertwined.

Robinson's exploration of postnatural spaces aligns with Fredric Jameson's concept of cognitive mapping, which seeks to bridge individual perception with broader social and spatial structures. Jameson argues that in the fragmented and disorienting landscape of late capitalism, individuals struggle to locate themselves within larger systems of power and production (Jameson 51). Robinson's depiction of the wilderness as a site of experimentation and reimagining can be seen as a form of cognitive mapping, enabling characters - and by extension, readers - to navigate the complexities of a world transformed by climate change. By engaging with these spaces, Robinson encourages a rethinking of spatial justice, emphasizing the need for equitable access to resources and the importance of community-driven solutions.

The trilogy also critiques the capitalist commodification of space, highlighting how privatization and exploitation exacerbate environmental degradation and social inequality. For instance, the novel *Fifty Degrees Below* portrays the aftermath of climate-induced disasters, where wealthy elites retreat to fortified enclaves while marginalized communities bear the brunt of the crisis. This spatial inequality underscores the interconnectedness of environmental and social justice, illustrating how capitalist systems perpetuate both ecological harm and social stratification. Robinson's narrative challenges this status quo, advocating for a more democratic and sustainable approach to spatial organization.

The Heliotropic Perspective: Turning Toward Hope

A central transformative concept in Kim Stanley Robinson's *Science in the Capital* trilogy is the heliotropic perspective, derived from the Greek *helios* (sun) and *tropos* (turning), symbolizing a turning toward light and hope. This perspective aligns with Ernst Bloch's *The Principle of Hope*, which emphasizes the forward-looking, anticipatory nature of utopian thinking. Bloch argues that hope is not a passive longing but an active force that drives individuals and societies toward a better future, rooted in the "not-yet-conscious" possibilities of the present (Bloch 341). Robinson's characters, particularly Frank Vanderwal, embody this heliotropic turn by actively engaging with the climate crisis rather than retreating into despair or escapism. Their actions reflect a commitment to transforming the present, even in the face of overwhelming challenges.

The heliotropic perspective also serves as a critique of the linear, progress-oriented temporality of capitalism, which prioritizes endless growth and exploitation over sustainability and equity. Robinson disrupts this capitalist narrative by envisioning a future where deliberate human action in the present—rather than passive endurance—becomes the driving force for societal transformation. This shift is exemplified in *Sixty Days and Counting*, where the National Science Foundation (NSF) transitions from passive observation of climate systems to active intervention. The NSF's efforts to stabilize the climate and mitigate disaster reflect a broader commitment to collective agency and responsibility, embodying what Giorgio Agamben describes as the fulfillment of historical time within secular time (Agamben 65). By taking decisive action, the characters in Robinson's narrative demonstrate that hope is not merely an abstract ideal but a practical, actionable principle.

Frank Vanderwal's personal journey is a microcosm of this heliotropic turn. Initially, Frank's immersion in sociobiology leads him to view human behavior as deterministic and constrained by evolutionary imperatives. However, through his engagement with Buddhist philosophy and permaculture principles, Frank undergoes a profound transformation, embracing what Robinson terms "passionate reason"—a synthesis of rational inquiry and emotional engagement that enables him to act with both clarity and compassion (*Sixty Days* 412). This shift reflects the heliotropic perspective's emphasis on turning toward light and hope, even in the darkest of circumstances.

Robinson's vision of the heliotropic perspective also challenges the dichotomy between utopia and dystopia, suggesting that the two are not mutually exclusive but exist in dynamic tension. The climate crisis, while undeniably dystopian, creates opportunities for radical reimagining and transformation. As Robinson writes, "The end of the world as we know it is also the beginning of something new" (*Sixty Days* 367). This perspective aligns with Bloch's assertion that utopia is not a fixed destination but an ongoing process of striving toward a better world. By embracing the heliotropic perspective, Robinson's characters - and, by extension, his readers - are invited to participate in this process, turning toward hope and taking meaningful action in the present.

Utopia as a Process, not a Destination

Kim Stanley Robinson's redefinition of Utopia as a construct within the present world marks a significant departure from traditional utopian literature, which often imagines ideal societies

as isolated or distant from contemporary realities. Unlike Thomas More's Utopia, which envisions a perfected society on a remote island, Robinson's vision is deeply embedded in the material and social conditions of the present. This approach aligns with Ruth Levitas's concept of "utopia as method," which emphasizes the process of envisioning and enacting better futures within existing conditions rather than treating utopia as a fixed destination (Levitas 153). For Robinson, Utopia is not a static ideal but a dynamic, ongoing process of transformation that requires active engagement with the present.

Robinson challenges the traditional notion of "islanding," which isolates utopian visions from the complexities and contradictions of the real world. In *Science in the Capital*, he asserts that Utopia must not be detached from present reality but must emerge within it, addressing the immediate challenges of climate change, social inequality, and ecological degradation. This perspective is exemplified in the trilogy's emphasis on permaculture, which serves as both a practical framework for sustainable living and a metaphor for the interconnectedness of human and environmental systems. As Robinson writes, "Utopia is not a place we escape to; it is a way of living we create here and now" (*Sixty Days* 367). By grounding Utopia in the present, Robinson underscores the importance of collective action and incremental change, rejecting the idea that a better future can be achieved through isolation or disengagement.

This redefinition of Utopia as a process resonates with Levitas's argument that utopian thinking should be understood as a method for critiquing existing systems and imagining alternatives. Levitas writes, "Utopia is not about the future; it is about the present and the possibilities it contains" (Levitas 153). Robinson's work embodies this approach, using the climate crisis as a catalyst for reimagining societal structures and relationships. For instance, the National Science Foundation's shift from passive observation to active intervention in *Sixty Days and Counting* reflects a utopian method in action, as scientists and policymakers work together to address the immediate challenges of global warming while envisioning a more sustainable future.

Robinson's vision also critiques the capitalist tendency to defer utopian aspirations to an indefinite future, perpetuating the status quo under the guise of progress. By situating Utopia within the present, he challenges the linear, progress-oriented temporality of capitalism, advocating instead for a cyclical, regenerative understanding of time that aligns with ecological principles. This approach is exemplified in the trilogy's portrayal of permaculture, which emphasizes interdependence, resilience, and adaptability - values that stand in stark contrast to the exploitative logic of capitalism.

The Role of Science and Policy

Science in the Capital trilogy underscores the critical role of science and policymaking in addressing climate change, provided these institutions are decoupled from the profit-driven imperatives of capitalism. The National Science Foundation (NSF) emerges as a key player in the trilogy, symbolizing an alternative governance model that prioritizes sustainability, equity, and collective well-being over economic growth. In *Sixty Days and Counting*, the NSF transitions from a passive observer of climate systems to an active intervenor, implementing large-scale geoengineering projects to stabilize the Earth's climate. This shift reflects Robinson's belief in the potential of science and policy to drive transformative change when aligned with ethical and ecological principles.

Robinson's vision aligns with Naomi Klein's argument in *This Changes Everything*, where she contends that systemic solutions to climate change require a fundamental challenge to neoliberal economic structures. Klein writes, "Our economic system and our planetary system are now at war" (Klein 217). Robinson echoes this sentiment, portraying the climate crisis as a symptom of deeper structural failures rooted in capitalism's exploitation of both people and the planet. By depicting the NSF as a model of science-driven governance, Robinson suggests that institutions can play a pivotal role in addressing these failures, provided they operate independently of corporate influence and prioritize the public good.

The trilogy also critiques the commodification of science under capitalism, highlighting how profit motives often distort research priorities and hinder meaningful action on climate change. For instance, the character of Frank Vanderwal, a scientist working with the NSF, grapples with the ethical implications of his research, ultimately embracing a more holistic and socially responsible approach to science. This transformation reflects Robinson's broader argument that science must be reimaged as a tool for collective empowerment rather than corporate enrichment.

Activism and Collective Action

A recurring theme in Robinson's work is the necessity of grassroots activism and collective action in driving societal transformation. From small-scale permaculture initiatives in Washington D.C. to large-scale scientific interventions, the *Science in the Capital* trilogy highlights that meaningful change emerges from both individual and collective efforts. This emphasis on activism aligns with David Graeber's anarchist principles, particularly the concept of prefigurative politics, which advocates for creating the world one wishes to see through direct action and participatory democracy (Graeber 76).

In *Fifty Degrees Below*, Robinson portrays grassroots movements as vital complements to institutional efforts, illustrating how local communities can implement sustainable practices and foster resilience in the face of climate disruption. The permaculture initiatives led by characters like Anna Quibler exemplify this approach, demonstrating how small-scale, community-driven projects can serve as models for larger systemic change. These initiatives reflect Robinson's belief in the power of collective action to challenge entrenched power structures and create alternative ways of living.

Robinson's depiction of activism also critiques the limitations of top-down approaches, emphasizing the importance of participatory decision-making and local knowledge. For instance, the NSF's large-scale interventions are portrayed as most effective when they are informed by and responsive to the needs of affected communities. This collaborative approach aligns with Graeber's argument that "the best way to create a better world is to start living as if it already exists" (Graeber 76). By integrating grassroots activism with institutional efforts, Robinson envisions a more inclusive and democratic approach to addressing the climate crisis.

2. Conclusion: Engaging with Crisis Through Hope

Robinson's trilogy not only critiques the failures of capitalism in addressing climate change but also proposes a heliotropic perspective as a transformative framework. His work urges readers to view every crisis as an opportunity for systemic change, advocating for a class

Nanotechnology Perceptions Vol. 20 No. 7 (2024)

struggle that seeks fundamental necessities essential for both material and non-material existence. The path to Utopia, Robinson suggests, lies not in escaping the present but in confronting its challenges with hope and determination, actively engaging in the experimental process of creating a more just and sustainable world. The trilogy's emphasis on collective action and interdisciplinary collaboration reflects a broader commitment to democratic and inclusive solutions. Robinson portrays institutions like the National Science Foundation (NSF) as potential agents of transformative change, provided they operate independently of capitalist interests and prioritize the public good. At the same time, he highlights the indispensable role of grassroots activism, illustrating how local initiatives and community-driven projects can serve as models for larger systemic change.

Robinson's trilogy offers a hopeful yet pragmatic vision for navigating the climate crisis. By embracing the heliotropic perspective, readers are invited to see crises not as insurmountable obstacles but as opportunities for reimagining and rebuilding society. The path to Utopia, Robinson suggests, lies not in escaping the present but in confronting its challenges with hope and determination. This vision calls for a radical rethinking of our relationship with the planet and with one another, emphasizing the interconnectedness of ecological, social, and economic systems.

References

1. Agamben, Giorgio. *The Time That Remains: A Commentary on the Letter to the Romans*. Translated by Patricia Dailey, Stanford UP, 2005.
2. Benjamin, Walter. *Illuminations: Essays and Reflections*. Edited by Hannah Arendt, translated by Harry Zohn, Schocken Books, 1968. Bloch, Ernst. *The Principle of Hope*. MIT Press, 1986.
3. Buell, Lawrence. *Writing for an Endangered World*. Harvard UP, 2009.
4. Doidge, Norman. *The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science*. Penguin, 2007.
5. Gould, Stephen Jay. *The Mismeasure of Man*. W. W. Norton, 1996.
6. Graeber, David. *The Democracy Project: A History, a Crisis, a Movement*. Spiegel & Grau, 2013.
7. Haraway, Donna. *Staying with the Trouble: Making Kin in the Chthulucene*. Duke University Press, 2016.
8. Harvey, David. *Spaces of Neoliberalization*. Franz Steiner Verlag, 2005, books.google.ie/books?id=Z7sS53uqTJoC&printsec=frontcover&dq=Spaces+of+Global+Capitalism:+Towards+a+Theory+of+Uneven+Geographical+Development&hl=&cd=1&source=gbs_api.
9. ---. *Justice, Nature, and the Geography of Difference*. Blackwell, 1996.
10. ---. *Spaces of Capital: Towards a Critical Geography*. Routledge, 2001.
11. Jameson, Fredric, and Masao Miyoshi. *The Cultures of Globalization*. Duke UP, 1998.
12. Jameson, Fredric. *Postmodernism, or, The Cultural Logic of Late Capitalism*. Duke University Press, 1991.
13. ---. *The Seeds of Time*. Columbia UP, 1994, books.google.ie/books?id=_sirp34KM3oC&dq=The+Seeds+of+Time&hl=&cd=2&source=gbs_api.
14. ---. *Archaeologies of the Future*. Verso Books, 2020.
15. Levitas, Ruth. *Utopia as Method: The Imaginary Reconstitution of Society*. Palgrave Macmillan, 2013.

16. Margulis, Lynn, and Dorion Sagan. *Microcosmos: Four Billion Years of Evolution from Our Microbial Ancestors*. University of California Press, 1997.
17. Ricard, Matthieu. *The Quantum and the Lotus: A Journey to the Frontiers Where Science and Buddhism Meet*. Crown, 2004.
18. Robinson, Kim Stanley. *Forty Signs of Rain*. Spectra, 2004.
19. ---. *Fifty Degrees Below*. HarperCollins UK, 2005.
20. ---. *Sixty Days and Counting*. Spectra, 2007.
21. Soja, Edward W. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. Verso, 1989.
22. ---. *Seeking Spatial Justice*. U of Minnesota Press, 2013.
23. Wilson, E. O. *Sociobiology: The New Synthesis*. Harvard UP, 1975.