

Kim Stanley Robinson's *Science in the Capital* Trilogy and the Challenges of the 21st Century

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ABSTRAKT

Tato bakalářská práce sleduje, jak americký spisovatel Kim Stanley Robinson reaguje na výzvy 21. století. Za tímto účelem porovnává autorovu původní literární trilogii *Science in the Capital* s o 15 let novější verzí *Green Earth*, která byla revidována a zkrácena o 300 stran. Cílem práce je analyzovat, jaké změny autor provedl a jak se tyto změny podepsaly na individuálních literárních funkcích. Práce se takto snaží potvrdit, či vyvrátit autorem přiznané změny a posoudit, co tyto změny vypovídají o vývoji společnosti, a zvláště o povědomí týkajícího se výzev 21. století. Potvrzuje oba autorem deklarované typy změn v textu, které byly ovlivněny zvýšeným povědomím společnosti o klimatické změně, ale nachází i změny další. Práce dochází k závěru, že změny se projeví především na oslabení poznávací funkce, což přispělo k lepší přístupnosti trilogie jako celku.

Klíčová slova: Kim Stanley Robinson, *Science in the Capital*, *Green Earth*, klimatická fikce, vědecko-fantastická literatura, ekokritika, utopie, funkce literatury

ABSTRACT

The bachelor's thesis explores how the American writer Kim Stanley Robinson reacts to challenges of the 21st century. For this purpose it compares his original literary trilogy *Science in the Capital* with the newer version *Green Earth* released 15 years later; the new version was revised and is 300 pages shorter. The thesis aims to analyze the changes the author made, and how they contribute to shifts in individual literary functions. It tries to prove or disprove the author's admitted changes and evaluate what they indicate about the development of society and especially about public awareness regarding the challenges of the 21st century. It confirms both of the author's declared changes, with the finding that they were influenced by the growing public awareness of climate change, but it identifies other changes as well. The thesis comes to the conclusion that changes weakened the cognitive function, which contributed to a better accessibility of the trilogy as a whole.

Keywords: Kim Stanley Robinson, *Science in the Capital*, *Green Earth*, climate fiction, science-fiction, ecocriticism, utopia, functions of literature

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I hereby declare that the print version of my Bachelor's/Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

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INTRODUCTION

Kim Stanley Robinson is nowadays one of the most important authors working in the genre of climate fiction. In his novels, he reacts to the challenges of the 21st century, especially the one that regards the anthropogenic climate change.

The thesis focuses, on Kim Stanley Robinson's trilogy which acquired the informal name of the *Science in the Capital* trilogy, and is composed of novels *Forty Signs of Rain* (2004), *Fifty Degrees Below* (2005), and *Sixty Days and Counting* (2007). In 2015 Robinson released an omnibus edition of these three books in a compressed single volume, which is called *Green Earth*. The omnibus version allows us to observe not just the author's opinions and beliefs but notably the development they underwent since the release of the first novel. Although 15 years may seem not to be a significant period in climate change, it is still long enough for a shift in the development of one's opinions. The shift can be observed in three hundred pages, the author decided to omit in the new version. The author defends this step by claiming that "nothing important was lost in this squishing."¹ However, the importance of the change does not lie in the loss but rather in shifts. Even though Robinson himself admits some changes, there could be found others which were not declared.

The primary goal of my thesis is thus to analyze the text omitted in those three hundred pages with the aim of showing the particular shifts, explaining them via functions of literature and evaluate if the particular functions were maintained, weakened, or amplified. In addition to that, the thesis attempts to prove or disprove the author's declared changes he admitted in the introduction of *Green Earth*.

¹ Kim Stanley Robinson, *Green Earth* (New York: HarperVoyager, 2015), xiii.

1 KIM STANLEY ROBINSON AND SCIENCE IN THE CAPITAL

Kim Stanley Robinson (b. 1952) is an American science fiction writer who has written more than twenty books and won the Hugo, Nebula and Locus awards. Robinson's novels deal with challenges of the 21st century, as his texts often explore ecological, social, political, and cultural issues.

Robinson's climate trilogy ranks among his most important works. The trilogy acquired informal name of the *Science in the Capital* and it is composed of three novels *Forty Signs of Rain* (2004), *Fifty Degrees Below* (2005), and *Sixty Days and Counting* (2007). The trilogy takes place predominantly in Washington, DC, and tells a story set near future in which scientists and politics join forces in order to tackle climate change. In 2015 Robinson re-released the trilogy in a new omnibus edition of these three novels in a compressed single volume, which is called *Green Earth*.

1.1 Forty Signs of Rain

In the first instalment of the trilogy, we see the main character Frank Vanderwal, a scientist who is having a one-year contract at the National Science Foundation (NSF) in Washington, DC, Frank is an athletic man who frequently goes climbing or canyoneering and is particularly interested in socio-biology. He is cynical and often judges the behavior of others based on patterns that have evolved on the African savannas. He is also monitoring a promising work of Yann Pierzniski because he thinks the work could be beneficial for his future job in a biotechnological start-up Torrey Pines Generique (TPG), once he is back in San Diego. Even though he has an interesting job and a good relationship with his boss Anna Quibler he feels homesick and cannot wait till he gets back to California.

Anna Quibler is a brilliant scientist, wife and mother of two young boys, Nick and toddler Joe. In the beginning, she discovers a new embassy of the fictional Tibetan nation called Khembalung in the NSF building. The island nation is threatened by rising sea levels of the Indian Ocean and came to the U.S. looking for help. Anna offers them a meeting with her husband Charlie Quibler, who is a stay-at-home dad while still working part time as an environmental advisor to Senator Phil Chase. Charlie introduces Khembalis to his friend who works as a lobbyist in Washington to make their issues heard.

Frank feels skeptical from the first time about the island nation but accept invitation to a lecture of the Tibetan monk on the topic the purpose of science from the Buddhist perspective. This becomes a life-changing experience which transforms his cynical attitude toward science in the capital city. The same evening Frank experiences a romantic encounter

with a beautiful woman in a subway elevator that got stuck. He does not know the name of the woman but decides to find her. Those two events change his opinion, so Frank accepts an invitation to remain for another year as a leader of the NSF committee for tackling the climate change issue. During the whole story Arctic ice caps are quickly melting and will cause the stall of the Gulf Stream which will inevitably lead to a catastrophic climate change. However, no one in the United States seems concerned. The first part ends with an enormous storm which will cause a flood of the city.

1.2 Fifty Degrees Below

In the opening of the second novel of the trilogy Washington, DC, recovers from the flood but the stall of the Gulf stream has already started to cause damages. Affecting the U.S. with tornadoes, blizzards and sub-zero temperatures, which paralyzed the whole nation.

After Frank Vanderwal's rental contract expires, he becomes homeless and decides to live in a treehouse. At NSF Frank begins to work on climate change mitigation and help with The North Atlantic project that should restart the circulation of the Gulf Stream. Frank finally meets his mysterious woman from the elevator, Caroline. She is a secret agent and runs surveillance on Frank and other people related to a project of the young scientist Yann Pierzinski. Frank and Caroline fall in love, but Caroline is already married to her boss and is afraid to leave him.

Throughout the story preparations for the Presidential campaign are taking place and Charlie Quibler had convinced Senator Phil Chase to run for the Oval Office. The Quiblers and Frank also visit Khembalung's original island just before the whole island is flooded and its population is moved to Washington, DC. At the end of the novel, Phil Chase is elected President of the U.S. and the scientific community celebrates.

1.3 Sixty Days and Counting

In the last part of the trilogy, President Chase establishes a new administration and put a priority to climate change tasks. Diane Chang, a former boss of NSF is appointed the President's science advisor, and Frank is in her team. The Gulf Stream has been restarted, but climatologists fear that climate has already changed beyond their reach. The environmental crisis in China leads to a deal with the U.S., in which China promises switching to clean energy. The dwellers of Tibetan nation Khembalung now live on a farm in Maryland supported by the U.S. government. Caroline's husband, the boss of a secret agency, is arrested due to attempted tampering election voting machines. Frank and Carolina

are placed in a witness protection program and move to San Diego where Caroline announces that she is pregnant.

1.4 Green Earth

The re-released single compressed volume sticks to the original story. Robinson claims that after the cut of various irrelevant details “nothing important was lost in this squishing, and the new version has a better flow.”² Even the new title *Green Earth*, which is also a chapter in his previous book *Blue Mars* (1996), “can continue to designate the original trilogy” and “it’s a very nice description of what we can achieve in the coming centuries, if we succeed in building a sustainable civilization.”³

Nevertheless, as H.G. Widdowson states in the *Discourse Analysis*: “all texts are use of language which are produced with the intention to refer to something for some purpose.”⁴ Such a wide reduction of about 300 pages, which can be observed in Robinson’s trilogy, must have brought changes that demonstrate a shift or development in either the author’s beliefs or the literary quality of the trilogy. The present work analyzes these changes in the following chapters.

² Robinson, *Green Earth*, xiii.

³ Robinson, *Green Earth*, xiii.

⁴ Henry G. Widdowson, “Discourse Analysis,” in *Oxford Introductions to Language Study*, ed. H.G. Widdowson (Oxford: Oxford University Press, 2011), 6.

2 ROBINSON AND CHALLENGES OF 21ST CENTURY

In his books, Robinson often describes the challenges society faces in the 21st century. It comes as no surprise that the topical issue of climate change and related ecological sustainability have become the central topics for his *Science in the Capital* trilogy. The trilogy has become one of the most quoted and referenced works among the new genre known as climate fiction.

2.1 Climate Fiction

In the 21st century, the topic of climate change has become the main subject of many films, documentaries, poems or songs. The main aim is raising public awareness of this transgenerational problem we are facing now. As A. Johns-Putra points out, it comes as no surprise that the theme of climate change has become one the most popular new genres of Anglophone genre fiction as well.⁵ Its popularity has given rise to the term climate fiction often abbreviated as “cli-fi”. The term was invented in 2007 by freelance news reporter Dan Bloom who described it as a sub-genre of science fiction.⁶ Two years later an interdisciplinary group of academics concluded the topic of climate change was a rapidly growing literary trend. And in the second decade of the 21st century was estimated about 150 literary works regarding the topic of climate change. The term was widely used in various newspapers especially in mid-2013.⁷

Nevertheless, according to Axel Goodbody and A. Johns-Putra, the public concern over global warming can be spotted in many earlier examples of science fiction, representing human interferences in climatic conditions such as Jules Verne’s *The Purchase of the North Pole* (1889) or Alexander Döblin’s *Mountains Oceans Giants* (1924). These were followed in the 1960s by J.G. Ballard’s early novels *The Drowned World* (1962) and *The Crystal World* (1966) which took a climatological approach to apocalyptic dystopia and which Jim Clarke marked as “proto-climate-change” fiction.⁸ Yet many of these early representations of climate change “portray either deliberate efforts to change the climate for the better, or

⁵ See Adeline Johns-Putra, “Climate change in literature and literary studies: From cli-fi, climate change theater and ecopoetry to ecocriticism and climate change criticism,” *Wiley interdisciplinary reviews: Climate Change* 7, no. 2 (2016): 266. doi: 10.1002/wcc.385.

⁶ See Rodge Glass, “Global warning: the rise of ‘cli-fi’,” *The Guardian*, 31 May 2013. <https://www.theguardian.com/books/2013/may/31/global-warning-rise-cli-fi>, also cited in Axel Goodbody, and Adeline Johns-Putra, “The Rise of the Climate Change Novel,” in *Climate and Literature*, ed. Adeline Johns-Putra (Cambridge: Cambridge University Press, 2019), 230.

⁷ See Goodbody and Johns-Putra, “The Rise of the Climate Novel,” 230.

⁸ See Goodbody and Johns-Putra, “The Rise of the Climate Novel,” 231.

non-anthropogenic climate deterioration, and thus constitute what Trexler calls a ‘considerable archive of climate change fiction’, offering models for the depiction of climate crisis.”⁹

Later the phenomenon of global warming as the effect of greenhouse gases changed the orientation of climate change novels. Texts now more focus on “collective anxiety around humanity’s impact on its environment that marks the Anthropocene.”¹⁰ Axel Goodbody and A. Johns-Putra claim that nowadays exist two types of climate change novels. The first type is set in a very near future with recognizable and realist present. And the second one in a futuristic climate changed world that can be described as apocalyptic, post-apocalyptic, or dystopian.¹¹ Both types depict climate change either as a problem to be dealt with somehow or as a condition which forms particular characters or plot.¹²

However, Robinson's trilogy seems to lie somewhere between both types. The author declares that his original intention was to write “a realist novel as if it were science fiction,” because “these days we live in a big science fiction novel.”¹³ On the other hand, according to Daniel K. Cho, the Gulf Stream stall is one of the motifs of dystopian science fiction,¹⁴ which is why the trilogy shows also a “futuristic world with climate change.”

2.2 Utopia & Dystopia

The aspect of the environment has always played a significant role in the genre of science fiction. Lawrence Buell even goes so far as to say that, “No genre potentially matches up with a planetary level of thinking ‘environment’ better than science fiction does.”¹⁵ In this sense it comes as no surprise that it happened to be the main theme of “Kim Stanley Robinson’s Science in the Capital trilogy, whose depiction of climate change is shaped by the author’s generic inheritance, for Robinson brings to the trilogy his formidable reputation as a science fiction writer.”¹⁶ Many of his novels have ecological, political and cultural themes. Nevertheless, he achieved this reputation mainly because of the critically acclaimed

⁹ Goodbody and Adeline Johns-Putra, “The Rise of the Climate Novel,” 232.

¹⁰ Goodbody and Adeline Johns-Putra, “The Rise of the Climate Novel,” 232.

¹¹ See Goodbody and Johns-Putra, “The Rise of the Climate Novel,” 234.

¹² See Goodbody and Johns-Putra, “The Rise of the Climate Novel,” 234.

¹³ Robinson, *Green Earth*, xii.

¹⁴ See Daniel K. Cho “‘When a Chance Came for Everything to Change’: Messianism and Wilderness in Kim Stanley Robinson’s Abrupt Climate Change Trilogy,” *Criticism* 53, no. 1 (2011): 24. doi: 10.2307/23131554.

¹⁵ Lawrence Buell, *The Future of Environmental Criticism: Environmental Crisis and Literary Imagination* (Malden, MA: Blackwell, 2005), 57.

¹⁶ See Johns-Putra, *Ecocriticism, “Genre, and Climate Change,”* 744.

trilogy about the human colonization of Mars, *Red Mars* (1992), *Green Mars* (1993), and *Blue Mars* (1996).

The climate trilogy which was sometimes marked as the *Capital Code* trilogy or the *40/50/60* novels still rather acquired the informal title of the *Science in the Capital* trilogy, the title preferred by Robinson himself.¹⁷ In the trilogy, the phenomenon of the stall of Gulf Stream is usually named “abrupt climate change.” As Daniel K. Cho states, the device of the Gulf Stream stall belongs to the motifs of dystopian science fiction “that Frederick Jameson categorizes as world reduction: disaster events that result in the ‘destruction of the idols and the sweeping away of an old world in violence and pain,’ which is necessary ‘for the reconstruction of something else.’”¹⁸

The connection between utopia and science fiction has always been inextricably linked together. Even though Robinson considers himself to be a utopian science fiction writer, he refuses to see utopian society being impractical and totalitarian as is often used in science fiction literature and calls for rescue of the term.¹⁹ In his eyes utopia is seen as a kind of work in progress in which things are becoming more sustainable over the generations.²⁰ As A. Johns-Putra claims, this idea is essential for any reading of Robinson’s representations of climate change. Moreover, it can be observed in progressive politics which is one of the central motives in the *Science in the Capital* trilogy.²¹ Progressive politics is mainly about international cooperation and the use of the current economic system to mitigate the climate crisis. And it also includes the political participation of the scientific community and incorporating scientific procedures such as collecting data, testing hypotheses, and rewarding successful pilot projects.

According to Daniel K. Cho, the role of utopia can also be seen in what Robinson calls “permaculture,” “a culture that can be sustained permanently.”²² Permaculture is an ecological movement whose aim was to create a response to environmental challenges. According to Gerald T. Aiken it is “a way to pursue the ‘good life’, and a vision of a more harmonious way to be in and belong to the world.”²³ The concept follows principles which

¹⁷ See Robinson, *Green Earth*, xiii.

¹⁸ Cho, “When a Chance Came for Everything to Change,” 24.

¹⁹ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 752.

²⁰ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 752.

²¹ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 751.

²² Kim Stanley Robinson, *Sixty Days and Counting* (New York: Bantam Books, 2007), 516, quoted in Cho, “When a Chance Came for Everything to Change,” 24.

²³ Gerald T. Aiken, “Permaculture and the social design of nature,” abstract, *Geografiska Annaler Series B: Human Geography* 99, no. 2 (2017): 172. doi: 10.1080/04353684.2017.1315906.

are applied in order to create sustainable approach to human activities. Robinson outlined some of those principles in the *Fifty Degrees Below*, the second book of the trilogy (protection of the biosphere, protection of human welfare, full employment, socialization of surplus value and redistribution of wealth, reduction of military spending, and population stabilization).²⁴ At the end of trilogy Phil Chase, the president of the USA, posts in his blog that permaculture is “the long-term work of our species ... an ongoing project that will never end.”²⁵ In this case, the utopia was never fully accomplished.

Daniel K. Cho explains the unfinished utopia as a tool of Robinson’s to focus his energy more on the work involved for ending dystopia and argue that Robinson “imported the issue of climate change to the territory of the critical dystopia.”²⁶ This statements corresponds to Tom Moylan’s descriptions of critical utopia and dystopia, which “are characterized by their open endings: the former ‘reject utopia as blueprint while preserving it as a dream’ and the latter ‘not only critique the present system but also begin to find ways to transform it.’”²⁷ Moylan himself identifies Robinson’s work with the tradition of the “critical utopia” writers of 1970s and describes him as a science fiction writer that is willing to “explore utopian proclivities along with tracing of the ubiquitous dystopian dimensions of the present.”²⁸

2.3 Apocalyptic narrative

Even though climate change may be happening now, the dramatic and emotional contours of climate fiction deal with future worlds which have been described by Ursula Heise as “apocalyptic.”²⁹ Nevertheless, Robinson’s treatment of ecological crisis is different from the typical apocalyptic narrative of major climate fiction texts such as McCarthy’s *The Road* (2006). Devastating environmental changes are accepted with enthusiasm, considered being an opportunity for change or as the new president Phil Chase puts it in the opening of the third novel, “an opportunity to remake our relationship to nature, and create a new dispensation.”³⁰ Cho explains these positive reactions as the expressions of freedom that

²⁴ Kim Stanley Robinson, *Fifty Degrees Below* (New York: Bantam Books, 2005), 321–23, quoted in Cho, “When a Chance Came for Everything to Change,” 24.

²⁵ Robinson, *Sixty Days and Counting*, 516, quoted in Cho, “When a Chance Came for Everything to Change,” 24.

²⁶ Cho, “When a Chance Came for Everything to Change,” 24.

²⁷ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 750.

²⁸ Gib Prettyman, “Living Thought: Genes, Genres and Utopia in the Science in the Science in the Capital Trilogy,” in *Kim Stanley Robinson Maps the Unimaginable: Critical Essays*, ed. William J. Burling (Jefferson, NC: McFarland & Company, 2009), 181.

²⁹ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 749.

³⁰ Robinson, *Sixty Days and Counting*, 6, quoted in Cho, “When a Chance Came for Everything to Change,” 25.

suddenly appear because “the damage dealt to the entire social infrastructure blows away layers of ideological sediment, and, without its scaffolding, these characters are prevented, both physically and cognitively, from resuming the normal routines of everyday life and as such become truly free.”³¹ Due to the excess of freedom, people can choose how they will act during an emergency. Robinson delivers a scenario where people act truly altruistically in post-apocalyptic times. Thus, he avoids simply preaching about the depletion of natural resources or moral tale about human nature and instead of it he is inviting us to see what is possible to achieve as we move into a new period.³² Axel Goodbody and A. Johns-Putra see this degree of detachment from catastrophist visions of the future in many recent novels in order to “distrust the political motives of proponents of radically progressive climate policies.”³³

2.4 Ecocriticism

Ecocriticism is the study of literature, further defined by Cheryll Glotfelty who interprets ecocriticism as “the study of the relationship between literature and the physical environment.”³⁴ Then she states that “Just as feminist criticism examines language and literature from a gender-conscious perspective, and Marxist criticism brings an awareness of modes of production and economic class to its reading of texts, ecocriticism takes an earth-centred approach to literary studies.”³⁵ A. Johns-Putra explains here the term “earth-centred” expresses the political position of ecocriticism which put a preference for the non-human rather than human.³⁶ However, what counts as ecocriticism is still frequently debated. According to Lawrence Buell this is a consequence of the fact that ecocriticism “lacks the kind of paradigm-defining statement that, for example, Edward Said’s *Orientalism* (1978) supplied for colonial discourse studies.”³⁷

Ecocritical writers in their texts use a wide range of concepts such as growth and energy, balance and imbalance and the use of sustainable and unsustainable resources. They also put canonical emphasis on writers, who were particularly interested in nature.³⁸ In the example

³¹ See Cho, “When a Chance Came for Everything to Change,” 26.

³² Cho, “When a Chance Came for Everything to Change,” 26.

³³ Goodbody and Johns-Putra, “The Rise of the Climate Novel,” 233.

³⁴ Fromm Harold, and Cheryll Glotfelty, eds., *The Ecocriticism Reader: Landmarks in Literary Ecology* (Athens: University of Georgia Press, 1996), xviii.

³⁵ Glotfelty, *The Ecocriticism Reader*, xviii.

³⁶ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 745.

³⁷ Buell, *The Future of Environmental Criticism*, 131.

³⁸ See Peter Barry, *Beginning Theory: An Introduction to Literary and Cultural Theory*, 4th ed. (Manchester University Press, 2017), chap. 13.

Robinson's *Science in the Capital* trilogy, those are especially American transcendentalists Ralph Waldo Emerson and Henry David Thoreau, whose ideas the main character, scientist Frank Vanderwal, often quotes. Peter Barry also states that ecocritical writers nowadays re-read major literary texts and they are paying attention to the aspects that represent the natural world.³⁹ And as Lawrence Buell claims that there is "no genre [which] potentially matches up with a planetary level of thinking 'environment' better than science fiction does," it comes as no surprise that ecocritical writers such as Ursula Heise or Stacy Alaimo have begun to explore and re-read science fiction works as well.⁴⁰

Indeed, science fiction has much to offer to ecocriticism as it seems too often deal with the similar subjects.⁴¹ Ecological issues have always been portrayed in science fiction since they constitute a necessary aspect of any future-Earth building. Therefore, as Michael Page points out "almost all science fiction is foundationally ecological in nature."⁴² Ecocritic Glen A. Love even says that "environmental and population pressures inevitably and increasingly support the position that any literary criticism that purports to deal with social and physical reality will encompass ecological considerations."⁴³ In that sense, Robinson's *Science in the Capital* trilogy is a very relevant text for the ecocritical study, because it deals with ecological issues and represents the environment.

³⁹ See Barry, *Beginning of theory*, chap. 13.

⁴⁰ See Michael Page, "Evolution and Apocalypse in the Golden Age," in *Green Planets: Ecology and Science Fiction*, eds., Gerry Canavan and Kim Stanley Robinson (Middletown, CT: Wesleyan University Press, 2014), chap. 2.

⁴¹ See Page, "Evolution and Apocalypse in the Golden Age," chap. 2.

⁴² Page, "Evolution and Apocalypse in the Golden Age," chap. 2.

⁴³ Glen A. Love, *Practical Ecocriticism: Literature, Biology, and the Environment* (Charlottesville: University of Virginia Press, 2003), 1.

3 ROBINSON'S RESPONSE TO DEVELOPMENT UNDER SCRUTINY

By the high social relevance of its themes, Robinson's *Science in the Capital* trilogy reminds its readers of the close relationship between literature and society. The original trilogy offers a "static" perspective in the sense that the author's beliefs and opinions at that time are clearly stated. However, because Robinson decided 15 years later to release a new revised version, this updated version makes it possible to examine if and how the trilogy responded to the latest developments and changes in the society's attitudes to the topic, i.e., to look at the issues from a "dynamic" side, which assumes that society is undergoing inevitable and never-ending development.⁴⁴

A suitable tool for observing these shifts and development may be a study of literary functions – a literary work, like other forms of art, can be regarded as a social fact because it is written at a certain period of time and thus represents the customs, rules, or traditions of that time. Czech sociologist Miloslav Petrušek in his study *Sociologie a literatura* (Sociology and Literature, 1990) argues that literature exists as a social fact because it is often discussed on television or in newspapers, and can be found in bookstores, libraries, or school curricula. In short, literature is used every day by civilized people as a unique experience.⁴⁵

The relationship between society and literature is explored, among other fields of study, by sociology of literature, which offers two main paradigms. Petrušek calls the first one "sociognoseological," and the second one "institutional." The "sociognoseological" paradigm assumes that every literary text reflects society and provides an irreplaceable set of information. The "institutional" paradigm explores literature as a social institution and hence as a part of society itself. Simply put, the "sociognoseological" paradigm focuses on the literary work and the information it carries, while the "institutional" paradigm focuses on the social world around literature rather than the literary work itself. Both paradigms exist in a mutually beneficial relationship.⁴⁶

Study of literature and its relationship to society may be facilitated by identifying its functions. Functions of literature could be divided into two main types: aesthetic and non-aesthetic. Literary scholar Jan Mukařovský in his *Studie z estetiky* (Studies in Aesthetics, 1966) claims that both functions are in a permanent dynamic relationship, but in arts, which

⁴⁴ See Jaroslav Čihovský, "Statika sociální." Sociologický ústav AV ČR, https://www.encyklopedie.soc.cas.cz/w/Statika_sociální (accessed April 4, 2020).

⁴⁵ See Miloslav Petrušek, *Sociologie a literatura* (Prague: Československý spisovatel, 1990), 22.

⁴⁶ See Petrušek, *Sociologie a literatura*, 28–31.

include literature as well, the aesthetic function is the dominant one.⁴⁷ On the other hand, Petrušek, as a sociologist, notes that the author's intentions are very often primarily non-aesthetic ones, as these explicitly or implicitly provide information about society, opinions and ideologies of the public.⁴⁸ Out of the non-aesthetic functions of literature, Petrušek mentions the cognitive, ethical, ideological, or educational ones, and adds that through these non-aesthetic functions literature resembles sociology in its ability to study society.⁴⁹

3.1 Cognitive function

In the scientific sense, the term "cognition" refers to a broad spectrum of mental processes, but in the terms of analytic philosophy of literature "it is customarily identified with the communication of knowledge and acquisition of true beliefs."⁵⁰ James Harold even simplified the definition by a claim that it is an idea "that we can acquire knowledge from reading literature,"⁵¹ and further adds that this assumption has been "the very center of our educational traditions."⁵²

Focusing on a term "knowledge," there are two cognitivist approaches. The first says that it is possible to acquire a propositional knowledge from literature, which suggest "such knowledge would need to be capable of being stated in the form of a true proposition for which the literary work itself provides warrant."⁵³ And the second one which claims that we acquire some other kind of knowledge such as experiential knowledge (what it is like), acknowledging (what one knows), or perspectival knowledge (ways of seeing the world).⁵⁴

Jukka Mikkonen adds that recently there has been a shift from knowledge to understanding in what he calls "neo-cognitivist theories."⁵⁵ They state that the cognitive function of literature lies in the understanding of things readers already know and further enriching their already possessed knowledge or ways of thinking. Henceforth, neo-cognitivism considers literary works being capable to train readers' cognitive skills, for example, make them psychologically more sensitive.⁵⁶

⁴⁷ See Jan Mukařovský, *Studie z estetiky* (Prague: Odeon, 1966), 21.

⁴⁸ See Petrušek, *Sociologie a literatura*, 23.

⁴⁹ See Petrušek, *Sociologie a literatura*, 105.

⁵⁰ Jukka Mikkonen, "On Studying the Cognitive Value of Literature," *The Journal of Aesthetics and Art Criticism* 73, no. 3 (2015): 274. doi: 10.1111/jaac.12172.

⁵¹ James Harold, "Literary Cognitivism," in *The Routledge Companion to Philosophy of Literature*, eds. Noel Carroll & John Gibson (Abingdon: Routledge, 2015), 382.

⁵² Harold, "Literary Cognitivism," 382.

⁵³ Harold, "Literary Cognitivism," 383–84.

⁵⁴ Harold, "Literary Cognitivism," 385.

⁵⁵ Mikkonen, "On Studying the Cognitive Value of Literature," 274.

⁵⁶ Mikkonen, "On Studying the Cognitive Value of Literature," 274.

3.2 Ethical function

The issues of ethics and morality appear in every literary work. Luis P. Pojman states that “literature often highlights moral ideas, focusing on particular people in their dilemmas, awakening our imagination to new possibilities, and enabling us to understand the moral life in fresh and creative ways.”⁵⁷

A.W. Eaton depicts many philosopher’s views how to approach this function and argues that it would be wrong to try to find just a “one-size-fits-all” model, because it “disregards significant and relevant differences between genres.”⁵⁸ One of the models he describes is called “imitation” and its early versions can be found in both Plato and Aristotle. The model is based on the assumption that “a work leads, or aims to lead, an audience to imitate, whether consciously or not, the actions, states, or features of a literary character.”⁵⁹ Literary moral cognitivists focus on a similar concept called “phenomenological knowledge” which argues “a literary work that portrays a character or situation with vivid and perspicuous first-person details provides a rich and compelling sense of what it is like to be another.”⁶⁰ Such different perspectives from our own can be morally valuable and can make readers more empathetic and open-minded.⁶¹

3.3 Ideological function

Espen Hammer defines ideology as “a socially constituted illusion serving the interest of the ruling class in society.”⁶² Hammer especially mentions the influence of Karl Marx who advocated that the literary work is “a reflection of the society from which it springs,”⁶³ and thus “Marxist conception of ideology has tended to emphasize that ideologies contain specific world-views.”⁶⁴ According to Hammer, the Marxist aim is to evaluate how a particular literary work serves to express visions of social life within a specific historical context.⁶⁵

⁵⁷ Luis P. Pojman, *The Moral Life: An Introductory Reader in Ethics and Literature* (New York: Oxford University Press, 2000), xxiii.

⁵⁸ A.W. Eaton, “Literature and Morality,” in *The Routledge Companion to Philosophy of Literature*, eds. Noel Carroll & John Gibson (Abingdon: Routledge, 2015), 435.

⁵⁹ Eaton, “Literature and Morality,” 435.

⁶⁰ Eaton, “Literature and Morality,” 438.

⁶¹ See Eaton, “Literature and Morality,” 438.

⁶² Espen Hammer, “Literature and Marxism,” in *The Routledge Companion to Philosophy of Literature*, eds. Noel Carroll and John Gibson (Abingdon: Routledge, 2015), 451.

⁶³ Hammer, “Literature and Marxism,” 451.

⁶⁴ Hammer, “Literature and Marxism,” 453.

⁶⁵ See Hammer, “Literature and Marxism,” 455.

Another Marxist philosopher György Lukács believed that “all literary modes of representation display an ideological dimension,”⁶⁶ and that the unchallengeable purpose of all valid literature is imitation.⁶⁷

⁶⁶ Hammer, “Literature and Marxism,” 456.

⁶⁷ See Hammer, “Literature and Marxism,” 456.

4 CHALLENGES OF 21ST CENTURY UPDATED

Robinson explains in detail his step to release an omnibus edition of the *Science in the Capital* trilogy in the introduction to *Green Earth*. He admits that his initial inspiration was one of his favorite writers Peter Matthiessen, who also re-released his original novels *Killing Mister Watson* (1990), *Lost Man's River* (1997) and *Bone By Bone* (1999) in a single volume titled *Shadow Country* (2008).⁶⁸

Nevertheless, Robinson himself was aware of the shift and development the society underwent in 15 years since the release of the first instalment *Forty Signs of Rain* (2004). That was why he kept thinking about the topic, otherwise he normally does not look back once he finishes a story.⁶⁹ In this changed context he finally decided to release a new revised version for which he admitted two changes, which should justify the 300 pages long reduction. Those two declared intentions will be analyzed first, followed by other examples of changes the author did not declare. For the purpose of my analysis, the examples of original passages removed from the new version are written in red color and those added in blue color. The rest of the text is identical in both versions.

4.1 Climate change awareness

The first declared intention is that fifteen years have passed since the beginning of the project, so “our culture’s awareness of climate change has grown by magnitudes, the issue becoming one of the great problems of the age.”⁷⁰ The author felt that “quite a few of [his] trilogy’s pages now spent time telling readers things they already knew.”⁷¹ That was one of the main reasons for cutting several pages in order to “make the rest of the story easier to see.”⁷²

In terms of *Forty Signs of Rain*, there are two underlying examples of such change. The first one is in chapter four. Charlie Quibler appears in the White House where he has an exchange of views regarding climate change and its solution with Dr Zacharius Strengloft, the President’s science advisor. The author omitted here concrete solutions that would have to be done in order to achieve climate mitigation:

⁶⁸ See Robinson, *Green Earth*, xi.

⁶⁹ See Robinson, *Green Earth*, xi–xii.

⁷⁰ Robinson, *Green Earth*, xii.

⁷¹ Robinson, *Green Earth*, xiii.

⁷² Robinson, *Green Earth*, xiii.

Their line was that no one knew for sure and it would be much too expensive to do anything about it even if they were certain it was coming—everything would have to change, the power generation system, cars, a shift from hydrocarbons to helium or something, they didn't know, and they didn't own patents or already existing infrastructure for that kind of new thing.⁷³

A tendency to neglect generally known solutions is also seen in *Fifty Degrees Below*:

Identify, evaluate, and rank all potential climate mitigations mitigation possibilities: clean energy, carbonsequestration, etc.⁷⁴

Then also a further description of concrete methods such as tree-planting:

The first and most obvious method here is to grow more plants. Reforestation projects are thus helpful in more ways than one, as stabilizing soil, restoring habitat, growing energy, and growing building materials, all while drawing down carbon. Poplars are often cited as very fast growers with a significant drawdown possibility.⁷⁵

In the conversation mentioned above are also exclude the numbers of CO₂ produced by the U.S. industry as well as the Kyoto protocol:

Two and a half billion metric tons of CO₂ added to the atmosphere by American industry every year, some 150 percent more than the Kyoto agreement would have allowed if they had signed it, and rising fast.⁷⁶

Furthermore, the omission of the Kyoto protocol occurs on a large scale in *Fifty Degrees Below*:

The government sites devoted to climate change were often inadequate; the State Department's page, for instance, began with the administration's ludicrous goal of reducing carbon emissions by eighteen percent over ten years, by voluntary actions—a thumbing-of-the-nose to the Kyoto Accords that was still the current administration's only tangible proposal for action.⁷⁷

⁷³ Kim Stanley Robinson, *Forty Signs of Rain* (New York: Bantam Books, 2004), 155–56.

⁷⁴ Robinson, *Fifty Degrees Below*, 28.

⁷⁵ Robinson, *Fifty Degrees Below*, 130.

⁷⁶ Robinson, *Forty Signs of Rain*, 159.

⁷⁷ Robinson, *Fifty Degrees Below*, 241.

She didn't overplay this, but her message seemed to be that although the United States U.S. historically had been a big part of the problem in global warming, from rejecting Kyoto to pumping more carbon than any other country into the atmosphere, that was all about to change.⁷⁸

And in the final novel *Sixty Days and Counting*, the treaty is mentioned as well:

Then the meeting was over, with lots of emissions trading done, but little accomplished toward a the global treaty. that would replace Kyoto, and which hopefully would limit very sharply the total annual amount of emissions allowed for the whole world.⁷⁹

The second example lies in chapter seven of *Forty Signs of Rain* and is even more obvious since it refers to more general information about climate change. The example is part of incipit, which is a kind of introduction to every chapter. Every incipit is written in italics, providing readers with a greater insight into what has been unfolding in the background. The original incipit is 223 words long and was completely replaced in *Green Earth*. The incipit encompasses much of information about climate change such as:

*The Earth's atmosphere now contains a percentage of carbon dioxide and other greenhouse gases that is higher than it has been since the end of the Cretaceous. This means more heat from the sun is being trapped in our air, and the high-pressure cells we saw this year are bigger, warmer, and loft higher in the tropical atmosphere. Many common jet-stream patterns have been disrupted, and the storms spiraling out of the Tropics have gained in both frequency and intensity.*⁸⁰

Since *Fifty Degrees Below* is more oriented towards science and pursuit of the most effective solutions to follow, it is no surprise that such examples of general information about climate change are more widespread here. For example, in the first chapter a scientist Kenzo, a minor character in the story, explains the consequences of Gulf Stream's stall at NSF meeting:

The hypothesis was that the Gulf Stream's shutdown, after floods of fresh water had come off the melting ice cap over North America, had meant immediately colder temperatures in Europe and the eastern half of North America.⁸¹

At another meeting of science board members, the CEO of NSF Diane Chang talking more specifically about the "global environmental problem":

⁷⁸ Robinson, *Fifty Degrees Below*, 292.

⁷⁹ Robinson, *Sixty Days and Counting*, 397.

⁸⁰ Robinson, *Forty Signs of Rain*, 225.

⁸¹ Robinson, *Fifty Degrees Below*, 24.

She clicked to the first of her PowerPoint pages. “Okay. Global environmental problem, having to do with habitat degradation and a hundred parts per million rise in atmospheric carbon, resulting in species loss and food insecurity. You can divide the problem it into land, ocean, and atmosphere.”⁸²

One page later is occurring even further explanation:

“What’s putting carbon in into the atmosphere? Mostly The bulk of it comes from energy production and cars. We’ve been burning fossil fuels to create electricity and to move us and our stuff around. If we had cleaner technologies to create electricity and to power transport., we would put less carbon in the air. So, we need cleaner cars and trucks and ships, and cleaner energy production.”⁸³

In contrast to those examples, the revised version *Green Earth* contains a passage where the author added some information about the shift to clean energy:

The easy oil would soon be gone, and burning the oil and coal that was left would cook the world. In fact they would have to leave some 2,500 gigatons of fossil carbon in the ground, as what the report called “stranded assets.” Estimated worth in current markets, \$1,600 trillion. Estimated cost to civilization, Frank’s \$2 quadrillion. Estimated cost to the biosphere, the sixth great mass extinction event in Earth’s history.⁸⁴

The examples presented above could be seen as the author’s attempt to educate people in the first decade of the new millennium. Yet in 2015 figures about CO₂ produced by the U.S. industry are after 11 years outdated, and for readers non-relevant. The same case is the incorporation of the Kyoto Protocol into the story. Its commitment period expired back in 2012, three years before the new edition was released. In Robinson’s setting of a near future science fiction novel such a link is unimportant. Moreover, the U.S. did not participate in this international treaty. Thus, the author’s decision to mention it in the original trilogy could have been implemented with the intention to criticize this step of the U.S. administration at that time. The examples which contain more general information about climate change, whether these are the possible solutions or consequences, are also unnecessary in *Green Earth*. However, the information added about fossil carbon and its estimated worth can be considered as an author’s appeal to highlight the urgency to move to clean energy supported

⁸² Robinson, *Fifty Degrees Below*, 126.

⁸³ Robinson, *Fifty Degrees Below*, 127.

⁸⁴ Robinson, *Green Earth*, 849–50.

by the latest data. The appeal is even amplified with the fearful reference to the next “great mass extinction.”

Taken as a whole, the examples confirm and justify the author’s decision to omit those passages. The awareness indeed has grown by magnitudes and climate change became one of the main topics of various political parties or the center of the marketing mix for several multinational companies. As a result of mass media coverage and partially thanks to the rise of climate fiction.

4.2 Extraneous details

The author’s second declared type of reduction is a text which shows further signs of “extraneous details, along with any excess [of] verbiage.”⁸⁵ Robinson had originally pleaded that “some stories just need lots of pages to tell right.”⁸⁶ However, after 15 years Robinson realized that for this matter, he occasionally went too far. What he further explained by using a simile: “Every novel is like a ship and has its own Plimsoll line, and if you load it past that line, a storm can sink it. Readers may be inclined to abandon ship, or refuse to get on in the first place.”⁸⁷

These changes constitute by far the most frequently occurring type of reduction, but since it is possible to find them in many various forms, I decided to choose only three underlying examples, which occur throughout the whole original trilogy.

4.2.1 Frank Vanderwal

The prime example of this type is the main character, Frank Vanderwal and his way of thinking. Frank enjoys observing people around him and analyzing their behavior according to his knowledge in the field of socio-biology, which is reflected in a variety of situations. In *Forty Signs of Rain* he is describing in great detail why he is sure of kayaker’s gender even though “she wore a helmet and was broad-shouldered and flat-chested”⁸⁸:

Paddling smoothly upstream, into the hissing water still recollecting itself as a liquid. Upstream from her began a steep rapids—he would have been hard-pressed to say exactly how he knew, and yet he was sure. This was another savannah competency, and indeed some anthropologists postulated that this kind of rapid identification of reproductive possibility was what the enlarged neocortex had

⁸⁵ Robinson, *Green Earth*, xiii.

⁸⁶ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 756.

⁸⁷ Robinson, *Green Earth*, xiii.

⁸⁸ Robinson, *Forty Signs of Rain*, 87.

grown to do. The brain growing with such evolutionary speed, specifically to get along with the other sex. A depressing thought given the results so far.⁸⁹

And in chapter six, Frank returns to California due to a business trip and on that occasion, he goes surfing. During this activity he contemplates about the joy of surfing which was also omitted:

There must be an evolutionary reason for such joy at being cast forward by a wave. Perhaps there was a part of the brain that predated the split with the aquatic mammals, some deep and fundamental part of mentation that craved the experience. Certainly the cerebellum conserved very ancient brain workings. On the other hand perhaps the moments of weightlessness, and the way one floated, mimicked the uterine months of life, which were then called back to mind when one swam. Or maybe it was a very sophisticated aesthetic response, an encounter with the sublime, as one was constantly falling and yet not dying or even getting hurt, so that the discrepancy in information between the danger signals and the comfort signals was experienced as a kind of triumph over reality.⁹⁰

After Frank finishes surfing, he lies in the ocean and remembering how it used to be in his childhood and youth when he was doing that “grunioning” every day. According to Alan R. Slotkin, Robinson invented the word by turning “*grunion* ‘a small fish that spawns in the coastal waters of California and Mexico’ into a verb that means ‘to behave and/or swim like a grunion by hugging the shore.’”⁹¹ This should invoke “vision of human beings living in harmony with all other creature.”⁹² However, the 118-word long passage describing this term is omitted and replaced in *Green Earth* by the simpler phrase: “grooming by ocean.”⁹³

Similar kind of description related to a sporting activity occurs in *Fifty Degrees Below*, where Frank meets with a bunch of people in Rock Creek Park who play running frisbee golf. Frank is fascinated by how fast the unconsciousness processes of his brain are:

Thus the joy of running in the forest, giving him little glimpses of the great unconscious Mind. Throwing was just as fun as running, or even more so, being more conscious and easier to notice. He looked, aimed, calculated, tried for a certain result. It had none of running’s effortless adjustment, it was much more erratic and imprecise. Still, when the disk flew through the trees to its target and

⁸⁹ Robinson, *Forty Signs of Rain*, 87.

⁹⁰ Robinson, *Forty Signs of Rain*, 207.

⁹¹ Alan R. Slotkin, “The Ecological Newspeak of Kim Stanley Robinson,” *American Speech* 72, no. 4 (1997): 442.

⁹² Slotkin, “The Ecological Newspeak of Kim Stanley Robinson,” 442.

⁹³ Robinson, *Green Earth*, 141.

crashed into the chains and fell in a basket, it shared some of the miraculous quality of his tumbles; it did not seem physically possible. And if he thought about it too much he could not do it, his throws immediately degenerated into waldo approximations. You had to “play unconscious,” letting unfelt parts of the brain do the calculating, while still consciously directing that the throws be attempted.⁹⁴

4.2.2 Science

The second example of commonly omitted text are passages which in some way include science. The author is often admired in the genre of climate fiction for his deep, realistic knowledge about science as such. This is helped by the fact that the author’s wife is an environmental chemist and thus her life has been a great source of inspiration for Robinson’s work.⁹⁵ His excess of knowledge in this field is wildly incorporated in the text and therefore there was plenty of material for reduction. In *Forty Signs of Rain* there are many omitted examples of scientific practices which are shown particularly on the example of a biotechnological start-up called Torrey Pines Generique. For instance, in the chapter 3 is described how rarely are studies supported by good data:

That’s why there were so many experiments, and so many stages to the human trials that had to be so carefully conducted; so many double blind studies, held with as many patients as possible, to get good statistical data. Hundreds of Swedish nurses, all with the same habits, studied for half a century—but these kinds of powerful long-term studies were very rarely possible.⁹⁶

And the same page describes how start-ups look for this reliable data:

So all the little baby biotechs, and all the start-up pharmaceuticals, paid for the best stage-one studies they could afford. They scoured the literature, and ran experiments on computers and lab samples, and then on mice or other lab animals, hunting for data that could be put through a reliable analysis that would tell them something about how a potential new medicine worked in people.⁹⁷

Then the author tries to enlighten readers that being a scientific worker includes plenty of paperwork and not just running experiments in a laboratory:

Papers almost written were rewritten, checked, rewritten again—finally sent off. Papers with their problems papered over. Lots of times the lab was like some old-fashioned newspaper office with a

⁹⁴ Robinson, *Fifty Degrees Below*, 143.

⁹⁵ “Who Is KSR,” KimStanleyRobinson.info, <https://www.kimstanleyrobinson.info/content/kim-stanley-robinson>, (January 5, 2020).

⁹⁶ Robinson, *Forty Signs of Rain*, 91.

⁹⁷ Robinson, *Forty Signs of Rain*, 91.

deadline approaching, all the starving journalists churning out the next day's fishwrap. Except people would not wrap fish with these papers; they would save them, file them by category, test all their assertions, cite them—and report any errors to the authorities.⁹⁸

There is also omitted description of a concrete procedure that should help to get altered DNA into a human body, which is a work of young scientist Yann Pierzinski:

Liver cells, endothelial cells—all the cells in the body had receptor ligands that were extremely specific for the ligands on the particular proteins that they needed to obtain from the blood; together they formed something like lock-and-key arrangements, coded by the genes and embodied in the proteins. In effect they were locksmithing at the microscopic level, working with living cells as their material.⁹⁹

This concrete procedure is a part of a side story developing throughout the whole plot, therefore the similar text is omitted in the second and third book of the original trilogy as well. Nevertheless, it is not the only case of such omission, in *Fifty Degrees Below* there are many other extraneous scientific descriptions, for instance, a description of how photovoltaic cells used to work:

Previously the polymers in plastic solar cells had absorbed only visible light, converting about six percent of the sun's energy to electrical power; now researchers were mixing semiconducting nanoparticles called quantum dots into one of the layers, which absorbed infrared light and generated electricity as well.¹⁰⁰

Or in *Sixty Days and Counting*, the process of how a modified lichen spreads through the Siberian Forest is described:

Because she and Eleanor were the team that had engineered this tree lichen for the Russians, manipulating the fungal part of the symbiote so that it would colonize its host trees more quickly, and then alter the lignin balance of the trees in ways that changed their metabolism. Tree lichens had always done that to their hosts for their own purposes, but these did it faster and to a greater extent. The more lignin that got banked in the tree, the better the lichen did, but also the bulkier the root system became, and this increased the net carbon drawdown of individual trees by 7 or 10 percent. Cumulatively, a very big potential drawdown indeed.¹⁰¹

⁹⁸ Robinson, *Forty Signs of Rain*, 96.

⁹⁹ Robinson, *Forty Signs of Rain*, 183–84.

¹⁰⁰ Robinson, *Fifty Degrees Below*, 537.

¹⁰¹ Robinson, *Sixty Days and Counting*, 401.

Science is observed in *Fifty Degrees Below* from a perspective of the National Science Foundation and its workers. In chapter three is omitted description of bureaucratic and administrative work that must be done on daily basis is omitted:

More work was accomplished than there is time to tell, ranging from discussions in house to communications with other people in other organizations, to the endless Sisyphean labor of processing jackets, which is what they called the grant proposals, never mind they were all onscreen now. No matter how high in the Foundation a person got, and no matter how important his or her other tasks might be, there was always the inevitable question from above: how many jackets did you process today?¹⁰²

And the same critique is omitted again one chapter later:

In the last hour of the **workday work day** Frank usually sat back in his office chair and glanced through jackets. No matter that you might be inventing a new-but-old world religion, or saving the biosphere itself, you still had to complete NSF's unconscious life-support activity, its heartbeat and breath. How many jackets did you process today?¹⁰³

4.2.3 Landscape

It is quite common in literature that authors are implementing into the story elements that have close ties with the author him/herself. In this case, Robinson is not an exception, and even other readers of him have noticed that he “enjoys inserting personal life experiences or autobiographical elements in his works.”¹⁰⁴ One of such as elements is mountaineering, the sport which is also the author's hobby. It is no surprise then that we can see a considerable number of scenes involving trekking trips or mountain climbing throughout the whole trilogy. Usually, there are waterfalls, mountains or forests which are described in great detail. Thus, it is another example of what the author calls excess of verbiage. As the story takes place predominantly in Washington, the most frequently mentioned spot is then The Great Falls of the Potomac, Frank's favorite place in the capital city for rock climbing and canyoneering. The first example occurs in the third chapter of *Forty Signs of Rain*, where Frank is going to climb for the first time in the story. The scene should familiarize readers with the visual image of the waterfalls:

¹⁰² Robinson, *Fifty Degrees Below*, 139.

¹⁰³ Robinson, *Fifty Degrees Below*, 216.

¹⁰⁴ “Who Is KSR,” KimStanleyRobinson.info, <https://www.kimstanleyrobinson.info/content/kim-stanley-robinson>, (January 12, 2020).

The Great Falls of the Potomac was a complicated thing, a long tumble of whitewater falling down past a few islands. The complexity of the falls was its main visual appeal, as it was no very great thing in terms of total height, or even volume of water. Its roar was the biggest thing about it.¹⁰⁵

The omitted text in this particular scene further contains a description of Frank's favorite section called Carter rock and the way how to overcome it. A similar description of the waterfalls appears in *Fifty Degrees Below* in the scene where Frank is going to teach Charlie and Drepung the basics of rock climbing, but this time the waterfalls were rearranged due to the great flood of Washington:

It was a new route, he said, for the great flood had greatly rearranged Great Falls, tearing new routes all up and down the south wall. When that much water ran over rock it tore at it not only by direct friction but also by a process called cavitation, in which the water broke into bubbles that were in effect vacuums that sucked violently at the cracks in the rocks, cracking them further, so that big blocks were plucked out rather than worn away. The walls of Mather Gorge had been plucked pretty hard.¹⁰⁶

In the *Sixty Days and Counting* Frank and Caroline go for a walk on a forested island in Pemetic Mountain where there are other descriptions of a land:

The peaks to both east and west were higher than this one, and the biggest one, to the east, had a road running up its side, and a number of radio towers poking up through its summit forest. The ice cap had carved deep slots between the peaks, working down into fault lines in the granite between each dome.¹⁰⁷

Then concrete details of a trail called the Ravine trail described in other 130 words.¹⁰⁸ The last example is also from *Sixty Days and Counting*. In chapter six, Charlie invites Frank to spend a week hiking in the Sierra Nevada with a group of old friends. The area is here again in great detail described:

The great U of Taboose Pass being an ice field rather than just a glacier. Not much of the crest had gotten iced over even at the height of the Ice Age, he said. A substantial ice cap had covered big parts of the range, but mostly to the west of the crest. To the east there had been only these ravine

¹⁰⁵ Robinson, *Forty Signs of Rain*, 85.

¹⁰⁶ Robinson, *Fifty Degrees Below*, 478–79.

¹⁰⁷ Robinson, *Sixty Days and Counting*, 75–56.

¹⁰⁸ See Robinson, *Sixty Days and Counting*, 76.

glaciers. The ice had covered what were now the best hiking and camping areas, where all the lakes and ponds had been scooped out of the tops of mostly bare granite plutons.¹⁰⁹

Furthermore, the scene includes omitted descriptions of a concrete routes down the cliff or depiction of a specific sandstones.¹¹⁰

The kind of omitted text that Robinson calls “extraneous details, along with any excess verbiage” is the biggest section omitted at all, because in every chapter a shortened description of something can be spotted. In the introduction, Robinson admits that describing things in great detail “was part of [his] fun.”¹¹¹ The examples mentioned above shows three types of description that are very common in the original text.

The scientist Frank Vanderwal was the obvious choice for those kinds of reductions since a large part of the story is seen through his eyes. Further, the example of how Frank contemplates the meanings of human behavior shows nicely what Robinson calls “excess of verbiage.” The scientific procedures and science as such also form a large part of the story and could be considered as the author’s specific sign. Robinson is often acclaimed for his deep knowledge in the field of science which makes him unique amongst other climate fiction writers. His decision incorporating those details could have been to bring that field within reach of the ordinary reader. However, the exhaustive description of how works photovoltaic cells or altered DNA make the story very cumbersome and also difficult to understand. The last example which shows descriptions of the landscape reflects the author’s affection for mountaineering. Robinson depictions of waterfalls and mountains try to make readers more aware of quickly changing physical environment, which is undeniably one of the challenges of the 21st century.

4.3 Changes in the story

This section shows other changes that were found in the comparison of both versions, which the author did not admit, and further it tries to evaluate their relevance.

4.4 Changes in characters

Characters are an essential part of every literary work. The trilogy revolves around three main characters, so it was a logical step to see if they had changed in the new version.

¹⁰⁹ Robinson, *Sixty Days and Counting*, 304.

¹¹⁰ See Robinson, *Sixty Days and Counting*, 312.

¹¹¹ Robinson, *Green Earth*, xii.

Anna Quibler, the scientist and mother of two children, is in the original version on maternity leave with her firstborn son Nick. In *Green Earth*, her maternity leave is from the beginning replaced with the stay-at-home dad Charlie and babysitters:

When her older son Nick was born she had shared stayed home with him, and those first several months of his life were a kind of blur to her. She had missed her work, and doing it from home had not been possible. By the time maternity leave was over they had clearly needed her at the office, and so she had started working again, sharing the care of him Nick with Charlie and some babysitters baby-sitters, and eventually they had taken him to a daycare a day-care center in a building in Bethesda, near the Metro stop.¹¹²

Regarding her husband Charlie, there is a change in his background. In *Forty Signs of Rain* he has a meeting with Padma, a Tibetan monk, suggesting what to do for his drowning island nation. Charlie suggests that Khembalist should hire a lobbyist company and then he offers his good old friend who is currently working as a lobbyist. However, *Green Earth* no longer contains a fact that Charlie used to be his coworker:

And there are pros in town to help foreign governments do that. I've I used to do it myself, and I've still got a good friend working for one of the better firms, I'll put you in touch with him and you can see what he tells you."¹¹³

This particular information is explicitly stated one chapter later during a telephone call:

How's the lobbying business going?" "We're keeping at it. We've got some interesting clients." "As always, if you know what I mean." "Yes I do." Charlie and Sridar had worked together for a lobbying firm several years before.¹¹⁴

There are also minor changes in the main character of Frank Vanderwal, the first of which includes his previous work. In *Forty Signs of Rain*, Frank travels on a business trip to his hometown and attends his former University of California in San Diego. Robinson omitted the information that Frank is still the supervisor of his four remaining graduate students:

Forty-five minutes each, and aware the whole time that he really wasn't doing them justice, that it had been their bad luck to get him as their advisor, because of his decision to go to NSF for a year.

¹¹² Robinson, *Forty Signs of Rain*, 13.

¹¹³ Robinson, *Forty Signs of Rain*, 106.

¹¹⁴ Robinson, *Forty Signs of Rain*, 146.

Well, he would try to make up for it on his return—but not all at once, and certainly not today. The truth was that none of their projects looked that interesting. Sometimes it happened that way.¹¹⁵

The same information is briefly mentioned in *Sixty Days and Counting* where Frank appears again in San Diego “checking in at the department to collect mail and meet with his remaining grad students.”¹¹⁶

In *Fifty Degrees Below*, after the new president is elected, people crowded the streets, celebrating. Frank goes home and remembers he has already experienced similar situation. The passage omits information about Frank’s former girlfriend who lived in Washington:

Frank had seen this once long before, when he had happened to visit an old girlfriend in D.C. on the Fourth of July, and they had gone down to the Mall to see the Beach Boys. The crowd that day was estimated at seven hundred thousand, and when the concert and fireworks were over everyone had left at once.¹¹⁷

And finally, in *Sixty Days and Counting* is omitted an interesting idea that Frank could be attracted to his colleague Anna:

More likely a suspicion was that Frank might have some kind of a thing for Anna, because there was some truth to it. Although it was not something he would ever express or reveal in any way, it was only just a sort of heightened admiration for a friend, an admiration that included an awareness of the friend’s nice figure and her passionate feelings about things, and most of all, her quick and sharp mind. An awareness of just how smart she was.¹¹⁸

4.5 Deleted characters

In addition to these protagonists, the trilogy includes plenty of minor characters who are not so important but still play a significant role in the story. *Green Earth* preserves all the original characters with just three exceptions. The first exception is a woman from Khembalung called Mingma. She appears in the second book as a tour guide when Frank and Quiblers visited the drowning island nation. Her name is mentioned twice in a passage where visitors listened to an explanation of how to create sand mandalas.¹¹⁹

¹¹⁵ Robinson, *Forty Signs of Rain*, 174.

¹¹⁶ Robinson, *Sixty Days and Counting*, 386.

¹¹⁷ Robinson, *Fifty Degrees Below*, 596.

¹¹⁸ Robinson, *Sixty Days and Counting*, 125.

¹¹⁹ See Robinson, *Fifty Degrees Below*, 174.

The second and more interesting example is the pair of scientists Bob and Clark. Bob is firstly mentioned at the very beginning of *Fifty Degrees Below*, but for the rest of the original trilogy, the pair appears almost every time together. It was known that Bob and Clark are scientists “**from the Antarctic program on the seventh floor.**”¹²⁰ A more detailed description is given in the fourth chapter where Frank contemplates different characters at NSF:

There were shy types; there were science geeks like Kenzo; then also raving intellectuals like Edgardo; and bluff “simple folk” like Bob or Clark, who weren’t willing to admit to knowing anything or having any opinions except in their areas of expertise, implying that this modesty was the purest form of scientific precision and right action: no opinions, only assert what you think you can prove.¹²¹

In the rest of the second novel Bob and Clark appear several more times, nevertheless in *Sixty Days and Counting* only Bob is briefly mentioned twice.

As for the character changes, it can be confirmed that the author made only small revisions. These changes to Anna, Charlie and Frank dealt mainly with their background. Anna’s omitted maternal leave could be seen as a growing trend of stay-at-home dads in the second decade of the 21st century. Moreover, this particular idea is another example of how the author implements autobiographical elements. Robinson, just as Charlie Quibler was “a stay-at-home parent to [his] first son while his wife worked.”¹²² The reference to Charlie Quibler’s previous career may have been deleted due to the negative connotation that the word tends to carry for such an altruistic character. However, the story without this information works the same way. Regarding Frank Vanderwal, the examples are also not really important. The decision to delete information about supervision of students seems logical, as it is presented twice throughout the whole trilogy and does not contribute to the plot. The same example is a reference about Frank’s ex-girlfriend, although it may hint why Frank went to work to Washington. The last example of Frank’s feelings toward Anna could have been interesting in terms of the plot, but it occurs not before the last novel of the original version. Therefore, it was too late to develop this possible storyline and the fact that Frank

¹²⁰ Robinson, *Fifty Degrees Below*, 135.

¹²¹ Robinson, *Fifty Degrees Below*, 211.

¹²² “Who Is KSR,” KimStanleyRobinson.info, <https://www.kimstanleyrobinson.info/content/kim-stanley-robinson>, (January 5, 2020).

admires Anna as her colleague and friend is felt throughout the story even without its explicit statement.

The deletion of the woman from Khembalung is really insignificant, because her name appears just in one particular scene. On the other hand, it seems that the deletion of scientists Bob and Clark is much more considerable. Both of them were a part of “lunchtime runners,” a group consisted of Frank, Edgardo and Kenzo. The group went on a run several times in *Fifty Degrees Below*, during which they discussed various issues in long debates. The author decided to remove these runs and reinvented them at the very end of that novel. However, only Frank and Edgardo are featured in these series of runs which then appear regularly in *Sixty Days and Counting*.

4.6 Change of time

A. Johns-Putra claims that “the trilogy’s setting is never accurately dated—for, as Robinson asserts, ‘it is crucial never to have a date in a day-after-tomorrow novel’— Luckhurst reminds us that action takes place ‘inside the horizon of current scientific research.’”¹²³ This near future scenario gives us a feeling of “a recognizable contemporary America without any futuristic enhancements or extrapolated intensifications.”¹²⁴ To maintain this feeling, it is obvious that Robinson had to update several things in the new version which was written 15 years after the release of *Forty Signs of Rains*.

4.7 Technology

The first example is the evolution of technology. Technology is constantly evolving and since 2004 it has taken a big leap forward, which demonstrates the revised text.

Green Earth contains several examples how devices have changed. In the first chapter, Anna heads to work and, while waiting at the metro station, she wants to start working on her laptop. The laptop is in the new version replaced by a tablet:

She sat down on a concrete bench, opened her tablet, laptop and began to study one of the jackets, as they still called them: the grant proposals that the National Science Foundation received at a rate of fifty thousand a year.¹²⁵

¹²³ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 754.

¹²⁴ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 754.

¹²⁵ Robinson, *Green Earth*, 5.

Later in the book, is observed the growing multifunctionality of mobile phones. In chapter nine, coastal Leucadia is hit by a huge storm below which the cliff's edge began to crumble into the Pacific Ocean. People are standing and “documenting events on **their phones video cameras** and **digital** cameras.”¹²⁶ The same situation repeats one chapter later when Washington is flooded and people “standing in boats in unsafe postures, turning in precarious circles to shoot **360s three-sixties** with **phones and** cameras.”¹²⁷

In the same chapter of *Green Earth*, the author emphasized our dependence on the internet. During the flood Charlie is trapped in a building with co-workers. Phone connections are busy, and they have to rely solely on the internet, but then they are having problems even to get online:

If the internet went down, they would be completely out of touch. **Actually if the internet itself went down, someone pointed out, civilization would be screwed. It was losing contact with the internet they were talking about here, which was bad enough.**¹²⁸

The rest of the *Green Earth* contains other examples of replaced devices, CDs are being replaced by inch drives or Gameboys by simply pads.

4.8 Data

The second example what the author updated is data. The story shows a lot of figures, some of which Robinson left unchanged, but there are also examples where he updated the data.

The updated data regarding for instance information about carbon dioxide in the atmosphere “now up to **450 440** parts per million, from 280 before the industrial revolution, ”¹²⁹ or the information that “damage from carbon dioxide emission costs about **fifty dollars \$35** a ton.”¹³⁰

Another example is details about the economy which “insisted on a minimum of **5.4 five** percent unemployment, to create the proper ‘wage pressure,’ ”¹³¹ or the information regarding the U.S. military spending:

¹²⁶ Robinson, *Green Earth*, 240.

¹²⁷ Robinson, *Green Earth*, 281.

¹²⁸ Robinson, *Green Earth*, 261.

¹²⁹ Robinson, *Green Earth*, 369.

¹³⁰ Robinson, *Green Earth*, 823.

¹³¹ Robinson, *Green Earth*, 387.

Match U.S. military expenditures to the average of other nations; this would halve the military budget, freeing over \$400 two hundred billion dollars a year.¹³²

These changes are not significant to the story as such, but they had to be made in order to maintain the setting of near future science fiction. Technological changes represent how mobile phones transformed into smartphones and how we have become so dependent on the internet that losing it would shatter our civilization. The same is the case with updated data that keeps pace with contemporary America, whether it is information about carbon dioxide in the atmosphere or details regarding economy.

4.9 Lunchtime runners

The “lunchtime runners” is a running group of scientists consisted of Frank, Edgardo, Kenzo, Bob and Clark. The group starts to appear in *Fifty Degrees Below* and on the whole, their joint runs count 2228 deleted words. The runs are accompanied by friendly small talks about various subjects, such as odd climate interventions:

Bob said, “I like the one about introducing a certain bacterial agent to animal feed that would then live in the gut and greatly reduce methane production.”

“Animal Flatulence Avoidance Feed! AF AF—the sound of Congress laughing when they hear about that one.”¹³³

Or by discussing the literature they have been reading:

“I read a good book,” Frank offered, having contributed nothing to the conversation. “*The Long Winter*, by Laura Ingalls Wilder.” “Some kind of children’s writer?” Edgardo guessed. “Yes, she wrote *Little House on the Prairie*, and a whole bunch of others. You’d call her a girl’s writer I guess, but this book was as good as anything I’ve ever read. Better, really. I mean really. I can’t remember reading a better novel.”¹³⁴

The omission of those passages did not bring any considerable changes to the plot. The passages consist of chattering about casual things the bunch of scientists could tackle and by no means contribute to the story. However, in chapter nine, the similar running sessions appear again and continue throughout *Sixty Days and Counting*. Those runs then contain dialogues just between Frank and Edgardo and are preserved in *Green Earth* as well. Unlike

¹³² Robinson, *Green Earth*, 497.

¹³³ Robinson, *Fifty Degrees Below*, 138.

¹³⁴ Robinson, *Fifty Degrees Below*, 458–59.

the deleted ones, those are important because they deal with the surveillance and Frank's girlfriend Caroline.

4.10 Phil Chase's Blog

After Phil Chase is elected President of the U.S., he starts to write a blog called "Cut to the Chase." The posts he adds are "his private personal musings only, blogged to put the electorate in touch with his thinking as a citizen, and no reflection of formal policies of his administration."¹³⁵

In his blog, for instance, he talks about so far ignorant attitude toward our relationship to the world. He criticizes the current U.S. Medicare system and calls for full employment. Further he describes what is like to be shot or adds a recipe for an unknown dish. The posts remained in *Green Earth*, or sometimes were slightly edited. However, *Sixty Days and Counting* includes some of Phil's responses to the comments that were removed. The responses are somewhat out of context because it is not known to what exact comment Phil answers. Therefore, readers can only infer what was the question. For example, Phil explains the following steps of his administration:

So, thanks in advance. A major part of our work will continue to be aiming the amazing productivity of the American people and the global community toward stabilizing the Earth's climate, as you know.¹³⁶

Or he is arguing with a responder:

Why, you ask? Why? Because we were burning a quarter of the world's burn of carbon when we were only five percent of the world's population, that's why! That was only possible because we were so rich and stupid. We were like the guy who uses Franklins to light cigars and blow smoke into everyone's face.¹³⁷

The responses consist of 1251 words and as such provide only marginal information relating to the story. What responses reveal is an insight into Phil Chase's personality, his personal beliefs, attitudes, etc. The reason for its deletion could be a discrepancy between the statement that President is too busy even to respond to his close colleagues, as the story several times suggests. And the fact that he has time to read and respond to comments on his

¹³⁵ Robinson, *Sixty Days and Counting*, 173.

¹³⁶ Robinson, *Sixty Days and Counting*, 513.

¹³⁷ Robinson, *Sixty Days and Counting*, 514.

blog at the same time. Another reason could be that in 2015, such a personal communication, one of the world's most powerful political figures seemed to be inconceivable. Nevertheless, nowadays parallels with the Twitter account of the current President of the U.S. Donald Trump could be found.

4.11 Structure

The *Science in the Capital* trilogy consists of three books, each divided into ten chapters. The omnibus edition *Green Earth* keeps with the same chapters except for chapter 28. The chapter was originally named "Partially adjusted demand," but in the new version it is called "Terraforming Earth."

The term "terraforming" was coined by science fiction writer Jack Williamson in 1942, and "has given its name to 'a science that exists only as a thought experiment, as the uncertain and arbitrary simulations designed to engineer a biosphere, sufficient at least for plant life, on Mars.'"¹³⁸ Robinson refers here to his most well-known work, the Mars trilogy, which deals with the colonization of Mars. A. Johns-Putra claims that "terraforming on Mars is a metaphor for successful ecological management of Earth."¹³⁹ The ecological management on Earth is the central theme of the 28th chapter. In the chapter, Frank Vanderwal goes on a trip around the world to see how continues activities that should help mitigate climate change in practice. First, he visits a trade fair and a conference on carbon emissions market in Beijing. Then he flights to the Takla Makan desert where they try to pump an excess of sea water into dry basins. In Russia he stops to observe genetically modified "fast tree lichen" in the Siberian forest, which should help to remove carbon dioxide from the atmosphere. Finally, he quickly stops in London on his way back to Washington, DC.

Each chapter also begins with a kind of incipit written in italics, those incipits are several pages long and their purpose is to provide a reader with greater insight on what has been unfolding in the background. In *Green Earth*, the incipits remained the same or were slightly edited, but there is one case where the incipit was completely rewritten. It is in chapter seven of *Forty Signs of Rain*. The original incipit is 223 words long and describes the effects of the high amount of greenhouse gases in the atmosphere. The new text in *Green Earth* is 589 words long and generally describes how wealthy people spend money on political campaigns

¹³⁸ Johns-Putra, "Ecocriticism, Genre, and Climate Change," 749–750.

¹³⁹ Johns-Putra, "Ecocriticism, Genre, and Climate Change," 752.

to express their views through politicians who represent the same attitudes. Further develop this topic on the example of Senator Phil Chase. The reason why the original incipit was deleted is that dealt with things readers already knew and was further depicted earlier. The new incipit regarding politics and particularly senator Phil Chase better relates to the central point of the chapter which is passing of climate change bill in the congress.

5 CHANGES IN THE FUNCTIONS OF SCIENCE IN THE CAPITAL

The changes react to development and shifts in society in the past 15 years. The author realized that this had happened, and he himself admitted some changes, but in the text were found even other kinds of changes as well. Therefore, this section evaluates all of those changes from the perception of literary functions described in chapter 3, and it attempts to assess if the individual functions were maintained, amplified or weakened.

Jan Mukařovský's claim that literature is predominantly a bearer of the aesthetic function is undoubtedly true and that goes for Robinson's trilogy as well. Nevertheless, the goal of both versions is also to provide information to readers. Therefore, they are greatly influenced by the non-aesthetic functions as well. This corresponds with Czech sociologist Petrusek, who admits that authors' intentions are very often those non-aesthetic ones.¹⁴⁰

5.1 Cognitive function

In the original trilogy, Robinson may try to provide readers with what cognitivists call a "propositional knowledge." That means "such knowledge would need to be capable of being stated in the form of a true proposition for which the literary work itself provides warrant."¹⁴¹ This can be observed especially in the example of science because, as I mentioned previously, Robinson is praised for his deep, realistic knowledge of science and therefore, can be considered a competent person for sharing such propositional knowledge. However, how as it could be observed in sub-chapter "Science" the new omnibus version omitted this information about scientific practices such as collecting data or bureaucratic paperwork.

The intention to provide propositional knowledge could be also observed in the form of original information about climate change, which outlined concrete solutions and methods. However, with the omission of both examples, a shift is being made from a providing "statement knowledge" to what Jukka Mikkonen calls a "neo-cognitivist" approach, which assumes the reader already possesses the piece of knowledge and the text just further enriches it. That agrees even with Robinson's declaration that he did not want to "spent time telling readers things they already knew."

Even though the cognitive function seems to shift from one perspective to another, it could be regarded as weakened in the new version, mainly because of a large number of deleted descriptions.

¹⁴⁰ See Petrusek, *Sociologie a literatura*, 23.

¹⁴¹ Harold, "Literary Cognitivism," 383–84.

5.2 Ethical function

Regarding the ethical or moral function of the trilogy, Robinson tries to highlight our moral ideas by drawing out attention to the vulnerability of the biosphere. L.P. Pojman calls this “environmental duty”, which he considers to be one of the practical moral issues the society faces today.¹⁴² The inevitable damage to the biosphere results in ecosystem changes that lead to the extinction of the whole species. In the sub-chapter “Landscape” there are examples of how the author omitted the extraneous descriptions of the environment, nevertheless, the depiction of crashed cliffs, rearranged waterfalls and others remained. Therefore, it could not be considered as proof of a changed ethical function.

Pojman claims that literature leads people to be more open-minded by showing them how literary characters deal with dilemmas.¹⁴³ This could be applied to Robinson’s characters because everyone has to deal with the dilemma of how to behave during the climate change emergency. Robinson appeals to the good characteristics of humankind by choosing a scenario where people take emergency as an opportunity and where everyone acts altruistically. Instead of a typical apocalyptic scenario where the citizens would start to plunder stores and fight for resources.

The “phenomenological knowledge” and the concept of “imitation,” where actions made by literary characters may lead to gaining a morally valuable lesson, could be observed in two examples. The first example is the moral change of Frank Vanderwall, who is in the first book depicted as a cynical, apathetic and moody man. He is sometimes even driven by immoral intentions, for example when he intentionally sabotaged a grant proposal by Yann Pierzinski to offer it to the company where he was a stakeholder. However, after he attends a Buddhist lecture, he experiences something like enlightenment and beginning to act altruistically. He is helping people on the street and offering his own equipment to homeless people during blizzard storms. The second example is the Quibbler family, they decided to change their way of life because of frequent power failures, food shortages in supermarkets and other problems. They start growing their own vegetables, saving water and energy and start thinking about moving to a rural and more sustainable place in future. Along with those examples, A. Johns-Putra adds that she sees the moral message of the trilogy in the romance

¹⁴² See Pojman, *The Moral Life*, 3–4.

¹⁴³ See Pojman, *The Moral Life*, xxiii.

between Phil Chase and Diane Chang, their marriages insist “that only science and politics in concord will save the day.”¹⁴⁴

All of the stated examples which contain some kind of moral value remained unchanged in the new version, therefore the function in the text has been preserved.

5.3 Ideological function

The way *Science in the Capital* depicts utopia as “progressive course” is profoundly ideological, because it requires political commitment in order to “terraform” the Earth.¹⁴⁵ That goes along with the claim of György Lukács, who says “all literary modes of representation display an ideological dimension.”¹⁴⁶ A. Johns-Putra argues the near future setting of the trilogy allows readers to imagine impacts of climate change in a way that is psychologically, politically and ideologically relevant.¹⁴⁷ Robinson consider himself to be “an American leftist” which he further explains as “anything that seems to be progressive in a way that a social scientist or an ordinary person in the street could agree with: health insurance, a pension, and the right to a job.”¹⁴⁸ Those ideas together with the equality of women and men are in the story held by the progressive social-democrat Phil Chase who after being elected established this “‘eco-economics’, a kind of scientifically informed, ethically minded, green socialism.”¹⁴⁹

The examples in the “Data” sub-chapter, and in particular the updated economic data, such as the unemployment rate or the U.S. military budget, can be considered an attempt to maintain a near future scenario. This would agree with the claim of A. Johns-Putra that this near future setting makes the story politically and ideologically relevant and thus its maintaining results in preservation of ideological function as well. Taken as a whole, the ideological function, which is in the trilogy one of the most dominant ones was maintained in both versions.

¹⁴⁴ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 752.

¹⁴⁵ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 751.

¹⁴⁶ Hammer, “Literature and Marxism,” 456.

¹⁴⁷ See Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 754.

¹⁴⁸ India Bourke, “Kim Stanley Robinson: ‘What the hell do we write now?’” NewStatesman.com, <https://www.newstatesman.com/kim-stanley-robinson-interview>, (April 9, 2020).

¹⁴⁹ Johns-Putra, “Ecocriticism, Genre, and Climate Change,” 751.

CONCLUSION

The thesis surveys how Kim Stanley Robinson reacts on challenges of the 21st century and then compares his original trilogy *Science in the Capital* with its new, revised version called *Green Earth*. The primary purpose of this comparison was to evaluate the changes the author made, especially in omitted three hundred pages. The changes represent not only the development of Robinson's opinions and beliefs but also reflect the shift the whole society underwent since the beginning of the new millennium. The thesis captures and evaluates this development through the functions of literature.

The analysis showed that both trilogies, by the essence of climate fiction, are driven by non-aesthetic functions with the purpose of providing readers with information and opinions. Regarding individual functions of literature, the new version maintained its ethical/moral function, which aim to bring attention to the vulnerability of the biosphere. The same can be said about the ideological function since it still reflects Robinson's leftist ideas such critique of the current health insurance system, the situations with pensions or the right to have a job. The main shift can be observed in terms of the cognitive function, due to two kind of changes, the first is the omission of climate change information. The original story possessed concrete solutions and methods, in order to educate readers. The omission of this information corresponds to the author's declaration that he did not, not want to explain to readers what they already know and logically results in weakening of the cognitive function. The second one is information about science, which in the original trilogy brought the field within the reach of the ordinary reader but made the story difficult to read. Therefore, its omission also resulted in the weakening of the cognitive function, though the accessibility of the work increased.

The second aim was to see if the author made the changes he declared in the introduction of *Green Earth*. The first one was information about climate change and the second what Robinson calls "extraneous details." Examples of both types have been found and therefore confirmed in chapter 4. However, other changes that Robinson did not admit were identified as well, but these are not significant to the story itself.

To conclude, in both versions of the trilogy Robinson deals with the same challenges of the 21st century and sticks to its original ethical/moral and ideological values. However, the development the society underwent in 15 years resulted in the weakening of the cognitive function, which contributed better accessibility of the novels, not overflooded by information.

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