

# Memories for the Future? An Ecocritical Reading of Andri Snær Magnason's *On Time and Water. A History of Our Future* (2019)

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*Abstract:* Andri Snær Magnason's *On Time and Water. A History of Our Future*, categorized as a novel when nominated for the Nordic Literary Prize in 2020, is a unique contribution to cli-fi literature and the understanding of climate change. A generic hybrid of autobiography, stories, myths, family- and Icelandic history and culture interwoven with references to international cultures, scientific discussions and evidence-based material, the novel spans times and places and addresses the future. Applying theories from ecocriticism and memory studies, the article explores how the compositional complexity of the book, including its mental time travels, contributes to the production of images of the future.

## Introduction

The very same year Andri Snær Magnason published *On Time and Water. A History of Our Future*, he wrote a *letter* to the future, saying goodbye to *Okjökull*, the first Icelandic glacier to lose its status as such.<sup>1</sup> At the site, wearing rubber boots and standing in water to his knees, he held a plaque with the following inscription in Icelandic and English,

In the next 200 years all our main glaciers are expected to follow the same path. This monument is to acknowledge that we know what is happening and what needs to be done. Only you know if we did it.

August 2019, 415 ppm CO<sub>2</sub>

1 On the backcover of the book one finds a photo of Andri holding the letter. "Ok" means "yoke" in Icelandic, and Andri also wrote a poem about the loss in Eddaic form, see Andri Snær Magnason 2019.

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*Memory and Remembrance in Scandinavian Cultures: Mediating Memory.* Edited by Atėnė Mendelytė and Ieva Steponavičiūtė Aleksiejūnienė. (Scandinavistica Vilnensis 17:2). Vilnius University Press, 2024.

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Andri,<sup>2</sup> an internationally acclaimed and well-known author of children's books, films and essays on climate change, is an eager activist who ran for President of Iceland with a climate agenda in 2016.

In 2021 *On Time and Water. A History of Our Future*, in the following referred to as *On Time and Water*, was nominated for the Nordic Council's Literary Prize and characterized by the committee as a

*family saga* spanning three generations [...] interwoven with a disturbing *scientific novel* about the world in which these people live. The book draws upon Norse and Indian *myths*, with their wisdom, their mutual harmony and their warnings of the danger that arises when we disregard the gifts of nature. It clearly describes how scientists have drawn attention to the threat that will ensue if we allow ourselves to destroy our Earth. Then we will destroy ourselves, our children and our grandchildren, our history and all culture. [...] *On Time and Water* is a simultaneously personal and scientific work which unites the discourses of literature and science. (Nordic Council, n.d., my emphasis, except the title)<sup>3</sup>

Spanning the past, the present and the future in 26 chapters, including 22 double-paged photos, 81 notes and an index, the book has been translated and sold to more than 30 countries. All editions carry the same epigraph by Senegalese forestry engineer Baba Dioum, "In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught."<sup>4</sup>

Placing *On Time and Water* in the category of *novels*, the prize committee (rather confusingly) referred to a part of the book as a *scientific novel* woven into the stories from Andri's autobiography, tales and anecdotes from and about his family, Icelandic history and culture, and connections between Tibetan, Indian and Icelandic mythology. Home movies, slides, old photographic recordings and references to other writers and people from Iceland and the world are also part of this dense generic hybrid of a book.

2 I refer to the author by his first name, following the Icelandic tradition.

3 The keywords from the nomination shall be used in the discussion below.

4 Whereas the Nordic Council's committee classified the book in the category of novels, the British publisher places it among non-fiction. Both the subtitle, *A History of Our Future*, an extra chapter, "Apocalypse – Covid 19," and the preface by Björk were added to the English edition. The Apocalypse-chapter was based on a film, staged in the empty Keflavik Airport during the pandemic.

The vast topics signaled by the title<sup>5</sup> and discussed by philosophers for centuries and more, accentuate Andri's major concern:

the foundational changes in the nature of water on our Earth [...] to a degree not seen for fifty million years. All this will happen during the lifetime of a child who is born today and lives to be my grandmother's age, ninety-five. (Andri Snær Magnason 2021, 9<sup>6</sup>)

His worries have been accentuated even further by the Russian invasion of Ukraine, the military devastation on humans, land, the bio- and atmosphere, and by the UN's final and 6<sup>th</sup> report on climate change and its impact, published February 28, 2022. Like the previous reports, this is dire reading. The world has less than three years left to stop and turn around the results of global warming before it reaches 1.5 degrees.<sup>7</sup>

The results and future perspectives of each individual's influence across time and place, moving our geological time from the Holocene to the Anthropocene, is the backdrop of Andri's history of our future.<sup>8</sup> Since *On Time and Water* is an openly stated contribution to debates about climate change, the following shall include a brief overview of eco-literature and ecocritical theory. Timothy Morton's ecological thinking and notion of *everything* being connected and entangled in what he calls *the mesh*, shall be applied in the discussion of the form and contents of the book. Finally, Andri's autobiographical approach, comprising memories and stories told by his family and myths rooted in Icelandic and other cultures, shall be discussed with perspectives from the interdisciplinary field *memory ecology*, which understands memory as a dynamic constructive process that includes mental time travels to create and imagine the future (see Hoskins 2016).

5 The title stems from a poem by Stein Steinar, partly quoted on p. 117.

6 All further citations are to this edition with page numbers indicated in brackets.

7 Reported by the World Meteorological Organization, four new record-high calculations were found in 2021 after just seven years, see World Meteorological Organization 2022.

8 Anthropocene is the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment. The term was introduced by Crutzen and Stoermer (2000). In 1991, Crutzen received the Nobel Prize in Chemistry for his work on the ozone layers, today partly restored because of ensuing bans of chemicals in aerosol cans.

### How Andri came to write *On Time and Water*

In 2019, on a promotion tour for *Dreamland: A Self-Help Manual for a Frightened Nation* and the documentary film based on the book, Andri meets Wolfgang Lucht, scientist and professor at the Potsdam Institute of Climate Impact Research in Munich, Germany (Andri Snær Magnason 2021, 63). Lucht assumes that Andri, who has demonstrated his defense of the devastation of Icelandic nature so passionately both in the book and the film, would be even more tempted to write about this issue – the most urgent of our time, the global climate crisis.<sup>9</sup>

Andri, however, declines by saying that it should be left to the scientists themselves because they *know*, to which Lucht answers, “people don’t understand numbers and graphs, but they do understand stories. You can tell stories. You must tell stories.” Andri continues to evade the undertaking, saying, “No one wants to hear apocalyptic prophecies” (65).

A short time after meeting Lucht, Andri attends a conference at the University of Iceland, where scientists and others talk about and discuss the imminent dangers of global warming. After the conference, he watches people getting up, leaving and chatting about this and that – anything but the climate. He decides to take up the challenge.

Starting to reflect on how to go about these immense issues: the levels of CO<sub>2</sub>, the acidification of the oceans and the mass extinction of species, it leaves him almost speechless. He experiences a writer’s block and doubts his ability to find the words, “I am sensing a buzzing inside me, the way all these words form a black hole I can’t directly perceive because its quantity absorbs all meaning” (61).

For Andri, the enormity of scientific information, the incomprehensible discourses on climate crisis and the future of the planet, calls for extended and careful considerations of how to write the book:

The only way to write about issues affecting all water on Earth, all Earth’s surface, the planet’s entire atmosphere, the issue’s enormity

9 *Dreamland* (Andri Snær Magnason 2008 [2006]), also a generic hybrid, was first and foremost about the Icelandic landscapes being changed by dams and water levees to accommodate the aluminium industry. The book included a harsh critique of the capitalist system, a clear defamation of banks and politicians and their massive “under-cover” speaking for jobs – while ignoring the huge impacts on nature. The book has a preface by Icelandic artist Björk stating that Andri found the words to express the rage of the people against Icelandic politicians selling out.

absorbs all meaning – is to go past it, to the side, below it, into the past and the future, to be personal and also scientific and to use mythological language. I need to write about things by not writing about them. I need to go backwards and forwards. (10)

Here one may note similarities to astronomers attempting to encircle and describe the black holes of the universe. Even if the world saw the first images taken by a NASA telescope a few months ago, Andri and the climate still lack words to convey, to describe and to find means to stop the acceleration of global warming. “We are heading at full speed over a cliff edge and, instead of trying to break, the accelerator is floored and the speedometer’s missing” (210).

### Cli-Fi, ecocriticism and *On Time and Water*

To read *On Time and Water* within the by now well-established field and genres of eco-literature and *cli-fi* (more precisely: climate *change* fiction) seems more than obvious. One may dispute the fiction part, but the generous generic markers of both the novel and fiction itself allow for elasticity – especially in contemporary literature.<sup>10</sup>

Sharing formal traits and topics with science fiction and their mainly dystopian, posthuman other-worlds, cli-fi is often anchored in a recognizable and identifiable contemporaneity. Discussions and questions concerning “how much climate” a book must represent in order to be called cli-fi has been a returning theme in ecocriticism (Glotfelty and Fromm 1996, Garrard 2004, Clark 2011, Buell 2003, Trexler and Johns-Putra 2011, Scheider-Mayerson 2017). Thus, one finds novels, short stories, poems, dramas – and their “sub-categorical” modes – foregrounding eco-critical topics, settings, plots and characters, as well as literary works where the climate may (perhaps only indirectly) function as referential backdrops for other issues and themes.

At the beginning of the 1990s, ecocriticism had been established in literary studies.<sup>11</sup> Glotfelty and Fromm were among the first to define it as the study of the relationship between literature and the physical

<sup>10</sup> Well-known examples are Danish Madame Nielsen (formerly Claus Beck-Nielsen a.o.), Karl Ove Knausgaard and Vigdis Hjorth from Norway.

<sup>11</sup> ASLE (Association for the Study of Literature and the Environment) was established in 1992.

environment. Just as feminist criticism examines language and literature from a gender-conscious perspective, and Marxist criticism brings an awareness of modes of production of an economic class to its reading of texts, ecocriticism takes an earth-centered approach to literary studies (Glotfelty and Fromm 1996, xviii).

The prior success of these political “sub”-disciplines, including post-colonialism and gender- and race-based studies, made advocates of ecocriticism hopeful for a similar status. Some wanted to focus on nature writing to trace the shifting ideas and views on nature in literary history, others pointed to the necessity of interdisciplinary studies, including science and cultural studies (Trexler and Johns-Putra 2011). The growing complexity of cli-fi necessarily called for more than “classical” literary criticism, which led to discussions about “the literary,” methodologies and the most applicable analytical tools. In their 2011 article, Trexler and Johns-Putra suggested a readjustment of tools and a possible shift in emphasis from literary fiction to genre fiction (like sci-fi), which gained ground and has proved a viable approach.

Addressing climate change being at the core of cli-fi and ecocriticism has led to reconsiderations of the value of nature and place. To be very brief, two main trends have emerged within ecocriticism based on nature being either harmonious or dissonant (Gregersen and Skiveren 2016). One is *green* ecology, an early environmental philosophy and ideology, which in the Scandinavian contexts is usually associated with its “deep” version represented by Norwegian philosopher Arne Næss (1912–2009) and his *ecosophy* (1973), the other is *dark* ecology, so termed by philosopher and professor of English literature Timothy Morton.<sup>12</sup>

Green ecology promotes an ethical biocentric approach to nature and the inherent worth of all living beings seen as both stable and separate from man and culture, something to be preserved and taken care of. Man is therefore its biggest threat.

Dark ecology, on the other hand, is about entanglement. All forms of life are profoundly interconnected in an imagined enormous network,

12 Time has seen more colors. In his introduction to *Prismatic Ecology: Ecotheory Beyond Green*, Jeffrey J. Cohen, inspired by Timothy Morton, writes, “Other colors may be necessary to trace the impress and interspaces created by ecologies that cannot be easily accommodated within the bucolic expanses of green readings, or at least within those that possess a utopian emphasis on homeostasis, order, and the implicit benevolence of an unexamined forced labelled Nature” (Cohen 2013, xxii).

which Morton calls the mesh.<sup>13</sup> In his books *Ecology Nature: Rethinking Environmental Aesthetics* (2007), *The Ecological Thought* (2010) and *Dark Ecology* (2016), Morton discusses and presents nature as limitless, unending and chaotic. No being, construct or object can exist independently from this enmeshment stretching across time and space, with no beginning, no end, no center, no edge. It thus *includes* endless, borderless, chaotic nature as well as nonhumans and humans, none of which can be seen as separate “entities.” Morton also includes what he terms *strange strangers*, life forms we feel connected with at the intersections of the mesh, and *hyperobjects*, such as global warming, nuclear radiation, tectonic plates, biosphere, pandemics and evolution.<sup>14</sup> Darwin is, by the way, constantly referenced by Morton. This all-encompassing thinking disrupts *and* entangles the well-known dualisms of world/human, nature/culture through which we usually tend to apprehend the world – and green ecology, so to speak.<sup>15</sup>

Morton compares his ecological thinking to a virus (2010, 2). Once you begin to see that everything is connected, it becomes nearly impossible to unthink it, unless you outright refuse the mental task or repress what comes to mind. Picture a reader sitting in her armchair with a book – or a tablet, the dust and smells in the room, the lengthy course and various processes preceding this scene, the production of the paper and book, including the ability to read letters or pixels, not to mention considerations about the materiality or wondering, e.g., how much water went into the processes, be it a book or a tablet.

The task of contemporary philosophy, Morton says, is to help human thought catch up to what is happening to the world, the ways in which

13 Morton’s mesh shares similarities with Bruno Latour’s Actor Network Theory (ANT), Deleuze and Guattari’s assemblage and plateau-thinking and, certainly, the World Wide Web.

14 Morton notes that the concept of strange strangers is developed from Jacques Derrida’s *arrivant* (2010, 140, note 39). He uses time-lapse films as examples, e.g. slowing and speeding up the growth of a familiar flower, thus turning unfamiliar – and uncanny; the closer you look, the weirder the strange strangers become (ibid., 42).

15 Many disagree with Morton, finding his views on ecology and the climate crisis exceedingly polemic, ironic and abstract. It has been argued that Morton’s dark and abstract theories cannot really function with respect to Norwegian literature (see Furuseth et al. 2020; Stueland 2016). According to Stueland, himself a writer, this is so, because they do not offer any concrete bodily and practical approaches to nature and the primary Norwegian industries of fishing and farming (Stueland 2016, 237–238).

the Anthropocene is changing our modes of thinking, and ultimately to redefine the entire relationship of science to the humanities because of global warming.

In the above-mentioned books, Morton can be seen moving towards a more object-oriented ecocriticism.<sup>16</sup> In 2014, he contributed to *Material Ecocriticism*, edited by Serenella Iovino and Serpil Oppermann, with a text titled “The Liminal Space between Things: Epiphany and the Physical.” The discussions in the anthology are largely based on sociologist Bruno Latour’s agency-oriented network theory, where nonhuman animals and objects *insert* themselves as agents, connecting but without creating structures. In *Vibrant Matter: A Political Ecology of Things* (2010) in which Latour is also a house-hold name, political theorist Jane Bennett writes about *thing-power*, e.g., electricity, exemplified by the blackout in New York in 2003. With causes yet to be found, she points to how events and agency can arise between things – with no human subjects involved. Since Morton’s thinking on art is in focus in my discussions of *On Time and Water* as a literary mesh-work, Latour’s and Bennett’s seminal and interesting theories will only be mentioned in passing here.

For Morton, the *form* of the ecological thought is at least as important as its *content*, “it’s not simply a matter of *what* you’re thinking about. It’s a matter of *how* you think” (Morton 2010, 10, emphasis in original). This statement is applicable to Morton’s perception of art in general and literature in particular. Art, he claims, is a place in our culture that deals with intensity, shame, abjection, and loss. Art deals with reality and un-reality, being and seeming, views challenged by the idea of the coexistence of all beings. Art sometimes gives voice to what is unspeakable elsewhere:

Ecological art, and the ecological dimension of all art, hardwires the environment into its *form* [...] ecological art is not just *about* something (trees, mountains, animals, pollution etc.) *it is* something or maybe it *does* something. (Morton 2010, 11, emphasis in original)

Although the contents of *On Time and Water* can be said to present a *green*, that is “protective,” approach (locally as in *Dreamland* and

16 In my article “Johannes Heldén’s *Astroekologi*. Et mesh af konstellationer og mellemrum” Morton’s analysis of James Turrell’s installation *Twilight Epiphany Skyspace* (2012) provided a fruitful dialogue with Heldén’s ongoing work (Mose 2020).



globally as in *On Time and Water*<sup>17</sup>), both the intra-textual composite of stories and the formal traits of Andri's writings come across as entangled within and between parts and chapters in a Mortonesque mesh-like form. Andri's blend of narratives, commentaries, recollections and memories appear dynamic and associative. They float back and forth, as do time and water mentioned in the title, referring to his reflections about the aesthetic form of his history of the future. The stories may take their departures in something specific in Andri's writings, his travels – both as an international author and a host to guests in Iceland, his family life and memories, a scientific report he has read, etc. They apparently revolve around real-time settings, while at the same time trying to encircle or unwrap the incomprehensible discourses applied in discussions on the climate crisis.

### **Going about black holes and a family saga spanning three generations and more**

Morton's faith in art to voice what is unspeakable can be linked to Andri's abovementioned reflections on how to write his book.

Among his attempts to find ways to describe the indescribable, and, in a way, to demonstrate why the world can't comprehend the gravity of the matter, perhaps due to lack of comparable references, he turns to examples from the past. One is the "shift" the Icelandic skalds had to face when Christianity was imposed. Specialized in poetic conventions, such as *kennings* derived from Nordic mythology, how were they to envision God as a creator instead of referring to Earth as "Odin's bride" or "dwarf's helmet" when referring to Heaven? (69).

Another example is the story about Danish adventurer Jørgen Jørgensen (1780–1841). Arriving in Iceland on a British merchant ship in 1809, and inspired by the French Revolution, he and the merchants took the local Danish authorities hostage, declared Iceland independent from the Danish-Norwegian monarchy and offered the Icelanders a republic, democracy and equality! He ruled for two months, but since the Icelanders didn't understand the implications and meanings of the words, they refused to listen or accept his offer, and sent him packing.

<sup>17</sup> It may come as no surprise that Morton doesn't care much about green environmentalism and activism. To him, these approaches present themselves through an affirmative, optimistic, masculine utopian eco-language – and are limited by their locally based environments (2010, 6; 16).

Years later, in the 1830s, Icelanders living in Copenhagen started to discuss the same issues, which eventually led to Home Rule in 1874, independence within the Danish-Icelandic Union in 1918, and, finally, the declaration of Iceland as a sovereign republic in 1944.<sup>18</sup>

In the end, both the skalds and the “reluctant” Icelanders found their way – but it took quite some time. Hopefully, Andri’s book will contribute to a swifter understanding of the gravity of the present situation and our responsibility towards the future, especially given the interweaving of scientific research, measurements and reports with his captivating selection of autobiographical, cultural and world stories.

In “A little treasure,” the second chapter of the book, Andri goes back to his early days as a graduate student. Hired for a summer job at the Árni Magnússon Institute, he one day finds himself holding the *Codex Regius* in a room he calls the “sacred heart of Icelandic cultural history” (13). He describes the book as small and unassuming. However, when he is invited to read from it, which he accepts, he realizes that he is reading from *Ragnarök*. This sends shivers down his spine as he concurrently realizes that he is in connection with “deep time” through the history of the manuscript (14).<sup>19</sup>

This particular moment can be seen as an example of the previously mentioned encounters with Morton’s strange strangers in the ecological mesh, Latour’s actor-network and Bennett’s vibrant matters, further connecting the recordings of singing and storytelling from 1903 and 1973 kept in the room next to the *Codex Regius*. Andri figures out that they span a time frame of perhaps more than 250 years, memories representing a time when the eldest taught the youngest. “Fascinated by the idea of capturing time,” he begins to interview people close to him, wanting to collect anything people in their future might appreciate (17).

In the following chapter, “A future conversation,” the reader is sent into Andri’s grandmother’s kitchen with his 10-year-old daughter Hulda, named after the grandmother. They’ve been watching home movies together, seeing clips of grandmother Hulda, and Andri challenges his daughter to make a calculation. Since his grandmother was born in 1924,

18 The fascinating story about Jørgen Jørgensen (the spelling of his name varies) has been treated in both novels and history books. Having travelled the world, Jørgensen died in Tasmania, Australia.

19 How it travelled around in Iceland before it was sent to Denmark in 1662 as a gift to the King, and finally returned to Iceland, escorted by a military vessel in 1972.

she is 94 years old in 2020. When will Hulda turn 94? “In 2102.” And if Hulda is sitting in granny Hulda’s chair in 2102, when will Hulda’s great-grandchildren turn 94? “In 2186.” In other words, she can connect a timespan of 262 years.<sup>20</sup> The final chapter in the Icelandic version ends with a conversation about the imagined future in 2102.<sup>21</sup> Hulda’s grandchildren will make the same calculation, reaching the year 2260, connecting another 250 years. “[T]ime that you will know and love, the time that molds you [...] The time that you will shape. Everything you do matters. You create the future every single day,” Andri writes (324).

Following the kitchen story, and throughout the book the reader is told stories about relatives that have both known and influenced famous people. One is Andri’s great aunt Arndís, who was a nanny for the Tolkien family in Oxford. According to Andri’s family, Tolkien, who had not yet written his acclaimed books, would sit in the garden or outside his bedroom while Arndís read, told and translated from the sagas and Nordic Mythology. Another relative, one of Andri’s grandfathers, moved to the US where he became a well-known surgeon, operating on both the Shah of Iran, Andy Warhol and the man behind the nuclear bomb, J. Robert Oppenheimer. Andri’s half-uncle was a famous crocodile researcher and conservator, who had a species named after him, and Grandmother Hulda became Iceland’s first female aviator and glaciologist, who also knew the *huldufólk* [*hidden people*]. When the volcano Hekla erupted in 1947, she flew around it!

One could continue citing Andri’s intriguing family stories, connecting and being connected to world history and stories back and forth in time. Two chapters dedicated to meetings with the Dalai Lama in Iceland and Dharamsala on the invitation by the Lama, send the reader and Andri into overarching thinking, revealing surprising connections. In preparation for their first meeting, Andri studied Buddhism. Among the many topics, he found twin or mirrored myths, such as the similarities between the ancient cow Audhumbla in Nordic Mythology and the holy Indian cow Kamadhenu in Hindu lore, who is related to Pritvi, Earth itself. Both cows have arisen from abysses. Andri and the Dalai Lama elaborate on this when they met – connecting points between Iceland, glaciers, the milky white rivers from the Himalayas and the

20 At Andri’s homepage, one can see and listen to him reading from this particular part of the book.

21 As mentioned, the English version has an extra chapter.

milk running from both cows. The way nature is exploited for profit in Iceland and politically in Tibet by China, the climate crisis constitutes a common problem, but the Dalai Lama and Tibetan Buddhism has a different approach to nature – and different solutions, humans should be taught to show respect and kindness.

### **Creating new myths and memory ecologies**

In going about discourses on black holes by way of old Norse and Indian myths, his meetings with the Dalai Lama and his storytelling about his almost mythological family members, Andri is both recreating old myths and creating new ones.

In her article “What is climate change literature and why is it important?” Helen Mundler discusses rewritings of the Noah myth and other myths in modern fiction, focusing on flood narratives because they “have the particularity of rendering climate-induced disaster immediate and making the crisis visible” (Mundler 2019, 2). One of her prime texts is Margaret Atwood’s *The MaddAddam Trilogy*, whose post-human characters live in the Anthropocene, as well as their creator, a mad scientist who realizes their need for (new) myths. For Mundler, Atwood is a major chronicler of the Anthropocene, showing in her fiction that the need for fictional narratives cannot be edited out, that a society which favors hard science at the expense of the arts is headed for disaster, and that new myths in times of change and crisis are essential to human experience.

In the chapters “A mythology for the present” and “The God in the steam machine,” Andri both rewrites, creates and puts forward what one may call new myths, such as where Tolkien found his inspiration or engineer James Watt’s taming of fire. When Watt put the fire into the steam engine in 1765, he took over Prometheus’s torch, so to speak, but Prometheus, who stole the fire from the Greek Gods to give to the humans, was severely punished, whereas Watt has been hailed for putting God into the steam machine, later turned into oil-consuming internal combustion machines. Andri admits that the appreciation of Watt is well-deserved, referring to landmark inventions, lifting man out of back-breaking labor, but it has come at a most dire price. As we can’t see the fire under the hoods of cars, in our heating systems, fire based on oil, coal and nuclear power, we are Watt’s accomplices in “activating” the

Anthropocene.<sup>22</sup> At a time when the proportion of carbon dioxide in the atmosphere was 280 million ppm, he and we set these measurements in motion towards the levels of today reaching 415 ppm – the highest in three million years.

But what, then, about volcanoes, asks Icelander Andri rhetorically. He naturally finds the answer in research, which shows that volcanoes “release two hundred million tons of CO<sub>2</sub> a year while humanity releases thirty-five *billion* tons a year. The fire we burn is almost two hundred times greater than all combined volcano activity” (192). To underline the immense proportions, he includes his own calculations of emissions while flying around the world, “Our family’s trips abroad over the last ten years amount to a hundred barrels of oil. Imagine stacking them outside my home” (194). Oil, Andri states, is what the Devil was to medieval Icelandic priest Sæmundur the Wise: “Sæmundur was famous for doing deals with the devil, tricking him into washing his laundry, harvesting the fields, even getting the Devil to carry him home to Iceland from France in the shape of a seal so that his coat didn’t get wet” (199). At the end of every tale, however, the Devil demands payment in the form of the priest’s soul or an unborn child. Oil is demanding its payment – punishing us with fires, floods and mass extinction.

A final example of a myth being recreated is a younger Prometheus, who emerged in 1945, J. Robert Oppenheimer, who lay under the surgeon’s knife in the hands of Andri’s grandfather. The inventor of the nuclear bomb afforded careless leaders with godly superpowers and the ability to blow up the entire earth. After seeing the bomb explode for the first time, Oppenheimer himself realized the mythical context. In an interview, he cited the Bhagavad Gita, “*Now I am become Death, the destroyer of worlds*” (125, Andri’s emphasis).

Helen E. Mundler (2019, 3) states that myths are “created to make sense out of a senseless world,” evolving over time and being “constructed anew for each generation as attempts are made to make sense out of the human condition.” Andri’s extended use of both personal, collective and cultural memory to grasp the immensity of the climate crisis leads my analysis to a recently developed field within memory studies – *memory ecologies*.

22 Discussions about the beginning of the Anthropocene are ongoing, see note 8. But Watt and the time of industrialization do seem to prevail as an obvious starting point of man footprinting geological times. Testing and using nuclear bombs in 1945 is another suggestion (Andri Snær Magnason 2020, 124).

Under the heading “Memory and Connection: Remembering the Past and Imagining the Future in Individuals, Groups, and Cultures,” a special issue of *Memory Studies* (Schacter and Welker 2016) includes articles by scholars from psychology, philosophy, neuroscience, history, sociology and religious studies – however, *not* literature, it should be noted, or, for instance, reader-response studies.

Backed by neuro- and cognitive scientists, it is argued that human memory has evolved not only to allow us to remember but also to imagine what might happen in the future. Memory is seen as “a *dynamic, constructive* process that reflects the goals and biases of individuals and groups, *rather than a static and literal reproduction of past experiences*” (242, my emphasis), representing a reorientation in memory studies, according to the contributors and editors. The main editor of the journal, Professor in Interdisciplinary Studies at the University of Glasgow Andrew Hoskins, sums up the contributions and offers *ecology* as a common and holistic perspective running through them.

In “An ecological systems approach to family narratives,” Robyn Fivush and Natalie Merrill (2016) adapt an early and general model to the domain of family narratives.<sup>23</sup> They view three interacting systems of storytelling as key processes within which the autobiographical memory is dynamically established. Most of the headings are self-explicative, but a few keywords are added here: the *micro*-system in which parents provide most of the content and structure, essentially pulling the child into a narrative through the telling of shared family narratives and parent-child reminiscing, the *exo*-system in which events are experienced by the teller but not by the listener, such as parent work-life narratives, communicative family narratives (“Today I...”) and intergenerational narratives (parents relaying their childhoods and later experiences), and, lastly, the *macro*-system in which family narratives are embedded within and informed by larger cultural narratives and myths, such as collective cultural myths, master narratives (parents and family members having overcome obstacles in order to succeed; meant to inspire) and cultural history (Fivush and Merrill 2016, 305–314).

Andri’s storytelling praxis in the abovementioned autobiographical stories can be seen oscillating in this ecological psychological system, including the macro-system of his own cultural and collective memories.

<sup>23</sup> That is, the ecological systems model proposed by Uri Bronfenbrenner in *The Ecology of Human Development: Experiments by Nature and Design* (1979).

The *Codex Regius*, oral stories, texts, songs, photos, anecdotes from his famous relatives in and outside Iceland, and certainly his exchanges with the Dalai Lama, preserve “the store of knowledge from which a group derives an awareness of its unity and uniqueness and shape the way the societies think about the future” (Schacter and Welker 2016, 242).

Writing a history of the future based on the fluidity of both time and water seems a rather impossible task. Man-made linear time is one attempt, see Hulda’s calculations, but it can be disputed by examples such as Morton’s time-lapse films (see note 14). And whose time is it anyway?

Andri was inspired by the old tapes to try to *capture* time for the future. In their contribution to the special issue of *Memory Studies* (2016), Clinton Merck, Meymune N. Topcu, and William Hirst connect psychological explorations of mental time travel with collective memory. They use studies based on individual and large communities, including questions about the nation and national events that relate to the macro-level described by Fivush and Merrill.

Merck, Topcu, and Hirst regard scientific knowledge about climate change as a collective memory, comparing recollections and projections to assess simulations and imaginings of the future of the world’s climate (289). In traditional experiments, personal pasts and the imagining of personal futures are closely related. In recalling experienced events, selecting and extracting details, individuals can recombine to simulate what might happen in their personal futures (e.g., if one is successful in getting a good job, it’s easier to imagine it happening again after a move). Further, it is easier as individuals and members of the collective to imagine the future within one year, perhaps 5–10 years, but not 50–100 years. Merck, Topcu, and Hirst (2016, 290) therefore wanted to find out whether “selective remembering in a presentation about climate change affect the way listeners not only remember details about climate change in the past, but how they imagine the future of the world’s climate?” In their studies, they taught and exposed participants to information about climate change. The groups were asked to read four essays, a.o. about greenhouse gases and ocean levels, that presented both “neutral scientific facts as well as scientific statements that either exclusively supported the existence of climate change (climate change-supporting) or denied it (climate change-denying)” (290). In a following “selective practice phase,” participants studied only the neutral facts from two out of the four essays, leaving out either the climate change-supporting or climate change-denying statements. After



a time-lapse, the participants were asked to recall the originals and then to imagine the climate 100 years from now. And, not surprisingly, if the essay supported climate change as an indisputable fact, people were more likely to imagine future outcomes consistent with the existence of climate change and vice versa in the case of deniers.<sup>24</sup> This supports other findings, scientific, political, and what Andri is discussing in his book. Here one may add that there may actually only be these two options.

In a recent survey, a group of scientists working within climate research were asked about memories of important shifts in the climate (Kristiansen 2022). While most people have collective memories of 9/11 and July 22<sup>nd</sup> 2011, and what they were doing on those days, almost no one except researchers know about or remember the 2002 breaking off of the Antarctica icecap (LarsenB), the size of Danish island Funen, or where they were when the ppm CO<sub>2</sub> passed 400. As climate change is a slowly evolving catastrophe, one might argue that it has been difficult to comprehend or act on. However, the increasing number of floods, forest fires and record-breaking temperatures, and the fact that these disasters are coming closer may change this very soon.

### Conclusion – “Only you know if we did it”

If my life is in danger, if my earth and my descendants are in danger, aren't I obliged to understand what's at stake? (Andri Snær Magnason 2020, 62)

Andri's *history* of the future and *letter* to the future, read at the site of the lost glacier Ok, are moral calls: we know what to do – but are we doing it, and did we do enough? Indeed, only the future can tell.

*On Time and Water* is both a climate crisis artwork based on intricate storytelling and an important contribution to raising awareness about

- 24 I have cut corners in Merck, Topcu, and Hirst's more detailed survey. They mention that their findings only constitute “a first step in understanding how past and future are related for communities, be it a community such as a nation or a collectivity of individuals interested in climate change. Even if there are collectively held memories, individuals with specific knowledge about the past are more likely to imagine the future in specific terms; individuals with only generalized knowledge about the past are more likely to imagine the future in general terms” (Merck, Topcu, and Hirst 2016, 291).



the imminent dangers caused by global warming. Maybe it is actually *doing* something through its *how*, as Morton expressed.

It has been a well-known phenomenon, at least in the West, that science, fantasies and emotions are considered incompatible. Science is supposedly based on and presenting facts that must be objective and impersonal, see Andri's reflections when confronted by Lucht. But the quality of Andri's book, as noted by the Nordic Council Prize Committee, is its very particular combination of scientific references *and* personal emotions – mandatory if we want to save the planet.

In one of the chapters, Andri is about to give a talk on his travels to the Tobago Cayes and show a film that conveys the issue of the impending threat of the complete extinction of sea turtles in that area. However, when he sees his daughter Hulda in the audience, he can't carry it through and feels himself well up with tears. Several instances, also referenced in this article, show Andri's frustrations, anger and sorrow when dealing with the obvious: time is running out and no one feels responsible or is in charge of taking action!<sup>25</sup>

In "2050," one of the last chapters in the book, Andri makes a very concrete list of possible solutions and means for action:

1. Reducing food waste and make dietary changes.
2. Developing solar and wind energy; electric powered transport.
3. Working on conservation of forests; afforestation; restoration of wetlands and rainforests.
4. Empowering women. (301)

It may be added that he also discusses *carbon capture* and, perhaps most importantly, states that it isn't technology but only stable communities that can secure human life in the future (306).

My discussion of the dynamics of individual and collective memory in reading *On Time and Water* and coupling this with my choice of using

25 A growing number of scholars from various research fields have begun to address our complicated feelings about nature and climate change. They underline the importance of including shame, sorrow and fury in discussions of the climate crisis, referring to Swedish Greta Thunberg's open frustrations with world leaders. Bjørlykhaug and Vetlesen (2021) is a Norwegian example. In "Klimalitteratur og humor? Brit Bildøen *Adam Hiorths veg*" (Climate Change Fiction – and Humour? Brit Bildøen *Adam Hiorth's Journey*) (2011), I discuss the novel as a cli-fi novel being carried by other than dystopian, posthuman and resigned engagement (Mose 2021).

Morton's ecological thinking, has been an attempt to show how Andri's work of art shows, provides and finds a dynamic form to hold the important and overt messages of the climate crisis and imagining of (and perhaps even saving?) the future. His persistent interweaving of concrete and conveyed memories from both his autobiography, Icelandic and world culture, and particularly his recurring and repeated reflections on all he says and writes, show how this entangled scientific and humanistic project is a project in service of enlightenment, also conveyed in the epigraph by Baba Dioum. Through an "expanded ecological view," Andri has conveyed a vision and suggested necessary initiatives for both his daughter, her future families and the planet – a future which is at stake.

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