Anticipatory Environmental (Hi)Stories from Antiquity to the Anthropocene

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Acknowledgments

This collection of essays originated from an interdisciplinary, two-day online conference held in February 2022. Roughly at the same time, the IPCC finished its Sixth Assessment Report, *Climate Change 2022: Impacts, Adaptation and Vulnerability*, which paints a dire portrait of our climate futures and underlines the importance of anticipation and planning in socio-cultural discourse.

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Introduction

Anticipating Environmental Futures Beyond Pastoral and Apocalyptic Visions

Christopher Schliephake and Evi Zemanek

When we imagine what the future might look like on our planet, whether we do so in a factual or fictional text, there are two opposing paths: most narratives of the future clearly tend toward either utopia or dystopia. In different cultures and at different times, optimistic or pessimistic visions of the future have alternately been *en vogue*. If we look at contemporary literature and public communication in the media, dystopian visions seem to dominate again. After a period of catastrophic or 'apocalyptic' public discourse and journalistic environmental reporting in the 1980s and 1990s, there was a call to tell constructive stories of a more environmentally friendly lifestyle and resource consumption in order to bring about an ecological turn.[1] Recently, however, major newspapers such as *The Guardian* have taken a new course and are once again calling catastrophic developments by their names, convinced that only realistic communication of disastrous forecasts is sufficiently effective.[2] Looking at popular fiction, it seems as if the future can currently only be imagined as a catastrophe. According to Eva Horn, the success of popular culture's doomsday scenarios suggests that the catastrophe is not only feared, but also longed for (cf. Horn 2014, 12). In any case, regardless of the vision's content, we can assume that popular fictional scenarios shape our relationship to the future (cf. 22).

Although texts from different publication contexts cannot be lumped together without further comment—a scientific study on the possible consequences of climate change, a journalistic article, and climate fiction, which primarily aims to entertain, evidently have completely different functions—similar images and storytelling strategies can often be found in the case

> The catastrophe did not come as a surprise. Scientists had warned in good time, environmentalists had demonstrated tirelessly. Finally, even the politicians had recognized the urgency of the situation—too late: the disaster, the global climate catastrophe, could no longer be stopped. Now, in the summer of 2040, New York's skyscrapers rise like reefs from the sea far off the coast. Hamburg and Hong Kong, London, Cairo, Copenhagen and Rome have long since been flooded and swallowed up by the sea. [. . .] Where the Nile and the Ganges, the Rhine and the Amazon flow into the sea, mighty bays have emerged that reach deep inland. Valuable arable and pasture land has been lost forever. Since the ice caps at the two poles of the earth have been melting ever faster, the sea has swallowed whole countries. Denmark, the Netherlands, Belgium and Bangladesh no longer exist. Large coastal regions of the USA, as well as China and northern Europe, have been washed over. In the temperate latitudes of the northern hemisphere, such as Canada and central Europe, the climate has become milder. In subtropical weather, long and sultry summer periods, palm trees, pines and cypresses thrive in the foothills of the Alps. Further south, on the other hand, around the Mediterranean, there is a similar murderous drought as once prevailed in the African Sahel; all vegetation withers, the wells dry up, and deserts spread in many places.[4] (trans. Evi Zemanek)

The accuracy of the description of transformed landscapes and habitats is remarkable. A similar vision has been formulated recurrently since its publication in 1986, and what was once presented to readers as a fictitious scenario, we now hear from climate researchers as a prognosis that is becoming increasingly probable. The scenario was illustrated on the cover of *DER SPIEGEL* with a manipulated photograph showing Cologne Cathedral half submerged in the sea.

While we are here confronted with an entirely negative scenario, typical of the environmental discourse of the 1980s, Rachel Carson decided to open her influential environmental science book *Silent Spring* (1962) with a "Fable for Tomorrow" in which she uses idyllic, utopian images as a backdrop against which human-made environmental catastrophe—in this case the extinction of birds and other species as the result of industrial farming and the use of DDT—is unfolding. These well-known images portraying the peaceful coexistence of humans and animals in a beautiful, natural landscape are, from today's point of view, so exaggerated that they are most likely to be read as an ironic allusion to the long (literary) tradition that depicts idyllic country life. Such reminiscences are relevant to our volume because we are interested in how ancient and early modern *topoi* are reactivated, what function they serve, and how they are modified. Using the opening of the "founding text of modern environmentalism" as a starting point for discerning various models of environmental writing in his introduction to *Ecocriticism*, Greg Garrard argues that it relies on pastoral and apocalyptic imagery, "pre-existing ways

of imagining the place of humans in nature that may be traced back to such sources as Genesis and Revelation" (Garrard 2004, 2). He does not understand them as literary genres in a strict sense, but as "large-scale metaphors" and "established literary tropes" (7).

It would be too reductive to say that this dichotomy still pervasively shapes environmental writing today, because the mix of influences from literary precursors and public discourses adapted to the current situation is more complex. This becomes evident, for example, in *A Life on Our Planet: My Witness Statement and a Vision for the Future* (2020), written by the natural historian Sir David Attenborough, who has been the most famous face and voice of nature documentaries for more than half a century and has also become one of the most influential advocates for wildlife conservation. In his "witness statement," he chronicles the destruction of wilderness in the form of a countdown, followed by two different "visions of the future": The first one ("What Lies Ahead") foresees a catastrophe: "Nature" will be exploited until the world resembles a wasteland, with no hope for recovery. The other narrative ("A Vision for the Future") turns these dark images on their head and sketches a better world that is by no means free of contradictions: The overarching message is that we have to learn "to live with nature again rather than against it," and Attenborough would like to see the world become what he calls a "wild place" again by extensive measures of so-called rewilding.[5] As proof that this should be possible, he cites the Chernobyl Jungle, of all places, i.e., the exclusion zone, where wild animals have settled and plants are proliferating. At this point, the naturalist himself becomes a victim of "romantic" notions of wilderness, without considering that the exclusion zone is still heavily contaminated, uninhabitable terrain.

In the end, his vision for the future should not remain so far removed from reality: pastoral wishful thinking is merged with today's lifestyles in urban utopias in which food is produced by indoor vertical farming and meat substitutes are manufactured in laboratories—a starkly modernized idea of "a life in harmony with nature," one that embraces biotechnology. Such notions, ultimately dependent on technical innovations, also have precursors in literary utopias and ecotopias. One need only think of Ernest Callenbach's *Ecotopia* (1975), which is worth mentioning because it is one of the very few ecological utopias written in a time when dystopias clearly predominated.[6] By no means does Callenbach merely advocate a social regression into a self-sufficient rural life. The desire and challenge to find solutions for urban lifestyles that do not completely exclude "nature" is expressed in many "visions of the future" that are also explored in our volume. Besides much praise, Attenborough's "vision for the future" also earned criticism for his overly hopeful, quite unrealistic outlook, which does not cast the

slightest doubt on the feasibility of his overall societal transformation to global sustainability.

While communication studies and journalism studies have been arguing for many years about whether alarmism or constructive optimism—in short: a dystopian or a utopian narrative—is better at convincing readers of the need for political, collective, and individual action, literary scholars are engaged in their own debates. In terms of potential impact and aesthetics, the two extremes discussed by Garrard, pastoral and apocalypse, are being criticized for different reasons. Idealized depictions of nature are accused by some scholars, firstly, of being at odds with the current ecological crisis (cf. Bracke 2014, 434)—an argument that only counts if one expects literature to depict reality. Secondly, some argue that escapist fantasies are unable to convey an ecological message because they mistakenly view the natural world as a stable equilibrium and fail to recognize its dynamics (cf. Garrard 2004, 56). Pastoral ideals, some urge, should be replaced by new concepts such as "post-pastoral," a term that, according to Gifford, emerges from the pastoral tradition but transcends it by bearing witness to the critical consciousness of constructed ideality (cf. Gifford 2014, 26). We would argue that "pastoral" modes of representation should not be reduced to their mimetic or even ideological dimension, and are in any case worthy of closer examination in terms of their aesthetics and their relation to the history of ideas, not least because they often self-reflexively imply an ironic distance.

A likewise nuanced consideration should be given to the model of the apocalypse, which Lawrence Buell describes as "the single most powerful master metaphor that the contemporary environmental imagination has at its disposal" (Buell 1995, 285). He is referring to the prophecy of a great catastrophe, meaning a doomsday scenario—as is common in Anglo-American discourse—while omitting the other dimension of the biblical apocalypse, namely the promise of salvation, a new beginning after a purifying end of the world. To anticipate the end of the world without a new beginning is quite typical for modern discourses after 1800. This model has been called "naked apocalypse" ("nackte Apokalypse," Anders 1972, 207) or "cropped apocalypse" ("kupierte Apokalypse," Vondung 2018). Calling merely catastrophic visions of the future 'apocalyptic,' however, can make sense in that end-of-the-world scenarios "reveal something that is still hidden beneath the surface of the present" (cf. Horn 2014, 25). Scholars who look at "apocalyptic narratives" in a secular sense argue that while such drastic narratives effectively alarm readers, they give little cause for hope and therefore do not encourage action. Another argument against "environmental apocalypticism" is that such rhetoric tends to simplify complex contexts by crudely opposing good vs. evil or innocent vs. guilty, thus polarizing responses (cf. Garrard 2004, 95, 104–7, and Heise 2008, 141). Ultimately, the potential of the

"apocalyptic narrative" is evaluated ambivalently; on the one hand, its prophecy of a *future* catastrophe does not quite do justice to our current experience of an already ongoing crisis. On the other hand, it can counteract the danger that we will grow accustomed to the crisis (cf. Buell 2003). A purely impact-oriented view may be appropriate for politically engaged nonfiction, but it relegates the aesthetic aspects of literary works too far into the background and overlooks numerous other ecological genres and narrative techniques that use "pastoral" and "apocalyptic" rhetoric at best partially or not at all.[7]

ANTICIPATORY ENVIRONMENTAL (HI)STORIES AND/IN THE ANTHROPOCENE

When looking at the root causes of the recent upsurge in (hi)stories of the future, there can be no question that the acute realization of humankind's environmental impact in the course of climate change, pollution, and wildlife depletion plays a key role. No other term has captured this better than the notion of the "Anthropocene." This neologism had been occasionally used by the paleoecologist Eugene Stoermer since the 1980s and finally came to prominence in 2000, when he formally took up the term together with the Noble Prize–winning atmospheric chemist Paul Crutzen (cf. Crutzen/Stoermer 2000). In its simplest meaning, it states that humans have turned into a geological force, whose actions have become imprinted on Earth's stratigraphic record. When the Anthropocene took hold in academia it generated tidal waves that have far from abated. With the aim of surveying and understanding the variety of interpretations and connotations of the Anthropocene concept in the multidisciplinary debate, Gabriele Dürbeck distinguishes between five "narratives of the Anthropocene"—the disaster narrative, the court narrative, the Great Transformation, the (bio-)technological narrative, and the interdependence narrative—and thus offers a helpful orientation (cf. Dürbeck 2019) While we cannot retrace the complex debate that has surrounded the notion,[8] we can try to sketch out its effects for (anticipatory) environmental history. As Nixon has argued:

> The imaginative questions that the Anthropocene provokes are accompanied by historical ones. The Anthropocene has profound implications for the meaning and object of history, reframing the future by rethinking the past as shaped by a fused biological-geological actor. Crutzen and Stoermer's neologism is both historically belated—suggesting that people possessed planetary geomorphic powers long before they realized it—and anticipatory. For if our actions have indeed propelled us beyond the Holocene, the new epoch we have set in motion is in its infancy. The Anthropocene thus pulls us simultaneously into deep pasts

> and deep futures that are unfamiliar, uncomfortable terrain for historiography. (Nixon 2018, 5)

As Nixon rightly goes on to state, the Anthropocene is in itself a historical product both in so far as advancement in technology has generated effects that are now visible in the fossil record, and in so far as "new technologies of detection have generated new geophysical archives of inquiry that are reshaping [. . .] assumptions about what stored knowledge looks like, about archival reading practices, and about the interdisciplinary literacy such readings may require" (5).

To this we may add the observation that the Anthropocene also challenges the traditional modes in which history is written. As Thomas puts it, the term complicates accepted notions of human individuality and collectivity. This has to do with the new forms of knowledge generated by different disciplines that are all researching the various geophysical, historical, and cultural archives connected to the Anthropocene: "all scales matter," Thomas insists, while also cautioning, "it is not clear that they all matter equally to" the discipline of history (2014, 1589). "Paleobiology, microbiology and biochemistry [. . .] produce visions of 'the human' that are incommensurable with one another, as well as with the historian's usual conception of personhood and society" (1589). Finding a way of thinking individual human agency and the social contexts that have set the stage for history's events together with the geological and more-than-human processes that suddenly play themselves out on human time scales is now one of the key tasks of the historical imagination. This aspect has been particularly emphasized in the writings of postcolonial historian Dipesh Chakrabarty. As he argues in his seminal essay "The Climate of History: Four Theses" (2009), anthropogenic climate change challenges cultural theories predicated on essential types of difference like race, class, or gender. Its long-term effects and global magnitude forcefully bring into view the universal history of the human taken as a species. Thinking about humankind's geological agency leads to a re-imagination of both the limits and promises of the traditional separation of natural history and the history of human societies. Rather, this anthropogenic agency brings planetary history into swift focus. As Chakrabarty has recently argued:

> The planet offers us a perspective on humans that questions the usual assumptions that underlie the way modern humans [. . .] relate to the earth. The growing and yet sudden awareness on part of humanists of deep, planetary history [. . .] delivers the shock of the recognition of the otherness of the planet itself even as we regard the world-earth as *our* place of dwelling: an awakening to the consciousness that we are not always in practical and/or aesthetic relationship with the planet and yet, without it, we do not exist. (Chakrabarty 2021, 182; emphasis in original)

As Chakrabarty recognizes, human history has therefore become entwined with the timescales of evolutionary deep time and geological time (cf. 183). As Heise has observed, this confrontation of different temporalities plays itself out "on at least three different scales: on the scale of a human history that has generated multiple inequalities between humans, on the scale of a humanity that has become an agent as a species, and on the scale of a geological power that transforms the planet's physical nature" (2019, 278).

Although there can be no question that these new developments alter the anthropocentric scale of history and will demand innovative paradigms that can address the manifold challenges of a planetary perspective on the trajectories of human and more-than-human events, we should not overlook the fact that there have been historical precursors confronted with the task of facing seemingly new problems with the traditional means of scholarship and writing as we already pointed out above. Many scholars have begun to explore early written responses to environmental instability and ecological uncertainty, and how these coincided with the emergence of strategies for predicting the future in the course of the nineteenth century (cf. Williams 2013; Williams 2016). As Clark has cautioned, "This renewed interest in kinds of thought previously overlooked must also avoid the danger of positing the Anthropocene in terms that make it continuous with a long and varied tradition of thought on the relations between weather, climate and human cultures, instead of also being a drastic break with these" (2015, 62).

In the terms of Clark, a renewed environmental imagination of the future must take into account "the irreversible break in consciousness and understanding" (62) with which the severe climate crisis of the twenty-first century confronts us, rather than engaging in "some act of supposed retrieval" (62) of traditions and sentiments. Clark therefore calls for new, innovative forms of representation that bring about new story templates to deal with the different scales at work in the Anthropocene. Clark complains of "limits" of the "imagination" and points to readers' expectations when it comes to the way (hi)stories are traditionally shaped (cf. 176–81). Other critics, like Heise (2019), do not share in this rather pessimistic outlook, but stress that forms of genre fiction, and particularly science fiction, have long developed modes of narration that engage with multiple scales and give a prominent place to nonhuman agents of all kinds. The authors who contributed to our volume present and discuss many other forms and formats of environmental imagination that emerged at different times.

While it is certainly true that we need to underline the marked historical difference in environmental perception, we should not cut ourselves off from

the long traditions that have shaped our histories of the future too quickly either. In his thought-provoking series of lectures, *The Great Derangement: Climate Change and the Unthinkable*, the Indian novelist Amitav Ghosh, too, deals with the historical dimensions of the Anthropocene and the kind of stories it prompts us to tell about the world and humankind's place within it. As he remarks, "The climate events of this era, then, are distillations of all of human history: they express the entirety of our being over time" (2016, 115). On the one hand, this means that some of the key premises of the Anthropocene, understood as an unprecedented phenomenon, need to be critically revised by revisiting the underlying historical transitions and developments that have led to anthropogenic climate change. On the other hand, this also entails looking for narrative forms that can capture the sense of human history as being embedded within forms of nonhuman agency and geological forces—while Ghosh is skeptical of the capacities of the novel in this regard, he points to premodern epic's ability to conjure up "universes of boundless time and space" (61) and to present a "matter-of-fact acceptance of the agency of nonhuman beings of many kinds" (64). The question of the suitability of certain narrative strategies and forms for different messages and intended effects on readers in very different epochal and cultural contexts is answered quite differently by the respective chapters in this volume.

Ghosh's thoughts are a reminder of the way in which environmental histories of the future need to consider both the irruptive powers of nonhuman actors and the ways in which forms of storytelling have given them a voice in the past. Rather than calling for a complete re-invention of cultural ways of imaginative world-making, Ghosh asks us to look for a thorough re-exploration of its archives. This is why a more recent strand of critical thinking has recurred to memory studies in order to conceptualize how the imaginative configurations necessary to invoke the future by re-visiting the past can come about.[9] In a special issue of *Textual Practice*, Bond, de Bruyn and Rapson use the term "planetary memory" (2017) to address the pronounced shift to a planetary perspective, while also bearing in mind the human dimension of the acquisition of knowledge, environmental experience and orientation in space and time. As the authors put it, this "develops a frame that enables us to consider the changing conditions under which cultural knowledge is archived and remembered in the present" (859) and also to "consider that climate change imaginaries foreground the topic of future 'memories' that may postdate human existence on the planet" (860).

A special imaginative challenge arises when, at a certain point in the imagined future, humanity itself has gone extinct and the planetary history of its demise is to be retrospectively recounted from a post-apocalyptic perspective. For in this case, a non-human narrative entity—a paradox per se?—must be invented, which seeks to reconstruct, for example, the decline of humanity

and the environmental decline of the earth. With such a "thought experiment," as one review calls it, geologist Jan Zalasiewicz begins his book *The Earth After Us. What Legacy Will Humans Leave in the Rocks* (2008).[10] In the prologue, he imagines how, 100 million years from now, a group of intelligent beings will geologically examine the deserted earth in order to find traces of a significant civilization in the rocks and to gain information about environmental events that could have caused the disappearance of that civilization. Eva Horn names Zalasiewicz's opening as an example for imagining the deep future—one of the challenges of the Anthropocene (cf. Horn/Bergthaller 2019, 209). One must say, however, that the geologist Zalasiewicz, for all his good ideas, struggles to flesh them out in a narrative.[11]

Much more vivid than in Zalasiewicz's short opening, but now almost forgotten, is the figuration of a posthuman "future reader" in Samuel R. Delany's 1967 novel *The Einstein Intersection*. Combining autobiography, travelogue, modes of epic storytelling, and philosophical reflection with central narrative tropes of the science-fiction novel, the book presents us with the stark vision of an Earth deserted by humankind in the wake of global nuclear disaster. The planet is now populated by a heavily segregated class of aliens, who resemble humans in their bodily appearance and some social conventions. Not only do they inhabit the ruins of a downtrodden civilization, but they literally live in the myths, stories, and cultural icons inherited from their precursors. The novel's main plotline follows the archetypal character Lo Lobey, who is a herder, hunter, and singer, in his quest to retrieve his lost love, Friza, from the dead. Interweaving self-reflective commentary by the author, who travels through the Mediterranean world as he works on the plot of the novel, with strong allusions to and borrowings from Greco-Roman myth, particularly the story of Orpheus, *The Einstein Intersection* not only offers powerful commentary on pressing environmental as well as social issues of its time, but also sets its story within a cultural (dis-)continuum that problematizes the question how inherited modes of storytelling bear upon the future—and what kind of archives future readers will use to learn about the past (cf. Schliephake 2016b). Through its portrayal of a future reader of a past human civilization, *The Einstein Intersection* not only pre-figured a current environmental trope. Rather, in its vast temporal outlook and cultural meta-commentary, it still stands as one of the most innovative examples of a mode of writing that self-consciously reflects on the preconditions of imaginative world-making and on the transformative potential that it entails. Thereby, personal witness to social grievance (particularly race segregation) and to the ever-present danger of nuclear holocaust (during the Cold War) combine with a meditation on cultural canons and how it needs to be re-imagined in the face of the uncertainties and potential threats of the future.

The Einstein Intersection therefore illustrates that, to borrow a phrase from LeMenager and Foote, "the process of narrative is a sustained effort in world making, an effort that is historically specific and yet powerfully attuned to the future" (LeMenager/Foote 2012, 577). By setting its narrative in a distant future that is nonetheless intrinsically tied to both cultural and environmental memories and that takes the archive of human storytelling seriously as an imaginative resource in its own right, Delany's novel underscores some of the central themes of our book. Particularly, it illustrates how the deep time of cultural memory engages with current concerns and shapes the narratives of the future. It also proves that in looking back to the ancient and premodern past, alternative models for thinking about human entanglements with the more-than-human can be sought and an isolationist view of human development can be subverted. The examples assembled in this volume will show how different times and forms of knowledge production have been implicated in histories of the future, and how certain tropes have recurred and been transformed over time.

OUTLINE OF THIS BOOK AND ITS CHAPTERS

Based on these preliminary reflections, our volume wants to deepen the discussion on modes of environmental anticipation on the one hand, and to present a diachronic selection of case studies on the other. Connected to this are a plethora of questions that are relevant to all eras covered in this book: What kinds of knowledge systems were/are involved in outlining the future state of the world? Who were/are the main actors implicated in these projections and what was/is their role in society? What kind of texts and narrative strategies were/are used to describe future environments? How are/were different models and patterns of anticipatory storytelling combined, modified, and adjusted to various cultural and epochal contexts and intentions? How did/do narratives of the past shape (hi)stories of the future? And what effect did/do environmental scenarios have on environmental behavior? It is not the aim of the volume, and certainly not of the individual contributions with their different emphases, to clarify all of these questions unambiguously. However, the volume seeks to spur debate on how environmental anticipations have worked over the course of history and how they still reverberate in the environmental imagination of the Anthropocene. As explained above, it is our belief that the premodern archive of environmentally oriented texts presents us with valuable resources—both for analyzing human-nature interactions in the past and as a repository for creative interventions in our own time.

Each section of this book revisits premodern expectations of the future and attitudes to nonhuman nature in one way or another. Although we could have structured the volume as a whole in a chronological manner, moving from the earliest sources, dating back to ancient Greece, all the way to the twenty-first century, we opted for a different approach. We decided to bring the essays together under four overarching, but connected themes: Section I, "Dialogues Between Times and Places" looks at the interplay between environmental imagination, cultural memory, and expectations of future worlds as they played themselves out across different times. Section II, "Extinction and Conservation" is concerned with the place of nonhuman others in anticipated worlds, and how the discourses surrounding the possible extinction of animal species was and is connected to how humans have thought about their own future on this planet. Section III, "Urban Environments" looks at modern debates and schemes that focus(ed) on the (future) living conditions in cities and develop(ed) templates for dealing with pollution, population density, architectural challenges, and ever-increasing technical possibilities. The last part, Section IV, "Climate(s) and Materialities" analyzes what role material resources and climate played over the course of history for anticipating developments that could have a lastingly negative effect on the planet and in which ways humans were/are implicated as active agents in these processes.

That anticipatory environmental histories are hardly a one-way street, directed only towards the future, but rather involve different temporal registers is made clear by the essays in Section I. Astrid Möller revisits one of the pivotal (and oldest) texts of the Greek epic tradition, Hesiod's *Works and Days*. She shows how the myth of the succession of different ages that Hesiod's text presents are closely tied up with the present and past experiences of the archaic peasant world. Hesiod not only presents a powerful story explaining the harsh living conditions of his time in mythological terms, but also invites his readers to reflect on their own actions and outlooks. As the poet illustrates, it is only by living in accordance with nature's rules and in paying due respects to the gods, that humans can secure their livelihoods and plenty to eat in the future. In her chapter on "Ancient Geographies of Health and Environmental Acumen," Caroline Petit analyzes the way that environmental knowledge in antiquity was connected to questions concerning health and medicine. Focusing on a passage in Galen's extensive corpus, Petit traces how the ancient doctor thought about future health resorts and therapy and what grounds he had for imagining them. This case study uncovers the narrative and argumentative threads in Galen's medical discourse, and in early medical-ecological thought more generally, thus defining the role of anticipation in ancient medical views on the environment. Chapter 3 looks at Roman wetland drainage comparing ancient and modern approaches and discourses. As Jasmin Hettinger illustrates, ancient sources developed a

rather ambivalent view of marshes (and the people living there), but there was also another outlook that took swampy lakes as omnipresent features of the landscape and associated them with a range of activities and agencies. By contrasting these attitudes with modernist takes on wetlands which hold that they are to be drained for future profit, Hettinger disentangles ancient discourses around wetlands from modern ones and invites a new view of the environmental past. In chapter 4, Diana Barnes traces another imprint that the ancient tradition has left on the environmental imagination. Looking at an example of sixteenth-century pastoral poetry, Edmund Spenser's *The Shepheardes Calender* (1579), Barnes argues that it would be wrong to view the text's pastoral world as representing a mythical past that is timeless and idealized. Rather, in her reading, the pastoral is a space out of time established for urgent reflection necessitated by the environmental, social, and political upheaval underway at the time of writing. Nonetheless, the mythic time Spenser celebrates as a decorous, proper map for future times, is predicated upon the elision of women's work and women's time in favor of masculine attitudes towards the environment. In the last chapter of the first section, Charles M. Pigott examines "retrospective prophecy" in contemporary Maya literature looking at Chim Bacab's book-length poem *Lool k'ajlay* ("Flower of Memory," 2014). Drawing on close linguistic, literary, and cultural analyses of one key stanza, together with recent scholarship in memory studies, the chapter demonstrates how Chim Bacab's poem revindicates a Maya conception of time that is fundamentally relational. This is contrasted with the linear model of progress through erasure of the past that Chim Bacab identifies with the Spanish Conquest, and which creates an artificial separation between humanity and the wider cosmos.

Section II, "Extinction and Conservation" is concerned with another form of relationality, one that takes its main impetus from the question as to what humankind's place is in the world and what it will look like in the future—especially when considering nonhuman others that also live on this planet. Richard Hutchins's essay asks whether it is possible to feel like a species in the face of environmental disasters or in violent encounters with the natural world. Arguing that literature and philosophy can allow for virtual, embodied experiences of feeling like a species through poetic symbolism and imagery, Hutchins presents a close reading of a passage in Lucretius' *De rerum natura* about the end of the world and the struggle for the survival of human culture. Hutchins illustrates how Lucretius renders the loss of self-narrative and the particular Roman perspective of the last representatives of humanity, while also inviting the concept of feeling like a species amidst an environmental apocalypse. Christopher Schliephake's chapter looks at Plutarch's animal treatises, a series of texts in which the interactions between humans and nonhumans and the question of how they can live together comes to center

stage. As Schliephake argues, the ancient writer Plutarch prefigured modes of multispecies thinking by claiming that animals possess reason. Their ability to anticipate future developments played a key role in Plutarch's argumentation. Moreover, Plutarch also developed a cultural theory in his animal treatises that not only paints a rather dire portrait of humankind's cultural evolution, but also makes room for reflecting on alternative lifestyles, whose exact contours are left to his recipients to imagine and anticipate. In chapter 8, Gregory Dehler deals with the anticipated extinction of American wildlife around 1950. This vision had been formulated by the author, conservationist, and zoologist Hornaday because of his having been witness to the great buffalo slaughter of the late nineteenth century. Dehler illustrates how Hornaday, in contrast to other conservationists of the time, called for a moral responsibility to protect wildlife, beginning with ensuring against species extinction. Discussing the underlying premises of his narrative and how it shaped his contentious discourse and policy battles with fellow conservationists who did not share his deep pessimism, Dehler argues that Hornaday's successful campaigns to protect wildlife staved off the very speculative history of the future that he so feared. In chapter 9, focusing on mammoths, elephants, and the late-nineteenth-century ivory trade, Rebecca Woods examines the presumed categorical relationship between endangerment and extinction, and the anticipatory discourses that support them. Drawing on a recent failed effort to list extinct woolly mammoths as endangered for the sake of protecting endangered African elephants, her essay explores how naturalists, imperial representatives, and ivory manufacturers employed discourses anticipating the looming extinction of African elephants towards the end of the nineteenth century in order to redraw the relationship between extinction and endangerment. Woods concludes by considering futures based in mammoth ivory both then and now. In her contribution, Lena Pfeifer discusses Naomi Oreskes and Erik M. Conway's *The Collapse of Western Civilization: A View from the Future* (2014) as an example for narrating the collapse of particular civilizational structures. Based on a reconceptualization of the category of the human necessitated by the complexities of the Anthropocene—which requires thinking of the human as a species as well as a political-cultural subject—her essay argues that reading Oreskes and Conway's text through and at the intersection of these different configurations of the human functions as a means of decentering the human subject and, in this way, as a prompt for rethinking what it means to be human in the Anthropocene.

As urbanization progressed, visions of the future in the late nineteenth and early twentieth centuries had two options: either to create a counternarrative to reality, that is, by imagining a return to simple rural life, or to envision solutions to urban problems that would improve city life. Section III of this book focuses on "Urban Environments." Typical problems of the modern

age undoubtedly include noise pollution caused, among others, by industrial production and road traffic, an aspect which has received less attention in research than, for example, the contamination of air and water. In chapter 11, Heiner Stahl examines a series of sources from the first decades of the twentieth century, published in Germany and the United Kingdom, which set out various paths of city analysis, suggest procedures for mapping noise emissions and set out how urban spaces should be managed in the future in order to control and enclose public/private soundscapes. Arguing that reflections on noise pollution shaped the utopian imagination of urban and public spaces, Stahl shows how sensory perceptions, interdisciplinary knowledge, and notions of environmental behavior are interwoven in these texts. Since architecture in particular significantly determines the relationship of humans to their environment, it is only logical to pay attention to the urban planning of the future. In chapter 12, Serge Middendorf explores the ideas of Paolo Soleri, especially his futuristic Arcologies (a portmanteau of architecture and ecology): an attempt dating from the 1970s to organically reintegrate nature into cities. Arguing that Soleri's designs are shaped by an "anticipatory memory," which plays a central role for the concept of the Anthropocene, Middendorf discusses the temptations and possible shortcomings of Arcology as an alternative to other urban visions. Half a century later, in sharp contrast to Soleri's ecological city, we are dealing with visions of technologically advanced smart cities managed by artificial intelligence—at least in fictional literature. On the basis of the novel *Technophoria* (2020), written by the German journalist and author Niklas Maak, Helga Braunbeck examines in chapter 13 the promises, and, even more, the risks of a digital technosphere that, while intended to reduce the effects of global heating, constitutes a "surveillance capitalism." Discussing the dehumanization and cyborgization experienced in Maak's futuristic world, Braunbeck reads this satirical novel as "anti-sci-fi."

Section IV of this volume is concerned with the "Climate(s) and Materialities" of anticipatory environmental (hi)stories. The first contribution in this section deals with man-made pollution that triggers grief, alienation, and longing for an unspoiled homeland: a feeling called Solastalgia. In his unfinished epic *Bellum Civile* on the past civil conflict between Julius Caesar and Pompey, the Roman poet Lucan mourns the pollution of Pharsalus and Rome's empire. In chapter 14, Darrel Janzen explores Lucan's use of 'anticipatory memory' when, in his quasi-historical narrative, he adopts a post-apocalyptic tone and refers to a future that is his own present-day or recent past and that thus post-dates the empire's breakdown. Janzen's reading of *Bellum Civile* 7 shows how Lucan connects the physical pollution caused by bloodshed to its social causes and proposes solutions for this social-physical problem. In chapter 15, James Dunk brings into play another type of toxic

pollution that is characteristic of the mid-twentieth century and also emerged in the context of war, this time World War II: anticipatory (hi)stories of nuclear destruction. In particular, the terrifying scenario of a nuclear winter as an expected effect of a large-scale nuclear war frightened scientists, activists, and citizens alike. In this scenario—which, in addition to scientific prognosis, also engages imagination and speculation—humanitarian and ecological catastrophe merge, since nuclear warfare is not limited to selective destruction, but would also affect the climate for an incalculably long time. By recurring to the concept of 'double death' by anthropologist Deborah Bird Rose, Dunk examines the forceful collision of times and tenses in this vision. As is well known, there are voices in the debate about the Anthropocene that argue that the epoch begins with the nuclear age. In chapter 16, Falko Schnicke argues that a look at nineteenth-century predictions of future climatic change helps to gain a more nuanced understanding of today's Anthropocene debate. Therefore, he analyzes two visions of climate futures—one dating from 1786 and the other one from 1874—which emerged against different epistemological and (non-)religious backgrounds and differ significantly in their conceptions of the cause and effects of climatic change as well as with regard to human agency and possibilities of technical control. Schnicke highlights the importance of newspapers for the popularization of the emerging climate discourse. Karolin Wetjen ties in with this in chapter 17 by closely examining the spread of a particularly influential climate theory: Eduard Brückner, one of the leading climatologists of his time, introduced a theory of climate periods of thirty-five years that allowed him to predict imminent climate changes and to speculate on their socio-economic impacts. Wetjen traces the career of the "Brückner period" in various professional journals as well as in popular magazines and elaborates on the effects of Brückner's anticipation of a grave economic crisis. Our volume ends with a chapter that brings our readers back to the present, where global warming and the struggle for resources has become a reality, while the burning of fossil fuels is one of the most controversial issues. Martin Riedelsheimer and Leila Vaziri offer a close reading of Ella Hickson's *Oil* (2016), a drama revolving around this highly contested material resource. They focus on the cyclical conception of history underlying this play, in which the exploitative patterns witnessed in the past are projected to repeat in the future. Being an all too often neglected genre in ecocritical studies, drama offers special textual and performative possibilities for addressing the ecological crisis. Hickson employs a 'dramatic loop' structure that stages the endless repetition of the ever-same debate about resource exploitation. This particular dramatic structure, Riedelsheimer and Vaziri argue, points to the need to stop future exploitation now in the present.

We believe that the thematic arrangement of the sections, in the way they bring premodern sources together with modern attitudes and texts, help us

uncover long-term trajectories in environmental anticipatory thinking. Their combination underlines differences as well as similarities and shows in what way modern anticipatory modes of the environmental imagination take their cue from historical precursors and where they take new avenues in the face of changing material worlds.

NOTES

1. For an overview of global developments in environmental journalism see the *Routledge Handbook of Environmental Journalism* 2020.

2. Pleas for so-called "bad-to-worst-case scenarios" can also be found in science communication. See for example Kemp et al. 2022.

3. On this trope see Nixon 2020 as well as Bond, de Bruyn and Rapson 2017.

4. The original text reads: Überraschend war die Katastrophe nicht gekommen. Wissenschaftler hatten beizeiten gewarnt, Umweltschützer unermüdlich demonstriert. Schließlich hatten sogar die Politiker den Ernst der Lage erkannt—zu spät: Das Desaster, der weltweite Klima-GAU, war nicht mehr aufzuhalten. Jetzt, im Sommer 2040, ragen die Wolkenkratzer New Yorks weit vor der Küste wie Riffs aus der See. Überflutet, vom Meer verschluckt, sind längst auch Hamburg und Hongkong, London, Kairo, Kopenhagen und Rom. [. . .] An den Küsten aller Kontinente drängt sich das Meer in die Mündungstrichter der großen Ströme. Wo Nil und Ganges, Rhein und Amazonas in die See fließen, sind mächtige Buchten entstanden, die tief ins Binnenland reichen. Wertvolle Acker- und Weideflächen sind dabei für immer verlorengegangen. Seit die Eiskappen an den beiden Erdpolen immer rascher abschmelzen, hat die See ganze Länder verschlungen. Dänemark, die Niederlande, Belgien und Bangladesch existieren nicht mehr. Überspült wurden weite Küstenregionen der USA, aber auch Chinas und Nordeuropas. In den gemäßigten Breiten der nördlichen Hemisphäre, etwa in Kanada und Mitteleuropa, ist das Klima milder geworden. Bei subtropischer Witterung, langen und schwülen Sommerperioden, gedeihen im Alpenvorland Palmen, Pinien und Zypressen. Weiter südlich dagegen, rings um das Mittelmeer, herrscht eine ähnlich mörderische Dürre wie einst in der afrikanischen Sahelzone; alle Vegetation verdorrt, die Brunnen versiegen, und vielerorts breiten sich Wüsten aus. (Anonymous 1986).

5. For a discussion of Attenborough's environmentalism in his recent book and his documentaries, see Zemanek 2022.

6. For a closer look at human-environment relations in utopian and ecotopian texts, see Zemanek 2015a and Zemanek 2015b.

7. For a revision of the pastoral and apocalyptic models see also Zemanek 2018, 18–24, who argues for an expansion of the ecocritical canon, genre diversity, and promotes greater attention to genre-specific knowledge.

8. Two recent introductions into the debates spurred by the term can be found in Horn/Bergthaller 2020 and Thomas 2022.

9. The relationship between memory studies and history is a complex one and cannot be covered in depth here. For a discussion in terms of environmental themes cf. Schliephake 2016a: 570–77.

10. See Robin McKie's review in *The Guardian*.

11. Quite in accord with other texts, the focal point of such post-apocalyptic visions is often a "future reader," who finds the ruins of modern civilization and re-traces the story of its socio-ecological decline and eventual downfall. As Vermeulen observes, these "contemporary figurations of the future reader oscillate between two disciplinary incarnations," that of a "geologist" and a "historian" (2017, 872), and thus need not necessarily be a posthuman entity. Another common trope is the figure of the "last (wo)man." He/she embodies a "gaze that grasps from the end something that appears veiled in the present"; he/she is "the anticipation of a late, final insight whose whole desolation lies in the fact that this insight is no longer of any use" (Horn 2014, 29, our translation).

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