

*Routledge Interdisciplinary Perspectives on Literature*

# THE ANTHROPOCENIC TURN

THE INTERPLAY BETWEEN DISCIPLINARY  
AND INTERDISCIPLINARY RESPONSES  
TO A NEW AGE

Edited by

Gabriele Dürbeck and Philip Hüpkes



# The Anthropocenic Turn

This interdisciplinary volume discusses whether the increasing salience of the Anthropocene concept in the humanities and the social sciences constitutes an “Anthropocenic turn.” The Anthropocene discourse creates novel conceptual configurations and enables scholars to re-negotiate and re-contextualize long-established paradigms, premises, theories and methodologies. These innovative constellations stimulate fresh research in many areas of thought and practice. The contributors to this volume respond to the proposition of an “Anthropocene turn” from the perspective of diverse research fields, including history of science, philosophy, environmental humanities and political science as well as literary, art and media studies. Altogether, the collection reveals to which extent the Anthropocene concept challenges deep-seated assumptions across disciplines. It invites readers to explore the wealth of scholarly perspectives on the Anthropocene as well as unexpected inter- and transdisciplinary connections.

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Responses to a New Age  
*Edited by Gabriele Dürbeck and Philip Hüpkes*

# The Anthropocenic Turn

The Interplay between Disciplinary  
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Edited by  
Gabriele Dürbeck and  
Philip Hüpkes

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# Anthropocenic Turn?—An Introduction

*Gabriele Dürbeck and Philip Hüpkes*

Since the term was first coined by Paul Crutzen and Eugene Stoermer (2000), the Anthropocene concept has affected debates in almost every discipline and has developed into a rapidly growing and controversial inter- and transdisciplinary object of research.<sup>1</sup> By placing anthropogenic impact on the earth systems at the core of geological and systemic analysis up to planetary scale, the concept of the Anthropocene has prominently challenged the dichotomy between “nature” as domain of the natural sciences and “culture” as the domain of the humanities, respectively, of “the social” as the domain of the social sciences.

Against the backdrop of rapidly changing earthly phenomena such as climate change, biodiversity loss, ocean acidification, glacier meltdown and species extinction the Anthropocene seems to respond to the scientific necessity to understand the epistemological and ontological role of “anthropos,” the human species. As a result of the original conceptual prioritizing of anthropos, the Anthropocene debate has at least partially emancipated itself from the concept’s exclusively earth system scientific and geological origins. As Dipesh Chakrabarty (2018, 9) has put it, the Anthropocene now lives “two lives,” one scientific “involving measurements and debates among qualified scientists,” and one popular “as a moral political issue.” Similarly, Helmuth Trischler (2016, 312) distinguishes a “geological” and a “cultural” Anthropocene concept. And Jan Zalasiewicz (2017, 124) states that “there are many Anthropocenes [...] used for different purposes along different kinds of logic in different disciplines.” Such distinctions take into account the difference between the numerous contributions of natural scientific disciplines, which primarily seek to develop the scientific base of the Anthropocene on the one hand, and the manifold approaches from the social sciences and humanities to reflect upon the historical, philosophical, ethical and political implications of the new concept and discourse on the other hand. An important manifestation of the “geological concept” of the Anthropocene, respectively, of its “scientific life,” is the journal *Elementa—Science for the Anthropocene* (since 2013), which mainly focuses on earth system scientific, geological, chemical and biological research. On the other hand, there are various examples of engagements with the Anthropocene

## 2 Gabriele Dürbeck and Philip Hüpkes

which address, highlight or mediate its cultural dimensions and contribute to the concept's popularity.<sup>2</sup> Among them are the inter- and transdisciplinary *Anthropocene Project* (2011–2013) at the *Haus der Kulturen der Welt* (HKW), Berlin, and the *Anthropocene Curriculum*, a collaboration between the HKW and the Max Planck Institute for the History of Science, Berlin; the joint exhibition by the Rachel Carson Center and the *Deutsche Museum Willkommen im Anthropozän (Welcome to the Anthropocene)* in Munich in 2014–2016 (cf. Möllers et al. 2015); or the *Anthropocene* exhibition of Jennifer Baichwal, Nicholas de Pencier and Edward Burtynsky in the National Gallery of Canada and Art Gallery of Ontario (2018–2019) and the documentary *Anthropocene: The Human Epoch* (2018) by the same artists.

Despite the heterogeneity of approaches in the different disciplines, the Anthropocene still remains recognizable as a set of interconnected ideas. A distinct “Anthropocene discourse” is now well established in a wide range of disciplines and institutions in the social sciences and the humanities as well as the arts, museums, popular science, the media and—rather implicitly—in political arenas. Although the central idea of the Anthropocene concept—i.e. humans playing a decisive role in the overall functioning of the earth systems—is not new, the extent of scientific engagement with it seems unprecedented.<sup>3</sup> For disciplines like history, sociology, political science, philosophy, cultural, literary and media studies, the Anthropocene signifies the opportunity to engage in a domain previously beyond their scope—the earth system—and thus to rethink or resituate their individual epistemic and operational frameworks. The remarkable hype that has evolved around the Anthropocene both mirrors and questions the particularity of these disciplines themselves, but it also facilitates the opportunity of new interconnections between them under the overarching framework of a new geological epoch with anthropos as its main force.

Drawing on the prime role that the Anthropocene concept has been playing in the discourses of the humanities and the social sciences for at least the past ten years, this volume seeks to assess whether the scale and scope of impact that the Anthropocene has on the different disciplines justifies to speak of an “Anthropocenic turn.” This, however, is not to ask whether it is *necessary* to actively and strategically *proclaim* such a turn, thereby implying its necessity and significance for the humanities and social sciences. Rather, this volume aims at mapping a number of significant disciplinary as well as inter- and transdisciplinary developments, which suggest that the Anthropocene fulfills a number of conditions of what could be termed an “Anthropocenic turn.” The approach of this volume is not so much grounded in an affirmative attitude toward the scientific relevance of the Anthropocene concept with its far-reaching implications, but in a reflexive perspective on the concept's uses and the ensuing effects on (inter- and trans-)disciplinary engagements with

the relationship between humans and Earth. Within the Anthropocene discourse existing paradigms, premises, theories and methodologies are re-negotiated and re-embedded into novel conceptual configurations. We argue that the Anthropocene has the potential to “format” elemental premises and assumptions of various fields of thought in a new way for a substantial duration of time, thereby fulfilling a basic requirement of what could be seen as the foundation for a “turn” in the making.

### Yet Another Turn?

An obvious and legitimate question is at this point: *do we really need yet another “turn”*? The suggestion that an Anthropocenic turn is currently in the making obviously poses a number of problems. Above all, the notion “Anthropocenic turn” might seem particularly unnecessary considering the simultaneous emergence of related “turns” and paradigms addressing similar developments in research. The increasing popularity of the Anthropocene beyond the natural sciences could well be interpreted as an effect or symptom of a far more general interest in ecological, geological and planetary-scale research topics. For instance, media philosopher Erich Hörl (2017) discusses the Anthropocene concept as part of a “new ecological paradigm,” which has emerged in the course of the development of cybernetics as the effect of an increased “ecologization of thinking.” A pendant to Hörl’s idea of a paradigm shift toward the ecological can be found in the proclamation of a “planetary turn” (Elias and Moraru 2015)—understood as the proliferation of artistic and literary engagements with the conceptual and political framework of the “planetary” in the course of the 21st century. Complementarily, the idea of a turn toward the geologic has been discussed in a number of articles (Yusoff 2013; Ivanchikova 2018), volumes (Ellsworth and Kruse 2013; Turpin 2013) or Gabo Guzzo’s art project *The Geological Turn: Art and the Anthropocene* at Banner Repeater, London (May 24–30, 2012).

An examination of such turns as the ones named above leads to a second problem: a proliferation of the quantity of proclaimed turns, which eventually prove to be the only temporarily relevant fields of interest. The endurance of a turn, i.e., its historical significance in science, might be proved only in the course of time and thus relies on retrospective approval—with the consequence that many quickly or casually proposed turns run the danger of undergoing the suspicion of being a mere “hype.” Up to this point it might not be entirely calculable whether the Anthropocene “is here to stay.” The most significant reason against assuming a turn comes from a geological point of view: the Anthropocene is formally still not considered as the present geological epoch although the majority of the Anthropocene Working Group has agreed in May 2019 to designate a new geologic epoch starting around 1950 with the atomic age.<sup>4</sup> As long as humanity is still “officially” dwelling in the

“Holocene,” there remains a probability that the geological Anthropocene concept is only of temporary relevance.

A third problem lies in the semantics of the “turn” itself and in the resulting research’s political implications. The 20th century has witnessed various turns, the most significant of which is the development of a skepticism about the transparency of language as a medium of registering and communicating reality. The so called linguistic turn, which spreads across various disciplines, substantiated the recognition that language functions as an ineluctable condition of thought. This recognition, however, has affected the development of and has been manifested in many of the most important currents of the 20th century western intellectual history, most prominently structuralism and poststructuralism. But far from having only a positive impact, the linguistic turn has also contributed to the exclusion of everything which eludes or surpasses discourses. The “iconic turn” (or alternatively “pictorial turn”) in the 1990s can be regarded as a direct response to the ongoing focus on the “hegemony” of the sign and textuality. Hence, it is important to consider that widespread developments such as the linguistic turn can have a totalizing tendency, which counteracts the broadly accepted recognition of a plurality of coexisting paradigms, which do not necessarily contradict each other. In accordance with Doris Bachmann-Medick’s (2006, 16) plea for “cultural turns,” one should think of turns *in the plural*. Such criticism and recalibration of our thinking about turns would apply, it seems, in particular to the Anthropocene, as the concept tends to appear as a holistic “story of scale that stretches from the deepest lithic recesses of the Earth to its unsheltered atmospheric expanses” (Oppermann 2018, 2). Furthermore, the Anthropocene has been critiqued for providing a “master narrative” of humanity, which supports the idea “of a totalization of the entirety of human actions into a single ‘human activity’ generating a single human footprint on the Earth” (Bonneuil and Fressoz 2017, 45). For various scholars, a problematic result of the suggestion that anthropos is the protagonist of an entire geological unit of time consists in the exclusion of the other, more differentiated perspectives on the causation of phenomena such as climate change, as well as in the marginalization of nonhuman forms of agency and matter. One of the most important arguments made in this respect concerns the undifferentiated attribution of responsibility as “stewards of the Earth system” (Steffen et al. 2007, 618) to humanity in general. Various scholars argue in slightly differing ways that the “true” subject of the Anthropocene is only a minor—capitalist, European or western, wealthy, post-industrial, white and male—part of humanity (e.g. Hornborg and Malm 2014; Ropohl 2014; Cunha 2015; Moore 2016; Di Chiro 2017). Another critique draws on the idea that anthropogenic impacts are themselves effects of—or entangled with—far more complex forms of mattering and “terraforming assemblages” (Woods 2014, 134)

consisting, for instance, also of micro-organisms (Haraway 2015, 2016) and media-technologies (Parikka 2014, 2015).

Hence, three problems seem to complicate the idea of an Anthropocenic turn: (1) the Anthropocene concept and its implications could be considered to be parts of a far more encompassing intellectual turn toward natural scientific, and most of all ecological, planetary and geological issues; (2) the Anthropocene concept may ultimately prove to have a far less enduring impact than expected—which would stand in contradiction to the strong and durable notion of a turn; (3) the Anthropocene concept may appear holistic in a way that undermines or at least complicates to grasp the true complexity of anthropogenic causation or of the entanglement of humans and nonhumans in a differentiated approach. In this respect, it could be argued that an Anthropocenic turn would affirm and strengthen a holistic and undifferentiated account of what in reality is far more complex. However, we argue that the role which the Anthropocene concept plays in various disciplines and in inter- and transdisciplinary approaches suggests a far less problematic notion of a turn. Each of the problems can be related to a corresponding counter-argument, which rejects an all too skeptical perspective on the Anthropocene concept in favor of a more affirmative point of view on its novelty.

### *The Anthropocene as a Large-Scale Framework*

In order to understand the innovative potential of the Anthropocene concept, it is important to keep in mind its genealogy. The Anthropocene is not an ecological concept, nor is it, even though it could be assumed, a distinctly geological one. In fact, originally, it is an earth system scientific concept. It grounded in a scientific development of the second half of the 20th century, which signified a “paradigm shift,” (Kuhn 1962) for the earth sciences (Hamilton and Grinevald 2015; Hamilton 2016). Earth system science understands the earth as a single, complex and processual (bio-cybernetic) system, which is far more than the mere sum of its parts. Its scientific interest is not primarily directed toward single (sub-)systems, i.e. rather “local” ecologies, but more toward the non-linear, positive and negative feedback relations *between* systems at different temporal and spatial scales and in their relation to the scale of the earth system. From the point of view of earth system scientists, the central hypothesis of the Anthropocene concept is that anthropogenic impact on manifold earth subsystems might lead to an irreversible, earth historical “rupture” (Hamilton 2016, 94) in the overall functioning of the earth system.

Therefore, the novelty of the Anthropocene lies in its planetary-scale, *earth systemic* perspective on human-environment interactions. The epistemic consequence of this is two-fold. As Bonneuil and Fressoz (2017, xi) remark, the Anthropocene is “a sign of our power, but also of our



impotence.” That is to say, the earth systemic perspective on the Anthropocene brings into view the fundamental impact of anthropogenic activities not only on particular ecologies, such as the Amazonian rain forest, or on particular systems, such as the climate, but on the metastability of negative feedback loops between them. As a “sign of our power,” the Anthropocene concept testifies to the (unconscious, nonintentional) capacity to amplify positive feedback loops between earth systems. Thus, *ex negativo* it makes visible not only the terraforming power of anthropos, but also the vulnerability of earth’s systemic equilibrium and the potentially disastrous effects on the existence of the human species.

If the Anthropocene concept is more than a minor variant of a general turn toward ecology, it is so because of its large-scale, basically all-encompassing perspective on human-environment interactions, and—as a result of this perspective—of its foregrounding of an anthropogenically amplified change of the *state* of the earth. That is to say, the Anthropocene concept triggers discussions in various disciplines and beyond about a changing earth. It does so, however, without being restricted to the methodological and theoretical framework of individual disciplines such as ecology or geology. The Anthropocene exemplifies a scientific point of view, which recognizes that ecological, geological and planetary phenomena and research objects have to be thought of in close relation to each other as well as to the larger-scale system of the earth. The vast interest in the Anthropocene concept could thus be understood as an opportunity to reformulate the turns toward ecological, geological and planetary issues under an even more encompassing framework which, at the same time, allows to relate them more strongly to social, political and ethical questions (for instance of the human responsibility for the earth system).

### *The Anthropocene as an Ontological Shift*

Despite its earth systemic implications, the Anthropocene distinctly names a *geological* epoch and has been a matter of concern for geologists from the very beginning. As a geological research issue, however, the Anthropocene still has to approve its sustained role in the history of geology as an explanatory concept. But could the Anthropocene concept still play an important role in the humanities and the social sciences if it became insignificant in geology?

One could reformulate this problem in the style of a slightly reversed version of James Hutton’s famous concluding statement of his *Theory of the Earth* (1788).<sup>5</sup> In the Anthropocene, we find no *vestige of an end*, since the Anthropocene is said to have only begun, but at the same time, no definite *prospect of a beginning*, since there are various propositions for starting dates competing with each other. From a geological point of view, the novelty of the Anthropocene concept

consists in its designation of a *recent* geological epoch which, unlike the Holocene, involves humanity as its driving force. Whereas earth system science can detect anthropogenic influence on earth subsystems as significant causes of environmental change, the formalization of the Anthropocene as a geochronological unit requires that the vast scale of anthropogenic impact is also traceable in the stratigraphic record. For stratigraphers, the determination of a starting point of the Anthropocene poses a problem of measurability not entirely different from that one implied by Hutton: how can one detect anthropogenic evidence strong enough to be in line with earth systemic “tipping points” among a vast accumulation of major and minor traces of human activity in the stratigraphic record? The work of the interdisciplinary Anthropocene Working Group of the International Commission on Stratigraphy (ICS), led by paleo-biologist Jan Zalasiewicz, makes clear that the question of finding a starting point of the Anthropocene is one that geology can only answer in cooperation with scholars capable of addressing the more-than-geological implications of the Anthropocene. However, as long as this problem remains unsolved, it—at least at first glance—seems questionable to assume that the Anthropocene concept will have an impact on the humanities and the social sciences, which is enduring enough to conceive of it as a turn. But, we argue that even if the Anthropocene concept might ultimately have only a life as a short episode for geology, it nevertheless has the potential to significantly influence the humanities and the social sciences, mainly due to two interconnected reasons.

(1) The epistemic access to the Anthropocene is set on slightly different premises for humanities and social sciences scholars. Sticking with the example of geologic timescale, humanities scholars might consider the question of dating the Anthropocene not only as an issue of measurability, but as one rooted in the relationship between human imagination and the immensity of geologic time. James Hutton’s conclusion at the end of his *Theory* points toward the impression of a timescale beyond measure. When Hutton, alongside his student John Playfair (1805, 73), gazed into the “abyss of time,” he conceived of geological time not only as a problem of measure, but also as one of the imagination. John McPhee (1981) has coined the term “deep time” in order to emphasize this subjective, “sensory” dimension of geologic time. McPhee stresses that although geologic time has increasingly become measurable in line with the advances of modern geology, its “depth” nonetheless prevents us from gaining any clear and precise idea of its scale as such: “Numbers do not seem to work with regard to deep time. Any number above a couple of thousand years—fifty thousand, fifty million—will with nearly equal effect awe the imagination” (McPhee 1981, 21). In accordance with McPhee, Stephen Jay Gould (1987) has, therefore, proposed to consider that the discovery of deep time has had the effect of drastically

marginalizing the temporal scope of human history. The immensity of deep time takes yet another form in the Anthropocene. Given that much of the geological evidence of anthropogenic traces is assumed to deposit in the strata, which are, however, themselves effects of long-term geologic processes spanning beyond the present, deep time eventually expands from earth's past to a "deep future" (Chakrabarty 2016, 380). Although the stratigraphic determination of an Anthropocene starting date will presumably not take future anthropogenic impact or future stratigraphic records into consideration, the idea of humanity's impact that reaches into distant futures challenges ideas of the Anthropocene as a clearly detectable temporal unit: why not assume that future anthropogenic impact on the earth system delivers a far more evident "golden spike" than the proposed starting dates set in the past? While geology is primarily concerned with the empirical detection of a golden spike or an GSSP (Global Stratotype Section and Point), the various disciplines of the humanities might rather reflect upon the underlying implications regarding the imaginative, epistemic, phenomenological, theoretical and ontological challenges and implications of the temporality implied in processes of human inscription into earth.

One considerable "marker" of the different premises of the humanities approach to the Anthropocene is their strong interest in issues of "scale." Such issues are inherent to the Anthropocene concept, not only because of its geological meaning as a new unit of the geological timescale, but also because it challenges and confuses assumptions of scale by attributing to anthropos the capacity to operate as a "major geological force" (Steffen et al. 2007, 618). For various scholars in the humanities, the thesis that the accumulated impact of anthropogenic activities has come to matter at the spatial and temporal scale of earth systemic processes entails an imaginative, or phenomenological, dimension as well. Dipesh Chakrabarty (2009, 220), for instance, has pointed toward the problem that it is not possible to experience oneself as part of a collective species-subject that operates at a planetary scale. He argues that the Anthropocene poses the (impossible?) challenge of having to rethink the human over disjunctive scales at once (Chakrabarty 2012, 2). Furthermore, the Anthropocene frames various environmental phenomena such as climate change which *matter*, but which are at the same time drastically inaccessible to (immediate) sense experience due to their dispersed and distributed nature—a problem for which Timothy Morton (2013) has coined the term "hyperobject." If such issues of scale are made graspable by the Anthropocene concept, they invite us to rethink philosophical, social and political concepts such as experience, (eco-)justice, democracy, responsibility and, above all, "the human" in its entanglements with "nature," across disjunctive spatial and temporal levels of size.<sup>6</sup> Such engagements are not necessarily bound to the continuing significance of the geological Anthropocene concept.

(2) Whereas the “success” of the geological concept entirely depends on its approval as a geological unit of time, its ontological dimension goes far beyond that. The Anthropocene concept articulates various phenomena that imply transitions in the material world, i.e. transitions of how planetary systems, environmental processes, human and non-human agents are *entangled*, how they *matter* for each other. It testifies to an increased observability and measurability of such transitions, but the latter are not restricted to their epistemic accessibility. In our view, the Anthropocene concept assembles a range of phenomena which mark an *ontological* shift. This shift is brought into view by its vast conceptual scale, but is not dependent on the scientific approval of the geological Anthropocene concept. The earth systemic “rupture,” speaking again with Clive Hamilton, corresponds to an “ontological rupture” that might best be described by what James Lovelock’s and Lynn Margulis have termed “Gaia.”<sup>7</sup> For Isabelle Stengers (2015, 42), the “intrusion of Gaia” is not reducible to the increased awareness of the effects of human and technological enquiries and the resulting shift in the epistemology of human-nature relationships. On the contrary, Stengers’ “Gaia” designates a—processual, non-static—state of the earth that has been pushed out of equilibrium to reveal its indifference to the well-being of individual subsystems such as the human species: “Naming Gaia as ‘the one who intrudes’ is [...] to characterize her as blind to the damages she causes” (Stengers 2015, 43). Latour’s (2013, 81) evocation of the Anthropocene as a “post-natural epoch” responds to the necessity to conceive of the rapidly changing earth system not only as a matter of epistemology—i.e. of being able to *recognize* that “nature” has always been an assemblage of “complex non-linear couplings between processes that compose and sustain entwined but nonadditive subsystems as a partially cohering systemic whole” (Haraway 2016, 43), but that this very assemblage has changed in a way that could ultimately lead to a “sixth extinction” (Kolbert 2014) respectively to “a world without us” (Weisman 2007).

The epistemic relevance of the ontological shifts, summarized in the term Gaia, for the humanities and the social sciences is genuinely independent from the approval of the Anthropocene concept, since such shifts do not stop to exist if this concept does. But the innovation of the latter, and presumably the reason for its success beyond geology and earth system science, lies in the vastness of its conceptual framework which allows to reflect upon such shifts as heterogeneous, disjunctive, but still interconnected parts of a larger scale development. The oftentimes criticized “holistic,” all-encompassing scope of the Anthropocene framework may at the same time be a reason for its relevance across the humanities and the social sciences.

But this might also be the reason why a number of critical approaches tend to reject the Anthropocene because of its anthropocentrism and its undifferentiated account on anthropos in favor of more differentiated

concepts still refer to the Anthropocene's terminology and semantical implications. Prominent examples are the concepts "Capitalocene" (Malm 2015; Moore 2016), "Chthulucene" (Haraway 2015, 2016), "Technocene" (Hornborg 2015), "Eurocene" (Sloterdijk 2015, 2016), or "Neganthropocene" (Stiegler 2018) to name but a few. The Anthropocene is such a widely debated research topic among scholars from the humanities and the social sciences not so much because of the "Antropo-" or its particular protagonist, but because of the "-cene," i.e., because of its large, "epochal" scope.

### *The Anthropocene and (Inter-/Trans-)Disciplinary Engagements*

Instead of being limited to undifferentiated reflections on the human as a protagonist of a geological epoch, the conceptual broadness of the Anthropocene opens up a shared frame of reference for heterogeneous engagements with theories of posthumanism, new materialism, object-oriented-ontology, postcolonialism, ecojustice or cybernetics. If one would identify the Anthropocene as a return of the "grand narrative," this would ignore the heterogeneity and variability of approaches.

The Anthropocene concept, we argue, invites scholars to reframe, rethink and to strengthen the methodological and analytical boundaries of their respective fields, challenging every discipline to articulate the particularity and relevance of its specific engagement with this concept and discourse. As a result, the Anthropocene serves as a generative framework for a plurality of different discipline-specific topics. Several new approaches in the humanities contribute to it: literary studies, for instance, consider the Anthropocene as a "threshold concept" (Clark 2015) that opens new opportunities for ecocritical literary research (Wilke and Johnstone 2017; Schaumann and Sullivan 2018); for instance, the re-classification of climate fiction as a part of the broader field of "Anthropocene fiction" (Trexler 2015); the transfer of the materiality of geologic formations and timespans into literary reading practices as well as an expansion of the focus on the symbolic indices of human social interactions to planetary flows of energy and matter (Menely and Taylor 2017); the question of how literature and literary reading practices can represent scalar magnitudes, complex feedback loops of the Anthropocene earth system, and planetary effects of anthropogenic activity such as climate change or biodiversity loss (e.g. Morton 2012, 2013, 2014, 2016; Bartosch 2015; Morgan 2017; Woods 2014, 2017); an examination of the implications of the Anthropocene for literary history concerning contemporary fiction's tendency of embedding its plots in geological epochal timeframes (Marshall 2015); or the analysis of the relationship between scientific and literary knowledge production with regard to the genuine narrativity of Anthropocene discourses (Dürbeck 2018, 2019).

For some scholars, the Anthropocene concept challenges the most fundamental implications of their research field. For historian Dipesh Chakrabarty, the Anthropocene poses an epistemological problem in the sense that it blurs the long-lasting differentiation between natural and human history, dissolving their boundaries into the timescale of “deep time” and making it necessary to rethink humanity as a “negative universal history” (Chakrabarty 2009, 222). According to the media theoretician Jussi Parikka (2014, 2015), the Anthropocene requires scholars to frame the materiality of contemporary media technologies within the scale of geologic time by ascribing a mediality to geologic formations, inorganic matter and “natural” entities; this widens the scope of media studies into the domain of “natural” sciences (see also Durham Peters 2015). Philosophically informed scholars such as Bruno Latour (e.g. 2013, 2014, 2017), Isabelle Stengers (2015), Donna Haraway (2015, 2016), Claire Colebrook (e.g. 2014, 2016) and Rosi Braidotti (2013) highlight the idea that the Anthropocene challenges fundamental categories of Western Enlightenment thought such as the dichotomies of subject/object or nature/culture. This opens a more reflexive perspective on the Anthropocene that emphasizes relational, process- and agency-oriented, posthumanist ontologies of mutual multispecies “entanglements” (Barad 2007). As a result, the theoretical models of posthumanism as well as of comparable theoretical approaches such as new materialism (e.g. Bennett 2010; Alaimo 2016) or object-oriented ontology (Morton 2013, 2016) have gained tremendous attention in the Anthropocene debate.

However, the original scientific Anthropocene concept refers to a well-confined set of theoretical assumptions, scientific observations and implications (Crutzen and Stoermer 2000; Crutzen 2002). Consequently, most publications on the Anthropocene, despite disciplinary differences and conflicting interests, share a limited vocabulary of premises. In this respect, the overarching framework of the Anthropocene consists of a plurality of heterogeneous discourses and interests, but also builds bridges between various scientific disciplines. On the one hand, geologists and environmental scientists, for example, publish with historians and push into the field of ethics or adopt methods of cultural studies; on the other hand, philosophers develop a new “political theology of nature” (Latour 2013) or a “political anthropology” (Sloterdijk (2015, 43). The effect is a blurring of disciplinary boundaries that triggers new forms of dialogue. The field of environmental humanities, which has emerged in the last decade, can be regarded as an index of such a reorientation. So, the Anthropocene plays a central role in many relevant publications in this field (DeLoughrey et al. 2015; Emmett and Nye 2017; Heise et al. 2017; Oppermann and Iovino 2017).

In light of these scientific developments, we argue that although the Anthropocene has a (not unproblematic) tendency toward holism, it does not take the role of a “master narrative” predetermining the ways in

which one can speak, think and write about it. On the contrary, it seems to function as a driver of disciplinary, inter- and transdisciplinary rearrangements, re-framings and actualizations within the humanities and the social sciences. It is for this reason that we assume that, at least for the humanities and the social sciences, the Anthropocene will *continue* to play a considerable role in the theoretical and methodological organization of particular disciplines and their interrelations with each other.

### **On this Volume: Objectives and Chapters**

This volume builds on the results of an international conference entitled *Anthropocenic Turn? Interdisciplinary Approaches to the Anthropocene Concept* (September 13–15, 2018), which took place at the University of Vechta, Germany. At the same time, it is part of a research project (2017–2020) on “Narratives of the Anthropocene in Science and Literature. Structures, Themes, Poetics,” funded by the German Research Foundation (DFG). The starting point of the conference was to examine the prospects and possibilities of approaching the Anthropocene against the backdrop of a seemingly ubiquitous fascination for it, at least in the European-American-Australian academic world (di Chiro 2017). For this purpose, the conference sought to provide a space for dialogue between distinguished Anthropocene scholars from the history of science, the social sciences and various disciplines of the humanities in order to challenge the limitations of disciplinary boundaries and to build new bridges.

Against this background, the volume seeks to critically assess whether the Anthropocene concept has affected—or is currently affecting—a “turn” in various disciplinary and inter-disciplinary research fields. In particular, we ask whether the Anthropocene concept effectively challenges the parameters of observing, measuring, experiencing and producing (scientific) reality by rearranging them in a geologic timescale and at a planetary scale. All chapters respond to the idea of a “turn” with regard to the scale in which the Anthropocene challenges existing assumptions of the authors’ specific research fields.

We assume that the overarching concept of the Anthropocene transcends strict disciplinary frameworks. Thus, the structure of this volume is meant to invite readers to reflect upon inter- and transdisciplinary connections, thoughts and theses across the individual chapters. In order to relate the plurality of discipline-specific approaches back to the holistic framework of the Anthropocene we structured the book not according to disciplines, but according to different practices: “Creating Knowledge in the Anthropocene” (Section 1), “Narrating the Anthropocene” (Section 2) and “Sensing the Anthropocene” (Section 3). These practices transgress conventional disciplinary boundaries and, therefore, unfold shared spaces of interest and arguments. The underlying idea of this interplay between a disciplinary and interdisciplinary perspective is to

address the necessity to overcome disciplinary boundaries in light of the Anthropocene concept. This means not only to understand the disciplinary premises of every research perspective on the Anthropocene but also to acknowledge their limitations concerning temporal and spatial dimensions at the planetary scale and the far-reaching, dramatic impacts of human agency on the earth system. Practices of creating knowledge, narrating and sensing are considered not only as fundamental ways of dealing with the Anthropocene, but also as markers to indicate and analyze transgressions between disciplinary and interdisciplinary interests.

### *Section 1: “Creating Knowledge in the Anthropocene”*

The Anthropocene concept clearly poses a number of epistemological problems. Practices of creating knowledge include all attempts of rethinking and actualizing fundamental epistemological categories. Historian of science HANS-JÖRG RHEINBERGER opens the first section with his chapter “The ‘Material Turn’ and the ‘Anthropocenic Turn’ from a History of Science Perspective.” The article is dedicated to Michel Serres and positions him as a thinker of the Anthropocene *avant la lettre* and as the epistemological predecessor of Bruno Latour’s influential arguments about Gaia and the Anthropocene. Rheinberger unfolds a close reading of Serres’ *The Natural Contract*, arguing that it allows for a re-interpretation of the Gaia-hypothesis by James Lovelock and Lynn Margulis. This archaeology of knowledge proves fruitful in the context of the Gaia-hypothesis’ different actualizations in the Anthropocene context (e.g., recent publications of Bruno Latour).

In his chapter “The Anthropocene and the History of Science,” historian of science JÜRGEN RENN explores the possible role of the history of science for a deeper understanding of the Anthropocene. Arguing against the idea of a new fashionable “turn,” Renn contends that the complexity of the Anthropocene and of the wide array of issues it brings into view require a far broader number of different approaches that allow to scientifically grasp the social and material as well the epistemic implications of the new concept. On this basis, Renn outlines not only an approach to cultural evolution, which foregrounds the importance of the transformations of knowledge across time, but also calls for an approach to historical network analysis. Beyond the geological concept and earth system analysis he sketches the idea of a new transdisciplinary research field which he calls “geoanthropology.”

Environmental historian FRANZ MAUELSHAGEN’s chapter “The Dirty Metaphysics of Fossil Freedom” examines the Anthropocene as an era in which we face a deep crisis of fossil energy regimes. Analyzing this crisis from the viewpoint of energy history, Maelshagen brings into view how traditional energy regimes were regulated by a “biomass-climate-nexus” which is broken up with accumulated human activities since industrialization and the great acceleration. In light of limited fossil resources,



humanity in the Anthropocene is instigated to redefine freedom according to a disruptive earth system which strongly affects societies. With “dirty metaphysics” Mauelshagen points to “the transcendence of the biosphere” and to a better control over its resources.

In his chapter “Oriental Wisdom for the Planet?” literary and environmental humanities scholar HANNES BERGTHALLER turns toward an issue which has been largely ignored in Anthropocene discourse up to this point: the lack of attention toward the Anthropocene concept in Asian countries, academia and public arenas. Bergthaller observes that the weak interest in the Anthropocene stands in stark contrast to the decisive role which Asian countries, and in particular China, play in the Anthropocene. Exploring the question why this is the case, Bergthaller argues that reactions to the Anthropocene are strongly affected by the experience of western modernity and by forms of knowledge embedded distinctly in western thought and knowledge. Following a pathway similar to, yet historically also very different from the developments of western countries, China can serve both as a model and as a warning for how biopolitical futures will unfold in the Anthropocene.

### *Section 2: “Narrating the Anthropocene”*

The second section focuses on the Anthropocene as a framework for the reformulation of existing as well as for the emergence of new narratives. Not only has the Anthropocene triggered new narratives—of humanity as geophysical force and as a factor in the earth system—it has also brought into view the necessity to reinterpret existing narratives under the new premises presented by the Anthropocene—among them are partly opposing, partly overlapping narratives of extinction and disaster, of justice and nature-culture interdependency, or of the ‘Great Transformation’ and biotechnological progress (Dürbeck 2018, 2019). The practice of *narrating* plays a crucial role in how environmental phenomena such as climate change or the idea of a geophysical scale of human imprint can become intelligible.

The section starts with literary scholar and philosopher BERNHARD MALKMUS’ text “Safe Conduct: The Anthropocene and the Tragic,” which focuses on an examination of the potential role of tragic narratives for an understanding of human agency in the Anthropocene. Following thinkers such as Hegel, Kant, Nietzsche, Günther Anders, Jean-Pierre Dupuy and Hannah Arendt, Malkmus argues that the episteme of the Anthropocene has the potential of being experienced as “tragic.” By exploring two of the defining conditions of the Anthropocene, the nuclear bomb and the technosphere, Malkmus argues that it is in fact characterized by a blurring of ontological distinctions, which would erase experiences of alterity and chance that stand at the core of tragic thinking in modernity and need to be revived.

In his chapter “Literature Pedagogy and the Anthropocene,” literary scholar ROMAN BARTOSCH employs a didactic approach in order to engage the challenges of scale posed by the Anthropocene concept. Taking his theoretical vantage point from the discussion of different concepts of “scale” and “scaling,” he argues that scale representation as well as “readerly scaling” are helpful tools in grasping the complexities of the Anthropocene. In turning toward readings of texts by Barbara Kingsolver, T.C. Boyle and Nathaniel Rich, Bartosch outlines the fruitfulness of understanding and analyzing literary fiction through notions of scaling and complexity, with particular regard to its implications for teaching literature.

In “Dating the Anthropocene,” PHILIPP PATTBURG and MICHAEL DAVIES-VEHN frame the complex and ongoing debates on the various potential start dates of the Anthropocene epoch. Analyzing the five most important suggested start dates—15–12,100 years BP; around 8,000 BP; 1570–1620 with the orbis spike; industrial revolution; great acceleration from 1950 onward—they argue that the definitive decision on one start date can potentially enable new narratives of the Anthropocene which could shape future societal and governance debates on the Anthropocene in significant ways. Pattberg and Davies-Vehn conclude with the suggestion of overarching narratives for each start date and related implications for governance.

Cultural philosopher BERND SCHERER’s chapter “When Humans Become Nature” unfolds a number of narratives which illuminate the role of technologies often marginalized in the more human-centered debates on the Anthropocene. Analyzing notions of the technosphere as well as the role of digital technologies, cyberspace, bureaucracy and scientific knowledge production, Scherer contends that the Anthropocene stands for more than environmental phenomena such as climate change or biodiversity loss. It signals a “fundamental paradigm shift in our understanding of the world and of humankind.” Arguing for the necessity of an “Anthropocenic turn” in order to create new forms of knowledge (production), he suggests that the conception of “rehearsal stages” enables productive interactions between social actors, scientists and artists on the entanglements of subjective, social, technological and cultural phenomena with which humans are confronted in the Anthropocene.

### *Section 3: “Sensing the Anthropocene”*

Extending the scale of anthropogenic purview beyond the scope of immediate human experience, the Anthropocene fundamentally questions conventional modes of representation as well as theories of perception. Thus, the third section focusses on practices that relate to the dimension of the Anthropocene aesthetic (in the sense of *aisthesis*: perception),

considering them as a forms for the articulation of new ways of representing as well as of sensing an anthropocenic reality.

In the first contribution to this section, literary scholar EVA HORN argues, in her chapter “Challenges for an Aesthetics of the Anthropocene,” that the Anthropocene raises for art the necessity and challenge to address issues of form in theory and in practice. Asking how to conceive of an aesthetics suitable to the transformations of the world in the Anthropocene and the human subject’s deformed relationship with it, Horn sketches three formal challenges which art has to address in the Anthropocene: latency, entanglement and scale. Latency draws on the fact that climate change and earth system processes, although they can be modelled, elude our perceptual and representational capacities; entanglement points to the interdependencies between humans and earth systemic complexities; and scale to the fact that humans are confronted with processes and objects occurring at scales of magnitude beyond direct accessibility in terms of human understanding or control.

The chapter “The Urgency of a New Humanities” by GREGERS ANDERSEN and STEFAN GAARSMAND JACOBSEN explores the ways in which the “new humanities” sense the Anthropocene as a state of exception. Against the backdrop of the growing number of warnings from the scientific community about the threats of the Anthropocene, Andersen and Jacobsen see a sense of urgency which humanities shall take up as central concern. The authors offer a critique of three epistemic problems which appear characteristic for the environmental humanities under conditions of the Anthropocene: the idealization of slowness, the pursuit of conceptual thickness and the embrace of posthumanism. In contrast, they argue for an attempt to synchronize the speed of the humanities with the rapidly accelerating and changing world of the Anthropocene.

Media scholar and image theorist JULIA BEE’s chapter “Filming through the Milieu: Becoming Extinct” discusses the entanglements between the medium of film and the concept of the Anthropocene. Focusing on recent films by German filmmaker and activist Elke Marhöfer—*Becoming Extinct (Wild Grass)* and *Prendas, ngangas, enquisos, machines. Each part welcomes the other without saying*—as well as on concepts of subjectivity following Félix Guattari in particular, but also Gilles Deleuze, William James and Alfred North Whitehead, Bee explores which sites of subjectivation could be specifically rooted in film viewing. She argues for the necessity of thinking and evaluating new modes of subjectivity through the medium of film in order to face the challenges of sensing the Anthropocene. Instead of merely transmitting information, documentary films, particularly the ones discussed in this chapter, enable the exploration of new forms of perception, experience and perspectives as parts of ecological subjectivities.

The chapter “Seeds—Boundary Objects of the Anthropocene” by artist researcher ALEXANDRA R. TOLAND explores Susan Leigh Star’s concept of “boundary objects” as a way of framing the role and relevance of artistic research within the broader discourses of the Anthropocene. The article refers to a live performance where self-made seed packets with meaningful inscriptions were passed to the recipients at the beginning and popcorn to eat at the end. Toland argues that seeds may be seen as boundary objects and function as theoretical devices for interdisciplinary work. After contextualizing the history and the theoretical and practical scope of boundary objects, she presents two case studies of artworks as examples of a weakly-structured boundary objects of the Anthropocene to illustrate new modes of research practice for artist researchers.

In the volume’s last chapter “Art, Media, and the Dilemmas of the Anthropocene,” literary and environmental humanities scholar SERENELLA IOVINO explores the role of gardens as a cultural and artistic strategy of survival in the Anthropocene. Iovino’s reflections on the entanglements between art, media and the becoming-geological of the human are based on an examination of the artwork *Gardens of the Anthropocene* by eco-artist Tamiko Thiel, the *Parco Arte Vivente* in Turin, and the Japanese gardens described by Italo Calvino in his *Collection of Sand*. Her chapter conceives of the garden as a means to reflect upon how various forms of aestheticization of nature have an impact on the geology of planet earth—both in terms of power and depletion, and in terms of resistance and creativity.

As readers will recognize throughout the following chapters, the different approaches toward the Anthropocene collected in this volume address the “Anthropocene” through differing discipline-specific methodologies and theoretical assumptions. Without doubt, the Anthropocene concept may be the source of very heterogeneous approaches, depending on the different research traditions, premises and discourses of each discipline. But vice versa, the Anthropocene provides a large-scale framework that instigates shared matters of concern and research interests, transgresses the limitations of disciplinary boundaries and indicates the overarching relevance of an ontological shift, which has occurred in the relationship between humans and the earth system. The idea behind the structure of this volume—its division into three sections corresponding to different types of practices—is to invite readers to explore different, potentially fruitful crosslinks, but also differences, between the disciplines and their approaches. In the emergence of epistemic interstices between them, i.e. of shared issues of relevance caused by the increasing relevance of the Anthropocene concept, we witness an Anthropocenic turn in the making.