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# Thinking the Anthropocene

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Over the last 20 years, there are few topics that have occupied the natural sciences, the social sciences and the humanities in equal measure, that have brought them into dialogue, but also uncovered or even triggered conceptual controversies. One of them is the Anthropocene. In the meantime, its origin story has almost become a myth, centred around the exclamation of Nobel Prize winner *Paul J. Crutzen* at a conference of the International Geosphere-Biosphere Programme IGBP in Cuernavaca, Mexico: “Stop it! We are no longer in the Holocene, we are in the Anthropocene” (cited in *Müller* 2019: 26). *Crutzen* thus gave a name to the realisation that humans, with their lifestyles, their economies stuck in the growth spiral and their associated unbridled exploitation of resources, are not only triggering serious environmental problems, but are also irretrievably inscribing themselves in the history of the Earth. They are thus able, from a planetary perspective, to trigger developments as an Earth-systemic factor, the consequences of which are unforeseeable for the future of the human species.

Initially, *Crutzen's* exclamation challenged above all geology as the historical science “responsible” for the periodisation of our planet, as well as global change research, which was just emerging on the basis of the IGBP and the parallel IHDP programme (International Human Dimension Programme), and the Earth system sciences. Accordingly, the International Commission on Stratigraphy (ICS) of the International Union

of Geological Sciences responsible for epochs, periods and similar temporal classifications soon took up the Anthropocene case. This is particularly relevant since it was a provocation for many Earth scientists, who naturally think in terms of time scales other than those of humans, triggering fierce controversy within the guild. In 2009, the ICS finally formed an Anthropocene Working Group (AWG) consisting of 16 renowned scientists from various disciplines under the leadership of the British geologist *Jan Zalasiewicz*. It was to discuss and clarify whether there were really good reasons to question the Holocene, in which we obviously thought we lived until *Crutzen's* exclamation, or even to declare it as being over and replaced by a new Anthropocene epoch within or even beyond the Quaternary (for more details on these contexts and backgrounds see the well readable “Anthropocene. A very Short Introduction” by the US geographer and member of the AWG *Erle Ellis*, 2018; for an explanation of the Earth science understanding of the Anthropocene and the discussion of it by other scientific communities, cf. *Zalasiewicz et al.* 2021). If the focus of the Anthropocene debate was only limited to its scientific, Earth-historical content, the main story would have been told already. Of course, the key issue would then be limited to the search for and definition of the so-called “Golden Spike” (or officially GSSP Global Boundary Stratotype Section and Point), an undisputed temporal marker for the beginning of the (possible) Anthropocene, a process for which there is

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a complicated procedure lasting several years according to the rules of the International Commission on Stratigraphy. There were many – more or less time-precise – proposals on the table. *Crutzen* himself favoured the beginning of the Industrial Revolution in the 18th century, while AWG discussions crystallized a more recent starting point, namely the radioactive fallouts of the nuclear weapons tests that started in 1945. Overall, this time marker, i.e. the middle of the 20th century, was recognised as the starting point of the so-called Great Acceleration, the empirically verifiable enormous acceleration of climate-damaging developments, biodiversity loss, the consumption of fossil raw materials, but also the acceleration of rain-forest destruction, mega-urbanisation, or the reduction of drinking water resources (cf. *Ellis* 2018). Vigorous debates continue in the field of Earth (system) sciences on this very topic.

However, the Anthropocene debate has, as is well known – and this does not happen so often in (at least initially) earth science topics – drastically expanded. Social scientists sensitive to the interfaces between the natural and social sciences and working on human-environment issues, but also humanities scholars reflecting on the state of our world/planet, artists, representatives of public opinion, politicians and civil society movements took up and expanded the Anthropocene debate (cf. as an overview *Horn and Berghaller* 2019). From the point of view of some Earth system scientists and geologists, this was considered more of a “takeover” or even “hijacking” of a term (within and from their field of expertise), or a scientific problem. The debate subsequently underwent massive thought style expansions and concept stretchings to the point that the strands of discussion were and are probably only partially comprehensible. At the same time, the sheer explosion in the number of scientific papers, popular science journalistic covers or artistic adaptations shows that the concept of the Anthropocene and its (possible) potential as an approach to explaining the world has hit an absolute nerve of the times.

This Special Issue is dedicated to this – more social science-based – reflection on the Anthropocene and its current tendencies, rather than to a continuation and deepening of Earth science debates, which are being conducted in the relevant journals anyway. In this respect, all contributions to this Special Issue are primarily concerned with conceptual issues and/or efforts to provide an overview, rather than testing the Anthropocene’s empirical suitability or even

empirical findings obtained on the basis of the Anthropocene concept. Here, *Crutzen’s* exclamation and his short publications (*Crutzen* 2002; *Crutzen and Stoermer* 2000), which have become emblematic of the Anthropocene debate probably correspond less to the actual starting point and more to a revisiting of a much older debate, going back to the 19th century and beyond, focussing on the interactions between humans and nature and on the change in Earth system interrelationships through human action. The first contribution by *Franziska Allerberger* and *Hans Stötter* (2022a) in this Special Issue is dedicated to reviewing this background to the current Anthropocene debate. Even if the geoscientific and Earth-system-scientific preoccupation with the Anthropocene is far from over, the debate has shifted strongly to the social sciences and humanities in recent years. There, it is taking place parallel to the long-standing discussion on the concept of sustainability, which has lost some of its appeal due to its often rather arbitrary use, and also parallel to the debate on the necessity and scientific basis, but also on the realisation opportunities and obstacles of a social-ecological transformation. In the process, the various strands of debate overlap, and at times one cannot escape the impression of a “new confusion” in the scientifically, socially and politically highly relevant discussions on social-environmental relations. Perhaps the lowest common denominator is that all approaches criticise the hegemonic, growth- and modernisation-oriented development paths and their inherent anthropocentric (by many also explicitly called Eurocentric) “dichotomisations” of nature and culture, which must be conceptually overcome in order to design and subsequently adopt alternative development paths.

According to the German literary scholar *Gabriele Dürbeck*, five basic commonalities can be discerned in the (interdisciplinary) debates on the Anthropocene: humanity is conceived as a geophysically irrevocably effective force; the global environmental crisis must be seen in a planetary perspective (cf. *Chakrabarty* 2021); the Anthropocene is associated with a deep-temporal dimension (grounded in Earth history) that clearly expands the human-temporal historical view; nature and culture can no longer be separated in view of the challenges of the Anthropocene; and from all this arises an ethical responsibility of humans for the “Earth system” (cf. *Dürbeck* 2018: 15-16). However, these commonalities are also narrated and weighted differently in different Anthropocene “narratives”. For example, *Dürbeck* (2018: 7f.) recognises a “catas-

trophe or apocalypse narrative” as a dystopian view of the future of the “sick” Planet, in which the catastrophe appears to be inevitable due to the extent of the destruction. Furthermore, a “court narrative” can be identified in the debate, in which the question of causation and the associated question of liability are placed in the foreground – a perpetrator-victim perspective that is very present, for example, in the view of the Global South versus the Global North on the Anthropocene. A third narrative can be described as that of the “Great Transformation”, in which the avoidance of the catastrophe (still) seems possible and responsibility (stewardship) for the Earth system is appealed to. However, the paths of (social-ecological) transformation between ecological modernisation and radical alternatives (post-growth approaches, cf. on this a Special Issue of ERDE from 2021) diverge widely. A fourth narrative can be described as the “(bio)technological” one, which holds out the prospect of a “good” Anthropocene and thus its (technological) “controllability” by humans, for example on the basis of geo-engineering, through efficiency revolutions and bio-economy. Finally, the fifth “interdependence narrative” focuses on human-nature interdependencies and is thus based on recent approaches of post-humanism or environmental humanities.

In our opinion, this is a comprehensible and sensible attempt to systematise the Anthropocene debate. Such a systematisation is urgently needed to make space for different interpretations and contexts of use of the Anthropocene concept and their manifold criticisms, simplifications or supposed omissions of the Anthropocene concept and the resulting proposals of alternative concepts. The paper by *Robert Hafner* in this issue shows how different thought styles about human-nature relations can be traced in the current debates on the Anthropocene and in alternative concepts, and thus contributes to such a sorting and systematisation. Basically, in view of the almost overflowing ramifications of the Anthropocene debate and in light of the proliferation of alternative concepts, the question arises whether we have not long since distanced ourselves from the original core of the Anthropocene idea, whether the original idea of the concept was only incompletely taken up and thus misinterpreted, and whether the proposal of alternative concepts is now threatening to become a “semantic compulsory exercise” (cf. for a detailed and critical overview of different contexts of use of the Anthropocene concept and alternative proposals *Antweiler* 2022: 179f.).

Central points of a critical reception of the Anthropocene debate refer first to the periodisation, i.e. the question of the beginning of the Anthropocene, and in connection with this (in the sense of *Dürbeck's* “court narrative”) to the question of the causation or the causers. Thus, many critics question the Great Acceleration in the 20th century as the beginning of the Anthropocene and argue, for example, that European expansion in the 16th century at the latest laid the foundation for a “societal relationship with nature” (*gesellschaftliches Naturverhältnis*) that exploited people and the environment, which proved decisive for the establishment of European-style capitalism and its global hegemony, which has not been critically questioned enough to this day. In connection with this, as many critics of the original Anthropocene discourse, which in their view is too little infused by social science, argue, it is by no means “humanity” as a species who is responsible for the crisis-causing societal relationship with nature. They plead for a social sensitisation of the debates through an adequate consideration of class differences, historically developed power asymmetries and dependencies and, above all, of modes of living that perpetuate exploitation, excessive resource consumption and inequality (in this context, c.f. the Special Section *Imperial Mode of Living* in the last issue of *Die ERDE*). It is in this context, the *Capitalocene*, prominently advocated for example by *Elmar Altvater* and *Jason Moore*, emerges as a counter-concept to the – at least supposedly – less critical Anthropocene (cf. respective contributions in *Moore* 2016). Additionally, criticism of the Anthropocene concept comes not least from the Global South. The third contribution in this Special Issue, written from a decolonial perspective by the Argentine political ecologist *Horácio Machado Araújo*, is representative of this thought style.

Parallel to the Anthropocene debate and interwoven with it in terms of content, new fields and formats of knowledge production have emerged in recent years. Here, the interdisciplinary approach to human-environment research and the conceptual overcoming of disciplinary blinders in thinking about nature and culture, about the human and the more-than-human comes to mind. The term *Environmental Humanities* primarily brings together humanities scholars and social scientists with very different approaches and perspectives on human-environment issues, whose unifying premise is the inseparability of humans from their environment and thus the necessity of thinking them together. In the fourth article of this Special

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Issue, *Matthias Schmidt, Jens Söntgen* and *Hubert Zapf* present the background and approaches of the Environmental Humanities and discuss what contribution the Environmental Humanities can make to the Anthropocene debate.

As a topic for the sciences, the Anthropocene undoubtedly requires an interdisciplinary approach. At the same time, however, it is also a disciplinary challenge. Especially in the Anglo-Saxon context, geography has contributed extensively to the Anthropocene debates. In the German-speaking world, we have the impression that this is happening with a certain time lag, even though *Ehlers* already presented a comprehensive monograph entitled *Anthropocene* in 2008, certainly influenced by his involvement in the major international science programmes and organisations that have driven the Anthropocene debate, which he uses as the occasion for a broad tour d'horizon on the human-environment question (cf. *Ehlers* 2008). Here, *Gebhardt* (2016) is rather sceptical about new impulses from the Anthropocene debate for the internal debates in geography, as he sees the danger that practically everything and nothing will be associated with the Anthropocene. So, is the Anthropocene developing from a *passé-partout* to an empty signifier? Recently, however, *Goeke* (2022) expects the Anthropocene concept to have lasting (?) effects on the discipline of geography due to its power to bundle a wide variety of ideas, perspectives and imperatives ("from an observation category to a categorical world observation formula"; *Goeke* 2022). We can state that the debate about the Anthropocene has thus undoubtedly arrived in geography. What force it will continue to develop (for example, in the sense of continuing the idea of an integrative geography) remains to be seen.

Thus, it seemed all the more interesting to us to look beyond our own disciplinary boundaries and ask how other social science disciplines (here, too, with a focus on the German-speaking world) perceive the Anthropocene concept, working on it further and, if necessary, integrating it into their disciplinary paradigms (cf. in this sense for anthropology *Antweiler* 2022). Sociology is undoubtedly of particular importance in this context. In the introduction to their recently published anthology on social theory in the Anthropocene, *Frank Adloff* and *Sighard Neckel* identify two schools of thought: one that assigns the Anthropocene concept primarily the function of an observational category in social discourses, and a second, more profound one that understands the Anthropocene

concept as the basis of a new theorisation questioning previous "demarcations between nature and society" and empirical research aligned with it (*Adloff* and *Neckel* 2020: 11-12). *Markus Schroer's* extensive draft of a *Geosozologie* (*Schroer* 2022), in which, among other things, numerous links to geography become evident, can perhaps be classified in the latter sense. Against this background, the fifth contribution to the Special Issue by the sociologist *Katharina Block* discusses the extent to which the "planetary dimension", which is prominent in the Anthropocene debate (especially following *Dipesh Chakrabarty's* publications, e.g. *Chakrabarty* 2021), can (and should) be the occasion and foundation of new social theoretical designs.

Even if the focus of the contributions to this Special Issue is anchored in the conceptual realm, it is also clear that the Anthropocene and its challenges for the future of the planet and its (human and more-than-human) actors are above all also connected with the fundamental question of how, by whom, in which places and in which normative charge Anthropocene knowledge is (or can be) generated, discussed, further processed and incorporated into designs for the future. Against this background, in the sixth contribution to this Special Issue, *Franziska Allerberger* and *Hans Stötter* (2022b) argue for a "normative imperative" in knowledge production that involves a fundamental rethinking of the self-understanding of science in and for the Anthropocene and ascribe a central function to transdisciplinarity and transformability in research and teaching as well as in the fulfilment of the so-called Third Mission.

It would be presumptuous to want to comprehensively deal with such a diverse and multi-layered debate as the Anthropocene in a single Special Issue. And so, this Special Issue remains incomplete and deals at best with a few facets of a discussion that is becoming more and more extensive and confusing. We and the authors of this Special Issue are aware of this. And yet it seems important to us, even if our writings must remain fragmentary, to take up, reflect and continue the debate on the Anthropocene. For even if some may see the flood of publications on the Anthropocene and the increasingly diverse debates on alternative conceptualisations as little more than a momentary hype, it is fundamentally about decisive questions for the future: about planetary scale expansions, about deep-time horizon expansions, and about the constitution and transformability of societal relations with nature. This is always worth thinking about and debating. We wish you a stimulating read!

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