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Planetary Futures: On Life in Critical Times

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ABSTRACT

Based upon the opening keynote address at the German Congress of Geography held in Frankfurt am Main in 2023, this article traces the current debate on the planetary in the humanities, social sciences and Earth System Science in three parts. Instead of taking the concept of the planetary for granted, we explore the question of how it is reflected in our respective fields of research (cultural geography, social geography, and economic geography) and what potential it harbors for unearthing new insights. In particular, we consider the possibilities for a planetarily-oriented cultural geography beyond anthropocentrism, a social geography of housing that focuses on the concept of planetary habitability, and an economic geography that centers the trans-historical and trans-geographical impact of plantation logics. From our point of view, the planetary is not simply an additional scale but rather a style of thought that increasingly characterizes our present. Since natural and social science approaches meet here in a new way, it seems particularly relevant to ask how we as geographers might allow ourselves to be intrigued and unsettled by the planetary.

1 | Introduction

Our title references the motto of the 62nd German Geography Congress, held in Frankfurt am Main in September 2023 (“Planetary futures”). The following is a slightly amended and extended translation of the written version of the opening keynote address we presented on September 20th, 2023. The written version was originally published as J. Verne/N. Marquardt/S. Ouma (2024), *Planetary Futures: Über Leben in kritischen Zeiten*.¹ *Geographische Zeitschrift* 112(4): 151-171. This version is a translation by Matt Hannah, University of Bayreuth, Germany.

Though a focus upon the great crises of our time is surely not surprising, we want to resist taking the term “planetary” in “Planetary Futures” as self-evident. As is to be expected in light of this overarching theme, we are concerned on the one hand with a dialog between natural- and social-scientific perspectives. Yet our address is also essentially the result of a dialog between the three of us on the potentials of the concept of the planetary for geography, and a reflection upon the ways in which a planetary perspective is currently being taken up or could be taken up in diverse subdisciplines. Our own fields of cultural geography (Julia Verne), social geography (Nadine Marquardt) and economic geography (Stefan Ouma) serve here as illustrations.

[Correction added on 31 January 2025, after first online publication: The section heading numbers have been updated in this version.]

Translator's note: The German Geography Congress (*Deutscher Kongress für Geographie* or DKG) is held every two years and is the largest conference of German-speaking geographers, drawing participants from Germany, Switzerland and Austria as well as other parts of the world. It is the German-language equivalent of the AAG or the RGS/IBG (although an increasing number of keynotes and sessions are held in English).

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2 | Planetary Futures I (Julia Verne)

2.1 | From Global to Planetary: The Planetary Turn in the Humanities and Social Sciences

It wasn't so long ago that we talked above all about “globalization”. The motto of the DKG in Hamburg in 1999, “locally anchored, globally connected”, was not only appropriate for the Hanseatic host city² but also an expression of a “global turn” in geography. As in the social sciences and humanities more broadly, globalization and perspectives on the global have occupied our attention for almost 30 years. And although the conversation at the DKG in Kiel in 2019³ already indicated an interest in new departures and upheavals, we appear now to have finally arrived in a new, “planetary age”.

As the historian Dipesh Chakrabarty put it in his 2021 book *The Climate of History in a Planetary Age*, [o]urs is not just a global age; we live on the cusp of the global and what may be called ‘the planetary’. In thinking of the last few centuries of human pasts and of human futures yet to come we need to orient ourselves to both what we have come to call the globe and to a new historical-philosophical entity called the planet.

(Chakrabarty 2021, 3)

But what exactly is meant here by the planetary? And how does it relate to the global? The starting point for Chakrabarty's thoughts on the planetary is the question of whether the “global” in globalization really means the same thing as in global warming. Or whether the term global in these two contexts does not actually express two linked but very different ways to think of the planet and the relation between humans and the Earth (see Chakrabarty 2018).

The narrative of globalization essentially concerned the creation of global markets and exchange relations between different parts of the world—thus the global in globalization focused chiefly upon a history of humankind. From Chakrabarty's perspective, however, such a “global” perspective is inadequate to the task of understanding the new historical-philosophical entity we call the planet. Our present is thus marked by a growing divergence between the meanings of the terms “global” and “planetary” (Chakrabarty 2018, 266).

Gayatri Spivak, too, engages with both terms, indeed already in 1997—at the highpoint of the globalization debate—in an invited lecture for the Swiss foundation Dialogik. This lecture would later be published under the title *Imperative to re-imagine the planet* (Spivak 1999), and would play a prominent role in her work *Death of a Discipline* (Spivak 2003).

I propose the planet to overwrite the globe. Globalization is the imposition of the same system of exchange everywhere. In the gridwork of electronic capital, we achieve that abstract ball covered in latitudes and longitudes, cut by virtual lines [...]. The globe is in our computers. No one lives there. It allows us to think that we can aim to control it. The planet is

in the species of alterity,⁴ belonging to another system; and yet we inhabit it, on loan.

(Spivak 2003, 72)

Although the global of globalization appears concrete, it is not the world we live in. The planetary, by contrast, stands for the encounter with the other, on whom we live and with whose alterities we inhabit the Earth together (Bonneuil 2020, 6).

Building on this idea, a *planetary turn* has developed in recent years in the social sciences and humanities. Here it is essentially a matter of turning from the global - as a political, capitalist, technocratic system that grasps the planet as a surface fundamentally determined by humans - toward the planetary, a shift intended to resist the totalizing, anthropocentric concept of globalization and to perceive the planet instead as “world-ecology” (Elias and Moraru 2015, xvi; on the concept of world-ecology see Moore 2003).

Of course, this consciousness of the “coincidence of world-system and Earth-system”, and thus of the biophysical dimensions of the world (Reghezza-Zitt 2015, 79, 45) has its predecessors—differentiated by Bonneuil and Fressoz (2016) into six grammars of ecological reflexivity. Yet it is the crises triggered by globalization that have clearly highlighted the planetary or the necessity of thinking in planetary terms; the categories of modernity simply no longer seem adequate either to grasp or to respond to current dynamics.

In this turn to the planetary, the planet in its specific materiality becomes available for theorizing as a non-negotiable ecological basis of human and non-human life. Earthly phenomena infiltrate our conceptual deliberations, they become part of the way we see the world and they find a place among our interpretive categories (Elias and Moraru 2015).

2.2 | Debates Between Planetary Turn and Planetary Boundaries

With this focus upon the physical basis of the planet it is no surprise that the influence of the planetary turn reaches beyond the humanities and social sciences. A view of the planetary was an essential foundation for the establishment of Earth System Science. In contrast to the framework of globalization, which attends to our globe alone, Earth System Science draws upon observations of other planets in developing a picture of the Earth. In this sense as well, an engagement with global warming drives a wedge between the global (the Earth alone) and the planetary (the Earth as one among a number of planets).

Nevertheless, this does not mean that scholars in the humanities, social sciences and natural sciences are in complete agreement with their conceptions of the planetary. And in our view, this is a decisive point with special relevance for us as geographers!

In the quest to comprehend human effects upon the Earth system, the concept of *planetary boundaries* has become a prominent touchstone. The specific perspective on the planetary

crisis that it implies is certainly the view most often referenced at this conference when trying to establish a connection to the conference theme. Many colleagues may interpret a planetary perspective as simply equivalent to a view of planetary boundaries.

From our perspective, however, there are a few essential differences that need to be considered more carefully. As most of you present in this lecture hall today are probably aware, the model of planetary boundaries was developed by a research group at the *Stockholm Resilience Center* and introduced into the debate in 2009. Against the background of the Anthropocene-thesis that humans have become the central geological factor, the model defines *safe operating spaces* for humanity within which resource-use and CO₂-emissions can take place without threatening key support systems for life on Earth. Some of the planetary boundaries cannot yet be quantified, others have already been crossed (Rockström et al. 2009; Steffen et al. 2011). Thus, not only the necessity but the urgency of countermeasures becomes clear. For, once planetary boundaries are exceeded, there is no going back, and the habitability of the Earth hangs in the balance—a theme Nadine Marquardt will pursue further in the second section of our talk.

Natural scientists thus agree in principle with social scientists and humanities scholars that we humans must alter our relationship to the planet we inhabit as decisively and as soon as possible. The goal of their measurements and models is to calculate how the state of the Earth in the Holocene—the only era of Earth's history that represents a *safe operating space* for us—can be maintained. It is a question of upholding the status quo; this is to be achieved with the help of what has been termed *Earth system governance*, or a new *planetary stewardship* (Steffen et al. 2011), which places its faith primarily in technological innovations. This approach, however, continues to follow a modernist paradigm (see Dürbeck 2018; Biermann 2021). In this respect, exclusive attention to quantitative statistical series as it dominates Earth System Sciences foregrounds a view from outside that erases every geographical and social differentiation in favor of aggregated socio-economic factors (see Heymann 2019). Anonymous processes take the place of concrete historical practices leading to “paralyzing abstractions of planetary politics” (Mahony 2022, 706).

The planetary turn, however, takes a different approach. Its impetus is to break with the still-dominant techno-scientific framing of Earth system change and to ensure that humanity's engagement with the planetary crisis is shaped in a more multivocal and open way that acknowledges the political dimension of how the crisis is represented (Bonneuil and Fressoz 2016, 71). Social science and humanities scholars thus strive for a concretization of the analysis and the rejection of universalizing approaches. It is ultimately not “humanity” that is the destructive force, but rather concrete, historically and geographically locatable societies, modes of economic activity and social groups—a point taken up in more detail primarily by Stefan Ouma in the third part of our talk.

Against this background it should come as no surprise, as long as the idea of Earth system change and of the natural-scientific approach to the Anthropocene continues to hold sway, that

social scientists and humanities researchers feel increasingly uncomfortable with the grand claims emanating from the prevailing paradigm (Castree 2017). Among the strong reservations of critics is the sense that “natural scientists have learned little from critical social thought about the close relationship between power and knowledge—and especially about the problems associated with speaking on behalf of others” (Clark and Szerszynski 2021, 34). In this regard it seems crucial to ask ourselves how planetary thinking informs human geography and in what ways this may challenge or alter common, often rather natural scientific understandings of how to approach life in critical times.

In what follows we will discuss the possible implications of planetary thinking for our different fields of research. I will begin by briefly sketching out how planetary thinking is impacting cultural geography at the moment, particularly regarding the question of the relations between humans and nature, one of my own research areas.

2.3 | Toward a Planetary Cultural Geography

A focus on planetary thinking calls into question the usual separation between humans and the environment. As Shee, Woods, and Kong (2023, 2) have recently pointed out, “it has ushered in a philosophical moment that challenges us to radically rethink our existence in the cosmos, and to reorientate ourselves to the complexities and messiness of becoming-with-others”. The goal is now no longer to elevate humans above the world in the sense of the Enlightenment, and to deduce from humankind's special position a right to exploit nature for its own purposes. Instead of understanding ourselves as “global agents” or “stewards” of the Earth it is more appropriate to see ourselves, in Spivak's sense, as “planetary subjects” (Spivak 2003, 73), and to behave accordingly.

“Posthumanism” has by now become an established theoretical framework within which to think of humans as one among a range of equally entitled parts of the world, and to attempt finally to overcome the dualistic picture of the world that has shaped cultural geography for so long.

Among other things, this directs our attention to the liveliness of the non-human world—Anderson speaks here of a “proliferation of life” (Anderson 2020, 612)—in cultural geography. In view of an “eventful Earth and cosmos” (Clark and Yusoff 2017, 4), the idea of life and liveliness is troubled and expanded as cultural geographers ask “how planetary dynamics, geological disjunctures and Earth-historical trajectories may themselves have left their mark on the social beings we have variously become” (*ibid.*, 5). Here it is a matter of engaging all the more strongly, from a cultural-geographic perspective, with the so-called *critical zone*, the thin layer in which water, soil, subsoil and the living world come together and where human and non-human life, as well as the resources that make this life possible, are concentrated (see e.g. Mahony 2022; Hawkins 2023).

This focus brings out two essential points: first, the foregrounding of the critical zone is intended to make clear that a

planetary cultural geography must move beyond the universalism initially suggested by a planetary perspective. In contrast to the planetary as an all-encompassing scale—a planetarism from above or from outside, we need a planetarism *from below* on the basis of concrete landscapes and places (Jazeel 2011). This includes a particular attention to seemingly peripheral, alternative or marginalized environmental knowledges (see e.g. the recent discussion in Bulkeley and McFarlane 2024).

Second, these places and landscapes are no longer to be understood as a stage for the presentation of a human history shaped by humans according to their interests, but as themselves living protagonists (Ghosh 2016, 6). As Anna Tsing puts it in her work on the global trade in Matsutake mushrooms:

Over the past few decades many kinds of scholars have shown that allowing only human protagonists into our stories is not just ordinary human bias. It is a cultural agenda tied to dreams of progress through modernization. There are other ways of making worlds.
(Tsing 2015, 155–156)

For

making worlds is not limited to humans [...]; in fact, all organisms make ecological living places, altering earth, air, water. Without the ability to make workable living arrangements, species would die out. In the process, each organism changes everyone's world.
(Tsing 2015, 22)

The research that emerges from this perspective seeks to tease out the close interweaving of ecological and social forces in specific places and processes, and thus the manifold forms of life (in contrast to classically understood ways of life) (Anderson 2020) that express the inseparability of life and form (see Porting et al. 2020).

To return to the essential point: Although cultural geography has long been concerned with relations between humans and world (typically as *Um-Welt*), it has foregrounded the social construction and political steering of this relationship in the context of globalization. The planetary perspective moves our gaze beyond the political constitution of the world. It radically questions the idea of controllability and the associated anthropocentrism, and instead asks what the world actually does with us, how it affects us, and what it demands of us.

3 | Planetary Futures II (Nadine Marquardt)

3.1 | From the Global to the Planetary: Planetary Urbanization

The shift from the global to the planetary described by Julia Verne has left prominent traces in geography, above all in the area of urban research. Work on Global Cities around the millennium was followed in the 2010s by the debate around planetary urbanization. In contrast to Global City research, the

planetary urbanization discourse is not so concerned with networks between global financial centers, social inequalities within metropolises, or worldwide flows of capital and labor power organized by Global Cities. Instead, work on planetary urbanization is focused upon relations between city and hinterland. It asks how capitalist processes of urbanization also shape spaces far away from cities: agricultural regions, forests, oceans, deserts. It becomes clear from this perspective that urbanization non only alters the immediate surroundings of cities but also intervenes in metabolic processes of planetary scope.

If a global urban age is indeed currently dawning, this circumstance cannot be understood adequately with reference to the formation of global cities or large-scale megacity regions, but requires systematic consideration of the tendential, if uneven, *operationalization of the entire planet—including terrestrial, subterranean, oceanic and atmospheric space*—to serve an accelerating, intensifying process of urban industrial development.

(Brenner 2014, 20f; emphasis added)

In line with this expanded understanding of the urban, the cover of Neil Brenner's book *Implosions/Explosions. Toward a Study of Planetary Urbanization* shows not a city but a scene of fossil resource extraction: a tar-sands mining area in Canada. Research around planetary urbanization calls upon us to see these landscapes as central settings of capitalist urbanization.

Planetary urbanization is hotly debated in geographical research on cities. I, too, could draw a series of demarcation lines here. For the purposes of our talk, however, another, more general point is more important. Research on planetary urbanization clearly shows that the conceptual shift to the planetary in geography is accompanied by stronger attention to material resources and the ecological effects of urbanization, a keener interest in mapping its planetary imprint.

3.2 | Exploited or Unavailable Nature?

Discussions of planetary urbanization emphasize above all the scope of exploitation and the destructive terraforming of the Earth by capitalism. The figure of the planetary in this debate signals that capitalist processes have attained the highest scale, that they operate “without an outside”.

For some geographers, however, research on planetary urbanization does not go far enough—not so much with regard to the theorization of *the urban* as in terms of *the planet* as object and concept.

Planetary urbanization doesn't go far enough in its thinking about and through the Earth [...] while the issue of ‘what is a city?’ is amply addressed, the question of what a planet is or might be goes unasked.
(Clark 2022, 181)

The figure of the planetary is deployed above all in these strands of the debate, to which authors such as Nigel Clark or Kathryn Yusoff (2018) belong, to emphasize the unavailability of nature—and thus to bring a nature into focus that is not simply an unproblematically available “resource” which humans as sovereign exploiters can access at will. Instead, we are presented with a nature that withdraws itself from the human grasp—because it operates on geological timescales that exceed our imaginative abilities, and because it follows erratic patterns we can scarcely predict.

In these debates, too, there is a heavy reliance upon Earth System Science, which not only shows that the planet consists of interlinked systems but emphasizes above all how unpredictable these systems are in their complex interactions. The experience of a nature that is alien, overwhelming and inaccessible to humans nevertheless does not contradict the motif of the Anthropocene, in which humanity has become a geological force. It is indeed just this massive human intervention that has changed nature in a way that renders our attempts to dominate it ever more difficult. Nature increasingly follows the pattern of self-reinforcing rather than self-regulating feedback mechanisms, and thus becomes so unpredictable that it no longer appears as “nature” in the modern sense. “This ‘nature’ has left behind its traditional role and now has the power to question us all.” (Stengers 2015, 2):

We are no longer dealing (only) with a wild and threatening nature, nor with a fragile nature to be protected, nor a nature to be mercilessly exploited. The case is new. [...] Offended, [the planet] is indifferent to the question ‘who is responsible?’ and doesn’t act as a righter of wrongs—it seems clear that the regions of the earth that will be affected first will be the poorest on the planet, to say nothing of all those living beings that have nothing to do with the affair. [...] It is not a matter of a ‘bad moment that will pass,’ followed by any kind of happy ending—in the shoddy sense of a ‘problem solved.’

(Stengers 2015, 46f.).

Nature is no longer the mute foundation with which one can literally reckon. The transition from the Holocene to the Anthropocene means the loss of a nature upon which all human domination and survival strategies up to now could build. In opposition to the planetary urbanization debate, current ecological catastrophes stand here not for a further—if problematic—high point of capitalist valorization of nature and human history, but rather above all for their termination (Folkers and Marquardt 2024).

Thus, to speak of the planet means not only to point to the planetary reach of human interventions but to bring into view the threatening possibility of a world from which humans have disappeared as a result of planetary catastrophes. Planetary futures? Yes, they surely exist—but as it appears at the moment, probably without us.

3.3 | Uninhabitable Earth: Planetary Social Geography

Posthumanist planetary geographies constitute a provocation for our traditional forms of research and theorizing. Of course, they cannot replace the analysis of social relations, but they help us understand what is at stake now. They call attention to the fact that capitalist domination of nature, portrayed as comprehensive in the debate on planetary urbanization, has actually long since lost control.

How can we take on board this provocation of the planetary without thereby sacrificing the impulse of critical geography? Here I would like to give at least some idea of how an answer to this question might look by addressing my own field of social geography and, more specifically, the potential for “planetary housing research” (*planetare Wohnforschung*⁵). Housing research is represented at this conference by a number of panels. But what does housing research actually have to say about the basic challenge to the habitability of the Earth posed by the climate crisis? Or, to take up again the question Julia Verne formulated in connection with Clark and Szerszynski (2021): how can notions of the planetary intrigue, unsettle, or transform the assumptions on which social-geographic housing research is based? And how can we pick up the social-critical thread of the planetary urbanization debate, but also thematize phenomena of unavailability?

It seems a fairly obvious starting point to investigate possibilities for sustainable habitation. Yet this perspective still only asks how our dwelling practices can be more or less beneficial to the planet, or which strategies should be undertaken to render our habitation less damaging. From the planetary perspective just sketched, however, the tables need to be turned and the question posed of how the planet makes dwelling possible or impossible.

In fact, debates around the planetary are full of references to the habitability of the planet. Prognoses from Earth System Science foresee a drastic reduction of the human niche—that is, the regions of the planet (“climate niches”) habitable by humans (Lenton et al. 2023). The IPCC warns that extensive parts of the Earth where humans have lived for millennia will already become uninhabitable in the next few decades with a global warming of 2 degrees Celsius or more (Pörtner et al. 2022). Especially Africa, South America, Australia and the Indian Subcontinent will be impacted, but also large parts of North America and Southern Europe.

With an eye to the impending uninhabitability of the planet, attempts to comprehend the destruction caused by climate change in terms not limited to economic costs alone have since reached a broader public beyond the realm of scholarly debates. Thus for example, the *New York Times* bestseller *The Uninhabitable Earth* by David Wallace Wells (2019) describes the bleak vision of a planetary future in which ecological changes create ever-larger zones of uninhabitability. The question is no longer how but rather where it will still be possible to live. The question is not only that of who dispossesses whom, but of how global warming itself creates new forms of dispossession by disaster. Thus, housing

research that takes planetary thinking seriously must become habitability- or uninhabitability-research.

The question of habitability unsettles the still-anthropocentric idea of sustainability. For Chakrabarty, sustainability and habitability are even complementary terms in which the different emphases of global versus planetary perspectives become especially clear:

The difference between the global and the planetary is perhaps best illustrated by a quick contrast between [...] the ideas of sustainability and habitability. Sustainability [...] owes its development to Europe's experience of agriculture and farming at a time of European expansion and thus belongs firmly to the history of the global. [...] The idea of sustainability puts human concerns first. [...] The key term in planetary thinking that one could contrapose to the idea of sustainability in global thought is *habitability*. Habitability does not reference humans. Its central concern is life—complex, multicellular life, in general—and what makes that, not humans alone, sustainable. What, ask ESS [Earth System Science] specialists, makes a planet friendly to complex life for hundreds of millions of years)? [...] *Humans are not central to the problem of habitability, but habitability is central to human existence.*

(Chakrabarty 2021, 81ff; emphasis added)

Habitability thus implies a third perspective beyond sustainability or resilience. Contrary to human-centered notions of sustainability, the question is not merely that of the long-term yield of a nature exploited as resource. But it is also not simply a question of the resilience of the Earth system as a whole, which would do just as well without humans. Instead, the concept of habitability makes it clear that we need to transcend the narrowmindedness of our view of nature in order to secure our conditions of life.

There is indeed something unfamiliar about this shift of perspective. We typically do not consider the planet as our living-space—perhaps particular landscapes, but not the Earth system as a whole. However, as soon as we begin to understand the planet as our home, we begin as well to sense that we are not “masters in our own house”. “[T]o invoke the planet [is] to render our home uncanny” writes Spivak (2003, 72f). Here Spivak takes up Freud's play on the words *heimlich/unheimlich* [secret/uncanny] to highlight her point. In German this play on words works better than in English: *heimlich/unheimlich*—both words contain the root *Heim* [home], but also the other, the alien and alarming that eludes our understanding. To speak of the planet means for Spivak that our own home is becoming uncanny. It means we realize that we dwell on a planet whose habitability for humans is not at all self-evident—and crucially, will become even less so.

Posing the question of planetary habitability appears to lead almost inevitably to a convergence of physical- and human-

geographic perspectives, of the natural and social sciences. Earth System Science is full of formulations that imply an understanding of the limits of the Earth system as limits to human habitability, for example “safe operating space for humanity”, “planetary boundaries” or talk of the “human niche”. Bruno Latour has recently taken up the concept of the “critical zone” to make clear how small the portion of the planet is that can serve as the abode of life. In his view as well, this insight demands a reorientation of materialist social research.

Being materialist, today, means that, on top of the reproduction of material conditions favourable to human beings, we need to take into account the habitability conditions of planet Earth.

(Latour and Schultz 2022, 14)

For social geography as well, it is clearly important to take these debates seriously and, as Latour has increasingly done in recent years, to enter into dialog with the natural sciences. At the same time, I want to warn against simply adopting scientific demarcations of the habitable uncritically from Earth System Science.

In fact the scientific determination of habitable zones has a long and inglorious tradition. As Sylvia Wynter (2003) shows, until 1492, Europeans strictly divided the world into habitable and uninhabitable parts. With the advent of colonialism and the realization that humans actually lived in the supposedly uninhabitable regions, the clear coding of habitable/uninhabitable was rewritten in racist terms. Particular places were understood as habitable only for certain bodies, and climatic theories argued that people living outside European climate zones must be culturally or biologically “underdeveloped”.

European colonialism understood itself from the beginning as a project of *terraforming* in which it was a matter of making the world habitable for European settlers. In this sense, climate change was a planned colonial project long before being recognized in the present day as an “unintended side-effect” of modernity (Beck 2007). Thus “Founding fathers” of the United States such as Thomas Jefferson, as well as many proto-geoscientists of that time, believed that the cultivation of land could contribute to the development of a more “moderate”, more “European” climate. The doctrine emerging from such ideas, that “rain follows the plow,” encouraged European settlers to believe that they could farm in the deserts of the USA or Australia—the rain would begin to fall as soon as the soil was turned (Folkers 2024).

Aside from such phantasms, the project of colonial rule did in fact alter the environment in the colonies to a significant degree. Not infrequently, this terraforming damaged the lifeworlds of indigenous people severely enough to render the land uninhabitable for them (Saldanha 2020; Whyte 2018). Habitability for some was purchased at the price of uninhabitability for others. Placing discourses around habitability in historical perspective is thus central to a reflexive view of questions of uninhabitability in the present. It is a fallacy to believe that the interdisciplinary debate around the climate crisis is in and of itself a progressive arena of knowledge production in which

natural- and social-scientific analyses can be brought together in novel ways. As Neel Ahuja (2021) notes:

[C]oncern about global warming as a driving force in the current displacements is growing, and crisis thinking is quickly generating depictions of Black and Brown migrants from Africa and Asia fleeing shrinking zones of habitability. [...] Do those discourses offer pathways for addressing the forces that generate displacement as a form of structural racism [...]? Or are we witnessing how climate security discourse is helping to produce new forms of racialization in speculative constructions of at-risk groups whose homes and homelands are configured as uninhabitable (and thus, disposable) in a warming world?

(Ahuja 2021, 12f.)

Far from addressing such issues, many current analyses of the climate crisis reveal instead a new—or, if we glance back at history, not a new but rather an old—positivism. This new-old positivism bandies about terms such as “climate migration”, “vulnerability”, and again, “habitability”, as though these are self-evident phenomena. In the process it leaves in the background questions of socio-economic destruction, as well as historical and ongoing, active processes of making-uninhabitable.

Thus, social geography must show that habitability cannot be deduced from climate models. This necessarily means laying out the political genealogy of ideas of habitability and placing currently prominent talk of habitability in Earth System Science within a longer history of ideas regarding the livability of the planet. The point is not to dismiss or trivialize knowledge of the disappearance of the human niche. On the contrary, it is a matter of widening the debate. It is necessary to emphasize the contested, political character of habitability, addressing socio-economic inequalities, racist inclusions and exclusions, and socio-technical structures as phenomena that determine habitability and uninhabitability.

4 | Planetary Futures III (Stefan Ouma)

4.1 | The Rural Origins of Our Crises

The ideas associated with planetary urbanization are helpful for positioning cities and their spatially extensive extractive connections in debates over the Anthropocene within and beyond geography. As detailed in the previous section, these ideas raise questions about what remains in a world that is shaped through and through by urban lifestyles whose demand for ever more resources exceeds what is available on the planet (Arboleda 2016).

The thesis that there is no longer an “outside” to this world has not been spared critique. I will not rehearse all the objections here; but a central question we must confront is the place granted by researchers in the tradition of Neil Brenner to rural space and the non-human realm. The “triumph of the cities” anchored in such analyses and fixated on the present in fact

loses sight, on the one hand, of the active and historically constitutive role of “external” rural spaces in the maintenance of the urban “inside”. The resource-hunger of cities is located - broadly speaking - in industrialization. Earth System scientists, as well, take this as a starting point for problematizing the origins of our current malaise, many of them fixing the era between 1800 and 1850 as the point of departure for their analyses of the planetary geological impacts of humanity. It is industrialization that successively incorporates the rural outside as an objectified resource-space (Saldanha 2020; Whyte 2018).

Yet the rural itself is a rather amorphous category. A more precise ontological specification is needed. In addition, we should not simply take for granted that human labor and non-human organisms and materials are to be seen as resources. No other formation better captures the extractive provisioning function of rural spaces than the plantation. Centering the plantation is necessary not only on analytical grounds; it is also essential for thinking about survival strategies in the light of multiple crises. Scholars influenced by planetary thinking have elevated cities to central arenas from which the transformation to sustainability is to be carried out. A good example is the doughnut-economy approach of economist Kate Raworth (Doughnut Economics Action Lab 2024). With reference to the concept of planetary boundaries, she argues that we can save the planet through the restructuring of cities. In contrast to this perspective, we can propose a “*planetary ruralism*” (Wang, Maye, and Woods 2023, 13) that calls upon us to attend to the rural as a space of extractive world-making and of crisis experiences, socio-economic and -ecological conflicts, but also as a place of the imagination and practice of alternative futures.

4.2 | From the Plantation to the Plantationocene

The modern plantation currently stands at the center of a broad interdisciplinary dialogue over planetary futures in which geographers are also involved. Representatives of *Black Geographies* or authors from the African diaspora, such as Eric Williams, Sylvia Wynter, Kris Manjapra, Clyde Woods and Katherine McKittrick, have delivered important impulses here (Ouma and Premchander 2022). I describe the plantation deliberately as “modern” in order to consider its essential specificity in the context of the development of capitalist modernity (Scott 2004). This cannot be thought apart from the rationalizing and world-ordering impulse of the Western Enlightenment and its oft-neglected “darker side” (Mignolo 2011). As highly extractivist forms of agricultural production, modern plantations are distinguished, despite regional variations, by a series of common traits:

Their emergence is often tied to flows of capital over great distances; (1) their space of commodity distribution is the world market. (2) They generate surplus value through total or at least strict control over racialized and gendered forms of work; the enslavement of Black men, women and children is a mode of exploitation of labor, but not the only one.⁶ (3) A modernist view of agriculture (cultivation of the “wilderness”, rational improvement, efforts aimed at productivity and efficiency, the significance of large-scale production) informs the plantation logic. And finally, (4) it is a matter of monocultures and the

ecological leveling and simplification of multi-species landscapes (based upon Davis et al. 2019; Haraway et al. 2016).

From the late 15th century to the late 18th century, modern plantations spread successively from the Eastern Atlantic (Madeira) to the Caribbean, South and North America and into other parts of the world. The model was also taken up—in altered form—by multinational agricultural firms in the early 20th century. In 1930, 30% of all foreign direct investment (FDI) went to the plantation economy (Manjapra 2018, 379). But plantation logics have continued to haunt us up to the present day, as the geographer Katherine McKittrick prominently argues (McKittrick 2011, 2013). The plantation has a powerful afterlife (Thomas 2023).

First, the model of plantation production has shaped the global agricultural sector far beyond the boundaries of plantation agriculture per se. The significant planetary ecological footprint of modern agriculture can essentially be traced back to plantation logics.

Second, the establishment of plantations was mostly only possible through violent interventions, which could in some cases reach genocidal proportions. They triggered moments of crisis in those places where they were violently established, but also in those places from which the labor needed to run them was forcibly stolen. Even today, plantation logics and elites continue to shape agricultural structures and politics in many parts of the Global South (Chao et al. 2024).

Third, the experience of crisis by oppressed groups is a repeated feature of plantation economies and the societies built upon them. It is above all Black people, People of Color and indigenous communities who have lived through such crises and continue to do so. For some people and ecosystems, the apocalypse began a long time ago (Whyte 2018). Only now, when the aggregate effects of the “imperial mode of living” (Brand and Wissen 2021) can no longer be externalized, does survival become prominent in the Global North as well as a figure of thought and a category of experience. But with what social effects? Not only rightwing and racist parties such as the AfD [trans.: *Alternative für Deutschland* (“Alternative for Germany”)]—but they in particular—want to reformulate “survival” as “living like we used to”. They are currently selling this idea with great success to a society pervaded by cold bourgeois indifference (Kohpeiß 2023 calls this indifference “bürgerliche Kälte”, connecting an older German critical theory term with insights from transatlantic critical theory thinking).

It can be argued that the plantation has had such deep terraforming effects that the most appropriate term to describe our era should be the *Plantationocene*. The anthropologists Donna Haraway and Anna Tsing are prominent voices here (Haraway et al. 2016), but colleagues from Black Studies and Critical Agrarian Studies have also delivered important impulses, and have urged a deeper engagement with the diverse power structures that suffuse plantation logics:

Naming the modern era ‘the Plantationocene’ counters the tendency to think of plantations, plantation

politics, and peasants as limited to the past or to ‘pre-modern’ sectors of developing countries.

(Chao et al. 2024, 544)

The spatial history of the plantations is central to understanding the nature of power in the modern world and possibilities for more equitable futures. Together, this work highlights the ways that plantation dynamics have proliferated beyond historical slave agriculture in the Americas and, thus, has much to offer discussions of current global crises latent in the Plantationocene concept.

(Davis et al. 2019, 6)

4.3 | Economic Geographies of the Plantationocene

Debates around the Plantationocene confront my own discipline of economic geography, but also Earth System Science as a “science of the whole”, with multiple challenges. Compared with the concept of the Anthropocene, the Plantationocene points out, first, that the terraforming of the planet cannot be thought apart from the categories of race, class and gender. It is only a *few* social groups and only *certain* economic forms that are responsible for our proto-apocalyptic situation. Race, class and gender are not exactly key categories of economic geography, certainly not in its German-language versions, and certainly not in their intersectional entanglement (Ouma et al. 2023)—more on this below.

Second, from this perspective there can be no analysis of the planetary calamity without an ecological critique of capitalism that focuses upon the social production of “land” and “nature” (Vorbrugg and Ouma 2020). This is a global-historical critique that investigates dynamics in “growth”-regions in terms of their colonial-extractive connections:

The origins of today’s inseparable but distinct crises of capital accumulation and biospheric stability are found in a series of landscape, class, territorial, and technical transformations that emerged in the three centuries after 1450.

(Moore 2016, 7)

Economic geography would do well to learn from the centering of land, agriculture and ecological critique of capitalism in the Plantationocene debate.

Third, the concept of the Plantationocene builds upon a multi-species perspective. The plantation is understood as a vector through which a vital multispecies world is simplified, rationalized and robbed of its socio-ecological complexity. As Julia Verne mentioned earlier, this poses a challenge to anthropocentrism. Especially in research areas where nature is predominantly understood as “resource”, “factor of production”, “externality”, “service provider” and “material sink”—that is, in large parts of economic geography, too—can MEN⁷ distance themselves from these categories only with difficulty. I say MEN

here not only because we are a deeply masculine discipline in demographic terms (Narayan and Rosenman 2022) but also on epistemic grounds. Masculinist forms of world-making shaped by the plantation context have severed humans both from nature and from other humans. This “diacritical praxis” (Boeckler 2005, 47) has served the exploitation of the non-humans and lifeforms thus objectified (Wynter 2003). “Man” is the motive force of history, however, “Man” is not a universal category but rather a particular one referring to the White, patriarchal, heterosexual men who have rationally organized the world to their advantage.

Fourth, the term allows us to hear voices from outside the scientific discourse dominated by a Western Enlightenment mentality: the voices of subalterns, who imagine an “other economy” beyond capitalism and beyond the ontological categories dictated in advance by Western modernity - and rarely called into question by economic geographers or Earth System scientists. These voices appeal to long-established forms of resistance to plantation logics. Indeed, some of the most consequential visions intended to enable everyone to have a good life within the boundaries of our planet have originated in rural areas strongly shaped by plantation logics—*Buen Vivir* or *Pachamama* from South America are probably the best-known examples.

These voices challenge the “Prometheism” of Western modernity. This term refers to the ideology and method (Moore 2022) driving both the extension of capitalism to ever-newer resource frontiers and the management of environmental risks that emerge from such projects. The belief that (other) humans as well as nature can and should be tamed is the essence of Promethean thought. The hubris of control and technological reparability is crystalized most clearly in the ideas of geoengineering, transhumanism and in efforts to become interplanetary (instead of repairing the Earth).

Prometheism and “Man” belong together. This kind of thinking can be contrasted with ideas from the fields of post-/decolonial studies, political ecology, feminist science and technology studies, Black studies, Indigenous studies and critical agrarian research. These perspectives seek to cultivate new relations among humans and between humans and our non-human environment. They help us work toward a new, radical relationality (Wang, Maye, and Woods 2023, 12) in a world that should be understood, with Arturo Escobar (2018), as a *pluriverse*. This can provide important impulses for economic geography.

In the end, the Plantationocene challenges us to take part more confidently in debates around the planetary that thematize plantation logics, even where the concept of the Planationocene itself is not explicitly invoked. We can think of work on telecoupling, or the exportation of labor, energy and land, but also of research on the human, “material” and metabolic underbelly of our mode of living (Dorninger et al. 2021), which—even when dressed up as green—fails to break with the plantation logic of externalization. Thinking the center from the margins—historically-geographically and epistemically speaking (Manjapra 2020)—is a mode of critique and reconstruction that can

enrich debates around planetary futures immeasurably, both within and beyond economic geography.

5 | Conclusions

We have attempted to sketch current debates concerning the planetary in three parts.

For cultural geography, engaging with the notion of the planetary emphasizes the need to acknowledge our entanglements with the more-than-human. Earthly phenomena infiltrate our conceptual deliberations and become part of the ways in which we see the world and find a place among our interpretative categories. This way, the planetary lens significantly differs from the global perspective that has long dominated cultural geographic approaches to the world. Moreover, it also entails more than just a new thematic focus. Countering attempts to model planetary processes from the outside and going beyond abstract planetary politics, cultural geographers are encouraged to turn to the “contact zones” of human and non-human processes. Among other integrative concepts the critical zone directs our attention to questions of life in different ways, pushing us to gain “more contextually sensitive insights into the diverse modes of imagining, understanding, and inhabiting the transformed planet” (Shee, Woods, and Kong 2023, 11). This means to be particularly attentive to alternative or marginalized forms of life, in order to challenge persistent modernist views of the world while highlighting possibilities emerging from a more multivocal and more equal pluriverse (Escobar 2018).

Taking up the concept of “planetary habitability” in social geography allows for new connections between research on geographies of home, housing, displacement and the climate catastrophe. Critical social research needs to problematise the ways in which habitability has so far been framed as a question of “climate migration” and policy-oriented research, often underpinned by apocalyptic imaginaries of uncontrollable movements out of the most affected areas and desires for migration management. It can deepen this critique by highlighting the colonial legacies of distinctions between habitable and inhabitable regions of the planet, and the ways in which contemporary assessments of shrinking habitability in the natural sciences echo this thinking. Social geography needs to show that habitability cannot be deduced from climate models and put the socio-economic forces that are actively making this planet uninhabitable front and center. Finally, the concept of habitability challenges anthropocentric notions of dwelling and reminds us that we share this Earth home with countless non-human others. Focusing on planetary habitability rather than sustainability, as Chakrabarty and others propose, allows us to attend not only to the loss of the “human niche” but of all the other non-human worlds on which human survival will always depend.

With regard to economic geography, we feel that much is to be gained from acknowledging the planetary footprint of capitalism. More particularly, centering the plantation as a trans-historical formation, and the plantationocene as a “geological” epoch in economic geography helps us to unsettle the

discipline's heavy tilting toward regional economic growth, the Global North, and the urban, which itself might be read as an effect of the discipline's Western white-male domination. While work on the fringes of economic geography, such as political ecology, has long centered concerns about the environment and "race", scholars that have been socialized in different traditions are yet to embrace a perspective where global environmental questions, "the economy" and historically constituted racialized and gendered hierarchies that facilitate particular patterns of human- and non-human exploitation at a planetary scale are at the center of attention.

Throughout our conversation, we felt it was important not to take the concept of the planetary as self-evident but instead to pursue the question of how it affects our respective fields of research and what potential it harbors for our discipline as a whole. In our view, the planetary is not simply an additional spatial scale but rather a style of thought that increasingly shapes our present. Since natural- and social-scientific approaches meet here in a new way, it seems to us especially relevant to ask how we both as individual scholars in different subfields but also as a discipline consisting of natural as well as social scientists can allow ourselves to be intrigued and unsettled by the planetary—or, as Tariq Jazeel has put it:

Planetary itself demands that kind of persistent introspection over the objects we take-as-given [...]; a constant and humble decentering of the masterful gazes we cast over the things we think we know with certainty.

(Jazeel 2011, 89)

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Data Availability Statement

The authors have nothing to report.

Endnotes

¹ Translator's note: in the original German subtitle, "über Leben" is a play on words. It can be translated straightforwardly as "on life"; however, the authors also intend to invoke the single term "Überleben", which means "surviving".

² Translator's note: Hamburg was one of the central nodes in the late-Medieval Hanseatic League, a network of ports and market towns

organized by German traders and stretching from Russia across the Baltic and North Sea coasts to Great Britain and deep into the European mainland. Hamburg, today the largest German seaport, is still known as "Hansestadt Hamburg".

³ Translator's note: The last DKG before Frankfurt 2023 was held in Kiel in 2019. The Frankfurt DKG, originally slated for 2021, had to be postponed due to the COVID-19 pandemic.

⁴ After the term *species of eternity* coined by Spinoza to mean "from the point of view of eternity" (Spivak 2015, 291).

⁵ I use the German term *Wohnforschung* to extend research on housing and housing market issues with a broader perspective on the material and symbolic geographies of dwelling and home. This use of the term builds on the different meanings of the German *wohnen*. According to Heidegger (1971, 146), "wohnen" (dwelling) "is the manner in which mortals are on the earth". *Wohnen* is thus related to the whole of life and transcends modern meanings of housing. Housing research needs to engage with the climate crisis because the crisis questions the very "manner in which mortals are on the earth".

⁶ Regarding different geographically and historically specific forms of plantation labor not directly based upon enslavement but still involving strong elements of coercion and control, see Manjapra (2018).

⁷ Translator's note: The singular "MANN" in the German original is a play on words. "Man" with one "n" is the generic grammatical subject "one" (as in, "one should not ..."). "Mann", on the other hand, translates straightforwardly as "man" (a masculine-identified adult). Thus, in German, the familiar practice of taking the (white heterosexual) male perspective as universal can be efficiently thrown into critical relief by the deliberate addition of an extra letter.

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