Article

Politics of Time and Mourning in the Anthropocene

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Abstract: The Anthropocene thesis makes it necessary for the social sciences to engage with temporality in novel ways. The Anthropocene highlights interconnections between 'natural' and 'social' non-linear temporal processes. However, accounts of humanity's Anthropocene history often reproduce linear, progressive narratives of human development. This forecloses the possibilities that thinking with non-linear temporalities would offer to the political sciences. Engaging with the temporal complexity of the Anthropocene as a moment of rupture that highlights non-linearity allows to acknowledge more fully the affective impact of living on a disrupted planet. As a discourse about temporal rupture, the Anthropocene is a stocktaking of the already vast insecurities and losses brought about by exploitative relationships with earth and its inhabitants. In this form, the Anthropocene thesis highlights how material and social legacies of inequality and exploitation shape our present and delimit our imaginaries of the future. By including a reckoning of violent pasts into future practices, a productive politics of mourning could take shape.

1. Introduction

The notion of the Anthropocene has recently become an important topic for political scientists and political theorists (Arias-Maldonado 2019; Hickmann et al. 2020), who are joining a larger conversation that spans the natural sciences and the humanities. From a political sciences perspective, the scientific findings that underwrite the Anthropocene thesis necessitate far-reaching transformations of current productive and economic systems. How to initiate such transformations poses urgent questions of national and international governance. Moreover, the political challenges of the Anthropocene highlight social and environmental justice issues on a global scale, both intra- and intergenerationally. This also raises questions about democratic representation and participation in political and economic transformation processes from the local to the international level.

In this contribution, we want to add a temporal perspective to the current discourse about the Anthropocene thesis in the social sciences. Addressing the Anthropocene, we argue, challenges us to engage with concepts of temporality and history in political theory and practice in novel ways. Various aspects of the scientific findings that underwrite the Anthropocene thesis require that we rethink the temporal horizons of politics (see Knappe et al. 2019). For example, nuclear waste and plastics, whose production has been helped along by political decisions geared to short-term economic interests, will stay on the planet into the 'deep' future of geological timespans (see Hanusch and Biermann 2019). Similarly, anthropogenic climate change, brought on by political and economic orders spanning at most a few centuries, will make the future less predictable and stable for millennia. As we are all aware, this discontinuity of temporal scales, where short-term human actions have extremely long-term non-human consequences, lends urgency to policymaking on climate change. Moreover, the Anthropocene can be understood as a discourse about temporal rupture, as a stocktaking of the already vast insecurities and losses brought about by exploitative relationships with earth and its inhabitants. Engaging with the temporal complexity of the Anthropocene as a moment of rupture

highlights temporal non-linearity. In Western social and political thought, notions of non-linear temporalities have often developed through critical engagements with bounded and homogenous notions of linear time. These critiques suggest a diversity of alternatives, mainly referring to discontinuities and cyclical temporalities (Hom 2018b, pp. 311–14). Such temporal sensibilities can enable us to acknowledge more fully the affective impact of living on a disrupted planet. It is a warning about the instabilities and dangers of a future, which for some is already here, or even lies in the histories of their peoples and species (see, e.g., Viveiros de Castro 2019).

While the importance of thinking with longer futural horizons is widely acknowledged, there is still a tendency in some areas of the Anthropocene debate to forget the importance of the human historical past for contemporary politics. Even critical discourses on the Anthropocene as an imagination of the entangled world (Lövbrand et al. 2020), prominently discussed by Haraway's *Staying with the trouble* (Haraway 2016) and Anna Tsing's *The mushroom at the end of the world* (Tsing 2015), seem to suggest that the human past leading up to the emergence of the Anthropocene should not interest us. In this vein, Burke et al. write that we are so deeply intertwined in this "true terror of the moment" that it just does not make sense anymore to ask who is responsible for it in the first place:

> "We need not focus on who is responsible, but we do need to learn to adapt to the world we have created. We can dwell in this time of failure and still long for the surety of a future, a future that allows us all to survive and honour our deep entanglement with the planet". (Burke et al. 2016, p. 500)

Against this tendency, we argue that in order to fully understand and act on the political implications of the Anthropocene, history is of key importance. The analytical and political relevance of embedding the current Anthropocene discourse within a more detailed historical analysis has been shown by writers such as Bonneuil and Fressoz (2017), Jason Moore (2017) and Alf Hornborg (2019), whose works highlight the political and economic processes that have brought about the current planetary environmental crises and engrained socio-economic injustices on a global scale. These historical perspectives enable Anthropocene narratives which integrate different viewpoints on the history of the past three hundred years, and which are critical of the teleological developmental narrative. These multiple perspectives enable a reconsideration of the space for political action, motivated by the care for a shared, vulnerable planet. Given the state of this planet, Anthropocene politics is also a politics of mourning and of grief. What such a politics will look like is still an open question. However, in starting to address this question, we can draw on examples of past and contemporary political activism where grief and mourning have played an important role.

By investigating how thinking with the Anthropocene can enrich a temporal understanding of the political and social sciences, we therefore want to explore what it would mean to take the 'shock' of the Anthropocene, as a condensed narrative of human-made planetary ecological collapse, seriously. We criticize that this 'rupture' and non-linear temporality of the Anthropocene is too often lost in translation, leaving us again with linear developmental policy narratives. Data on biodiversity loss and climate change make it necessary to re-evaluate linear progressive narratives. Shying away from this re-evaluation forecloses the possibility of a politics that includes vulnerability and loss. The Anthropocene, therefore, poses the question whether a politics of mourning is possible, and how acknowledging loss could enable us to take a different stance not only to the Anthropocene future, but also to its past.

2. The Anthropocene as a Rethinking of 'Natural' Time

How we think about temporality is of crucial importance for the ways we conduct politics. Engaging with the Anthropocene discourse highlights the need to think temporally in terms broader than politics is often accustomed to. It also provides a narrative for thinking disparate notions of temporality together in political and social thought. In Western modernity, a dualist understanding of time—separating a linear human history

from the static, cyclical time of the non-human realm—has long been dominant. In European modern thought, this understanding of time helped to ward off the shocks modern science delivered to the Anthropocentrism of Western cultures. Western tradition, strongly influenced by Abrahamic religions, has tended to understand human history and planetary history as coextensive. As Nigel Clark argues, the idea of a much longer non-human planetary history proposed by James Hutton, the founder of modern geology, in 1785 threatened to decenter the temporal centrality of the human species. Moreover, the notion of geological epochs marked by catastrophic events that 'expunged entire populations of living creatures', was deeply disturbing to early modern thinkers, because it allowed for the possibility, not only of a past, but also of a future, without humans: "as Kant agonized, if the universe lost its one and only thinking being, then 'the whole creation would be a mere waste, in vain, and without final purpose'" (Clark et al. 2018, p. 104). This 'deep time' insult to species narcissism, Clark writes, had to be shored up by philosophical systems, as proposed by Kant and Hegel, in which the natural world exists only 'for' humanity (Clark et al. 2018, p. 100). In 1831, Jules Michelet expresses this sentiment well when he writes "Along with the world there began a war that will end together with the world and not before: that of man against nature, of spirit against matter, liberty against fatality. History is nothing else than the account of this ... gradual triumph of freedom... in this endless struggle ... the one side does not change, while the other changes and becomes stronger. Nature remains the same, whereas every day man gains some advantage over her" (quoted in Bonneuil and Fressoz 2017, p. 27).

Criticisms of these grand historical narratives and of nature/human dualisms, however, have become more prominent during the 20th century. In her famous book, *The Human Condition*, Hannah Arendt (1958) at first provides a dualistic narrative of 'ideal' temporality in the history of Western thought. Referring to Ancient Greece, she explains how linear human history is carved out from the unchanging, circular rhythms of natural time, through human work that uses nature as its 'raw material'. Arendt writes that it is *homo faber's* experience of planning and carrying out a concrete work project, together with the durability of human artifacts, which first allows humanity to develop a linear understanding of lived time and history. This separation, however, she argues, is unsettled in modern consumer societies. With industrialization the 'natural' metabolic cycle of production and consumption is magnified, which has the effect of wearing down the durability of the human world (Arendt 1958, p. 132). At the same time, Arendt writes under the impression of the atomic bomb and the first space flights, the 'progress of science' in interfering with the laws of nature "could mean the end of nature and the human race" (Arendt quoted in Weißpflug 2019, p. 22). While the increasing intermingling of the human and the natural realms for Arendt is a hallmark of modernity, for her this is a dangerous development. Theodor Adorno, by contrast, is an example of an early 20th century thinker critical of the role the human/nature dualism has traditionally played in Western thought. In a lecture entitled 'The Idea of a Natural History', held in 1932, he argues against the idea of nature as 'the invariable backdrop against that history unfolds' (Weißpflug 2019, p. 24), and stresses the transience of nature. Prefiguring later environmental thinkers, Adorno writes that the idea of nature/culture dualism is based on a fantasy of dominating nature, which denies humanity's interwovenness with the natural realm.

Earth system science, where the current Anthropocene discourse first gathered steam, provides both conceptual tools and scientific data that further disturb the notion of 'natural' time as even and unchanging. Taking form in the mid-1980s, earth system science developed within a number of large research projects designed to produce comprehensive models on global environmental changes, for example, the International Geosphere–Biosphere Programme (IGBP) and the International Human Dimensions Programme of Global Environmental Change (IHDP). As Clive Hamilton argues, earth system science is an "integrative meta-science of the whole planet as a unified, complex, evolving system beyond the sum of its parts" (Hamilton 2016, p. 94). The term "earth system", then 'refers to the suite of interacting physical, chemical and biological global-scale cycles and energy

fluxes that provide the life support system for life at the surface of the planet'. At the same time, the biosphere concept highlights that 'life' itself is an integral part of the system that makes life on earth possible. Within the earth system, "forcings and feedbacks . . . are as important as external drivers of change, such as the flux of energy from the sun" (Steffen et al. 2007, p. 615). Earth is described in terms of a multi-scalar, non-linear dynamic system, open to perturbation and capable of sudden change. In such a complex planetary system a variety of temporal scales intersect. Time does not flow evenly. Here, a temporality of nature is offered that integrates the 'catastrophist' turn in geological deep time with the multiple rhythms of more short-term and fast-paced ecological and chemical processes. Climatology has played a key role in establishing this understanding of dynamic systems, capable of rapid change. While in the early 20th century the dominant view in climatology was that climate is relatively stable over time, towards the end of the century consensus shifted as more evidence about rapid climate change in earth's history emerged (Weart 2003). Importantly, this understanding of natural temporal complexities, of sudden rifts, changing speeds and the interconnections between very fast- and very slow-paced processes, already describes earth prior to the special, new conditions of the Anthropocene. Earth system science's complex system modelling involves an understanding of systemic tipping points, where apparently small events can trigger system wide, rapid transformation. In this understanding, it does not need human intervention for 'natural' times to undergo sudden changes and rhythmic regularities to fall 'out of joint'—but human actions *can* set such processes into motion. As Nigel Clark writes:

> "The Anthropocene idea may foreground human agency, but it depends on an understanding of an earth bursting with instabilities of its own. Bringing together an older stratigraphic geology with a newer earth system science, the thesis hinges on a novel understanding of the way that the planet's relatively slow moving lithic crust articulates with the more mobile spheres of water, air, ice and life. It is the interaction of these subsystems that give rise to an earth system with multiple possible operating states—with the disturbing possibility of being able to flip rapidly from one regime to another". (Clark et al. 2018, pp. 102–3)

This understanding of more complex 'natural' times can be seen as an important addition, running parallel to criticisms of human history as unified, linear and teleological. In this vein, acknowledging the diversity in temporalities becomes important by "direct[ing] attention away from hegemonic statist times toward the marginalized, oppressed and otherwise forgotten times of global politics" (Hom 2018a, p. 70). In the context of the Anthropocene, Galaz (2019) points out the "temporal asymmetry between political and geological time scales". Coming to terms with this temporal discrepancy also means to consider the risks of 'deep time' effects, for example, by solar engineering experiments that would produce an enormous and potentially catastrophic rebound effect of global warming if they were terminated at some point in the future (Galaz 2019, pp. 114–15). Decolonial and post-colonial approaches of the Anthropocene turn this temporal discrepancy into a productive debate between Anthropocene scholarship and post-colonial theory (Chakrabarty 2012; McEwan 2021; Baldwin 2017). While post-colonial scholarship is mainly focused on "excavating the colonial past in the present, exposing how what passes as *after colonial* continues to reproduce colonial relations in the present" (Baldwin 2017, p. 294), Anthropocene studies tend to focus on the future. Chakrabarty thinks those two temporal perspectives together by pointing out the historical significance of the Anthropocene, the specific moment in time in which humans are both "a geological force and . . . a political agent . . . belonging at once to differently scaled histories of the planet" (Chakrabarty 2012, p. 14). Furthermore, productively working with the diverse temporalities of the Anthropocene, post-colonial theory points to the colonial continuities in the Anthropocene or "how the 'ruins of the empire' endure in the present . . . and how people live with and in these ruins" (McEwan 2021, p. 83). Such ruins of the empire in the Anthropocene can be seen in unequal vulnerabilities and oppressed temporalities (Nixon 2013; Chaturvedi and Doyle 2015). Studying Anthropocene futures from a historicizing post-colonial view,

Baldwin (2017, p. 295) suggests attending "to the ways in which the yet-to-come configures colonial imaginaries, both past and present."

The Anthropocene thesis not only allows us to think both 'natural' and 'social' temporalities as two separate realms exhibiting their specific complexities—importantly, it also challenges the very duality of these two realms. The notion of the Anthropocene stresses the interlacing of 'human' and 'natural' systems. Building on a dynamic understanding of planetary natural history, earth system science has aimed to integrate 'natural' and 'human' processes into the same temporal narrative. Resorting to a language that blurs the lines between human and non-human processes, Steffen et al. (2007, p. 615) define 'global change' as "alterations in a wide range of global-scale phenomena' including 'land use and land cover, urbanization, globalization, coastal ecosystems, atmospheric composition, riverine flow, nitrogen cycle, carbon cycle, physical climate, marine food chains, biological diversity, population, economy, resource use, energy, transport, communication". All these phenomena, they write, interact and often "show strong nonlinearities". Against the backdrop of systemic interaction and instability, earth system science sets out to model human activities as integrated parts of the earth system. In these models, human activities, such as the building of cities and cutting of forests, population growth, and technological innovation, are rapidly accelerating. Moreover, the material traces of human activities, such as synthetic fertilizers, aerosol pollution or carbon dioxide emissions, set in motion processes that themselves show alarming temporal instabilities. Human extractive activities and forms of agricultural use are not only 'out of tune' with the natural processes with which they are intertwined; earth system science shows that rapidly expanding human systems are already tipping earth as a whole into a new, unstable state. The Anthropocene then is a new planetary time, marked by instability, ruptures and multi-scalar temporal entanglements.

Thinking along these complex temporalities is key for grasping the political significance of current ecological crises in ways that take the entanglements of and interactions between human and nonhuman systems seriously. In this way, the 'Anthropocene' can function as a single-word narrative that expresses the urgency of coming to terms with complex interrelations between a wide array of disparate processes, taking place at various speeds and rhythms, and stretching over vastly different timescales. Fossil oil, for example, formed over millennia. Over the course of a few centuries, and more intensively a few decades, humans developed technologies to extract and process fossil oil to produce fuels, and a wide array of petro-chemicals and plastics. The extraction, production, use and disposal of these various products has consequences that range from the literally immediate to timespans that can be measured in millennia. There are short-term impacts on animal (human) health, including respiratory and reproductive health effects (see, e.g., Meloni et al. 2021). The use of fossil fuels has also shaped political and economic systems over decades and the needed changes to these international political and economic relationships are bound to create new political landscapes (Mitchell 2011). Even if such economic and political reconfigurations can be accomplished, however, by now we are all well aware that plastic waste and global warming will impact planetary systems from the climate to the oceans into earth's 'deep' future.

It is in a sense the belatedness of the Anthropocene discourse—pointing out the damages already done, or the planetary boundaries we are currently crossing or have already overstepped—that might be the most important re-orientation for political thought. With the entering into the Anthropocene, the earth no longer seems to be "the stable platform upon which dynamic social processes play out"; rather, social theorists and scientists ask "what it means to inhabit a deeply stratified, self-transformative and potentially catastrophic planet" (Clark and Yusoff 2017, pp. 3–5). This is a fundamental change for the political discourse:

> "The Anthropocene is a troubling concept for troubled times. It speaks of a complex, interconnected and unstable world marked by globalized and manufactured risks that now are threatening the very life-upholding systems upon which human civilizations rest. In contrast to the hopeful and reassuring concept of sus-

tainable development that has guided international environmental cooperation since the early 1990s, the Anthropocene is wedded into a language of fear and sorrow in view of irreparable loss of Arctic ice sheets, mass species extinction, acidified oceans and degraded lands". (Lövbrand et al. 2020, p. 5)

The catastrophic and fearful futures that are expressed through the Anthropocene concept differ fundamentally from the optimistic and forward-looking futures that have dominated much of the sustainable development discourse (Lövbrand et al. 2020). The narrative of rupture inherent in the Anthropocene thesis is a compelling departure from the "hegemonic statist times" (Hutchings 2008) and can be a useful concept to think further about radical transformations and a new way of planetary politics. Burke et al. (2016), for example, use the genre of a manifesto to describe the ruptured nature of the Anthropocene and how it fundamentally changes how International Relations (IR) scholars can study international society:

"We write 'from the end of IR' because the dominant intellectual and institutional architecture of international society fails both to see the Anthropocene as the reality and threat that it is, and fails to address its ecological, moral, and industrial challenges in any way adequately. IR can still explain the world of states and power politics, it can still make and do things, but only by treating the shuddering ecological tectonics of the planet like a shadowy ghost in that human picture, rather than as a brute ontic fact that threatens to overwhelm everything that 'man' has made. This kind of IR is already at an end". (Burke et al. 2016, p. 520)

In further exploring this criticism of the persistence of linear and unified temporal thinking, even against the backdrop of the temporal complexities of the Anthropocene, we argue in the next section that mainstream Anthropocene histories tend to highlight the progress and ingenuity of the human species. This tendency contributes to a de-politicized understanding of the Anthropocene.

3. An Apolitical History of the Anthropocene?

The scientific Anthropocene discourse holds potential for rethinking human and natural temporalities together at a time of monumental crisis and looming planetary catastrophe. In prominent Anthropocene narratives of leading earth system scientists, however, this possibility often remains unrealized. Despite stressing the importance of complexity and non-linearity in understanding the temporality of planetary systems, which *include* various human activities, critics have repeatedly pointed out that earth system scientists tend to fall back into a linear historical narrative of the human species when seeking to explain how 'we' got here. The dominant Anthropocene narrative, it seems, is haunted by similar issues than much of the earlier sustainable development discourse (Baskin 2019). As if to soften the blow of an uncertain, but most likely catastrophic future, of already mounting death and destruction, and planetary boundaries crossed, many scientists revert to the traditional narrative of linear development and still reachable sustainable development goals. This narrative emphasizes economic growth and the belief in ecomodernist governance of environmental problems. As Eileen Crist (2013, p. 133) highlights, the Anthropocene's developmentalist narrative "veer[s] away from environmentalism's dark idiom of destruction, depredation, rape, loss, devastation, deterioration, and so forth of the natural world into the tame vocabulary that humans are changing, shaping, transforming, or altering the biosphere, and, in the process, creating novel ecosystems and anthropogenic biomes.[...] This sort of wording presents itself as a more neutral vocabulary than one that speaks forcefully or wrathfully on behalf of the nonhuman realm".

A good example for the progressive, linear narrative of the human Anthropocene history is provided by a 2007 article of Steffen, Crutzen and McNeill. Echoing in tone grand narratives popular in Western 19th century thought, they argue that the Anthropocene properly begins in 18th century Europe (Steffen et al. 2007, p. 614; see also Bonneuil 2015, p. 18). From there, a three-stage history unfolds. Highlighting the congruence of European modernity and the Anthropocene, 'stage 1' sets in '[i]n the footsteps of the Enlightenment',

with the industrialization of 'England and the Low Countries', enabled by the invention of the steam engine, and properties of these regions, such as 'abundant water power and coal in England', or a culture that 'rewarded risk-taking and innovation' (Steffen et al. 2007, p. 616)—an analysis which makes no mention of the immense impact colonial expansion had on the development of the British economy in this period[1]. The second stage, the Great Acceleration, lasts from 1945 to 2015. This process, in the view of the authors, was enabled by factors such as urbanization, as a driver for 'managerial and technological innovation and engines of economic growth' (Steffen et al. 2007, p. 617), and set into motion after World War II by a 'new regime of international institutions' enabling 'more open trade and capital flows', and new technologies, developed due to 'unprecedented funding for science and technology' (Steffen et al. 2007, p. 618). Now, they write, we find ourselves already in a distinct third phase of the Anthropocene, where humankind is firmly established as a major geological force, a role it will keep for 'millennia, maybe millions of years, to come' (Steffen et al. 2007, p. 618). Reminiscent of Ulrich Beck's and Anthony Gidden's notions of late modernity, in this third phase, the Anthropocene has finally taken a reflexive turn. Self-awareness, brought about by 'the most innovative . . . interdisciplinary work on human-environment systems', the internet and liberal democratic government, finally makes it possible for the species to become conscious of its extraordinary position in earth's history (Steffen et al. 2007, p. 619)—and thus to assume true, conscious agency in forming its planetary environment. After becoming fully aware of the negative consequences of its juvenile growth spurt, the species—mainly through its exceptional ability for technological development—can now become the true, benevolent master of its planetary environment.

This "'triumphalist' impulse" (Meadowcroft 2019, p. 238), however, has the effect of depoliticizing the history of the Anthropocene, where scientific and technological innovation appear independently of their political and cultural environments. Science is cast in the role of the *deus ex machina* "which will now guide humankind" (Bonneuil 2015, p. 23). Such an understanding overlooks the socio-political conditions that have enabled the development, adoption and spread of technologies such as the steam engine, automobiles, or nuclear energy. As historians have shown, these were not always the most (energy) efficient, most economic, or the only technologically possible choices, but instead were pushed because of the vested interests of particular entrepreneurs and powerful socio-political groups (see, e.g., Bonneuil and Fressoz 2017). As Theodor Adorno already pointed out, "the choice of technologies is . . . always a question of power; the use of technologies is never neutral" (Weißpflug 2019, p. 25).

In line with these 'developmentalist' Anthropocene narratives, contemporary environmental politics often follows a "governance fantasy of rational steering" (Eckersley 2017, p. 986), which is fueled by ideas of eco-authoritarianism as well as the image of abstract and independent science that is above politics. Lövbrand et al. (2015) identify this depoliticization as a curious departure from the Anthropocene's temporal complexity and non-linearity—in their words, a "paradoxical relationship between environmental apocalyptic thought on the one hand, and institutional status quo on the other" (Lövbrand et al. 2015, p. 214). Here, the temporal horizons of the future, as the possibility of something genuinely new, and of history, as constitutive of the present, are collapsed: The fear of an uncertain future of multiple crises calls forth the "reflex" to adhere to the status quo of a perpetual present, and "manage" instead of publicly and controversially contest Anthropocene futures (Hajer 2009, p. 10). A simplified and unified Anthropocene history in terms of the progressive development of the human species also cuts off any acknowledgement of the 'Anthropocene past' as a more complex history of political struggles about environmental and socio-economic issues, including histories of struggles for intact ecosystems, wild nature and over the ancestral homelands of indigenous peoples. Engagement with such histories of political struggle, however, is an important resource for Anthropocene politics today.

In the interwoven 'nature-cultures' of the Anthropocene, it seems, the interconnection between the 'natural' and the 'human' is one where finally the human overpowers nature,

leading to the disappearance of anything not closely connected to human (economic) interests. This is seldom expressed in terms of mourning over the loss of the possibility of a human-independent world, however. In many instances, the Anthropocene literature remains unabashedly anthropocentric in its normative leanings. When discourse frequently renders 'nature' into 'services', it often seems as if earth, including all the living beings on it, are rightfully humanity's property, a notion that leaves little space to contemplate and bemoan issues such as the destruction of habitats, the disappearance of 'wilderness' and species extinction, as what they are—a massive loss of lives that makes the planet less diverse and less livable for survivors. This disavowal of the non-human is also part of popular Anthropocene imaginings and imagery. Earth, as it appears in dominant Anthropocene narratives and depictions, is often strangely life- and timeless. As Stacy Alaimo writes in her analysis of popular Anthropocene images, earth is presented as "devoid of other species, as if the sixth great extinction had already concluded" (Alaimo 2017, p. 91).[2] For Alaimo, "in the dominant visual apparatus of the Anthropocene, the viewer enjoys a comfortable position outside the systems depicted. The already iconic images of the Anthropocene [. . .] make risk, harm, and suffering undetectable, as toxic and radioactive regions do not appear, nor do the movements of climate refugees. [. . .] The perspective is predictable and reassuring despite its claim to novelty and cataclysm" (Alaimo 2017, p. 92).[3]

Building on these criticisms, we ask what it would mean for rethinking politics, if 'contemporary neoliberal sustainable discourses' that depoliticize environmental and climate justice movements by 'integrating them within capitalist and neocolonial cultures' (de Massol de Rebetz 2020, pp. 878–79) were rejected in favor of an engagement with the Anthropocene as a challenge for political practice and thought. Or, as Hajer (2009) formulates the question: "Are there political repertoires that do not revert to the managerial reflex?" Here, recent debates on the affective dimensions of political agency might provide helpful points of departure. In part four, we therefore turn to the practice of mourning as a political act of resisting the return to well-worn linear temporality and an institutional status quo.

4. The Trauma of the Anthropocene—A Politics for Times of Mourning?

The Anthropocene challenges us to rethink the role of temporality for political thought and practice, and it does so in ways that highlight experiences of loss and insecurity. As we have argued above, earth system science provides conceptual tools for thinking 'natural' time in terms that stress complexity and non-linearity. In addition, recent research cutting across natural and social science disciplines highlights the interconnections between human and natural temporal processes—both on the large scales of climate patterns or human forms of global land-use and on the small scales of molecular processes and individual experiences of living in time. The Anthropocene, however, also connotes a rupture—the urgent call to acknowledge the already disastrous impacts of human exploitative practices on the planet and all living beings. In this sense, this time is a time of mourning. It encompasses the remembrance and grieving of the violent (pre-)histories[4] of the Anthropocene, as well as the mourning for foreclosed futures. Coming to terms with the Anthropocene entails the experience of missing synchronicity and shared temporality with the natural world, with species already extinct. It is often argued that highlighting a possible catastrophic future, and dwelling on the experience of opportunities already missed, of defeats already put into motion, would paralyze political action (Cassegård and Thörn 2018). We want to pose the question, however, whether giving room for mourning could not also be understood as motivation for political activism and create its own forms of politics for the Anthropocene.

In contemporary Western cultures, mourning is often thought of as a solitary and lonely experience. The mourner, it seems, is excluded from shared social time. Thomas Fuchs, for example, describes grief in terms of a loss of contemporality: "Grief reflects a break which has been experienced in one's synchronicity with others—the mourner cannot

break away from the shared past, whereas the social time keeps going on" (Fuchs 2013, p. 83). As Denise Riley writes, loss is an experience of non-linear temporality, of time ruptured, stopped or out-of-joint. She describes her experience of mourning as "living in suddenly arrested time: that acute sensation of being cut off from any temporal flow" (Riley 2012, p. 7). While grieving is often deeply personal, there are, however, also occasions where it might be possible to understand this altered temporal experience as a resource for a more public and political approach to grief. The experience of being thrown out of shared time, of becoming unproductive, to stop 'moving forwards', could then be taken as an invitation to rethink one's relationship to the shared world. A more social approach to grief might provide shared space for the need to halt, to revisit and live with the past, and to re-assess possible futures. This, in turn, could create room for establishing novel forms and practices of political engagement. This opens the question whether there could be a politics which is halting, which leaves time for reconsidering, for acknowledging one's own and others' shared vulnerability as a stance which allows for more just and generative political practices.

Considering this possibility, we may start by noting, that grief is at the same time deeply personal and widely thought of as a universal part of the human condition. As Judith Butler (2004) writes, in mourning we can recognize the shared precariousness of embodied existence. In losing someone close to us, we become aware of our own relationality. We are vulnerable, finite beings who depend for their survival and their sense of self on other vulnerable beings. Thus, in experiencing grief, we might become better able to relate to others who share this experience of existential vulnerability and dependency. Grief, however, is not only universal but also always already social. Expressions of mourning are always "culturally, historically, geographically, and politically situated" (Granek 2014, p. 1). As Leeat Granek argues, 'grief has always been policed. In every society, grieving has been regulated in terms of duration, modes of expression, and rituals and traditions around how to mark and mourn loss and death.' This makes grief 'always political' (Granek 2014, p. 1). For Granek, Western societies' individualization of grief can be viewed as a way to "reinforce and encourage the neoliberal 21st century ideal of the productive, consuming citizen" (Granek 2014, p. 1). Framing grief in terms of an individual psycho-medical condition that might require treatment, Granek maintains, displaces the possibility of socially and politically productive rage that often occurs with losses related to violence and injustice: "In these instances of terrible injustice, pathologizing and individualizing grief serves to turn the gaze of the mourner inward . . . instead of outward toward the social conditions that have caused these losses" (Granek 2014, p. 3).

Understanding the Anthropocene as a time of mourning introduces further social and temporal aspects. What is mourned here is not a singular person but the shared environment; albeit Anthropocene mourning for many also includes personal losses brought on by mounting environmental disasters. While this form of mourning can also be experienced individually, it is fundamentally a shared experience. With the environmental destruction and the diminishing of possible futures through the effects of climate change, we grief together a communal loss. Mourning the Anthropocene also has a specific temporality: it is directed both into the past and in the future—here, grief can be anticipatory. While mourning the loss of loved ones, or even melted glaciers and extinct species, addresses an absence in the here and now, there is a further temporal dimension to mourning future ecological loss. Furthermore, while one's personal grief over the loss of a loved person usually has a temporal horizon, "grief for the loss of the ecosystem seems to have no ending" (Neckel and Hasenfratz 2021). A shift in the affective experience of 'new' Anthropocene temporalities can already be empirically observed. Witnessing massive environmental destruction by wildfires, floods, hurricanes, heat waves and many more signs of an unfolding Anthropocene have brought about a mental health phenomenon that is accompanying this planetary emergency. "Eco-anxiety" and "climate grief" are associated with symptoms of chronic anxiety, depression, post-traumatic stress, substance abuse, suicide or suicidal thoughts, or sleep disorders (Clayton 2020). According to a poll

in 2019, 68% of all 14–24-year-olds in Germany suffer from climate anxiety[5]. While anxiety, like grief, is often understood primarily as isolating, these experiences can create political community—a group that is not held together by a pre-defined common political identity, based on social categories such as class, nationality, or gender, but precisely by shared affects like anxiety, grief and mourning (see also Kelz 2016, pp. 157–64). This does not mean that such a community would have to share identical circumstances and experiences: for some, climate change and environmental destruction have much more immediately life-threatening dimensions than for others. Therefore, a political community of mourning needs to explore and address how vulnerabilities are unequally distributed. The existential notion of precariousness—that we are all vulnerable, relational beings—is thus connected to the political concept of precarity, which connotes how the ways in which we are exposed to precariousness is socially and politically determined (see Lorey 2012). Precarity demarcates the effects of political, social and juridical systems which structure whose lives are more sheltered from 'existential' dangers, such as pollution, floods and droughts, but also political violence, while others are exposed to conditions of heightened vulnerability. In the Global South, where people have experienced the destructive consequences of climate change for much longer and in higher frequency, the situation is of course worse than in the Global North: "For Elizabeth Wathuti, a climate activist from Kenya, her experience of climate anxiety is not so much about the future but what is happening now. "People in African countries experience eco-anxiety differently because climate change for us is about the impacts that we are already experiencing now and the possibilities of the situation getting worse", she said[6].

In this context, the political importance of considering which losses are currently publicly acknowledged and mourned, and whose grief remains invisible, comes to the fore (McIvor and Hirsch 2019, p. x). As Judith Butler reminds us: "The differential distribution of public grieving is a political issue of enormous significance. It has been since at least the time of Antigone, when she chose openly to mourn the death of one of her brothers even though it went against the sovereign law to do so" (Butler 2010, p. 38). Challenging the current social and political order by bringing one's personal loss into the public arena has become a well-established form of political activism. In social movements, politicizing the loss of lives is a practice of making visible the deaths and precarious lives of those ignored and oppressed by dominant societal groups and political leaders. By demanding public acknowledgement of their loss and performing public mourning rituals social movements have shown how their personal losses are intertwined with broader political and societal structures. The contemporary history of these practices includes the early civil rights movement, ACT UP and the Black Lives Matter movement as well as Ni Una Menos in Argentina. As Jenny Edkins (2003) argues, remembering major catastrophes and collectively traumatizing events by survivors can be an act of resistance that disrupts dominant linear temporality. Atkinson (2021) makes a similar point: "As so many social justice movements have reminded us, systems of oppression and destruction are reinforced when we push their painful legacies into the shadows. That's why mourning rituals—which bring visibility to unacknowledged injustice through public expression of outrage or grief—can act as a powerful antidote". Open and public grieving can be a political practice that transforms grief into anger and social change. In this sense, part of de-politicizing the Anthropocene is its absence as mournable in the public realm. Atkinson (2021) argues that when "we name and collectively recognize the tragedy of ecological loss, we engage in an ethical protest against modes of thought that trivialize this annihilation." Bringing Anthropocene mourning into the public sphere also connects it to calls for justice. Mourning as a claim for justice highlights our relationships with others in ways that seek to 'motivate better futures'. At the same time, they show that the past is "part of the present, contained within it" (Callaway 2014, p. 18). This "challenges one to come to terms with the past, to acknowledge and affirm the past rather than deny it" (Callaway 2014, p. 21). To re-politicize the Anthropocene discourse and build new political communities, it is necessary to provide the public space to acknowledge the disastrous effects of pollution,

habitat destruction and climate change and understand how they diminish the world we inhabit today. This also includes the task of establishing a fuller account of the human history of the Anthropocene, which allows to make visible and politically address the ongoing effects of historical injustices (see also Knappe 2020).

Extinction Rebellion provides an example for a social movement which engages in politicized mourning practices in the Anthropocene. In one of their declarations, they emphasize the role of mourning over extinct species as a resource for action. Setting a contrasting note to the usually optimistic and positive notions of mainstream environmentalism, they clearly state: "hope dies—action begins"; and a further statement of the rebellion: "We hold the following to be true: This is our darkest hour. Humanity finds itself embroiled in an event unprecedented in its history, one which, unless immediately addressed, will catapult us further into the destruction of all we hold dear: this nation, its peoples, our ecosystems and the future of generations to come" (Extinction Rebellion Hannover 2019, p. 86). What we also note here is an embeddedness in what is called post-apocalyptic activism, articulating the sense that the catastrophe is already here, instead of looming in the future (Cassegård and Thörn 2018). However, it remains unclear in how far such post-apocalyptic political statements have mobilizing and politicizing effects. As de de Moor (2021) notes,

> "Postapocalyptic narratives have not (so far) produced significant shifts in movement goals and strategies, for instance towards a focus on adaptation to (expected) catastrophic impacts; they were often kept out of strategizing, to prevent 'dark thoughts' from demotivating activists, and enabling continuing work on mitigation, which in turn rekindled hopes that the apocalypse could still be averted"

Another aspect of political mourning is the political act of addressing responsibilities for past and present injustice. Whose lives are put at risk and by whom? Politicized mourning in the Anthropocene moves the loss of lives in a planetary context of entangled human and non-human worlds. In grieving rituals, such as the "Remembrance Day for Lost Species" or the funeral of the first glacier in Iceland lost to climate change (Atkinson 2021), future memories are built by "connecting decaying pasts and presents with prospective dystopian futures" (de Massol de Rebetz 2020, p. 877). The Remembrance Day for lost species which is held on November 30th each year is a UK-based initiative founded by Feral Theatre and The Life Cairn, in 2011. People around the world are gathering to do funeral practices to commemorate extinct species. November as the month of Armistice Day (November 11) for the Remembrance Day For Lost Species was inspired by war remembrance days. With this analogy, "extincts species becom[e] historical objects with human value" (de Massol de Rebetz 2020, p. 877). This highlights the relationship of justice and mourning in terms of a necessary reconsideration of our relationships to the past and the future. As McIvor and Hirsch (2019) phrase it: "Mourning links subjects to their past, but it can also sustain an impression of who they aspire to become in the future. Janus-faced, mourning therefore looks backwards and forward, simultaneously" (ix). However, as de Massol de Rebetz investigates this mourning practice in more detail, she notes that the entanglement of human and non-human mourning, as it is performed on Remembrance Day, does not come without problematic colonial and Western-centric connotations. Indigenous people or climate refugees are included in the mourning ritual, as if they were already doomed to lose their fight for land and survival (de Massol de Rebetz 2020, p. 883). This removes "the possibility of agency over their struggles." (ibid: 883.) However, this form of "pre-emptive grief" can also be interpreted in terms of addressing the disruptive catastrophes waiting in the near Anthropocene future. This reading would relate to the beforementioned forms of eco-anxiety rooted in the anticipation of future loss, while at the same time pointing to the lasting effects of colonial violence.

The Anthropocene debate has contributed to contemporary re-assessments of concepts of temporality and has put non-linear temporalities in a more prominent place. Mourning can be one way to acknowledge and politicize a new sense of entangled temporalities. Anna Tsing concludes that we need to embrace our own precarity and vulnerability:

> "What if, as I'm suggesting, precarity *is* the condition of our time—or, to put it another way, what if our time is ripe for sensing precarity? . . . Precarity is the condition of being vulnerable to others. Unpredictable encounters transform us; we are not in control, even of ourselves". (Tsing 2015, p. 20)

Acknowledging loss and insecurity in the Anthropocene can be a way to politicize and embrace the non-linear catastrophic present and futures we are facing. Involving past and present injustices is a necessary part of such politics of mourning in the Anthropocene. From this perspective, the history of the Anthropocene can be retold in terms that do not stress linear, progressive development. Understanding the socio-political background that enabled anthropogenic effects on the earth system, then, requires of us to critically engage with the history of the political and economic expansion of European rule over the planet. This history can only be told as the history of 'progress' for a very small proportion of the human population, but signifies histories of loss, violence and suffering for many more. These histories still await to be publicly mourned in ways that make politically more visible their impacts on the natural and political environments of today[7].

5. Conclusions

Mainstream Anthropocene discourse has been widely criticized for turning a blind eye on power asymmetries and societal structures (Meadowcroft 2019, pp. 237–38). We approached this criticism from a temporal perspective. As the Anthropocene concept suggests a departure from linear and unified temporal thinking towards complex, non-linear and ruptured times, we explored the potential of this temporal shift. We argued that many criticisms of the de-politicizing effects of the Anthropocene discourse refer to notions of history in the Anthropocene concept. We traced how the initial Anthropocene concept offers more complex and non-linear temporalities, but then describes the supposedly linear history of the Anthropocene and suggests a linear developmental policy framing of the Anthropocene that depoliticizes not only Anthropocene pasts, but also the Anthropocene present and futures. To challenge this mainstream Anthropocene narrative, we started to explore the potential of mourning practices.

Mourning lost future possibilities, past and present losses of life or anticipated catastrophes are political practices that resist the dominant linear and development narrative in that they acknowledge the ruptures in time. Mourning the violent loss of life and the looming environmental catastrophes does not normalize such events into a linear development of human history, but exposes the ruptured character of them in past, present and future times. Furthermore, mourning missed opportunities for better futures makes visible the plurality of past futures, thus challenging the linear narrative of human history as an inevitable progressive development. Mourning brings the crisis in the here and now, or as Kenis (2021, p. 142) writes, "the reframing of the *now* as the moment of crisis, as the *ruin* on which another future has to be built, might be politically more interesting than fighting an enemy whose teeth have yet to be revealed". However, it still remains to be studied how mourning practices actually politicize Anthropocene futures in concrete political arenas. Specifically in the context of the Anthropocene, mourning past, present and future loss and injustice is a practice that acknowledges temporal diversity, but at the same time should be complemented by other political practices.

The different notions of dealing with the Anthropocene past show us how our understanding of temporal orders is fundamentally shaped by existing power asymmetries and colonial legacies and at the same time reinforces those very hegemonic relations. The Anthropocene has the potential to break with conventional temporal orders - if we take its complex and ruptured character seriously.

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Notes

1   Economic historian Kenneth Pomeranz writes that slave-produced cotton imported by England in 1830 saved 9.3 million domestic hectares of pasture and hay for production of an equivalent amount of fibre from sheep's wool, and sugar from the West Indies was equivalent to 600,000 hectares of land for cereal production. In total, what Britain imported from its colonies was an equivalent of two-thirds of the usable agricultural surface of England and Wales (cited in Bonneuil and Fressoz 2017, p. 233).

2   Her examples include areal pictures of cities, used to illustrate articles about the Anthropocene in magazines and newspapers, like 'a photo of a glowing spider-shaped blob of gold against darkness' (London viewed from the International Space Station), or Felix Pharand-Deschenes' project "Cartography of the Anthropocene", which shows for example world-maps of the lines of roads, railways, and underwater cables, demonstrating the expansiveness of human habitation, commerce and transportation networks (91).

3   Alaimo's criticism is in some respects reminiscent of Arendt's pre-Anthropocene concept criticism of the post- World War II infatuation with science enabling humanity to quite literally and metaphorically view of earth from space. For Arendt, individual human beings and their intimate relationships with their environments are made invisible by such an assumed 'Archimedian point' of scientific omniscience enabling technological steering and mastery of earth (see Weißpflug 2019, p. 22).

4   We include 'pre-' to connote that even when early colonial history is only by some counted as already occuring with the era of the Anthropocene, it played a decisive role in bringing it about. Moreover, considering early colonialism within the histories of the Anthropocene is important for understanding the Anthropocene in terms of political and economic history.

5   https://www.sinus-institut.de/media-center/presse/klimaschutz-die-jugend-fuehlt-sich-im-stich-gelassen (accessed on 21 September 2021).

6   https://www.theguardian.com/environment/2020/feb/10/overwhelming-and-terrifying-impact-of-climate-crisis-on-mental-health (accessed on 21 September 2021).

7   In these (pre-)histories of the Anthropocene, such as the arrival of Spaniards in the 'New World', it already becomes visible how political and natural factors are closely intertwined. Colonialism indeed created 'new worlds', new ecosystems inhabited and used in novel ways by different human populations, showing the interlacing of human actions and ecological factors in the violent reshaping not only of the American continent but, over time, of the planetary system as a whole. For the peoples who first encountered European conquistadors and settlers, this often meant the end of their worlds. In what is today Mexico, it is estimated that between 90 and 95 percent of the population died between 1519, when the Spaniards arrived, and 1620, when the indigenous population began its slow recovery (Melville 1997, p. 4). At the beginning of the Anthropocene stands not the technological leap made by a small region of Western Europe, but the global history of European colonialism. From this perspective, the invention of the steam engine, which for Crutzen and colleagues 'shattered' the 'bottleneck' of energy poverty, which up to then restricted 'human numbers, the global economy, and the ability of humankind to shape the rest of the biosphere and to influence the functioning of the Earth System', can only be part of the story of European industrialization. While it is true that fossil fuel is "a massive energy subsidy from the deep past to modern society, upon which a great deal of our modern wealth depends" (Steffen et al. 2007, p. 616), modern wealth also depends, as Jason Moore (2017) points out, on 'cheap nature' and 'cheap labor' gained through colonization and slavery.

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