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# Moving beyond growth in the Anthropocene

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**Abstract**

From a sociological and political perspective, a key contribution of the discourse on the Anthropocene is its ability to act as a boundary object, to bring natural scientists and social scientists into conversation with each other and with the wider public. The Anthropocene then shifts scientific debate from the technical to the political, thus forcing science to change its mode of inquiry from normal to post-normal science, where political stakes as well as uncertainty of decision outcomes are high, and pressuring science to become a political actor. The current understanding of the Anthropocene, both stratigraphically and metaphorically, is based on the detrimental ecological impact of humanity and this leads us to propose that the Anthropocene commences with a new age we have called the 'Auxocene', after the ancient Greek Horae of growth. We argue that the social imaginary constituting the Auxocene rests on an unchallenged basic driver: expansionist differentiation and unchecked growth. We explore the notion of 'Degrowth' as a powerful discursive tool to facilitate the emergence of new social imaginaries and creating new socio-economic models that will provide beneficial ecological consequences for living in the Anthropocene.

**Keywords**

Degrowth, social imaginary, post-normal science, global risk society

Ever since Paul J Crutzen and Eugene F Stoermer introduced the term 'Anthropocene' in the *Global Change Newsletter*, the idea that humanity has become a defining force for a new geological epoch has resonated across the scientific community and wider society (Crutzen and Stoermer, 2000). The significance of the Anthropocene is more than simply the recognition of a new geological marker. From a sociological and political perspective, a key contribution of the Anthropocene is its ability, as a concept, to bring the natural sciences, the social sciences and the wider public into a conversation with each other (Moore, 2017). The Anthropocene then constitutes a 'boundary object', enabling diverse actors to work together on its central theme without the need to explicitly agree on every aspect of it (Akkerman and Bakker, 2011). The Anthropocene creates a shared

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space with a loosely structured central premise: that humanity, as a species, has evolved to become the driving force for and of nature and the impacts of human activities are now measurable ecologically, socially and potentially geologically.

Geologically, for the epoch of the Anthropocene, there is a specific requirement to determine stratigraphically its foundational markers. This is a question for the natural sciences, and if a so-called 'golden spike' cannot be identified then there will be no geological epoch of the Anthropocene. However, in the original article by Crutzen and Stoermer, there was much less care given to specific geological markers; rather the designation of the late 18th century to establish the Anthropocene's origin aligns with the onset of the Industrial Revolution and its reliance on coal and its consequent environmental impacts. Many of the later debates have tried to rationalize this particular decision or come up with different, more geological designations for the Anthropocene. Simon L Lewis and Mark A Maslin, for example, propose two different geological markers, one being the so-called Orbis spike dip in $CO_2$ with a minimum in 1610 – a good century and half before James Watt's steam engine – and the atomic bomb spike with a peak in $^{14}C$ in 1964 (Lewis and Maslin, 2015). Their preferred choice is 1964, aligning this geological marker with the 'Great Acceleration' (Steffen et al., 2011) of economic growth, human population, novel materials such as plastic, and the surge in greenhouse gas (GHG) emissions. What is interesting is that Lewis and Maslin are very explicit that agreeing on a starting point for the Anthropocene has political implications. If we chose the 1610 marker, they argue, the Anthropocene highlights colonialism, global trade, exploitation of human work (especially in the Transatlantic slave trade) and nature, as well as the use of fossil fuels. Choosing 1964, the story of the Anthropocene is about 'elite-driven technological development that threatens planet-wide destruction' (Lewis and Maslin, 2015: 177), but also about achievements such as the Partial Test Ban Treaty, that highlight the possibility of some kind of global governance to manage self-inflicted threats to humanity. This is important to us: the discourse about the Anthropocene and the many debates within it are not 'just' scientific; they are always highly political and thus subject to conflict, to negotiation, to temporary compromise (Barry and Maslin, 2016). In our view, the problem of defining the Anthropocene is not simply a stratigraphic one; it is foremost a socio-political one, which was explicitly recognized by Crutzen and Stoermer when they introduced the term and its rationale. The Anthropocene then expands scientific debate from the technical to the political, thus forcing science to change its mode of inquiry from normal to post-normal science, where political stakes as well as uncertainty of decision outcomes are high and science cannot avoid becoming a political actor (Funtowicz and Ravetz, 1994).

In order to fulfill this more political role, the concept of the Anthropocene needs scrutiny from a social science perspective. Jason W Moore offers a twofold critique of the Anthropocene we deem helpful (Moore, 2017). On the one hand, he focuses on the Cartesian construction of society or humanity versus nature. Instead of understanding nature-in-society and society-in-nature, the Anthropocene discourse continues the Cartesian trajectory of dualities: we/it, either/or. This duality then points to a key aspect of his argument: the 'we' of humanity, understood as a capital-H Humanity. Who exactly is that? Have suddenly all class differences, all economic differences, gender differences, ethnic differences been erased by constructing a 'we' that is now acting in a consciously unified way as a geological force? For Moore, the Anthropocene discourse is blind to historical, political and economic forces, and ignorant to, for example, a Marxist analysis of the origins of the Anthropocene. His proposal is then straightforward: instead of Anthropocene it would be more appropriate to call this new epoch the 'Capitalocene' in order to reveal the capitalist logic at its core. Capitalism, in Moore's perspective, is centered on the Cartesian separation of humanity and nature, enabling the separation of direct producers and the means of production, leading to the 'cheapening' of work, of nature and of living in general. A problem with substituting the notion of Capitalocene for the Anthropocene is that capitalism is simply one of

many ideologies framing economic activities and thus the Capitalocene lacks the more inclusive character of the Anthropocene as a boundary object. For example, previously existing Marxist economic systems such as communism may have applied a different socio-political rationale to organizing economics yet shared with capitalism a foundational belief in growth.

We feel sympathy for Moore's critique, especially when he calls out the political-economical blind spots of the Anthropocene discourse. However, we cannot avoid the impression that he tends to build some strawmen along the way, thus overstating the shortcomings within the Anthropocene community. For example, the afore-cited works by Lewis and Maslin explicitly refer to the inherently political nature of the Anthropocene (Lewis and Maslin, 2015). Also, Will Steffen, Jacques Grinevald, Paul Crutzen himself, and John McNeill (Steffen et al., 2011: 862) are arguing that 'the belief systems and assumptions that underpin neo-classical economic thinking, which in turn has been a major driver of the Great Acceleration, are directly challenged by the concept of the Anthropocene'. Returning to Moore's argument, an issue for us is that any Marxist critique is biased towards economic explanations for political injustices and distortions. Such bias ignores political interests and larger cultural currents that influence economic behavior, which jointly shape our societies. We do not want to propose the all too easy scapegoat of capitalism for understanding the political-economic-cultural mindsets and structures of the Anthropocene. This would be too reductive a position, given the varieties of capitalism (from laissez faire to state-led and coordinated forms) and their differing degrees to which they might be able to align themselves with the notion of 'Degrowth' we are going to introduce in this contribution (Buch-Hansen, 2014). Instead we are focusing on the even more fundamental logic at the core of capitalism: expansionist differentiation of an ever more complex societies with ever more complex internal processes and their most visible aspect, economic growth itself.

To understand what we mean with that, we would like to draw attention to the 'long 16th century' (Wallerstein, 2011) and certain fundamental changes this brought about for European societies – the same European societies that, during this period, set out to Europeanize the rest of the planet, first by force, then by adaptation. The events in Europe between 1440 (the establishment of the mechanical printing press in Germany) and 1640 (the English Civil War and the establishment of a modern parliament), accentuated by the Reformation and Counter-Reformation, the outward expansion of economic interests to the Americas, and the establishment of the first modern business organization with the East India Company, laid the ground for a significant social change, from stratified class-based societies towards functionally differentiated societies (Luhmann, 2012). Just as the monarchs in the 17th and 18th centuries were losing their heads, so did societies lose their centers. Politics, the economy, science, the legal system, the education system and other institutions were re-organized into new large-scale social systems that emerged from a previously stratified society, with a clear and different social order. They expanded and re-defined social space, enlarged and enriched it with higher complexity that, following Ashby's Law of Requisite Variety (Ashby, 1979), lead to even more differentiation and expansion – new political parties, new political systems, new markets, new forms of organizations, new products, the advent of consumers – enabling the multitude of lifestyles and individualized value systems we now experience. Harald Welzer argues that it was this particular unfolding of what we now call modern society that gave rise to the idea and logic of growth as a mental infrastructure, shaping our human brains as a biocultural organ and priming us for growth (Welzer, 2011).

Returning to the stratigraphic proposal of the Anthropocene, its conceptual foundation is the dominant footprint of humanity on the Earth's ecological systems. This footprint may be beneficial, detrimental or benign and as an epoch, the Anthropocene would span multiple ages. Our argument is that the current understanding of the Anthropocene both stratigraphically and metaphorically is based on the detrimental impact of humanity and that our impact is framed by our current

bio-cultural predisposition for growth. This leads us to propose that the epoch of the Anthropocene commences with a new age we have called the 'Auxocene', after the ancient Greek Horae of growth, and that this will be followed by a 'post-growth' age (Bjerg et al., 2017; Speth, 2009). Understanding the Anthropocene initiated by growth – economic, population, social systems, emancipatory rights, ecological footprint – provides an interesting opportunity to connect (geologically, socially and politically) the markers of the Anthropocene starting in 1610 and extending through the 1960s to the present. Accepting the 'Auxocene' as the current age also offers opportunity to create the models of 'post-growth' societies we would like to pursue (Spash, 2015).

The long 16th century provides an explanation for the drivers of the current crises in the Anthropocene, the influences that have shaped the political-economic-cultural mindset driving our economic, political and social systems towards inflicting ecological threats on Nature and Society, culminating in the Great Acceleration after the Second World War, which we have coined with the neologism of the Auxocene, the growth age. The focus on growth enables us to understand these past 400 years, especially the past 70 years, as the first age of the Anthropocene. The Anthropocene as an epoch need not be stuck within the Auxocene of growth but, in the words of John Stuart Mill (1848: 752), we might come to view this first age not as 'the most desirable lot of human kind, or anything but the disagreeable symptoms of one of the phases of industrial progress'. Focusing on growth as the trigger for the Anthropocene, opens the opportunity to imagine pathways in the Anthropocene beyond growth. Just as Steffen et al. (2011) argue for a challenge to neo-classical, and therefore growth-based economic thinking by reflecting on the consequences of its own success in starting the Great Acceleration. We argue that the visible limitations and threats arising from the Auxocene will force the current Anthropocene discourse to revisit its unchallenged basic driver: expansionist differentiation and unchecked growth.

It should be evident now that we attempt to construct the Anthropocene as an emergent social imaginary (Taylor, 2004), understood as a common discursive space where global problems such as climate change are negotiated (Stevenson and Dryzek, 2012). Current trends in economic theory do challenge the nature–society dichotomy issue raised by Moore and a number of new models and understandings that attempt to redress the destructive impact of human activity on the Earth's ecological systems have emerged (Brown and Garver, 2009; Daly, 2014; Jackson, 2009; Raworth, 2017). Our contribution to the political aspects of the social imaginary of the Anthropocene is to explore the notion of 'Degrowth' as an antidote to the lack of imagination when dealing with the consequences of humanity's footprint for the Anthropocene. With these 'Anthropocene politics' we loosely connect to discussions in the field of political ecology, focusing on the interdependence and co-evolution of ecological and political systems (Robbins, 2012), as well as on ideas about human–nature interactions as collaborative systems of production (Purdy, 2015). Degrowth is coming from the French tradition of 'Décroissance' and, while loosely associated with the first wave of growth criticism in the 1970s and the well-known 'Limits to Growth' (Meadows et al., 1972; Turner, 2012), signifies the second wave of growth criticism emanating from 2001 onwards (Demaria et al., 2013). Originally intended as a 'missile word' to challenge mainstream economic and political thinking, Degrowth has developed into a boundary object of its own; Degrowth is conjointly an activist movement campaigning and lobbying for Degrowth-oriented policies and an academic movement organizing a research agenda for developing models and insights into societies that are not fixated on growth and are able to withstand economic contractions while at the same time increasing individual, social and ecological well-being. Its focal point is Europe, especially France and Southern Europe, with strong networks in Germany and recently the UK, with Tim Jackson and his work on 'Prosperity without growth' (Jackson, 2009). Peter A. Victor drew attention to the debate on Degrowth in his commentary in 'Nature' (Victor, 2010) where he remarked that, as long as our common imaginary remains fixated on growth, policymaking will be hopelessly constrained.

For example, policies dealing with accelerating climate change have to be formulated in a way that contributes to economic growth and this economic rationale explains the impetus and impact of the Great Acceleration.

Taking a Degrowth perspective in order to bring an end to the Auxocene as the first age of the Anthropocene, some decidedly non-growth-oriented Anthropocene politics become possible: for example, global institutions for a decentralized energy transition towards renewables, changes to work norms and redistribution of wealth, and enabling economic value creation beyond the market. Degrowth argues for a radical re-imagination of what it means to live well within modern societies. One consequence is the dematerialization of consumer society, which will demand new societal and economic models that will change the relationships between what we now know as the developed and developing world. Tackling climate change for example would then not just rest on some form of large-scale geo-engineering through sequestering and capturing GHG from the atmosphere after 2050, something that the 2015 Paris Agreement actually entails, but open up the possibility of designing a contraction of selected micro- and macro-economic activities, mostly from the global north, that ensures meeting the emission targets without gambling on, as of yet, undeveloped technologies with uncertain risks and consequences. Samuel Alexander from the Simplicity Institute even argues that without some form of planned Degrowth mitigating climate change would be impossible (Alexander, 2014). Such Anthropocene politics from a Degrowth perspective would focus first, on a large-scale transformation of the global energy system towards renewables (see, for example, current policies such as the German *Energiewende*), as we need significant scalable capacity of energy to support a functioning circular economy. This would lead to a dramatic contraction for the fossil fuel and nuclear industry to their virtual extinction. In order to have a functioning circular economy, the amount of material throughput in that system has to be sustainable in itself, i.e. it has to degrow to a sustainable steady state in the sense of Herman E Daly's Steady State Economy (Daly, 2014). More critically, Degrowth requires a fundamental change in the underlying political-economic-cultural mindset, an abandoning of growth as a conceptual and practical ideal and norm. The changing nature of work in society towards less gainful employment on the one hand, accompanied on the other hand by increased third-sector activities, 'employment' in civil society initiatives and household/neighborhood work is at the heart of this shift. The changing nature of work would be supported by the institution of a universal living wage reflecting redistribution of wealth within society. Recent research (Ferguson, 2013) into the effectiveness of reduced working hours and the expansion of low productivity sectors, concurs that such a shift requires some form of redistributed living income. Such institutional change would also entail, in part, the de-differentiation of direct producers and the means of production, i.e. empowering individuals and groups to regain direct productive power in both creating as well as repairing products, but also 'repairing' social capital and relationships through care work such as nursing and education in the informal sector (Folbre, 2006). In short, Degrowth-oriented Anthropocene politics would balance and therefore change the productive economy in two ways: first, with diffusing the ability to produce goods and services across the formal and the informal sectors; second, by expanding the reproductive economy, in both repairing and maintaining products as well as social relations. The economic result would be the redundancy of growth as a measure of social and economic success, while the ecological result would be a balanced (steady state) demand for natural resources and ecosystem services.

The social and cultural results would be most interesting, when broadening the understanding of the Anthropocene as the epoch of humanity. Remember that we have sided in part with Moore on his critique of current Anthropocene proponents for conflating a large variety of political and economic actors and structures into a single 'we' of humanity. By applying Degrowth principles to frame the creation of a social imaginary for ending the Auxocene of the Anthropocene, we would

actually make sense of the impact and possibilities of humanity. We will not build the 'noosphere' of the Anthropocene by building global governance regimes for applying large-scale geo-engineering technologies, as more traditional voices are arguing (Steffen et al., 2011), but by stepping lightly and cautiously into what Ulrich Beck termed the global risk society (Beck, 2006; Beck et al., 2003). For Beck, threats and shocks of consequences of humanity's self-inflicted risks open up the horizon to a historic alternative for political action. The Anthropocene is not a by-product of one single actor, neither humanity nor any single nation state; it is an emergent property of the Auxocene and therefore constitutes a contested political dialogue between all actors for global consciousness and human reflexivity. The necessary meta-change for a new politics for the Anthropocene can arise through public reflection on the technical, growth-oriented promises that define the Auxocene. By siding with Beck's notions, such as risk society or reflexive modernization, we do embrace his global outlook and perspective, while maintaining a critical distance to overtly eco-modernist ideas (Bluhdorn and Welsh, 2013; Shrivastava, 1995). However, the Degrowth literature itself is scant with positive notions of a global modernity, Welzer's ideas of a reductive modernity notwithstanding (Welzer, 2011). With reference to global risks, Beck is arguing that a change in social priorities and expectations has already taken place. Risks and expectations of catastrophe now dominate public debate before decisions are made, forcing politics to reflect on and anticipate the political side effects of technological side effects (i.e. self-inflicted risks). When a tsunami is wrecking a nuclear power plant on one side of the globe, as happened in Fukushima 2011, the nuclear politics on the other side of the globe radically change, as happened only a few weeks later in Germany (Wittneben, 2012). In these double side-effects, Beck sees opportunities for public reflection and political change (Beck et al., 2003). The reality of climate change, for example, enables societies to politically negotiate new governance regimes and self-binding commitments to deal with its consequences and sources. This does entail new global institutional frameworks with expanded regulatory powers, such as for example, Frank Biermann's (2012) proposals for a UN Sustainable Development Council as an enforcer of the UN Sustainable Development Goals (Le Blanc, 2015), a World Environment Organization along the lines of the World Trade Organization, and a Global Environmental Assessment Commission evaluating global and national policy-making for its impact on the natural environment. In this context, we are also well aware of the tensions between the Sustainable Development Goals (SDG) and Degrowth, especially SDG 8 which is promoting economic growth; but we choose to follow Costanza et al. (2016) that, collectively, the SDGs are a global policy success providing a normative framework for global to national decision-making. Our argument for what is needed for these new governance regimes is a clearer framing of the categories for a sustainable scale of human activity, encompassing fair distribution and flourishing of human capabilities, and building living and livable communities (Costanza et al., 2016: 353).

Degrowth, in our view, can act as both (1) a social imaginary guiding new political thinking for the Anthropocene, as well as (2) a self-binding commitment to think creatively about achieving a livable system of communities for all humankind. The core tools for Anthropocene politics would then be the necessity of institutionalizing self-consciously constructed boundaries, such as the 2C guardrail, and their recognition as positive organizing narratives for coordinating the joint and ongoing discursive process necessary for the creation of social imaginaries that define post-growth societies. Taking this perspective, positions Degrowth as an important social-ecological transition discourse that compliments alternatives to development, rights of nature and social justice discourses across both the developed and developing worlds that could dissolve the extant binary distinction between the 'Global North' and the 'Global South', as envisaged by Escobar (2015). If successful, this would mean the transition from the detrimental impact of the age of the Auxocene

to the beneficial impact of a post-growth age of enoughness (Dietz and O'Neill, 2013), or as Tim Jackson (2009) has argued, an age of prosperity in the epoch of the Anthropocene.

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