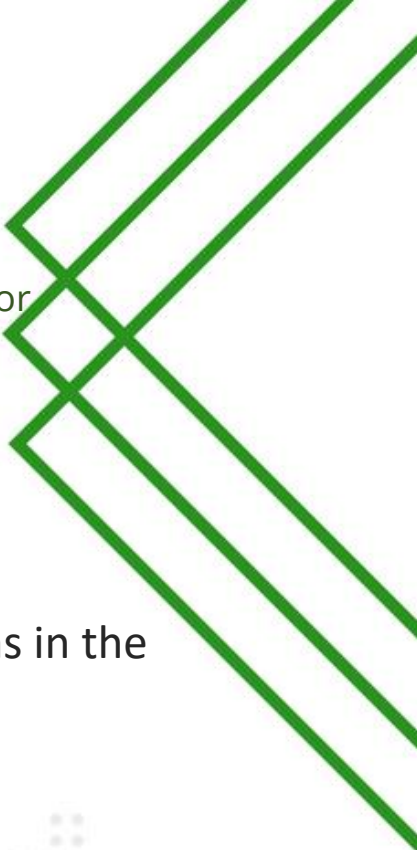




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Planetary Boundaries and Governance Mechanisms in the transition to the Anthropocene




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Planetary Boundaries and the Challenge to Governance in the Anthropocene

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Abstract

This article considers the challenge to governance posed by new Anthropocene discourses of planetary boundaries. The first section introduces the problematic of the Anthropocene as a new geological epoch and also as symptomatic of the end of modernist ontological and epistemological assumptions of the divide between culture and nature. The Anthropocene is thus seen to fundamentally decentre the human as subject and the temporal linearity of Enlightenment progress. The second section analyses the implications of this closure for critical approaches to governance, which increasingly accept and reproduce these ontopolitical assumptions. The tasks of governance thus become transformed, no longer seeking to imagine alternative futures but rather drawing out alternative possibilities that already exist in the present. Governance becomes increasingly an act of affirmation rather than a discourse of change and transformation. The third section expands on this point to consider how contemporary governance approaches articulate the status quo in increasingly radical and enabling ways.

Keywords: Anthropocene, Governance, Planetary Boundaries, Nature/Culture divide, Modernity

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A New Epoch

The Anthropocene - a concept coined by Eugene Storer in the 1980s and popularised by Paul Crutzen in the 2000s (Crutzen and Stoermer, 2000; also Crutzen, 2002; Crutzen and Steffen, 2003) - is a disputed term, which refers to a new geological epoch,¹ in which human activity is seen to have profound and irreparable effects on the environment.² This attention to a new epoch in which humanity appears to have impacted the earth in ways which mean that natural processes can no longer be separated from historical, social, economic and political effects has powerfully challenged the modernist understanding of the nature/culture divide, separating social and natural science, destabilising the assumptions of both. Nature can no longer be understood as operating on fixed or natural laws, while politics and culture can no longer be understood as operating in a separate sphere of autonomy and freedom. These assumptions, in both spheres, were central to modernist constructions of governance shaped upon a telos of progress, which is now seen to no longer exist or to have always been problematic (Latour, 2014; Clark, 2010; Haraway, 2015; Proctor, 2013; Swyngedouw, 2011; Macfarlane, 2016; Bonneuil and Fressoz, 2016). Jeremy Davies argues that: 'The idea of the Anthropocene makes this state of being in between epochs the starting point for political thinking.' (Davies, 2016: 5) As Bruno Latour, one of the most prolific and widely influential theorists articulating the Anthropocene as a break with modernist conceptions of governance, highlights: the fact that it is science itself that appears to lead the questioning of modernist constructions of the world is highly significant, considering the impact this has for ways in which we can imagine politics and governance:

But what is even more extraordinary is that it's the brainchild of stern, earnest and sun-tanned geologists who, until recently, had been wholly unconcerned by the tours and detours of the humanities. No postmodern philosopher, no reflexive anthropologist, no liberal theologian, no political thinker would have dared to weigh the influence of humans on the same historical scale as rivers, floods, erosion and biochemistry (Latour, 2013b: 77).

¹ The previous understanding was that earth was in the epoch of the Holocene, which began at the end of the last Ice Age, 12,000 years ago. The Holocene is understood to be an epoch of relative temperature stability, which enabled the flourishing of human progress: the naming of the Anthropocene as a new epoch calls attention to how human impacts on the earth have brought this period of stability to an end. At the time of writing the International Commission on Stratigraphy had not reached a formal decision on the naming or dating of the Anthropocene as a new epoch.

² Working Group on the 'Anthropocene', 2017. These impacts include the emissions of 'greenhouse' gases leading to global warming, the collapse of biodiversity including debate about whether we can speak of a 'sixth extinction', the acidification of the oceans and changes in biogeochemical cycles of water, nitrogen and phosphate. The earth system scientists of the Resilience Centre in Stockholm list nine planetary boundaries: stratospheric ozone depletion; loss of biosphere integrity (biodiversity loss and extinctions); chemical pollution and the release of novel entities; climate change; ocean acidification; freshwater consumption and the global hydrological cycle; land system change; nitrogen and phosphorus flows to the biosphere and oceans; and atmospheric aerosol loading. Four of these are currently operating beyond the safe operating space and two are not yet quantified (Stockholm Resilience Centre, 2017).



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For the consideration of governance in the Anthropocene, it makes very little difference when the geological era is believed to have started:³ whether in 1492 with Columbus and the European holocaust in the Americas (Lewis and Maslin, 2015); in 1784 with the invention of the steam engine by James Watt, that ushered in the industrial revolution; with the explosion of the atom bomb in 1945; or with the 'Great Acceleration', the spread of industrialization across the world since (see Bonneuil and Fressoz, 2016: 14-18). The conclusion of the discussion, regardless of dating, is a shared one: that today human history cannot be understood as separate to geological history:

The Anthropocene, as the reunion of human (historical) time and Earth (geological) time, between human agency and non-human agency, gives the lie to this – temporal, ontological, epistemological and institutional – great divide between nature and society... It signals the return of the *Earth* into a *world* that Western industrial modernity on the whole represented to itself as above the earthly foundation. (emphasis in original) (Bonneuil and Fressoz, 2016: 32-33).

Natural time is no longer somehow slow in comparison to the speed of human or cultural time. 'What is sure is that glaciers appear to slide quicker, ice to melt faster, species to disappear at a greater speed, than the slow, gigantic, majestic, inertial pace of politics, consciousness and sensibilities.' (Latour, 2013b: 1219) Nature or the 'environment' is no longer to be seen as merely the 'background', but is itself a 'protagonist' (Ghosh, 2016: 6). Thus, the division between agential 'man' and passive 'nature' is fundamentally challenged, with catastrophic events which seemed to be exceptional or highly improbable in the past, becoming increasingly regular, even in the advanced West: '...in the era of global warming, nothing is really far away; there is no place where the orderly expectations of bourgeois life hold unchallenged sway.' (Ibid: 26) As Amitav Ghosh powerfully notes, expectations of normality, balance and order that defined the modern world view, appear from today's vantage point to be a terrible error or hubris: as carried to the point of 'great derangement' (Ibid: 36). There is a contemporary consensus that: 'There can be no more talk of a linear and inexorable progress' (Bonneuil and Fressoz, 2016: 21).

For Timothy Morton: 'In an age of global warming, there is no background, and thus there is no foreground. It is the end of the world, since worlds depend on backgrounds and foregrounds.' (Morton, 2013: 99) What was taken for granted is now revealed to be much more contingent, fragile and unpredictable; for Morton, the world is no longer an object, fixed, passive and external to us, thus there can be no such thing as a human 'lifeworld' shaped within this (Morton, 2013: 104). As Latour states, the positions are reversed, the background becomes foreground: 'what was until now a mere décor for human history is becoming the principal actor' (Latour, 2013b: 4; 63; 100). So much so that it could be said that the Anthropocene does not just overcome the culture/nature divide, 'it bypasses it entirely' (Ibid: 78):

³ Any attempt to quantify an onto political shift in understandings via geological markings or historical events is inevitably going to be unsatisfactory as it is impossible to demarcate a change empirically, when the key aspect is the changing interpretation of the facts rather than the facts themselves.



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...everything that was part of the background has now melted into the foreground. There is no environment any more, and thus no longer a need for environmentalism. We are post-natural for good. With the end of the political epistemology of the past that insured the presence of an indisputable outside arbiter – namely, Nature known by Science – we are left without a land and without a body politic (Latour, 2013b: 125).

How we understand the causal drivers of the Anthropocene also makes little difference to the new approaches to governance: whether responsibility lies with the Enlightenment, with capitalism (Moore, 2015), with modernity, with mass consumerism, with the organisation, industrialization and commercialization of agriculture, with colonialism and imperialism, with economic theory, with the extraction of and dependency upon fossil fuels, with the rise of the military-industrial complex etc (Bonneuil and Fressoz, 2016, provide seven, in depth, historical narratives). In fact it is often argued that the more narratives there are, ‘from many voices and many places, rather than a single narrative from nowhere, from space or from the species’ the more the ‘black boxes of the Anthropocene discourse’ can be opened and repoliticized (Bonneuil, 2015: 29). Regardless of where authors stand on the allocation of blame or responsibility for the contemporary condition - or whether it is named Anthropocene, Capitalocene (Moore, 2016) or by some other concept, such as Donna Haraway’s ‘Chthulucene’ - the descriptive and analytical conclusions fall into a similar set of ontological framings. Whatever the driving forces, the conclusion is common across them, that there is no longer a separation between culture and nature: there is no longer an ‘outside’ or an ‘away’. What happens ‘sticks’ with us, like Styrofoam cups or plastic bags that stay in the environment and do not degrade in a human lifetime (Morton, 2013: 1; 60).⁴

The end of the nature/culture divide is the ‘end of the world’ (Ibid: 7) as it was conceived in modernity, or by the ‘moderns’ (as Latour often describes those still clinging to these understandings, Latour 1993; 2010; 2013a). Thus, the debate, as much as there is one about the Anthropocene, could be seen to be shifting away from a discussion about the existence of the Anthropocene itself, and more about whether ‘modernity’ as a framework of knowing and governing ever actually existed. Bruno Latour has famously argued that ‘We Have Never Been Modern’, whereas for other theorists modernity as a rational and successful framework of reasoning is specifically challenged by the appearance of the Anthropocene or the ‘intrusion of Gaia’ (Morton, 2013: 19; Stengers, 2015; Ghosh, 2016). Latour has, however, been criticized on the basis that, in his view, the Anthropocene, or the entanglement of humanity and nature, is only a recent discovery: plenty of non-consensual pro-environmental voices have been raised in the West (Bonneuil and Fressoz, 2016: 72-79) and this position also seems to dismiss the

⁴ As Myra Hird and Alexander Zahara note (2017: 123) ‘waste constitutes perhaps the most abundant and enduring trace of the human for epochs to come’.



existence of a rich non-Western tradition of thought which was never ‘modern’ in terms of the centrality of the culture/nature divide (Danowski and Viveiros de Castro, 2017).

For the new formulations of governance in the Anthropocene, the key point is that the Anthropocene is understood to pose fundamentally different questions about how we can know and act in the world. In this sense, the declaration of the Anthropocene marks a very different moment to the Club of Rome’s report that launched concerns of environmentalism and over the exhaustion of natural resources in 1974.⁵ As Stoner and Melanthopoulos state, it would be difficult to read back contemporary receptions of the Anthropocene into the past century, when the sense of human capacity to regulate environment impacts was much stronger (Stoner and Melanthopoulos, 2015: 20). The power of the Anthropocene lies not merely in the attention to the importance of acting on climate change, but also in the context of responding to climate change without the twentieth century’s confidence in modernity. As Rory Rowan notes: ‘The Anthropocene is therefore not simply a disputed designation in geological periodization but a philosophical event that has struck like an earthquake, unsettling the tectonic plates of conceptual convention.’ (Rowan, 2014: 447) Bruno Latour argues:

What makes the Anthropocene a clearly detectable golden spike way beyond the boundary of stratigraphy is that it is the most decisive philosophical, religious, anthropological and... political concept yet produced as an alternative to the very notions of ‘Modern’ and ‘modernity’ (Latour, 2013b: 77).

Isabelle Stengers captures well the shift at stake, in her argument that it is ‘as if we were suspended between two histories’ both of which describe the world in global and interconnected terms (Stengers, 2015: 17). In one history, governance frameworks are clear, based on clear evidence and with straightforward goals of economic growth and social progress. The other seems much less clear with regard to what governance requires or how to respond to ongoing processes of change. In this sense, as Haraway argues, it makes more sense to see the Anthropocene as a ‘boundary event’ rather than an epoch: ‘The Anthropocene marks severe discontinuities; what comes after will not be like what came before.’ (Haraway, 2016: 100) Latour eloquently describes what is at stake in this shift beyond the boundary, in the recognition of the Anthropocene:

What is so depressing in reading the documents of the sub-commission on stratigraphy, is that it runs through exactly the same items you could have read in any 20th century listing of all the glorious things that humans have done in ‘mastering nature,’ except that today the glory is gone, and both the master and the slave – that is, humans as well as nature – have been melted together and

⁵ In 1972, hardly any voices challenged the modernist view that the crisis could be managed through predictive modeling and improvements in global governance, enabling a new ‘global equilibrium’, ‘a condition of ecological and economic stability that is sustainable far into the future’ (Club of Rome, 1972: 24); Friedrich Hayek and C S Holling were two of the very few dissenting theorists who contested what they saw to be the ‘hubris’ at play in imagining that a stable equilibrium was possible (Walker and Cooper, 2011: 149).



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morphed into strange new geological – I mean geostorical – forces. (Latour, 2013b: 76-77).

This is echoed by Nigel Clark's view that 'the Anthropocene – viewed in all its disastrousness – confronts "the political" with forces and events that have the capacity to undo the political, along with every other human achievement, by removing the very grounds on which we might convene and strategize' (Clark, 2014: 28).

As Bonneuil and Fressoz state, the Anthropocene is not a transitory crisis: 'the Anthropocene is a point of no return. It indicates a geological bifurcation with no foreseeable return to the normality of the Holocene.' (Bonneuil and Fressoz, 2016: 21) Clive Hamilton writes: 'it can no longer be maintained that humans make their own history' (Hamilton, 2015: 35). In this respect, the Anthropocene appears to confirm that we are living in an age of 'manufactured uncertainty' or 'manufactured risk'; in which societal threats can no longer be seen as external but rather are immanent to social processes (Giddens, 1994: 4; Beck, 2009) undermining the modernist separation between security referent and security threat (Baldwin, 1997; Chandler, 2010). It is held that modernity comes up against its own limits with the end of the culture/nature divide: the end of a 'nature' of laws and regularities somehow external to human interaction. The Anthropocene is an era of 'multiple entanglements' according to Stengers, between natural or 'non-human' forces and human (in)action, or, as Connolly describes this, of 'entangled humanism' (Connolly, 2017). In the face of this entanglement, continuing to rely on modernist epistemologies, leaving us 'armed only with the results of externalized and universal knowledge' would be, we are informed, the road to 'doom' (Latour, 2013b: 9).

In this more complex, contingent and inter-related world, the 'reductionist' causal connections, generalisations, and 'lessons learned', which shaped modernist understandings of governance and discourses of progress and development, are no longer seen to be tenable (Mitchell, 2009: ix-xiii; Prigogine and Stengers, 1985; Cilliers, 1998). Without the 'outside' of 'nature', counter positioned to the 'inside' of 'culture', modernist governance assumptions of there always being possible solutions and 'happy endings' no longer make sense, instead, if humanity is to survive in any recognizable form, new forms of political imagination need to be much more humble, 'reflexive' and 'adaptive' (Voss and Bornemann, 2011; Berkes *et al*, 2003). Isabelle Stengers calls the end of this division the 'intrusion of Gaia', the intrusion of natural forces into every aspect of social and political governance:

The intrusion of... Gaia, makes a major unknown, which is here to stay, exist at the heart of our lives. This is perhaps what is most difficult to conceptualize: no future can be foreseen in which she will give back to us the liberty of ignoring her. It is not a matter of a "bad moment that will pass," followed by any kind of happy ending – in the shoddy sense of "problem solved." (Stengers, 2015: 47)

Thus, the lexicon of international political discourse is beginning to carry with it an asserted recognition of the Anthropocene as a fundamental challenge to previous epistemological and ontological assumptions about how we know and how we govern/secure in a world that is no longer perceived as open to linear temporalities of cause-and-effect (Fagan,



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2017). As Latour argues, the system of the Anthropocene or Gaia 'is anything but unified or unifying'; it is 'not a cybernetic system designed by an engineer' but the product of multiple dispersed and interacting agencies, so there is no such thing as the 'balance of nature' or the 'wisdom of Gaia' (Latour, 2013b: 81). We have therefore 'permanently entered a post-natural period' where traditional science, based on stability, laws and regularities can no longer help negotiate the problem: 'Climate scientists have been dragged into a post-epistemological situation that is as surprising to them as it is to the general public – both finding themselves thrown "out of nature".' (Latour, 2013b: 81-2)

The one thing that many Anthropocene theorists, advocating new approaches to governance, agree on is that there can be no technical fixes. The Anthropocene is not a problem to be solved but an opportunity to be grasped. This drive to affirm the Anthropocene is particularly clear in the field of international relations, where leading theoretical journals, such as the *European Journal of International Relations*, seem keen to flag up critical work that highlights that the Anthropocene should not understand the problems of ecology or of climate change as merely fitting into an extension of traditional modernist international security discourses. For example, Madeleine Fagan argues:

Ecology offers a reordering of the world, a recreation of the world as a whole, a neutralizing of the threat to logic and sense posed by the anthropocene.... This matters for thinking about security because to give the modern subject a home is to secure it; it is to reproduce the claims about universality and particularity that constitute the modern subject (Fagan, 2017: 308).

The Anthropocene challenges international relations' governance discourses of security and strategic thinking at the most fundamental level of the subject of security itself. Modernist assumptions of securing the human against the world are held to be precisely the problem that needs to be overcome (Hamilton, 2017). It is precisely because the Anthropocene is ontopolitically constructed as a critique of modernist discourses of problem-solving that there can be no 'comic faith in technofixes, whether secular or religious' (Haraway, 2015: 3). No pretence of geoengineering solutions 'which will ensure that it is possible to continue to extract and burn, without the temperature rising' (Stengers, 2015: 8).⁶ No possibility of fixed relations capable of regulation in the imaginary of 'spaceship Earth' (Latour, 2013b: 66). The idea of a humanist or modernist solution, positing the idea of a 'good Anthropocene' (Revkin, 2014) is often anathema to those who seek to affirm the Anthropocene as 'after the world of modernity'. As Claire Colebrook states: 'Any "good" Anthropocene would be possible only by way of countless injustices' (Colebrook, 2017: 18). The modernist perspective is seen as the 'managerial variant' of the Anthropocene, where the concept could potentially be captured and 'become the

⁶ See also Stengers (2017: 384): 'whatever the geoengineering method, it would require that we keep extracting and mobilizing the massive necessary resources, to keep on feeding the climate manipulating machine...'



official philosophy of a new technocratic and market-oriented geopower (Bonneuil and Fressoz, 2016: xiii; 49):

Whereas it should mean a call to humility, the Anthropocene is summoned in support of a planetary hubris... [exemplified by] the Breakthrough Institute, an eco-modernist think-tank that celebrates the death of nature and preaches a 'good anthropocene', one in which advanced technology will save the planet... sentiments characteristic of early infancy, lie at the basis of such 'post-nature' discourse, participating in the dream of total absorption of nature into the commercial technosphere of contemporary capitalism (Bonneuil and Fressoz, 2016: 86).

While for Bonneuil and Fressoz eco-modernism smacks of 'early infancy', Clive Hamilton argues that this view of welcoming the Anthropocene epoch with imaginaries of geoengineering is 'reminiscent of Brian's song on the cross at the end of *Monty Python's Life of Brian*' (Hamilton, 2015: 41; see also Hamilton, 2013). For others, such as Richard Grusin, the imaginary of the 'heroic agency of geoengineering' is merely another failed attempt to impose 'many of the same masculinist and human-centred solutions that have created the problems in the first place' (Grusin, 2017: ix). Simon Dalby asserts that any attempt to problem-solve in the manner of 'contemporary earth system science syntheses of the human transformation of the biosphere... [with its] assumption of separation as the starting point for governing a supposedly external realm is now simply untenable' (Dalby, 2017).

In response to this closure, new governance possibilities are held to be inherent in existing communal forms of living and socio-technological forms of interconnectivity and networked community, building on new ways of making connections and seeing relationships (for example, Gibson-Graham and Roelvink, 2010). It is this need for a fluid awareness of relations in their specific and momentary context that is beginning to enable new governance frameworks. For Anthropocene epistemologies and ontologies, the actual existing reality contains much more possibility and potential than has been traditionally recognised by policy makers and academics (Sharp, 2011; Grosz, 2011: 77; 183). Thus, the task is that of engaging more imaginatively with the constantly emerging present, alert to the fact that these relationships need to become a matter of care, attention and opportunity.⁷

'Welcome to the Anthropocene'⁸

To grasp the new governance discourses of the Anthropocene, they need to be placed in the context of a broad demand that we accept that the way we understand the world has to change along with the way in which we act within it. The Anthropocene, in this respect, symbolises more than the threat of global warming - rather global warming is seen as the

⁷ In this regard, the implications of the Anthropocene accord closely with perspectives forwarded by a wide range of critical theorists associated with posthuman, new materialist and speculative realist approaches among others (for example, Braidotti, 2013; DeLanda, 2006; Coole and Frost, 2010; Barad, 2007; Bennett, 2010; Connolly, 2013; Harman, 2010).

⁸ See *Economist*, 2011.



harbinger of a new awareness of our humbler position in the world: the end of the reassuring assumptions of governance in liberal modernity. To be more precise, it is held that modernity itself was never how we understood it to be. As Bruno Latour has pointed out, modernity was a paradoxical condition, in that the more that we imagined ourselves as subjects separated from the world, developing knowledge of how we could direct and control 'natural' processes, the more humanity grew entangled within these processes. Modernity itself was the midwife to processes that were no longer 'natural' nor amenable to external control or direction by human subjects seen to have all the powers of agency while the rest of the world - of nonhumans - was seen to be merely passive objects of our intentionality (Latour, 1993; 2004a). As Timothy Morton argues, the awareness of human-induced climate change and of our dependence upon nonhuman agency has 'done what two and a half decades of postmodernism failed to do, remove humans from the centre of [our] conceptual world' (Morton, 2013: 181).

The Anthropocene is thus seen to call forth new ways of thinking about governance. Ways that are less human-centred or anthropocentric. These challenge the epistemological and ontological framings of modernity, from a position of radical scepticism grounded upon a new set of metaphysical certainties. For authors, like Latour and Morton, it is held to be the advances of science itself, which has revealed the world to be much more entangled and complex than modernity imagined. Science has itself called a halt to modernity in its recognition of the Anthropocene condition. In this respect, according to Morton, global climate change could be seen as a 'saving power' or a candidate for Heidegger's 'last god', enabling humanity to come back to the world after realising the terrible errors of modernist assumptions (Morton, 2013: 21). This return to the world is not a happy but a humbling one, 'made precisely through our advanced technology and measuring instruments, not through worn peasant shoes and back-to-Nature festivals' (Morton, 2013: 36). For Ray Brassier it is science itself that has 'uncovered the objective void of being' (Brassier, 2007: 25). For Morton: '...our cognitive powers become self-defeating. The more we know about radiation, global warming, and the other massive objects that show up on our radar, the more enmeshed in them we realize we are... Increasing science is not increasing demystification.' (Morton, 2013: 160-61)

The Anthropocene, in fact, appears to be driven by new scientific advances, understood as enabling us to overcome the limitations of modernity. As Morton argues: 'Science itself becomes the emergency break that brings the adventure of modernity to a shuddering halt.' (Morton, 2013: 21) William Connolly focuses on the geo sciences revealing that the Earth's 'planetary force fields' - such as climate patterns, ocean conveyor systems, species evolution, glacier flows and air circulations - have always exhibited self-organizing capacities that can go through volatile and rapid changes. Thus, the Anthropocene is not new, except in the fact that human impacts amplify the non-linear and interactive effects of these forces in increasingly unpredictable ways (Connolly, 2017: 4).

The Anthropocene thus spells the end of science as the cheerleader for modernist discourses of progress, rather than the end of science per se. Science as uncertainty is seen to free us from narrow or blinkered approaches that assumed a 'happy ending' in the future, based



on the assumption of a telos of 'progress'. This is now off the table. It is the present not the future that is important. There is no possibility of debating what the future 'ought' to be like 'when it is the *what is* that obstinately requests its *due*' (emphasis in original) (Latour, 2013b: 126). There is no modernist future, regardless of whether we were ever modern or not, because we would need another five Earths 'to push our endless Frontier to the same level of development as North America' (Latour, 2013b: 126).

Perhaps emblematic of this shift is Anna Lowenhaupt Tsing's book, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (2015). Her starting assumption is the end of the modernist dream of progress, based on the division between humanity and nature: 'Without Man and Nature, all creatures can come back to life, and men and women can express themselves without the strictures of a parochially imagined rationality.' (Tsing, 2015: vii) The importance of the book as an exemplar of the affirmation of the Anthropocene is that it self-consciously does not set out to be 'a critique of the dreams of modernization and progress', but rather to think past their end; to take up the radical 'imaginative challenge of living without those handrails, which once made us think we knew, collectively, where we were going' (Tsing, 2015: 2). The Anthropocene thus enables us to think 'after failure', 'after progress', 'after the end of the world'.

For Tsing, living with the end of modernist dreams of progress need not be a negative experience. Rather, we can come to realise that modernity itself was a barrier to living fuller lives. Our assumptions of progress, the modernist telos that striving harder would lead to collective betterment, now seem no more emancipatory than religious promises of justice in the afterlife. Precarious and contingent life in modernity's 'ruins' can be empowering and creative, full of new possibilities which modernity foreclosed. As Tsing states: 'Progress is a forward march, drawing other kinds of time into its rhythms. Without that driving beat, we might notice other temporal patterns... agnostic about where we are going, we might look for what has been ignored because it never fit the time line of progress' (Tsing, 2015: 21). Her work, therefore, is constructed as a work of enablement, allowing the reader to make the transition from mourning modernity to embracing its demise:

I find myself surrounded by patchiness, that is, a mosaic of open-ended assemblages of entangled ways of life, with each further opening into a mosaic of temporal rhythms and spatial arcs. I argue that only an appreciation of current precarity as an earth wide condition allows us to notice this – the situation of the world. As long as authoritative analysis requires assumptions of growth, experts don't see the heterogeneity of space and time, even when it is obvious to ordinary participants and observers... To appreciate the patchy unpredictability associated with our current condition, we need to reopen our imaginations (Tsing, 2015: 4-5).

New approaches towards governance in the Anthropocene are thus affirmative and constructive rather than deconstructive (Latour, 2004b). For these theorists, this world is fuller, livelier and more entangled than the soulless, simplified and atomised world of modernity. As



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Quentin Meillassoux argues, the Anthropocene welcomes us to the ‘great outdoors’ (Meillassoux, 2008: 50), what really exists rather than what exists in the stunted modernist imagination. For Tim Ingold, the question: ‘is not how to represent the world but: ‘How to turn the world into something “real”, how to make the world ‘present’’ (Ingold, 2015: 135). As Tsing argues: ‘Precarity means not being able to plan. But it also stimulates noticing, as one works with what is available’ (Tsing, 2015: 278). The greatest tragedy would thereby be not the death of modernity in itself but rather the refusal to see beyond this: ‘If we end the story with decay, we abandon all hope – or turn our attention to other sites of promise and ruin, promise and ruin.’ (Tsing, 2015: 18). If we refuse to affirm the Anthropocene, we are told that we are left only with the choice of nihilistic pessimism or with naively repeating the tragedies of the past. In fact, the Anthropocene is apparently serendipity itself, enabling us to develop just the sensitivities and new ways of affirmative thinking and being that we need to adapt to our new condition:

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? What if precarity, indeterminacy, and what we imagine as trivial are the centre of the systematicity we seek? (Tsing, 2015: 20)

In the ruins of modernity there is more life than could possibly have been imagined by modernist human subjects convinced of their separation from the world. Our realisation that we can no longer govern in old, modernist, ways, enables us to appreciate rather than fear the Anthropocene condition. Realising our precarious condition brings us back to the world: the Anthropocene is like an unseen force, imposing a new sociability and new set of sensitivities on the basis that we are no longer separate, no longer in control, no longer not interested in other actors and agencies with which we cohabit. The Anthropocene is thereby less a world of doom and gloom and extinction than an invitation to be curious, imaginative, exploratory, playful even.

Governance in the Anthropocene

Whereas, for the moderns, politics carved out a separate human sphere of freedom and autonomy in distinction from nature, for the no longer moderns of the Anthropocene the situation is reversed and it is the world itself that shapes and directs the content of politics. As William Connolly has argued, modernist social and political thought had neglected the ontological assumptions upon which it depended, treating them as a background that could be taken for granted (Connolly, 1995: 2-4). As considered above, it is precisely these assumptions that are challenged in the Anthropocene. A new set of ontological assumptions is beginning to inform contemporary social and political thought.

The new framings of governance in the Anthropocene privilege the ‘is’ of the world over the ‘ought’ of attempts to carve out a separate human space. Modern politics was oriented around the problem of the ‘ought’, how the world could be governed or organized in ways in which humanity could prosper. The struggle (often broadly construed in terms of a continuum stretching between Left and Right) was also a contestation over forms of knowing and acting in the world. This contestation was cohered around differing assumptions of human nature, such



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as whether humans were rational or irrational, individualist or collective, and the extent to which states or governing authorities needed to intervene upon this basis. Today, this view of politics as a contestation over the nature of the human and how humanity can best be served is seen to be less central to contemporary concerns: and no longer as the 'be all and end all' of politics.

Perhaps an obvious analogy could be made with how the struggles of the warring kingdoms of Westeros, in the 'Game of Thrones' TV series, begin to pale into insignificance in comparison to the looming collective threat posed by the coming of winter and the White Walkers. Like the coming of winter, entry into the epoch of the Anthropocene is held to displace the modernist framework and context of political contestation. Modernist politics and governance assumed that the 'is' of the world would look after itself, i.e. that nature or the environment was just the backdrop or the stage for the great struggle between Left and Right. Today the positions seem to be reversed, winter/the Anthropocene is seen to push the politics of Left and Right from the foreground to the background. As Nigel Clark argues, 'the impression that deep-seated forces of the earth can leave on social worlds is out of all proportion to the power of social actors to legislate over the lithosphere' (the earth's upper mantle and crust) (Clark, 2010: KL 220-221). The relation between humanity and nature appears to be reversed:

What does it mean to say that life, or the earth, or nature, or the universe are not just constellations of material and energy with which humans forge connections, but realities upon which we are utterly dependent – in ways that are out of all proportion to life, nature, the earth or the universe's dependence on us? (Clark, 2010: KL 917-918).

The reversing of the background and foreground is not entirely politically neutral. In fact, it is the aspirational politics of the Left, in its desire for greater freedom, autonomy and equality in social and economic life and for an increase in material wealth and its broader distribution, which appears to be particularly problematic. As Sara Nelson and Bruce Braun argue: 'In the context of these entanglements it is not clear what autonomy means, politically or ontologically' (Nelson and Braun, 2017: 224):

As evinced in the notion of 'immaterial' production and an emphasis on the revolutionary possibilities offered by cognitive and communicative capitalism, the material conditions of this new economy of extractivism and the globalization of manufacturing remained unacknowledged... The understanding of human potentiality... depends on a sharp distinction between life and nonlife, human and nonhuman, and the movement's historical analysis and political imagination rely on a knowable, reliable, 'always there' nature that is neither used up nor filled with surprises (Nelson and Braun, 2017: 229).

As Jason Moore has illustrated, one of the key problems for those who believe in material progress as the key to human betterment has been that capitalism did not just exploit unpaid labour power but also the productive power of non-human labour. Thus, for Moore, it is not only that, as Marx noted, there is a tendency of the rate of profit to fall but there is also a tendency



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for the rate of 'ecological surplus' to fall,⁹ with the depletion of energy and mineral resources (Moore, 2015: 226). The drive to overcome boundaries to the appropriation of 'cheap nature' as well as 'cheap labour' gave capitalism a productive dynamic not based purely on the invisibility of human labour of unpaid reproduction (highlighted by feminist scholars, like Silvia Federici, 2012) but also on the invisibility of non-human labour and resources (an invisibility which is now all too visible). What was seen to be the expansion of progress and human potential can be read as actually the extractive machine of capitalism ceaselessly seeking new untapped resources to exploit on the 'cheap'. This form of organizing nature has now reached its limits, ironically because of the resistance of non-human 'nature' rather than a rebellion of humanity (Read, 2017). As Stengers notes: 'Today all Marxist or post-Marxist scripts must confront a perspective of destruction that Marx could not anticipate... which deeply perturbs any theory indifferent to the new, dramatic restriction of our historical horizon.' (Stengers, 2017: 383)

Dipesh Chakrabarty argues that 'logically speaking, the climate crisis is not inherently a result of economic inequalities'; if we had lived in a 'more evenly prosperous and just world' then 'the climate crisis would have been worse': 'Our collective carbon footprint would have only been larger – for the world's poor do not consume much and contribute little to the production of greenhouse gases – and the climate change crisis would have been so much sooner and in a much more drastic way.' (Chakrabarty, 2015: 49; see also Chakrabarty, 2009). Similarly, part of the problem of 'population' is 'due surely in part to modern medicine, public health measures, eradication of epidemics, the use of artificial fertilisers, and so on' and therefore 'cannot be attributed in any straightforward way to a logic of a predatory and capitalist West' (Chakrabarty, 2015: 50) Any imaginary of capitalism paving the way to socialism as a more progressive system, as Stengers argues, needs to be rejected on the basis that it 'would instead herald the perfect socioecological storm which systematic extraction is now unleashing' (Stengers, 2017: 387).

As Amitav Ghosh asserts, colonialization can be understood to have held back climate change: if the European empires had been dismantled earlier, for example, after the First World War, there is every chance that the economies of mainland Asia would have accelerated earlier (Ghosh, 2016: 109-110). Thus, the concept of human freedom that developed with the Enlightenment is held to disappear in the Anthropocene, as it is realized that humankind can never shed its dependence or transcend its constraints (Ghosh, 2016: 119): '...the Anthropocene challenges the modern definition of freedom, long conceived in opposition to nature... A freedom understood in this way sets human emancipation against nature, against the Earth as a whole.' (Bonneuil and Fressoz, 2016: 40) For Chakrabarty and others, the problem of global warming and climate change challenges political discourses of progress, based upon social justice and global equality and freedom from oppression: there is a 'growing divergence in our consciousness of the global – a singularly human story – and the planetary, a perspective to which humans are

⁹ Highlighted as a 'metabolic rift' by McKenzie Wark (2015: xiv): 'where one molecule after another is extracted by labor and technique to make things for humans, but the waste products don't return so that the cycle can renew itself.'



incidental’ (Chakrabarty, 2015: 55). Nelson and Braun argue that we are forced to accept that modernist or radical views of human autonomy and human freedom can no longer be credible today, ‘if the Anthropocene represents the farcical realization of human autonomy in the form of planetary devastation – in which the ‘production of man by man’ appears to lead to his extinction’ (Nelson and Braun, 2017: 233).

Taking a broader approach to problematise modernist approaches to governance in their entirety, William Connolly emphasises that the problem is epistemological rather than narrowly ‘political’ – or to do with capitalism per se. Modernist political frameworks of Left/Right contestation lacked an appreciation of the planetary processes, which are recognised today. While thinkers of the Right and the Left may have fundamentally disagreed over many issues they all shared a ‘sociocentrism’ or ‘human exceptionalism’, which placed humans as somehow above and separate from the world. They acted as if social, economic and political processes were all that mattered; that the ‘environment’ was merely the backdrop to the great human drama of social and political struggle. If the moderns considered changes caused by non-human forces and assemblages, these were considered to be set on a different and slower temporality than that of human or cultural transition and transformations:

Sociocentrism, in individualist, nationalist, communist, neoliberal, and republican traditions, assumes that a political economy is either in charge of nature, or that the limits nature poses to it are set on long, slow time, or, in a more attenuated version, that if we lift the human footprint nature will settle down into patterns that are benign for us. Given any of these assumptions, questions of agency, explanation, and belonging in practice tend to devolve around attention to internal cultural practices. (Connolly, 2017: 20)

As Connolly and many other authors insist, modernist conceptions of governance, of belonging and community, of ethics and ideas of human freedom and human exceptionalism, based on modernist epistemological and ontological assumptions of reason and causal linearity all need to be reformulated and reconsidered. The contemporary consensus is that ‘the Anthropocene concept obliges us to embark on a deep reconceptualization’ of the categories and concepts of political science, including the understandings of human agency, of history, of politics and of democracy (Hamilton *et al*, 2015b: 9): ‘Yet political theory, stuck in the Holocene, has been slow to recognise the Anthropocene and what it means. Most insights have come from philosophers and sociologists’ (Hamilton *et al*, 2015b: 9) less tied to the assumptions and binaries of the formal political sphere of states and citizens.

This shift fundamentally alters the nature of politics and governance. Politics is no longer ‘all about us’ in the sense of what we might think a just or equitable world might be and instead ‘all about the world itself’. Stengers captures this nicely in her view that, while the problems of the Anthropocene may be caused by the coupling of the material processes of capitalism and geological forces of nature, the brutal intrusion of the planet or Gaia means that ‘Struggling against Gaia makes no sense: it is a matter of learning to compose with her.’ (Stengers, 2015: 53) Stengers emphasises that ‘*there is no choice*’ (Stengers, 2015: 58). This entails:



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...cutting the link... established [in the nineteenth century] between emancipation and what I would call an “epic” version of materialism, a version that tends to substitute the tale of a conquest of nature by human labor for the fable of Man “created to have dominion over the earth.” It is a seductive conceptual trick but one that bets on the earth available for this dominion or conquest. Naming Gaia is therefore to abandon the link between emancipation and epic conquest, indeed even between emancipation and most of the significations that, since the nineteenth century, have been attached to what was baptized “progress.” (Stengers, 2015: 58)

For Stengers, the modernist discourse of “progress” and of the possibility of a “happy ending” is over, which means that if ‘emancipation’ is to mean anything today it will be a question of our emancipation from modernist illusions of human exceptionalism. Key to this is paying attention to the reality of the world rather than human imaginaries: ‘What it is a matter of being wary of are the simplifications that would still ratify a story of progress, including the one that enables us to see the truth of what we are facing.’ (Stengers, 2015: 67)

Conclusion

Governance approaches highlighting the importance of planetary boundaries and the shift towards the Anthropocene can be increasingly understood as putting the nature of entangled being at the centre of politics rather than the designs or goals of the human as subject. The contemporary governance assumptions of the Anthropocene do not raise the possibility of alternative futures but instead seek to affirm the world as it currently exists, for these authors - many of them formerly radical and critical theorists of the Left - any alternative would merely reconstitute the view of man as a knowing subject separated from the world. Thus, the first point is that contemporary critical sensitivities necessarily affirm the idea that ‘there is no happy ending’ (Tsing, 2015: 21). As Danowski and Viveiros de Castro note, today we appear surrounded by a cacophony of contemporary voices, with new and sophisticated arguments, all determined to ‘end the world’ and even advocating that the ‘real’ world, ‘in its radical contingency and purposelessness, has to be “realized” against Reason and Meaning’ (Danowski and Viveiros de Castro, 2017: 3). There is little doubt that these views are powerfully expressive of the underlying sentiments driving the new governmental framings of the Anthropocene.

Thus, key to the transformation of understandings of governance is the contemporary perception of modernity as over. The arrival of climate change and global warming, indicating a new set of problems and potential limits to progress and development, seems to have coincided with an already existing exhaustion of the modernist episteme, creating a potent dynamic. As Claire Colebrook notes: ‘The Anthropocene seems to arrive just as a whole new series of materialisms, vitalisms, realisms, and inhuman turns require us to think about what has definite



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and forceful existence regardless of our sense of world.’ (Colebrook, 2017: 7)¹⁰ This is why, for many governance theorists, the Anthropocene appears as something that is non-negotiable. Jessi Lehman and Sara Nelson, for example, argue that: ‘In the Anthropocene, we are always already living in the aftermath of the event.’ The delayed dynamics of climate change mean that its impact is unavoidable while the entanglement of human and geological factors mean that human agency can never again be imagined in modernist ways (Lehman and Nelson, 2014: 444). Stephanie Wakefield asserts that: ‘the crisis is the age. It is on this terrain of an exhausted paradigm – both historical and metaphysical – that a battle is underway’ (Wakefield, 2014: 451). This sense of modernity as ‘an exhausted paradigm’ has enabled the new formulation of governance in the Anthropocene to rapidly cohere and appear to be powerfully vindicated in every extreme weather event or unexpected accident or disaster.

¹⁰ In fact, Richard Grusin (2017: viii) argues that ‘the concept of the Anthropocene has arguably been implicit in feminist and queer theory for decades’.



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