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Geopolitan Democracy in the Anthropocene

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ABTRACT

The proposed new epoch of the Anthropocene, whereby humans have become the dominant geological force shaping Earth systems, has attracted considerable interest in the social sciences and humanities but only scant attention from democratic theorists. This inquiry draws out the democratic problems associated with the two opposing narratives on governing the Anthropocene - Earth Systems governance and ecomodernism - and juxtaposes them with a more critical narrative that draws out the democratic potential of the Anthropocene as a new source of critique of liberal democracy and a new resource for democratic renewal. Whereas Ulrich Beck welcomed reflexive cosmopolitan democracy (understood as a civil culture of responsibility across borders) as the appropriate response to the world risk society, this narrative develops an account of hyper-reflexive 'geopolitan democracy' based on a more radical extension of democratic horizons of space, time, community and agency as the appropriate response to navigating the Anthropocene.

Key words: Anthropocene, democracy, ecomodernisation, reflexive modernisation.

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Introduction

Should democrats be nervous about the Anthropocene? Coined at the turn of the Millennium by Crutzen and Stoemer (2000), the Anthropocene refers to a proposed new geological epoch marked by the fact that humans have become the dominant 'geological force' shaping the Earth's systems. Epochs, like other geological time periods, often mark upheavals in Earth's history (Zalasiewicz et al., 2010, p. 2229), and the Anthropocene is no exception. Whereas the Holocene provided a relatively stable climate that has been remarkably conducive to the development of human civilisation over the past 11,500 years, the Anthropocene is set to be characterised by unpredictable and possibly abrupt Earth systems changes and tipping points.

In 2009, a team of Earth Systems scientists led by Johan Rockström and Will Steffen developed the complementary idea of 'planetary boundaries' and identified nine boundaries within which human societies must operate to avoid abrupt, irreversible and potentially catastrophic environmental change (Rockström et al., 2009). Their 2015 update found that humans have already transgressed the 'safe operating space' of four boundaries: climate change; biodiversity loss and species extinction; land-system change; and altered biogeochemical cycles (Steffen et al., 2015). They also singled out the first two as 'core boundaries' because the more we collectively transgress them the greater the likelihood that we will drive the Earth's systems into a new and unpredictable state.

The Anthropocene has not yet received official recognition by the International Commission on Stratigraphy and the International Union of Geological Sciences, despite a recommendation by their Anthropocene working group that the middle of the 20th century should serve as the point of onset (Waters et al. 2016). But irrespective of whether the stratigraphic community can agree on where to place a golden spike in the geological time record, Earth systems scientists warn that humans are busy producing an Earth that is likely to become increasingly inhospitable to human civilisation unless we stay within the 'safe operating space' of planetary boundaries.

Hitherto, geology and Earth systems processes have been of little interest to students of democracy. But the Anthropocene and the idea of planetary boundaries raise new and daunting challenges for both democratic theorists and actually existing democracies. The first interpretative challenge is to grasp what it means for humans to be a 'geological agent'. As Dipesh Chakrabarty has put it 'The wall between human and nonhuman history has been breached. We may not experience ourselves as a geological agent, but we appear to have become one at the level of the species' (2009, p. 221). While the idea of a fundamental divide between society and the environment, and between nature and culture, has been eroding for some time in the ecological humanities and social sciences, the idea that humanity now exercises *geological* agency is novel: it represents a much more totalising form of agency than local or regional environmental change and it has already produced irreversible and systemic changes on a planetary scale.

Rockström's team of scientists developed the planetary boundary framework to support the global governance of Earth systems processes. But the democratic implications of managing a concerted transition of this scale and magnitude remain unclear. If we are now 'in the planetary driver's seat', as Rockström (2015) suggests, does this mean that humans have eclipsed other planetary drivers and have the foresight, knowledge and political capacity to exercise geological agency by steering Earth processes within a safe operating space? And who is the 'we' who should do the driving? If humans have become an Earth shaping force

largely by accident than by design, then what are the prospects of an intentional, democratic enactment of this 'geological agency' by humanity as a collective and what form should it take?

I approach these three questions by first critically teasing out the democratic implications of two prominent and opposing narratives of how to govern the Anthropocene. The first is a story of rupture (the apocalyptic or 'bad' Anthropocene) and rational correction/recovery through Earth Systems Governance to constrain human activity within safe planetary boundaries. The second is a story of continuity and further opportunity (the ecomodernist or 'good' Anthropocene) realised through further technological progress that pushes back or otherwise manipulates planetary boundaries to safeguard human wellbeing. Despite their stark differences, I show how both narratives share three common problems. First, they are democratically troubling because they legitimise (albeit in different ways) the increasing disenfranchisement of lay publics by scientists and technocrats in the governance of the Anthropocene. Second, they assume degrees of political or technological capacity and mastery that are questionable given the causal complexity and unpredictability that are inherent in both social and political systems and Earth systems. Third, they take liberal democracy as a background 'given' without examining the ways in which it has been complicit in the generation of harmful changes to Earth systems processes.

Using the narratives of the bad and the good Anthropocene as foils, I offer a more critical interpretation of the Anthropocene that questions the association of human geological agency with political or technological mastery. This interpretation rests on a non-anthropocentric ontology of entangled human and non-human agencies that pairs with a non-anthropocentric and 'geopolitan' imaginary of time, space and community that repositions and de-centres humanity in Earth's geostory. This new narrative is shown to have radical democratic potential by exposing the complicity of liberal democracy in undermining Earth systems processes while also providing a basis for cultivating a more reflexive democratic political culture in liberal democracies in ways that are much more attentive to links with other socio-ecological communities and larger Earth systems processes. This critique builds upon Beck's theory of reflexive modernisation and world risks but also extends it by making a case for hyper-reflexive democracy in negotiating the challenges of the Anthropocene. Whereas Beck welcomed cosmopolitan democracy (understood as a civil culture of responsibility across borders) as the appropriate democratic response to the world risk society, I develop a more radical account of hyper-reflexivity and a new account of geopolitan democracy that layers a never fully self-determining humanity, never fully self-determining nations, and never fully-sovereign states into a larger geostory of the Earth's unfolding.

Earth Systems Governance in the bad Anthropocene

The narrative of the 'bad Anthropocene', widely shared by many environmentalists and Earth systems scientists, regards the new epoch as deeply threatening and dangerous and therefore providing a fresh warrant and greater sense of urgency for the transition to a more ecologically sustainable world. If left unchecked, accumulating human planetary impacts threaten to trigger unpredictable, irreversible and possibly abrupt Earth systems changes and tipping points that are potentially catastrophic for human civilisation. We therefore ignore planetary boundaries at our peril and the only way to minimise the risk of such catastrophic consequences is to work towards a concerted global response. In short, Earth system processes must now be globally 'governed' to ensure that safe planetary boundaries are not

transgressed. This requires a 'top-down' governance and policy framework that is guided by science, negotiated multilaterally with input from stakeholders and civil society, enacted nationally and locally, and adjusted periodically as new scientific knowledge emerges.

For example, Rockström has called for 'stronger' global governance in the form of global agreements that determine the planetary boundaries for climate, land, water, and phosphorus etc. so that local action is constrained by globally defined sustainability criteria (Rockström, 2015). Global environmental governance scholar Frank Biermann takes this one step further by calling for a new paradigm of 'Earth systems governance' (Biermann, 2014). Biermann argues that this new paradigm must apply to all levels of governance but his primary focus is on reforming the architecture of global environmental governance to improve its coherence, effectiveness, accountability and legitimacy. His proposals, which include a World Environment Organisation, a UN Sustainable Development Council and international parliamentary or civil society assemblies, are intended to raise the status, and overcome the fragmentation, of global environmental governance to enable more rational, overarching environmental management on a planetary scale to ensure a safe operating space for humanity. He has also suggested that the global standards or guardrails that are essential to protecting planetary boundaries should have the status of *jus cogens*, or peremptorary norms, in international law (Biermann, 2012, p. 8).

The narrative of planetary governance takes liberal democracy and the state system as given and assumes that planetary boundaries will be negotiated multilaterally with the willing participation of states, buttressed and made more legitimate by the increasing participation of civil society in global environmental governance. It is therefore a far cry from the widely disparaged case for eco-authoritarianism that emerged in response to the case for limits to growth in the early 1970s (for a recent review, see Shahar, 2015). Nonetheless, one of the few sustained arguments for scientific paternalism and eco-authoritarianism that has emerged in the new Millennium is instructive because it brings to the surface the governance fantasy of rational steering that is implicit in the Earth Science response to the bad Anthropocene. Like their eco-authoritarian forebears of the 1970s, Shearman and Smith argue in *The Climate Change Challenge and the Failure of Democracy* that liberal democracy and market liberalism confer too much liberty on individuals and firms, and that citizens of liberal democracies are too ignorant, short-sighted and self-interested to give up their freedom and support ecological constraints to avoid the tragedy of the global commons. However, unlike their forebears, they place more of their faith in transnational science than national state administrators in providing the rational planetary steering that is required to prevent such a tragedy. Their most distinctive argument comes in the call for a new breed of 'Real Universities' that are concerned about the future of humanity and can train the eco-elites as 'the new priesthood of the new dark age' (Shearman and Smith, 2007, p. 152). The Intergovernmental Panel on Climate Change is singled out as a forerunner of a Real University as a globally connected, virtual endeavour (2007, p. 148).

The idea that our salvation lies in the wise counsel provided by a cosmopolitan epistemic community that is unencumbered by nationalist sentiment, parochialism or economic interests and guided by the rigours of publicly testable scientific inquiry rests on a fatal democratic flaw: the belief that science can remain uncontaminated by politics and disagreement by hovering in a privileged place above the daily lives and political opinions of the ignorant and not-so-privileged. To the extent to this occurs (and there is plenty of evidence that it already does) then we have a democratic problem in the form of a seemingly unbridgeable gulf between abstract scientific knowledge and situated local knowledge,

between cosmopolitan and local particularistic identities, and between rational, scientifically informed policy worlds and resistant interests, ideologies, and identities. While popular ignorance of Earths systems processes may be frustrating for scientists haunted by what they have come to know, appealing to the authority of science has rarely persuaded those who know little about science and feel excluded and disaffected. Moreover, efforts to gain deference to science by declaring a state of planetary emergency is ultimately a strategy of democratic evasion rather than engagement that is likely to weaken the legitimacy and authority of science. As Lövbrand, Stripple and Wimand (2009, p. 216) have put it, the Earth systems governance approach 'continues to reproduce nature as an object external to society that is possible to know, monitor and manage from afar'. As I show below, a critical narrative of the Anthropocene starts from the recognition of mutual entanglement between nature and society, and science and politics, exposes the ways in which liberal democracy is complicit in the transformation of Earth systems processes and explores how the gap between science and lay-publics might be better understood and bridged 'from below'.

Ecomodernisation in the good Anthropocene

The narrative of the 'good Anthropocene', defended most prominently by the ecomodernist Breakthrough Institute in the United States but also by many neoliberals and technophiles, rejects the idea of limits on human progress and maintains that humans can transcend or push back planetary boundaries through technological innovation. The Anthropocene can therefore offer good times because it provides an opportunity for us to 'use our extraordinary powers to shrink our negative impact on nature' through 'the embrace of modernization processes to ecological ends' (Breakthrough Institute, 2015a; see also Lynas 2011). According to this narrative we should explore and potentially deploy all available and potential technologies, from nuclear power to solar power, and from genetic engineering to geoengineering. The Anthropocene opens up exciting new technological vistas, from 'modest tweaks to the terrestrial climate' to 'terraforming… as a means of actively engineering the atmosphere and climate of Mars to make it slowly more habitable' (McInnes, 2013). Through the development of smarter and more efficient technologies, including technological substitutes for natural resources, economic growth can be decoupled from environmental degradation and parts of nature can be 'rewilded' as growing human populations increasingly congregate in synthetic urban enclaves (Breakthrough Institute, 2015b). The ecomodernist narrative maintains that planetary boundaries are unnecessary and, in any event, unlikely to command sufficient political agreement and support. The great political virtue of ecomodernization is that it deftly side-steps the problems of political polarisation, culture wars, economic redistribution and the toxic politics of climate change that have surfaced in many national jurisdictions by focusing primarily on technological solutions.

The narrative of the good Anthropocene, like its 'bad' counterpart, assumes the continuation of liberal democracy as both an end and a means to an ecomodernist future (Breakthrough Institute, 2015b, p. 31). Yet it rests on the heroic assumption that more rapid technological innovation, untrammelled by limits and old environmental taboos on particular technologies, is both desirable and sufficient to manage political disagreement and the multiple uncertainties of the Anthropocene. The most democratically troubling feature of this narrative is that its uncritical embrace of the processes of modernisation serves to narrow down and short-circuit the field of democratic debate and choice over future policy and technology options.

This attempt to truncate democratic politics produces a form of post-democracy that is intimately connected to ecomodernism's post-environmentalism. Indeed, the unconditional license to remake nature in the good Anthropocene rests on a full frontal attack on the assumed binaries upon which many environmental campaigns and environmental policies have been built, including domestic/wild and artificial/natural. These binaries, which have underpinned environmental taboos against certain technologies such as nuclear power and genetic engineering, are dismissed as romantic, nostalgic and out of touch with the fact that humans have been busy remaking nature throughout our evolutionary story. In the Anthropocene, humans can and should be Earth-makers in ways that expand rather than shrink human possibilities (e.g. Nordhaus, Shellenberger and Mukuno, 2015). Subscribers to the ecomodernist manifesto want to see nonhuman nature flourish by encouraging human habitation in synthetic urban environments to enable the 'rewilding' of nonhuman nature in non-urban environments. But this reproduction of the wild re-introduces a human/nonhuman and wild/synthetic split of a kind that ecomodernists have sought to banish in their critique of the romanticism of modern environmentalism and their embrace of post-environmentalism. More notably, their uncritical embrace of the processes of modernisation can be expected to accelerate the destruction of biodiversity along with the reduction in the range and diversity of human modes of relating and engaging with the nonhuman world by condemning all pre-modern and non-instrumental modes of relating as nostalgic or 'backward', and something to be swept aside. Post-environmentalism in the good Anthropocene paradoxically leads us to a much less culturally and biologically diverse and plural world.

In depoliticising the processes of modernization by making them appear inexorable, unidirectional and 'normal', the narrative forecloses critical reflection on the modern worldviews and institutions that have thus far produced a deeply skewed global distribution of risks within and between communities and through space and time. And herein lies the heart of the democratic problem: in depoliticising the institutions and distributional consequences of techno-scientific ecomodernisation, proponents of the good Anthropocene gloss over any engagement with the growing crisis of political accountability between those who design, produce and/or benefit from new technologies and those who suffer their negative consequences. On top of these accountability problems are the likely unintended consequences that can appear in any large scale attempt to manipulate complex, non-linear dynamical systems.

This problem is graphically illustrated in the license that is provided to the large-scale, technological manipulations of Earth systems processes known as geoengineering or climate engineering. The most controversial proposal is the injection of sulphate aerosols into the stratosphere to reflect sunlight and produce a cooling effect to counteract the global warming effect from the accumulation of carbon dioxide (CO2) concentrations in the atmosphere. Accumulated CO2 concentrations can persist in the atmosphere have a warming effect for millennia while sulphate aerosols are short-lived (from a few months to a year or more depending on their properties and the altitude at which they are injected). This means that they need to be injected continuously to offset global warming and could only be gradually phased out if accompanied by the phasing in of technologies that remove CO2 from the atmosphere (Committee on Geoengineering Climate 2015, pp. 59-60). There are also known negative side-effects, including an increase in acid rain, ozone depletion and changes in regional precipitation.

Clive Hamilton has suggested that such geoengineering technologies would not survive a fulsome democratic debate and therefore represent 'the dictator's technology of choice'

(Hamilton, 2013). Yet it is also difficult to conceive of how decisions on whether to apply geoengineering technologies of this kind could be made democratically at the global level, as distinct from the national level, given that not all states are democratic. As Jeremy Baskin has observed, it is not coincidental that most, if not all, of the key scientific papers that invoke and defend the new epoch of the Anthropocene also defend geoengineering, support more research into geoengineering or at least make it imaginable (2015, p. 22). For Baskin, the idea of the Anthropocene is therefore worrying because it provides the exceptional state to legitimate such an exceptional technological response.

Of course, not all geoengineering technologies carry the same risks as sulphate aerosol injection, and geoengineering represents merely one of many technological choices in the Anthropocene. The question, then, is not whether we need new technologies - we certainly do. Rather, the more fundamental political questions are what kinds of social relations of knowledge, risk and responsibility are produced by different technology decisions and practices, and who benefits and loses? And how might technological choices be made more rather than less democratic in the sense of enabling wider public participation and wider accountability through space and time to those who may be harmed? For Jasanoff, opening up public participation in science and technology decision making is a necessary step but will not be enough in the absence of a deeper shift in the culture risk governance. What is also needed are (social) 'technologies of humility', which she defines as 'methods, or better yet institutionalized habits of thought, that try to come to grips with the ragged fringes of human understanding - the unknown, the uncertain, the ambiguous, and the uncontrollable' (2003, p. 227). These new social tools would complement the prevailing 'technologies of predictive hubris' by focussing on both substance and process, deliberation and analysis, and engage active and imaginative agents.

In what follows I offer an alternative and more critical narrative of the Anthropocene, with more agents and a different plot line, that seeks to open up the possibility of the further pluralisation and radicalisation rather than truncation of democracy in the Anthropocene.

The End of Mastery in the Uncertain Anthropocene

As we have seen, the new epoch of the Anthropocene has anointed humans as the dominant geological agents shaping Earth systems processes. But it does not follow that humans have replaced *other* Earth shaping forces (Clark, 2014, pp. 25-26). These forces preceded us, produced us, continue to amaze and confound us, and may well supersede us. We should therefore not convert our Earth shaping agency into an anthropocentric conceit as if we are the only actors in the geological story, and with the power to master Earth systems processes. Humans are not acting on a passive and simple background object but rather interacting with and reshaping a complex, non-linear and dynamical set of intersecting processes that include not only other living beings but also other autopoietic (i.e., self-reproducing) communities and systems. The self-endangering consequences resulting from our human geological agency thus far have been accidental and unintended, and it is by no means self-evident that we can simply switch to doing this intentionally, democratically and successfully. Rather, the unexpected gravity of what we have already unintentionally produced counsels in favour of caution and humility when thinking about the deliberate manipulation of Earth systems processes to serve human purposes. At the same time, unreflective efforts to 'wind-back' our geological agency to minimise the risk of abrupt tipping points can also produce disruptive consequences.

However, it does not follow from this critique of anthropocentric conceit that we should abandon the enterprise of managing planetary boundaries. Indeed, this is no longer an option if we want to avoid or reduce the harmful effects of the anthropogenic changes that been wrought thus far, and which are set to grow and compound over time. But we need to acknowledge, as Dryzek has noted, that the language of natural boundaries is increasingly recognised as problematic because humans have so transformed Earth systems and local environments that they have become unstable and shifting and therefore cannot provide clear, fixed or objective reference points to guide collective action (2014, p. 4). This does not mean that we should dispense with boundaries altogether but rather approach them, as Dryzek suggests, as necessary but provisional heuristics to help us avoid dangerous tipping points. Moreover, we need to recognise the unavoidable entanglement of science and politics in determining these heuristics. For example, the parties to the United Nations Framework Convention on Climate Change 1992 formally agreed at Cancun in 2010 to hold global warming below two degrees Celsius relative to 'pre-industrial levels' (clearly a societal benchmark). Due to strenuous advocacy by some of the world's most vulnerable states, the parties to the Paris Agreement 2015 reaffirmed this target but also agreed to pursue efforts to bring it down to 1.5 degrees. Yet it is widely acknowledged that 1.5 degrees is highly likely to produce massive coral bleaching and a significant loss of marine diversity, with severe consequences for dependent communities. From the standpoint of these vulnerable communities, one degree would be a safer target but we have already reached this degree of warming. The more general point, then, is that these provisional heuristics of what might be safe and appropriate planetary boundaries will be socially, politically and scientifically 'co-produced' (Jasanoff 2004). But before we explore how this co-production might be approached more democratically in the practice of human geological agency we need to examine critically how such geological agency was unwittingly acquired.

Reflexive Modernisation and the Anthropocene

One of the most common political criticisms of the Anthropocene from the social sciences and humanities is that, in shifting the global environmental change narrative to a blanket 'humanity', it obliterates class, race, gender and other social inequalities and deflects attention away from the social forces and social structures that have produced a world in which the distribution of social and environmental benefits and burdens is so deeply and unfairly skewed in no many unaccountable ways. As Malm and Hornborg (2014, p. 66) succinctly put it, the causes of global environmental change are ultimately sociogenic, not simply anthropogenic. Whereas stratigraphers look for a clear date of onset in the Earth's sediment to mark the advent of human geological agency, the social origins of such agency have many long, varied and intertwined historical roots, depending on which Earth systems process we might select. In the case of climate change, these roots may be traced to the rise of new scientific inquiry in the 17th century, the birth of the state and a series of revolutions in philosophy, politics, technology and culture that led to significant transformations in individual and collective identity and the human relationship to the larger nonhuman world. Modern representative democracy emerged in this mix, and advanced in the 19th century during the age of coal and the emergence of the steam engine that ushered in the industrial revolution and the extension of the franchise to the working class (Mitchell 2011; Malm 2016). The industrial revolution also saw the emergence of new political parties that gave political representation to the 'producer interests' of capital and labour. These, in turn, were informed by liberal and socialist political ideologies that understood the 'environment' as a mere backdrop upon which the human drama unfolded, or as merely means to human ends.

Both ideologies embraced the ideas of human separation from nature, human mastery, the appropriation of a bountiful Earth in support of a narrative of democracy, freedom and progress (notwithstanding that these ideals have never been enjoyed by everyone). Despite the accumulation of global ecological risks since the detonation of the first atomic bomb, the major political parties of contemporary representative democracies still depend upon a 19th century narrative of human progress that ties emancipation and self-rule to the continuation of the processes of modernisation. The Anthropocene now helps us to see more clearly how much this narrative has been oversold.

The unintended and global character of many ecological risks is one of the defining features of what the late Ulrich Beck's characterised as 'the risk society', which he understood as a new or 'second' phase of modernity whereby the environmental effects of the processes of modernization have accumulated to the point where they increasingly threaten to undermine those very same processes (j1992; 1994). Reflexive modernisation, in Beck's narrow and descriptive sense, is the unknowing, self-application of risks that have become the automatic 'reflexes' of the modernisation process (e.g. 2007, pp. 119, 194). Or as Latour has succinctly put it, 'second modernity is first modernity *plus* its externalities: everything that had been externalised as irrelevant or impossible to calculate – is back in with a vengeance' (2003, p. 37). In his later work, Beck concentrated his attention on the historically new social, spatial and temporal character of 'world risks' (i.e., understood as world catastrophes that may occur in the future and which threaten us in the present). Such risks are *delocalised* in the sense that both causes and consequences are not confined to any one place; *incalculable* because they are not fully known and remain the subject of normative dissent; and *non-compensatable* due to their catastrophic scale and scope (Beck 2007, p. 52). These characteristics makes the 'world risk society' an increasingly insecure society because it lives in anticipation of catastrophe that can no longer be managed by existing social steering systems and standard practices of risk management such as insurance. World risks are simply uninsurable. Beck included climate change in his list of world risks alongside global financial crises and terrorism but we can now include the more general risks of harmful phase shifts in the functioning of Earth systems processes.

In his later work Beck gave greater prominence to 'the antagonism of risk' between those who produce or licence or produce risks and those who are 'tormented' by them (2007, p. 9). These antagonisms have been a major preoccupation of critical political ecology, which has highlighted the ways in which globalisation – understood here in its broadest sense as the global phase of modernisation – has 'produced a growing problem of displacement, distancing and disconnection between decision-makers and "environments", between producers and consumers, between perpetrators/beneficiaries and victims, between causes and effects, and between space and place' (Christoff and Eckersley, 2013, p. 11). Rob Nixon (2011) has called this 'slow violence', but it can sometimes be very rapid (think of Hurricane Katrina in the US or Typhoon Haiyan in the Philippines). Either way, the worst impacts are typically felt by marginal communities who lack political recognition and representation. This is not only a problem of environmental injustice. It is also a quintessentially democratic problem of political representation and accountability and it represents one of the core democratic challenges produced by 'the globalisation of modernisation' that has brought us to the Anthropocene.

Against this particular casting of the problem, standard liberal democratic institutions and practices of political representation and accountability appear particularly ill-suited to managing the boundless character of world risks. They operate on very short-term election

cycles of three to five years. Elected representatives are prone to ignore their responsibility for trans-boundary or trans-temporal harm produced by their decisions by hiding behind their exclusive political responsibility to existing citizens who authorise their political authority, in the same way that the directors of corporations are able to hide behind their responsibility to their shareholders. Indeed, Beck frequently characterised both states and markets – two of the most significant social steering systems of the modernisation process – as institutions of 'organised irresponsibility'.

Of course liberal democracy had already come in for harsh criticisms in the 1990s during the heyday of the globalisation debate. The English translation of Beck's theory of the risk society (Beck 1992) was joined in the same decade by new theories of cosmopolitan democracy (e.g. Held 1995) and green or ecological democracy (e.g. Doherty and de Geus 1996; Mathews 1995), all of which highlighted the ways in which increasing transborder movements (in this case pollution, natural resources, species, waste etc.) undermined the principle of exclusive territorial rule. Whereas Held defended a quasi-federal world state made up of nested political communities governed by an over-arching cosmopolitan global law that enabled individuals to invoke the cosmopolitan 'all-affected principle' (Held 1995), proponents of ecological democracy focused on cultivating active forms of 'ecological citizenship' that sought to represent or otherwise bring into view communities and interests (future generations, 'noncitizens', and nonhumans) whose interests were routinely excluded in liberal democracies (Dobson 2003). They also experimented with new ideas about how the nonhuman world might be included in practices of political representation and accountability, the rights discourse and deliberation.

Beck's response to world risks was reflexive modernisation the critical and normative sense of self-confrontation with, and de-normalisation and radicalisation of, the institutions, principles and direction of modernisation. In the case of world risks, he expected this critical confrontation to see the logic of compensation (which is now impossible) give way the logic of anticipation and precaution through prevention. The world risk society was seen as presenting a 'cosmopolitan moment' in both a descriptive and normative sense (2007, pp. 50, 158). That is, our non-excludable, mutual entrapment in world risks 'makes the inclusion of others a reality and/or its maxim' (2007, p. 56). Since states and markets are part of the problem, Beck looked to 'subpolitics', which encompassed both sub-national and transnational political agents acting outside of parliamentary politics (2007, p. 93), to confront the predicaments and anxieties of the world risk society in local and transnational public spheres and push for social transformation. However, he hoped that this sub-politics would eventually lead to the reinvention of national politics and the emergence of cosmopolitan states that were less focused on shoring up exclusive sovereignty and more focused on building national capacities for international and transnational cooperation (2007, p. 103).

In what follows I seize and build on the 'cosmopolitan moment' identified by Beck, and his twin insights of ontological entanglement and ethical responsibility, by developing an account of hyper-reflexive democracy in the Anthropocene and pushing it in a geopolitan direction. While the prefix 'cosmo' might suggest a more encompassing imaginary than 'geo', I show that geopolitan democracy nonetheless rests on a much more expansive imaginary of space, time, community and agency than most accounts of liberal cosmopolitanism and cosmopolitan democracy, which see in the 'cosmos' only humankind. Rather than defend geopolitan democracy as a new 'model of democracy' that demands new institutional arrangements, my strategy is to show how a new geopolitan imaginary, informed

by Earth systems science, might enable a more reflexive democratic political culture in liberal democracies in ways that are much more attentive to their links with other socio-ecological communities and larger Earth systems processes. This entails de-centering and re-positioning humanity in Earth's geostory and challenging the ideas of both technological mastery and exclusivist ideals of self-rule.

A Geopolitan Re-positioning of Humans in the Larger Scheme of Things

One of the virtues of the Anthropocene, as Dibley (2012) has pointed out, is that it hails us as Earthlings rather than the citizens of particular communities. Where each of us were born on Earth matters less than the fact we inhabit a planet that will become less conducive to not only the flourishing but also the survival of ourselves and other species.

Being an Earthling does not require any renunciation of national citizenship or local identity but a geopolitan imaginary nonetheless puts citizenship and territorially based democracy in a more critical and less exclusivist light. It connects us physically to the planet, its other inhabitants – indeed, all things and forces both living and nonliving – in a geological story in a way that the progressive, modernist and cosmopolitan narratives of Humanity do not. While the Copernican and Darwinian revolutions have already chipped away at the idea of humans as the centre of the universe and the apex of evolution, a critical narrative of the Anthropocene provides an even more sobering lesson in humility. Bill McKibben's pre-Anthropocene book *The End of Nature* (1989) lamented a world that was so human-influenced than there was no longer anything larger than us against which we might locate ourselves and fix our meaning: there was nothing but us. However improbable and preposterous it may seem, the Anthropocene forces us to confront the shocking possibility of the very opposite of McKibben's lament: an Earth without us (see, for example, Zalasiewicz, 2008). Few Enlightenment thinkers would have imagined this as a possible terminus of the Age of Reason. The end of human civilisation is utterly unimaginable to ecomodernists, while the end of human civilisation as a progressive march is central to the narrative of the bad Anthropocene (unless safely restored through Earth systems governance). In contrast, a critical narrative of the Anthropocene is more ambivalent. As Dibley (2012) puts it, the Earthling character in this new Anthropocene narrative 'must live on this planet, without the promise of progress, but with the prospect of progressive change by which a world in common can come to be composed' (section V).

A critical re-positioning of human geological agency therefore serves to de-centre and re-position humans in Earth's unfolding geostory. At the ontological level, this narrative offers a different story of human being and becoming, and a different location in a larger drama. It challenges the idea of exclusive human agency and mastery, and highlights our entanglement in a web of distributed agencies that include nonhuman beings, our own artifacts and nonhuman processes that act back (albeit without intentionality) on human communities, often in unpredictable and surprising ways. Indeed, this has become one of the major pre-occupations of the New Materialist movement in the humanities (for overviews, see Coole and Frost, 2010; Connolly 2013).

Of course, ontology does not determine ethics or politics but it nonetheless shapes and constrains the range of ethical and political possibilities. At a bare minimal, a deeper grasp of complex entanglement invites a 'reading down' of the meaning and practice of human 'self-rule', whether at the level of the individual, community or nation-state, and demands an ethics of prudence and precautionary politics to minimise self-endangerment. Beck called

this a *cosmopolitan realpolitik* (Beck, 2008), which he saw as subverting traditional realism because it recognises that national interests and purposes can only be pursued through regional and international cooperation. The minimalistic nature of this ethic provides political scope for convergence by many different political perspectives precisely because it remains agnostic about the good life and higher collective purposes and focuses on the very conditions for the conduct of such debates. Reflexivity in this context means critical reflection on the conditions for the ongoing reproduction of the *self* (whether applied to the individual, local, national or international community).

At the maximum, it is possible to build a more outward looking account of hyper-reflexivity, understood as critical reflection on the conditions for the ongoing reproduction of self *and* other, broadly conceived to include the human and nonhuman worlds. At its most radical, a geopolitan imaginary provides further support for the critique of anthropocentrism that emerged in the 1970s with the flowering of environmental philosophy, and has gradually gathered steam in the new Millennium with the acceleration of global environmental change. Here I take anthropocentrism as a form of human chauvinism that rests on the self-serving ideological belief that humans are the pinnacle of evolution and the centre of agency, meaning and value in the world, which renders the rest of the world valueless unless it is useful or valuable to humans or somehow 'human-like'. The traditional lack of recognition of nonhuman others has rested on a largely question begging calculus of invidious comparison: if nonhumans are not 'like us' then they do not matter ethically, only instrumentally; if they are somewhat like us then they only matter to the extent to which they are like us; and if they are radically different from us and are not useful then they are dispensable. This ideology has typically defined the human in terms of a highly selective and self-serving hierarchical logic of difference that is structurally similar to, and often implicated in, the logics of racism, colonialism and patriarchy. That is, the more valued side of the hierarchical dualism (humans, civilised peoples, men etc.) is defined in opposition to a lower/inferiorised Other (nonhumans, savages, women etc.) that is seen to lack what the dominant side of the hierarchy has selected to be important and assumed to be in its exclusive or preponderant possession (such as language, civilisation, reason) (eg. Plumwood, 1993). As Val Plumwood has pointed out, 'The concept of the human is itself very heavily normative. The notion of being fully or properly human is made to carry enormous positive weight, usually with little examination of the assumptions behind this, or the inferiorisation of the class of non-humans this involves' (Plumwood, 1993, p. 26). This has produced deeply polarised conceptions of the human and nonhuman worlds that struggle to acknowledge kinship, entanglement, continuity, shared qualities or even a shared fate.

Now at this point in the argument it might be objected that the foregoing 'maximal' case for an inclusive geopolitan imaginary has strayed well beyond the boundaries of democracy grounded in the popular will of 'the people'. Surely democracy, as a set of procedures for collective rule by the people via their political representatives, must necessarily be open-ended and there can be no guarantee that democratic procedures (whether voting or reaching agreement via deliberation) will produce collective decisions that protect the local environment, let along noncitizens, nonhumans or Earth systems processes. As claim about democratic procedures, this objection must stand but it does not follow that democratic procedures and conventional practices of representation and accountability are normatively neutral and above criticism. Rather, different democratic ideals, procedures and practices are informed by, and seek to reproduce, different imaginaries of community and different norms of recognition, representation and answerability to others. We capture these differences by describing different theories and practices of democracy with different adjectives such as

liberal, social, agonistic, deliberative or cosmopolitan, and geopolitan democracy may now be thrown into this mix. But the crucial point is that there is no democratic procedure for determining which community imaginary, and associated principles of democratic inclusion, are the 'most democratic' since that presupposes the prior existence of a *demos* to make the decision, but the spatial and membership boundaries of the *demos* are the very issues in contention (Whelan, 1983). But whatever community imaginaries take hold in any given community they have significant democratic consequences in terms of who or what is recognised (or not), and therefore who is accountable to whom and how. Good functional arguments have been made that stable, enduring and territorially bounded political communities with at least some common ties are necessary for cultivating the practice of citizenship (which is socially learned) and generating the necessary trust and solidarity for democracy to work (e.g. Song, 2012). But it does not follow that the horizons of solidarity must be limited to the citizens and territorial boundaries of such communities, as practitioners of ecological citizenship and transnational social movements have already demonstrated. The critical narrative of the Anthropocene offered here expands conventional horizons of space, time, community and agency in ways that ultimately enhance reflexivity and political capacities for self-determination, whether on the basis of the more minimalist realpolitik ethic of reflexive (self-regarding) prudence or the more expansive ethic of hyper-reflexive responsibility to self and others. Of course, on either account, we can expect ongoing disagreement and compromises. However, a cultural disposition to reflect and agonise over these questions in the context of geopolitan horizons is a considerable advance on the reified national horizons of liberal democracies.

Steps towards a geopolitan democracy

We saw that the apocalyptic/redemptive narrative of the Anthropocene gives too much room for scientific steering and too little room for popular political participation, *as if* science and politics can be clearly separated and *as if* planetary boundaries are relatively plain for scientists to see and therefore for rational citizens to accept. As the techno-scientific enterprise expands and produces increasingly specialised knowledge it becomes more and more dependent on public trust to sustain it, yet such trust can no longer be taken-for granted (Wynne, 2008). Indeed, this trust will increasingly erode if scientific elites fail to recognise in lay citizens any 'capacity for independent, different collective meaning-making, and corresponding knowledge rooted in different social needs, visions and priorities' that may be different from those underpinned by science (Wynne, 2008, p. 101).

By the same token, struggles by lay-citizens and localist and populist movements seeking to defend their local knowledge and life-worlds against encroachment by what are seen as 'outside forces' (whether in the form of abstract science, experts in general or international law) assume that the much coveted powers of self-determination they are seeking will give them mastery over their own destinies, and that they should shoulder no responsibilities to those beyond their local or national community. While this might be possible and defensible on some issues, it is impossible in relation to world risks. We therefore cannot simply substitute the political fantasy of rational Earth systems steering led by scientific elites with the political fantasy of local or national self-rule led by political forces that are ignorant of their vulnerability (and roles in producing) the life-threatening changes to Earth systems processes that are underway. Even well-intended community initiatives that focus on local environmental protection may be undermined by larger changes to Earth systems processes. The minimisation of world risks depends on a local understanding of how local practices are inserted into, and bear upon, larger Earth system processes and vice versa.

Thus far, the proliferating debates about the Anthropocene have been largely an academic pursuit. A popular awareness of the significance of human geological agency is unlikely to emerge in the absence of strenuous efforts to negotiate and bridge the divide between scientific and lay knowledge in relation to complex Earth system processes. This is not to suggest that science can be fully democratised or that lay-publics can be fully trained scientists. But without such bridging efforts, the increasing differentiation and specialisation of knowledge alongside growing inequality in income, wealth and educational opportunity within and between states is bound to see this gap widen rather than narrow. A necessary but by no means sufficient step towards closing this gap is greater public dissemination and translation of science (broadly construed here to include the natural and social sciences *and* humanities) of the effects of Earth systems changes on particular communities, alongside critical reflection on the effects of local practices on ecological and larger Earth systems. This includes, for example, connecting changes to the Earth's carbon, hydrological, nitrogen and phosphorus cycles, and the loss of biodiversity, to local climates, food systems, human health, safety and wellbeing, economies and life-worlds. Mutual respect and trust between scientists and the lay public is likely to be further improved to the degree to which the publics develop a more intimate understandings of how scientific knowledge is produced, along with its strengths and limitations. This requires greater investment in science education, greater public participation in science and technology funding and policy decisions, and greater experimentation with linking and bridging different ways of acquiring, testing and applying knowledge, such as 'ethno-science' that respects and draws on local experience and Indigenous knowledge (e.g., Johannes, 1981). A more democratically orchestrated co-production of knowledge would require greater community involvement in the formulation of research questions, 'extended peer-review' of research to include community stakeholders that are answerable to local communities as well as local participation through such activities as observing and monitoring local changes. With the participation of artistic and literary communities and local governments, such developments would help to cultivate a mosaic of new cultural, ecological and geological imaginaries that incorporate but extend beyond the local in ways that connect with broader Earth systems processes. This diversity would help to avoid reifying the integrity of the whole at the expense of the parts, and vice-versa.

None of the foregoing arguments should be taken as a rejection of the case for international agreements to protect Earth systems processes. The point is simply that such agreements are likely to be harder to negotiate and more likely to falter if there is a lack of reflexivity in governance systems at smaller scales. Geopolitan democracy is therefore offered as a 'down-to-Earth' democracy that seeks to build enhanced reflexivity from the bottom-up in ways that will temper parochialism and build greater public trust in science and more scientific trust in the common sense experience and imagination of lay publics. To the extent that this succeeds, the negotiation and implementation of international agreements will serve to complement and strengthen (rather than merely seek to constrain) local efforts by providing opportunities for international communication, coordination, national answerability and collective learning.

Conclusion

Unlike the narratives of the bad and good Anthropocene, the foregoing critical narrative provides a sober lesson in humility. It de-centres and repositions humans as one of many 'forces' shaping Earth systems processes, and challenges the quest for political and

technological mastery of Earth systems processes from above, along with the fantasy of exclusive self-rule. Insofar as a democratic enactment of human geological agency is possible, it can at best only be approximated by thinking about planetary boundaries as provisional heuristics that are democratically co-produced at local and higher levels of social aggregation in ways that critically engage and bridge abstract scientific knowledge and situated local knowledge. I have argued that a little more knowledge of geology and Earth systems science can be good for the way we think about democracy by stretching our horizons of time, space, community and agency. It can provide a fresh basis for reflecting on the democratically, ecologically and geologically arbitrary character of political boundaries, and the limitations of conventional liberal ideas and practices of recognition, accountability and self-rule. It can also contribute to the cultivation of a geopolitan imaginary that can be layered into existing imaginaries of community to prompt enhanced reflection on the Earth systemic conditions for the reproduction of self *and* other, broadly conceived to include the human and nonhuman (hyper-reflexivity). This necessarily entails rethinking the conditions and meaning of human autonomy and progress and reflecting on what kind of autonomy can be generalizable for all through space and time. In negotiating these questions, such enhanced reflexivity should be seen as not only a virtuous disposition of citizens in the Anthropocene but also of economics agents, organisations and institutions (e.g. Niemeyer, 2014). This still may not be enough to navigate the Anthropocene successfully – indeed, even qualified progress is by no means assured – but the absence of enhanced reflexivity will make navigation that much more difficult.

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