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# The Anthropocene and the republic

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## ABSTRACT

The Anthropocene, understood from the perspective of the creators of Earth System Science and IPCC, calls for global governance, which tends to be understood as an epistocratic, technocratic affair leaving little room for reflective rationality and politics in the agonistic sense. Using the republican repertoire, I argue that global governance thus understood is actually the last thing we need. I suggest that global environmental institutions ought to be based on 'constitutional republicanism'. Key elements of this approach are a Machiavellian appreciation of discord, agonism and 'the political', combined with a realistic assessment of the very diverse interests at stake in global climate politics, hence very diverse ideas about the benefits and burdens of specific global environmental strategies; and institutions based on ideas uniquely developed by republicans from Machiavelli to Mouffe allowing for human and science's fallibility on the one hand, irreducible moral and political diversity on the other.

**KEYWORDS** Anthropocene; epistocracy; technocracy; republicanism; agonism; Earth System Science

## Introduction

The well-known regular and special IPCC reports on climate change have not become more optimistic over the years. They did grow to be more precise and better supported (Hillerbrand, 2014), at least partly due to the growth of knowledge, through trial and error. The cooperation between the various disciplines involved in the research projects that these days also feeds into IPCC reports has resulted in the evolution of a transdisciplinary Earth System Science (ESS), the study of Earth System: Earth (and environs) seen as one geological, biological, chemical, physical and climatological whole (Hamilton, 2017; Lenton, 2016).<sup>1</sup> In recent years, in response to the apparent failure of ESS-based recommendations to be widely adopted and translated into radical and robust policies, ESS has expanded to include bits of the social sciences: 'ESS in its emerging form incorporates the role of human activities as an integral and dominant force in the functioning of the system' (Oldfield, 2016, p. 165), since 'humankind is now an integral part of the Earth system,

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having generated severe threats to its sustainability as a habitat for human life' (Oldfield, 2016, p. 169).

I shall refer to the core group of 50+ natural scientists who stood at the cradle of IPCC and gave ESS concepts like Earth System, climate change and global warming, among whom Nobel Prize laureate Paul Crutzen is best known, as 'the Advocates': they combine their 'pure' scientific work on ESS and climate change with advocacy for global climate governance – with the result that most of their ideas now define the mainstream global environmental discourse (Wissenburg, 2016). The advocates also introduced and promoted the youngest key concept in climate science: the Anthropocene. The Anthropocene is a geological epoch like any other (Miocene, Pleistocene, Holocene, etc.), always beginning with a geologically demonstrable clean break in climate and ecosystems, with one remarkable difference: the latest break<sup>2</sup> is associated explicitly with human behaviour. There are at least three Anthropocene narratives (Zalasiewicz, Williams, Haywood, & Ellis, 2011): one in which the break coincides with the transition from the hunter-gatherer to the farmer, one in which the Industrial Revolution (say, since 1750) defines the break, and one in which the Anthropocene begins with Hiroshima – the very sharp line that radio-active fallout since 1945 left in Earth's geological archive is undeniably quite telling.

Looking through the lens of the Anthropocene at climate change changes the perspective on how ESS is to be used, and changes the nature of environmental policy itself. Anthropocene problems like climate change then have little to do with localized ecosystems but far more with – spheres: the 'atmosphere, hydrosphere, cryosphere, biosphere, and lithosphere' (Hamilton, 2017, p. 17). Consequently, Anthropocene environmental policy cannot be localized either – even if it originates locally, its effects are global. States, societies and other stakeholders in Earth System can practice the Way of the Ostrich (hide their heads in the sand) but only to their own disadvantage: trouble will not pass by silently. To slightly abuse Benjamin Constant's famous concepts, the freedom of the Moderns, freedom from interference, is severely limited for collectives in the Anthropocene, while the freedom of the Classics, political participation, becomes inevitable for all but the most powerful nations.

In today's academic and policy discourse, ESS, the concept 'Anthropocene' and the global aspect of solutions to Anthropocene problems all support a call for coordination through 'global governance'. In this mainstream Anthropocene discourse, the latter concept is employed as the goal-rational obvious choice for Anthropocene policy: we know *what* needs to be done, the question is *how* to get it done most efficiently and effectively. As I have argued elsewhere, however (Wissenburg, 2016), value-rationality or reflexivity is not among the virtues of the advocates of the Anthropocene. Bluntly put, the mainstream Anthropocene discourse takes the goals of Earth System

governance for granted, bypassing any questions about the political and ethical legitimacy of those goals. Yet not every stakeholder in climate policy has the same (negative) appreciation of the effects of climate change, and they do have a moral right to dissent. And note that these dissenting voices do not need to come from commercial elites only – global warming unlocks resources and opens up fertile land in the poorest parts of the world, promising a life worth living for present, and prosperity for future, generations. In terms of means, there is further reason to worry: the advocates' conception of global governance for the Anthropocene is expert rule, preferably natural scientists' rule; concepts like democracy, diversity, rights or freedom are considered problematic at best, but more often simply passed over (Wissenburg, 2016, 2019).

The first part of this text argues that it is because of the exclusion of reflexive or value rationality, more broadly the exclusion of *the political*,<sup>3</sup> from the Anthropocene discourse that global governance in the advocates' sense is undesirable. Yet the Way of the Ostrich is no option either; the Anthropocene is here to stay. I will, in the second half, therefore (in the form of seven guidelines) sketch and defend a third option for the execution and coordination of Anthropocene policy: constitutional republicanism. I argue that this would be the natural home for a true global environmental *politics*, where politics is understood in an Aristotelian sense as shaping the world – or more precisely, the 'body ecologic', the artificial and environmental circumstances defining our societies.

### **Blind in two eyes: epistocracy and technocracy**

In this section I investigate the reasons why global Earth System governance as presented in the mainstream policy and academic debates is both unpractical and undesirable. Those reasons all relate in some way or other to the inability of technocracy and epistocracy to deal with reflexive or value rationality. I focus on IPCC and the Anthropocene advocates as exemplary for the policy and academic worlds respectively – exemplary meaning ideal-typical rather than representative for an average position.<sup>4</sup>

Although the meaning (and use) of the terms epistocracy and technocracy seem to overlap, I will for the sake of clarity use them as discrete concepts: epistocracy as the rule of those with superior knowledge of politics, in other words of the desired shape of society, in other words of ends; technocracy as the rule of those most skilled in a practice, in other words the use of means. The mainstream Anthropocene discourse is both epistocratic and technocratic, and both conditions blind it to its shortcomings. Let me start with the epistocratic affliction, which we can begin to identify through the mainstream assumption that climate control is a public good – it isn't. The problem here is

not so much the public part (the non-exclusion demand) but rather the idea that climate control<sup>5</sup> is a good, or that it is useful.

For one, climate change, for example as global warming, may (seem to) be not only a curse but also, perhaps on balance more so, an opportunity, one might even say a public good, for many countries. For Russia and Canada, Chile and Argentina, melting ice caps and thawing permafrost means easier and cheaper access to immense resources and consequently wealth and political clout. China now sees an opportunity to open up a new trade route with Western Europe via the Arctic Sea. Moreover, as even IPCC reports indicate, some of the already available mitigation and adaptation techniques (like nuclear power) can actually be profitable and so successful, so productive, that they become interesting export products. In other words: there are places and cases where climate control is simply undesirable and where climate change is the public good, even in the long run.<sup>6</sup>

Secondly, it is all too easy to assume that nation-states are the sole stakeholders in global climate governance. As classic sources of rules and regulations, they may be the most likely agents of change but they are not the only ones nor necessarily the most legitimate stakeholders.

They are not the only ones because, ultimately, our climate cannot be influenced let alone controlled by paper tigers alone. Climate control is control of levels and types of consumption, modes and means of production and size and sort of trade. That kind of control does not necessarily need to be exercised by political authorities – and one does not have to be a Marxist to acknowledge that changes in modes and means of production often come about through autonomous processes that governments simply cannot control. Technological revolutions tend to be followed at a very, very long distance by overwhelmed governments trying to get some grip on changes with ill-informed, inadequate and counterproductive regulations.

Not only are they not the *only* candidates, neither are nation-states by definition the *most legitimate* stakeholders in the world of climate governance. Not all minorities, ideologies, religions or sexes may be equally well represented by governments; not all their interests will be equally well protected, nor will they necessarily accept (or worse, be morally obliged to accept) a national government as their representative. Of course, first and indigenous peoples are perhaps the greatest moral challenge to the authority and standing of nation-states: they can argue that no conqueror has a moral right to speak for the conquered. And first and indigenous peoples may well have most reason to complain: their ways of life are by definition more vulnerable to the destructive effect of most techniques and climate policies.<sup>7</sup>

This brings me to a third manifestation of epistocratic blindness: the apparent inability of Anthropocene advocates and IPCC authors to appreciate value systems other than their own. For example, the Fifth Assessment Report 'solves' the problem of the incommensurability of values (like the value of

biodiversity and human wellbeing, or traditional cultures versus income) by imposing aggregate welfare as 'the' measure of all things, simply because a quantifiable measure is seen as the unique necessary means to the end of making choices (IPCC, 2014, pp. 220–1). Dissent is not to be taken seriously: 'The ability of governments to implement political decisions may be hampered (sic, MW) by interest groups; policies will be more feasible if the benefits can be used to buy the support of a winning coalition.' (IPCC, 2014, p. 237). In other words: values and ethics that do not support the 'technically' best policy are on the one hand calculated away as costs to be offset by benefits, and on the other seen as political obstacles that must simply be overruled and overrun, that do not need to be taken seriously as potentially well-founded alternative world views, let alone be addressed in a reasonable dialogue respecting the burden of judgment including irreducible moral pluralism (cf. Rawls, 1993).

It is not self-evident that a specific state of ecological harmony or a degree of resilience is a higher goal than individual liberty, or equality or justice, that present humans should create and fund generic future generations rather than take individual responsibility for future lives before creating them (Wissenburg, 2010), or even that the continued existence of humanity (threatened, the more alarmist voices argue, by climate change) is a good, instrumentally or in itself. All of these valid perspectives are excluded by the naïve epistocratic assumption that the goal and ends of Anthropocene climate policy are valid beyond any reasonable doubt, and that doubt is therefore unreasonable. It may not come as a surprise that there was not a single non-consequentialist philosopher among the scores of authors and referees of the Fifth Report (IPCC, 2014).

On technocracy, the second affliction blinding Anthropocene advocates and climate policy designers, I can be relatively brief: it has become the go-to place for the countless critics of the mainstream Anthropocene discourse – both those rejecting the concept and those critically reinterpreting it. To a degree, that critique has been picked up by the classic Anthropocene advocates – resulting in the creation of the *Anthropocene Review*, a forum for social scientific perspectives on climate change policy and the required technology (Oldfield et al., 2014). Yet the technocratic attitude remains, for example in the continued interest in high-tech geo-engineering (cf. Anshel & Hansson, 2016; Wissenburg, 2019). The critique of geo-engineering as 'blind' technocracy applies equally well if not better to global Anthropocene governance, since the latter requires even more reliable and complete knowledge and coordination than geo-engineering to be successful.

If there is anything IPCC reports show, it is how impossible global climate engineering, and therefore global climate governance, really is. The recent IPCC Special Report *Global Warming of 1.5°C* (2018) perhaps illustrates this more than any previous report. In the natural science part, it makes sense to

indicate for each mechanism, each causal relation that ESS identifies as a potential determinant of the global climate, how strong the evidence is, how wide the consensus and how confident the authors are of the validity of the characterization of the mechanism. Strength, support and validity are meaningful concepts in this context, and they allow us to formulate valid expectations on aggregate levels. But unfortunately the same three criteria are also applied in the social science part (0–5 book icons indicating strength of evidence, 0–5 smileys for agreement and 0–5 stars for confidence) to assess the effects of exceptionally abstract aggregate policies on equally abstract aggregate policy domains – for example, the effect of ‘accelerating energy efficiency improvement’, ‘behavioural responses’ or ‘afforestation and reforestation’ on ‘air pollution reduction and better health’, ‘healthy lives and well-being for all at all ages’, or ‘resource mobilization and strengthen multi-stakeholder partnership’. To even suggest that judgments like these could offer a sound basis for global governance is arrogance not science (cf. Hillerbrand, 2014).

The degrees of uncertainty about basic data, their instability due to ever changing scientific knowledge and theories, the uncertainty and disagreement about the causal relations between the countless variables in the climate model, and the exponentially greater uncertainty and outright disagreement on descriptions of the technological, social, economic, political (etc.) factors determining societies and their environmental policies – all of this adds up to a social science inclusive ESS being in all likelihood little more helpful than reading the entrails of a sacrificial sheep. The main difference is that the authors of IPCC reports are quite open about their uncertainty, unlike the haruspices of yore. The same cannot always be said about the advocates of the Anthropocene. Recently, Gaffney and Steffen (2017) were accused of meaningless and gross oversimplification for introducing ‘the Anthropocene equation’, a half a line long formula that would unite all the elements that make up the Anthropocene – the critics referred to it as a pseudo-mathematical formula based on undefined compound variables (Heijungs, Boersema, & Huppel, 2017).

It is not just sheer omniscience that is needed for global climate governance, but also total oversight and omnipotence – the combination of which brings to mind the precautionary principle and even more all of Popper’s (1984, 2002) fears concerning scientifically supported totalitarianism. Global Anthropocene governance is utopian social engineering squared.

In conclusion: the mainstream Anthropocene discourse and the advocates in particular are blind to questions of a value-rational nature. Where the ends of climate policy are assumed to be self-evident and incontrovertible, global climate governance necessarily becomes epistocratic and technocratic – a dystopia.

## Constitutional republicanism

The answer to the Anthropocene cannot be, should not be, global governance. Nor can it be, for agents on their own, *laissez faire*, *laissez aller*, *laissez passer*. The Anthropocene represents a myriad of possible challenges, advantages and opportunities for both economic and political stakeholders – one either acts or is acted upon. And rather than governance or the law of the jungle, the Anthropocene calls for institutions that facilitate *reflexive* rationality. In this second part I will argue that in designing such institutions, we should once more seek inspiration in a two millennia old tradition in political thought to which I shall refer as *constitutional republicanism*, to distinguish it from two contemporary schools known as classical republicanism (of which e.g. Barry's (2008, 2016) green republicanism is a special case) and its rival, civic or neo-republicanism.<sup>8</sup>

Constitutional republicanism is no direct opposite or denial of classical and neo-republicanism; the two parties are distinguished simply by their different foci. Classical republicanism, for starters, is often presented as embracing liberty yet strongly opposing liberalism. It embraces the liberty of the Ancients, the liberty of collective self-rule, rather than the liberty of the Moderns, liberty from collective control. In classical republicanism, the individual is free if s/he actively participates in politics, in the collective design and regulation of rules, customs and intuitions shaping his or her society (cf. Cannavò, 2016). A second defining characteristic of classical republicanism is that it embraces the idea of a common good, the realization of which ought to be promoted by public institutions – as some authors have argued, again in opposition to a liberalism that would either directly deny the notion of a common good or for the sake of impartiality discourage the authoritative imposition of values and norms. Third and last, and equally problematical for a politics of the Anthropocene, classical republicanism is unthinkable without a public, a polis that is more *Gemeinschaft* than *Gesellschaft*, more community than society (cf. also Dagger, 2001). Classical republicanism demands a positive commitment to the cooperative combination of relations, meanings, exchanges and values across generations that makes 'the public' more than a mob, crowd or market.

Constitutional republicanism demands none of these things: no focus on polis, public or community, no commitment to a common good nor to liberty through participation. It does not exclude them either (though, vice versa, classical republicanism has more problems with modern-day constitutional republicanism). It is simply an alternative way of reading the history of republican political thought, as a tradition reflecting a constant dialogue with concurrent political systems and their challengers, rather than a school with a clearly defined programme and mission linked with (individual) citizenship. Constitutional republicanism covers thinkers as diverse as Aristotle and



Cicero, Machiavelli, Montesquieu, Spinoza, Publius, Habermas, Mouffe, and Bellamy (2007). It is a reading of republicanism not as focusing on the unity and virtue of cooperating citizens but on the stability and resilience of the institutions that shape a republic.

Neo-republicanism is, in Rawlsian terms, 'thinner' than classical republicanism: it too embraces the liberty of the Ancients and importance of (self-rule through) active participation, but it is more open (more liberal, one might say) in stressing the notion of non-domination, the absence of arbitrary rule, (Pettit, 1999), being ruled without having a voice, rather than a common good that is to be pursued, and a public that is to remain united, *per se*. Constitutional republicanism has a far better fit with neo-republicanism, but as said before, the focus differs: while neo-republicanism is (to oversimplify a bit) a programme for individual citizenship, constitutional republicanism is an evolving reflection on institutions.

The story of constitutional republicanism starts with Aristotle (1981) who, in his *Politics*, developed a typology of governments that we basically use to this day: rule by the one, the few or the many, either in the interest of all or in that of the rulers only. In addition to giving his own answer to the question 'what is the *ideal* constitution?', the great-grandfather of political science also asked what would be the most stable, therefore most *practical*, constitution. That, he argued, would be a mixed constitution – not a mix of utopian ideals but one of realistic, perhaps even cynical, expectations: oligarchy and democracy, the haves and the have-nots ruling in their respective egocentric self-interests, kept in balance by a monarch.

This mixed constitution would quickly be renamed by Marcus Tullius Cicero (1866) in *De Re Publica* (first published 51BC, rediscovered 1819), from *politeia* into *republic* – a term that remained synonymous with the mixed constitution until the 19th Century. Through the ages, it would serve two purposes: initially, as a critical tool to curb despotism and tyranny, and increasingly, as the French Revolution approached, as the one and only viable alternative to democracy (i.e. the rule of all in their self-interest).

In subsequent centuries, the mixed constitution was reinterpreted and redesigned according to the times and the taste of the author, constantly absorbing new elements contributing to stability and resilience. Most famously – sitting uncomfortably with many a mainstream republican but so in tune with the modern times of Lefort, Rosanvallon or Mouffe – Machiavelli introduced *discord* in the republic. A stable republic needs parties, dispute, disagreement, strife; not only is that a sign that citizens identify with and are committed to the republic, discord as a way of constantly reproducing, reinvigorating and redesigning the foundations of the republic is also simply what keeps it alive. Spinoza, inspired by the Dutch Republic in its Golden Age, argued that a republic combining the aristocracy of the patrician Burgers with a democracy of a (through free press and open debate) ever

more enlightened public needed no monarch needed since the system stabilized itself. Montesquieu and the Federalists added various versions of the division of powers, checks and balances, and further hurdles for the tyranny of majorities. Finally, truly original recent additions come in the form of (on the one hand) Habermas's and Rawls's attempts to design a reasonable debate that respects the burdens of judgment, and on the other agonists like Mouffe stretching the notion of the publicly discussable beyond the strictly reasonable.

Constitutional republicanism as the tradition in political thought that inspired reforms aimed at the creation of stable, mixed constitutions cannot be caught in permanent core ideas like classical republicanism, a genuine school – it has evolved way beyond anything Cicero, Machiavelli or Spinoza might recognize. But we can summarize its current accomplishments: it has established that a stable republic (1) is a product of non-ideal theory, seeking both ethical and political legitimacy for an open republic not an ideologically closed public; (2) recognizes and embraces the cleavages in society between not only faiths, ethics and ideologies, but also between haves and have-nots, elites and grassroots (ideational and material); (3) recognizes and embraces the indispensable value of discord and of free and open debate; and (4) fosters the creation of institutions that discourage rash and one-sided action while promoting patience, reflection and philosophically well-founded agreement.

### **Constitutional republican guidelines for the Anthropocene**

It would be presumptuous to suggest that it is possible to design in any detail the kind of Anthropocene policy institutions that make sense from a constitutional republican perspective. Global political or administrative structures are never (going to be) incarnations of the ideal types or models we use as standards or mirrors for today's reality. New institutions and structures are always going to be a time and place sensitive, evolving and adapting *mix* of old models translated to a new context, the accidental product of interactions between self-interested and opposed groups who hopefully occasionally add a bit of common interest beyond purely mutual advantage to the mix. I will therefore not attempt to defend any utopian models – I limit myself to seven tentative guidelines.

- (1) *Take full responsibility for the Anthropocene: become accountable*
- (2) *Avoid utopian and embrace piecemeal engineering*

As Clive Hamilton (2017, p. 38) writes, 'There are no more enclaves. The natural world inherited by modernity is gone, and all of the ideas built on it now float on its memory.' Those who argue that we do not have the 'power to

change the future of the Earth (deniers and some religious fundamentalists)' (Hamilton, 2017, p. 39), deep greens and eco-centric philosophers who would want us to relinquish that power, eco-moderns who crave that power, and the 'oblivious ... avatars of the ruling system and its intellectual apologists' (Hamilton, 2017, p. 39) fail to understand what the Anthropocene implies: that humankind has made its own world and has the power to continue to do so – but not necessarily the knowledge and insight.

I would not, in Hamiltonian vein, want to argue that 'humankind' should either take full responsibility for global climate change, or fail morally – there is no moral agent called humankind. But the actions that affect the globe are human actions, and individual humans, we assume, can be moral agents with genuine choices – they fail if they do not address whatever responsibility they can carry.

Yet as argued here and elsewhere, including to some degree by Hamilton, responsibility should not lead to megalomania, technocracy, epistocracy or utopian engineering. ESS is simply too incomplete and too imprecise – it contains all the uncertainty and fallibility of its constituent disciplines squared. Global coordination of spheres-affecting action is a moral duty but that duty can only be moral if executed responsibly – with checks and balances in place to acknowledge the limits of knowledge and the burdens of judgment. To turn the Precautionary Principle into a Popperian political guideline: the rational attitude towards uncertainty about facts, standards and values is not inaction but further investigating which standards and values can best guide a policy minimizing the risk of disastrous consequences (cf. Popper, 1984, p. 158n2).

### *(3) Support liberal sovereignty for states*

As argued above, nation-states are not necessarily the best representatives of all the stakeholders in Anthropocene policy. Yet realistically, nation-states dominate the international system and will keep doing so for the foreseeable future (cf. Duit, Feindt, & Meadowcroft, 2016) – and it is still possible to argue that, as the political face of society, the 'social union of social unions' (Rawls, 1999, p. 462), the state has a valid moral status in its own right – albeit *empirically* next to the authorities and unifying constructs ordinary citizens recognize next to, sometime even above, the state – think of religions, the University, or corporations and companies.

*Pace* for instance Simon Dalby, I would argue that at least one 'traditional' notion of sovereignty can be helpful. Dalby (2015, p. 198) argues that 'territorial strategies are not the practical modes for considering SRM [Solar Radiation Management, MW] with all its potential global effects'. But robust global governance structures are not incompatible with sovereignty – technocratic single-mindedness is. Accepting the crucial role of nation-states implies accepting their sovereignty – though not necessarily the old-fashioned realist version

of sovereignty as an immunity or claim-right. On a modern liberal understanding, sovereignty is a responsibility or *duty*: a duty to care for the fundamental human rights of a state's citizens (International Commission on Intervention and State Sovereignty [ICISS], 2001; Glanville, 2010). It is on this basis that many international actors now defend or accept that nation-states have a responsibility to protect populations against not only aggression from invaders but also (with more than a homeopathic whiff of Hobbes) against the failure of their own governments to exercise this duty. Arguably, the duty to care is first and foremost a duty to protect the (necessary conditions for) survival, and primary among those is protection of the physical environment. The more explicitly sovereignty is shaped so that it includes responsibility for the global climate, the more 'Anthropocene-wise' constructive an actor the nation-state can be.

#### *(4) Organize the opposition*

Nation-states conceiving of their sovereignty as a duty to their citizens, among others a duty to control the climate, will inevitably defend their supremacy over non-state actors, even or in particular the economic agents that are the actual makers of the climate; in addition, they may also misrepresent or not represent further stakeholders (ethnic, cultural and political minorities) and only selectively represent the preferences and interests of the greater public. For constitutional republicanism, it is essential that political choices are the result of sincere and intense public debate, which requires the existence of an opposition – free and unobstructed.

A first group of obvious candidates to be given a forum are the market parties: consumers and producers, including trade and finance – as is already done, to some degree, in the World Intellectual Property Organization (WIPO).<sup>9</sup> By the same token, cultural and ethnic minorities (including but not exclusively first and indigenous peoples) are a second obvious choice. What other stakeholders are to be included simply 'depends'; inclusion and exclusion, recognition and denial, is in itself a (classic) political question. The best we can say is that recognition has to make sense, morally or politically; and only in ideal cases will the two go together. Morally, admitting religious institutions as climate stakeholders makes about as much sense as including trekkies but politically, religions are forces to be reckoned with.

#### *(5) Create global agonistic checks and balances*

For a global climate regime to function as a republic rather than an epistocracy, it is essential to not just organize a global arena for opposing *voices* (cf. Bäckstrand, Kuyper, Linnér, & Lövbrand, 2017) but also to give stakeholders an actual *say* in choices so as to create an Aristotelian-Spinozistic balance between opposing forces. That means veto powers, division of powers, check and balances – and it requires agonistic rather than consensus-oriented

political arenas; only then will alternative views of the good life and alternative perceptions of stakeholders' interests have to be addressed on their merits, not addressed as threats to efficiency.

This is where constitutional republicanism probably deviates most from existing practices in international relations: currently, a cartel of nation-states exclusively decides on recognition, and exclusively reserves full recognition to nation-states. Again, WIPO can serve as an indication that the unlikely is possible: while its treaties are still treaties between members of the states cartel, they are increasingly the product of deliberation with NGOs, producers and indigenous peoples, sometimes treated almost as equals – in other words, where non-state actors have all but formal veto power.

That said, WIPO cannot be mistaken for a truly agonistic forum. A necessary condition for an agonistic system to work is the absence of a strong, autonomous executive – exactly what would characterize the ideal global governance structure preferred by advocates of the Anthropocene. An executive hindered all the way from goal formulation to policy implementation by the need to seek support from an opposition, the impossibility to bypass other parties and checks and balances, creates room for the acknowledgement of human and science's fallibility on the one hand, irreducible moral and political diversity on the other. That said, it is wise to remember that agonistic, divided political structures are necessary but not sufficient conditions for deliberation, which in turn is a necessary but not sufficient condition for genuine reflexive rationality.

Finally, designing global institutions built with countervailing components implies that we enter *terra incognita*: while the process theoretically starts by rethinking familiar concepts in a new environment (parliaments, elections, constitutions, supreme courts etc.), likely with the help of classical predecessors (polis, empire, etc.), in practice new institutions emerge more by accident than by design, and more by lateral than by structured thinking. For example – if we accept that the economy, the market is the locus of change in technology and productive force, why not have two executives – one political, one economic? Obviously, there will be trial and error – *hic sunt leones et dracones*.

(6) *Adopt negotiation procedures that promote reflexive rationality*

The greatest weakness in 2500 years of constitutional republicanism is that it has failed to provide one single real-existing example of a reflexive republic. On the up side, it is the source of ever new approaches to preventing goal-rationality running amok. But on the down side: politics can only create the necessary conditions for reflexive rationality, and it cannot take away the natural inclination to let self-interest affect deliberative processes – with the virtually certain effect of turning deliberation into negotiation, negotiation into rational gaming, and game into an arm-wrestling match.

Still, through trial and error, progress has been made over the past decades in designing negotiation procedures that allow reflexive rationality without obstructing the quest for a compromise. Luban (1985) already discussed the PPP-approach: negotiations structured to turn a zero-sum-game into a Positive-sum game, to guarantee Pareto-optimality, and to force participants into Principled bargaining. The latter stands for voicing, testing and evaluating real arguments and values – which Luban then operationalized as criteria that are eerily similar to Rawls's (1993) burdens of judgment. These, as much as Habermas's domination-free discourse and Mouffe's agonism, have engendered a fast-growing body of literature on real-world experiments with value-rational deliberation.

*(7) Work with realistic expectations*

In so far as institutions are designed, they are designed with a purpose in mind: results to be realized or avoided. Anthropocene institutions will be no exception – even though the aim here is to a priori exclude as few outcomes as possible, since that would undermine any attempt to represent the real world's plurality of ethics and interests. This implies that both the desirable and the feasible should be options. In political theory, the feasible is not very popular except among non-ideal theorists – but the Anthropocene demands feasibility, therefore an open agenda.

Consider the feasibility of the two most popular ideal-theoretical solutions to the quest for sustainability (however defined, a necessary condition for a more stable global climate): adapted preferences and population control. Right now, in terms of our ecological footprint, perfect sustainability requires that we all fall back to the level of welfare and way of life of the average citizen of Sierra Leone or Mali<sup>10</sup>. But it is absurd to expect Western and Northern societies to be willing to make that journey, and perverse to expect the Global South to give up any hope of ever experiencing the level of welfare and dignity the rest of the world enjoys. To maintain the present level of welfare yet move to a 0% ecological deficit, Western and Northern societies would have to rid themselves of probably 60% or more of their current population. Again, the solution is absurd and politically infeasible. Ideal theory has little else to offer – be it in the context of sustainability or that of the Anthropocene – than an orthodox Calvinist discourse of austerity and frugality.

As Swedish environmental political theorist Rasmus Karlsson argued (e.g. 2016, 2017, 2018; Karlsson & Symons, 2014; cf. also Nasiritousi, 2017), we cannot survive the Anthropocene only by reduced consumption, recycling, sustainability and frugality – there simply is no time and no support. What we need are clean alternatives compatible with equal or growing levels of welfare and wellbeing. And that in turn requires that we embrace innovative technology and strategic use of all energy sources including non-renewables. In Karlsson's words: '... rather than demonizing the use of fossil fuel or provoking cultural

wars through draconic carbon taxation, it seems more productive to ensure that clean energy become absolutely cheaper and abundant for everyone through public innovation' (Karlsson, 2017, p. 242). Generalizing, we need a smart mix of careful policy (allowing for fallibility and pluralism) and radical innovation (the motor of economic development). Additionally, Karlsson (2017) points out, success requires greater independence in research from short-term economic gains and short-sighted socio-political fads and crazes.<sup>11</sup> The example Karlsson then gives is probably more controversial than necessary: the exploitation of our solar system is becoming economically viable, and in space the final frontier for growth is very far away.

The addition of supply-side solutions to environmental problems is sometimes equated with 'relying on the techno-fix' and 'living in denial' as all resources are ultimately finite. Those qualifications, I would argue, are based on confusing two stories. One is the true story of humanity's on the whole quite successful struggle to squeeze the most out of limited resources, a struggle in which consumption and production often ran ahead of, but incited the growth of, supply and technology. Had we not done so, we would still be a species of 100,000 inbred hunter-gatherers with a life expectancy of 27 years. The other is the misleading story of an 'inherently unsustainable relationship with nature' (Ingolfur Blühdorn's position; cf. Blühdorn, 2013a, 2013b). The latter is based on the illusion that things like universal harmony and stability, a balanced budget and a quiet life are possible. In one sense, the 'inherent unsustainability' tale is true. It is true that parts of humanity are, so to say, living above their means, it is true that there is a risk in hoping that currently immature or non-existent technologies may help to control the deficit, and it is true that some civilizations failed because they never developed appropriate new technologies – Angkor Wat and the Maya come to mind. But that does not mean that doom and disaster are guaranteed, as shown by the rest of human history. Living on ecological credit to invest in the future of humanity is neither necessarily unsustainable nor irrational.

*In conclusion:* I've discussed seven guidelines for the design of institutions that should address the challenges of the Anthropocene, inspired by the long tradition of constitutional republicanism. If there is one thing these guidelines have in common, one thing also that characterizes constitutional republicanism and illustrates its viability, it is that it gives pride of place to ethics and the political, to value-rationality – there is no better protection against the overconfidence of the technocrat.

## Notes

1. Although one might argue that Earth Science was always already there (cf. Oldfield, 2016) – it has just evolved into something recognized and recognizable as a scientific discipline in its own right.

2. Characterized by among other things a sharp and exponential rise in temperatures, and the so-called Sixth Extinction of species. For the (literally) coloured figures used by the advocates to link human activity to climate change, see *Welcome to the Anthropocene* at <http://www.anthropocene.info/great-acceleration.php>.
3. The political here thus includes the ethical, the values guiding or legitimizing political choices.
4. For the sake of clarity: I have no intention of questioning the scientific quality of IPCC reports nor the integrity of its authors. It is IPCC's *remit* itself that is problematic: IPCC is allowed no room for reflexive rationality. In the vocabulary of Lukes, Bachrach and Baratz: IPCC is shaped by the second dimension of power; its agenda has been fixed and frozen.
5. I use this term as an abbreviation for the far too lengthy 'policies and technologies used to affect factors contributing to climate change'.
6. Note also that there are places where and times when climate governance is not cheaper than climate war (cf. Haldén, 2007, 2011; Lee, 2009).
7. This should not be read as *support* for the way of life of first and indigenous peoples; it's about their moral standing relative to their self-proclaimed guardians. Given that they lead nasty, brutish and short lives while inefficiently using resources that could provide for ten or a hundred times their number, there are grounds even for non-consequentialists not to be too confident in glorifying traditional ways of life.
8. I would have preferred to call it 'political republicanism' but that term has already been used by Paul Weithman (2004) to (dis)qualify a strand of civic republicanism as too moderate.
9. The history of WIPO's Treaties and of its *Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore* nicely illustrates that the interests of states do not only not coincide with those of 'traditional' peoples (who gnaw at state sovereignty over land, resources, knowledge and ways of life), but also not with those of 'big' business (which is not interested in sovereignty but in clear agreements on property regimes) (cf. e.g. Eimer & Schüren, 2013).
10. Sierra Leone, Mali, Somalia, Botswana, Laos and Honduras showed an 'ecological deficit' in 2016 of 0.0 to 0.1% (Footprint Network, 2017). With a surplus of 0,7, war-torn Ukraine did surprisingly well.
11. A strong argument for the inclusion of not only market parties as equals of nation-states in the Anthropocene politics arena, but also that other global force for change, the University.

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