

Climate Justice and Temporally Remote Emissions

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Abstract: Many suggest that we should look backward and measure the differences among various parties' past emissions of greenhouse gases to allocate moral responsibility to remedy climate change. Such backward-looking approaches face two key objections: that previous emitters were unaware of the consequences of their actions, and that the emitters who should be held responsible have disappeared. I assess several arguments that try to counter these objections: the argument from strict liability, arguments that the beneficiary of harmful or unjust emissions should pay, and arguments from distributive justice. I argue that none of these successfully justify a backward-looking approach to the temporally remote portion of the climate burden.

Keywords: climate change; responsibility; benefiting from injustice; historical emissions; excusable ignorance

1. Introduction

Climate change due to humanity's emissions of greenhouse gases¹ threatens the lives and livelihoods of people, many of whom are, or will be, the most vulnerable in the world.² Because of climate change, we face costs of mitigation (including accepting restrictions on greenhouse gas emissions) as well as costs of adaptation and compensation, costs that together constitute a burden. Much of this burden of climate change has been created long ago; more than half of humanity's CO₂ emissions from fossil fuel use³ has been produced before 1990.⁴ Of that historical portion,

¹The scientific consensus that the climate is changing and human activity is responsible is well represented by S. Solomon, D. Qin, M. Manning et al. (eds.), *Climate Change 2007: The Physical Science Basis* (Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change) (Cambridge: Cambridge University Press, 2007). See also Peter T. Doran and Maggie Kendall-Zimmerman, "Examining the Scientific Consensus on Climate Change," *Eos, Transactions, American Geophysical Union* 90, no. 3 (2009): 22-23. Those still unconvinced could treat this paper as addressing a hypothetical case.

²Global Humanitarian Forum, *The Anatomy of a Silent Crisis* (Global Impact Report) (Geneva: Global Humanitarian Forum, 2009).

³Fossil fuel use is not the only cause of climate change; in particular, land use and land-use change has a significant effect. However, when dealing with historical emis-

around 80% has been produced by people from developed countries⁵ (who represent a small fraction of the world's population). Thus, over history, people from developed countries have a much greater causal responsibility for climate change than people from developing countries. What I will call the "backward-looking approach" tries to translate *all* or *most* of this causal responsibility into moral responsibility, by measuring emissions (or the benefits gained from the activities that caused high emissions) since the industrial revolution and allocating relative responsibility for the burden of climate change accordingly. This approach has been proposed in both philosophy and policy circles.⁶ While there may be good reason to use emissions from the *recent* past to determine a party's share of moral responsibility to remedy climate change, in this paper I argue that a backward-looking approach that uses emissions *dating from the industrial revolution* to determine responsibility to remedy climate change is unjustified.

Any justification for the backward-looking approach has to cope with two obvious objections. Thus, I will lay out these well-known objections first, before outlining and critiquing the different justifications given for

sions, aggregating gases from all sources is difficult. First, some of the gases from land-use, specifically methane, have much shorter half-lives in the atmosphere than CO₂. Second, the policy proposals to count ignorance-era emissions usually ignore land-use figures because of technical difficulties in measurement. Most of my arguments will concern greenhouse gas emissions in total; here I mention fossil fuel emissions only as an illustrative point.

⁴T.A. Boden, G. Marland, and R.J. Andres, "Global, Regional, and National Fossil-Fuel CO₂ Emissions," http://cdiac.ornl.gov/trends/emis/tre_glob_2008.html (accessed 8 October 2012).

⁵Data from T. Jayaraman, T. Kanitkar, and M. Dsouza, "Equitable Access to Sustainable Development: An Indian Approach," in BASIC Experts, *Equitable Access to Sustainable Development: Contribution to the Body of Scientific Knowledge* (Beijing, Brasilia, Cape Town and Mumbai: BASIC Expert Group, 2011), tables 3 and 4, p. 67, which give a figure very close to 80% for relative cumulative emissions from Annex 1 excluding land use and land-use change 1850-2000. The percentage for developed country emissions 1850-1990 can be assumed to be higher than this; the 1850-1970 figure is over 90%, and pre-1850 fossil fuel use is negligible.

⁶For examples from the philosophical literature, see John Broome, *Climate Matters: Ethics in a Warming World* (Amnesty International Global Ethics Series) (New York: Norton, 2012), chap. 4; Stephen M. Gardiner, *A Perfect Moral Storm: The Ethical Tragedy of Climate Change* (New York: Oxford University Press, 2011); Eric Neumayer, "In Defence of Historical Accountability for Greenhouse Gas Emissions," *Ecological Economics* 33 (2000): 185-92. An influential backward-looking policy proposal is the "Brazilian Proposal" found in "Proposed Elements of a Protocol to the United Nations Framework Convention on Climate Change," by the Brazilian Delegation to the UNFCCC in 1997 (UNFCCC document FCCC/AGBM/1997/MISC.1/Add.3). A recent defense of a similar approach can be found in BASIC Experts, *Equitable Access to Sustainable Development*.

the backward-looking approach. First, I offer a brief preliminary note about my method. States are the unit of analysis with which climate change justice is usually discussed, yet this does not mean that the theory behind the just allocation of climate burdens needs to be limited to allocating burdens among states. It is true that states are in a position to create the policy changes needed to address the problem, but individuals and corporations can exercise constraints on and influence the positions of states, and can (and do) appeal to claims about justice when they are asked by their governments to bear a portion of the climate burden. Given that climate change is a truly transnational problem, it is worth considering how theories of justice might apply to individuals and other parties spread across the globe. And even if we want to use states as our main unit of *political* analysis, this does not prevent us using the individual as the unit of moral analysis,⁷ and determining what states should do from aggregating what it is just to ask individuals in them to do. Thus I will try to remain ecumenical in my discussion, and use the umbrella term “party” to refer to a range of potential types of bearers of climate burdens.⁸

Those who wish to treat all historical emissions as relevant to contemporary burden-sharing face a serious difficulty. Historically heavy emitters can point out that while they have emitted more greenhouse gases, for much of the time they did so they were excusably ignorant—they could not have been expected to know of the effects of their actions. Excusable ignorance is a condition that very often limits or removes responsibility for the effects of our actions. If my spitting an orange pip off the side of a mountain path happens to cause a rockslide below, we would not ordinarily judge that I was morally responsible for the harm the rockslide causes.⁹ The best explanation of why I escape moral responsibility would probably emphasize that I did not know that my ac-

⁷As suggested by Simon Caney, “Climate Change and the Duties of the Advantaged,” *Critical Review of International Social and Political Philosophy* 13 (2010): 203-28, and “Environmental Degradation, Reparations, and the Moral Significance of History,” *Journal of Social Philosophy* 37 (2006): 464-82. The idea is applied ingeniously in Paul Baer, Tom Athanasiou et al., *The Greenhouse Development Rights Framework: The Right to Development in a Climate Constrained World*, revised 2nd ed. (Berlin: Heinrich Böll Foundation, 2008).

⁸Like much literature on climate ethics, some of my *examples* will examine justice between individuals. But such examinations can still be relevant even to firm anti-individualists in this domain. If the *principles* that are being used to justify a backward-looking approach do not hold in the individual sphere, this should cast serious doubt on the application of them to legislate between nations in the sphere of international affairs, in which a more limited moral code is often thought to apply. Thanks to an anonymous reviewer for raising this issue.

⁹David Miller, “Holding Nations Responsible,” *Ethics* 114 (2004): 240-68.

tion would cause harm, nor could I have been expected to know (there was no evidence of the extreme instability of the mountainside). Granted, exactly what period the defense of excusable ignorance applies to is a difficult question. Many point to pre-1990 emissions, produced before the first Intergovernmental Panel on Climate Change stated it was “certain” that “emissions resulting from human activities are substantially increasing the atmospheric concentrations of greenhouse gases.”¹⁰ Notably, as early as 1970, major scientific meetings were held addressing “possible impacts of man’s activities on the regional and global climate.”¹¹ Any date for the end of excusable ignorance must be a crude approximation; it is not as if people everywhere should have become cognizant of the suspected effects of emitting greenhouse gases simultaneously. (I will use the term “ignorance-era emissions” to refer to emissions produced before people should have suspected their harmful effects, without settling on one particular date.) Whatever we think about issues of timing, the excusable ignorance objection is strong: lack of scientific knowledge of the effects of emissions should exonerate early emitters from direct moral responsibility for those effects.

Furthermore, another problem faced by the backward-looking approach is the problem of *disappearing emitters*¹²: many of the individuals who emitted heavily in the past no longer exist. While many *states* have persisted since the industrial revolution, citizens of a high-emitting country might ask why they should bear the burdens that were created by their forebears, burdens that they played no part in causing. One might think this is an objection limited to those who take an individualist approach to climate justice, but even those who demand that states are the fundamental unit of analysis must cope with the problem of disappearing emitters. Due to the changing political boundaries of the nineteenth and twentieth centuries, some early-emitting states themselves have also disappeared, and new states have come onto the scene.¹³ More fundamentally, it is controversial whether collectives should be directly responsible for the burdens created by historical iterations of the collective, especially when the previous governments of the collectives may have been undemocratic.¹⁴

We have now seen two objections to the backward-looking approach.

¹⁰Intergovernmental Panel on Climate Change and J.T. Houghton, *IPCC First Assessment Report, Overview Chapter* (World Meteorological Organization, 1990), p. 52.

¹¹Massachusetts Institute of Technology, *Inadvertent Climate Modification: Report of the Study of Man’s Impact on Climate* (Cambridge, Mass.: MIT Press, 1970), p. 1.

¹²This term is used by Edward Page, “Climatic Justice and the Fair Distribution of Atmospheric Burdens: A Conjunctive Account,” *The Monist* 94 (2011): 412-32.

¹³Caney, “Environmental Degradation, Reparations, and the Moral Significance of History.”

¹⁴*Ibid.*

They each apply to slightly different portions of past emissions, and thus different associated portions of the climate burden.¹⁵ For ease of expression, I will refer to the combination of these two portions of emissions (i.e., those from emitters who were excusably ignorant, or who are no longer existent, or both) as *temporally remote* emissions, in contrast to *recent emissions*.

2. Polluter Pays and Hybrid Theories

The polluter pays principle, which requires that past polluters should bear the burden of climate change in proportion to their contribution to the problem, is influential in climate ethics.¹⁶ Could we avoid the objections above by simply taking a polluter pays approach to recent emissions, asking high polluters to bear the whole of the climate burden in relation to their comparative contributions to the greenhouse gases produced since (say) 1990?¹⁷ The problem with this proposal is that this would require those living in more recently industrializing states to bear more of the problem than they have caused, a requirement that is inconsistent with the spirit of the polluter pays principle, which holds actors accountable for the set of results of their actions in particular. If we turn to a more moderate polluter pays approach that aims to distribute only the burden caused by more recent emissions, a different problem arises. The burden from temporally remote emissions must fall somewhere, and relying on a polluter pays principle with such a limited scope entails letting it fall on the victims of climate change who will mainly be the least

¹⁵While the actual emissions are not identical, their size is comparable. My own very rough calculations suggest around half of the total CO₂ emissions since 1750 have been released by people who are now dead. I used CO₂ data from R.A. Houghton, "Carbon Flux to the Atmosphere from Land-Use Changes: 1850-2005," in *Trends: A Compendium of Data on Global Change* (Oak Ridge: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, 2008), and Boden, Marland, and Andres, "Global, Regional, and National Fossil-Fuel CO₂ Emissions," world population data from United States Census Bureau, "International Database: World Population by Age and Sex," *United States Census Bureau Website*, <http://www.census.gov/population/international/data/idb/worldpop.php> (accessed 18 April 2012).

¹⁶The papers in climate ethics that refer to this principle are too numerous to mention. For its acceptance in policy circles, see: Commission on Global Governance, *Our Global Neighbourhood* (Oxford: Oxford University Press, 1995), p. 212; European Union, "Official Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage" (2004); OECD, *The Polluter Pays Principle: Definition, Analysis, Implementation* (Washington, D.C.: Organization for Economic Cooperation and Development, 1974), pp. 12-13, 18-19.

¹⁷Such as is suggested in Peter Singer, *One World: The Ethics of Globalization* (New Haven: Yale University Press, 2004), chap. 2.

deserving to bear such a burden: poor people in the tropics.¹⁸ If we think this is unacceptable, we cannot rely on only a restricted version of the polluter pays principle.

In rejecting the backward-looking approach, I am not advocating *disregarding* the temporally remote burden in the way I criticized just above. Nothing of what I say precludes distributing the substantial burden from recent emissions via a polluter pays principle that refers to just the recent past, but still distributes the temporally remote burden via a special principle. This is exactly what some “hybrid” or two-track theories of climate justice do.¹⁹ Some of these use a forward-looking principle that assesses parties’ ability to pay in order to distribute the temporally remote burden.²⁰ Of course, the use of the ability-to-pay principle in such hybrid theories must face objections, such as that it only appeals to those already convinced of cosmopolitanism,²¹ and while I believe such a principle can be successfully defended, I must leave that project for another time. However, our current question—whether the backward-looking approach is justified—is crucial for those supporting such hybrid theories in general. My arguments are intended to rule backward-looking approaches unfit to distribute the temporally remote part of the burden, even as part of a hybrid theory.

3. Strict Liability

Let us turn now to the first dedicated attempt to respond to the objections I have raised. Some justify a backward-looking approach by stating that

¹⁸Global Humanitarian Forum, *The Anatomy of a Silent Crisis*.

¹⁹See Caney, ‘Environmental Degradation, Reparations, and the Moral Significance of History,’ for a defense of this approach. Principles can interact in other ways in some hybrid theories, such as those proposed in Page, ‘Climatic Justice and the Fair Distribution of Atmospheric Burdens,’ and Dan Weijers, Ramon Das, and David Eng, ‘Sharing the Responsibility of Dealing with Climate Change: Interpreting the Principle of Common but Differentiated Responsibilities,’ in Jonathan Boston, Andrew Bradstock, and David Eng (eds.), *Public Policy: Why Ethics Matters*, <http://epress.anu.edu.au/apps/bookworm/view/Public+Policy%3A+Why+ethics+matters/5251/ch08.xhtml#toc-anchor> (2010). I support Caney’s clear separation of the climate burden into two, and the use of distinct principles for each. For more details, see Ewan Kingston, *The Just Allocation of Climate Burdens* (M.A. thesis, Victoria University of Wellington, 2012).

²⁰E.g., Baer et al., *The Greenhouse Development Rights Framework*, sec. 33; and Simon Caney, ‘Cosmopolitan Justice, Responsibility, and Global Climate Change,’ *Leiden Journal of International Law* 18 (2005): 747-75. The backward-looking approach now plays a significant part in Caney’s work, both to defeat objections to an ability-to-pay principle, and to overcome the objection from ignorance.

²¹Daniel Butt, ‘“The Polluter Pays’: Backward-Looking Principles of Intergenerational Justice and the Environment,’ in Jean-Christophe Merle (ed.), *Spheres of Global Justice* (Dordrecht: Springer, 2013), pp. 757-74.

conditions of strict liability apply in this case.²² Strict liability means actors can be held responsible for serious harm caused by their actions even if they were taking reasonable care not to cause harm. There is precedent for the use of strict liability in environmental law,²³ but it is unlikely to be successful in this case. First, strict liability attempts to answer only the excusable ignorance objection: it still faces the problem of disappearing emitters. Even if many early emitters were liable for the harm they caused, their disappearance means we cannot leave the temporally remote burden at their feet. But even applying strict liability to living people or persistent states raises a worry and an objection. The worry is that the legal concept of strict liability itself reflects only instrumental considerations about the difficulty of convicting certain malicious acts, not intrinsic considerations about the moral acceptability of the principle.²⁴ These instrumental considerations probably do not apply to the particular case of climate change. The objection is that emitting-under-ignorance does not fit the usual categories of activities that are governed by strict liability. As Derek Bell points out, the application of strict liability within environmental law is usually reserved for those committing dangerous or unusual activities.²⁵ For example, in United States environmental law, activities that are a matter of common usage are not subject to strict liability.²⁶ Burning coal and oil has long been a matter of common usage—the very reason why global warming is a problem now. Darrel Moellendorf notes that strict liability usually requires a condition that agents have been “put on notice beforehand that they will be held

²²E.g., Neumayer, “In Defence of Historical Accountability for Greenhouse Gas Emissions”; Henry Shue, “Global Environment and International Inequality,” *International Affairs* 75 (1999): 531-45; Stephen M. Gardiner, “Ethics and Global Climate Change,” *Ethics* 114 (2004): 555-600.

²³See Alan E. Boyle, “State Responsibility and International Liability for Injurious Consequences of Acts Not Prohibited by International Law: A Necessary Distinction?” *International and Comparative Law Quarterly* 39 (1990): 1-26, pp. 14-15; and Alexandra B. Klass, “From Reservoirs to Remediation: The Impact of CERCLA on Common Law Strict Liability Environmental Claims,” *Wake Forest Law Review* 39 (2004): 903-70.

²⁴Rudolf Schüssler points out that strict liability is a relatively recent principle, without a strong grounding in moral theory: see “Climate Justice: A Question of Historic Responsibility?” *Journal of Global Ethics* 7 (2011): 261-78. For an example of concerns about the justification for strict liability at the time of its widespread introduction, see H.L.A. Hart, “Prolegomenon to the Principles of Punishment,” in *Punishment and Responsibility: Essays in the Philosophy of Law* (Oxford University Press, 1968), chap. 1. Hart notes that strict liability has been “admitted as an exception to the general rule, with the sense that an important principle has been sacrificed to secure a higher measure of conformity and conviction of offenders” (p. 20).

²⁵See Derek Bell, “Does Anthropogenic Climate Change Violate Human Rights?” *Critical Review of International Social and Political Philosophy* 14 (2011): 99-124.

²⁶See Klass, “From Reservoirs to Remediation.”

responsible for the negative effects of their actions.”²⁷ In the case of ignorance-era emissions, no one put agents on notice beforehand about their responsibility for any resulting harm.²⁸ Overall, it seems that appeals to legal precedent are insufficient to ground the objection from strict liability. And no independent moral grounding for strict liability has been established.

Applying responsibility for ignorance-era emissions and emissions from the nonexistent to current parties directly seems fraught with difficulty. A provocative proposed solution is that greater historical contributions to the climate burden lead to greater relative responsibility, mediated by the *benefits* that current parties have gained from the practices that led to those emissions. Focusing on the benefits, rather than holding *actors* strictly liable, helps this “beneficiary pays” approach get around the problem of disappearing emitters. However, the beneficiary pays approach could admit of several different interpretations, and those interpretations need to be supported by arguments. The beneficiary pays approach is also vulnerable to the excusable ignorance objection. In the next three sections I examine plausible arguments for the beneficiary pays approach, and argue that none of them should lead us to allocate special responsibility to parties on the basis of their differences in temporally remote emissions.

4. Reparations for Harm?

Some suggest that the following principle might help us distribute the burden from ignorance-era emissions:

Reparations For Harm: Receiving benefits from *harmful* acts or practices confers special responsibility—to rectify the harm—on the receiver.²⁹

If this principle were true, it would be clearly applicable to those parties holding benefits from past practices that led to high emissions, for it is now obvious that those practices have caused (or will cause) significant harm. However, I will argue that this principle is implausible, because it is too demanding.³⁰ In the context of climate change, Reparations For

²⁷Darrel Moellendorf, “Climate Change and Global Justice,” *Wiley Interdisciplinary Reviews: Climate Change* 3 (2012): 131-43, p. 136.

²⁸See also Schüssler, “Climate Justice: A Question of Historic Responsibility?”

²⁹Note here the generality of the principle, which is triggered by any harmful act. It is quite plausible that a certain subset of harmful acts—unjust acts such as theft—do create such an obligation. I will discuss this more specific principle and how it relates to climate change in sections 5 and 6.

³⁰Philosophical attention is often given to whether this “beneficiary pays” idea can

Harm has two prominent defenses. First I will examine a thought experiment from Simon Caney, then a justification made by Edward Page.

Caney asks us to imagine an excusably ignorant individual who, by treading on a spot on the ground, causes harm to others on the other side of the globe. Caney proposes that if the person derived benefits from his treading, “the complaint that it is unfair to make them pay for effects they could not have anticipated loses its force here because, and to the extent that, they have also benefited from this harmful behaviour.”³¹ Caney’s thought experiment is both unusual and sparse on detail; I lack any firm intuition about the case. Even if we are sure that the treader needs to surrender her benefits to aid the harmed, this need not justify Reparations For Harm. Because the only information we know about the treader is that she has received some benefit, we might reasonably infer, *ceteris paribus*, that she is more advantaged *in general* than the victims of her treading. Thus although we might think the treader should pay the harmed, this could be because of forward-looking considerations; perhaps because we think that those with more advantages in general should aid those in trouble, not because they benefited from the harmful act. Indeed, if we modify the example so that the victims happen to have far more resources than the treader, I think we could quite reasonably maintain that the treader has gained no special responsibility along with her benefits. Caney’s example does not support Reparations For Harm.

Page’s defense of Reparations For Harm is that even though the benefits in question have largely been granted involuntarily, and the harmful practices were performed under ignorance, a principle of “fair reciprocity” requires the transferral of benefits from one’s forebears down to future generations.³² Bearing the climate burden would be transferring such

get around the nonidentity problem, which is that, supposedly, we cannot meaningfully say that a person can ever be harmed or benefited by events that happened before her conception; see, e.g., Alex Gosseries, “Historical Emissions and Free-Riding,” *Ethical Perspectives* 11 (2004): 36-60; Ramon Das, “Has Industrialization Benefited No One? Climate Change and the Non-Identity Problem,” *Ethical Theory and Moral Practice*, DOI 10.1007/s10677-013-9479-3 (2013). I think the beneficiary pays idea can rather easily escape the nonidentity problem. It need not rely on the controversial claim that *people* in developed countries have benefited from acts that occurred before they were born, only that the *goods* of industrialization, such as wealth and increased living standards, carry with them duties to pay for some of the climate harms that industrialization has caused. For a more detailed treatment, see Page, “Climatic Justice and the Fair Distribution of Atmospheric Burdens.”

³¹Caney, “Climate Change and the Duties of the Advantaged,” p. 210.

³²Edward Page, “Distributing the Burdens of Climate Change,” *Environmental Politics* 17 (2008): 556-75, p. 563. Indeed Page himself in a later article no longer focuses on benefiting from *harm*, but rather claims that developed countries unfairly overused an important resource, causing an *injustice*, which creates special responsibilities on those receiving associated benefits: see “Climatic Justice and the Fair Distribution of

benefits (because future generations would be benefited), and it would be paid for by the benefits that current parties have received (albeit involuntarily) from their forebears. However Page notes that such a defense is only “partial.”³³ He does not elaborate. Moreover, it is hard to see how a notion of fair reciprocity can even partially justify Reparations For Harm. The kinds of historical benefits that Page claims generate responsibility to reciprocate (via aiding future generations) are *indispensable* benefits that no one would willingly refuse, such as a safe atmosphere. But a relatively safe atmosphere is a benefit that we have received *despite* the practices that have created temporally remote emissions, rather than because of these practices. While Page has provided a good argument for why we should prevent further harmful changes to the climate, I cannot see how ideas of fair reciprocity can be invoked to establish special duties on those who have involuntarily gained benefits *specifically* from those activities that caused high emissions.

Despite the failure of the proponents of Reparations For Harm to justify this principle, one might be tempted to judge it intuitively obvious. But there seem to be relevant counterexamples. Consider a love triangle: Beth might happily marry Adam, benefiting greatly, but in the process breaking Henry’s heart, causing him suffering. It seems fair to say, contrary to Reparations For Harm, that Beth does not owe rectification to Henry for the suffering such an act causes. In another case, Ben goes into business in a market environment, and, through skill and good sense, out-competes Henriette, causing her suffering. Again, one party, Ben, benefits from entering this market, and an innocent individual suffers, but Ben does not thus owe reparations to her.³⁴

Perhaps we might be tempted to amend Reparations For Harm to get around these types of examples, judging that harmers can escape the demands of the principle if those harmed have voluntarily put themselves in a vulnerable situation. Since future people have not voluntarily entered into a situation in which they can be harmed by past emissions, such an amended version would still justify looking backwards. But the amendment faces counterexamples. It is not clear that the innocent harmers in cases of business or romantic competition would have significant responsibility to rectify the harms of their actions, even if it turned out that the “victims” in those cases were (say) naïve teenagers without the experience to have tacitly consented to the risks they faced. This seems especially apt if the harmers were ignorant, as past emitters were, of the espe-

Atmospheric Burdens.”

³³Page, “Distributing the Burdens of Climate Change,” p. 563.

³⁴Examples are from David Miller, “Distributing Responsibilities,” *Journal of Political Philosophy* 9 (2001): 453-71.

cially vulnerable nature of those who will be harmed. The amendment based on nonconsensual harming will not save Reparations For Harm.

Perhaps we might be tempted to pose the benefiting-from-harm principle a different way, and claim that benefiting from harm generates responsibility when the harm is *net* harm. This seems to me to be an implausible principle. It seems strange to say that people acting in competitive environments must go *beyond* taking reasonable care to avoid making the overall situation worse to avoid any responsibilities to those they unintentionally harm. Responsibility, we might well think, should not be so dependent on overall outcomes, which are so contingent on many factors outside the agent's control. But even if a net-harm version of Reparations For Harm is plausible, it does not clearly apply to the case of historical emissions. Did the industrial development of the last two centuries make the world an overall worse place? The answer is far from obvious.

I have argued against the idea that benefiting from harm creates special obligations toward the harmed. Should we really leave naïve and unfortunate victims to suffer while we retain goods born from the very act that has caused their suffering? This is an interesting question, but it frames the problem deceptively. Beneficiaries can claim, after all, that their benefiting from innocently caused harm does not justify a backward-looking approach. This is not because serious harm is a light matter that we can ignore even if we hold associated benefits, but because the duty to remedy that part of the harm that was innocently caused can be allocated entirely on a forward-looking basis. Disaster relief can come from national funds, not from the pockets of those few who might have benefited from the disaster;³⁵ care of the broken-hearted can come from family and friends who are most able to provide support, not from those who have benefited from the affair. In some cases it might be noble for those who have reaped extra benefits from a calamity to aid those in strife, but we need not deem it required by justice. A forward-looking approach can allow victims of severe misfortune to have their needs seen to without relying on the rather accidental connection between the innocent beneficiary and the victim. Overall, the idea of making reparations for harm does not seem likely to justify a backward-looking approach to remote historical emissions.

³⁵This point is also made by Schüssler, who uses the example of an earthquake that reveals a gold vein on certain people's property. Schüssler, "Climate Justice: A Question of Historic Responsibility?"

5. Reparations for Injustice?

There is another promising way to link the benefits of temporally remote emissions to current responsibility for the associated burden. It is often said that recipients of the benefits from temporally remote emissions have a special responsibility to deal with climate change because they have benefited from *injustice*. Indeed, benefits that were born from an injustice may well carry with them responsibility to remedy that injustice, as is often discussed in application to affirmative action and reparations for slavery.³⁶ Many believe this idea can be applied to climate change: beneficiaries of activities that caused ignorance-era emissions should make reparations to help mitigate the injustice of such emissions.³⁷

The general idea—that we should be willing to relinquish the benefits from unjust activities—is defensible. Perhaps, to fulfill the role of genuine moral agents, it is not enough that we are unwilling to commit acts of injustice, but we also must “hold a genuine aversion to injustice and its lasting effects.”³⁸ Perhaps to recognize an act as unjust but refuse to relinquish goods caused by that injustice when one could use the goods to put the situation right is to commit a “conceptual error”; it is to misunderstand the nature of moral condemnation.³⁹ But is this general idea applicable to the ignorance-era portion, in particular, of the climate burden? If the practices that caused high levels of ignorance-era emissions were unjust because of the emissions they produced, we should be able to articulate this injustice in more detail. Certainly, we can deeply regret that people emitted so much in the past. But historical acts causing high emissions are not clearly unjust merely because they are deeply regrettable. I suggest there is enough doubt about whether ignorance-era emissions were unjust that the benefits associated with them are not tainted in

³⁶E.g., Robert K. Fullinwider, “Preferential Hiring and Compensation,” *Social Theory and Practice* 3 (1975): 307-20; Judith Jarvis Thomson, “Preferential Hiring,” *Philosophy & Public Affairs* 2 (1973): 364-84.

³⁷This principle, in one form or another, features in several articles on climate change, including: Jonathan Pickering and Christian Barry, “On the Concept of Climate Debt: Its Moral and Political Value,” *Critical Review of International Social and Political Philosophy* 15 (2012): 667-85; Page, “Climatic Justice and the Fair Distribution of Atmospheric Burdens”; Caney, “Climate Change and the Duties of the Advantaged”; and Neumayer, “In Defence of Historical Accountability for Greenhouse Gas Emissions.” Although Caney does advocate an ability-to-pay approach to allocating just the burden from the disappearing emitters, he advocates a principle like Repaying Injustice to defeat an objection to the ability-to-pay approach.

³⁸Daniel Butt, “On Benefiting from Injustice,” *Canadian Journal of Philosophy* 37 (2007): 129-52, p. 143.

³⁹*Ibid.*

the same way that benefits from, for example, slavery might be.

Consider the claim that the emitting practices were unjust because of their effects on future people. This approach needs to point to more than the mere harm to future people, or it will simply be a version of the harm-based argument we rejected earlier. Several attempts have been made to show that climate change is an injustice in that it involves violation of human rights.⁴⁰ It is plausible that most *current* emissions, made at a time of awareness of their effects on future people, are unjust because they are a knowing contribution to a future in which rights will be violated. However, ignorance-era emissions are crucially different, for the now-familiar reason that the parties who produced them could not have known that they would be likely to contribute to the terrible effects on future people. Imagine a foreman who decides to send a team of grape pickers to a patch miles away from the patch they originally were planning to work on. Soon after, an unpredictable small meteorite hits the new patch, killing the grape-pickers. We do not want to judge the foreman's move unjust, even though it deprived the grape-pickers of something they had a right to: their life. The most obvious way to explain why is to say that the foreman was ignorant of the future effects of his actions. This kind of ignorance about future terrible events is sufficient to excuse the foreman from moral responsibility for his actions.⁴¹ Similarly, historical high emitters who were ignorant of the future terrible effects of their actions, including the threats to people's rights to life and health, can be excused from moral responsibility for these effects. Emphasizing the severity of the effects of climate change does not give us a reason why the need to make reparations for injustice is relevant here.

⁴⁰Simon Caney, "Climate Change, Human Rights, and Moral Thresholds," in Stephen M. Gardiner, Simon Caney, Dale Jamieson, and Henry Shue (eds.), *Climate Ethics: Essential Readings* (Oxford: Oxford University Press, 2010), chap. 9; Steve Vanderheiden, *Atmospheric Justice: A Political Theory of Climate Change: A Political Theory of Climate Change* (New York: Oxford University Press, 2008).

⁴¹This example is adapted from one in Derek Bell, "Global Climate Justice, Historic Emissions, and Excusable Ignorance," *The Monist*, 94 (2011): 391-411. Perhaps one might try to suggest that the relevant difference between the case of the landlord and the case of ignorance-era emitters is that we excuse the foreman because he might have been (or in Bell's original example, *is*) trying to help the workers, whereas ignorance-era emitters were only trying to help themselves. I don't believe the motives of the foreman or the emitters is of moral relevance here. But even if it were, to paint ignorance-era emitters as being purely selfish in their actions is to take an anachronistic view. Prevalent beliefs of the time, such as the virtue of progress and humankind's supposed duty to dominate nature, make it plausible that many ignorance-era emitters sincerely believed they were benefiting humanity by fostering fossil-fuel consumption on a massive scale.

6. Restitution-Based Arguments

An initially appealing version of the benefiting from injustice approach has at its heart the concept of restitution. According to this version, parties in the past have taken much more of the atmosphere's ability to safely absorb greenhouse gases (the "atmospheric sink") than they were entitled to. This injustice persists because parties, or their beneficiaries, continue to hold the quantum of value that the sink has been transferred into. Thus, those that have benefited from the unjust appropriation of the atmospheric sink should relinquish those benefits to remedy climate change. In this vein, Edward Page compares benefits from past heavy emissions to interest gained on stolen property.⁴² Others state that developed countries, through their overuse of the atmosphere's ability to absorb greenhouse gases, have incurred a "climate debt" toward developing countries, which now should be repaid.⁴³ Arguments from restitution, unlike arguments from mere harm, seem to have a better chance of coping with the excusable ignorance objection. Excusable ignorance of the illegitimate origin of goods in everyday life does not usually entitle us to keep them. But the arguments for restitution of this atmospheric sink demand deeper scrutiny. To begin with, there are two important differences between the case of parties' overuse of the atmospheric sink during the ignorance era and the more everyday cases in which we demand restitution, such as with individual cases of theft or unjust enrichment. These differences weaken, or even break the analogy.

The first difference concerns time: much of the original appropriation occurred decades before the end of the ignorance era. While the passage of time itself need not make any difference to the duty to relinquish the benefits from ignorance, it does complicate the claim that retaining the benefits can still be considered perpetuating an injustice. Possession of the benefits from ignorance-era emissions may have been "prescriptable": the use that emitters and their descendants have made of the benefits have given them a holding similar to that of adverse possession or prescription in law.⁴⁴

⁴²Page, "Climatic Justice and the Fair Distribution of Atmospheric Burdens," p. 422.

⁴³For example: Climate Justice Now, "Climate Debt Owed to Africa. What to Demand and How to Collect," <http://www.climate-justice-now.org/climate-debt-owed-to-africa-what-to-demand-and-how-to-collect/> (2010) (accessed 16 August 2013); Philippine Movement for Climate Justice, "Statement of the Philippine Movement for Climate Justice on the Occasion of the 1st Experts Meeting on Long Term Finance under the United Nations Framework Convention on Climate Change," *Focus on the Global South*, <http://focusweb.org/content/enough-deceptions-pay-your-climate-debts-rich-countries-told> (n.d.) (accessed 18 October 2013). For a nuanced view of the climate debt concept, see Pickering and Barry, "On the Concept of Climate Debt."

⁴⁴For a partial defense of the idea of property rights being prescriptable, see Jeremy

The second difference is epistemological. Let me draw a distinction. Actors who acquire a good that is generally considered to be valuable, although they are unaware it has a rightful owner, suffer what I will call *local* ignorance. Actors who are unaware that the good they are using is even a resource at all are in a condition of *systemic* ignorance about the good. Actors who misappropriate under local ignorance very likely hold duties of restitution. We might justify this in a number of ways, but for now, I just point to the common example that those who receive stolen goods even in good faith are liable to return them.⁴⁵ Even actors who acquire a widely valued good that belongs to a person who is unaware they possessed it may be required to make restitution. For example, think of Aphra taking possession of an apparently abandoned building that was willed to Boris, without Boris's knowledge of the will. But the ignorance of early emitters was systemic ignorance. Ignorance-era emitters did not think they were appropriating a resource at all.

While it is true that early emitters may have had a concept of the *local* atmosphere's ability to absorb a quantum of pollution without harmful effects, the idea that there was a fixed *global* capacity for the safe release of greenhouse gases would have made little sense during the ignorance era. The main environmental harms of industrial activity that were evident well into the twentieth century were typically area-limited effects such as habitat destruction and local air pollution.⁴⁶ The publication of Rachel Carson's *Silent Spring*⁴⁷ in 1962 is typically regarded as the first recognition of *global* effects of pollutants emitted locally. We should also remember the features of CO₂ emissions⁴⁸ that would have ameliorated any potential concerns about the atmosphere having a limited ability to absorb it. As scientists at the time knew, large amounts of CO₂ are emitted as part of the natural cycle of respiration and absorbed in photosynthesis. Even by 1950, anthropogenic carbon emissions from fossil fuel use made up less than 1% of the total emissions of carbon from all sources.⁴⁹ Without the benefit of hindsight, it is remarkable that this par-

Waldron, "Superseding Historic Injustice," *Ethics* 103 (1992): 4-28.

⁴⁵But see Saul Levmore, "Variety and Uniformity in the Treatment of the Good-Faith Purchaser," *The Journal of Legal Studies* 16 (1987): 43-65, for examples of jurisdictions that do not legally require restitution. If I am wrong, and good-faith receivers of stolen goods should be allowed to retain their goods, this would suggest that retaining benefits from early appropriations of the atmospheric sink would be justified even if it were merely local ignorance.

⁴⁶Bill McKibben, *The End of Nature* (New York: Random House, 1989).

⁴⁷Rachel Carson, *Silent Spring* (Greenwich: Fawcett Publications, 1962).

⁴⁸I focus on CO₂ here for reasons that are partly illustrative and partly due to the long decay time of CO₂. See also n. 3.

⁴⁹Annual emissions of carbon in 1950 was 1630 million metric tonnes (Boden, Marland, and Andres, "Global, Regional, and National Fossil-Fuel CO₂ Emissions"). The

ticular natural cycle would be so sensitive to the perturbation provided by the minor addition to the total made by humans.⁵⁰ It is little wonder that, for early climatologists as well as laypeople, “on any time scale less than millions of years the atmosphere seemed to be unchanging and unchangeable.”⁵¹ The ignorance of early emitters concerning the atmospheric sink is more than just excusable ignorance. It is not that they knew they were using something but were mistaken about who had rights over it; they had no idea that the part of the world they were affecting was a scarce resource at all.

Our intuitions about the restitution of goods appropriated under conditions of systemic ignorance are hard to latch on to—cases of appropriation under such conditions seem to be very rare: we have little reason to take that which is not considered by anyone to be valuable. We do not have strong paradigm cases to guide us in this unusual territory, and we should beware of simply importing our intuitions about misappropriation under local ignorance to the case of use of the atmospheric sink, which is an instance of use under systemic ignorance.

Suppose we overlook the above objections. There is a further hurdle for arguments from restitution to clear. Specifically, if the claim of restitution for *misappropriated* goods is to be helpful, it must include the premise that the goods had a rightful owner or owners, to be taken from, or if the goods were unowned, some feature of the appropriation makes it unjust. In this way, the argument from restitution is parasitic on another account of just appropriation of the atmospheric sink. In what follows I suggest that the theories of correct appropriation of the atmospheric sink that are stringent enough to render the bulk of ignorance-era emissions unjust do not support an approach that looks backward to those emissions to distribute the associated burden.

Take, for instance, the claim that all parties throughout space and time have equal rights to part of the atmospheric sink, because all parties have an essentially equal stake in natural resources⁵² (I discuss an equal rights

global carbon cycle involves 190,000 million metric tonnes (Solomon et al. eds.), *Climate Change 2007* (Fig. 7.3)).

⁵⁰See Spencer R. Weart, “Simple Models of Climate Change,” in *The Discovery of Global Warming* [online edition], <http://www.aip.org/history/climate/simple.htm> (2011) (accessed 14 October 2013). Granted, Svante Arrhenius suggested in 1896 that fluctuations in CO₂ might affect the climate, and even that anthropogenic emissions could augment that effect (albeit, he thought on a scale of thousands of years). “But within a few years scientists dismissed [Arrhenius’] theory for what seemed insuperable problems” (Weart, “Simple Models of Climate Change,” paragraph 36). See also F.B. Mudge, “The Development of the ‘Greenhouse’ Theory of Global Climate Change from Victorian Times,” *Weather* 52 (1997): 13-17.

⁵¹Weart, “Simple Models of Climate Change,” paragraph 36.

⁵²Such as is suggested in Charles R. Beitz, “Justice and International Relations,”

view based on general norms of distribution of *all* goods in section 7). In combination with the requirement (necessary for the argument from restitution) that beneficiaries of historical misappropriation should relinquish their benefits, a principle of equal ownership of *all* natural resources would rule illegitimate much of the wealth that exists today: the vast wealth gained from the private exploitation of land, timber, minerals, and so on that have been used in the past.⁵³ Just as in the case of the atmospheric sink, much of the benefits from such unequal historical use have been transferred to parties now; thus the view of equal rights for natural resources seems to demand a large-scale redistribution of those benefits. To narrow in on the atmospheric sink as a special case that demands application of these principles while leaving the background injustice unaddressed is overly arbitrary. If we want to honor the equal rights in all natural resources in our response to climate change, why not allocate responsibility in proportion to parties' current complete holdings (since so little wealth would be justified)? At most, if we do look backward in our climate policy, we should look backward to all violations of the equal natural right to resources, not merely violations of the right to the atmospheric sink.⁵⁴

Other variants of theories that rule past appropriation of the atmospheric sink as a natural resource unjust are also subject to this critique. If it is claimed, for example, that the heavy use of the atmospheric sink violated the *common* ownership of it as a natural resource, the underlying principle calls into question the legitimacy of all benefits gained from all historical natural resource use, not just the atmospheric sink. Perhaps it might be argued that the atmospheric sink is such an important resource that we should distribute equal shares in this resource (but not other resources). This is a plausible enough view, but in judging the atmospheric sink to be a vital resource, it aims to pattern resources according to some

Philosophy & Public Affairs 4 (1975): 360-89.

⁵³This point is made, in the context of discussing the distribution of contemporary emissions, in Simon Caney, "Just Emissions, *Philosophy & Public Affairs* 40 (2012): 255-300.

⁵⁴Perhaps one might want to argue instead from the premise that every person holds an equal right to unclaimed *common pool resources*, which are marked by rivalry and nonexcludability, and that past violations of these resources in particular (but not all natural goods) demand restitution. Such an approach would need a good argument why the nonexcludability of common pool resources makes them so different from other natural resources. We should also note that such an idea remains controversial. It would imply not only that heavy users of common pool resources such as fish stocks on the high seas should pay compensation to those not using the resource, but that this should be retroactively applied. If this seems overly strict in the case of fish stocks, the supporter of the argument from restitution based on equal natural rights needs to explain why the two are clearly different in a morally relevant way.

other metric of value, rather than simply requiring equal shares in natural resources. I deal with such theories in section 7.

However, theories of appropriation that rely on the Lockean proviso (the principle that appropriation of unowned natural resources is justified when parties leave “enough and as good” for others to use) deserve special mention. Lockean theories might be important here because they could potentially avoid the objection from arbitrariness in focus that I raised above. Perhaps a Lockean approach would be fine-grained enough to rule the appropriation of the atmospheric sink, but few other natural resources, unjust. Furthermore, contractarian approaches involving the Lockean proviso might be able to avoid the problem of systemic ignorance that I raised earlier.⁵⁵

A Lockean approach also faces a specific difficulty, however. First, many Lockean accounts require the intentional mixing of one’s labor with a resource to gain ownership over it. Arguably, parties in the era of systemic ignorance did not deliberately work the atmospheric sink, and so could be said not to have (mis)appropriated it at all, just as it would be wrong to say I have appropriated or misappropriated some part of the electromagnetic spectrum because a piece of machinery I was running happened, unbeknownst to me, to emit a strong signal on that frequency.

Lockean views also fall foul of the general complaint we saw against other theories of just appropriation of the atmospheric sink: interpretations of the proviso that are stringent enough to rule historical emissions unjust will call for extensive redistributions on a much wider scale than just allocations of the ignorance-era climate burden. Exactly when appropriations of the atmospheric sink fail to leave “enough and as good” is a complicated question and depends on many factors. Some are empirical factors such as the effect of a marginal increase in CO₂ emissions at different times, but more important, perhaps, is how the proviso itself is interpreted: what kind of compensation, if any, is enough to prevent would-be proviso violations, and whether the proviso counts future people as among the others “yet unprovided”⁵⁶ whom we need to leave

⁵⁵For example, Schüssler, “Climate Justice: A Question of Historic Responsibility?” suggests that ignorance may not be a defense for past appropriation under a Lockean framework because “agents in a state of nature” might “agree on strict liability for acts of initial appropriation” because strict liability would work toward ensuring that “the community would be indemnified against the risks of erroneous appropriation” (p. 275). While it is strange to think of Locke as fundamentally a contractarian in his discussions of property, the proviso Schüssler refers to is certainly inspired by Locke, and the possibility of a Lockean proviso on acquisition being accepted in a hypothetical contract situation is worth considering.

⁵⁶John Locke, *The Second Treatise of Government* (Oxford: Blackwell, 1956 [1689]), section 33.

enough and as good for. In order to rule ignorance-era large appropriations of the atmospheric sink unjust, the proviso needs to be a strict one, not just discounting the ignorance of emitters, but taking into account the projected needs of people far in the future, and not allowing the added value to the world economy that was created by the use of fossil fuels to compensate for the depletion of the common resource. But these strict interpretations of the Lockean proviso will justify very little historic appropriation of natural resources at all: almost all historical appropriations of land will have violated such a proviso by not leaving an equal amount for future people to use, if the value created by such appropriation cannot excuse it.⁵⁷ Whether such a version of the proviso, in combination with the requirement to make restitution for historic misappropriations, seems attractive or not, the ramifications of the combination are considerable. As with the equal-shares-of-natural-resources version, it would require not just the benefits gained from historic emitting to be potentially relinquished, but all wealth gained from the use of land, timber, minerals, and water in the past that has meant some future person will be worse off than if the goods were left in common. In that case, requiring a backward-looking approach for historical emissions in particular while parties retain the benefits from pervasive misappropriation of most natural goods would be the same kind of unnecessarily narrow approach discussed earlier.

7. Arguments from Distributive Justice

We have focused on the arguments from restitution, which depended on theories of entitlement over natural resources. A somewhat different approach is to argue that we should look backward to past emitting to ensure a just pattern of goods, generally considered, among parties. Here we come across the approaches of sufficientarianism, under which everyone should have enough goods, prioritarianism, under which the worst off should receive extra goods, and egalitarianism, under which the goods people enjoy should be equalized.

How would such theories recommend we share the burden from ignorance-era emissions? To begin with, we must identify which types of theory are likely to support a backward-looking approach. *Synchronic* theories, under which justice in distribution simply consists of a certain

⁵⁷See Geoffrey P. Miller, "Economic Efficiency and the Lockean Proviso," *Harvard Journal of Law & Public Policy* 10 (1987): 401-10; John T. Sanders, "Justice and the Initial Acquisition of Property," *Harvard Journal of Law & Public Policy* 10 (1987): 367-99; Clark Wolf, "Contemporary Property Rights, Lockean Provisos, and the Interests of Future Generations," *Ethics* 105 (1995): 791-818.

fair pattern of holdings at a particular point in time, should, in the absence of other moral considerations, recommend allocating the ignorance-era burden in a way that is sensitive to different parties' *current* positions—how well placed they are to meet such a burden, in terms of their holdings. This, however, is not a backward-looking approach, for it looks, by definition, at present holdings. The only kind of synchronic theory that could justify a backward-looking approach is one that judges patterns that did exist at some particular point in time, but is unconcerned with the same kinds of patterns now. But there seems to be no good reason to take such a strangely restricted theory of distributive justice.

So we must restrict our pool of potential theories if we are to find support for a backward-looking approach. They must be diachronic—concerning distributions of goods spread over parties and over *time* (i.e., a party's wealth at one time could be fair if it was balanced by a drought at another point in time). Such theories leave the realm of claiming that the benefits from a *past* injustice should be disgorged to remedy the injustice. Instead, they suggest that a certain distribution spread over time and space *is* unjust, and recommends remedying it. Yet not even all diachronic theories could be applied to the issue of historical emissions in this way. Relevant theories must also be *retrospective*. Some diachronic theories could require a just pattern spread over time *from now on*, but pay no attention to the pattern that existed before now. These theories will not recommend correcting past imbalances in the pattern.

The arguments from retrospective diachronic distributive justice differ also in terms of their “currency” of justice: what the relevant good is that is meant to be patterned. The currency will either be narrow—portions of the atmospheric sink—or broader—access to energy, or a bundle of resources—or broader still—capabilities or welfare. I will argue that a backward-looking approach that focuses the narrowest good should not penalize temporally remote emissions, due to early emitters' systemic ignorance about those goods and a version of the disappearing emitters problem. A focus on the imbalance in broader goods faces what I call the *disconnection objection*. I will explain the problem with a focus on broader goods first.

The disconnection objection is that, if we try to justify a backward-looking approach by referring to a distribution of these broader goods, our focus is drawn to rectifying a broader inequality. For example, global inequality in energy access has existed throughout the period we are considering, but this is not the injustice that caused *climate change*, which is the source of the burden we are trying to distribute. Consider a country that began developing hydroelectric power early in the twentieth century. It will have enjoyed a higher level of access to energy than other coun-

tries, but even if this inequality was unjust, correcting it does not entail dealing with the climate burden in relation to historic emitting, but rather creates a responsibility on the beneficiaries of that injustice to improve access to energy for those with less of it. (This may well coincide with some ways of bearing the climate burden, such as developing cost-effective green energy, but it is not directly a responsibility to bear the climate burden itself.⁵⁸) This same argument can be applied to any of the broader currencies of justice—remedying the inequalities in welfare in the past does not translate to bearing the burden of climate change in direct relation to these past inequalities. Approaches that look to violations of diachronic patterns in all but the narrowest category of goods may indirectly lead to a greater mitigation effort, or support transfers to the global poor, but they do not justify allocating the climate burden in proportion to past emitting. Rather, they will be concerned with the patterns of holdings in the broader goods that parties enjoy through time.

What if, however, the currency of justice we wish to arrange is the atmospheric sink? Let us put aside arguments that this narrowest kind of patterned distribution is undesirable because it places undue attention on the *means* people use to achieve the lives they seek, rather than the range of options that they might be able to achieve with those means.⁵⁹ Many, after all, support the narrow currency of justice in at least the sub-question of how much of the atmospheric sink different parties should be allocated now,⁶⁰ and some could take the diachronic, retrospective version of this view,⁶¹ which will lead to a backward-looking approach for

⁵⁸I am not suggesting that energy use is the only source of greenhouse gas emissions, although it has been the main one. See n. 3.

⁵⁹Amartya Sen, “Well-Being, Agency, and Freedom: The Dewey Lectures 1984,” *The Journal of Philosophy* 82 (1985): 169-221, and *The Idea of Justice* (Cambridge, Mass.: Harvard University Press, 2009), chap. 12. In the climate change context, see Caney, “Just Emissions.”

⁶⁰See Darrel Moellendorf, “Treaty Norms and Climate Change Mitigation,” *Ethics & International Affairs* 23 (2009): 247-65; and Singer, *One World: The Ethics of Globalization*. For a critique of this approach in its forward-looking conception, see Simon Caney, “Justice and the Distribution of Greenhouse Gas Emissions,” *Journal of Global Ethics* 5 (2009): 125-46, and “Just Emissions.”

⁶¹Notable examples seem to be Neumayer, “In Defence of Historical Accountability for Greenhouse Gas Emissions,” and Broome, *Climate Matters*, chap. 4, although neither is very explicit about the basis behind his egalitarianism in this domain. We should also note that diachronic, retrospective, resource-based distributive approaches also find scant grounding in philosophical theories. Paradigm examples of theories of resource-focused distributive theories are not diachronic and retrospective. Rawls, for example, demands a much less restrictive kind of patterning between generations than between contemporaries (John Rawls, *A Theory of Justice* (Cambridge, Mass.: Harvard University Press, 1971), sections 44-45). It is hard to see how Ronald Dworkin’s theory of resource egalitarianism could be applied retrospectively: the envy test and the use of markets in particular seem

greenhouse gas entitlements in particular. However, this kind of distributive argument faces two objections.

The first is that unlike most beneficiary pays approaches, the narrowly focused view must deal with the disappearing emitters problem. The atmospheric sink, in contrast to the broader kinds of goods, is not a good that has been passed on, because it is used up immediately when greenhouse gases are released. A theory that aims for a diachronic retrospective pattern in the distribution of the atmospheric sink *in particular* will not be able to counterbalance some emitters' heavy use of the sink by allowing them less for the future; those who have now disappeared are beyond the scope of such a redistribution. Of course, one could argue that in many cases, the atmospheric sink may have been converted into other goods (infrastructure and wealth) that have been passed on. But once again, we now leave the realm of discussing past emissions, and are discussing the holdings of other goods, which may or may not be subject to redistribution. If they are to be redistributed, we find ourselves in the same position as when we considered theories of entitlement to natural resources: it leads us to look at broader patterns of distribution over time, not the imbalance in temporally remote emissions.

Second, theories of distributive arrangements are meant to respond to parties in a fair and impartial manner. But remember, from the previous section, that early emitters were in a state of systemic ignorance. Had they known they were using up part of their share of the atmospheric sink, and that their descendants (or, a fortiori, they themselves) would receive less because of it, they could have been more judicious in their choices and emitted less. As it happens, they could not have made this choice, whereas those who, under the distribution we are considering, would enjoy more of a fossil fuel allowance now are in a position to use it more judiciously. Treating the atmospheric sink as the same kind of good when it is consumed under conditions of systemic ignorance as when it is consumed under full cognizance of its scarcity seems to violate the basic principle of impartiality that drives the theory of an ideal pattern to begin with.

8. Conclusion

In this paper I have argued that we should not measure temporally remote emissions to arrive at fair climate burden-sharing now. This does not

hard to speculate about in an intergenerational context (Ronald M. Dworkin, *Sovereign Virtue: The Theory and Practice of Equality* (Cambridge, Mass.: Harvard University Press, 2002), esp. chap. 2).

mean forgetting the cause of the historical climate change burden, but means recognizing that it has been created under conditions of systemic ignorance, by no living person. Arguments from strict liability, reparations from harm, restitution, or distributive justice all fail to justify determining moral responsibility for the temporally remote burden in proportion to parties' contributions to it. Perhaps some new argument could be developed that shows why the backward-looking approach succeeds, but I have not seen one.⁶² Abandoning a backward-looking approach for temporally remote emissions certainly does not mean ignoring the associated burden. We have seen that some arguments based on diachronic distributive principles or theories of acquisition of natural resources might justify looking backward to broader patterns of historical wealth or acquisition to determine current responsibilities for it. Or perhaps it would be more apt to look forward and assess the *ability* of different parties to take up the temporally remote portion of the burden of climate change. What we should *not* do is demand that costs of climate change be borne in proportion to temporally remote contributions, or even the benefits gained from them.⁶³

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⁶²Even if, as I have been arguing, the theoretical reasons for a backward-looking approach fail, some might want to make a strategic case for *using* such arguments in the debate around climate change, for large per-capita emitters are trying to avoid even the philosophically unproblematic obligation caused by their current and recent emissions. Perhaps, this argument goes, stressing the historical causal responsibility of such parties might pressure them into doing the right thing for the wrong reasons. I have restricted myself here to arguments about the moral responsibility created by historical causal responsibility, rather than political strategies for achieving climate justice. I only want to note that there are several reasons we might want to avoid this kind of strategy, not just because of its dishonesty. For instance, despite arguing that the concept of climate debt is theoretically justified, Pickering and Barry ("On the Concept of Climate Debt") see its application in the debate as a barrier to the formation of effective global climate change policy, because of its polarizing, rather than solidarity-enabling, effect.

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