

2012

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Lesley M. Head

University of Wollongong, lhead@uow.edu.au

Christopher R. Gibson

University of Wollongong, cgibson@uow.edu.au

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Recommended Citation

Head, Lesley M. and Gibson, Christopher R.: Becoming differently modern: Geographic contributions to a generative climate politics 2012, 699-714.
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Keywords

differently, becoming, politics, generative, climate, contributions, geographic, modern, ERA2015

Disciplines

Life Sciences | Physical Sciences and Mathematics | Social and Behavioral Sciences

Publication Details

Head, L. M. & Gibson, C. R. (2012). Becoming differently modern: Geographic contributions to a generative climate politics. *Progress in Human Geography: an international review of geographical work in the social sciences and humanities*, 36 (6), 699-714.

Becoming differently modern: geographic contributions to a generative climate politics

Lesley Head and Chris Gibson

Australian Centre for Cultural Environmental Research (AUSCCER)

University of Wollongong, Wollongong 2522 Australia

Published 2012 in *Progress in Human Geography* 36: 699-714.

Abstract

Anthropogenic climate change is a quintessentially modern problem in its historical origins and discursive framing, but how well does modernist thinking provide us with the tools to solve the problems it created? On one hand even though anthropogenic climate change is argued to be a problem of human origins, solutions to which will require human actions and engagements, modernity separates people from climate change in a number of ways. On the other, while a modern or more-than-human concepts of multiple and relational agency are more consistent with the empirical evidence of humans being deeply embedded in earth surface processes, these approaches have not sufficiently accounted for human power in climate change, nor articulated generative pathways forward. We argue that recent research in human geography has much to offer because it routinely combines both deconstructive impulses and empirical compulsions (ethnographic, material, embodied, practice-based). It has a rather unique possibility to be both deconstructive and generative/creative. We bring together more-than-human geographies and cross-scalar work on agency and governance to suggest how to reframe climate change and climate change response in two main ways: elaborating human and non-human continuities and differences, and identifying and harnessing vernacular capacities.

Keywords: Climate change, modernism, nature, more-than-human, capitalism, scale

I Modernity and climate change

Anthropogenic climate change is a quintessentially 'modern' problem. The fossil fuel-based economies of industrial capitalism, the key economic feature of modernity, are the root cause of enhanced greenhouse gas emissions destabilising global climate. The central intellectual feature of modernity, the Western scientific method, provides the means by which we know that climate change is happening and can predict future changes. Climate change research is one of Enlightenment science's most important contributions of the last half century. It can be read as a triumphant moment for the 'high-modernist optic' (Scott 1998: 347), requiring perspectives both backwards and forwards in time, using evidence from microscopic to global scales. To the extent that humanity is responding, it is by and large doing so within the terms of the modernist project. Many of us have an urge to 'fix', 'manage' or 'reverse' dangerous climate change. Meanwhile, the management of 'global' environmental problems is increasingly undertaken by international governance mechanisms that build on the sovereignty of the nation-state – a classic political expression of modernity.

In the long post-Copenhagen moment, when an international grouping of nation-states failed to deliver the climate change action that was widely hoped for, and the issue has slipped into the 'too hard' basket for the time being, it is pertinent to ask, how much does modernist thinking provide us with the tools to solve the problems it created? This paper sprang from a dual tension we encountered whenever we sought to answer this question. First, that even though anthropogenic climate change is argued to be a problem of human origins, solutions to which will require human actions and engagements, modernity separates people from climate change in both the articulation of the problem and its proposed solutions. The universalising tendencies of science abstract it from the vagaries of individual human experience; as Jasanoff (2010) argues, that is the whole point of robust science. Global climate is by definition constructed from long term averaged statistics, and quite distinct from short term local weather; it had to be brought into being to be rendered governable (Oels 2005). As Hulme (2010b: 560) put it, 'no-one experiences or witnesses global-mean temperature and it requires extraordinary efforts of the imagination for it to acquire purchase in the practices of everyday living.' Global political responses in the modernist tradition of internationalism are in the process of not only reifying a narrowly defined set of solutions, but also promulgating widespread feelings of disempowerment as top-down mechanisms stall.

Second, we have ourselves argued that concepts of multiple and relational agency are much more consistent with the empirical evidence on climate change from both natural and social sciences than are binary frameworks (Head 2008). Yet we were not convinced that 'amodern' approaches had

sufficiently taken account of evident human power over earth surface processes, nor that they have yet articulated sufficiently 'constructive' or 'generative' pathways ahead. The latter reticence stems partly from a reluctance to embrace narrowly normative solutions, reluctance that our own research is entirely in sympathy with (Gibson et al. 2011a). Yet, how are we to live in the world? Despite the difficulties, it is hard to imagine how anything other than a global consciousness and practice can meet the challenges of climate change. Clearly, much work needs to be done on what forms this might take. As Beck (2010: 261) argues, 'If IPCC predictions and those of more recent scientific modelling come to pass over the next couple of decades, then climate change may yet prove to be the most powerful of forces summoning a civilizational community of fate into existence'.

In this paper we identify and bring together several threads in recent human geography that could help shape debate on climate change in the social sciences and more broadly. Human and environmental geographers have a long history of contributing to climate change discussions, and emphasising that climate vulnerability cannot be separated from underlying social and political dimensions (e.g. Bohle et al. 1994). There are many geographic contributions to grounded studies of place, local diversity and the difference this makes to issues like adaptive capacity (Adger et al. 2005, Adger et al. 2009, Barnett and Campbell 2010). Increasing recognition of the social and cultural dimensions of climate change has led to greater (and perhaps belated) interest in the sociocultural research tradition in geography and cognate disciplines (e.g. Hulme 2008, O'Brien 2011). Our specific argument is that human geography's combination of both deconstructive and empirical compulsions, found in coexisting emphases on critical theory *and* ethnographic type research methods that focus on material, embodied practices, provides a rather unique possibility to be both unsettling and generative/creative. We believe this is exemplified best in the ideas of Gibson-Graham (2006, 2008), whose work we use to think through how to reframe the politics of climate change in response to, and beyond, modernity. Gibson-Graham (2008) identify three practices that assist us here and on which we attempt to build:

- Ontological reframing to produce the ground of possibility
- Re-reading to uncover or excavate the possible
- Creativity to generate actual possibilities where none formerly existed

Ontological reframing is undertaken by engaging critically with stubbornly persistent assumptions, norms and the taken-for-granted – then looking for ways to put together differently. We are keen here to consider how climate change can be reframed in this way by drawing attention to the persistence of the human/nature binary in climate change debates (section II). We subsequently explore how relational frameworks can contribute to the reframing, putting knowledge back together differently.

Rereading and creative generation then proceeds through fine-grained studies of local voices and practices, including identifying vernacular capacities that could prove vital to climate change responses. It is these voices and practices that a modernist vision of problem and solution, scaled predominantly around the nation-state, runs the risk of ignoring. We bring together geographic work on governance, scale and power that illuminates much more diverse pathways of agency (section III). Importantly, geographic work on relational scale and cross-scalar agency offers pathways to re-empower the local without reifying it as a pre-given subset of the global. As Gibson-Graham (2008, p.3) remind us, 'to change our understanding *is* to change the world, in small and sometimes major ways'. A starting point is looking for productive or progressive spaces in unlikely places (Lewis 2009), to crack open new ways to converse. Throughout the paper we draw on diverse examples where this can and might be done, using a refreshed conception of scale and power that avoids locking down territories as containers of action.

In the process of becoming, and becoming understood as, a global problem, *climate change* has become recognised as a hybrid assemblage constituted as more-than-climate, comprising discourses, bureaucracies and texts as well as atmospheric gases (Demeritt 2001, Hulme 2008). The emerging critical analysis of climate-change-as-assemblage has much in common then with the critique of related concepts like neoliberalism (Dean 1999; Peck 2004; Castree 2008a, 2008b), modernity and the economy (Mitchell 2002), colonialism (Thomas 1994, Anderson 2007) and capitalism (Gibson-Graham 1996, 2006). Such concepts have dominant, taken-for-granted meanings, but can be analytically revealed as constituted through practices and discourses – thus inviting critiques that destabilise them and offer alternatives.

There is a key difference, however. The above scholarly critique has usually pulled the various threads of modern industrial capitalism apart in order to imagine how subsistence might be constituted differently, and with more attention to social and ecological justice. The ontological status of categories such as neoliberalism, the economy, capitalism and colonialism has been challenged, in order to challenge their universalist power – in other words to contest and resist the concepts. Our approach to climate change is similar in epistemology but different in intent. We want to contribute further to such deconstruction not to contest the concept of climate change, but to suggest reconfigured responses. Indeed, we are concerned as are others that academic deconstruction of the climate change assemblage may run the risk of unwittingly buttressing reactionary sceptics and a range of vested interests. The step that has not yet been taken in relation to climate change is to go from the ontological reframing to the generative possibilities. We seek here to outline some possible directions.

II Beyond the human/nature binary in climate change?

Over the last several decades there have been widespread attempts in human geography and cognate disciplines to unsettle and dismantle the human/nature binary, as well as necessary work in analysing its extraordinary resilience and embeddedness in our thinking and institutions. A large and complex body of work has used framings such as network, hybrid, assemblage and more-than-human geographies to reconfigure our understanding of relationality, drawing particularly on scholars such as Latour (1993), Whatmore (2002) and Haraway (2008). There are two main features of this work that are particularly relevant to our argument here. The first is the myth of human exceptionalism. Haraway is the strongest on this, citing multiple examples of the ways that various dividing lines between humans and the rest of nature are being exploded by current scientific research. The default assumption must be that the human and non-humans are mutually implicated – they co-constituted the world. The question is not ‘whether’ but ‘how’.

Answers to the ‘how’ question have given us a range of richly detailed, thick descriptions of the complexity of the world. There are some tensions here with how power is treated (Castree 2002), and useful critiques have come particularly from political ecology: ‘The world is networked, and always has been, but it is NOT flat, not socially and not ecologically’ (Rocheleau and Roth 2007: 436). For Clark (2011: xx) ‘most of material reality is not ours to make over’; and yet in the context of climate change, it is important not to lose sight of the demonstrable power of human actors; humans are exceptional agents of change in earth surface processes. But, as Anderson (2005: 271) has argued, to ‘begin ... by assuming a radical or pure break between humanity and animality’ is a rather different thing to demonstrating spatially and temporally variable differences in the ecological roles of specific peoples and groups of non-humans. Nor does it ‘mean introducing a limitless number of actors and networks, all of which are somehow of equal significance and power. Rather, it means making this issue of power and agency a question, instead of an answer known in advance’ (Mitchell 2002: 52-3).

A second and related feature of relational frameworks is their anti-essentialism. Drawing on Latourian thinking, the argument is that the society-nature dualism maintains a misconception ‘that entities are “essentially” either social *or* natural prior to their interaction with one another’ (Castree 2002: 118). Rather ‘the social and the natural are *co-constitutive*’ within myriad networks (Castree 2002:120). Causal explanations have not kept pace with advances in empirical research, and binary frameworks are challenged by the empirical evidence of mutual constitution and embeddedness.

There are a number of inter-connected implications here for how we might think differently about climate change. First, emphasis on the moment of collision between two separate entities (the

'impact' of 'humans' on 'climate') has favoured historical explanations that depend on correlation in time and space, to the detriment of the search for mechanisms of connection rather than simple correlation (Head 2008). This is particularly important to how we think about the future, since removal of the 'human' is presumably not our solution of first resort. As Hulme argues, 'it is as irrelevant as it is impossible to find the invisible fault line between natural and artificial climate' (Hulme 2010a: 270). Second, putting the significant explanatory divide between humans and nature requires the conflation of bundles of variable processes under the headings 'human', 'climate' and 'nature'. For example 'climatic processes' can include everything from astronomical forcing at 100,000 year timescales to ENSO cycles of a decade or so, and trends that can be warming, cooling, wetting or drying. In practical terms, taking apart the climate monolith allows us to consider how mooted anthropogenic changes leading to future scenarios will take expression in and through existing patterns of weather and climatic variability (Hulme 2008). Taking apart the human monolith forces us to consider exactly what the constituent practices of solutions might be.

For the most part the deconstructive effort is yet to pervade physical geography and archaeology, where 'human impacts' – a conceptualisation that positions humans as outside the system under analysis, as outside nature – remains the dominant, if implicit, conceptualisation of the human-nature engagement over timescales of hundreds and thousands of years (Head 2008). Nevertheless, this long-term perspective has provided a crucial underpinning to the identification of anthropogenic climate change in the palaeoclimatic record. So, a key contradiction persists: we maintain dualistic ways of talking about things (human impacts, human interaction with environment, anthropogenic climate change, cultural landscapes, social-ecological systems), while the empirical evidence increasingly demonstrates how inextricably humans have become embedded in earth surface and atmospheric processes.

There is scope for more common ground between relational approaches, and (modernist) studies in climate change, ecology, physical geography and prehistory that are spatially and temporally fine-grained, that deal with complexity and contingency, and that acknowledge multiple agency (see for example Harris et al. 2006, Hobbs et al. 2006). To this end we need to find a way to converse with more diverse communities of physical scientists (climatologists, geochronologists, engineers) across this common ground, to make necessary conversations mutually legible – as well as impress on colleagues in the sciences the urgency of engaging with relational critiques rather than dismissing them out of hand. Relational approaches are consistent with 'multiple, contingent and nonessentialist' (Castree 2002: 121) agency as recognised in the natural sciences. As Haraway argues, 'the opportunism of evolution is a great boon to the nonteleological thinking of the posthumanities' (2008: 373). Conversely the reluctance of many relational human geographers to

offer definitive and constructive ways forward, beyond what appears on the surface to be only deconstruction, frustrates physical colleagues – a frustration we must take seriously and seek to ameliorate. We have found considerable variation in the extent to which science-trained colleagues have been open to such discussions, with blockages and surprises in unlikely places: we were taken aback when one geomorphologist for instance voiced publicly his concerns with having to consider the ‘human’ at all in chronological work (apparently it over-complicates explanation); whereas in a collaborative project with thermal comfort engineers, a much more productive conversation has been possible. Engineers working on sustainable technologies for home construction and retrofitting might not understand the delicacies of relational philosophy (much as we are baffled by the modelling of air flow dynamics), but they appear intuitively open to a conversation that places in situ humans, technologies and such nonhuman entities as a cooling breeze .

If binary frameworks do not provide compelling ontologies, how can we think differently? We may be trapped in the very framing that we seek to overturn, the modernist framing of problems and solutions. What might it mean to think of ‘causes’ and ‘solutions’ in terms of association rather than separation? Does decentring the human mean we risk abandoning responsibility? The difficulty of answering these questions is illustrated by recent ecological humanities work on water, mirroring the intellectual impasse on climate change. Take for example the challenges posed by Jessica Weir’s (2009) *Murray River Country*. Weir argues that ‘modern’ thinking, which separates nature and culture, is false, ‘and disables our responses to the ecological devastation we now face in the Murray-Darling Basin’ (p. 3). The crisis in Australia’s largest river system results from historical over-allocation of water for irrigation, together with prolonged drought over the last decade or so, and projected intensification of droughts under climate change. There could hardly be a better candidate for Latour’s notion of an assemblage than the Murray-Darling River system as represented in the Murray-Darling Basin Authority ‘map’ of weirs, channels, lakes, barrages, reservoirs, pondages, tributaries, channels and tunnels (Weir 2009: 8), and accompanying description of how the river is ‘run’ from computers in Canberra.

Aboriginal people, on the other hand, have ‘respect for country’ as a main concern. Weir positions the traditional owners, members of the Murray Lower Darling Rivers Indigenous Nations alliance, as ‘amodern’ in their relations with the non-human world. That is, they are embedded in intimate relationships of mutuality, respect and connection that mix together ‘human bodies with rivers’, kidneys with lakes (Weir 2009: 13). Importantly, Weir distinguishes amodern from premodern, discussing the way the latter has imprisoned traditional owners in the past.

It is in extending this rethinking into the possibilities of river restoration and management that things become more difficult. Weir wants us

to be open to an ecological dialogue to facilitate the flow of ideas and the creation of new knowledge for understanding our relationships with the rivers and our responses to river destruction – otherwise the moderns will continue to deplete, destroy and then depart elsewhere... to begin their destructive cycle again. (p. 119)

The question here is how far a modern thinking gets us along a practical path of healing for the river. As with Whatmore's (2009) aim to first 'slow down' reasoning as a precursor to thinking rivers differently, the outcomes remain to be seen (although Lane et al. (2011) show that some of the supposed ontological tensions around rivers actually dissolve in the process of collaborative practice). A modern thinking may mean we have to accept things we cannot fix, and first grieve appropriately (as Weir suggests in part of her final chapter called 'acknowledging ecocide'). We could then move on to living with the new and changed reality, such as that of a dead river. This is surely a tough ask for us moderns – to concede defeat and stop the eternal busyness around trying to fix things. Does a modern or more-than-human thinking require us to confine ourselves to the possibility of climate change adaptation only, and give up on the modernist aspiration of mitigation? It is our dissatisfaction with such defeatism that leads us to consider what instructive paths can be formed by relational thinking, and what bridges might need to be built between relational epistemologies, physical science and other normative articulations of political change. Whereas relational thinking might provide an exemplary mode of critique, how it takes us towards a decisive political response to climate change is moot. These are considerations that in turn necessitate contemplation on the problematisation of capitalism itself, and the manner in which humans might build other kinds of economies and places as political responses to climate change.

It seems necessary to consider the possibility that there may not be solutions, but instead an amalgam of responses that seek to rectify damage done – a 'creative, critical hybridization of existing tools and methods' (Bridge 2002: 383). We want to resist the conflation of fixing with fixity, if it leads to premature closure and false stability. We see potential to reframe climate change debates away from simplistic discussion of 'problems' and 'solutions' (a typically modernist way of thinking that forever tempts technocentric investment) towards a more uncertain, but lively sense of *encounter* between humans, things, plants, animals, technology. To paraphrase Chatterton (2010:234), the climate – indeed the world – becomes 'an unfinished, expansive and unbounded story'. Shove (2003: 194) has characterised this in a different context by arguing that the 'reshaping of practice depends on the conjunction of multiple ingredients'. That amalgam of responses may not cohere philosophically or even logically, and some responses will work better than others – much is to be debated, tussled and jostled.

It is important not to undervalue the active and positive role of deconstructive, relational approaches in rendering visible taken for granted assumptions and relations of power. Nevertheless we believe it is necessary to go further. In a sense the value of such approaches is only half-realised unless we can find pathways to put the world together differently. It is this *generative* potential that needs to be unlocked.

III Governance, scale and power

Relational approaches to scale have been discussed for nearly two decades in geography (Howitt 1993, McGuirk 1997, Marston 2000, Massey 2004), and have added much to the governance debate. Relationality challenges the idea that we can 'identify discrete scales from which causes originate and at which effects are felt. In such an approach processes, outcomes, and responses are categorized into distinct 'boxes' that are seen as discrete entities originating at a particular level in an indisputable hierarchy of scales' (McGuirk 1997: 482). Thus the relationships between scale and order, or scale and causation, should not be assumed but be the subject of empirical enquiry. Gille and O'Riain (2002: 286) make the further point that level of analysis should not be confused with the level of abstraction—the global is not necessarily universal, and the local is not necessarily particular (Hulme 2010a). To say that scale is both socially produced and relational does not deny that particular scales can become fixed, reproduced, and influential.

Bulkeley has argued that until recently, 'questions of environment and its governance have remained outside much of this [relational scale] literature' (2005: 883; see also Norman and Bakker 2009 and Reed and Bruyneel 2010 for recent reviews). One manifestation is the widespread assumption that governance of global environmental issues requires global solutions, which are then

'cascaded' down through national, and implicitly, subnational arenas of governance ...This naturalization of the 'global' as the arena in which designated global environmental problems take place effectively serves to disembodify the causes and consequences of such problems, and their construction as such, from practices and politics taking place at a multitude of sites and scales of governance. (Bulkeley 2005: 879)

A growing literature on governance (of climate change) within and beyond geography has engaged with these issues, using Foucaultian notions of governmentality and power (Oels 2005, Löwbrand et al. 2009, Okereke et al. 2009). In this understanding, power is not a 'resource' or a 'capacity' possessed by some more than others, but rather is a relationship between actors (Foucault 1982). The problem with the conception of power as 'resource' is that it is essentially 'negative' in character (Foucault 1980), emphasising repression rather than the productive effects of power between actors

and across scales of action (effects that might well produce repression as an outcome, but that also create possibilities for resistance). Rather than assume 'government' as a level of formal, ultimate sovereign power existing separate from or 'above' individuals, we would do better to explore how actors employ power in relation to other actors and institutions (and not just human actors, but 'the whole ensemble of human and non-human elements' (Clark 2011:121)). Apparent devolution of power to smaller geographical scales can then be understood not as a lessening of centralised state power, or a retreat from the modernising ideals of the state. Instead devolution involves a recasting of those who bear the responsibility for action, recruiting citizens (or private companies) as governors of their own actions. Empirical evidence too shows this to be the case. For example, in the context of water governance across the Canada-US border, Norman and Bakker (2009: 112) caution that 'scaling down' does not necessarily lead to increased local empowerment, and can enhance rather than dilute the power of the state: 'Rescaling may become a "downloading" of responsibilities without commensurate power and resources. In some cases, this is accidental; in others, intentional'.

Diverse scales and types of 'agency beyond the state' (Strippel and Pattberg 2010) are now recognised, encompassing what we might think of as negative and positive power. They include both the totalising power of big science models and technologies, and globalising governance structures (Oels 2005, Lövbrand et al. 2009, Hulme 2010). Such approaches help render visible things which are relatively invisible in the 'policy architecture'. Bumpus and Liverman (2008) and Knox-Hayes' (2010) for example analyse the calculated construction of carbon markets as means to secure accumulation-by-decarbonisation – securing the interests of capital and finding new venues for surplus while being seen to be doing something about climate change. Similarly Paterson and Strippel (2010) scrutinise the individual/collective dichotomy in various attempts to 'govern' individual carbon emissions. Lövbrand and Strippel (2006) discuss two seemingly contradictory spatial tendencies: the 'deterritorialisation' of the global carbon cycle and its 'reterritorialisation' into 'national sinks'. The configuration of the carbon cycle into the logic of the state 'ties in to a general production of scale in environmental politics'. The net effect is to naturalise a hierarchy of spaces, and 'makes it difficult to establish a space of critical engagements in relation to the environment' (Lövbrand and Strippel 2006: 235).

On the other hand, a focus on power as processes and procedures rather than organisational entities (Strippel and Lövbrand 2010) offers a variety of creative possibilities, including a challenge to clear dichotomies of power such as individual/collective and public/private (Strippel and Lövbrand 2010). It carves out analytical space for environmental/climate change governance that can be characterised as a hybrid between state and non-state actors (Bulkeley 2005). Pushing this even

further we can imagine, after Latour's (1993) idea of a 'parliament of things', polycentric, networked formations of climate governance (Pattberg 2010) 'characterized by multiple governing authorities at differing scales' (Ostrom 2010: 552), in which it is possible to pursue a *cosmopolitics* (Hulme 2010a, Clarke 2011). Such a cosmopolitics involves extending hospitality to strangers (and not only human ones) in cataclysmic times, generating new forms of community across old geopolitical categories in response to environmental instability. As Clark (2011:216) argues, 'programmes are needed – plans, norms and regulations, networks of resources and knowledge', but so too must it be possible to reshape governance via a phenomenology of unpredictability and encounter – being responsive, in other words, to the agency of individual events, to the 'episodic stirrings of our earth' (Clark 2011:214). This thinking is all very new, and itself in the melting pot. Changing forms of power, authority and subjectivity, and re-rendering of old ones, set new research agendas (Lövbrand et al. 2009).

In contrast to the modernist urge to 'fix' climate change at the global scale, following Massey's (2004) use of relationality to renew perspectives on the agency of the local, there is increasing interest in the city or the municipality as an innovative arena in which to begin to address global environmental problems (e.g. Bulkeley 2005). Betsill and Bulkeley (2006) review a number of reasons for this. Cities have very high levels of energy consumption and waste production; local governments are well placed to facilitate action and engagement between different stakeholder groups; and cities can have a degree of influence over high proportions of greenhouse gas emissions 'in ways that directly impact the ability of national governments to reach targets they have agreed to internationally' (Betsill and Bulkeley 2006: 143). Rice (2010) elaborates the example of Seattle, USA in doing this. However, Davidson's (2010) analysis of the way cities can promulgate sustainability as an empty signifier reminds us that there is nothing inherently good about the city (or any other) scale. And the best of this work demonstrates how processes of different scales co-constitute each other (for other recent examples of work at multiple scales see Bickerstaff and Agyeman 2009, Sze et al. 2009 and North 2010).

In this understanding, the 'local' does not just feed into pre-existing scales of something bigger, in accumulative fashion. Rather we can imagine how places might cooperate and collaborate, share and extend hospitality or relations of care, 'to be touched, moved, swayed by the plight of strangers' (Clark 2011:xxi). Gibson-Graham (2008) cite Massey's (2007) *World city* on specific examples of 'ethical practices of globalization'. These include cultural festivals linking London to Venezuela, and trade-union initiatives on 'restitution of the perverse subsidies enjoyed by London's health system' (p. 10) as a result of health worker migration to the UK from Ghana. We might imagine similar projects geared around climate change action, which challenge the view of the local as parochial or

inhospitable. In the process of everyday life, climate is enrolled necessarily and unavoidably into other concerns, and the local/global churn is evident. So, while we might never have been modern after all, as Latour (1993) suggests, the reconfigured politics we advocate still needs to aim towards a shared, if jostling, global response. Replacing industrial capitalism with other means to meet essential human needs must surely remain a part of this – a consideration that forces humans to rethink, for instance, how material and intellectual resources are accessed, shared and transferred within and across scales.

IV Generative approaches

We argue that the more-than-human turn, and relational approaches to scale, when taken together, can help configure more dynamic cross-scalar responses to climate change and related sustainability issues. Examining how diverse practices and configurations of humans and others are enrolled into the (narrative, structural and technological) architectures of modernity helps to identify and generate new and different pathways. All this is of course much easier said than done. In this section we build on the Gibson-Graham framing of generating alternative possibilities, with particular attention to vernacular capacities, by identifying two productive and connected areas of current work, and suggesting agendas for future development.

Elaborating human and non-human continuities and differences

As scholars we need to be eternally vigilant in applying the deconstructive impulse to questions of human difference and power, and the way they are conceptualised in climate change debates. Although it was written before climate change became the most widely discussed ecopolitical issue, Plumwood's analysis of the deep structures of mastery buried in our intellectual frameworks remains apposite: 'There is scarcely a subject or a topic which is not entwined in the knots of dualism these conceptual structures have created' (1993: 190). Hence, as we saw in the first section of the paper, the story of anthropogenic climate change is one in which the human is dominant and separable. The point is not to get rid of an understanding of human power. Indeed Soper argued that a conceptual distinction between humanity and the rest of nature is a necessary condition of ecopolitics:

Unless human beings are differentiated from other organic and inorganic forms of being, they can be made no more liable for the effects of their occupancy of the eco-system than can any

other species, and it would make no more sense to call upon them to desist from 'destroying' nature than to call upon cats to stop killing birds. (Soper 1995: 160)

Since the time that Soper and Plumwood were writing, both relational social sciences scholarship and scientific research render the distinction rather less clear than either of them argued. Nevertheless, the research agenda is to work out where and under what circumstances the human difference is relevant, and where and under what conditions the privileging of the human is problematic or fanciful. Plumwood's theory of mutuality which acknowledges both continuity and (non-hierarchical) difference between humans and nonhumans is helpful here, as is Lulka's (2009) call to de-homogenise the nonhumans. It is also important to pay attention to the variable scales at which human agency and power make more or less of a difference to outcomes for other species (Gaston 2005). This kind of work will enable us to better articulate where and when human effort should be invested, and when to have humility about processes that are beyond our control.

As important as it has been over recent decades in drawing attention to our present predicament, the narrative of the inherently destructive human offers little in the way of escape. In terms of generative possibilities, we suggest a role for researchers in assembling more examples of humans contributing to the flourishing of other-than-human life; for example enhancing biodiversity rather than diminishing it (Rival 2006, Stenseke 2004, 2006). If the human condition is one of contingency, then it has capacities to care for the earth as well as destroy it.

Studies of prehistoric, non-Western and indigenous cultures have long been important in bringing to light the diversity of ways that human societies can engage with nonhuman world. They are necessary but not sufficient. We suggest two pathways are important. First, we can learn much more from indigenous and non-Western engagements with modernity itself. Examples abound where indigenous and non-Western communities hybridise 'tradition' with 'contemporary' politics. English-speaking social sciences/humanities scholarship has barely begun, for instance, to theorise past and present engagements with modernity in India and China, or sought to move beyond 'clichéd, revivalist or essentialist explanations of the effects of scientific modernity' (Philip 2004: 3) on non-Western ways of being in the world. For colonised indigenous peoples such hybridisations of 'tradition' and 'modern' are a means to heal the wounds of dispossession and maintain cultural-ecological integrity amidst change. Indigenous communities negotiate 'modern' concerns such as improved health, employment and participation in the co-management of national parks, amongst 'pre-colonial' priorities of ceremony, kinship and caring for country. Such accommodations are not inconsistent. Nor does engaging with the modern state or articulating progressive aspirations necessitate backing away from a politics of decolonisation. In an indigenous worldview, such hybridisations are an entirely logical response in a broken world. This is not about being pre-modern

or amodern, but about being *differently modern*: a living political agenda of decolonisation performed at the community scale, through what Rose (2004:24) describes as ‘recuperative work’. Our point is not to romanticise indigenous postcoloniality, but to glean from it how such recuperative work reframes temporality, and to learn from examples of how societies have coped with the unimaginable future - catastrophic fracturing of the world as they know it. It *is* possible to imagine a future consistent in some respects with the past, but that learns from it decisively, in other ways, as means to heal old wounds. Performing recuperative work in response to climate change need not, to use Slater’s (2011: 134) words, ‘imagine a former time or space of wholeness to return to or a fantasy of a perfect future of completeness’, but instead ‘by gathering and reassembling the diversity of life, learning to live in and among brokenness’ we might begin to enact a different kind of post-climate change modernity.

Identifying and harnessing vernacular capacities

Second, it is imperative that we also document vernacular capacities – especially where hidden, ignored or taken for granted – in the cultures of modernity. Attention to the vernacular in this realm also helps understand not only where dualistic nature talk is entrenched, but where more-than-human ontologies are already comprehensible and practised. Much as people might be repulsed by mice in their cupboards, struggle with the water supply or complain about the weather, such encounters intuitively and necessarily entangle humans with non-human others in the course of regular life (Kaika 2005, Power 2009). Researchers in the global North are not only documenting vernacular capacities among various Others, but importantly are recognising them at home, consistent with Gibson-Graham’s approach of imagining alternatives (Cameron and Gibson 2005, Brace and Geoghegan 2011). Research shows a range of cultural capacities in sub/urban households (e.g. Head and Muir, 2007 on backyard water use, Lane et al, 2009 on routes of household reuse and recycling; Gibson and Stanes, 2010 on swapping and sharing clothing). There is much to be learned from migrants’ engagement with environments that have become familiar to older settlers, and from older people who have learned frugality by living with scarcity. This empirical work shows for example that there are problems in conceiving suburbia too simply as space for passive over-consumption, and there are many creative ways in which suburbs are being ‘retrofitted’.

Moreover, many people (by this we mean non academics) would have no problem conceptualising the contingent, chaotic qualities that attend relationality – frictions, encounters, contradictions, cogs or thresholds. A ubiquitous example that encapsulates this is the situation where residents wish to do something about climate change, by for instance cycling or more frequently using public

transport, but find that they are limited in this by weather, topography, legacies of suburban infrastructure, imperfect routes, networks, timetables and delays. We academics ought not underestimate the extent to which people outside the academy already understand how associations of agency operate to shape everyday decisions and movements, via complex biophysical, political, infrastructural and cultural interactions.

Lest our rendering of alternative scales of climate change mitigation and adaptation be construed as romancing the local, we hasten to emphasise that we are not promoting any simple back to nature approach. Nor do we advocate letting nation states and multinational companies off the hook. Modernity's relentless growth-oriented track to the future has created a situation where stepping off that track is construed as going backwards. It is important to cut across this linear conflation of sustainability with backwardness and a romanticised localism. Some 'backwards' steps are in fact entirely sensible and forward-thinking – correctives to the absurdities that creep into everyday habits, as well as a challenge to the invasion of corporate profit-making into the moments and spaces of everyday life. Putting wet washing out on a clothes line instead of using energy-intensive electronic dryers is about making use of an entirely relevant, contemporary technology. It is also a small, but symbolic, act against corporate energy and appliance manufacturers – an example of Chatterton and Pickerill's (2010: 475) mundane, yet meaningful, actions in 'everyday rhythms'. But nor on the other hand can we likely go 'forward' to highly localized food sources for 7 billion people; it is neither feasible nor the most sustainable way to use resources including soil and water. We are acutely aware from our own research of the many obstacles to embedding sustainability into the politics and everyday practices of affluent urbanised populations (see Gibson et al, 2011; Askew and McGuirk, 2004).

In a context where the collective imaginary needs to be extended rather than circumscribed, the research challenge to take the vernacular seriously is an ongoing one, through continuing ethnographic-style research. One gap that needs further work is to extend the focus on frugality and restraint, such as the water and recycling examples mentioned above, to the converse qualities of abundance and excess. How might human needs and desires usually expressed through resource abundance – hospitality, generosity, celebration – be met or reconfigured in ways that demand less of the earth? Human cultural diversity is a necessary resource with which to confront such complications.

V Conclusion

The conceptual and narrative challenge is no less than rewriting, and re-living, 'the master story of western culture' (Plumwood 1993: 196). In a parallel approach to that later developed by Gibson-Graham, Plumwood also argued 'we must take into our own hands the power to create, restore and explore different stories, with new main characters, better plots, and at least the possibility of some happy endings' (p. 196). In this paper we have argued that recent human geography can assist the necessary reconfiguration of modernity through the combination of its deconstructive impulses and empirical compulsions. We have brought together examples from more-than-human geographies and cross-scalar work on agency and governance to illustrate the rather unique possibilities of being both deconstructive and generative/creative. This is not to argue that global solutions will not be necessary. Rather it is to suggest that if they are to emerge, it will be from other modernist sentiments such as cosmopolitanism, compassion, and civility, and through diverse networks of power and practice that as geographers we are accustomed to tracing.

Studies of vernacular practice will continue to need critical analysis to understand their contradictions and dilemmas, and the ways individual instances ratchet into broader patterns. We also need to go further in examining how these diverse practices are enrolled into the structural architectures of modernity, in order to identify and generate new and different pathways. The city is one space from which to conceptualise diverse more-than-human others and cross-scalar links – 'up' to nation-state, and 'down' to household – within an ever-changing social and economic context, but there are others. Conversely, by bringing into consideration the living more-than-humans we should not deflect attention from the financial more-than-humans – pension funds, stocks, bonds, securities – that concurrently exert agency over human affairs.

Generative action and agency can go in diverse directions, only some of which will have the necessary wider impact. This invites us to pay particular research attention to how and where power and change flows; for example are there certain kinds of vernacular activities that go no further, compared with those that 'scale up'? What is the role of friction points and oppressive power in the former, and how do the latter accumulate? Under what conditions are thresholds – in either direction – predictable? The role of intermediaries is important in facilitating the right kinds of connections and in promulgating (and mutating) ideas and knowledge: scientists, solar hot water installers, policy 'experts', neighbours, advocates, newspaper editors. Intermediaries are not all human, but include also things such as switches, technology, energy bills and insurance premiums. We might consider ourselves – scholars – as intermediaries who facilitate communication both between disciplines and beyond the academy and hence are charged with the troubled task of explaining complexity but doing so simply (Ang 2006). As Castree (2004:32) recommends this also

means overcoming reticence to articulate a bolder sense of normative critique of the 'rightness'/'wrongness' of forms of production and commoditisation.

In critiquing the limitations of modernity we do not advocate laying down all its weapons. Bringing different approaches to climate change requires us still to acknowledge human power, albeit in the company of and in relation to more-than-human others. The historically demonstrated power of human activity lays on us, rather than non-humans, the means and responsibility to work towards solutions – even after we acknowledge and take seriously the power of non-human things.

Acknowledgements

The writing of this paper was facilitated by fellowships from the Australian Research Council (FL0992397 and FT0991193).

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