
Pimping climate change: Richard Branson, global warming, and the performance of green capitalism

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Abstract. On 21 September 2006 UK über-entrepreneur and Virgin Group Chairman Richard Branson pledged approximately £1.6 billion, the equivalent of all the profits from Virgin Atlantic and Virgin Trains for the next ten years, to fighting climate change. Since then, Branson has restated his commitment to action on global warming, including investment in technologies for sequestering carbon dioxide from the atmosphere. In this paper, I critically examine and engage with Branson's announcements as a specific entrée into a dialog about so-called 'green capitalism'. I am particularly interested in the role of the entrepreneurial subject in environmental policy and environmental action. There are glaring problems associated with green capitalism as a mash-up of environmentalism with capitalism. One of these is the tethering of environmentalism to a political economy whose mantra is growth for growth's sake, or, in Marx's terms, accumulation for accumulation's sake. This has been discussed by some as the problem of capitalism's ecological metabolism or 'metabolic rift'. Yet, while accumulation for accumulation's sake may well be anathema to progressive environmentalism and sustainability, I argue that this is not only an objective, quantitative problem but also one of the qualitative dimensions of produced nature and the cultural politics of environmentalism. Appreciation of this can be gleaned by reexamining Marx's discussion of the role of the bourgeois subject in the relentless drive to reproduce and expand capital accumulation via anarchic, entrepreneurial investment. Green capitalist orthodoxy relies on this source of innovative dynamism, but in the process obscures or overlooks the fact that accumulation for accumulation's sake is by definition guided by the anarchic and amoral search for profitable realization of surplus value. Moreover, in order for green capitalism to succeed, its legitimacy must be secured. I argue that this legitimacy derives in part from specific performances of green capitalism by entrepreneurial elites, also made evident by Branson and his commitments to climate action. All of this raises questions about the political, cultural, and ecological character of green capitalism, issues brought to the fore by Branson's brand of climate activism.

Introduction and overview

On 21 September 2006 Virgin Group Chairman and UK celebrity entrepreneur Richard Branson pledged to divert all the profits from Virgin Atlantic and Virgin Trains for the subsequent ten years (worth an estimated £1.6 billion) to "fight global warming" (see *BBC News* 2006; *The Guardian* 2007). The announcement—shepherded by former US President Bill Clinton—was made in Washington DC and garnered considerable interest from the international media. It was followed by a 10 February 2007 commitment of £12.8 million (then worth about US\$25 million) to the sequestration of carbon dioxide from the atmosphere for deep geological storage. These initiatives arrived amid signs that public awareness about global warming and willingness to act are growing in the Anglo-American world. Rising public consciousness and engagement have been particularly evident in the UK of late. In this context, one facet of the growing profile of climate change as a decidedly *public* policy challenge is the proliferation of political and entertainment industry elites who have championed action to abate and offset anthropogenic carbon dioxide emissions.

Branson, through his relentless self-promotion and attention-seeking (and getting!) ways, undoubtedly belongs in the pantheon of contemporary Anglo-American cultural elites. At the same time he represents something else. Branson's fame is primarily

based on his status as the quintessential post-Thatcher entrepreneur. He is a ‘model’ post-Keynesian entrepreneurial subject in a neoliberalized economy of opportunity, particularly but by no means only iconic in the UK. Branson is thus a rare example of the business elite with a large climate footprint who has embraced action to reduce greenhouse gas emissions. But, in addition, Branson’s announcements also suggest a synthesis or fusion between celebrity entrepreneurialism, on the one hand, and climate change policy, on the other. This fusion in the context of climate politics and policy is a specific thrust in the wider movement toward so-called ‘green capitalism’: a set of responses to environmental change and environmentalism that relies on harnessing capital investment, individual choice, and entrepreneurial innovation to the green cause. No environmental challenge is now more salient, and thus no item on the green capitalism agenda is more important, than global warming. In the words of prominent green capitalism advocate and President of the Environmental Defense Fund Fred Krupp, “We’ve put Earth at the brink of climate calamity, thanks to rapid industrialization and market forces. That’s part one. The sequel is how we get out of this fix. I believe it’s those same forces, innovation and profit—and nothing else—that can stop global warming” (Griscom Little, 2008).

There is every possibility that Branson’s championing of action on climate change will deepen commitments to meaningful attempts to abate greenhouse gas emissions, and also bolster efforts to redress the expected impacts of climate change. This is important. Global warming and its expected impacts constitute a serious issue, with potentially catastrophic implications for the poorest people of the world (Parks and Roberts, 2006; Roberts, 2001). Nevertheless, this paper is a critique of Branson’s announcements and the notion that they are somehow a ‘good thing’. I seek to add to an emerging critical literature on the role of cultural elites in the fight over climate change (eg Boykoff and Goodman, 2008; Gajda and Kieffer, 2007). However, my focus is specifically on the elite bourgeois subject as a subset of the phenomenon. Drawing on Branson’s example, I interrogate the would-be ‘green capitalist’ in order to elucidate some aspects of and challenges to this particular brand of elite-led action in the climate policy arena, issues that, in turn, speak to the central but somewhat overlooked role of the entrepreneurial subject in the political and cultural logic of green capitalism more broadly.

The paper features two interrelated arguments. First, Branson’s announcements (particularly the first one) point to a central contradiction in the green capitalist agenda. This agenda pivots in large measure on the problematic suggestion that more sustainable futures can be secured via capitalist investment and entrepreneurial innovation. Whatever truth there may be in particular cases, this obscures the relentless, restless, and growth-dependent character of capitalism’s distinct *metabolism*, an argument most closely associated with the work of Bellamy Foster (Clark and York, 2005; Foster, 2000), but which draws in turn on Karl Marx. The metabolism critique rightfully identifies a tendency in capitalist political economies for aggregate throughput of material and energy to grow, outstripping any efficiency gains (ie the so-called ‘Jevons paradox’). But accumulation for accumulation’s sake also entails dynamic confrontation, transformation, and redefinition of material, social, and cultural conditions in ways that confound coherent articulation of any notion of fixed ‘limits’ (including ecological ones) to continued expansion. This essentially qualitative problem originates in the microeconomics of the entrepreneurial subject who is compelled to accumulate on an expanded scale if only to reproduce himself or herself. What results is a systemic logic of the production of new natures—integrally connected to the production of space and uneven development more generally (Smith, 2008 [1984])—by the anarchic, restless drive to accumulate capital as an end in and of itself. Thus, I argue that,

when thinking of capitalism's so-called 'biospheric rift' (Clark and York, 2005), it is crucial to attend not only to *quantities* of aggregate material and energy throughput, but also to issues of *quality*.

Secondly, focus on the elite entrepreneurial or bourgeois subject points to the need for a politico-cultural perspective on green capitalism as a sort of 'drama' which must be performed. That is, the viability of green capitalism is not only an 'objective' question of whether or not entrepreneurial energy, unleashed by neoliberalized green markets, can give rise to sustainable technoeconomic trajectories. Rather, it is also a political agenda whose viability turns on whether or not capitalism and environmentalism are seen—subjectively—to be compatible. Seen in this way, green capitalism has interwoven material–semiotic dimensions (Haraway, 1997), one central facet of which is the 'performance' of the entrepreneurial subject as environmental crusader. Performances such as Branson's not only stage the political and cultural fusion of capitalism and environmentalism as green capitalism; they also act to augment the economic foundations of bourgeois power by making the entrepreneur a central figure in climate policy, and, by extension, environmentalism.

In what follows, I elaborate on these arguments in succession. I then close by considering explicitly the political dilemma posed by specifically entrepreneurial elites as champions of action on climate change, and of environmentalism more generally. If the legitimacy of green capitalism turns on the kinds of performances offered by Branson in these announcements then it bears reminding ourselves that Branson can lay little claim to political legitimacy. This may seem obvious, but it is not unrelated to the issue of elites more generally embracing action on climate change; however welcome in some respects this may be, some consideration needs to be given to the degree to which the resulting fusions of disparate cultural and political agendas not only redress the climate problem but also sustain and enhance elite (in this case entrepreneurial) status.

Green capitalism, metabolism, the production of capitalist nature, and accumulation for accumulation's sake

I use the term 'green capitalism' to refer to a tightly woven mix of faith in nominally free markets and market-based instruments, enclosures of various kinds, and capital investment and entrepreneurial innovation, all aimed at redressing environmental problems (however defined and measured). The actual term has been used by others (eg Friedmann, 2005; Watts, 2002), but the substantive content of what I mean is much more widely recognized and problematized by critical scholars. In the most abstract rendering, green capitalism refers to the increasing incorporation and internalization of ecological conditions into the circuits of capital accumulation via the production, commodification, and even real subsumption of nature (Boyd et al, 2001; Kloppenburg, 2004; O'Connor, 1998; Prudham, 2005; Smith, 1984). This is attended by forms of calculation, expertise, and environmental governance. But it also includes the manner in which environmental politics become semiotically and ideologically tethered to the reproduction of the conditions of accumulation, via what Smith 2008 [1984]) theorizes as the proliferation of the abstract second (produced) nature of exchange value (see also O'Connor, 1993).

As such, green capitalism comes in many forms and, like the more general neo-liberal turn of which it is one facet, has complex intellectual and political origins. Under the rubric of green capitalism, for instance, should be included a widespread turn in recent decades to so-called market-based mechanisms such as tradeable pollution permits. This approach is now becoming central in climate policy, particularly but not only in the EU (Bailey, 2007a; 2007b; Bailey and Rupp, 2005) in the form of both

state-coordinated and voluntary offset markets in carbon dioxide emissions (Bumpus and Liverman, 2008). The intellectual foundation of market-based mechanisms, particularly tradable emissions or cap-and-trade systems, in one sense relies simply on the argument that this is the most economically efficient (ie cheapest) way to achieve given environmental quality objectives (for discussion see Ekins and Barker, 2001; Tietenberg, 1980). A closely related idea animates the neoclassical theory of the ‘backstop technology’. When full costs are paid, the argument goes, informed entrepreneurs will adjust to (accurate) price signals by diverting investment away from environmentally damaging technologies and toward more green technoeconomic strategies (Pearce and Turner, 1990; for critique of price as a measure of scarcity, see Norgaard, 1990).

But deeper foundations lie in an underlying faith in private decision making: thus, the conservation – privatization connection articulated famously by Hardin (1968), and before him (and more rigorously) by Gordon (1954). In turn, all of these draw on a lineage of faith in ‘greed’ (bolstered by strong, exclusive private property rights) as socially desirable. For example, Malthus (1993 [1798]), in addition to his (in)famous embrace of famine and disease as ‘natural’ or what he called ‘preventive’ checks on population growth, also stated that:

“it appears, that a society constituted according to the most beautiful form that imagination can conceive, with benevolence for its moving principle, instead of self-love, and with every evil disposition in all its members corrected by reason and not force, would, from the inevitable laws of nature, and not from any original depravity of man [sic], in a very short period degenerate into a society constructed upon a plan not essentially different from that which prevails in every known state at present; I mean, a society divided into a class of proprietors, and a class of labourers, and with self-love the main-spring of the great machine” (Malthus, 1993 [1798], pages 64 – 65).

There is, of course, much more to be said about green capitalism, its origins, and a proliferation of market fundamentalism in contemporary environmental policy making (see eg Goldman, 2005; Heynen et al, 2007; Krueger and Gibbs, 2007; Liverman, 2004; McAfee, 1999; Mansfield, 2004a; 2004b; 2007). But the point is that markets, more or less accurate prices, enclosures of various kinds, a faith in the choices of ostensibly independent and rational individuals, and investment of capital by innovative entrepreneurs constitute the ubiquitous tropes of green capitalism. A pithy but by no means atypical endorsement of the green capitalist approach is encapsulated, for instance, in the following Heritage Foundation energy policy statement:

“U.S. energy policy should be based on the creativity of free enterprise. Congress and the Administration should rely on the private sector’s research and development capabilities to deliver traditional supplies and viable new energy sources rather than mandates, regulations, subsidies, and directed research.”⁽¹⁾

This kind of approach to environmental regulation has become emblematic of a plethora of like-minded think tanks and lobby groups, particularly in the US. It is consistent with a reinvigorated turn to the mix of utopian economic and political doctrines of freedom that constitute the rhetorical and ideological core of neoliberalism (Harvey, 2005), and very consistent with a more general shift in recent decades from ‘managerialism to entrepreneurialism’ (Harvey, 1989) in social regulation. Green capitalism thus reflects and reinforces transformations of governance, and specifically environmental governance, with so-called command-and-control approaches giving way to mechanisms such as “eco-taxes, ‘best practices’ environmental management, green consumer activism, community-driven environmental regulation, and more

⁽¹⁾ <http://www.heritage.org/about/lfa/energyandenvironment.cfm>.

collaborative models of environmental governance” (Watts, 2002, page 1315). Markets, privatization, commercialization, and outright commodification have become central elements (as opposed to the objects) of environmental regulation, evident not only in the prescriptions of neoliberal think tanks but also in those of a whole generation of environmental NGOs and government policy makers (Bakker, 2005; Heynen et al, 2007; McCarthy and Prudham, 2004; Mansfield, 2007).

So, what does any of this have to do with Richard Branson? In some ways, everything. Despite the fact that the venerable BBC described Branson’s September 2006 announcement as one in which he was pledging US \$3 billion to ‘fight global warming’, this is not quite right. Branson did spin it this way, but the announcement specifically targeted “schemes to develop new renewable energy technologies”, and to divert profits from Virgin Airlines and Virgin Trains into a financial arm of the Branson empire called, appropriately enough, Virgin Fuels. Virgin Fuels, in turn, will use these funds as part of its planned investments in the alternative energy sector, investments that already include backing a California company called Cilion, making ethanol from corn. This is very much consistent with the broader emergence of so-called ‘biofuels’ as an alternative to fossils, a strategy that is garnering considerable momentum thanks to endorsements by the likes of Al Gore, and to widespread subsidies in the US and elsewhere aimed at pulling farm crop cultivation into the circuits of biofuel production (on US subsidies see Koplou, 2007). It is consistent with Branson’s declared hope that biofuels can displace fossil fuels burned in conventional air and train travel in the foreseeable future. This, too, is quintessentially green capitalism, a technical fix for an ostensibly technical problem, propelled by an entrepreneur looking to sustain profitability in the context of threats to existing markets.

But, if this is green capitalism, examining Branson’s approach more closely points to systematic problems with the green capitalist agenda. A supposed advantage of biofuels is that they promise a less carbon-intensive fuel source for transportation (and other energy-using activities) since they will drastically reduce net carbon emissions to the atmosphere when burned. The obvious reason for this is that the fuels come from green plants which, in turn, assimilate carbon dioxide from the atmosphere in their growth. While fossil fuel combustion transfers carbon from deep geological storage into the atmosphere in the form of oxides of carbon, and contributes to an enhanced greenhouse effect, biofuels offer a lower carbon alternative and the possibility of a zero net carbon flux to the atmosphere, provided the plants take up as much or more carbon dioxide when they grow as is released by the biofuels when they burn.

Yet, there are elements of this strategy for offsetting carbon emissions which are not ideal. One is simply that the scheme obscures or deflects attention from growth in the airline industry and in airline travel per se. Substituting fuels amidst continued growth in the industry means any ecological implications associated with the new fuel cycle will be, all other things being equal, that much more pronounced. And, in the case of biofuels, there are reasons to be concerned about the substitution of one set of environmental problems for another as expansion in biofuels production offsets current and growing demand for airline fuel. Only under highly restrictive and unlikely conditions could the switch to renewable fuels actually be renewable in a robust sense of the term. All of the energy generated from burning biofuels, including efficiency and processing losses, would have to be offset by the production of energy from photosynthesis in the feed crop. This includes all of the energy inputs in the production process. It sounds feasible, intuitively doable, and eminently appealing, but life-cycle assessments of intensive crop production regimes, whether for agriculture or for energy production, consistently point to large inputs of energy in the cultivation, harvesting, and conversion stages, sometimes by many factors more than the energy

yielded by the final product (Bayliss-Smith, 1982; Netting, 1986). These inputs include, for instance, fuel used for machinery in cultivation and processing, chemical inputs such as fertilizers, herbicides, and pesticides, etc.

Will all of these inputs, simultaneously, be converted to renewable sources along with the fuel itself? It seems unlikely. For example, Pimentel and Patzek (2006) offer some sobering numbers when it comes to one of the most commonly cited 'solutions' to the fossil fuel problem, the conversion of corn (either directly or from biomass 'waste') into ethanol. To start, all green plants in the United States take up in one year through photosynthesis about the energy equivalent of half of current annual energy consumption in the US. If the entire US corn crop were converted into ethanol, it would offset a total of 6% of current US fossil fuel combustion, and that ignores the fact that it takes 29% more energy to produce ethanol than is contained within it; for cellulose technologies (from high-intensity wood fibre plantations), that number is 50% using current technologies. That energy input has to come from someplace, and it currently comes primarily from fossil fuels. In fact, the thermodynamics of converting plant biomass to liquid fuels is sobering even using the fastest growing crops such as acacia and eucalyptus (Patzek and Pimentel, 2005). So a substitution to nominally renewable fuels can disguise important nonrenewable elements of renewable fuel cycles.

Moreover, the discourse of converting so-called agricultural 'waste' (eg the unused plant material in corn production) into biofuels ignores the implications of this diversion of nutrients out of ecosystems, which may subsidize short-term energy supplies with long-term soil productivity (Patzek and Pimentel, 2005). In addition, there is a suite of potentially negative repercussions of converting to biofuels on a large scale, including the diversion of food crops into biofuel production, the appropriation of human and nonhuman forest habitat to intensive and industrialized crop cultivation regimes, and the production of particulate emissions from biofuel combustion itself. These concerns are becoming increasingly evident, not least via a current international food crisis whose origins, in substantial measure, lie in rising prices driven by competition for food grains between the food system and the biofuels industry. And they point to the need to think in terms of complex chains of causation that rework socio-natural relations across scales in the biofuel economy, connections that bring together voracious energy demand (particularly in affluent countries), multinational capital, states and international development institutions, local and regional dynamics of deforestation, social marginalization and struggle, access to land, and food security (Cooke, 2002; Dennis and Colfer, 2006; McMorro and Talip, 2001; Wolford, 2004; see also Monbiot, 2005).

I argue that these specific problems with the political ecology of biofuel substitution exemplify systematic challenges to the green capitalist agenda. Specifically, they point to systematic ways in which biophysical nature is produced or metabolized in a capitalist political economy. These particularities include growth dependence, but also a tendency to continuously transform the relations and conditions of production (including, importantly, environmental conditions) propelled by the drive to accumulate capital as an end in and of itself—what Marx called 'accumulation for accumulation's sake'.

At issue here, in part, is that capitalism is a restless and growth-dependent political economy. And, despite the immediacy of current anxieties surrounding climate change and a host of other environmental problems linked to relentless economic growth and transformation, the question as to whether capitalism can or cannot continue to grow ad infinitum is arguably as old as capitalism itself. It is one of the defining questions of classical political economy taken up variously by the likes of Adam Smith, David Ricardo, and Thomas Malthus, all of whom were generally pessimistic about long-run raw material availability. By no means has this debate disappeared, and, in fact,

it was reinvigorated by the emergence of an increasingly globalist environmentalism in the 1960s and 1970s, and in the specific guise of a neo-Malthusian emphasis on the population–environment nexus (see eg Ehrlich, 1968; Meadows and Club of Rome, 1972).

The question of whether or not capitalism is or can be sustainable has also animated debates within the Marxist tradition, with, it must be said, no clear consensus (see eg Altvater, 1993; Benton, 1989; 1996; Leff, 1995; J O'Connor, 1998; M O'Connor, 1994). A recent contribution to this line of thinking, picked up from some of Marx's more obscure and scattered direct comments on the matter, come in the guise of the notion of the *metabolic rift*. This idea is generating some considerable popular and scholarly interest thanks primarily to the work of American sociologist John Bellamy Foster (1999; 2000). But, as Foster clearly indicates, it comes from Marx, who was inspired, in turn, by reading 19th-century agronomy and soil chemistry literature. This includes the work of German chemist Justus von Liebig, who criticized intensive agronomic practices as forms of robbery. Liebig is thought to be the inspiration for Marx's famous statement in volume 1 of *Capital* that "all progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil" (Marx, 1977, page 638).

The idea of a more systemic metabolic rift between capitalist society and the nonhuman world is based in part on Marx's general notion that the social relation to nature in all societies is essentially metabolic, meaning that there is a process of mutual transformation between human and nonhuman nature through the transfer of matter and energy. As he wrote in the Economic and Philosophic Manuscripts: "Nature is man's [sic] inorganic body—that is to say, nature insofar as it is not the human body. Man lives from nature—ie, nature is his body—and he must maintain a continuing dialogue with it if he is not to die."⁽²⁾

For Foster (1999), Marx's comments on social metabolism combined with his critique of capitalist agriculture underpin an argument for a more systemic metabolic rift specific to and constitutive of capitalism. Having first traced the lineage of the metabolism notion as it was picked up by the likes of Kautsky and Bukharin (but also dropped, notably in the Soviet tradition), in his subsequent book Foster (2000) extends the critique of capitalist agriculture into a more generalized critique of capitalist nature. In their elaboration, Clark and York (2005, page 399) put it as follows:

"Capitalism is unable to maintain the conditions necessary for the recycling of nutrients. In this capitalism creates a rift in our social metabolism with nature. In fact, the development of capitalism continues to intensify the rift in agriculture and creates rifts in other realms of the society–nature relationship, such as the introduction of artificial fertilizers."

In their words, drawing on Foster with a specific eye to theorizing global warming, the: "‘metabolic rift’ refers to an ecological rupture in the metabolism of a system. The natural processes and cycles (such as the soil nutrient cycle) are interrupted. The division between town and country is a particular geographical manifestation of the metabolic rift, in regards to the soil nutrient cycle. But the essence of a metabolic rift is the rupture or interruption of a natural system" (page 399).

Considerable focus in Foster's work (and in that of Clark and York) is directed at the debate over so-called 'dematerialization'—that is, the degree to which economic growth and capitalism more generally can be 'decoupled' from energy and material throughput to a sufficient degree to make sustainable capitalism possible. This debate has been central to the emergence of environmental sociology and the so-called

⁽²⁾ Available online at <http://www.marxists.org/archive/marx/works/1844/manuscripts/labour.htm>.

'treadmill of production' theory. Scholars led by Schnaiberg (1980; Schnaiberg and Gould, 1994) have challenged sanguine predictions, typically from economists and ecological modernization advocates, documenting that growth effects tend to swamp efficiency effects with little evidence of any absolute decline in energy and material requirements even in the most affluent national economies. Foster draws on the work of 19th-century British political economist William Stanley Jevons in calling this an example of the Jevons 'paradox' (ie that increasing efficiencies can in some ways only encourage increasing demand, but tend not to lead to decreasing amounts of throughput). The explanation for this apparent paradox, as Foster as well as Clark and York argue, is the expanding scale of capitalism, founded, in turn, on the phenomenon of growth or accumulation as ends in and of themselves (accumulation for accumulation's sake) in the context of a prevailing metabolic rift.

The metabolic rift as a critique of green capitalism seems highly germane to the case in hand since, as noted, Branson's announcements at best promise less carbon-intensive development trajectories. Yet, to the extent that insight is to be drawn from broadly Marxian perspectives on environmental change in a capitalist political economy, the record is mixed. On the one hand, there are those who see capitalism as 'the problem' à la Foster or O'Connor and his second (ecological) contradiction argument (1988; 1998), but, on the other, there are those of a more Promethean disposition (for discussion see Foster, 1999; Goldman and Schurman, 2000). On this, Harvey notes pointedly that "It has ... proven hard to wean Marxism from a rather hubristic view of the domination of nature thesis"; yet, he continues, "in those rare instances when Marxists have taken the material biological and physical conditions of existence as foundational to their materialism, they have either lapsed into some form of environmental determinism ... or into a damaging materialist pessimism" (1996, page 193).

Geographers—whose cross is also to bear the legacy of environmental determinism and the discipline's colonial history—of a generally Marxist uneven development bent have tended to downplay strict and static notions of ecological 'limits' in favor of the dynamic production of new conditions, the constant revolutionizing of production relations and conditions (Buck, 2007; Harvey, 1974; 1996), and, in this context, the material and semiotic *production* of what is experienced as 'nature' itself (Smith, 2008 [1984]).⁽³⁾ It bears noting here too (2008 [1984]) that much early political ecology (influenced by and influential on geographical debates) eschewed simple-minded neo-Malthusianism and the so-called 'pressure of population on resources' hypothesis, emphasizing instead unjust rights of resource access and control; contested meanings and understandings; and the dynamics of commercialization and commodification as key factors propelling environmental degradation (Blaikie and Brookfield, 1987; Carney, 1993; Robbins, 2004; Turner, 1993; Watts, 1983). Limits, per se, were simply no longer the question. As for nature itself, Smith (1996) summed it up rather nicely by noting that 'nature' as it is conventionally understood and talked about is not a very relational and, therefore, Marxist category at all.

However, redefining the problem does not make the issue of 'ecological limits' to capitalism go away entirely. I strongly suspect (in fact, I know) that many critical geographers simply cringe and look away when they see the phrase 'ecological limits', and many, I suspect, will have no truck with the notion of a systemic capitalist metabolic rift more generally. Maybe they are right. Yet, in the context of various calls to attend to the material action or 'agency' of nonhuman beings and processes in our geographical work (for syntheses see Bakker and Bridge, 2006; Braun, 2005), and as

⁽³⁾ This passage is also cited in Clark and York (2005, page 398).

the distinct categories of nature and culture become dissolved in favour of hybrids, assemblages, and socionatures (see eg Castree, 2003; Gandy, 2002; Kaika, 2005; Latour, 1993; Swyngedouw, 1999; Whatmore, 2002), Harvey's challenge in *Justice Nature and the Geography of Difference* remains noteworthy:

“What I am proposing is a way of depicting the fundamental physical and biological conditions and processes that work through all social, cultural, and economic projects to create a tangible historical geography and to do it in such a way as to not render those physical and biological elements as a banal and passive background to human historical geography” (1996, page 192).

There is a genuine dilemma here: what are we to make of this nonhuman matter which constitutes our geographies? Harvey's observation remains: on one side is the specter of a rigid, dualistic, and deterministic perspective on the nature–society or nature–culture nexus. On the other, however, is potential complicity with laissez-faire neoclassical optimism, and thus with the green capitalism school itself. One direction to go in emphasizing dynamism, change, and the relentless production of new natures, of course, is to abandon engagement with ecological conditions per se as a subset of material conditions. But I think this is not necessary or wise, particularly for geographers. The danger is not one of bad theory but of not taking seriously enough the material conditions of immiseration that characterize the lives of literally millions (if not *billions*) of people in the contemporary world, and thus the socioecological aspects of uneven development.

A way forward is to emphasize that the problem is not only a quantitative one, but also a qualitative one. Indeed, as Neil Smith noted in *Uneven Development* (2008 [1984], page 87): “[C]apital, and the bourgeois society which nurtures it, usher in not just a quantitative but also a qualitative change in the relation with nature.” That is, the metabolic rift originates not only from increasing total amounts of material and energy throughput (as important as these flows may be), but also from the relentless and chaotic transformation of relations and conditions of production (including ecological conditions) in geographically specific ways.

In transforming and redefining material conditions and ‘limits’, capitalism also transforms, redefines, and produces new ‘socioecological’ temporal and spatial scales (Robbins and Fraser, 2003; Sayre, 2005). All that is solid may well melt into air. What an interesting phrase in the context of the current discussion! Need we then consider the complex constituents of newly produced air into which that which was previously solid has now melted? How does it change the valence of this celebrated phrase if we include, for instance, a proliferation of persistent organic pollutants volatilized and dispersed through the atmosphere, condensed disproportionately in colder climes, and bioaccumulated in arctic and Antarctic food webs, to say nothing of the accumulation of greenhouse gases as driving forces in the changing composition of the atmosphere? In the case at hand, a whole suite of political ecological relations is caught up in and reworked in the emerging economy and geography of biofuels and carbon offsets.

Returning again to the pages of *Uneven Development*, Smith (page 88) goes on to note in a prescient reference to the implications of climate change that “the industrial production of carbon dioxide and sulphur dioxide into the atmosphere have had very uncontrolled climatic effects ... [t]he most complete and elaborate of human productions, the capitalist system, is at the same time the most *anarchic* The production process is quite deliberate, but its immediate goal, profit, is reckoned in terms of exchange-value, not use-value” (emphasis added). Critically, where green capitalism is concerned, this must include an account of the role of the entrepreneurial, bourgeois subject propelling accumulation on an expanded scale. For Marx, one of the signature

features of capitalism is the central figure presented by the capitalist, driven to expand the scale and scope of accumulation as an end in and of itself. Marx offers the following striking characterization of the phenomenon of accumulation for accumulation's sake, and its embodiment in the very *identity* of the archetypal capitalist (who, it should be noted, Marx unfortunately makes uniquely male):

“in so far as he is capital personified, his motivating force is not the acquisition and enjoyment of use-values, but the acquisition and augmentation of exchange-values. He is fanatically intent on the valorization of value; consequently he ruthlessly forces the human race to produce for production's sake. In this way he spurs on the development of society's productive forces, and the material conditions of production which alone can form the real basis of a higher form of society, a society in which the full and free development of every individual forms the ruling principle. Only as a personification of capital is the capitalist *respectable*. As such, he shares with the miser an absolute drive toward self-enrichment. But what appears in the miser as the mania of an individual is in the capitalist the effect of a social mechanism in which he is merely a cog. Moreover, the development of capitalist production makes it necessary constantly to increase the amount of the capital laid out in a given industrial undertaking, and competition subordinates every individual capitalist to the immanent laws of capitalist production, as external coercive laws. It compels him to keep extending his capital, so as to preserve it, but extend by means of *progressive accumulation*” (1977, page 729, emphasis added).

There is a lot to digest in this quote. For this discussion, I note four elements of the passage. First, there is certainly at least a hint of the Prometheanism of Marx, his sense that capitalism unleashes productive powers that will eventually lead to a ‘higher form of society’. Second, however, the bourgeois subject propels the production of new material conditions, among them new socionatures produced in, through, and even in some cases for commodity production, such as genetically modified crops in agriculture. This dynamic underpins the production of first and second nature, as crucially redefined by Smith (2008 [1984]), through material transformation but also, more abstractly, through the proliferation of nature as exchange value (second nature). Third, Marx observes that, while the bourgeois subject is defined by almost fanatically eschewing self-gratification in use-values, this is somewhat of an imposed compulsion, what Marx calls a ‘social mechanism’. As is made clear elsewhere in *Capital* (1977), this compulsion originates in the need to expand the scale of production merely in order to maintain a constant volume (not rate) of profit for any given individual capitalist; in short, the capitalist must run to stay in place (see also Harvey, 1982).

There is, of course, much to be said on these topics. But, for the purposes of this discussion, note finally that Marx makes the suggestive observation here that maintaining a nondeclining volume of profit (again, based on an expanding scale of production) as capital personified is the *only* manner in which the bourgeois subject is validated or made respectable, albeit in relation to a largely presumed wider social and cultural field. In short, this is the capitalist's identity, compelled to expand even if only to stay in place economically, but also compelled by a politics of cultural recognition in a capitalist society that valorizes his or her social role only through the ‘valorization of value’. But now this phrase must be understood in a double sense as both the expansion of value through exploitation of commodified labor power in production, and cultural value or worth attributed to the capitalist according to his or her ability to oversee this exploitation.

If correct, this portrait of the bourgeois entrepreneurial subject presents a sobering problem for green capitalism. If capitalism produces all manner of potentially progressive and liberating technologies and conditions of production (as seems to be

the case), it also produces these according to a logic driven not by meeting those needs per se, but by the anarchic dynamics of accumulation for accumulation's sake, in turn driven by a nihilistic bourgeois subject whose claim to fame is accumulation in and of itself, and, moreover, whose ability to merely reproduce himself or herself is predicated on accumulation on an ever expanding scale. While a market-centered discourse of environmentalism fixates on the most efficient ways to meet given environmental targets, it ignores the systemic production of new environmental problems (new natures) for which there may be no social regulation and no targets, and which leaves unchallenged a political economy whose mantra is growth as an end in itself.

If growth may be required to lift millions if not billions out of grinding poverty, growth in a capitalist economy is fuelled not by meeting human needs per se, but by accumulation for accumulation's sake, and, with it, not just expansion, but anarchic transformation, of social relations, of technology, and of biophysical nature. This systematically violates any robust version of the precautionary principle, interpreted generally as 'do no harm', since it places society in a position of reacting ex ante to the changing character of produced nature. To be clear, this is not to say that all forms of socionatural change produced through accumulation for accumulation's sake are necessarily destructive or undesirable. Rather, it is to say that the production of socionature, under green capitalism, is subordinated to the will of the entrepreneur whose ethos is accumulation as an end in itself. Historical examples of the phenomenon may include numerous beneficial technologies, but they also include the development of a range of new chemicals for applications in agriculture, industrial processes, and consumer goods, not least in the form of synthetic organics and hybrid organic/inorganic chemicals such as polychlorinated and polybrominated biphenyls (Colborn et al, 1996). Rachel Carson (1994) made these the focus of her life's work. Polychlorinated biphenyls, first manufactured commercially by one of the parent companies of what became Monsanto, are perhaps the poster child of the phenomenon, a boon across a range of industrial and commercial applications, but also at the heart of an almost unparalleled toxic legacy whose implications continue to unfold. Moreover, and this is the main point I am trying to emphasize here, these and other chemicals are the *direct* products of innovative capital striving to make use of its formerly wasted by-products in the absence of knowledge about or regulation of the effects of introducing new substances into commodity circulation, food chains, and the environment more generally. If this is a seldom celebrated form of 'industrial ecology', it is also quintessentially green capitalism. I am generally in agreement with and informed by O'Connor (1998) on capitalism's second, ecological, contradiction here except that I am emphasizing not only the underproduction of the (ecological) conditions of reproduction, but also the systemic *production* of new ecological conditions that may be (and, indeed, have been) highly destructive to human and nonhuman life. To advocate the desirability of such outcomes or a faith in the social foundations of their genesis, as green capitalism requires, seems rather perverse indeed.

The Branson case actually epitomizes and encapsulates this rather well. Here, a private entrepreneur proposes to invest money from companies he controls into new, private, profit-seeking ventures which ostensibly redress an existing set of environmental dilemmas (ie climate-change-inducing effects of fossil fuel combustion) by introducing a new set of fuels for profit-driven transportation services and an attendant set of new environmental problems, many as yet unspecified or not well known. Hardly an example of the harnessing of capital to the green cause, Branson's announcement from this perspective exemplifies many of the reasons to be concerned with the very possibility of or limits to a 'green capitalism'.

Green capitalism as performance

Green capitalism relies on the role of the entrepreneurial bourgeois subject as a price-guided innovator propelling more environmentally friendly technoeconomic development. But the success of green capitalism and the central role of the entrepreneur rests on more than the 'objective' (quantitative and qualitative) characteristics of resulting produced natures. Rather, green capitalism must also be accepted as legitimate. In order for this to happen, the entrepreneur must be seen—in political and cultural terms—to be an architect of, rather than an obstacle to, a greener future. On the one hand, this wider social sanction is consistent with the existing status of entrepreneurs as elites through the cultural worth and politics of recognition ascribed to accumulation for its own sake, as indicated by Marx in the extended quote above. But, on the other hand, it requires both extension and qualification of the scope of the entrepreneur's expertise into matters pertaining to environmental change. Specifically, accumulation as an end in itself is no longer (if it ever really was) adequate; rather, the viability of investment schemes, and with them the legitimacy of the green entrepreneur, turns on the realization of value in a market, which requires some form of social sanction (formal or otherwise) of the commodities produced by green capitalists. How a politics of worth articulates with commodities in the circulation and realization of value is a complex matter indeed (see eg Henderson, 2004; Sayer, 2003). But, for green capitalism to 'work', environmentalism and capitalism must be understood not as antagonisms but, rather, as a combatable fusion embodied in technoeconomic trajectories, as well as in the figure of the bourgeois subject himself or herself.

In some ways, this curious combination is the most remarkable feature of green capitalism as a cultural logic. There are parallels here between green capitalism and aspects of what have come to be called 'neoliberalism'. I have contributed previously to arguments that the reworking of long-standing political and economic variants of liberalism in relation to socionatural relations, the politics of environmental change, and environmentalism is constitutive of what we have come to understand as neoliberalism (Heynen et al, 2007; McCarthy and Prudham, 2004). But therein lies something of the problem. Both analytically and politically, we must attend to the specific ways in which what we understand to be the 'core' of neoliberalism comes to articulate with such disparate projects and outcomes, and how it is that political subjectivities are reworked in ways that undermine any sense that neoliberalism is simply something that 'they' are doing to 'us' (Larner, 2003). The alternative is to treat these combinations and permutations as self-evident manifestations of an all-encompassing neoliberalism without ever bothering to even seek explanation for how 'it' happened. As Larner (2000)—drawing on Hall (1988)—correctly observed, this is exactly a problem of hegemony, and thus of exploring how what would seem in some ways odd or counterintuitive comes (eventually) to seem normal and even common sense. This requires engaging in some understanding of the politics of legitimacy, to see how it is that particular discursive formations, institutional arrangements, social movements, actors, and material practices come to constitute the terrain of consent.

Thinking along similar lines, Brown examines the relationship between neoliberalism and neoconservatism, (2006, page 692) and asks how it is that neoliberal capitalism as "a rationality that is expressly amoral at the level of both ends and means" can be made to articulate and combine with one "that is expressly moral and regulatory" (ie neoconservatism). The same question pertains to green capitalism. How is it that the entrepreneurial subject, the capitalist, comes to have the foundation of his or her elite status extended beyond the scope of accumulation as an inherent good, so that expanded rounds of capital accumulation and social decision making led in significant measure by the entrepreneur comes to constitute a pivotal part of the

solution in meeting the challenges of environmental change and environmentalism? This is a political problem for the would-be green capitalist such as Branson; it is also a question for critics of green capitalism to grapple with, more so perhaps than has been the case to date. Obviously, this is a complex question. Yet, as in Brown's analysis, it points to the need to understand the reworking of political rationalities in relation to state and society, in this context focusing on how a cultural politics of the green entrepreneurial subject comes to have coherence. And I argue that part of the answer lies in examining the ways in which 'performances' help to embody and thereby actively construct a fusion of ostensibly disparate political and cultural agendas. In this framing, Branson's announcements and actions do 'work' through the performance of green capitalism.

Here, I draw on notions of subjectivity and identity emphasizing the performances of individual subjects through which powerful norms of social behavior are reproduced and embodied. This notion draws primarily on the work of Butler (1990), whose concern has been to explain the regulation and propagation of prevailing norms of cultural identity and behavior in realms such as sexuality, class, and race. According to Butler, the reproduction of such norms is secured in part through their being enacted and embodied by discrete performances of subjects. Crucially, such performances not only cite and reproduce prevailing norms, but at the same time offer the potential to creatively modify and subvert norms through variations in the specific manner in which they are enacted and in the particular sociospatial and temporal contexts for discrete performances. As Nash notes, "For Butler the concept of performativity is an attempt to find a more embodied way of rethinking the relationships between determining social structures and personal agency. Rather than either essentialist genders located in bodily difference or a kind of free-floating, fluid choice of gender identity, Butler suggests that women and men learn to perform the sedimented forms of gendered social practices that become so routinized as to appear natural" (2000, pages 654–655). These norms can, indeed, become so powerful that they become reified as essential material forms independent of their cultural productions. As this happens, identities and subjectivities come to be viewed as pure, stable abstractions rather than embodied performances constituted in part by specific material practices which sustain their coherence (for review and critique see McDowell, 1999; McDowell and Court, 1994; Pratt, 2004). Yet, for Butler, this coherence is always unstable, on the one hand making necessary iterative performances, and on the other hand rendering norms available for subversion (intentional or otherwise), transformation, and critical interrogation.

As Nash goes on to note, while Butler has been concerned, in particular, with norms of gender and (hetero)sexuality, the notion of performance may be used productively to examine all manner of normalized, regulated, but also embodied and iterative subjectivities. McDowell and Court (1994) focus, for example, on gendered norms in the workplace performances of men and women in the world of banking and finance. Similarly, and more germane to the notion of Branson's announcements as performances of green capitalism, Thrift (2001) has discussed the performative dimensions of a supposedly new economy whose stability relies on its narrative repetition as well as on its embodied citation by managerial classes of capital. These performances help make self-evident what is meant by the phrase 'new economy', and what behavioral norms are consistent with it. In a separate work (Thrift, 2000), he articulates a view of how speed, agility, rapid adaptation, and other hallmark features of the permanent state of emergency in which contemporary capitalist firms exist are performed not only by managers in such firms, but also within the broader spatial spheres in which they perform.

I find this idea of norms performed iteratively through embodied social practice productive (in more ways than one) in thinking about and coming to critical terms with Branson as a would-be green entrepreneurial activist. Branson occupies a singular political and cultural niche as an almost self-appointed archetype of the post-Thatcherite capitalist, independent, entrepreneurial, mercurial, innovative, and most definitely a celebrity. To whatever degree Branson wilfully seeks to convey and affect these meanings, there can be little doubt of his association with them. His emergence as a successful if not iconic entrepreneur originated in his sales of recorded music at discount prices during the late 1960s and early 1970s under the name of Virgin, leading to his eventual founding of Virgin Records. Branson diversified into the transportation sector in 1984 with the launch of Virgin Atlantic Airways, seeking to compete with the more established (and stodgy) British Airways. This was followed in 1997 by the launch of Virgin Trains, Branson's attempt to capitalize on the dismantling and privatization of British Rail. He has consistently sought to draw attention to himself and his companies with splashy business launches, highly personalized feuds with competitors (notably British Airways), and heavily publicized long-distance adventures by boat and balloon. These latter seemingly bear little direct relation to his businesses beyond free publicity for Virgin; yet, they speak volumes about Branson's brand of entrepreneurial performance as heroic, splashy, highly public, mercurial, and (in significant ways) even macho fusions of adventure and business. Branson's public persona is one of dashing, daring ambition and a wilful courtship with controversy, masculinized and often (hetero)sexualized in over-the-top ways. Metaphorically, Branson's escapades, including, for instance, his risky adventures aboard boats and balloons, seem self-consciously intended to draw attention to and underwrite the need for acumen, panache, and a spirit of conquest in business (ad)ventures embodied in the heroic male entrepreneurial subject.

And his attention-seeking ways have worked. Courted by the British Conservatives and Third Way Labour alike, Branson was actually knighted in 1999 for 'service to entrepreneurship' (*BBC News* 2004). In this context, and particularly in post-Thatcher-era Britain, Branson has come to embody the ideal of the British, but increasingly transnational, neoliberal capitalist subject. He is the singular icon of the new British business class, reinvigorated, lean, able to compete not only with Britain's older generation of corporatist (both business and state) establishment, but, equally, with the new, ostensibly less staid international capitalist class. He is, in this context, a national (and nationalist) figure, named by BBC news readers as Britain's top entrepreneur in 2003 by a whopping 57% of 15 000 voters in an online poll (the second-highest vote getter garnered 17% support). And, yet, he is also a transnational celebrity entrepreneur, made evident in part by his choice of Washington DC for the September 2006 announcement and by his choice of accompaniment in Bill Clinton.

Some might argue that Branson's singular, mercurial persona is inconsistent with the focus in the literature on everyday, even mundane performances of gender, class, and racial norms (indeed, this point has been raised in response to multiple presentations of this paper before academic audiences). Yet, despite Branson's apparent singularity, I would argue he cites and performs an already-existing, virulent, muscular neoliberal, masculinist subjectivity reworked to fit the green capitalist agenda. The highly stylized dimensions of Branson's performed persona constitute one part of his 'symbolic capital' by definition expressed in relation to existing discursive norms and expectations (Bourdieu, 1984). As such, Branson's status and 'distinction' were always already more than what could be captured by the strictly financial foundations of his fame. It is important to remember here that, for Butler, performance points to the need for prevailing discursive norms to be embodied in actions, gestures, and the like

through everyday repetitions that, via their very repetition in specific circumstances by particular bodies, become open to subversion in unpredictable and sometimes creative ways. It is through performance that not only structure but also agency come together, in bodies always in a state of being produced (Wright, 2006). Such productions not only are themselves effects, but also have effects. Branson, in this context, both signifies the hybridization of environmentalism and capitalism, and is a vector of this hybridization. I see it as entirely consistent then to argue that Branson performs green capitalism in part through creatively fusing environmentalism and entrepreneurialism.

To emphasize, this is not to say that Branson creates or single-handedly authors the notion of green capitalism, nor that he alone performs the green entrepreneur; he clearly does not. Branson's persona, carefully cultivated though it may be, exists in relation to already existing, taken-for-granted notions of the entrepreneur as cultural elite in a more-than capitalist society. Moreover, if Branson is in some ways the paradigmatic example of the heroic (masculine?) neoliberal subject, individually freed from the shackles of excessive government to choose his path, this is not the same as saying he is the sole source of this powerful narrative of neoliberal political rationality (Guthman and DuPuis, 2006). Similarly, he builds on, as much as authors, an established narrative foundation for green capitalism. Yet, it equally flies in the face of his obvious fame to argue that Branson is merely mundane. In this sense, Branson pimps 'climate' by doing some of the cultural work necessary to fuse capitalism and environmentalism. I do not use the term 'pimp' lightly here. Rather, I chose it to convey exactly the sense of sensationalism and self-promotion, but also exploitation, and, in the spirit of Butler's gendered theorization of performance, a virile form of masculine display.

Conclusion

Obviously, this paper is only somewhat about Richard Branson. I am no fan to be sure, but that does not matter. What I have tried to do is to use Branson's splashy announcements in September of 2006, and in February 2007, along with related press (print and electronic media) coverage in order to think through ecological contradictions and the cultural politics of green capitalism. I have argued that the metabolism school offers a powerful critique of green capitalism's prescriptions by taking some of the stuffing out of the notion that capitalism can, in fact, be green. But I have also argued that a theory of the metabolism of capitalist nature must come to terms with the qualitative and cultural politics of socionatures produced via the restless dynamism of capital accumulation pursued as an end in itself. This requires understanding something of what Marx meant by accumulation for accumulation's sake, and what that might mean for contemporary environmental change and environmental politics. However, I have also argued that attending to the cultural politics of green capitalism should include some assessment of the cultural work required to fuse these potentially disparate political rationalities, drawing attention to the potential importance of Branson's announcements as performances. Such performances, admittedly some higher profile than others, are required in order to secure the legitimacy of green capitalism as a political project. It follows that our theories of green capitalism, capitalist nature, ecological contradictions of capitalism, the various facets of a distinctly capitalist metabolism, and the like should not fail to appraise the significance of performances as cultural and political work which is necessary for environmentalism and capitalism to be successfully fused. The need for critical appraisals of green capitalist prescriptions has become all the more important in the intervening period since Branson's announcements, given emerging critiques of the political ecology of biofuels, and increasing recognition that consumerism, an economy of greed, and profound social

inequality across multiple scales are inextricably bound up in the problems of climate change and global warming.

Some people will react to this paper (and, indeed, already have!) by arguing that it is unrealistic, and that the world is a better place since Richard Branson pledged action on climate change. I am not immune to this critique. I was visiting the UK during an academic sabbatical at the time of Branson's first announcement, and one thing that struck me is that it would be difficult to imagine a prominent North American entrepreneur making a similar commitment to climate change in part because the level of consciousness raising and awareness about climate change as an issue in the lives of everyday people in the UK seems (at least to me, and as of this writing) much higher. There may, in fact, be an argument to be made here that Branson represents something of a rearguard action born of panic in the face of impending social regulation of the airline industry, and, moreover, that it is actually capitalism that is being forced to adapt to environmentalism, not the other way around. Clearly, green capitalism makes for hybrid politics, and I do not wish to suggest otherwise.

Still, amidst a proliferation of celebrity environmentalists (many rich though not all entrepreneurs) as well as some high-profile business elites turned philanthropists in recent years (eg Bill Gates, Warren Buffett), there is a need to consider the character of the environmental and social changes that can and cannot be championed by these people. Contacted to comment again on the second of Branson's announcements (the prize for sequestering carbon) Friends of the Earth spokesperson Tony Jupiter reminded observers of this:

"many of the ways of tackling climate change, such as energy efficiency and renewables, already exist, and it is essential that these are implemented as soon as possible. We cannot afford to wait for futuristic solutions which may never materialise. Sir Richard must also look at his business activities and the contribution they make to climate change. The world will find it very difficult to tackle climate change if air travel continues to expand and space tourism is developed" (*The Guardian* 2007).

Clearly, then, I cannot pretend to be the only person who has issues with Sir Richard's interventions on climate change, and if I have made it seem the case that has also not been my intention. Rather, my intention has been to work through some of what it means for celebrity entrepreneurs to attach themselves to environmentalism, and, by extension, some of what is at stake in the notion of a green capitalism. This is in the spirit of refusing to content ourselves with asking whether or not we are environmentalists, but asking instead what kind of environmentalism—procedural and substantive—we wish to practice.

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