
Getting out of the CAR: decarbonisation, climate change and sustainable society

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Abstract: The search for a sustainable civilisation – an essential concomitant of dealing with global warming – will be driven, in part, by the ‘normalisation’ of a low-carbon lifestyle. To date, most research and discussion of this transition have centred on technological fixes and their economic equivalent, ‘getting prices right’. Although both approaches seem to point to reduced levels of consumption as a result of more ‘efficient’ processes and practices, neither really addresses the material and cognitive changes associated with need for drastic reductions in carbon burning. There is a glaring contradiction between the impetus for high rates of economic growth and the major modifications of ‘lifestyle’ necessitated by environmental crisis. ‘Lifestyle’ is usually approached as an individual attribute. This disregards the governmentalisation of consumption through advertising and other forms of preference-shaping, which serve to link lifestyle to ‘identities’.

Keywords: decarbonisation; socialisation; consumption; social engineering; lifestyle; automobility; governmentality; biopolitics; climate change; sustainability.

Reference: Lipschutz, R.D. (2012) ‘Getting out of the CAR: decarbonisation, climate change and sustainable society’, *Int. J. Sustainable Society*, Vol. 4, No. 4, pp.336–356.

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1 Introduction

The biological existence of human beings has become political in novel ways. The object, target and stake of this new ‘vital’ politics are human life itself...as it is lived in its everyday manifestations.... If discipline individualizes and

normalizes, and biopower collectivizes and socializes, ethopolitics concerns itself with the self-techniques by which human beings should judge themselves and act upon themselves to make themselves better than they are (Rose, 2001, pp.1, 18).

More Doctors Smoke Camels than any other Cigarette (US TV ad, 1949).¹

Warning: The Surgeon General Has Determined that Cigarette Smoking Is Dangerous to Your Health (warning on US cigarette packets).²

Smoking can kill (warning on British cigarette packets).

I begin this paper with a puzzle: the decline of social smoking in the USA (Brandt, 2007; Burns, 2007). Social smoking, like social drinking, occurs in groups; it is not the often-solitary cigarette or drink characteristic of the heavily committed smoker or alcoholic. Since the 1960s, cigarette smoking – especially indoors, but also in various public venues – has become a socially unacceptable practice, one that has gradually diminished through much of the Global North.³ Fifty years ago, there were no such things as ‘smokers’ rights’ or the ‘right to a smokeless environment’. The world was a smokers’ commons: one could light up almost anywhere, at any time, without hindrance or limit. Those who objected lacked any right to a smoke-free space, whether public or private. One need only look at advertisements and films from the 1940s through mid-1960s to see how the ‘smoking lifestyle’ was glamourised by movie stars, legitimated by doctors and huckstered by tobacco companies.⁴ Indeed, the market used social engineering to turn smoking into a virtue. During that era, social smoking not only signified an idealised identity, through its linkage to the US way. Smoking was also articulated as a *moral* practice, especially via the distribution of cigarettes to members of the US military (Burns, 2007, pp.197–206).

Today, by contrast, smokers are heavily regulated, admonished and shunned. They must seek out-of-the-way places where they can engage in their now-reviled practice (e.g. Fraser, 2009).⁵ Non-smokers feel no compunctions about ordering smokers to go elsewhere, while casual group smoking is increasingly rare. This decline in a widespread social practice, I argue, constitutes a significant collective lifestyle change as well as a transformation in custom, one that is often-noted but poorly documented. Nor is that change well understood (Stuber et al., 2008).⁶ Yet, even as cigarette smoking has lost popularity, social consumption of an equally deadly substance – alcohol – has changed little, notwithstanding efforts to restrict it for reasons of health, morality and public safety. Why the difference?

This is not, however, an paper about cigarettes or alcohol. It focuses, instead, on current and future efforts to ‘decarbonise’ industrial society and to examine whether long-term changes in normalised social practices – in this instance, in the broad and growing social commitment to the CAR⁷, the ‘complex of automobility relations’ – might offer a feasible path towards reducing greenhouse gas emissions. In the case of smoking, both price increases and information about health-related consequences have played important roles in motivating broad changes in social behaviour, but there is more going on here than meets the eye in terms of social norms. Hence, my goal in this paper is to tease out a better understanding of how and why such collective ‘lifestyle’ changes come about and whether something might be learned with respect to the problem of climate change, especially as related to modes of transportation.

This problem is not an insignificant one. Personal consumption may comprise as much as 40–50% of carbon dioxide emissions (Bin and Dowlatabadi, 2005;

Brownsberger, 2008) with carbon burning transportation accounting for a third of global energy consumption and 13% of global greenhouse gas emissions (IPCC, 2007, Figure 2.1). Some 750 million oil-burning vehicles are on the world's roads today and, by some estimates, that number could rise to 1.5 billion by 2030. Private automobiles represent a major fraction of these vehicles and they are an especially inefficient and emission-intensive way of getting around. Limiting both the numbers of cars on the roads, and motivating people to use other forms of transportation, could play a significant role in reducing greenhouse gas emissions over the next 30–40 years. In other words, a change in the world's commitment to the CAR is a necessary, if not sufficient, requirement for climate change to be managed and sustainability to be achieved.⁸

In the first part of this paper, I briefly lay out the problem facing industrial societies: the need for major reductions in greenhouse gas emissions if increases in average temperatures and the consequent impacts of global warming are to be minimised (IPCC, 2007a, b). Not only are the necessary cuts substantial, achieving them will also require major alterations in the day-to-day practices of societies, businesses and individuals. I focus primarily on the USA and the European Union, not only because they continue to be in the first rank of global contributors to greenhouse gas emissions but also because relevant data are more readily available for them than for the world as a whole.

I then turn to normalised and normative social practices, what Shove and Walker (2010, p.471) identify as “sites in which systems and behaviours interact... but [which] are... [also] ordering and orchestrating entities in their own right”. In this section, I offer the logics of Bourdieu's (1985a, b) *habitus* and Foucault's (1978) governmentality and biopolitics as important elements in fostering decarbonisation in everyday life. Inasmuch as it is carbon ‘burning’, manifest and normalised in all aspects of economy, society and daily life (and, indeed, the world's biological functioning), it is the associated practices that must be altered if emissions are to be reduced. A deeper understanding of how social practices are normalised and change, and what changes them, is therefore a necessary starting point of my argument. I begin the section, therefore, with the puzzle described above: how might we explain the long-term decline in *social* smoking. I then link this narrative to *habitus*, governmentality and biopolitics, especially as they relate to consumers' carbon-intensive lifestyles.

In Section 3 of this paper, I examine consumption as a critical juncture in the shaping of individual subjectivities through lifestyles and, consequently, decarbonisation. There, I argue that not all consumption and carbon burning are qualitatively equal in terms of changing practices. Subsistence consumption is necessary to survival; luxury consumption, by contrast, is not, although it is integral to high rates of carbon burning and global economic growth. The automobile is an important site of consumption and subjectivity, and I consider whether the structures, norms and practices associated with it, especially heavy and growing reliance on personal transportation, might be modified, transformed, limited or even reduced. In the USA, as across the world, transportation consumes roughly one-third of all energy – of which 78% is lost to the environment as waste heat – and in sheer numbers the US automobile fleet is second to none. In the European Union, the corresponding fraction of energy use is around 31%, although reliance on the car is lower and mass transport is much more widely available. Changes in what has been called ‘automobility’ (Paterson, 2007; Urry, 2006) could have a significant impact on carbon burning and the CAR (Goodwin, 2010).

Finally, I address the potential role of self-regulation, via education, advertising and other forms of socialisation, in changing the *habitus* associated with carbon burning in

the CAR. There is nothing new or threatening here; in the USA, as elsewhere, markets, media and schools have been powerful forces in shaping and directing normative practices and what people *do* in everyday life. ‘Regulation’, as I use the term in this paper, refers therefore not only to those administrative, bureaucratic and legal rules that specify standards, limits and practices, but also management and stabilisation of individual and group behaviours by themselves as well as by institutions such as states, markets and even religion (James, 2009). Regulation cannot guarantee that practices will change but it can, at least, begin to establish new norms that will, eventually, become conventional ones.

2 How big a problem is the CAR?

The Intergovernmental Panel on Climate Change (IPCC), among others, have proposed that, if the very worst impacts of global warming are to be avoided during the 21st century, global aggregate greenhouse gas emissions will have to be reduced by as much as 80% (IPCC, 2007, Table 5.1; see also Broder, 2009). Achieving such reductions will be a difficult proposition, especially given the lack of any clear global programme to do so. International efforts to negotiate a binding convention have been largely unsuccessful and, while the prospects for non-carbon-based replacement technologies in the transport sector are promising, they can make only a partial contribution to the reducing emissions. Moreover, such replacements will have little effect on society’s dependence on the car without major changes in social practices and infrastructures.

Until recently, the favoured approach to the controlling and reducing emissions focused on increasing the cost of carbon burning, either through direct carbon and consumption taxes or a so-called cap and trade system (Burtraw and Palmer, 2004). Both approaches rely heavily on individualised behavioural incentives for effect, on the assumption that internalisation of the environmental costs in the prices of goods and services will bring into play elasticities of demand and also drive innovation, substitution, reductions in greenhouse gas intensities and reduced consumption. There is certainly a good deal of potential here but many governments, especially that of the USA, are loathe to risk the political backlash likely to follow resulting increases in energy costs. Moreover, a combination of higher prices and reduced demand, motivated by ‘self-interest’ in pursuit of a ‘common good’ of benefit to society (in operation not too dissimilar from Adam Smith’s ‘invisible hand’), is highly sensitive to violation, corruption and collapse. This is evident in black markets for chlorofluorocarbons (CFCs) as well as behaviours on Wall Street and the recent collapse of real estate bubbles around the world (Morris, 2008; Tett, 2009). Given long-standing conflicts among countries and within them, as well as the complexities associated with internalising the cost of carbon in goods and services, there is good reason to wonder when such a programme might actually go into operation and whether it would have any chance of succeeding within the necessary time frame.⁹

Consider, moreover, the sheer magnitude of the challenge. Global fossil fuel consumption continues to rise throughout the world (with only a relatively small decrease as a result of the recent economic recession), especially in the rapidly growing economies of Asia. Table 1 shows total current and projected global aggregate demand for petroleum, coal and natural gas, today and in 2030; it is clear that the reductions required are large and will only grow larger with each passing year. Moreover, as producers and

consumers become habituated to high levels of energy use, low-cost energy (in real terms), and the economic growth it supports, reversal of these trends will become increasingly difficult. This suggests that economic and technology alone are necessary but not sufficient elements of decarbonisation.

Table 1 Current and projected world demand for fossil fuels by type and in transportation

	2004	2030	2030 with 50–80% reduction
Oil	165 EJ	235.3 EJ	47.1–117.6 EJ
Coal	95.3 EJ	79.6 EJ	15.9–39.8 EJ
Natural gas	116.5 EJ	204.7 EJ	40.9–102.4 EJ
Total fossil fuels	376.8 EJ (81% of world total)	519.6 EJ (80% of world total)	103.9–259.8 EJ
Global light-duty and 2-wheeler fleet	750 million	1.3 billion	
Transport energy			
Oil	90.2 EJ	125 EJ	
Natural gas	1.9 EJ	18.7 EJ	
Other fossil fuel	2.1 EJ	23.4 EJ	

Source: IPCC (2007b, Figure 4.4, 4.26 and 5.5).

Note: Exajoules; 1 EJ = 173.5 million barrels of oil equivalent.

3 The end of social smoking: an analytical puzzle

Let us return, then, to social smoking: How did it come to be such a reviled practice? Three factors are usually forwarded to account for this change:

- 1 the revelation, beginning in the 1960s, of the health effects of smoking, followed by national and local legislation restricting who could purchase cigarettes and where they could be smoked (Burns, 2007, Chapter 10–11)
- 2 government warnings, on cigarette packets and in the media, about the health impacts of smoking
- 3 the imposition of significant and rising ‘sin taxes’ on cigarettes, which made a heavy smoking habit increasingly costly.

Yet, the available data are not altogether clear on the relative importance or actual effects of these factors. Research by the US Centers for Disease Control (CDC) (1998, 2007) suggests that the number of ‘smokers’, defined as those who light up at least every few days, has declined from around 43% of all US adults in 1965 to 22% in 2006, a drop of roughly half. Elasticities of demand – the increase or decline in response to changes in price – appear fairly low. Minority youth show significant reduction in smoking in response to a 10% increase in cigarette prices – no surprise given their likely income levels. By contrast, whites of all ages are unlikely to reduce their smoking rates very much in response to price changes (see also Cheng and Kenkel, 2010). The impact of warnings on cigarette packs and advertising is difficult to measure but would appear to have been limited.

By contrast, and notwithstanding widespread warnings about alcohol and drunk driving, social drinking remains widespread: in the USA, per capita consumption of all forms of alcohol rose by about 20% between 1960 and 1980 and then declined by roughly the same amount from 1980 to 1998 (Greenfield and Kerr, 2003). Certainly, alcohol has been shown to have unhealthy effects when consumed in more than very moderate quantities, while the rate of increase in the cost of most spirits has roughly paralleled that of cigarettes. Finally, campaigns against driving while drunk would seem to have also denormalised drinking, yet they have not had a significant impact. Why, then, the decline in social smoking?

A conventional interest group account would not anticipate this change; given tobacco companies' deep pockets and ranks of lobbyists, support of politicians from tobacco-producing states, and the economic importance of cigarettes to particular locales, pro-smoking forces should have been able to prevent both restrictions on cigarettes and the decline in their consumption (in fact, tobacco companies have turned much of their attention overseas, especially China, where smoking remains very popular and regulation is much more lax). Indeed, companies, farmers and members of Congress put up a fierce fight against tobacco restrictions, but failed to prevent them. While US federal law could not reach into indoor spaces, such as restaurants, stores and schools, to control smoking, many of the most important restrictions were implemented through state and local laws (Eriksen and Cerak, 2008).

It is helpful to examine briefly the history of smoking restrictions. Sumptuary laws against smoking have a long history and anti-smoking movements have emerged periodically to battle the habit, without great success (Brandt, 1990, 2007; Burns, 2007). In the USA, serious regulation dates from the 1964 Surgeon General's report on the risks of smoking, which led to legislation requiring warnings on cigarette packets (Advisory Committee, 1964). This practice was then copied in other countries. Growing numbers of ill ex-smokers and the families of deceased smokers sought compensation through lawsuits against tobacco companies, a course that, ultimately, led to large judgements (Leonnig, 2005). At the same time, growing evidence of and concern about the health effects of secondhand smoke led to bans on indoor smoking, both public and private. Note, however, that the health data, sin taxes and warnings were all targeted against *individual* smokers and their choices rather than the *social* custom of smoking.

The first restrictions on smoking in public were largely normative – the practice came to be viewed as socially unattractive and spaces were informally designated as 'no smoking' or 'smoke-free zones' to which smokers were expected to remove themselves (Kim and Shanahan, 2003). Via administrative fiat and public law, concerns about the health and aesthetic effects of secondhand smoke and social distaste, smoking was then forbidden in growing numbers of enclosed spaces, including airplanes, schools and restaurants (Eriksen and Cerak, 2008). Smokers were expected to observe self-discipline and refrain from lighting up on demand, to seek out places where smoking was permitted and to ask 'mind if I smoke?' By bringing what had been a largely naturalised and unquestioned practice to a conscious, politicised level and required to seek permission to smoke or find a permitted space in which to do the deed, smokers were reminded repeatedly of growing social strictures on smoking. At the same time, non-smokers were granted the freedom to challenge public smokers, to instill new norms in the latter and to validate the change through invocation of law and custom. As a consequence of the internalisation and normalisation of changing practices and norms, over time the behaviours of both the world's smoking and non-smoking populations began to change.

Did the new norm precede law and economics or was it the other way around? Inasmuch as all three operated through practice, we cannot easily point to one or the other.

Bourdieu's concept of *habitus* helps us to understand this process. *Habitus* can be understood as the mental and material combination of beliefs and actions appropriate to a given social circumstance, shaped and constrained through long internalisation and socialisation and expected by others (often of the same class or group) in that social circumstance (Bourdieu, 1989, p.14). Thus, as norms and expectations change, in part in response to changes in material (price, health) and discursive conditions (laws, customs), behaviours appropriate to the new social circumstances also change and come to be expected by others. The smoker no longer lights a cigarette in an enclosed public space, even if it is not forbidden, and others expect that she/he will not do so. That the changed behaviour is widely reproduced on a daily basis reinforces it as the now-normative practice.

Foucault's notions of *governmentality* and *biopolitics* are also appropriate here, inasmuch as they operate on and through socially regulated and normative *habitus*. As Foucault (1978, pp.100, 102) puts it, 'governmentality is the ensemble formed by institutions, procedures, analyses and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target populations, as its principal form of knowledge, political economy, and as its essential technical means apparatuses of security' (see also Dean, 1999, Chapter 1).

Biopolitics, according to Dean (1999, p.99), 'is concerned with matters of life and death, with birth and propagation, with health and illness, both physical and mental and with the processes that sustain or retard the optimisation of the life of a population'. A 'population' refers here not to a discrete group of people living within a specified territory but, rather, a category of individuals who share, in certain terms, a range or set of characteristics and practices (i.e. smokers, ex-smokers and non-smokers). The 'right disposition' of things is then maintained through standardisation of population groups within certain defined parameters, self-regulation of their own behaviour through conformity to these parameters and associated practices, and the disciplining function of social pressures, civil behaviours, surveillance and law, all of which constrain tendencies to stray outside of those parameters. This comes to constitute *habitus*. Applying these notions to the smoking, we see, in the US at least, a change in smoking *habitus* between 1960 and the present. Through a regime of governmentality that involved 'management' of smoking, the practice underwent a significant change. This took place not only through specific rules and regulations but also a biopolitics regarding injury inflicted on the self and others, articulated in terms of 'wellness' and an injunction against inflicting smoking's harms on others (Fries, 2008; Hester, 2009; Miller, 2005b).

Somewhat ironically, the anti-smoking movement worked in tandem with public health representatives (and scientists) during the period in question to reshape the consciousness and practices of both smokers and non-smokers *through the very same media and educational instruments used to market cigarettes*. Because the social and monetary costs of smoking came to be understood as greater than the benefits – although it is doubtful that the actual calculation of individual risk played any significant role here¹⁰ – the practice also came to be regarded as morally dubious. Smoking was not merely a threat to health and wellness; in the USA, as suggested above, it also came to be regarded as a violation of civic virtue, if not tantamount to a *sin*.¹¹ Non-smokers acted virtuously by eschewing the habit, while smokers (violators of a social ethic) became increasingly sensitised to the potential long-term health and social costs to themselves

and others of their practice. Ostracism to remote smoking zones only served to reinforce such sensibilities. Finally, while the effect of governmentality is manifest within individual consciousness, it nonetheless reflects a *social* sensibility of what is ‘right’ and what is not, and the practices and behaviours associated with it (Thompson et al., 2009). This denormalisation of social smoking suggests that deeply embedded and widely accepted *habitus* or social practices related to lifestyle and consumption can change, and be changed, over time, albeit less in response to price elasticity and government warnings and more as a consequence of norms, social pressures and countervailing practices.

4 Considering consumption

Consumption is a key consideration in addressing the CAR and its emissions, but not all consumption is normatively equal or makes equal contributions to global carbonisation.¹² It is useful to think in terms of practices associated with levels or ‘degrees’ of consumption, differentiating among basic needs such as food and water (see Table 2; also van der Pijl, 2007; Wolf, 1982), societal reproduction through both heavy and light industrial production (Battles and Adler, 1999) and identity creation (Lipschutz, 2010; Miller, 1998, Chapter 3).

In high-income societies, with economies driven by consumerism, practices have been shaped by both social regulation and forms of social engineering of consciousness and desires through normative standards and advertising (Bourdieu, 1984; Hyman, 2009; McMahon, 2001, p.80; Rhees, 1947). In this context, not all consumption of food and water involves survival – think here of meals at French restaurants or ‘designer water’. Consumption of the latter can be representational or signifying as much as thirst satisfying (Chapelle, 2005; Szasz, 2008). Consequently, in high-income societies, every day practices related to consumption constitute both ‘lifestyle’ (Binkley, 2007) and a primary source of greenhouse gas emissions (Paterson and Stripple, 2010). In particular, it is ‘consumption for identity creation’ among the financially well-off that is most important to the high rates of economic growth associated with carbonisation, and is particularly subject to governmentalisation through the market (Hodgson, 2002; Oels, 2005).

Table 2 Mode of consumption, PPP national per capital incomes and carbon dioxide emissions

<i>Country</i>	<i>Dominant mode of consumption</i>	<i>PPP/capita, 2008 US\$</i>	<i>Total CO₂ emissions, 2006 (metric tonnes)</i>	<i>CO₂ emissions/per capita, 2006 (metric tonnes)</i>
USA	Luxury/identity	\$48,430	5,748,100,000	19.3
South Korea	Luxury/identity	27,840	474,900,000	9.8
Mexico	Societal reproduction	14,340	438,500,000	4.2
Brazil	Societal reproduction	10,070	352,300,000	1.9
China	Soc. reprod./subsist.	6,010	6,099,100,000	4.7
Bangladesh	Subsistence	1,450	41,600,000	0.3

Note: Column 1, author; column 2, World Bank (2010, Table 1.1), column 3, World Bank (2010, Table 3.8) and column 4, calculated by author.

Societal reproduction is premised on the churning out of industrial and white goods, automobiles and the various other 19th and 20th century accoutrements of middle and upper class life (which can be extended to the electronics and eco-tourism of the 21st century), as well as associated practices, all of whose production and use were and remain very carbon-intensive. There is, however, a limit to how many cars, refrigerators and houses the average family requires. With saturation, white goods have come to be advertised and sold on the basis of signification, framed as essential to particular lifestyles whose requirements are disseminated through forms of consumer biopolitics (Harvey, 1998). While Cartesian dualism might caution the linking of mind and body, it is clear that they are not independent entities, inasmuch as reshaping of the latter may lead to modifications of the former that, in turn, affect identity, especially where signification and status are concerned. Such changes can involve direct bodily modification, including fashion, cosmetic surgery, tattooing, piercing and scarification (Collins, 2006; Featherstone, 2000; Sharp, 2000), as well as possessions and practices associated with status groups, such as upscale automobiles, recreational vehicles, big houses and motorcycling (Davidson, 2009; Schouten and McAlexander, 1995). How is such identity construction linked to greenhouse gas emissions (Pierce et al., 2010)?¹³ *Habitus* is reflected in consumption of certain goods that foster and facilitate normalised behaviours and practices related to status, self-image and identity.¹⁴ An excellent example of identity-related consumption practices can be seen in the fetishism around the CAR (Goodwin, 2010; Paterson, 2007; Urry, 2006).

5 The CAR as *habitus* and assemblage

I use the term ‘automobility’ – or CAR – here to refer to the complete automotive system, including not only cars but also material infrastructure (highways, gas stations, parking lots, streets and pipelines), production systems (mining and manufacture of raw materials, shipping, parts production, assembly plants, tire plants and gasoline refining), auto-related labour, tourism, advertising, the arrangement of cities and suburbs, patterns of mass transit within and without major urban areas, and individuals’ and people’s subjectivities and mentalities regarding both the car and the system within which people and cars together act as hybrid agents (or, according to some, ‘cyborgs’; Dant, 2004).¹⁵ Automobility is a prodigious site of carbonisation and, as noted earlier, its decarbonisation will be essential if the IPCC’s reduction targets are ever to be reached.

The ubiquitous gasoline-fuelled car is best understood not merely as a form of transportation or a necessity of contemporary life but, rather, an element of something closer to a Bourdieuan ‘field’ or a Foucauldian ‘*dispositif*’. The first is the ‘social space’ in which agents endowed with various forms of capital are positioned and interact based on the rules of the space, *habitus* and the application of those resources (Bourdieu, 1985a,b). The latter is

firstly, a thoroughly heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions – in short, the said as much as the unsaid... The apparatus itself is the system of relations that can be established between these elements (Foucault, 1980, p.194).

There is no comparable term or concept in the British or US literatures, although *dispositif* has been translated as ‘apparatus’ or ‘assemblage’ (Patton, 1994 cited in Haggerty and Ericson, 2000, 1994).¹⁶ Scholars of science, technology and society and innovations studies have called such assemblages ‘sociotechnical systems’ (Bijker et al., 1987; Cohen, 2006).

Automobility is pervasive. Since the beginning of the 20th century, the USA has grown up around the automobile (with much of the world following later). Notwithstanding the early availability and extent of rail-based forms of transportation (urban and interurban), the steadily decreasing price of gasoline and relatively inexpensive cars fostered an automobile-based society, urban sprawl, an expansive and constantly growing road system and a foreign policy strongly directed to the controlling oil provinces and ensuring continuing flows of the stuff (Goodwin, 2010). Many other countries have made similar commitments to automobility and, today, both China and India regard the individual car as a linchpin of future economic growth. Thus, a contradiction: at the same time that automobility must be curtailed, it is expanding at breakneck speed (WBCSD, 2004). And new propulsion technologies may not be of much help: if the fuel used to generate electricity at the power plant is carbon-based, even proliferation of plug-in electric vehicles might not substantially reduce transport-related carbon burning.

Unfortunately, automobility cuts even more deeply than this, in ways that are rarely taken into account. With a few urban exceptions – virtually all of them the result of historical, concrete commitments to mass transit¹⁷ – the US ‘lifestyle’ (aka, the ‘American dream’) has been structured and is maintained so as to make it very difficult to escape the CAR. Those without cars, or who seek to reduce their dependence on them, face serious lifestyle and practical constraints. Getting from one place to another is expensive and time-consuming¹⁸ and people’s social lives can be strongly affected in terms of widespread norms and expectations.¹⁹ Housing and businesses front on streets designed for automobile access and parking; work, chores and family responsibilities all depend on daily access to a car; the easy availability of (even now) cheap gasoline ensures that one rarely, if ever, runs out of fuel or has to drive very far to find it. Overall, US life is much easier and more comfortable with an automobile. Thus, in concert with the material infrastructures of a car-centred life, social *habitus* is reproduced and reinforced on a daily, even hourly, basis. Furthermore, even though such activities are undertaken on the basis of individual preference, choice and freedom, they nonetheless hew to broadly held norms and practices about what is appropriate in terms of life and lifestyle.

The result is that beliefs, behaviours and material features associated with automobility are largely assumed, unquestioned and positively regarded, whereas proposals to reduce or eliminate reliance on the car, or to regulate its use, are treated as costly, heretical, marginal, infeasible and even unpatriotic – indeed, they are impossible! If automobility imposes externalities on society in the form of pollution, congestion, carbonisation, oil depletion, injury and death (Cohen, 2006, pp.28–30), these are considered either as problems attributable to individual agency (e.g. unsafe driving) or matters to be addressed instrumentally through technological and economic fixes (e.g. catalytic converters, time-of-day tolls and airbags). The assemblage, as a whole, remains unexamined and largely immune to transformation or conversion in any way that reduces its expanse, expense or effects (Goodwin, 2010).²⁰

Indeed, the consumer-driver is subjected to all kinds of social pressures to buy, drive and conform, through a variety of biopolitical inducements and practices focused on status, freedom, economic necessity, health and safety and the mobile imaginary. Advertising, in particular, operates on the consumer's subjectivity and identity, as do a number of other forms of socialisation (toys), signification (liberty) and communication (media). In the USA, automobile advertising is pitched increasingly to very specific market segments and operates on the viewer/consumer's identity and subjectivity according to age, gender and lifestyles (Coleman et al., 2006). Firstly, specific linkages between the character and features of a car and the targeted demographic serve to locate the viewer in a specific population group and appeal to a sense of identification with both group and car. Secondly, themes such as the relationship between 'freedom' and mobility are foregrounded (Friedman, 1962; Friedman and Friedman, 1990). A common trope is video of a vehicle zooming along a deserted seaside road, rumbling over remote desert paths or even speeding through an eerily empty city, this notwithstanding the fact that drivers rarely travel off-road and are more likely to face traffic congestion than wide-open spaces and streets.

Thirdly, further targeting is achieved through the gendering of ads and vehicles, as in advertising for pickup trucks. Men are the focus and no women need apply! If the latter appear at all, it is as hood ornament (women compete with trucks for men's attention, and note that 'pickup' has a double meaning in US English). Note, too, how 'freedom' links to biopolitical self-regulation. The driver of a pickup, according to these television advertisements, can go anywhere he wishes, through mud and meadow, uphill and down dale, and even across the city. Because trucks tend to be bigger and ride higher than cars, the driver can also assert himself on the road and avoid being intimidated by others' road rage and unsafe practices. Driving a truck helps to reinforce that sense of masculinity associated with being 'on the move' and dominating others. At the same time, however, a pickup-driving man is also subject to behavioural constraints. He must obey or interact with various regulatory regimes, including traffic law, credit and banking systems, energy supplies, repair shops and gender roles and rules. He is free to drive anywhere, so long as he can pay for the auto loan, insurance, fuel, tolls and repairs, the truck does not break down, and there are no fences, police or other obstacles in his way. To the extent that a driver fully internalises the *habitus* of truck-driving, with both its opportunities and compulsory constraints, he regulates his own 'freedom'. Little of this is ever acknowledged as part of the driving a car.

Increasingly, consumers are being urged to move out of the CAR and into other forms of transportation – bicycles, buses and trains – in order to reduce their environmental impacts and carbon emissions. These alternatives generally involve considerable expenditures of time and effort, and they are not easily accessed by the elderly and infirm (Moulding, 2005). Moreover, only limited funding is allocated to transformation of the practices and infrastructures associated with automobility, in ways that would make society less dependent on them. Automobility and the CAR have been so internalised as normal practice that it seems to preclude any significant structural change in either organisation or subjectivities or, at a minimum, any means to render the car less central to lifestyle. While a small shift in public sentiment about automobility is detectable, this is focused primarily on greater fuel efficiency and new automotive technologies, rather than the broader assemblage and its associated *habitus* (Owen, 2010). Inasmuch as even zero-carbon cars will only operate as a substitute for today's carbon burners – and as noted

above, quite possibly, displace emissions to growing numbers of power plants – it is well worth thinking about how a shift in *habitus* could take place.

Are there any examples of such a change? Although it does not exactly offer such a transformation, the Vauban District in Freiberg, Germany represents an interesting case of really existing ‘car-free’ living (see www.vauban.de, n.d.). The district is built on the footprint of an old army base, and only on the major thoroughfare, along which runs a tram into the city, are cars allowed. Some 70% of households do not own a car, and those that do must park them in garages at the edge of the district, where a parking space costs about \$30,000. According to a report in *The New York Times* (Rosenthal, 2009), ‘By nature, people who buy homes in Vauban are inclined to be green guinea pigs – indeed, more than half vote for the German Green Party. Still, many say it is the quality of life that keeps them here’. Another article, in *The Guardian* (London), addresses the social pressure to conform to green standards:

In Vauban, if Rieselfeld [another Freiberg district] residents are to be believed, green living is compulsory. ‘It jumps in your face a little,’ Claudia Duppe warned me, ‘and there is a lot of social control. If you walk into the quarter with an Aldi carrier bag, it’s, “Sorry, I’m not talking to you; you shop at a discount supermarket and you don’t buy organic.” It feels claustrophobic, because everyone expects you to behave in the same way – and of course you are not allowed to have a car’. (Purvis, 2008)

Not to idealise this example, but in Vauban we see the combination of normative social change, regulatory constraint, material infrastructures and economic incentives that, together, operate to shape *habitus*. People living in the district come to identify with this ‘lifestyle’, comport themselves according to its norms, put peer pressure on those who bend or violate those norms, and even make somewhat-derisive judgements about outsiders. There are, of course, written rules and laws that operate in Vauban but, for the most part, these act as backup to *habitus*, governmentality and biopolitics.

6 Governing lifestyles

Efforts to regulate consumer practices and lifestyles through markets and prices alone are too instrumentally focused and do little to change the relevant assemblages to which carbon burning is central. That is, consuming practices and associated lifestyles are conceived in terms of individual preferences and choices influenced by the appropriate price signals and, at the margin, moral suasion. Thus, efforts to shape individual practice focus on raising the price of energy or travel in order to make automobility more costly, and trying to persuade consumers that it is ‘good’ to use less energy (‘good’ for whom is rarely considered). In this equation, lifestyle is regarded as the *consequence* of preferences and choices rather than their motivator or as shaped through social norms and practices. As the case of the CAR suggests, consumer preferences are strongly shaped by visions of idealised lifestyles as status-enhancing and identity-creating, and these come to be deeply internalised as guides to what is ‘proper behaviour’ for particular lifestyle categories. A cowboy would never be caught driving a Prius, and advertising never mentions the lifetime cost of maintaining a car and insuring it.

This suggests two insights: firstly, significant changes in the *social practices* of carbon burners will be necessary if the emission reductions proposed by the IPCC have any possibility of being realised. Secondly, such changes cannot rely merely on appeals

to individual health and well-being, economic self-interest or moral principles. We know that people tend to discount future health problems and costs, especially when they are as indeterminate and uncertain as those arising from climate change. We also know that, although technological innovations and financial (dis)incentives can alter immediate behaviours, long-term changes in *habitus* are required to internalise more significant alterations in subjectivities and practices (see, e.g. Fuller et al., 2010). Finally, we know that individual calculations of self-interest change according to circumstance and opportunity even as moral behaviour is an individual choice and not binding on the individual (Lipschutz with Rowe, 2005, Chapter 7). To return to the story of smoking, both self-interest (one's health and status) and morality (others' health) are factors in an individual's decision to smoke or not. In a broader sense, however, it is through governmentality and biopolitics, expressed via social pressures, norms and *habitus*, that practices and the status and identity linked to them can be transformed on a large scale. For the most part, people do not want to be regarded as 'abnormal' or 'marginal' and will alter their behaviours as new forms of belief and practice become normative and normalised.

Since excess carbonisation of the Earth's atmosphere poses a number of threats to the security, well-being and 'lifestyle' of specific populations, something 'must be done' (something that does not rely on war). To this end, it is necessary for various authorities and agencies to

- 1 acquire knowledge about the causes and consequences that arise from lifestyles
- 2 determine the appropriate technical and social means necessary to modify those practices and reduce levels of carbon burning
- 3 regulate the lifestyle practices that generate excess carbon dioxide.

There is something a bit chilling about such a biopolitics: everyone and everything comes to be seen either as a stock or flow of carbon, a contributor to climate change, or a potential threat to humanity's survival.²¹ If one is a stock, one's carbon allotment is to be maintained at a constant or reduced level; if one is a flow, one's carbon generation is to be regulated and reduced. Indeed, babies could become very expensive liabilities for the carbon burning required to see them through to adulthood (Murtaugh and Schlax, 2009).

Would such socialisation of populations into a new normative critique of carbon burning constitute social engineering of the worst sort, or would it be very much like common practice today? Targeted populations are already continuously exposed to social engineering via the ubiquity of advertising, commercials, brand names and performance, a practice that is more than a century old (Peattie and Peattie, 2009).²² In the USA, this is called 'protected speech' and can only be interfered with if it is shown to be demonstrably untrue or libellous. Inasmuch as little of this social engineering dwells on the defects and shortcomings of products and practices, how does it differ from 'government propaganda' in any significant sense?

Moreover, there is not that great a difference among the old trope of 'brainwashing', advertising, and the mass social engineering so feared in liberal societies and biopolitical regulation of consumer behaviour through various forms of governmentality.²³ While debate continues to rage over what is biological in human nature and what is learned, it is fairly obvious that individuals are not born with specific preferences or already-socialised into normative practices. The very process of becoming a fully fledged person depends on learning from authority figures and the social environment what are appropriate

behaviour and beliefs for a person in a particular social position. There is, to be sure, considerable variation among individuals, even within fairly homogenous societies, but these all fall within certain normative boundaries. One who transgresses those boundaries is often regarded as ‘abnormal’ and is marginalised in society. We can call this learning process education or we can call it social engineering; in either case, it involves the shaping of individual subjectivity in certain ways and directions.

The important takeaway point here is that it is not *education* that effects normative change; rather, it is *socialisation* (Akerlof and Kranton, 2005). Education assumes calculative rationality: if you have the appropriate information you can do the numbers and become convinced that a certain course of action is to your benefit (at least, this is what is assumed to happen). Socialisation, by contrast, makes no such assumptions: small children are easily socialised by authority figures, such as parents and teachers. Older children and adults are less susceptible to such influences, but they are hardly immune. It would be difficult, but not impossible, to devise biopolitical tools intended to resocialise individuals through alternative imaginaries oriented around notions of status, identity, costs and necessity, linked to new material infrastructures (Shove and Pantzar, 2005) and forms of discipline, pushing towards the government of mobility and a new *habitus*.

For example, such social imaginaries could be framed in terms of ‘freedom from the automobile’ and its associated costs and discomforts, and linked to other forms of transport, a more relaxed life, better health, less time spent in traffic jams, etc.²⁴ while denigrating those who insist on driving as lacking virtue and contributing to climate change (a process called ‘social marketing’; see Peattie and Peattie, 2009). Just as there is a certain cachet, in some circles in California, to driving hybrid cars, carbon burners could be increasingly disparaged as unhealthy, described as a threat to children and nature, and even taxed out of existence. Efforts to impose congestion charges in cities, as has been done in considerable success in London, point in this direction (Larson and Sasanuma, 2010, p.232; Shove and Walker, 2010, pp.473–474). Of course, there would also need to be incentives that make alternatives as easy to use as automobiles or easier and, ideally, less costly on a day-to-day basis (as in Vauban). Changing attitudes and subjectivities is not sufficient to effect such a change, but it is almost certainly necessary to that goal. But no one ever suggested that achieving sustainability and decarbonisation would be easy.

7 Conclusion

Governmentality and biopolitics are not merely hypothetical concepts or particular forms of social power (Lipschutz with Rowe, 2005), they are also instrumentalities that regulate people’s behaviour in lieu or the absence of direct mechanisms of social control. Even duly authorised agencies, possessing the requisite police power to monitor, discipline and punish those who violate society’s rules and laws, cannot keep track of the many and various opportunities for individuals to transgress the social norms of Anglo-American globalised capitalism (Lipschutz, 2008). There are few legitimate ways available to stabilise and reproduce social relations and arrangements other than through the self-regarding and self-regulating consumer. DeCARbonisation is subject to this logic, too. Ultimately, we all are carbon ‘sources’ not only via basic needs but also through the myriad of activities in which we engage, the things we consume and the services we utilise that, taken together, constitute ‘lifestyles’. In one sense, therefore, a biopolitics of

carbon involves moving the world's high-consumption populations towards modes of life and practice that consume less and generate lower levels of CO₂. Whether this can succeed will only become clear if it is tried. Effective management of carbon will be extraordinarily complex, but the case of smoking suggests that designing a biopolitics to transform *habitus* and foster decarbonisation is not infeasible. Perhaps, some day, driving a car will become as socially distasteful as cigarette smoking is today. We will not know until we try to change.

Acknowledgements

Versions of this paper have been presented at a number of different workshops and conferences, most recently the Annual Conference of the British International Studies Association, University of Leicester, 14–16 December 2009. I am especially grateful for the detailed and helpful suggestions by Matthew Paterson, Elizabeth Shove, two anonymous reviewers for *IJSS* and the audiences at those presentations.

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Notes

- ¹TV commercial (1949).
- ²Required by the Public Health Cigarette Smoking Act of 1970 (15 USC, Section 1331).
- ³I recognise that social smoking in the UK has been forced outdoors and that the practice remains much more popular and visible there than in the USA; the King (1993) story 'The Ten O'clock People' provides an amusing spin on such outdoor smoking. According to Wikipedia, smoking restrictions of some type have been imposed in 88 countries worldwide. See List of Smoking Bans. Available at: http://en.wikipedia.org/wiki/List_of_smoking_bans, Accessed on 18 October 2010.
- ⁴Many such ads can be found at Euro-Cig.com. Available at: http://www.euro-cig.com/gallery.php?id_cap=11, Accessed on 10 July 2009.
- ⁵I might also note that, when I first went east on research trips in both the USA and Europe during the 1980s and 1990s, such restrictions on smoking were virtually non-existent. Today, these are universalised across North America, most of Europe and many other parts of the world. In 2009, Turkey instituted a ban on smoking in restaurants and bars (Fraser, 2009).
- ⁶So far as I have been able to tell, the social history of smoking has yet to be written. There is, to be sure, a growing literature on the 'sociology of smoking' and smoking's 'social context', although most such articles seem to appear in medical journals.
- ⁷As will be seen later in this paper, the term 'CAR' refers to the entire system constructed around the private automobile.
- ⁸The literatures on both climate change and sustainability are enormous and are growing by leaps and bounds. On the former, see IPCC (2007a,b); on the latter, Schellnhuber et al. (2010).
- ⁹In fact, there is an emissions trading programme in operation within the European Union (Ellerman and Buchner, 2007), as well as one in development in California (Buchanan, 2010). The first is operating poorly; the second has yet to begin.
- ¹⁰The calculation and consciousness of risk are often in conflict (see the special *Daedalus* (1990) issue on 'Risk').
- ¹¹In the past, some fundamentalist Protestant groups placed smoking in the same league as drinking and licentious behaviour. Beginning in the 1960s, such condemnation came to be primarily *secular*, and the injunction against inflicting harm on others more Kantian than Calvinist (see Rose, 2001).
- ¹²The literature on consumption is vast and 'consumer and consumption studies' and 'consumer science' are active academic and commercial disciplines (see, e.g. Barber, 2007; Campbell, 1987; Miller, 2005a,b; Stearns, 2001, etc.).
- ¹³On this, see also Dobers and Strannegård (2005), McDonald et al. (2006) and Clarke et al. (2007).

¹⁴Much current research focused on 'lifestyle' has tried to quantify the carbon footprints (or similar metrics) of distinct practices rather than that of broader 'assemblages' (see Bin and Dowlatabadi, 2005; Druckman and Jackson, 2009; Murtaugh and Schlax, 2009). For broader and more sociological work, see, e.g. Hobson (2002, 2006, 2009). The consequences of not considering 'assemblages' are addressed by Owen (2010).

¹⁵Latour (1986) uses the term 'actant' to describe things and objects that motivate action in agents; here, the car is an actant operating with its drivers and passengers to produce a kind of cyborg.

¹⁶The term 'assemblage' comes from Deleuze and Guattari (1987). Here, I rely on a modified definition offered in Haggerty and Ericson (2000, p.608, citing Patton, 1994, p.158). An assemblage consists of a 'multiplicity of heterogenous objects, whose unity comes solely from the fact that these items function together, that they 'work' together as a functional entity'.

¹⁷In the USA, I have in mind metropolitan areas such as Boston, New York and Philadelphia, where subway and rail were built prior to the advent of widespread automobility and which did not, contra Los Angeles, do away with them. But even these cities are deeply tied into automobility. European cities have come to the CAR much more recently but are suffering its effects, and many cities in developing countries are drowning in traffic congestion.

¹⁸Full life-cycle cost amortisation might reveal the high costs of car ownership, but people tend to make decisions based on immediate costs in terms of both money and time (see Spitzley et al., 2004).

¹⁹Historically, people seldom travelled more than a few kilometres from their natal village, except in unusual circumstances. Relatively inexpensive travel, trade and communication have vastly extended people's mobility and social networks.

²⁰Efforts to address the 'transition' away from the automobile have been addressed in the literature on 'sociotechnical transition management' (see, e.g. Geels and Schot, 2007; Kemp and Rotmans, 2004). A general critique of this concept can be found in Shove and Walker (2007) (see also the World Carfree Network at <http://www.worldcarfree.net/>).

²¹We might even expect that breathing could be regulated, since humans currently emit something like two billion tons of carbon per year into the atmosphere. For one apocryphal and probably untrue story about this, involving Al Gore, see <http://www.firetop.co.uk/2006/11/15/cut-co2-emissions-stop-breathing/>, Accessed on 9 January 2009.

²²Certainly, if we regard religion as a form of 'social engineering' basic to societal production and reproduction, the practice has a very long history.

²³This was a charge first issued by Packard (1957). A recent reassessment of Packard's charge is Hodgson (2003) (see also Barber, 2007).

²⁴There is some discussion online about such freedom. The late Paul Newman and others have pointed out that the average driver works one day a week to pay for automobility (see The Overhead Wire, 2008).