The City and the Car*

MIMI SHELLER AND JOHN URRY

Introduction

According to Heidegger, machinery 'unfolds a specific character of domination ... a specific kind of discipline and a unique kind of consciousness of conquest' over human beings (quoted in Zimmerman, 1990: 214). In the twentieth century this disciplining and domination through machine technology is most dramatically seen in the system of production, consumption, circulation, location and sociality engendered by the 'motor car', what Barthes describes as 'the exact equivalent of the great Gothic cathedrals' (1972: 88).

Indeed, the car is a particularly good illustration of a putative globalization. One billion cars have been manufactured in the twentieth century. There are currently over 500 million cars roaming the world, a figure that is expected to double by 2015 (Shove, 1998). However, the car is rarely discussed in the 'globalization literature' (see Albrow, 1996), although its specific character of domination is as global as the other great technological cultures of the twentieth century, the cinema, television and the computer, which are seen as constitutive of global cultures. Contemporary 'global cities', and cities in general, remain primarily rooted in and defined by automobility as much as by newer technologies. Thus, to understand the ways in which social life might be reconfigured by new technologies of information and communication will require that social analysts take seriously their relation to the car.

Yet the social sciences have generally ignored the motor car and its awesome consequences for social life. Three 'disciplines' that ought to have examined the social impact of the car are industrial sociology, the analyses of consumption practices and urban studies. Within industrial sociology there has been little examination of how the much-analysed mass production of cars has extraordinarily transformed social life. It did not see how the huge number of cars being produced through 'Fordist' methods, especially within the US, were impacting upon the patterns of social life as car ownership became 'democratized' and generalized. Within the study of consumption there has not been much examination of the use-value of cars in permitting extraordinary modes of mobility, new ways of dwelling in movement and the car culture to develop. The main question for consumption analyses has concerned sign-values, with the ways that car ownership in general or the ownership of particular models does or does not enhance

people's status position. The car as the locus of consumption normally remains on the drive of the house (see Shove, 1998).[1]

In this article it is the absence of the car in the analysis of the urban that is our particular concern. It was in the modern city that the founders of sociology first envisioned the contraction of social space, the density of transactions and the compression of 'social distance' that comprised modernity. Yet sociology's view of urban life has failed to consider the overwhelming impact of the automobile in transforming the time-space scapes of the modern urban/suburban dweller. Indeed, urban studies have at best concentrated upon the sociospatial practice of walking and especially upon *flânerie* or 'strolling' the city. It has been presumed that the movement, noise, smell, visual intrusion and environmental hazards of the car are largely irrelevant to deciphering the nature of city life. Many urban analyses have, in fact, been remarkably static and concerned themselves little with the forms of mobility into, across and through the city (although see Lynd and Lynd, 1937; and Hawkins, 1986; Lynch, 1993, on the linearity of traffic). Where such mobilities have been taken into account, it is generally either to lament the effects of the car on the city (Jacobs, 1961; Mumford, 1964) or to argue that a culture of speed replaces older cultures of urbanism (Virilio, 1997).

In general, then, cars have been conceived of either as a neutral technology, permitting social patterns of life that would happen anyway, or as a fiendish interloper that destroyed earlier patterns of urban life. Urban studies has omitted to consider how the car reconfigures urban life, involving, as we shall describe, distinct ways of dwelling, travelling and socializing in, and through, an automobilized time-space. We argue that mobility is as constitutive of modernity as is urbanity, that civil societies of the West are societies of 'automobility' and that automobility should be examined through six interlocking components. It is the *unique combination* of these components that generates the 'specific character of domination' of automobility across most societies across the globe (see Freund, 1993; and Whitelegg, 1997, on many of these). Automobility is:

- The quintessential *manufactured object* produced by the leading industrial sectors and the iconic firms within twentieth-century capitalism (Ford, GM, Rolls-Royce, Mercedes, Toyota, VW and so on); hence, it is the industry from which key concepts such as Fordism and post-Fordism have emerged to analyse the nature of, and changes in, the trajectory of western capitalism.
- The major item of *individual consumption* after housing which (1) provides status to its owner/user through the sign-values with which it is associated (such as speed, home, safety, sexual desire, career success, freedom, family, masculinity, genetic breeding); (2) it is easily anthropomorphized by being given names, having rebellious features, being seen to age and so on; and (3) generates massive amounts of crime (theft, speeding, drunk driving, dangerous driving) and disproportionately preoccupies each country's criminal justice system.
- An extraordinarily powerful *machinic complex* constituted through the car's technical and social interlinkages with other industries, including car parts and accessories, petrol refining and distribution, road-building and maintenance, hotels, roadside service areas and motels, car sales and repair workshops, suburban house building,

---

1 A proliferation of recent conferences on automobility and car culture suggest that this is rapidly changing. Just a small selection includes: 'Speed: A Workshop on Space, Time and Mobility' (October 1999), sponsored by the Danish Transport Council; 'Destination Anywhere: The Architecture of Transport in the 20th Century' (8 March 2000), a conference of the Paul Mellon Centre for Studies in British Art, in London; 'Mobilizing Forces: Social and Cultural Aspects of Automobility' (5–6 May 2000), an international workshop organized by researchers at Göteborg University, Sweden, and sponsored by the Swedish Transport and Communications Research Board; 'The New Jersey Turnpike: Exit Into the American Consciousness' (4 November 2000), a conference organized by the New Jersey Historical Society.

new retailing and leisure complexes, advertising and marketing, urban design and planning.

- The predominant global form of 'quasi-private' *mobility* that subordinates other 'public' mobilities of walking, cycling, travelling by rail and so on; and it reorganizes how people negotiate the opportunities for, and constraints upon, work, family life, leisure and pleasure.
- The dominant *culture* that sustains major discourses of what constitutes the good life, what is necessary for an appropriate citizenship of mobility, and which provides potent literary and artistic images and symbols — such as E.M. Forster's (1931: 191) evocation in *Howard's End* of how cars generate a 'sense of flux', and J.G. Ballard's (1973) *Crash*, which describes the erotics of 'crash culture' (and see Bachmair, 1991; Eyerman and Löfgren, 1995; Graves-Brown, 1997; Creed, 1998).
- The single most important cause of *environmental resource-use* resulting from the exceptional range and scale of material, space and power used in the manufacture of cars, roads and car-only environments, and in coping with the material, air quality, medical, social, ozone, visual, noise and other consequences of pretty well global automobility (see SceneSusTech, 1998).

We use 'automobility' here in order to capture a double-sense. On the one hand, 'auto' refers reflexively to the humanist self, such as the meaning of 'auto' in notions like autobiography or autoerotic. On the other hand, 'auto' often occurs in conjunction with objects or machines that possess a capacity for movement, as expressed by terms such as automatic, automaton and especially automobile. This double resonance of 'auto' is suggestive of the way in which the car-driver is a 'hybrid' assemblage, not simply of autonomous humans, but simultaneously of machines, roads, buildings, signs and entire cultures of mobility (Haraway, 1991; Thrift, 1996: 282–4). In the following we outline a manifesto for the analysis of 'auto' mobility that explores this double resonance, of autonomous humans *and* of autonomous machines only able to roam in certain time-space scapes. Such a manifesto, we argue, will transform current understandings and analyses of contemporary cities (it should be noted that most examples in this article are taken from North America and western Europe).

Automobility is a complex amalgam of interlocking machines, social practices and ways of dwelling, not in a stationary home, but in a mobile, semi-privatized and hugely dangerous capsule. In what follows we argue that automobility has reshaped citizenship and the public sphere via the mobilization of modern civil societies. We begin by tracing urban sociology's paradoxical resistance to cultures of mobility, and the implications this has had for theories of civil society. In particular, we argue that civil society should be reconceptualized as a 'civil society of automobility', a civil society of quasi-objects, or 'car-drivers' and 'car-passengers', along with disenfranchised 'pedestrians' and others not-in-cars, those that suffer a kind of Lacanian 'lack'. There is not a civil society of separate human subjects which can be conceived of as autonomous from these all-conquering machinic complexes. We then explore how automobility makes instantaneous time and the negotiation of extensive space central to how social life is configured. As people dwell in and socially interact through their cars, they become hyphenated car-drivers: at home in movement, transcending distance to complete series of activities within fragmented moments of time. The car is thus not simply an extension of each individual; automobility is not simply an act of consumption since it reconfigures the modes of especially urban sociality. Urban social life has always entailed various mobilities but the car transforms these in a distinct combination of flexibility *and* coercion. In the conclusion, we will begin to trace a vision of an evolved automobility for the cities of tomorrow in which public space might again be made public.

Automobility, civil society and the city

The material fabric of cities substantiates a static architectonic that is shot through with 'ways' of mobility. Cities are encrusted with ramps and overpasses, bridges and tunnels, expressways and bypasses, roundabouts and 'gyratories' (see Morse, 1998: Chapter 4 on liquidity). Hemmed in by this physical infrastructure of mobility, urban architecture has become a function of movement. City-space is dominated by intersecting quasi-objects in their disorganizing semi-autonomy. Classical urban architecture was designed from the point of view of the pedestrian, using visual perspective to guide the walker through arcades and squares defined by fountains, to open, wider vistas defined by the spatial vanishing points created by judiciously placed obelisks and domes (Sennett, 1990). Postmodern architecture's emphasis on quickly-read signs and surface quotation, in contrast, arose in part out of the experience of driving along the 'strip' with its billboards and neon signs, as epitomized by learning from Las Vegas (Venturi *et al.*, 1972; and see Freund, 1993: 104–6).[2] Yet urban studies clings to the humanist figure of the pedestrian and cars are often seen as the enemy of urbanism, of civility, even of citizenship — an intrusion from the suburban borderlands. Here we will consider two traditions of theorizing the urban that have contributed to the perception of mobility as inimical to civility and citizenship: urban studies in the Chicago School tradition, and theories of civil society.

Urban studies have not ignored mobility altogether; indeed, the diversity, density and stimulus of urban social life have long been associated with forms of mobility. Nevertheless, an excess of mobility has often been blamed for urban degeneration and danger. In the Chicago School's early ecological approach to cities mobility played a central part in diagnosing urban pathologies. Burgess argued that mobility was 'perhaps the best index of the state of metabolism of the city. Mobility may be thought of in more than a fanciful sense, as the ''pulse of the community''' (Burgess, 1925: 59). However, too much mobility and the stimuli that it entailed, he suggested, 'tends inevitably to confuse and to demoralize the person', resulting in a host of urban ills that undermined the city as a social organism (*ibid*. 58). Robert Park, even more than Burgess, placed personal mobility at the centre of his understanding of urban social life. He proposed that along with the basic human urge to dwell in a place, 'that other characteristic ambition of mankind [is], namely, to move freely and untrammelled over the surface of mundane things, and to live, like pure spirit, in his mind and in his imagination alone... Mind is an incident of locomotion' (Park, 1925: 156).

However, he too saw the need for a balance between locality and mobility. For Park the figure of the Hobo was emblematic of the uprooted, rudderless, footloose human, with no place in the world and no vocation. 'Society is, to be sure, made up of independent, locomoting individuals' he argued:

> But in order that there may be permanence and progress in society the individuals who compose it must be located; they must be located, for one thing, in order to maintain communication, for it is only through communication that the moving equilibrium which we call society can be maintained. All forms of association among human beings rest finally upon locality and local association (Park, 1925: 159).

Modern urban social life — or what might more broadly be called civil society — was therefore seen as *attached* to the city, *located* in neighbourhoods and associational spaces,

---

2 While some urban architecture tries to reinvent the pedestrian scale (such as the Centre Pompidou in Paris) or avoid the car altogether (such as the Millennium Dome in Greenwich), all buildings exist in relation to a streetscape and a flow of social practices that remain overdetermined by the car.

and *rooted* in places of dwelling. Mobility was a necessary feature of growth and modernization, but had to be stabilized by association and anchored within place.

This understanding of association as an outgrowth of locality, that is, as architecturally located and *opposed* to mobility, is closely related to the conceptualizations of civil society grounded in the history of urbanization, which has also seen automobility as a threat to the public sphere. Civil society is typically defined as a 'realm' of association, mediating either between individuals and the state in the Hegelian tradition, or between economy and state in the Gramscian tradition (Cohen and Arato, 1992). It is understood as located in specific spaces of sociality, rooted in urban architecture rather than in mobilities, at best connected by newspapers and the imagined communities of 'print publics' (Anderson, 1991). This static conception of civil society originates in nineteenth-century notions of urban society, but has been built into late-twentieth-century social theory. Crucially, the civil society concept has been elaborated on a model of refined urban sociality, the realm of *bürgergesellschaft*.

The power of civil society crucially depends on the democratic 'social space' created by the temporal syncopation and movement between two separate 'spheres', the private and the public, through which individuals can develop their deliberative capacities as citizens (Benhabib, 1992; Cohen and Arato, 1992). In the idealized urban public spaces of, for example, Arendt's *polis* (1958), Tocqueville's voluntary associations (1835), or Habermas's coffee-houses (1992), an informed rational debate could supposedly take place — at least among the elite men who could gain entry to such 'public' places (Landes, 1988). Thus, as is often noted, we find the linguistic root of citizen, civil and civic in city (*civitas*), and of politics and polity in *polis*. While these theorists draw a sharp distinction between what is private and what is public, there is an unexamined blurring between the 'public sphere' (of citizenship) and the 'public space' (of the city).

Because of this common slippage, the *spatialization* of 'publicity' has not in itself been systematically examined. Indeed, the word public itself takes on a multitude of overlapping but at times mutually contradictory meanings within different discursive traditions (Weintraub, 1997). Given this confusion of institutional 'spheres' with physical 'spaces', these models of civil society attend little to how people actually *move* between the private and the public spaces. Indeed, a crucial issue might be how people play with and upon that blurred boundary while moving through urban space (though some theorists of the 'performative' dimensions of the public touch upon such questions; see Keane, 1988). Attention to the mobility of urban publics raises new questions about how such mobility is unequally available, gendered as masculine, or racialized as 'white' (but see Ryan, 1990; and Kelley, 1996). Most importantly, there is an implicit underlying threat that is barely addressed by theorists of civil society: that the very freedom of mobility necessary to publicity somehow also holds the potential to disrupt public space, to interfere with the more stable associational life and to undermine proper politics. Mobility is the enemy of civility.

This fear of mobility (and of the unsettling encounters it may bring) betrays a failure to remember that mobility is in some respects constitutive of democracy — it is a democratic 'right'. From the autonomous public emerged what Habermas describes as 'a sphere of personal freedom, leisure, and freedom of movement' (1992: 129). Yet it was the process of democratization of that freedom of movement — enabled partly by motor cars — which led to the collapse of the very distinction between what is private and what is public through transforming the flows of people in time-space scapes. When many commentators outline the decline of a public sphere of civil society, they often focus on the mass media, but seldom link this 'structural transformation' of the public sphere to this other great transformation of modern civil society, namely, the emergence of various logics of personal mobility/liquidity. In modern western societies, as Turner notes, 'the growth of mass transport systems brought about a democratisation of geographical

movement so that the ownership of a motor car became, along with the ownership of a home, a basic objective of modern democracies' (1994: 128), though not one achievable by all. From the railway in the nineteenth century to automobility in the twentieth, the geography of urban public and private space — and with it the networks of civil society — have been fundamentally transformed by mass 'democratic' movement.

Like Burgess and Park, analysts of the public sphere depict a fundamental conflict between urban civility *and* democratized mobility. Both the intimate sphere of the private family and the related public sphere of old urban forms of dwelling are perceived as being drowned-out in the modern urban built environment centred on traffic flow:

> [The] meaningful ordering of the city as a whole . . . has been overtaken, to mention just one factor, by changes in the function of streets and squares due to the technical requirements of traffic flow. The resulting configuration does not afford a spatially protected private sphere, nor does it create free space for public contacts and communications that could bring private people together to form a public (Habermas, 1992: 157–8).

The urban public sphere disintegrates 'into an ill-ordered arena for tyrannical vehicle traffic' (*ibid*.: 159). Sennett, likewise, touches on automobiles in *The fall of public man*, where he suggests that the unfortunate 'idea of public space as derivative from motion parallels exactly the relations of space to motion produced by the private automobile' (1977: 14). People 'take unrestricted motion of the individual to be an absolute right', he argues. 'The private motorcar is the logical instrument for exercising that right, and the effect on public space, especially the space of the urban street, is that the space becomes meaningless or even maddening unless it can be subordinated to free movement. The technology of modern motion replaces being in the street with a desire to erase the constraints of geography' (*ibid*.).

Lefebvre makes a similar point about the negative effects of the car on urban public spaces, and the high social costs of turning over public space to private cars:

> [C]ity life is subtly but profoundly changed, sacrificed to that abstract space where cars circulate like so many atomic particles. . . [T]he driver is concerned only with steering himself to his destination, and in looking about sees only what he needs to see for that purpose; he thus perceives only his route, which has been materialized, mechanized, and technicized, and he sees it from one angle only — that of its functionality: speed, readability, facility (Lefebvre, 1991: 312–13).

This destruction of urban public space and introduction of a superficial built environment reflects a 'strategy of the state bureaucracy', as seen in the Haussmanization of Paris or the building of Brasilia (*ibid*.: 312), married to the interests of oil companies and car manufacturers (*ibid*.: 359, 374). The end result, he argues, is that 'urban space tends to be sliced up, degraded, and eventually destroyed by . . . the proliferation of fast roads and of places to park and garage cars, and their corollary, a reduction of tree-lined streets, green spaces, and parks and gardens' (*ibid*.: 359).

What these widely-accepted formulations of modernity and urbanism thus neglect, and analyses of the decline of publicity only hint at, is what we call the *mobilization* of modern civil societies. The focus on urbanization as a mode of location, of dwelling, of architecture and of association has deflected attention from the ways in which movement also constitutes cities as civil spheres. If *urbanization* leads to the intensification of human habitats, the concentration of places in space, and the unification of condensed temporal flows, then *automobilization*, by contrast, leads to the extension of human habitats, the dispersal of places across space, the opportunities to escape certain locales and to form new socialities, and the fragmentation of temporal flows, especially through suburbanization. On the latter, Morse (1998: 106) notes that the freeway is not so much a place but a vector. Both processes, urbanization and automobilization are *together* characteristic of modernity and of the culture of cities. Meeting places require that people get to them. Mobility cannot simply be conceived as the enemy of *civitas*; however much

we may despair of vehicular traffic and busy roads, the auto-freedom of movement is part of what can constitute democratic life.

That this has not been appreciated is because analyses of the modern have normally been in terms of 'structure' rather than 'mobility', and have viewed civil society as essentially 'reflective' and/or 'residual' (Emirbayer and Sheller, 1999). Mobility and the technologies associated with it have generally been understood as arising from capitalism, while non-economic and non-state processes of mobilization have been overlooked. Automobility, the coercive yet flexible freedom of civil actors, is, we suggest, a crucial dimension of processes of democratization and reflexive modernization on the one hand, and of the deeply contested constraints and unintended consequences of modernity on the other. Civil society is thus not to be viewed as simply or principally a 'structure'. Civil societies are sets of mobilities flowing over roads which have only been civilianized as more and more social actors have demanded rights of personal mobility. Civil actors draw on structures such as the road system in ways that may be unexpected and contestatory. This deployment of such 'structured' resources can result in socially innovative practices that are neither residual nor reflective of these larger structures. The logic of communication is also embedded in transportation systems as civic (as well as economic and political) networks. Civil society is thus a site, or perhaps a 'crossroads', where mobilities have been sought by many actors and groups struggling to establish their place of movement within civil society and, in particular, to move within and between cities using the established routeways of capital and the state. In the next section we go on to consider some of the more detailed transformations of time and space that such an automobilized civil society presupposes and produces.

Time and space in the city

Raymond Williams' novels interestingly bring out how twentieth-century social life exists through interconnecting time-space paths linking place with place. Williams elaborates how many socialities of civil society are sustained through technologies of movement which, literally and imaginatively, connect peoples, and especially families, over significant, complexly structured, heterogeneous distances. In *Border country*, Williams is 'fascinated by the networks men and women set up, the trails and territorial structures they make as they move across a region, and the ways these interact or interfere with each other' (Pinkney, 1991: 49; Williams, 1988). Williams mainly considers the connections made possible by the railway. But these are now less significant than those of automobility. 'What was central now was the fact of traffic', as Williams puts it (quoted in Pinkney, 1991: 55).

Automobility permits multiple socialities, of family life, community, leisure, the pleasures of movement and so on, which are interwoven through complex jugglings of time and space that car journeys both allow but also necessitate. These jugglings result from two interdependent features of automobility: that the car is immensely flexible *and* wholly coercive. We elaborate some of the temporal and spatial implications of this simultaneous flexibility and coercion for the constitutive nature of urban life.

Automobility (in some respects) is a source of freedom, the 'freedom of the road'. Its flexibility enables the car-driver to travel at speed, at any time, in any direction along the complex road systems of western societies that link together most houses, workplaces and leisure sites. Cars, therefore, extend where people can go and hence what as humans they are literally able to do. Much of what many people now think of as 'social life' could not be undertaken without the flexibilities of the car and its availability 24 hours a day. It is possible to leave late by car, to miss connections, to travel in a relatively timeless fashion. People find pleasure in travelling when they want to, along routes that they choose, finding new places unexpectedly, stopping for relatively open-ended periods of time, and

moving on when they desire. They are what Shove (1998) terms another of the 'convenience devices' of contemporary society, devices that make complex, harried patterns of social life, especially in the city, just about possible, at least, of course, for those with cars.

But, at the same time, this flexibility and these rights are themselves necessitated by automobility. The 'structure of auto space' (Freund, 1993) forces people to orchestrate in complex and heterogeneous ways their mobilities and socialities across very significant distances. The urban environment built for the convenience of the car has 'unbundled' those territorialities of home, work, business and leisure that have historically been closely integrated (Sassen, 1996).

Automobility has fragmented social practices that occurred in shared public spaces within each city (see SceneSusTech, 1998). In particular, automobility divides workplaces from homes, so producing lengthy commutes into and across the city. It splits homes and business districts, undermining local retail outlets to which one might have walked or cycled, thereby eroding town centres, non-car pathways and public spaces. It also separates homes and various kinds of leisure sites, which are often only available by motorized transport. Automobility turns access zones on urban fringes into wastelands, necessitating ever-further travel to escape the urban prison of cement and pollution. Members of families are split up since they will live in distant places necessarily involving complex travel to meet up even intermittently. People are trapped in congestion, jams, temporal uncertainties and health-threatening city environments, as a consequence of being encapsulated in a privatized, cocooned, moving environment that uses up disproportionate amounts of physical resources. At the same time, automobility disables those who are not car-drivers (children, the sight impaired, those without cars) by making their everyday habitats dangerously non-navigable (Kunstler, 1994).

Automobility thus coerces people into an intense flexibility. It forces people to juggle tiny fragments of time so as to deal with the temporal and spatial constraints that it itself generates. Automobility is a Frankenstein-created monster, extending the individual into realms of freedom and flexibility whereby one's time in the car can be positively viewed, but also structuring and constraining the 'users' of cars to live their lives in particular spatially stretched and time-compressed ways. The car, one might suggest, is Weber's 'iron cage' of modernity, motorized, moving and privatized. It coerces almost everyone to juggle tiny fragments of time in order to put together complex, fragile and contingent patterns of social life, especially within the city. J.G. Ballard in *Crash* describes a car-based infantile world where any desire can be instantly satisfied (1973: 4; Macnaghten and Urry, 1998: Chapter 5).

Automobility thus develops 'instantaneous' or 'timeless' time that is to be juggled and managed in highly complex, heterogeneous and uncertain ways. Automobility involves an individualistic timetabling of many instants or fragments of time. The car-driver thus operates in instantaneous time that contrasts with the official timetabling of mobility that accompanied the railways in the mid-nineteenth century (Lash and Urry, 1994: 228–9). This was modernist clock-time based upon the public timetable, or what Bauman terms 'gardening' rather than 'gamekeeping' (1987). As a car-driver wrote in 1902: 'Travelling means utmost free activity, the train however condemns you to passivity ... the railway squeezes you into a timetable' (cited in Morse, 1998: 117). The objective clock-time of the modernist railway timetable is replaced by personalized, subjective temporalities, as people live their lives in and through their car(s) (if they have one; Lash and Urry, 1994: 41–2). There is involved here a reflexive monitoring, not of the social, but of the self. People try to sustain 'coherent, yet continuously revised, biographical narratives ... in the context of multiple choices filtered through abstract systems' (such as that involved in automobility; Giddens, 1991: 6). Thus, automobility coerces urban dwellers to juggle tiny fragments of time in order to put together complex, fragile and contingent patterns of social life, which constitute self-created narratives of the reflexive self.

As personal times are desynchronized, spatial movements are synchronized to the rhythm of the road. The loose interactions and mobilities of pedestrians are forced to give way to the tightly controlled mobility of machines, especially in the human and machinic density of urban areas. Automobility dominates how both car-users *and* non-car-users organize their lives through time-space. Driving requires 'publics' based on trust, in which mutual strangers are able to follow shared rules, communicate through common sets of visual and aural signals, and interact in a kind of default space or non-place available to all 'citizens of the road' (see Lynch, 1993). Yet car-drivers are excused from the normal etiquette and social coordination of face-to-face interactions. Car travel rudely interrupts the taskscapes of others (pedestrians, children going to school, postmen, garbage collectors, farmers, animals and so on), whose daily routines are merely obstacles to the high-speed traffic that cuts mercilessly through slower-moving pathways and dwellings. Junctions, roundabouts and ramps present moments of carefully scripted intercar action during which non-car users of the road present hazards or obstacles to the drivers intent on returning to their normal cruising speed.

Automobility also generates new scapes that structure the flows of people and goods along particular routes, especially motorways or interstate highways (see Urry, 2000, on scapes and flows). There is a rewarping of time and space by advanced transportation structures, as scapes pass by some towns and cities while connecting other areas along transport-rich 'tunnels'. Such tunnels also shape urban geographies of social exclusion and ghettoization (see Urban Taskforce, 1999). Public housing estates in the UK or so-called 'projects' in US cities are often cut off from bus, rail or subway links to employment-rich business districts within the city and from automobile roadways linked to more desirable (middle-class) residential and leisure areas outside the city. At the same time, tolls and parking fees can deter rural and suburban dwellers from entering the city too easily. Thus, the inequalities among multiple publics are entrenched in urban spaces of unevenly distributed access and exclusion.

Dwelling in mobility

The shortage of time resulting from the extensive distances that increasingly 'have' to be travelled means that the car remains the only viable means of highly flexibilized mobility. Also, other forms of mobility in the city are, by comparison with the car, relatively inflexible and inconvenient, judged, that is, by criteria that automobility itself generates and generalizes. In particular, the car enables *seamless* journeys from home-away-home. It does away with the stationary pauses necessitated by 'stations', apart from the occasional stop at the gas station. And this is what the contemporary traveller has come to expect. The seamlessness of the car journey makes other modes of travel inflexible and fragmented. So-called public transport rarely provides that kind of seamlessness (except for first-class air travellers with a limousine service to and from the airport). There are many gaps between the various mechanized means of public transport: walking from one's house to the bus stop, waiting at the bus stop, walking through the bus station to the train station, waiting on the station platform, getting off the train and waiting for a taxi, walking though a strange street to the office and so on, until one returns home. These 'structural holes' in semi-public space are sources of inconvenience, danger and uncertainty. And this is especially true for women, older people, those who may be subject to racist attacks, the disabled and so on (see SceneSusTech, 1998). There are gaps for the car-driver involving semi-public spaces, such as entering a multi-storey car park or walking though strange streets to return to one's car or waiting by the side of the road for a breakdown vehicle, but these are much less endemic than for other kinds of travel.

Not only do car-drivers gain the comparative benefits of relative mobility and seamless travel, making older ways of travel seem slow and inflexible, but also the matrix

of automobility undermines other forms of mobility. The predominance of the car in government policy and planning afforded seamless car journeys while breaking down those linkages that once made other forms of transport possible. In the US, car manufacturers such as General Motors bought and dismantled electric tramway systems in order to make suburbs car-dependent (see Flink, 1988; Wolf, 1996). Zoning laws and building codes enforced suburban sprawl through the separation of business and residential districts, mandatory large-lot sizes and set-backs from kerbs, which destroyed town centres and the public spaces that they once provided (Kunstler, 1994). Auto-intensive middle-class suburbanization resulted in 'auto sprawl syndrome' in which cars make urban suburbanization/sprawl possible and in so doing they make those living in such areas dependent upon the use of cars (SceneSusTech, 1998: 100). Freund argues that 'Modernist urban landscapes were built to facilitate automobility and to discourage other forms of human movement... [Movement between] private worlds is through dead public spaces by car' (1993: 119).

Indeed, large areas of the globe now consist of car-only environments — the quintessential non-places of super-modernity (Augé, 1995). About one-quarter of the land in London and nearly one-half of that in LA is devoted to car-only environments. And they then exert an awesome spatial and temporal dominance over surrounding environments, transforming what can be seen, heard, smelt and even tasted (the spatial and temporal range of which varies for each of the senses). Such car-environments or non-places are neither urban nor rural, local nor cosmopolitan. They are sites of pure mobility within which car-drivers are insulated as they 'dwell-within-the-car'. They represent the victory of liquidity over the urban. One such non-place is the motel, immortalized in the UK by the TV soap *Crossroads*. Clifford notes that the 'motel has no real lobby, and it's tied into a highway network — a relay or node rather than a site of encounter between coherent cultural subjects' (as would, he implies, be found in a hotel; 1997: 32). Motels 'memorialize only movement, speed, and perpetual circulation' since they 'can never be a true *place*' and one motel is only distinguished from another in 'a high-speed, *empiricist* flash' (Morris, 1988: 3, 5). The motel, like the airport transit lounge or the motorway service station, represents neither arrival nor departure, but the 'pause', consecrated to circulation and movement and demolishing particular senses of place and locale. This 'sense of sameness and placelessness' is accompanied by a 'social organization of space that helps to further auto-dependence and to mask any realistic alternatives to automobility' (Freund, 1993: 11).

As a rolling private-in-public space, automobility affords dwelling inside a mobile capsule that involves punctuated movement 'on the road' from home-away-home. Domesticity is reproduced on the road through social relations such as the 'back-seat driver' or the common dependence upon a partner for navigation and map-reading; the car creates a transpersonal mobile agent. Moreover, a variety of services have become available without leaving the car, as the 'drive-in' becomes a feature of everyday life. Since the 1950s halcyon days of the drive-in movie and the drive-in 'automat' where 'fast food' is served, more recent car-dwellers, especially in the US, have been treated to the conveniences of drive-through banking, drive-through car washes, drive-through safari theme parks, and even drive-through beer distributors in some states (not to mention drive-by shootings and drive-up mail delivery). Thus, fragments of time are increasingly compressed into taskscapes that can keep people inside their cars, while the 'coming together of private citizens in public space' is lost to a privatization of the mechanized self moving through emptied non-places.

Protected by seatbelts, airbags, 'crumple zones', 'roll bars' and 'bull bars', car-dwellers boost their own safety and leave others in the city to fend for themselves in a 'nasty, brutish and short' world. In each car the driver is strapped into a comfortable armchair and surrounded by micro-electronic informational sources, controls and sources of pleasure, what Williams calls the 'mobile privatization' of the car (see Pinkney, 1991:

55). Many aspects involved in directing the machine have been digitized, at the same time that car-drivers are located within a place of dwelling that insulates them from much of the risky and dangerous urban environment that they pass through. The Ford brochure of 1949 declared that 'The 49 Ford is a living room on wheels' (Marsh and Collett, 1986: 11). Features such as automatic gearboxes, cruise control and CD-changers 'free' drivers from direct manipulation of the machinery, while embedding them more deeply in its sociality. Yet it is a room in which the senses are impoverished. The speed at which the car must be driven constrains the driver to always keep moving. Dwelling at speed, people lose the ability to perceive local detail, to talk to strangers, to learn of local ways of life, to stop and sense each different place (see Freund, 1993: 120–1). The sights, sounds, tastes, temperatures and smells of the city are reduced to the two-dimensional view through the car windscreen, something prefigured by railway journeys in the nineteenth century (see Schivelbusch, 1986). The sensing of the world through the screen has, of course, become the dominant way of dwelling in contemporary experience. The environment beyond the windscreen is an alien other, to be kept at bay through the diverse privatizing technologies incorporated within the contemporary car. These technologies ensure a consistent temperature (with the standardization of air-condition-ing), large supplies of information, a relatively protected environment, high-quality sounds and sophisticated systems of monitoring. They enable the hybrid of the car-driver to negotiate conditions of intense riskiness on high-speed roads (roads are increasingly risky because of the reduced road-space now available to each car). And as cars have increasingly overwhelmed almost all environments, so everyone is coerced to experience such environments through the protective screen and to abandon urban streets and squares to the metallic cages-on-wheels.

The driver's body is itself fragmented and disciplined to the machine, with eyes, ears, hands and feet all trained to respond instantaneously, while the desire to stretch, to change position, or to look around must be suppressed. The car becomes an extension of the driver's body, creating new urban subjectivities (see Freund, 1993: 99; and Morse, 1998: Chapter 4, on the overlaps between driving, shopping and viewing television). A Californian city planner declared even in 1930 that 'it might be said that Southern Californians have added wheels to their anatomy' (cited in Flink, 1988: 143). The machinic hybridization of the car-driver can be said to extend into the deepest reaches of the psyche. A kind of libidinal economy has developed around the car, in which personalities are deeply invested in the car as object. There is a sexualization of the car itself as an extension of the driver's desirability and fantasy world. The car takes part in the ego-formation of the driver as competent, powerful and able (as advertisers have tapped into). Various 'coming-of-age' rituals revolve around the car, at least since the discovery of bench-seats and 'lover's lanes'. Car-sex has itself become an element of fantasy in everything from music videos to 'crash culture' (see Ballard, 1973). At the same time, the car feeds into our deepest anxieties and frustrations, from fear of accident and death at one extreme, to the less life-threatening but nevertheless intense frustration of being stuck behind a slow vehicle while trying to save precious fragments of time. Within the private cocoon of glass and metal intense emotions can be released in forms that would not otherwise be socially acceptable. Outbursts of 'road rage' represent a breakdown in 'auto-regulation' of the driver, in the double sense of both self-control and of following the rules of the road.

Given these powerful restructurings of time, space and self within the car-driver matrix, urban life and the civil society that arises out of it have to be rethought. Our first step is to reconsider the kinds of inequalities produced by the dominant form of automobility.

Inequalities of automobility

Automobility, we have suggested, is a key component of civil society in the contemporary world. Yet, like other aspects of civil society, the automobilized civil society is also productive of new kinds of social inequalities despite efforts at its democratization. Such inequalities are centrally important to the urban experience (as the UK White Paper on *A new deal for transport* brings out: DETR, 1998; and see *Towards an urban renaissance*, Final Report of the Urban Taskforce, 1999). It is both the deficits of mobility in some places, as well as its excess in others, that are symptomatic of contemporary urban inequalities and problems of social exclusion. As Freund argues, although the car 'has been widely hailed as the quintessentially democratic means of transport, the auto actually is not usable by, or available to, large sectors of the population, even in the most auto-saturated societies' (1993: 7; and see his discussion of social inequalities in Chapter 3). Here we discuss two such forms of inequality, those of gender and those of being without a car.

Gender and automobility
Women have a very different relation to cars than do men as a group. In the interwar period automobility was generally organized around a cosiness of family life, both in Europe and the US (Taylor, 1994: Chapter 4). In the latter, this was the period of massive suburbanization that was predicated upon low-density family housing with a sizeable garden, many domestic production goods for the 'wife' to use, and a car to enable the 'husband' to travel quite long distances to get to work. The automobilization of family life not only brought the newest and most expensive car models first to male 'heads of families', while women had to settle for second-hand models or smaller cars, but also led to the uneven gendering of time-space. While working men became enmeshed in the stresses of daily commuter traffic into and out of urban centres, suburban 'housewives' had the greater burden of juggling family time around multiple, often conflicting schedules of mobility epitomized by 'the school run' and mom-as-chauffeur. Once family life is centred within the moving car, social responsibilities tend to push women towards 'safer' cars and 'family' models, while men have greater luxury to indulge in individualistic fantasies of the 'Top Gear' fast sports car or the impractical 'classic car'. Cars were originally designed to suit the average male size and have only recently been designed to be adjustable to drivers of various heights and reaches. The distribution of company cars has also benefited men more than women, due to continuing horizontal and vertical segregation in the job market, which keeps most women out of positions with access to such 'perks'. Actuarial statistics also show that male drivers are more likely to externalize risks onto others through dangerous driving practices (see Meadows and Stradling, 2000).

    Given these inequalities, for many women exclusion from automobility has become a crucial political issue, both because it limits their capability to work outside the home and because it makes movement through public spaces difficult. In most countries women became eligible to be licensed drivers later than did men, and in some countries they still face severe restrictions on their ability to drive. Women working in domestic service jobs (often from racialized minority groups or recent immigrants) faced (and still face) a gruelling journey on unreliable public transport between the city and the suburbs. Single mothers without cars are among the groups most dependent on public transport and most likely to find their particular 'taskscapes' fraught with gaps and inconveniences. The male drivers' domination of public space appears in the practice of 'kerb crawling' in the city, one of the most tolerated forms of prostitution, which compounds the difficulties of the female 'street walker' as '*flâneuse*' (Wilson, 1995).

   In line with the notion of the 'democratization' of automobility, therefore, greater access to automobility may be seen as empowering women. In some respects women's 'emancipation' has been predicated on the automobile. Cars afford many women a sense of personal freedom and a relatively secure form of travel in which families and objects can be safely transported, and fragmented time-schedules successfully intermeshed. Women's access to cars has had a major impact on the integration of women into the labour market by better enabling the juggling of the conflicting time disciplines of paid and unpaid work (see Wajcman, 1991). Although the sense of freedom of movement that comes with automobility has been largely a masculine prerogative as well as a masculine fantasy, it is nevertheless a 'structure of feeling' that reaches beyond Eurocentrism and androcentrism (Thrift, 1996). Women have therefore struggled to claim automobility, and in doing so have in part reshaped and paradoxically enhanced car culture.

Carless living

Automobility has also shaped and encoded the physical relation of the city to surrounding suburban and rural environments, of urban-dwellers to non-urban dwellers, and of car-dwellers to others in civil society. Distinctions can be drawn by *not* having a car. Living without a car has become a significant lifestyle choice for both environmentalists and for a small cosmopolitan elite able to live in expensively gentrified city-centres. 'Global cities' (Sassen, 1991), increasingly polarized between ghettos of wealth and of poverty, may no longer have a place for the car-bound middle classes. The carless urban poor and growing population of new immigrants (who may actually want cars) are often cut off from cheaper out-of-town shopping, from many public facilities accessible only by car, and from a host of job opportunities in urban fringes and 'edge-cities'. Freedom of mobility is restricted even further by practices of institutional racism, which lead to racially segregated residential areas and disproportionate stopping of black male drivers by police.

   Resisting the coercive features of automobility is nearly impossible, given the extent to which even the lives of non-car-users in the city are transformed by cars. The nostalgic retreat to a romantic lifestyle 'in the country' is an option for some, especially when combined with 'telecommuting' to work, yet country life is especially car-dependent. Automobility has accelerated the collapse of rural and small-town local shops and services, which cannot compete against cheaper 'superstores' on the outskirts of cities. The choice of an alternative lifestyle with voluntary limitations on car use is most feasible in medium-sized regional towns where a mix of cycling, walking and public transport can develop (as in Cambridge, UK). Nevertheless, such towns remain clogged with both moving and stationary cars apart from those small 'pedestrian zones' of civility left to the walker. Attempts to introduce pedal-rickshaws and more bike lanes are still constrained by the imperatives of the car-driver matrix against which they must compete.[3]

   New processes of urbanization are also reshaping automobility in the city, and with it new inequalities. Soja, using Los Angeles as his example, has identified several geographies of postmodern urbanization, which have important implications for an automobilized civil society. In the radically restructured postmodern city — described by neologisms such as 'megacities, outer cities, edge cities, metroplex, technoburbs, postsuburbia, technopolis, heteropolis, exopolis' (Soja, 1995: 131) — Soja envisions 'a combination of decentralization and recentralization, the peripheralization of the center and the centralization of the periphery, the city simultaneously being turned inside out and outside in'. Although he does not relate this directly to the system of automobility, it is clear that the car and freeway system is central to the changing geography of Los

---

3 Experiments in restricting car use in cities have been proliferating recently. Car-free days have been promoted throughout Europe, with leadership from Italy in particular. Many town centres have been pedestrianized or have attempted to ban cars from their roads (e.g. Oxford).

Angeles. This city, above all others, is what Banham has described as an 'autopia' in which 'the freeway system in its totality is now a single comprehensible place, a coherent state of mind, a complete way of life... The freeway is where Angelinos live a large part of their lives' (cited in Jacobs, 1992: 255). As the polymer city reshapes itself, strings of traffic are the most solid structure remaining to fuse the urban sprawl into a bounded entity. This newly emerging urban form, according to Soja, is 'shaped by a very complex redistribution of jobs, affordable housing, and access to mass transit, and modified significantly by income, racial, and ethnic differentiation' (Soja, 1995: 132). Together these processes are leading to two further trends, 'the development of new patterns of social fragmentation, segregation, and polarization', as well as 'an increasingly ''carceral'' city'.

As the control of mobility into and out of regions of the city becomes a central concern of the state, the 'tactics of mobility' emerge as a potential form of resistance (Thrift, 1996). In accordance with early urban sociology's pessimistic view of the car in the city and political sociology's understanding of the car's effect on the decline of the public sphere, many analysts of contemporary social formations understandably continue to equate automobility with inequalities, exclusions, risk proliferation and, of course, environmental degradation. It is no surprise, then, that automobility involves massive contestation. In the following section we consider some of the ways in which political mobilization and social movements have developed around automobility and have simultaneously been transformed by it.

The politics of protesting automobility

Civil society's mobilization around automobility began in relation to consumer protection. In the US, consumer advocates like Ralph Nader represented 'the public interest' in demanding car safety, road safety, 'lemon laws' to protect consumers against unscrupulous car-salesmen, and industry-wide standards for recalls of defective models and fair pricing (Nader, 1965). The oil-crisis of the 1970s sparked public concern over energy use and the growing demand for 'greener' cars with higher fuel economy and in some instances interest in the recycling of the metals, plastics and rubber that make up the car. As the wider environmental movement developed, the petroleum industry became a target of protest. There were campaigns against the expansion of oil extraction into wilderness areas such as Alaska or various off-shore sites; there were protests against pollution caused by oil extraction, processing and shipping (e.g. the Exxon Valdez oil spill); and there were eventually protests against the transnational corporations that controlled oil production (culminating in the Greenpeace campaign against Shell Oil in the early 1990s). Finally, with the Gulf War, many critics of the car culture recognized the extent to which American and European foreign policies are driven by the petroleum interests driving the global economy. Dependence upon oil and the lengths to which societies would go to protect access to oil were highlighted in public debate.

Furthermore, the unavoidable flexibility necessitated by the fragmented time-space of automobility has become an issue not only of personal management, but also of public policy. In the 1970s, urban quality of life became a crucial political issue as cities were choked with fumes and smog, as well as beset by traffic flow and parking problems. In this period the car began to be viewed as more polluting than the train (Liniado, 1996: 28). Many cities such as Amsterdam, Stockholm and Portland, Oregon, developed explicit policies to upgrade and prioritize cycle lanes and public transport, in order to wean people away from their cars. Later, cities such as Athens attempted to control access of private cars in and out of the city centre, with some success, while others imposed commuter restrictions or incentives such as park-and-ride schemes or enforced car-pool lanes with four occupants required per car. More symbolically, some European cities have instituted

an annual 'leave your car at home' day. The debate over better provision of public transport (and overall urban design) has moved to the fore in a number of countries as various governments wrestle with controlling traffic and many drivers seek to find viable alternative means of transport. Integrating better mass transportation into urban design has been crucial to planning burgeoning new metropolises such as Singapore and Hong Kong (Owen, 1987). Questions of congestion pricing systems, taxation of car use and of petrol have become key aspects of government transport policy from California to Britain. It is only in thinking about what it would take to get people out of their cars that we can see the enormous transformations that automobility has wrought in the social organization of time, space and social life.

Overall, although many people may 'love' their car, the system that it presupposes is often unloved, resisted and raged against. Civil society is significantly remade through contestations over the power, range and impact of the system of automobility. The same people can be both enthusiastic car-drivers, as well as being very active protesters against schemes for new roads (see Macnaghten and Urry, 1998: Chapter 6, on how cars generate intense ambivalence). By 1994, in the UK, the scale of grass-roots protest against the construction of new roads had risen to such a level that it was described as 'the most vigorous new force in British environmentalism' (Lean, 1994). There were by then an estimated 250 anti-road groups, a movement significantly impacting upon civil society. The array of direct actions has also diversified as protesters have become more expert, through the use of mass trespass, squatting in buildings, living in trees threatened by road programmes and digging tunnels (hence the iconic Swampy who tunnelled underground to stop a road from being built in Britain). Stopping traffic has itself become a significant form of symbolic direct action, as practised in 'Reclaim the Streets' events. Protesters also became more sophisticated in the use of new technologies, including mobile phones, video cameras and the internet. These have enabled almost instantaneous dissemination to the media (see Macnaghten and Urry, 1998: Chapter 2). Thus, the politics of automobility is generating new forms of public protest and changing civil society's repertoires of contestation. The recent protests over petrol prices across Europe demonstrate that the traffic-stopping impacts of new styles of direct action are both against *and in favour of* an automobilized society.

As analysts of the decline of the public sphere have lamented, politics itself has been transformed, 'hollowed out' and 'colonized' due to changes in the media of communication. What they have been less clear about, however, is the way in which changes in communication media are also linked to changes in the spatiality of the urban environment and public space. Urban public spaces and public networks of association and 'legitimate' political communication increasingly occur in virtual forums, rather than in 'real' spaces. Public outdoor gatherings and old-fashioned demonstrations are increasingly criminalized in the 'carceral city', and political protest is framed as riot. Thus, many have connected the new technologies of surveillance and digital information to this carceral aspect of the city (such as Davis, 1990). However, new technologies are not only controlled by the state or by media corporations. We want to suggest that the 'communication revolution' takes on a further dimension when it is inserted into the system of automobility. At the turn of the twenty-first century the simulacra of co-presence created via new information and communication technologies have broken free of hard-wiring and spatial location. Like Park's Hobo, civil society has embraced mobility.

Redesigning the city of automobility: a vision of the future

For too long transport has been theorized and planned as if it were a free-standing system disconnected from other technologies and socialities. True, for most of the twentieth

century the revolution in communication technology was driven by the separation of information transmission from the physical means of transportation, as implicit in the Chicago School's analysis of urban 'metabolism' at the beginning of the twentieth century. However, the current trend, in contrast, is toward the re-embedding of information and communication technologies (ICT) into moving objects: satellites, mobile phones, palmtop computers and so on. At the same time that information has been digitized and released from location, objects such as cars, roads and buildings have been rewired to send and receive digital information — for example in the building of 'Intelligent Transport Systems' (ITS). We consider very briefly here what effects the convergence of ICT and ITS will have on urban geographies and the culture of cities.

Until now this has been considered a question of interest only to urban planners and car manufacturers — a question of traffic control or car and road safety, for example through computer-assisted operation control systems, dynamic route guidance and traffic information systems (see Sparmann, 1992). However, if civil societies consist of modes of mobility as well as modes of communication, then there may be crucial processes of contention and democratization at work in the reflexive social adaptation of these new technologies, which will contribute to the further (post)modernization of cities. Emerging technologies are not only creating new human-machine hybrids like the car-driver, but are also grafting together existing machines to create new intermodal scapes and hybrid flows: PCs with telephones, televisions with satellites, mobile phones with cars. It is worth noting that highly complex information, communication and simulation systems designed for military vehicles are already making the jump to civilian applications, as have previous military technologies.[4]

Given the environmental pressures on the current system of automobility, including political contention around the control of pollution, traffic reduction, management of risk and addressing social exclusion, we would predict that the politics of urban sustainability will play a major part in the design of new built environments. Thus far, environmentally friendly policy initiatives have focused on reducing car use, stemming the flow of traffic and shifting people onto public transport and non-motorized mobility through penalties for car use and incentives for biking, walking or riding the bus, tram or train. These will still be crucial tools in transforming the existing car-driver matrix and we would not argue against such policies.

However, such policies still fail to address the continuing production of a system of automobility — of cars, roads and drivers — which continues to dominate both the built environment of cities and their hinterlands and the scapes of time-space through which people organize and literally mobilize their lives. Until these fundamental social aspects of mobility are addressed, we will continue in a deadlock between the profit-making imperatives of car manufacturers and the decaying semi-public infrastructure of transportation starved of investment and of the necessary time-horizons and physical space in which to expand. More encompassing approaches to changing cultures of automobility and of cities include the creation of auto-free zones in city centres, fostering 'access by proximity' through denser living patterns and integrated land-use patterns, and promoting greater coordination between both motorized and unmotorized transport systems (see Freund, 1993, Chapter 9).

The question remains, though, how these changes will intersect with changing ICT scapes. Some futorologists have proclaimed the 'electronic cottage' to be the way out of

---

4 The Mercedes S-Class, for example, is equipped with voice telemetry, GIS positioning, a television screen, and card-operated ignition. Such machinic hybrids will be increasingly internet-capable given the development of the Wireless Application Protocol (WAP). At the recent Detroit Motor Show both Ford and General Motors introduced new car models that are designed as 'portals to the net'. Ford plan to make 'the internet on wheels' realistic by introducing voice-activated telematics as standard on all new models (see Gow, 2000). Fiat is also developing a dashboard that can access the internet (*The Guardian*, 26 February 2000: 29).

the traffic, as well as out of the city and its urban problems. This would be unfortunate for the public life of cities, and for those marooned in them. Rather than the replacement of physical travel by virtual or 'weightless travel' (see Urry, 2000), what may be starting to occur is a convergence between the two. This is suggestive of another way forward out of the impasse of the limits of ecology, time-space and inequality. Through an interlocking of 'smart' transportation systems and the urban 'info-structure' a new mode of automobilization could be created that would integrate private and public transport, motorized and non-motorized transport, and information transmission and human mobility. Crucial to this detraditionalization of urban transportation will be a redesign of both public mass (and mini) transportation systems and of private or semi-private vehicles. Smaller, smarter, information-rich, communication-enhanced vehicles that are better integrated into the public transport system and public space will be indispensable in the city of the future and to the civil societies that might flourish within them.

Telecommuting will not be the key to transforming urban life because, as Park and others recognized, people do *like* to be physically mobile, to see the world, to meet others and to be bodily proximate, and to engage in 'locomotion' (see Boden and Molotsch, 1994, on the compulsion to proximity). Current developments such as the huge popularity of mobile telephones instead suggest that many people want to engage in communication simultaneously with locomotion — to walk and talk or to drive and jive, as it were. Mobile ICT is also increasingly central to work-practices and information-gathering in contexts of unavoidable time-space distanciation and fragmentation. The introduction of flexitime in order to smooth out and redistribute rush-hour peaks of transportation demand, for example, would be enhanced if communication could occur in transit. It is already possible to check voicemail from a mobile phone, but soon e-mail will be found in the car or train, electronic memos will be sent, and mobile banking and electronic shopping will be commonplace.

The crucial question is how these technological developments can be used to redesign urban public spaces in ways that will address the negative constraints, risks and impacts of automobility. This will require the intermodality of multiple transport and communication flows to allow various mobile publics to switch across a range of spaces and zones easily. Creating a smaller, lighter, fuel-efficient car is a start, but would not be enough. Car manufacturers have already begun production of various micro-cars that are ideal for crowded urban spaces where parking is at a premium and environmental issues are paramount. However, such micro-cars would have to be truly integrated into a mixed transportation system that allowed more room not only for bikes, pedestrians and public transportation, but also for modes of travel that we have only begun to imagine. This would require the redeployment of existing urban zoning laws to exclude or severely delimit 'traditional' cars (as has already begun to occur in many cities; see Owen, 1987) and to place lower speed limits on them (as is currently being suggested in the UK). The aim would be not only to free up space for new kinds of intermodal flows but also *time* for new socialities that would juggle the complex timing of schedules in more flexible ways.

There would also have to be incentives to both car manufacturers and consumers to produce a new culture of automobility (through extensions of already existing legislation, taxation and penalties). Through such means a number of key objectives could be met:

- Reduced energy consumption and polluting emissions through design of smaller vehicles, use of fewer private vehicles, and curtailment of traffic proliferation and road building;
- Redirection of investment to new and better modes of public transportation, bike and 'soft' vehicle lanes, and more diversified multifunctional stations and public spaces;
- Reduced risks to human safety inside and outside the slower and lighter car;
- Minimizing social exclusion through better planning of networks and intermodality.

The key to such a system could be the use of a multifunction 'smart-card' that would transfer information from home to car, to bus, to train, to workplace, to web site, to shop-till, to bank (a system already under development). Cars for cities could then be partially deprivatized by making them available for public hire through using such a smart-card to pay fares on buses, trains, or more flexibly routed collective mini-vans; cards for welfare recipients, students, families with young children and the elderly could be partially subsidized.[5] But all of these vehicles would have to become *more* than technologies of movement — they would also have to be hybridized with the rapidly converging technologies of the mobile telephone, the personal entertainment system and the laptop computer.

The 'carrot' for car manufacturers is that small cars would no longer be at the bottom of the profit scale; the innovation of new ICT applications would provide an endless source of novelty, desirability and profitability. The hook for car-drivers is that the micro-cars and all other forms of transport would be personalized with their own communication links (e-mail addresses, phone numbers, world-wide-web addresses etc.) and entertainment applications (digitally stored music, programmed radio stations etc.), but only when initiated by inserting the smart-card. Thus, any public vehicle could instantly become a home away from home: a link to the reflexive narratives of the private self in motion through public time-space scapes. The streetscapes of global cities could thus be transformed through a more mixed flow of slow-moving, semi-public micro-cars, bike lanes, pedestrians and improved mass transport.

Public-friendly cars would allow people to travel lighter, if not weightlessly (as 'virtual' electronic travel is often depicted), and would restore some of the civility to urban public space that has been destroyed by current traffic flows and by the spatial patterns of segregation and fragmentation generated by automobility. Could such an urban smart-car be the best way to lure twentieth-century speed-obsessed car-drivers to give up their dependence on dinosaur cars and fossil fuels, a system that is unsustainable on every conceivable measure and is really a very old-fashioned Fordist technology? Urban planning that recognizes the need for a radical transformation of transport can use existing legislation and regulation in new ways, to build truly 'integrated' and 'intermodal' public transport systems. Rather than trying to stifle mobility, however, which has been the strategy until now, cities must draw on the power of the democratic urge to be mobile. Civil society can itself be mobilized to demand this radical automobilization. Overcoming the terrific constraints of automobility will require us to recognize and harness its peculiar auto-freedom.

Conclusion

We have shown how automobility, as currently constituted, fosters a civil society of hybridized 'car-drivers', accelerates a collapse of movement between the public and the private, generates a new theme and style of political contestation, and points toward a complex interweaving of mobility and communication within the urban infrastructure. Car-drivers dwelling within their cars, and excluding those without cars or without the 'license' to drive such cars, produce the temporal and spatial geographies of cities as a function of motorized mobility. Pedestrians and cyclists, to a significant extent, are confined to small slivers of the urban public, while many public-transport users are relatively disenfranchised and excluded from full citizenship. Only those moving (however slowly) in cars, taxis and trucks are *public* within a system where public spaces have been democratically seized, through notions of individual choice and personal flexibility, and then turned into the 'iron-cages' that deform public roads and the people disciplined within them.

5 On forms of car-sharing already being used in Germany and Switzerland, see Canzler (1999).

The civil society of automobility that arises within contemporary cities involves the transformation of public space into flows of traffic, coercing, constraining and unfolding an awesome domination which analysts of the urban have barely begun to see even as they sit staring through their own car windscreens. Smith writes of the analogy with modern scientific thought: 'We get into this mode very much as the driver of a car gets into the driving seat. It is true that we do the driving and can choose the direction and destination, but the way in which the car is put together, how it works, and how and where it will travel structure our relation to the world we travel in' (1987: 73). We have suggested some brief ideas at the end of this article that might just save towns and cities from this awesome Frankenstein-created monster of 'auto' mobility.

Mimi Sheller (m.sheller@lancaster.ac.uk) and **John Urry** (j.urry@lancaster.ac.uk), Department of Sociology, Lancaster University, Lancaster LA1 4YL, UK.

References

Albrow, M. (1996) *The global age*. Polity, Cambridge.

Anderson, B. (1991) *Imagined communities: reflections on the origin and spread of nationalism*. Verso, London and New York.

Arendt, H. (1958) [1973 edn.] *The human condition*. University of Chicago Press, Chicago.

Augé, M. (1995) *Non-places*. Verso, London.

Bachmair, B. (1991) From the motor-car to television: cultural-historical arguments on the meaning of mobility for communication. *Media, Culture and Society* 13, 521–33.

Ballard, J.G. (1973) [1995 edn.) *Crash*. Vintage, London.

Barthes, R. (1972) *Mythologies*. Cape, London.

Bauman, Z. (1987) *Legislators and interpreters*. Polity Press, Cambridge.

Benhabib, S. (1992) Models of public space: Hannah Arendt, the liberal tradition and Jurgen Habermas. In S. Benhabib, *Situating the self: gender, community and postmodernity in contemporary ethics*, Routledge, New York.

Boden, D. and H. Molotch (1994) The compulsion to proximity. In R. Friedland and D. Boden (eds.), *Now/here. Time, space and modernity*, University of California Press, Berkeley.

Burgess, E. (1925) [1970 edn.] The growth of the city: an introduction to a research project. In R. Park, E. Burgess and R. McKenzie (eds.), *The city*, University of Chicago Press, Chicago and London.

Canzler, W. (1999) Changing speed? From the private car to cash car sharing. In J. Beckmann (ed.), *Speed: a workshop on space, time and mobility*, Danish Transport Council, Copenhagen.

Clifford, J. (1997) *Routes*. Harvard University Press, Cambridge, MA.

Cohen, J. and A. Arato (1992) *Civil society and political theory*. MIT Press, Cambridge, MA and London.

Creed, B. (1998) The *Crash* debate: anal wounds, metallic kisses. *Screen* 39, 175–9.

Davis, M. (1990) *City of quartz: excavating the future of Los Angeles*. Verso, London.

Emirbayer, M. and M. Sheller (1999) Publics in history. *Theory and Society* 28, 145–97.

Eyerman, R. and O. Löfgren (1995) Romancing the road: road movies and images of mobility. *Theory, Culture and Society* 12, 53–79.

Flink, J. (1988) *The automobile age*. MIT Press, Cambridge, MA.

Forster, E.M. (1931) *Howard's End*. Penguin, Harmondsworth.

Freund, P. (1993) *The ecology of the automobile*. Black Rose Books, Montreal and New York.

Giddens, A. (1991) *Modernity and self-identity*. Polity, Cambridge.

Gow, D. (2000) Ford unveils the car to surf your way through the traffic. *The Guardian* 11 January.

Graves-Brown, P. (1997) From highway to superhighway: the sustainability, symbolism and situated practices of car culture. *Social Analysis* 41, 64–75.

Habermas, J. (1992) *The structural transformation of the public sphere: an inquiry into a category of bourgeois society*. MIT Press, Cambridge, MA.

Haraway, D. (1991) *Simians, cyborgs, and women. The reinvention of nature*. Free Association Books, London.

Hawkins, R. (1986) A road not taken: sociology and the neglect of the automobile. *California Sociologist* 9, 61–79.

Jacobs, B. (1992) *Fractured cities: capitalism, community and empowerment in Britain and America*. Routledge, London.

Jacobs, J. (1961) *The death and life of great American cities*. Random House, New York.

Keane, J. (1988) *Democracy and civil society*. Verso, London and New York.

Kelley, R.D.G. (1996) *Race rebels: culture, politics, and the black working class*. The Free Press, New York.

Kunstler, J. (1994) *The geography of nowhere: the rise and decline of America's man-made landscape*. Touchstone Books, New York.

Landes, J. (1988) *Women and the public sphere in the age of the French revolution*. Cornell University Press, Ithaca and London.

Lash, S. and J. Urry (1994) *Economies of signs and space*. Sage, London.

Lean, G. (1994) New green army rises up against roads. *The Observer* 20 February.

Lefebvre, H. (1991) *The production of space*. Blackwell, Oxford and Cambridge, MA.

Liniado, M. (1996) *Car culture and countryside change*. MSc Dissertation, Department of Geography, University of Bristol.

Lynch, M. (1993) *Scientific practice and ordinary action*. Cambridge University Press, Cambridge.

Lynd, R. and H. Lynd (1937) *Middletown in transition*. Harvest, New York.

Macnaghten, P. and J. Urry (1998) *Contested natures*. Sage, London.

Marsh, P. and P. Collett (1986) *Driving passion*. Jonathan Cape, London.

Meadows, M. and S. Stradling (2000) Are women better drivers than men? Tools for measuring driver behaviour. In J. Hartley and A. Branthwaite (eds.), *The applied psychologist*, Open University Press, Milton Keynes.

Morris, M. (1988) At Henry Parkes Motel. *Cultural Studies* 2, 1–47.

Morse, M. (1998) *Virtualities: television, media art and cyberculture*. Indiana University Press, Indiana.

Munford, L. (1964) *The highway and the city*. Mentor Books, New York.

Owen, W. (1987) *Transportation and world development*. Johns Hopkins University Press, Baltimore and London.

Park, R.E. (1925) [1970 edn.] The mind of the Hobo: reflections upon the relation between mentality and locomotion. In R. Park, E. Burgess and R. McKenzie (eds), *The city*, University of Chicago Press, Chicago and London.

Pinkney, T. (1991) *Raymond Williams*. Seren Books, Bridgend.

Ryan, M. (1990) *Women in public: between banners and ballots, 1825–1880*. Johns Hopkins University Press, Baltimore.

Sassen, S. (1991) *The global city: New York, London, Tokyo*. Princeton University Press, Princeton, NJ.

—— (1996) The spatial organization of information industries: implications for the role of the state. In J.H. Mittelman (ed.), *Globalization: critical reflections*, Lynne Rienner, Boulder, CO and London.

SceneSusTech (1998) *Car-systems in the city. Report 1*. Department of Sociology, Trinity College, Dublin.

Schivelbusch, W. (1986) *The railway journey. Trains and travel in the nineteenth century*. Blackwell, Oxford.

Sennett, R. (1977) *The fall of public man*. Faber and Faber, London and Boston.

—— (1990) *The conscience of the eye: design and social life in cities*. Faber and Faber, London and Boston.

Shove, E. (1998) *Consuming automobility*. SceneSusTech Discussion Paper, Department of Sociology, Trinity College, Dublin.

Smith, D. (1987) *The everyday world as problematic: a feminist sociology*. Northeastern University Press, Boston, MA.

Soja, E. (1995) Postmodern urbanization: the six restructurings of Los Angeles. In S. Watson and K. Gibson (eds.), *Postmodern cities and spaces*, Blackwell, Cambridge, MA and Oxford.

Sparmann, J. (1992) New technologies in public transportation and traffic management. In OECD Report, *Cities and new technologies*, OECD.

Taylor, J. (1994) *A dream of England*. Manchester University Press, Manchester.

Thrift, N. (1996) *Spatial formations*. Sage, London.

Tocqueville, A. de (1835) [1945 edn.] *Democracy in America*. 2 Vols, Vintage Press, New York.

Turner, B. (1994) *Orientalism, postmodernism and globalism*. Routledge, London and New York.

Urban Taskforce (1999) *Towards an urban renaissance*. Final Report of the Urban Taskforce, Department of the Environment and Department of Transport Library, London.

Urry, J. (2000) *Sociology beyond societies*. Routledge, London.

Venturi, R., D. Scott Brown and S. Izenour (1972) *Learning from Las Vegas*. MIT Press, Cambridge, MA.

Virilio, P. (1997) *The open sky*. Verso, London.

Wajcman, J. (1991) *Feminism confronts technology*. Pennsylvania State University Press, University Park.

Weintraub, J. (1997) The theory and politics of the public/private distinction. In J. Weintraub and K. Kumar (eds.), *Public and private in thought and practice: perspectives on a grand dichotomy*, University of Chicago Press, Chicago and London.

Whitelegg, J. (1997) *Critical mass*. Pluto, London.

Williams, R. (1988) *Border country*. Hogarth Press, London.

Wilson, E. (1995) The invisible *flâneur*. In S. Watson and K. Gibson (eds.), *Postmodern cities and spaces*, Blackwell, Oxford and Cambridge.

Wolf, W. (1996) *Car mania*. Pluto, London.

Zimmerman, M. (1990) *Heidegger's confrontation with modernity*. Indiana University Press, Bloomington.