

## Session IIA. The Public(s) and Technology

### Movement, mandarins and museums: mobilizing history of technology

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Earlier this year, the *Guardian*, a British left-of-centre newspaper, reported that adding an extra lane in each direction on the M6 motorway over a 51-mile length was likely to cost £1000 an inch by the time the project is finished – if it is approved – in three years' time. This, claimed the paper, would make it the most expensive road-construction project ever in the UK. Noting criticism from a range of advocacy groups concerning not only the financial cost but also the likely adverse environmental impacts of this widening and similar projects, the paper concluded with the observation 'that in the UK, cars are still king, despite efforts to wean people off them. Britain is now one of the most car dependent countries in the world.'<sup>1</sup> But beyond citing a handful of questionable statistics and illustrating a picture-postcard dating back to the dawn of Britain's motorway age in the late 1950s, the paper's analysis of this state of affairs looked back only some ten years or so. This is fairly typical of journalism about transport in the UK, reflecting a wider lack of concern about how past attitudes and decisions have shaped today's dependencies.

Does it matter? Do historians in general, and of technology in particular, have anything 'useful' to say about the past as it relates to the present and future of (im)mobility? Transport is moving rapidly up the political agenda, which suggests that if we can find the appropriate voices, historians might find any number of ready audiences. There is plenty of evidence, albeit much of it anecdotal, that many individuals, advocacy groups, businesses, politicians and policy-makers in the UK are becoming more concerned about the unsustainability of rising levels of mobility, even if such concern has yet to reach the point where radical shifts in policy or practice are routinely considered by those in power.<sup>2</sup> And there are certainly good grounds for saying that transport *ought* to be given more attention. Quite apart from their absolute scale, the costs and benefits of contemporary mobility are inequitably distributed; social groups like the young, the elderly and some minority-ethnic communities are disadvantaged by a relative lack of access to local facilities or the mechanized transport needed to reach more distant ones, not to mention being overburdened with external costs such as pollution, injuries and fatalities, and loss of amenities.<sup>3</sup> Personal mobility – corporeal movement – is not the only worry. Freight transport (including 'logistics' and 'distribution') is also of concern, not least as globalization increases the distances travelled by raw materials and manufactured goods, and changing patterns of both consumption and manufacturing demand more frequent 'just-in-time' deliveries operating over larger geographical areas.<sup>4</sup> Similar concerns seem to exist in other industrialized territories such as the rest of the European Union<sup>5</sup> and the United States,<sup>6</sup> as well as global economic hotspots like India<sup>7</sup>, China<sup>8</sup> and Brazil.<sup>9</sup> But since the scale and probably too the kinds of challenge we face today are, at least on the face of it, novel – think, for example, of the rate of increase in the particularly damaging emissions from aviation – it might well be argued that history has little guidance to offer the politician, the policy-maker or even the citizen concerned to bring influence to bear or to modify her or his own behaviour.

I am not so pessimistic. History is not, of course, a cast-iron guide to the future – belief in historicist laws of development (whether or not grounded in technology) is surely itself a thing of the past. Rather, the socio-technical world consisting of complex, interacting systems operating at different spatial and temporal scales evinces many emergent features which, by definition, cannot have been – and will not be – predicted

by historiographical analysis, however acute and empirically well-grounded. But if understanding the past cannot determine the future, it might still help us to grasp in broad terms some of the factors that explain both the endurance and the transience of particular patterns of mobility, and hence, by suggesting how to intervene appropriately, to influence the way these develop. And the history of technology – or better, of the socio-technical systems of *transport regimes* (a term capturing the mix of modes we encounter daily)<sup>10</sup> – has an important part to play in all of this.

### **Reaching the public(s) through policy**

Some support for this line of argument comes from elsewhere in academia, where terms such as social equity and ecological sustainability increasingly permeate the language of transport studies, the cross-disciplinary field most closely concerned with – and arguably connected to – policy. Public debate and policy initiatives certainly stand to benefit from this trend (even if it is hard to gauge just how radically the mainstream has been redefined).<sup>11</sup> Yet at first glance, transport studies seems an unpromising field for the historian of technology – although technology is often discussed, a historical sensitivity, even in the form of ‘longitudinal studies’, is rare, and ‘technology’ is generally treated as hardware in isolation from behavioural norms and practice. However, there are signs of change.

In the first place, thinking about travel behaviour and how to change it is fast becoming more sophisticated, with something akin to a ‘social-’ and more particularly a ‘cultural turn’ informing some of the latest research. ‘Culture’ here refers to the shared meanings which by making sense of the world of people, social institutions and material processes and things allow us to live our everyday lives.<sup>12</sup> In policy terms, the argument is that the difficulties of persuading people to move themselves and things differently (or not at all) is partly the product of deep-set, socially determined attitudes and expectations, not all of which are obvious or amenable to traditional – and ahistorical – levers of behavioural change such as pricing. Thus Eliahu Stern and Harry Richardson’s review of research carried out over the last 10-15 years into everyday mobility in Europe and the USA notes that although the cognitive mechanisms underlying people’s decisions about personal mobility are universal, ‘cultural and social norms can affect the individual’s perceptions of constraints which will consequently affect the whole decision making process’, resulting in travel patterns that differ between and within societies.<sup>13</sup> For instance, Malene Freudendal-Pedersen suggests that people absolve themselves of responsibility for the externalities resulting from their own mobility-choices by reference to various ‘structural stories’, narratives that legitimize individual action by expressing what are erroneously taken to be universal, unavoidable truths about transport/mobility.<sup>14</sup> Some analysts argue that knowledge of these differentiated im/mobility cultures and propensities might help to shape policies aimed at changing attitudes, choices and practices.<sup>15</sup> Fiona Rajé’s study of the cultures of socially marginalized groups in a number of British cities gives an indication of what might be achieved.<sup>16</sup>

Whilst a direct appeal to history is rare,<sup>17</sup> this emerging paradigm does implicitly acknowledge temporality. Observations such as there is a ‘certain social inertia built into transport systems that ... is difficult to change’<sup>18</sup> recognize that im/mobility cultures and patterns build over decades, with some aspects becoming more sedimented than others. Such claims demand careful historiographical testing, as well as opening up the possibility of historians and other scholars developing a ‘usable past’ that engages with the production, governance-cum-regulation and consumption of present and future im/mobilities. Geoff Vigar provides a rare example of how, in the British context, history might thus strengthen policy and practice. Inspired by the sociological ‘new

institutionalism' which conceives institutions as nodes in evolving formal and informal networks, he analyses how political and policy bodies operating at various geographical scales and levels of governance since the second world war shaped the struggle between the dominant 'predict-and provide' approach to official transport policy and various alternatives. In this way he starts to identify those forms of organization and other factors that might fruitfully be developed in the pursuit of demand management and other non-traditional measures intended to achieve equitable and sustainable mobility.<sup>19</sup>

There are signs too of a more sophisticated approach to technology, which hitherto has generally been treated in isolation from research on travel behaviour. As Beolie Elzen argues, this means that analysts tend to ignore technology's potential to enable radical change. They assume that existing patterns of behaviour are fairly fixed, and the technical innovation will be limited to incremental changes designed to optimize mobility patterns within existing transport regimes.<sup>20</sup> But STS scholars such as Elzen are challenging these assumptions in the context of present-day transport. Their line of critique would be strengthened by showing how radical changes in mobility in the past were due in part to the mutual shaping of technological change and socio-cultural factors.<sup>21</sup>

More support for these general lines of argument comes from the so-called 'mobility turn' in the social sciences, a term promoted in particular by the sociologist John Urry and institutionalized by him through one of the potentially most important academic initiatives of recent years in the UK, Lancaster University's Centre for Mobilities Research<sup>22</sup> and its associated journal, *Mobilities*. This publication aims in part to enable debate between academic and policy arenas by exploring 'both the large-scale movements of people, objects, capital, and information across the world, as well as more local processes of daily transportation, movement through public space, and the travel of material things within everyday life.'<sup>23</sup> As such it will, the editors claim, not only draw upon and transcend a broad range of social-scientific perspectives but also require the reconfiguration of both the objects and practice of such research as the underlying ontology shifts towards a 'post-societal' world in which traditional territories, places and socialities such as those of nation-states are replaced by global 'networks and flows' defining both individual and collective identities.<sup>24</sup>

'Historical mobilities' explicitly fall within the journal's purview, even if in the five issue that have appeared so far, engagement with the past only rarely reflects the kind of analytically rigorous and nuanced understanding based on contemporary evidence that would satisfy SHOT's scholars. But the potential for historiographical input, not least into debates about the future, is there, particularly given the similarities between the world view of the emerging paradigm in transport studies and that of Urry and his colleagues. The latter argue that mobility systems 'are neither perfectly ordered nor archaic', producing an 'orderly disorder' of 'dynamic or complex adaptive systems' which in addition to emergent properties also 'develop over time so that national economies, corporations and households are locked into stable "path dependent" practices, such as the steel-and-petroleum car'. Such systems, it is argued, can also undergo radical change, either as a consequence of critical single or closely coupled multiple events, or as that of 'the accumulation of small repetitions reaching a "tipping point"' as with the explosive growth of mobile phone use or communications between offices using faxes... or the small causes that could conceivably tip the car system into a post-car system'.<sup>25</sup> Historians should surely test such claims, not least because without a sure grasp of the historical precedents to the allegedly post-societal world(s) of networks and flows, it is all too easy to overdraw the distinction between past and present and to misconstrue the significance of changes that have taken place.<sup>26</sup> In so probing, we should also be well on the way to analysing how the means by and through which corporeal and

other physical mobilities were produced and consumed in the past – transport systems, broadly conceived – have shaped present-day expectations and practices.

So far I have been concerned primarily with the policy arena, and more particularly to establish the willingness of scholars whose chief concern is to understand present-day mobilities with at least one eye on the future to countenance the possibility that history might be of some use in that task. That willingness does not, of course, imply that it will be possible to develop a ‘usable past’, still less that those in power will listen, although to be positive, there are signs that senior government officials in the UK are ready to spend money on looking to history.<sup>27</sup> The institutional and disciplinary obstacles to building bridges between historians, other academics, and those in the seats of power (whether in business or government) are formidable, even when all sides agree on the principle. The history of such endeavours is not particularly encouraging, a point I make not to deter future attempts but to underscore the commitment that will be needed to achieve success. For example, the *Journal of Transport History*, the oldest and pre-eminent international periodical in the field, started life in the UK in 1953 with an aim to bring together transport professionals and historians, but this ambition was not widely fulfilled during the journal’s heyday in the 1960s and 1970s.<sup>28</sup> But more recently, under the editorship of first Peter Lyth and now Gijs Mom, and in partnership with the International Association for the History of Transport, Traffic and Mobility (I<sup>2</sup>M), the journal has renewed its commitment to addressing a range of audiences outside that of academic historians, including transport scholars and policy analysts. It now features, for example, an occasional section dedicated to essays on History, Planning and Policy – although as submissions come largely from those who are not trained historians, it is not always easy to reconcile theoretical perspectives, methodologies and techniques with those more familiar to subject specialists. Similar problems seem to bedevil the work of the History Committee of the US Transportation Research Board, despite the involvement of senior SHOT personnel.<sup>29</sup> Other initiatives driven by academics to bridge the ‘policy gap’ in the transport field include plenary discussions with the likes of industrialists, politicians and policy-makers and -analysts at the meetings of European projects such as COST340 Towards a European Transmodal Transport Network: Lessons from History,<sup>30</sup> the European Science Foundation’s new EUROCORES programme, Technology and the Making of Europe, 1850 to the Present (Inventing Europe),<sup>31</sup> and the annual conference of I<sup>2</sup>M.<sup>32</sup> My experience of these projects suggests that whilst such discussions can be fruitful in identifying broad areas of shared concern, it is difficult to sustain the kind of regular dialogue which generates trust and commitment and gives historians some assurance of keeping the ear of those in power – not to mention demonstrating to the latter the potential utility of what we do. In short, the organizational work that needs to be done to ensure that historians enter into a sustained dialogue with policy audiences is as much needed as (or perhaps better, is a condition of) fresh thinking about the intellectual purpose and content of such endeavours.

### **Reaching the public(s) through mass media**

Top-down approaches to making history relevant to the future of transport/mobility will only get us so far in reaching wider publics. We need to think too about bottom-up ways of appealing to the ‘general’ public (whilst never forgetting the complex make-up of this audience), not least because ultimately these are the people who have to be convinced of any need for change in policy and behaviour. There is not much evidence that this is happening, despite the qualified acceptance by London’s residents of the UK’s almost solitary example of a radical shift in policy, the city’s Congestion Charge.<sup>33</sup> A recent government suggestion that Britain might in the longer-term adopt a national system of

road-pricing to reduce congestion and pollution attracted nearly 1.8m electronic petitioners in protest, a record number.<sup>34</sup> And younger people in particular seem to be becoming habituated to living in spatially complex and extended social networks, heavily dependent upon ‘cheap’ transport (and telecommunications)<sup>35</sup> All of this suggests a widely held and deeply rooted belief that everyone has the right to ever-more personal mobility, ideally at reducing unit costs to the individual in monetary terms.

Engaging with such fiercely held beliefs will not be easy. Popular books, newspapers, TV, radio and the web will surely all have a role, although it is extremely hard, given the lack of systematic research, at least in the UK, to gauge just what audiences take from these various media. Crude figures are not enough, although that is often all we have. A scholarly ‘popular’ book such as Peter Lyth and Philip Bagwell’s *Transport in Britain 1750-2000: From Canal Lock to Gridlock*, written with one eye on future practice, sells some thousands of copies in the UK, suggesting a respectable readership by comparison with research monographs and collections, although clearly falling short of the kind of numbers generated by the mass media.<sup>36</sup> Of course, the impact of a book is not restricted to its immediate readers, who in any case, it might well be argued, are more likely to be engaged than the casual viewer, listener or surfer. The truth, however, is that this is a dangerous assumption – easily made by those of us for whom the printed written word remains a priority – and that we do not know. Do we really understand, for instance, the ways in which particularly younger generations might be reaching the past through blogs, social networks and narrow-cast internet media beyond the web page? Such matters worry those media-academics and -professionals who are interested in history programming,<sup>37</sup> and they should be of concern to historians if we are not to make the mistake – in the archaeologist Ian Hodder’s phrase – of ‘retarded borrowing’, the practice of taking from other sectors not the best of contemporary practice but that of one or two generations before. In short, research on the ‘public understanding of the technological past’ should be a priority.<sup>38</sup> I shall have more to say about this shortly.

There is also the very real problem, at least in the UK, that the research environment that has developed over the last twenty or more years in response to the state’s funding regime increasingly militates against writing which is not narrowly focussed on research monographs or essays.<sup>39</sup> Even in countries like the USA with a more catholic definition of acceptable scholarship there are tensions – as we have seen recently in the pages of *Technology & Culture* – between those who see themselves as producers of original historiographical knowledge and those who ‘popularize’ it.<sup>40</sup> As the *T&C* debate suggests, partial resolution might lie with acknowledgment that the different needs of each audience determine not only the writing’s language and style but, sometimes, also the very subjects and the way they are tackled. Perhaps – echoes of SHOT’s own creation myth – we should think of public history less as ‘applied academic scholarship’ and more as a craft and discipline in its own right.

The traditional mass media are not going to disappear in the near future, and they still offer a huge potential audience. In my experience over the last dozen or so years, ‘popular’ books can be a useful stepping stone on the way to reaching such an audience, by informing media professionals about the main contours of historiographical debate. And, despite the accelerating trend on British TV towards mediating the past through ‘celebrity’ presenters – most of whom are not historians, although one or two have achieved minor fame through their media work – there is still a role for the subject specialist behind the scenes. Something as straightforward as pointing to the ways in which historically different kinds of im/mobility have been favoured or discouraged by, say, the state can help reveal ‘cracks’ in present-day discourse – Freudendal-Pedersen’s structural stories – that admit the possibility of an alternative: ‘it didn’t have to be like that, and it doesn’t now’. Even such an ostensibly unpromising prospect as ‘Trains with

Pete Waterman', four largely historical programmes presented on the UK's terrestrial Channel 4 by 'a pop music impresario' whose 'real love of his life is trains' was shaped in some small degree along these lines by my input.<sup>41</sup> At a still more practical level, charging a fee for anything beyond an initial exploratory conversation is a good way of testing researchers and producers' commitment to academic expertise, although of course one cannot expect to determine the editorial line even if money changes hands. Whilst much depends on the individuals involved, it is possible to build up fruitful longer-term relationships with journalists, producers and broadcasters. In my experience this seems easier with radio, perhaps because costs are much lower and broadcasters have more time.

Transport museums offer another route to general audiences, the size of which stands somewhere between that of popular books and the mass media. These museums have not traditionally tried to engage the public in dialogue about the relationship between past, present and future mobilities. But more recently there are signs of a change, not least in the desire of major museums such as the UK's National Railway Museum (around a million visitors a year across its two sites) and the Museum of Transport, Glasgow (about half a million) to plan redisplays partly with the aim of encouraging visitors to make connections between the past and today's mobility choices. This is very much work-in-progress (the Glasgow project is scheduled to open in late 2010; the NRM is still exploring funding options), so nothing can be said about the success of such efforts. But they are noteworthy – in the British context – for including academic expertise in the planning process. This enthusiasm is matched by historians' renewed interest in museums as a medium through which to reach a wider public. In the UK such efforts date back at least to the 1960s, when Jack Simmons, one of the *Journal of Transport History's* founding editors, steadfastly tried to forge links between universities and museums, partly by introducing museum reviews – roughly coeval with *T&C* – and, in 1970, publishing a book, *Transport Museums in Britain and Western Europe*.<sup>42</sup> These efforts did not survive beyond his editorship, but partly inspired by SHOT's exemplary practice in noticing transport museums, both through reviews and the Dibner Award for Excellence in Museum Exhibits, exhibition reviews in the *JTH* were revived in 2001 after a lengthy period in abeyance.<sup>43</sup> Elsewhere, the European Centre for Mobility Documentation in The Netherlands aims to bring transport museums into the internet era by bringing together historians, museum exhibitors and others to develop a web-based Virtual Mobility Museum. I have more to say later about how historians might engage more with the museum public(s).

SHOT's support for the wider dissemination of academic history through various media has long been exemplary, with the Sally Hacker Prize, founded in 1999, the most recent acknowledgment of public history. Of course, as a learned society the greatest accolades will always be reserved for those who contribute to the core activity of expanding the field's intellectual boundaries. But perhaps there is scope for redefining that core. As I hinted above, helping the public to understand the past – 'public history', in one sense of that term – differs from academic history, narrowly defined, in its purpose and hence in some of its methods and techniques: but it need not be any the less scholarly, rigorous or challenging, whatever the medium.<sup>44</sup> *T&C* will never be – should never be – a place for popular publishing per se. But why should the front half of the journal not be open to research about the ways in which different kinds of non-academic audiences apprehend the technological past? In this way the goals, values and methodologies of the public history of technology would be acknowledged as having something approaching equal intellectual weight – it might be more widely seen as a *different kind of historiography*. (It is worth noting that the *JTH* includes scholarship on the public history of transport within its pages.)<sup>45</sup> Perhaps too SHOT might expand its

existing efforts to help members share contacts and experience with the wider media; in the UK, the History and Policy network, founded in 2002 and currently numbering some 70 members, attempts more generally to bring historians and the media (as well as policy-makers) in touch.<sup>46</sup> Is it also time to reconsider the range of prizes SHOT offers? What is it that makes a popular book or a museum exhibition worthy of a prize but not a TV programme, radio broadcast or web site?

### **Mobilizing history of technology**

In sum, I suggest that transport history needs to engage with various publics interested, in their different ways, in the future of (physical) im/mobilities. This presents historians in general and of technology in particular with a number of challenges. In the first place, we need to be sensitive to the needs of our prospective audiences, whether these be those in power (politicians, policy-makers, business leaders); those who serve or seek to influence them as advisors, lobbyists or advocacy groups; scholars in cognate fields such as transport studies, mobility studies and cultural geography, or the broader, and much-segmented 'general' public that will be reached through some combination of mass- and niche-media. It is almost certainly easier to deliver appropriate 'outcomes' if projects are devised in collaboration with prospective partners rather than treating the wider audience as a bolt-on to research that is being devised for other reasons. This is not a matter of abrogating professional responsibility but a recognition that if we are serious about entering into dialogue with those who are not our professional peers we need to listen to them as much as they need to be persuaded to hear what we have to offer. In short, we need to do a lot more organizational work-cum-research so that we can *get to know our publics better*. Some of this can doubtless be done through networking in conferences and so on, although as I have already suggested this probably needs to be pursued over the mid-to-long-term; some perhaps through more formalized audience research – much will depend on opportunities, and the nature of the particular public we want to reach.

At this stage it is a moot point how much we can reach these wider audiences by reconfiguring the fruits of old labour. Scholarship, to draw upon an old distinction, is not (just) original research, and there is a lot to be said for bringing existing studies together in ways that address the kinds of questions posed by modern predicaments. Transport museums rarely pay for extensive new research to develop exhibitions, and the mass media certainly will not do so. Similarly, if policy analysts want to know, for instance, what kinds of factors are likely to inhibit or encourage the take-up of new transport systems, in some fields such as urban transport historians already have a lot to offer, at least for countries such as the USA and some European nations. Comparative histories, although still quite rare, are potentially very rewarding as shown by Paolo Capuzzo's study of European public-transport regimes before the second world war.<sup>47</sup> Yet there is probably some mileage in thinking more generally and deeply about an intellectual framework for a historical social science of im/mobility that is better orientated to the future precisely because it is sensitive to the past. A history focussing on the persistence and breakdown of the ways in which im/mobilities were produced, regulated and consumed might help us to understand the sedimented character of present-day patterns, and thus identify those factors amenable to short-term change and those which are more deeply embedded and thus subject – if at all – only to longer-term transformation. Indeed, mobility researchers in the UK are already hinting that they need studies broadly of this kind; the team looking at the ways in which transport underpins geographically stretched social networks has cautioned that the significance of its findings is limited by the lack of past benchmarks.<sup>48</sup> Mapping both the social content and geographical spread of historical mobility networks can be done, as John Hepp has shown with regard to 19<sup>th</sup>-century Philadelphia and Colin Pooley and his colleagues in relation to provincial urban

areas in England after 1945.<sup>49</sup> There is enormous scope for more work of this kind – if the data can be found.

Historians of technology will, of course, need to play a full part in such endeavours. For one thing ‘progressive’ technical change seems, from personal experience and anecdotal evidence alike, to be one of the structural stories that people use to justify their mobility choices. The decision to continue ‘binge-flying’ over comparatively short distances, to buy a 4x4 (SUV), and so on, is all the easier if one believes that technical change has always delivered, and will continue to deliver, say, reduced pollution. Airlines and aircraft and car manufacturers encourage such beliefs by emphasizing the reduced unit pollution (emissions per passenger-mile) generated by their latest vehicles, whilst ignoring the total levels of pollutants produced by a transport and land-use system generally still geared to encouraging – and sometimes requiring – longer and more frequent journeys.<sup>50</sup> I have heard one senior civil servant-turned-academic publicly use this sort of simplistic belief in technical fixes to justify the UK government’s transport policy. Putting technology back into the (public) history of transport might do something to dissolve such myths.

Of course, it depends on how one treats technology, a point that does not need emphasizing to a SHOT audience but which still bears repeating for historians more generally.<sup>51</sup> Technology was central to a paper that the historical geographer George Revill and I presented at SHOT’s 2004 meeting.<sup>52</sup> It drew on ideas from mobility studies, cultural geography, social semiotics, and actant-network theory to sketch some possibilities for reconfiguring transport historiography by giving more attention to the so-called ‘cultural’ and ‘spatial’ turns that have remodelled many other areas of the humanities and social sciences over the last twenty or more years. None of the concepts we introduced were new, but we stressed that cultural and spatial analyses of im/mobilities needed to include ‘the practical limits and historical capabilities of transport technologies’. In sum, we argued that getting to grips with transport technologies as historical and spatialized *material* cultures is crucial to understanding the history of im/mobilities, which in turn can sharpen and nuance the ways in which we understand our present, late-modern patterns of movement, their possibilities and limitations.

For transport is a deeply cultural act. The physical process of moving from A to B (the instrumental, or material-functional dimension) is imbued with socially inscribed meanings (the symbolic-expressive dimension) such as ‘driving is freedom’ – the cultures of transport. Technology links these two aspects. The act (or performance) of moving using material objects (vehicles, infrastructures etc.) both requires and helps to reproduce or transform the cultures and social organizations which, together with the hardware, constitute the socio-technical systems called transport.<sup>53</sup> This kind of perspective ties the history of transport into a broader social semiotics, deconstructing mundane objects, built environments and the everyday actions that take place within them.<sup>54</sup>

I have some sympathy with the argument that scholarship on transport systems is currently healthy enough to do without further theorizing (the unsympathetic might call it obfuscation). But I find it useful to broaden Jörg Beckmann’s taxonomy of auto-mobilization to that of transport systems (single mode) or regimes (mixed modes) more generally. On this account, such systems/regimes are made up of three related dimensions: mobility-subjects, mobility-objects and mobility-scapes.<sup>55</sup> The first of these covers the individuals and social groups that use or are otherwise affected by a transport system/regime. The second refers to vehicles, and their associated infrastructures of ‘hard’ physical forms, such as roads and servicing facilities, and ‘soft’ social-institutional ones, like driving schools, laws and policing. Mobility-scapes are the ways in which time and space are constructed through being perceived, represented and used in particular

ways in a society where patterns of movement and social interaction are dominated by certain modes; we might, for instance, talk about somewhere being ‘about ten minutes’ drive away’. Whilst there is always a risk with such schemata of ‘technology’ becoming so broadly defined as to lose any analytical purchase – if technology is everything, then everything is technology – the advantage is that one is sensitized to thinking in terms of the overall transport *regime* or *system*, and about the need to analyse in a theoretically informed and empirically grounded way how the various elements of each interact with, or – as I should prefer to see matters – constitute, one another.

These are big claims, and ultimately they stand or fall according to their ability to spark (or more modestly, to reflect) a theoretically assured historiography which delivers a richly descriptive, culturally sensitive, spatialized social history of transport alive to issues of power, social equity and ecological sustainability. The kinds of study carried out by scholars within SHOT and others working at the intersection between the histories of transport and of technology already deliver much of what Revill and I had in mind. An important development over the last two decades has been the inclusion of users’ perspectives into the technological mix (Ruth Schwartz Cowan’s consumption junction),<sup>56</sup> coupled with a readiness to analyse, in their material context, the shared and contested attitudes, norms and values which inform, and in turn are informed by, changing patterns of technologically enabled mobility. The basic methodology is familiar from, say, those scholars who argue that the pioneering days of motoring and aviation before the first world war were characterized by a masculinity wrapped up with the dangers inherent in using these modes, and that in some degree these attributes influenced patterns of mobility thereafter.<sup>57</sup> Moreover, this focus on everyday culture is increasingly being incorporated into analyses which also develop social-constructivist theories (to take this term in a general sense) long familiar within SHOT, such as LTS, in a spatial way. For example, transport technologies – particularly in the form of a previously rather neglected topic, infrastructure – lie at the focus of important research projects addressing an issue of considerable public concern (at least amongst Europe’s political elite), the formation over the last 150 or so years of the idea and reality of a transnational European technological space.<sup>58</sup>

Urban transport is another vibrant field, delivering theoretically informed and empirically nuanced studies which embrace and yet go beyond users’ values and attitudes. For instance, Eric Schatzberg’s 2001 work on US tramways nicely captures the sense of how wider urban cultures and the hardware of urban mobility were simultaneously reproduced and transformed through the socially mediated process of technological change.<sup>59</sup> This kind of research has a long pedigree, for all that concepts and language vary from author to author – John P. McKay’s now 30-year old study of the influence of European aesthetics on tramway electrification formed a basis for Schatzberg’s essay.<sup>60</sup> Similarly, Clay McShane’s 1994 book on the emergence of automobility in US cities analyses how changes in the physical technologies of motor vehicles and roads went hand-in-hand with those of the meanings ascribed to them. Streets came to be thought of more as thoroughfares in a wider space of urban circulation than as open public spaces and a locale for neighbourhood life, motors were seen as liberating and a status symbol: the ‘technology, as implemented, was largely a social construct.’<sup>61</sup>

McShane’s study is a good example of how historians have developed the insight that space and time are as much socio-cultural realities as anything else, and that new transport technologies have historically been tied up with their reconfiguration. This is not, of course, a particularly novel point; Wolfgang Schivelbusch’s 1977 monograph *The Railway Journey* famously sketched how in the 19<sup>th</sup>-century the fast pace of trains and the sideways view out of carriages reduced the near view to a blur and reconfigured the landscape as a panorama unfolding in the mid-to-far distance.<sup>62</sup> Recently, younger

scholars have turned to understanding the rushing, forward view afforded by the car.<sup>63</sup> Others, not all of them historians of technology, have taken up the challenge of articulating how social interests have historically contributed to the production of a range of symbolically rich and politically charged geographies at a variety of scales. In a more contemporary context, for instance, the cultural geographer Peter Bishop examines how over several decades last century, proposals for Australia's Alice Springs to Darwin railway was tied up with the idea of the 'corridor' as both a tool of practical planning and a means of marshalling the hopes and aspirations of competing national identities. He argues that the project's various technologies were implicated in a continuing resignification as the corridor evolved as a site of difference, struggle and reconciliation between European, Aboriginal and Asian conceptions of nation.<sup>64</sup> At a different geographical scale, historians such as Barbara Schmucki, Amy Richter and Barbara Ann Welke emphasize that the travelling spaces of public-transport vehicles such as trams and railroad cars were places in which gendered and, sometimes, racialized notions of acceptable behaviour were contested.<sup>65</sup>

Treating transport technologies as historical and spatialized material cultures is then something that SHOT's historians and similarly minded scholars have been doing for some time, but adapting such historiography for non-academic publics is a more recent challenge. A genealogical approach to the history of im/mobilities, tracing the contested meanings of the transport systems that underpin present-day attitudes, practices and problems, has attractions for engaging the public(s) with a history of technology that is orientated towards the mobility choices of the 21<sup>st</sup> century. It is fairly easy to identify some topics for which this approach could work. A good place to start would be urban walking – a mode long ignored by scholars and policy analysts, for all that walking is something that most of us do most days – with its attendant technologies such as pavements, physical barriers, 'zebra' (pedestrian) crossings and jaywalking laws. The current upsurge of interest amongst radical activists and some politicians and policy-makers alike in reclaiming highway space for pedestrians from motor vehicles might be profitably related to the kind of historical processes of exclusion documented by McShane and currently being analysed by others in more detail and in various other geographical contexts.<sup>66</sup> But some issues of topical concern will probably require fresh research. Environmental factors, for instance, are quite thinly represented in technological histories of transport, although the few examples of which I am aware demonstrate that this is not because historical actors were indifferent to the dangers of pollution, landscape degradation and so on.<sup>67</sup>

In the rest of this paper I do two things: first, sketch one way in which such techno-cultural histories might (in the UK context) contribute to, and benefit from, engagement with historians working on the wider relationship between citizenship and consumption; and, secondly, indicate how transport museums might build on such scholarship to give greater emphasis to the ways in which transport's pasts shape our present mobility options.

### **Citizenship and the consumption of technologically enabled mobility**

It is a common enough observation that whilst personal mobility is highly regarded in most industrialized and industrializing societies, there are quite striking differences between the transport regimes – the modal mix – in particular countries. We could do with a lot more comparative histories exploring why this is so. Extending such historiography to the technologies of southern countries – for instance, the hand- cycle- and motor-rickshaws of the Indian sub-continent and elsewhere – might help bring alternatives to car-based mobility to public attention in both the north and the south.<sup>68</sup> But whether or not we do this, one issue that demands analysis is how and why many

(capitalist) societies have for so long treated technologically enabled mobility as akin to a consumer good; as a commodity to be bought in a marketplace, ideally at reducing financial cost to the individual, in which transport's many externalities such as pollution, death and injuries are borne as generalized social costs and not by those reaping its primary benefits.

A complete history of personal mobility as we now know it would doubtless take us back at least as far as Enlightenment notions of the 'modern' self. But on a less ambitious scale, the 20<sup>th</sup> century is surely of the greatest importance in understanding our current, late-modern attitudes to, and patterns of, mobility. As far as the UK is concerned, my hunch is that the 40 years up to the second world war, when the popular cultural – if not the political – battle for auto-mobilization was arguably won might prove to have been as, if not more, significant than what followed after 1945. My thinking here is partly influenced by the idea that radical technologies often have to undergo a sometimes lengthy developmental period protected in various ways by historical actors who/which believe in their long-term potential. On this account, the fact that mechanized inland transport in Britain was still dominated in 1939 by the railway in many (but not all) markets was not a reliable guide to the mobility expectations of the greater part of the public. It might, though, have been indicative of the immaturity of alternative technologies to the train.

Although Lyth and Bagwell's historiographical overview provides many hints and answers, there are still many gaps in our understanding of British transport in the last century. Technology, and particularly infrastructure, is a notable absence. Something as fundamental as the provision of highways fit for purpose in a motorized age is only just starting to be treated in the UK context in a way that would satisfy SHOT historians.<sup>69</sup> The geographer Peter Merriman's new cultural study of the M1, Britain's first motorway, brilliantly analyses the heterogeneous engineering that enabled the highway to be threaded into Britain's crowded landscape in the late 1950s with surprisingly little protest and, once opened, to be perceived and consumed by various social groups as the epitome of modernity.<sup>70</sup> Political historian Charles Loft offers an important complement by analysing the machinations within the British state that gained political approval and funding to shift inland transport from a rail- to road-based system from the mid-1950s.<sup>71</sup> Such studies suggest that mass automobilization was arguably 'held back' in the inter-war period in part by the lack of state support for the critical infrastructure, roads.<sup>72</sup> Interestingly, the very few studies we have in the UK of another essential infrastructure of late-20<sup>th</sup>-century mobility, airports, suggest that they developed in a 'technological niche' protected by various actors, particularly the local state, which believed in their long-term potential. How else was their future secured in the face of what was sometimes well-organized opposition?<sup>73</sup>

We need to contextualize and develop technological topics such as these, to provide a 'big picture' of how the expectation of practically unrestricted mobility has become so deeply entrenched in present-day politics and public opinion. The historiography on the relationship between citizenship and consumption has much to offer here. Sheryl Kroen has recently written about the historical emergence of a more 'positive appraisal of the consumer as an active agent of democratization' in Europe and the USA,<sup>74</sup> whilst historians' long-standing interest in the emergence of a mass-consumer society in Britain<sup>75</sup> has started to engage with consequential shifts in notions of what it means to be a citizen, taking the latter term in a broad sense to include participation in political institutions and activities outside formal politics. Frank Trentmann, for instance, argues for studies looking at the 'larger reconfiguration of consumption and citizenship' represented by 20<sup>th</sup>-century debates and practices around 'necessaries' such as food.<sup>76</sup> This reconfiguration-cum-democratization took many forms. Matthew Hilton, for

example, has traced the ways in which organizations and individuals combined in many-sided, often contradictory ‘consumerist’ movements which helped to define ‘new forms of citizenship and political expression’ beyond the traditional loci of the 19<sup>th</sup>-century spheres of the state, workplace and home.<sup>77</sup> But little credence has been given in this body of work to the idea that a citizen’s rights might include a certain ‘necessary’ level of mobility. Nor is it yet recognised widely enough that in the last century personal mobility developed as a sphere of aspirational consumption, in part enabled by the state. And, perhaps most important of all, we need to understand the limits as well as the possibilities of a notion of citizenship which in Britain has tended to reduce democratic decisions about mobility to the exercise of market choice.

The period ca 1900-39 is particularly interesting for a semi-competitive market in passenger transport developed as trains lost their virtual monopoly of inland travel over any but the shortest of distances. Thus freed from the choice of travelling by train or not at all, it is arguable that ‘the passenger’ became instead a consumer or customer. Interestingly, this kind of language was quite commonplace within the railway companies between the wars, and elements of it existed before 1914. Transport specialists are increasingly aware of some of the issues raised by such developments. Recent studies of railway travel as a form of technological consumption<sup>78</sup> confirm the analytical power of ‘commercial culture’ – the notion that ‘various aspects of cultural production... are inherently concerned with the commodification of various kinds of culture difference’, with the consequence that ‘the apparently rational calculus of the market is inescapably embedded in a range of cultural processes’.<sup>79</sup> They have shown, for example, that it is not easy to draw a neat division between the historically shifting categories of ‘necessitous’ and ‘aspirational’ mobility.<sup>80</sup> For instance, Sean O’Connell’s study of motoring prior to 1939 argues that consumers’ preference for the car resulted from inter-related circuits of economic and political power, partly constituted through everyday cultures and skewed according to social class and gender.<sup>81</sup> Similarly, David Matless shows how individual and collective notions of Englishness were both confirmed and subtly transformed by the ‘motoring pastoral’ landscape of the inter-war middle-class.<sup>82</sup> The comparative lack of opportunities to commercialize forms of mobility such as walking might explain why in the last century the state gave them a lower priority.

Further work might then explore more systematically how changing ideas and practices about citizen-consumers related to the provision, regulation and use of transport systems. For example, there is much potential for revisiting the history of Britain’s railways in the 20<sup>th</sup> century in the light of Timothy Alborn’s argument that up to 1914 ‘the organization and social relations of railways were constitutively political, such that they could not ignore politics without hampering economic performance’.<sup>83</sup> He was referring to the exercise of state power which from the 1840s had legislated to require the railways to provide certain kinds of mobility as a ‘public service’. Although some of the detailed work has been done, we are badly in need of an overview of how and why in the 20<sup>th</sup> century such attitudes, policies and practices changed with the rapid rise of the road-based alternative. How significant, for example, were users’ views about the railways’ quality of service, and what role did technological innovation have in shaping such attitudes (and vice versa)? Did consumerist organizations and pressure have a significant effect on the companies’ provision of passenger services in the inter-war period, or after in the nationalized era? And, at one step removed from the consumption of passenger travel, but still addressing the role of transport in a consumer society, to what degree was road distribution adopted because of the lorry’s superior characteristics in relation to the changing needs of industry and retailing?

### **Transport museums: another kind of historiography**

This might all seem a long way away from bringing the history of technology to wider publics, but people like to have the freedom to be able to choose how and when they move, so we are probably never going to be very far away from present-day concerns if we develop a history of transport that address issues such as citizenship and consumption, even if we do not use that language. And although museums are not the only way in which the general public can engage with this history, transport museums' USP, their objects (most strikingly, their vehicles), offer an effective way of grabbing visitors' interest to start a dialogue about transport's future partly by looking back. Many people like to connect to the past through things, and treating transport as material culture, as meaning-laden, offers a way into some of the issues raised here.<sup>84</sup> In particular, museums could try to encourage visitors to acquire the skills and knowledge needed to understand (and perhaps even to deconstruct) those cultures of transport – the structural stories – that help to sustain present-day patterns of mobility.

For, of course, transport, like all technology, is always about trade-offs to which there is no absolute answer and about which ultimately in a democracy the public has as much right to express an opinion as the subject specialist. Travelling by long-distance train is not the same as making the same trip by plane or car – each mode offers a different experience of the ground traversed, takes a different length of time, costs different amounts of money, causes different levels of ecological damage, and so on. The point could be made directly in a museum about present-day transport regimes, but doing so in relation to historical technologies has the advantage of demonstrating how over the long-term power and circumstance together shape choices, how societies get locked in to particular ways of moving, and how even dominant transport systems can unravel. Thus, for example, the slowness and discomfort of travelling on an ante-bellum railroad in the USA points to the ways in which British technology had to be re-fashioned to suit different economic and financial imperatives. Even more radically, the encounter between the European technology of the railway and the very different technologies of, and attitudes towards, mobility among Native Americans offers the potential for some challenging exhibitions.

How might we set about doing this? We know that visitors take what they will from any exhibition, almost no matter what exhibitors' intentions, so at one level perhaps we should not worry too much about precise outcomes. And museum histories are always going to be, comparatively speaking, broad brush; no exhibition can deliver the sophistication and detail of academic discourse. Getting visitors to appreciate that their forebears had particular ways of understanding mobility – bringing them up short with the 'shock of the old' – and perhaps getting them to appreciate that historical actors held certain points-of-view for good (or even 'bad') reasons is quite a challenge. So we should surely follow the example of the Smithsonian's 'America on the Move' and focus on particular, microcosmic episodes that both personalize history – this is how most people engage initially with the past – whilst offering opportunities to explore some of history's structural complexities and conflicts.<sup>85</sup> This all suggests some ground rules. Emphasize the user's perspective, at least in those elements of an exhibition which are designed to grab that all-important initial attention. Move from the present – where inevitably most visitors feel most comfortable – back to the past, stressing both the similarities *and* the differences in the way we move now and then. Provide the material to think about how technology – and not just vehicles – affords the possibility of *different* ways of doing what at the functional level is the *same* thing – travelling from A to B, transporting goods from C to D. Encourage the visitor to decide how s/he would have done things in the past. Ask them. Give them the chance to express their views.

How still more practically to achieve any of this? Focussing on users' perspectives suggests a greater use of the media through which historically popular

meanings were partly conveyed. Film, prints, posters, photographs, cartoons, drama, all engage people in ways that interpretative text, however carefully drafted, rarely does. Exhibitions such as ‘America on the Move’ increasingly use such media, but perhaps not always with a sufficient eye on the danger of visitors taking meanings through the prism of 21<sup>st</sup>-century frameworks of understanding, and thus missing the oppositions and shifts that are part and parcel of historical change.<sup>86</sup> All this suggests that museums should be as much about encouraging visitors to think still more deeply for themselves in part by learning *how* to decode different kinds of representation, both those *from* the past and *about* the past (including that of the museum itself), rather than merely laying out the fruits of such inquiry in a didactic fashion.

But we need to try to go still further than this if museums are to spur debate and fresh thinking about mobility in the future. It is surely not enough to trust that displaying the past might spark some people into thinking about why we transport things and people the ways we do today, and thus how we might do it differently. Historians of technology can already help museums provoke public questioning about the relationship between past, present and future. Bob Post, for instance, has written engagingly about the disjuncture between some modern enthusiasts’ perceptions and representations of historic electric-street traction, and how such views have built into a politically effective ideology in the USA that might crudely be summarized as ‘Light-Rail Good: Buses (and Autos) Bad’.<sup>87</sup> It would be a fairly straightforward matter to confront visitors with the contrast between perception and reality in both past and present, and ask them, say, whether in southern California tax-dollars would be better spent on more freeways, new bus routes or LRT.

I have discussed personal mobility in some depth, but as I remarked earlier, increasingly globalized production and consumption makes freight/distribution/logistics of growing concern. Building an exhibition around the life-cycle (or commodity-chain) of a mundane article of, say, women’s clothing from design through manufacture to point-of-sale, use and finally disposal, tracing the various strands of transport (and communication) involved from Scotland (where the designer worked), around Europe from the Iberian peninsula to the east, back to Britain, and then perhaps abroad again for recycling could be a starting-point to explore how and why similar articles circulated in the past, and how they might do so in the future.<sup>88</sup> Food would likely be another popular and apposite topic – the supermarkets that have destroyed so many local producers and markets are totally reliant on so-called cheap transport for sourcing their apparent cornucopia. An exhibition on increasing ‘food-miles’ would inevitably have to treat transport’s part in the globalization of the food economy, and this lends itself to a historical treatment since it was not something that happened overnight. All of this demands that historians spend more time looking at the (extra)ordinary technological systems of distribution networks, such as the container, fork-lift and pallet.<sup>89</sup>

The environment is another field where scholars have still to come up with the narratives and evidence needed for historical displays driven by present-day concerns. Take an idea for an exhibition that would emphasize the ecological costs of competing modes of transport in a historical perspective.<sup>90</sup> Given that one can now travel, for example, from DC to Boston by rail, car or air, which one would you, the visitor, chose given the various financial and ecological parameters for each journey? Now? In 1957? 1907? 1857? 1807? A historical perspective brings home how technological change affects the total costs involved in such a journey as well as the balance between individual and generalized costs. It can also suggest how the choices we might want to make now and in the future are shaped and constrained by technological trajectories. I imagine this exhibition consisting of, say, three zoned areas, each representing a travel-cum-ticket agency (or its historical equivalent) in the present, some suitable historical moment, and a

point in the not-too-distant future, where the visitor role-plays the traveller and is presented with costed options. This kind of scenario allows one to set up counter-factuals – what decision would you have made if such-and-such a railway had (or hadn't) been built? It would become particularly fun – and instructive – when the external costs – for instance, carbon emissions per passenger – is reflected in the ticket price. But we do not yet have a good enough grasp of the historical data to be able fully realize such a project: a new research agenda opens up.

### **And finally...**

Is there any one lesson that can be drawn from SHOT's half-century of seaching for wider publics? Perhaps not, but let me finish with these thoughts. The history of technology, at least in its north american variant and as institutionalized in SHOT, had its origins partly in a Cold War-era wish to demonstrate – and certainly not only to academics – the technological superiority of US-style capitalism. That system has delivered enormous material benefits to some parts of the global community, one of which has been a massive upsurge in the circulation of people, commodities and information. But with capitalism, in all its variants, now a near-global reality, we can no longer ignore the unsustainability of extending to the rest of the world the kinds and levels of mobility to which we are accustomed in the north. The solution cannot lie in trying to 'hold back' the south: equity – and, longer term, pragmatic politics – demands instead that we search for forms of mobility that are sustainable across societies and generations. Technology will surely have a role in this, and the history of technology in general and SHOT in particular have a part to play in helping us to understand present predicaments, and perhaps too in identifying alternative ways of moving ourselves and our things. By recovering those ways of moving lost in the past, historians have an important role to play in developing narratives that go beyond the public's preconceptions – their structural stories – about mobility.

Of course as scholars our choice of research should not be limited by the desire to engage directly or immediately with non-academic audiences. But equally, whatever insights we have will be of lesser value if we cannot engage with these wider publics. This means that we have to know our potential audiences very well indeed – but there is a big gap between what most of us know about them and what we need to know if we are to think strategically. Intellectually, it would be interesting to discover more about how the public thinks about the history of technology in relation to mobility. But knowing this is essential for developing a techno-cultural historiography of transport that sustains a dialogue between specialist expertise and the lay knowledges and diverse concerns of the public(s). Perhaps then, the priority for any historian of technology who wishes to address a wider audience is to research just a little less about the technological past and a little more about the modern public.

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<sup>1</sup> *Guardian* (31 Jul. 2007).

<sup>2</sup> <http://www.cfit.gov.uk/index.htm> (accessed 1 Aug. 2007).

<sup>3</sup> F. Rajé, M. Grieco, J. Hine and J. Preston, *Transport, Demand Management and Social Inclusion: The Need for Ethnic Perspectives* (Aldershot and Burlington VT, 2004).

<sup>4</sup> A. McKinnon, 'Sustainable Freight Distribution', in J. Hine and J. Preston, eds, *Integrated Futures and Transport Choices: UK Transport Policy Beyond the 1998 White Paper and Transport Acts* (Aldershot and Burlington VT, 2003), pp.132-53.

<sup>5</sup> [http://europa.eu/pol/trans/index\\_en.htm](http://europa.eu/pol/trans/index_en.htm) (accessed 1 Aug. 2007).

<sup>6</sup> <http://www.fightgridlocknow.gov/> (accessed 1 Aug. 2007).

<sup>7</sup> [http://www.brookes.ac.uk/schools/be/pressreleases/uk\\_india\\_symposium.html](http://www.brookes.ac.uk/schools/be/pressreleases/uk_india_symposium.html);  
<http://indianeconomy.org/2007/07/15/public-transport-in-india/> (both accessed 1 Aug. 2007).

<sup>8</sup> <http://newmobilityagenda.blogspot.com/2006/11/chinas-sustainable-transport-strategy.html> (accessed 1 Aug. 2007).

<sup>9</sup> <http://www.temasactuales.com/temasblog/?p=400> (accessed 1 Aug. 2007).

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- <sup>10</sup> B. Elzen, 'Taking the Socio-Technical Seriously: Exploring the Margins for Change in the Traffic and Transport Domain', in H. Harbers, ed., *Inside the Politics of Technology: Agency and Normativity in the Co-Production of Technology and Society* (Amsterdam, 2005), pp.171-97, at p.173.
- <sup>11</sup> E. Holden, *Achieving Sustainable Mobility: Everyday and Leisure-time Travel in the EU* (Aldershot & Burlington VT, 2007); L.D. Nielsen, H. Gudmundsson and T.H. Thomsen, 'Mobility Research – A Growing Field of Social Enquiry', in T.U. Thomsen, L.D. Nielsen and H. Gudmundsson, eds, *Social Perspectives on Mobility* (Aldershot & Burlington VT, 2005), pp.1-7; E. Stern and H.W. Richardson, 'A New Research Agenda for Modelling Travel Choice and Behaviour', in K.P. Donaghy, S. Poppelreutter and G. Rudinger, eds, *Social Dimensions of Sustainable Transport: Transatlantic Perspectives* (Aldershot & Burlington VT, 2005), pp.144-63, at p.158; K. Williams, 'Spatial Planning, Urban Form and Sustainable Transport: An Introduction', in K. Williams, ed., *Spatial Planning, Urban Form and Sustainable Transport* (Aldershot & Burlington VT, 2005), pp.1-13; I. Doherty and J. Shaw, eds, *A New Deal for Transport? The UK's Struggle with the Sustainable Transport Agenda* (Oxford, 2003); J. Hine and J. Preston, eds, *Integrated Futures and Transport Choices: UK Transport Policy Beyond the 1998 White Paper and Transport Acts* (Aldershot and Burlington VT, 2003); A. Root, ed., *Delivering Sustainable Transport: A Social Science Perspective* (Amsterdam etc, 2003); G. Vigar, *The Politics of Mobility: Transport, Environment and Public Policy* Spon Press (London & New York, 2002), esp. pp.189-220; D. Banister et al, *European Transport Policy and Sustainable Mobility* (London & New York, 2000), esp. pp.209-31; P. Nijkamp, S.A. Rienstra and J.M. Vleugel (1998) *Transportation Planning and the Future* (Chichester, 1998).
- <sup>12</sup> E.g., D. Chaney, *Cultural Change and Everyday Life* (Basingstoke and New York, 2002), pp.1-9, 37-54. For an excellent general introduction, see A. Tudor, *Decoding Culture: Theory and Method in Cultural Studies* (London, 1999) and, more provocatively, D. Mitchell, 'There's no such thing as culture: towards a reconceptualization of the idea of culture in geography', *Transactions of the Institute of British Geography* new ser. 20 (1995): 102-16; and 'Culture, geography, and the arts of government', *Environment and Planning D: Society and Space* 19 (2001): 7-24.
- <sup>13</sup> Stern and Richardson, 'New Research Agenda' (note 11), esp. pp. 144, 157-8.
- <sup>14</sup> M. Freudendal-Pedersen, 'Structural Stories, Mobility and (Un)freedom', in Thomsen et al, *Social Perspectives on Mobility* (note 11), pp.29-45.
- <sup>15</sup> L.D. Nielsen, 'Reflexive Mobility – A Critical and Action Oriented Perspective on Transport Research', in Thomsen et al, *Social Perspectives on Mobility* (note 11), pp.47-64.
- <sup>16</sup> Rajé et al, *Transport, Demand Management and Social Inclusion* (note 3).
- <sup>17</sup> R. Hickman and D. Banister, 'Reducing Travel by Design: What About Change Over Time?', in Williams, *Spatial Planning* (note 11); pp.102-19.
- <sup>18</sup> K.P. Donaghy, S. Poppelreutter and G. Rudinger, 'Introduction and Overview', in Donaghy et al, *Social Dimensions* (note 11), pp.1-13, at p.9.
- <sup>19</sup> Vigar, *Politics of Mobility* (note 11), esp. pp.42-65, 189-220.
- <sup>20</sup> Elzen, 'Taking the Socio-Technical Seriously' (note 10), p.173.
- <sup>21</sup> E.g., R. Volti, *Cars and Culture: The Life Story of a Technology* (Baltimore, pbk edn, 2006); R.C. Post, *Technology, Transport and Travel in American History* (Washington DC, 2003).
- <sup>22</sup> <http://www.lancs.ac.uk/fss/sociology/cemore/> (accessed 1 Aug. 2007).
- <sup>23</sup> K. Hannam, M. Sheller and J. Urry, 'Editorial: Mobilities, Immobilities and Moorings', *Mobilities* 1(1) (Mar. 2006): 1-22, quote at p.1.
- <sup>24</sup> J. Urry, *Sociology Beyond Societies: Mobilities for the Twenty-First Century* (London & New York, 2000); 'Mobile sociology', *British Journal of Sociology* 51 (2000): 185-204; 'Social networks, travel and talk', *British Journal of Sociology* 54 (2003): 155-75.
- <sup>25</sup> Hannam et al, 'Mobilities' (note 23), p.9.
- <sup>26</sup> J. Larsen, J. Urry and K. Axhausen, *Mobilities, Networks, Geographies* (Aldershot & Burlington VT, 2006), p.130; S. Sassen, *Globalisation and its Discontents: Essays on the New Mobility of People and Money* (New York, 1998).
- <sup>27</sup> The chief scientific officer for the UK's Department for Transport recently expressed a desire to commission research into the history of British transport. C. Mulley, pers. com.
- <sup>28</sup> M. Robbins, 'Jack Simmons, 1915-2000', *Journal of Transport History* 3<sup>rd</sup> ser. 22/1 (Mar. 2001): 1-5, at p.4.
- <sup>29</sup> M. Walsh, pers. com.
- <sup>30</sup> [http://www.ahicf.com/cec2/cost340\\_siteofficiel.htm](http://www.ahicf.com/cec2/cost340_siteofficiel.htm) (accessed 8 Aug. 2007).
- <sup>31</sup> <http://www.esf.org/index.php?id=386>; <http://www.histech.nl/inventing/> (both accessed 8 Aug. 2007).
- <sup>32</sup> <http://www.t2m.org/en/index.php> (accessed 8 Aug. 2007).
- <sup>33</sup> <http://www.cclondon.com/> (accessed 22 Aug. 07). See Williams, 'Spatial planning' (note 11) for remarks on present attempts to reduce urban traffic in the UK and elsewhere. The best that can be said about the UK government's attitude towards mobility is it is hopelessly split on whether or not there is any need to restrain traffic levels and, if so, what practical measures might be taken to accomplish this. Policies such as the expansion of airport and highway capacity, and increasing the real cost of rail travel whilst maintaining

or even reducing that of motoring, do not suggest the kind of leadership that is necessary to achieve the scale of reductions in carbon emissions that the UK government has accepted are necessary. G. Monbiot, *Heat: How to Stop the Planet Burning* (Harmondsworth, 2006).

<sup>34</sup> [http://news.bbc.co.uk/1/hi/uk\\_politics/6381153.stm](http://news.bbc.co.uk/1/hi/uk_politics/6381153.stm) (accessed 14 Aug. 2007).

<sup>35</sup> Larsen et al, *Mobilities* (note 26), p.132; *Guardian* (27 Aug. 2007).

<sup>36</sup> P. Bagwell and P. Lyth, *Transport in Britain, 1750-2000: From Canal Lock to Gridlock* (London, 2002; pbk edn, 2006). Pers. com.

<sup>37</sup> I base these comments largely on my involvement with the advisory board of the UK's AHRC-funded project, *Televising History 1995-2010*; <http://tvhistory.lincoln.ac.uk/> (accessed 8 Aug. 2007).

<sup>38</sup> The University of York's Institute for the Public Understanding of the Past (I-PUP) is charged in part with this kind of research.

<sup>39</sup> See, e.g. *The Times Higher Education Supplement* (3 Aug. 2007).

<sup>40</sup> F.D. Schwarz, 'We Should All Be Friends', *Technology & Culture* 48/2 (Apr. 2007): 407-10.

<sup>41</sup> <http://www.channel4.com/history/microsites/H/history/n-s/railway.html> (accessed 8 Aug. 2007).

<sup>42</sup> J. Simmons, *Transport Museums in Britain and Western Europe* (London, 1970).

<sup>43</sup> C. Divall, 'Exhibiting transport history', *Journal of Transport History* 3<sup>rd</sup> ser. 22/2 (Sep. 2001):155.

<sup>44</sup> See e.g., Ludmilla Jordanova, *History in Practice* (London, 2000), pp. 141-71.

<sup>45</sup> Although submissions rarely turn into publications. For an exception, see R. Sykes et al, 'Steam attraction: railways in Britain's national heritage', *Journal of Transport History* 3<sup>rd</sup> ser. 18/2 (Sep. 1998): 156-75.

<sup>46</sup> <http://www.historyandpolicy.org/> (accessed 9 Aug. 2007).

<sup>47</sup> E.g., P. Capuzzo, 'Between Politics and Technology: Transport as a Factor of Mass Suburbanization in Europe, 1890-1939', in C. Divall and W. Bond, eds, *Suburbanizing the Masses: Public Transport and Urban Development in Historical Perspective* (Aldershot & Burlington VT, 2003), pp.23-48.

<sup>48</sup> Larsen et al, *Mobilities* (note 26), p.130.

<sup>49</sup> J.H. Hepp IV, *The Middle-Class City: Transforming Space and Time in Philadelphia, 1876-1926* (Philadelphia, 2003); C. Pooley, J. Turnbull and M. Adams, *A Mobile Century? Changes in Everyday Mobility in Britain in the Twentieth Century* (Aldershot and Burlington VT, 2005).

<sup>50</sup> See, e.g., the UK advertisement for a Suzuki 4x4 which claims 'Same CO<sub>2</sub> Tax Band as Mazda MX5' (a sports car), neither of which – at 205-228 g/km in the SUV's case – could truthfully be described as low-emission vehicles. *Guardian* (22 Aug. 2007).

<sup>51</sup> Note deputy editor Gijs Mom's comments in 2003 on the lack of a systematic treatment of technology within the pages of the *Journal of Transport History*, and more recently in the same journal social historian John Walton's reduction of technology to an economic phenomenon. G.P.A. Mom, 'What kind of transport history did we get? Half a century of *JTH* and the future of the field', *Journal of Transport History* 3<sup>rd</sup> ser. 24/2 (Sep. 2003): 121-38, at p.131-2; J. Walton, 'Transport, travel, tourism and mobility: a cultural turn?', *Journal of Transport History* 3<sup>rd</sup> ser. 27/2 (Sep. 2006): 129-34, at p.129.

<sup>52</sup> The paper was published in the *Journal of Transport History*, where it generated a debate that rumbles on. The point about technology has so far been ignored by our published critics. C. Divall and G. Revill, 'Cultures of transport: representation, practice and technology', *Journal of Transport History* 3<sup>rd</sup> ser. 26/1 (Mar. 2005): 99-111; M. Freeman, "'Turn if you want to": a comment on the "cultural turn" in Divall and Revill's "Cultures of transport"', *Journal of Transport History* 3<sup>rd</sup> ser. 27/1 (Mar. 2006): 138-43; C. Divall and G. Revill, 'No turn needed: a reply to Michael Freeman', *Journal of Transport History* 3<sup>rd</sup> ser. 27/1 (Mar. 2006): 144-9; Walton, 'A cultural turn?' (note 51).

<sup>53</sup> To avoid misunderstanding: I am not arguing that the individual alone (re)produces meaning, whether or not through the use of technology. This approach – 'relational materialism' – is compatible with analyses which explore the structural determinations of meaning and indeed other social processes. Some versions of historical materialism would fall under this rubric.

<sup>54</sup> M. Gottdiener, *Postmodern Semiotics: Material Culture and the Forms of Postmodern Life* (Cambridge MA and Oxford, 1995); M. Akrich and B. Latour, 'A Summary of a Convenient Vocabulary for the Semiotics of Human and Non-Human Assemblies', in W.E. Bijker and J. Law, eds., *Shaping Technology/Building Society* (Cambridge MA, 1992), pp.259-64.

<sup>55</sup> J. Beckmann, 'Automobility – a social problem and theoretical concept', *Environment and Planning D: Society and Space* 19 (2001): 593-607, at pp.593-4.

<sup>56</sup> R. Schwartz Cowan, 'The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology', in W.E. Bijker, T.P. Hughes and T. Pinch, eds, *The Social Construction of Technological Systems* (Cambridge MA & London, 1989), pp.261-80.

<sup>57</sup> E.g., B. Rieger, *Technology and the Culture of Modernity in Britain and Germany 1890-1945* (Cambridge, 2005); K. Möser, 'The dark side of "automobilism", 1900-30: violence, war and the motor car', *Journal of Transport*

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- History*, 3<sup>rd</sup> ser. 24/2 (Sep. 2003): 238-58. S. O'Connell, *The Car in British Society: Class, Gender and Motoring, 1896-1939* (Manchester, 1998).
- <sup>58</sup> E.g., E. van der Vleuten, I. Anastasiadou, V. Lagendijk and F. Schipper, 'Europe's system builders: the contested shaping of transnational road, electricity and rail networks', *Contemporary European History* 16/3 (2007): 321-47; E. van der Vleuten and A. Kaijser, eds, *Networking Europe: Transnational Infrastructures and the Shaping of Europe 1850-2000* (Sagamore Beach MA, 2006).
- <sup>59</sup> E. Schatzberg, 'Culture and Technology in the City: Opposition to Mechanized Street Transportation in Late-Nineteenth-Century America', in M.T. Allen and G. Hecht, eds, *Technologies of Power: Essays in Honor of Thomas Parke Hughes and Agatha Chipley Hughes* (Cambridge MA, 2001), pp.57-94.
- <sup>60</sup> J. P. McKay, *Tramways and Trolleys: The Rise of Urban Mass Transport in Europe* (Princeton, 1976).
- <sup>61</sup> C. McShane, *Down the Asphalt Path: The Automobile and the American City* (New York and Chichester, 1994), quote at p.x. See also P. Stallybrass and A. White, *The Politics and Poetics of Transgression* (London, 1986). More recent examples of urban-transport technologies include: G.P.A. Mom, trans. J. Wormer, *The Electric Vehicle: Technology and Expectations in the Electric Age* (Baltimore MD, 2004; first pub. in Dutch, 1997); B. Schmucki, *Der Tram vom Verkehrsfluss: Städtische Verkehrsplanung seit 1945 im deutsch-deutschen Vergleich* (Frankfurt a.M, 2001).
- <sup>62</sup> W. Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Leamington Spa, 1986; orig. pub. in German, 1977). See also e.g., D. Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge MA and Oxford, 1990), part 3; S. Kern, *The Culture of Time and Space 1880-1918* (Cambridge MA, 1983).
- <sup>63</sup> E.g. J. Weems, 'Theorizing the windshield: vision as the edge of modernity', paper presented at the second annual meeting of the International Association for the History of Transport, Traffic and Mobility, Dearborn MI, Nov. 2004.
- <sup>64</sup> P. Bishop, 'Gathering the land: the Alice Spring to Darwin rail corridor', *Environment and Planning D: Society and Space* 20 (2002): 295-317.
- <sup>65</sup> B. Schmucki, 'On the trams: women, men and urban public transport in Germany', *Journal of Transport History* 3<sup>rd</sup> ser. 23/1 (Mar. 2002): 60-72, esp. 60-5; A.G. Richter, *Home on the Rails: Women and the Railroad and the Rise of Public Domesticity* (Chapel Hill, 2005); B.A. Welke, *Recasting American Liberty: Gender, Race, Law and the Railroad Revolution 1865-1920* (Cambridge etc, 2001).
- <sup>66</sup> D. Wall, *Earth First! and the Anti-Roads Movement: Radical Environmentalism and Comparative Social Movements* (London, 1999); P.D. Norton, 'Street rivals: jaywalking and the invention of the motor age street', *Technology & Culture* 48/1 (Apr. 2007): 331-59; M. Ishaque and R.B. Noland, 'Making roads safe for pedestrians or keeping them out of the way?', *Journal of Transport History* 3<sup>rd</sup> ser. 27/1 (Mar. 2006): 115-37; B. Luckin and D. Sheen, 'Defining early modern automobility: the road traffic accident crisis in Manchester, 1939-1943', *Cultural and Social History* (forthcoming).
- <sup>67</sup> H.L. Platt, *Shock Cities: The Environmental Transformation and Reform of Manchester and Chicago* (Chicago & London, 2005); J. Sheail, *An Environmental History of Twentieth-Century Britain* (Houndmills, 2002), chp.7; D. Stradling, *Smokestacks and Progressives: Environmentalists, Engineers and Air Quality in America 1881-1951* (Baltimore MD & London, 1999).
- <sup>68</sup> J. Whitelegg, *Critical Mass: Transport, Environment and Society in the Twenty-First Century* (London & Chicago, 1997), pp.46-8.
- <sup>69</sup> For earlier efforts, see Lyth and Bagwell, *Transport in Britain* (note 36)
- <sup>70</sup> P. Merriman, *Driving Spaces: A Cultural-Historical Geography of England's M1 motorway* (Oxford, 2007). The UK's digital-TV channel, BBC4, was due to broadcast in late August a three-part history of Britain's motorways drawing in part on Merriman's work.
- <sup>71</sup> C. Loft, *Government, the Railways and the Modernization of Britain: Beeching's Last Trains* (London and New York, 2006).
- <sup>72</sup> E.g., B. Seeley, 'Engineers and policy-makers? a comparative view of highway provision in the US and Europe', keynote address to the second annual meeting of the International Association for the History of Transport, Traffic and Mobility, Dearborn MI, Nov. 2004.
- <sup>73</sup> V. Caruana, 'Manchester Airport: From Provincial Aerodrome to International Gateway: A Local Authority Challenge to Central Government Policy 1934-1980', in D. Brumhead and T. Wyke, eds, *Moving Manchester: Aspects of the History of Transport in the City and Region Since 1700* (Manchester, 2004), pp.230-54.
- <sup>74</sup> S. Kroen, 'A political history of the consumer', *The Historical Journal*, 47/3 (2004): 709-36, esp. pp.717-20, 723-5, quote at p.720. See also, J. Livingston, 'Modern Subjectivity and Consumer Culture', in S. Strasser, C. McGovern and M. Judt, eds, *Getting and Spending: European and American Consumer Societies in the Twentieth Century* (Cambridge, 1998), pp.413-29.
- <sup>75</sup> E.g., J. Benson, *The Rise of Consumer Society in Britain, 1880-1980* (London & New York, 1994); G. Cross, *The Making of Consumer Culture* (London, 1993).

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- <sup>76</sup> F. Trentmann, 'Bread, Milk and Democracy: Consumption and Citizenship in Twentieth-Century Britain', in M. Daunton and M. Hilton, eds, *The Politics of Consumption: Material Culture and Citizenship in Europe and America* (Oxford & New York, 2001), pp.129-63, at p.130.
- <sup>77</sup> M. Hilton, *Consumerism in 20<sup>th</sup>-Century Britain* (Cambridge, 2003), pp.1-24, at pp.1-2.
- <sup>78</sup> E.g., D.C.H. Watts, 'Evaluating British railway poster advertising: the London & North Eastern Railway between the wars', *Journal of Transport History*, 3<sup>rd</sup> ser. 25/2 (Sept. 2004): 23-56; R. Harrington, 'Beyond the bathing belle: images of women in inter-war railway publicity', *Journal of Transport History*, 3<sup>rd</sup> ser. 25/1 (Mar. 2004): 22-45.
- <sup>79</sup> P. Jackson et al, 'Introduction: Transcending Dualisms' in P. Jackson, M. Lowe, D. Miller and F. Mort, eds, *Commercial Cultures: Economies: Practices, Spaces* (Oxford & New York, 2000), pp.1-4., quote at p.1; F. Mort, 'Introduction: Paths to Mass Consumption: Historical Perspectives', in Jackson et al, *Commercial Cultures*, pp.7-13.
- <sup>80</sup> C. Divall, 'Transport, 1900-39', in C. Wrigley, ed., *A Companion to Early-Twentieth Century Britain* (Oxford, 2002), pp.286-301, and (with B. Schmucki), 'Technology, (sub)urban development and the social construction of urban transport', in Divall and Bond, *Suburbanizing the Masses* (note 47), pp.1-19. On the post-war period, see C. Pooley et al, *A Mobile Century?* (note 49).
- <sup>81</sup> O'Connell, *Car in British Society* (note 57).
- <sup>82</sup> D. Matless, *Landscape and Englishness* (London, 1998), esp. pp.63-7.
- <sup>83</sup> T.L. Alborn, *Conceiving Companies: Joint-Stock Politics in Victorian England* (London & New York, 1998), p.228.
- <sup>84</sup> This section partly derives from C. Divall and A. Scott, *Making Histories in Transport Museums* (London & New York, 2001), and C. Divall, 'Transport museums: another kind of historiography', *Journal of Transport History* 3<sup>rd</sup> ser. 24/2 (Sep. 2003): 259-265.
- <sup>85</sup> <http://americanhistory.si.edu/onthemove/> (accessed 21 Aug. 07). For critical reviews from the perspective of, respectively, a museum exhibitor and an academic historian, see K. Devine, 'America on the Move', *Journal of Transport History* 3<sup>rd</sup> ser. 26/1 (Mar. 2005): 114-7; and C. McShane, 'America on the Move', *Journal of Transport History* 3<sup>rd</sup> ser. 26/2 (Sep. 2005): 123-4.
- <sup>86</sup> N. Thomas, *Colonialism's Culture: Anthropology, Travel and Government* (Cambridge, 1994).
- <sup>87</sup> R.C. Post, 'Urban Railways Redivivus: Image and Ideology in Los Angeles, California', in Divall and Bond, *Suburbanizing the Masses* (note 47), pp.187-209.
- <sup>88</sup> I have taken this example from a TV programme – the title of which escapes me – shown in Britain during 2001.
- <sup>89</sup> M. Levinson, *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger* (Princeton NJ, 2006); <http://press.princeton.edu/video/levinson/entire.mov> (accessed 30 Aug. 2007).
- <sup>90</sup> A partial realization, shorn of the historical dimension, is to be found at the National Railway Museum's branch, Locomotion. <http://www.locomotion.uk.com/> (accessed 21 Aug. 2007).