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RUSH-HOUR BLUES  
OR THE WHISTLE OF FREEDOM?  
UNDERSTANDING MODERN MOBILITY

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# **RUSH-HOUR BLUES OR THE WHISTLE OF FREEDOM? UNDERSTANDING MODERN MOBILITY<sup>1</sup>**

## **1. Introduction: Constructing the issue of mobility**

The study of transport is a well-established part of RTD activities in industrialised societies. The physical movement of people as well as goods represents a considerable challenge in an era where trade is becoming regionalised and globalized, while travelling is a part of the definition of welfare. This raises planning problems, technological trials, and policy difficulties. The intellectual understanding of this challenge is, however, at least as demanding. Here, we are facing some interesting ambiguities.

In the EU report *Transport in a fast changing Europe* from 1990, the following observations are offered:

“(T)ransport hits the core of society. It is one of the few activities which both give form to and express our turn-of-the-century European civilization. It gives a structure to space and our concept of space. It shapes and reflects our way of life and our cultures. It contributes to economic development, whereas the economy depends on good transportation. The functioning of society, indeed its very nature, largely depends on the quality and design of the transport system. (...) Today, a threat hangs over European transport”.<sup>2</sup>

The challenge described in the report is the growth of traffic, which has brought about a level of transport that in many places is outstripping the capacity of local infrastructure. This creates congestion and inefficient traffic as well as air pollution and excessive levels of noise and dust. There is a transport problem, but also an environmental challenge. Note, however, that the quote does not distinguish between transport of goods and people. To us, this distinction is very important because of the different meaning and practice that should be attributed to the two forms of transport.

The standard solution to the transport problem is of course to improve and extend infrastructural capacity. Basically, this means to build more and better roads. In addition, transport policy is concerned to achieve a better use of existing infrastructure as well as to develop systems of public transport. However, from

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<sup>2</sup>*Transport in a fast changing Europe*, a report from the Group Transport 2000+, Brussels: EU, 1990, p. 5.

this perspective, the demand for transport is more or less taken for granted. A high level is perceived as positive, as an expression of welfare and growth.

On the other hand, a strong concern for environmental problems from transport seems to produce a focus mainly on strategies to bring about reduction in the use of cars. In particular, the need to regulate traffic in urban centres or to cater improved transport technologies is emphasized, but mainly related to the potential for lower emissions from cars and less consumption of resources. In policy discourses and public debates, private cars have become increasingly demonised as the incarnation of the modern environmental problem. They use too much natural resources, they pollute and they have destructive impacts on urban life and urban space (see, e.g. Kay 1997, Nadis & MacKenzie 1993 and Zuckerman 1991; or for an elaborated critique of this approach, Dunn 1998).

Still, car ownership as well as car utilization is increasing. Arguably, this pattern of growth is inherent in the logic of the private car. From this angle, the motor car provide the underpinnings of the dominant form of mobility. This artifact brings people around, when they want and where they want. With a not uncommon determinist slant, the American sociologist William F. Ogburn some decades ago noted that:

*"The inventor of the automobile has had more influence on society than the combined exploits of Napoleon, Genghis Kahn, and Julius Caesar"* (cited after Allen 1957:107).

The point is that the car is believed to be the major cause of modern mobility. Without it, people would have walked or taken the railway or a boat.

Clearly, this is too simplistic. Mobility, understood as an embodiment of defining qualities of modernity like change and movement (Berman 1983), is a much older idea than the car. Before the industrial revolution, most people never travelled outside a narrow space around their living-place, with the sea travels of a minority as an exception.

The modernisation process from 1750 and onwards started a steep increase in the amount of transport performed. In fact, historians talk about a "transport revolution" that began by the making of a network of canals and continuing by the construction of railways (see, e.g., Cowan 1997, ch. 5, Wolf 1996). The craft of building canals is quite ancient, so the development of canal networks in Europe and Northern America was clearly a response to the transport challenges related to the industrial revolution. This also means that the transport of goods was of particular importance.

The car meant a continuation of this momentum, in particular with respect to people. The level of person transport in the industrialised nations has increased throughout the 20<sup>th</sup> century, with a growth in the order of magnitude of 2500-3000 per cent. The car performs around three quarters of this transport. This makes it the dominant mode of achieving mobility, but not the cause. In fact, it may prove more important to observe that the car meant the introduction of a particular understanding of mobility that emphasizes flexibility, individual freedom and speed. Moreover, we should take notice that the entrenchment of

car-based person transport is fairly recent. In Western Europe, the growth of car-based transport of people took off as late as around 1960.

The fact that the motorcar performs around three quarters of the total personal transport work means that it is a basic constituent of the "transport problem". The major question that we want to raise, however, is whether the basic challenge may be reduced to a car regulation issue. May we solve the transport problem by limiting the use of motorcars, rather than extending their infrastructural basis?

The choice of focus in this paper, mobility rather than transport or cars, indicates that we believe that the "transport problem" needs to be discussed in a different framework. While we do not deny the need to control the increase in car traffic, maybe even to reduce it considerably, we think it is necessary to consider carefully the knowledge base to develop strategies to this end. In particular, we think it is important to shift the focus away from the rather narrowly defined "transport problem" to a broader agenda concerned with a greater set of options to manage the demand for movement. We have chosen to do so by investigating the concept of mobility as a possible key to a different strategic understanding of the issues at hand.

What do we mean by 'mobility'? It is important to note that it is not meant to be synonymous with traffic or transport. Dunn (1998:143) defines it as "the potential for movement", in contrast to the "revealed mobility", which is the actual number of kilometres travelled, or "access", which tells about the ability to get from one place to another. Knie (1997) introduces a related understanding of the concept, but with greater emphasis on the need to retain a critical edge. Thus, he emphasizes that mobility is about the construction of possibilities for movement, rather than the actual traffic.

While we are sympathetic towards Knie's concern, we believe that we need to have a focus not just on mobility possibilities but also on mobility needs. Thus, in this paper, the concept of mobility is used in a somewhat broader manner to designate the potential ability as well as need to travel. Thus, the analysis of mobility is basically about the performance, real as well as symbolic, of the catering of physical movement in society. In this manner, we believe it is possible to get a better understanding of the so-to-speak driving forces behind the increase in transport, in particular the transformation of potential personal mobility into the use of private cars. However, when reviewing the literature, we face the same problem that Knie identifies, the tendency in transport studies to use mobility and transport interchangeably.

As a point of departure, we should take notice that the demand for mobility is not just an exercise in Say's law: to extend demand to get it equal to supply. Modern people are not mobile just because it is possible or because it is expected. There is something about the act of moving around and the meaning of being transported that has to be emphasised. Thus, we have to be cautious not to perceive mobility as being basically an instrumental issue and an object of rational economic decision-making. Instead, one should raise questions like why

there is such a large demand for mobility, in particular through private cars, and may this demand be reduced?

To proceed with the analysis of such issues, we will also introduce the concept of *mobility regimes* in order to highlight the historical and cultural basis. A mobility regime is spanned by a number of dimensions:

- the physical shaping of cities and landscapes,
- the available transport systems,
- the relationship between mobility and economic, social and cultural activities,
- the meaning attributed to mobility.

Of course, a major issue is the nature of regime shifts and the potential of regulatory measures to bring about such shifts.

Through a survey of relevant literature,<sup>3</sup> the paper will explore the potential of scrutinising mobility rather than vehicles, to allow a critical approach to the analysis of mobile-ness. This extends the focus, from the analysis of the car and the physical infrastructure of transport to include the practice and meaning of movement, from the facilitators of mobility to the need itself. Consequently, the paper is concerned with understanding mobility rather than the car or transport as such. We will explore different ways of approaching the mobility issue, and the consequences of choosing one or the other avenue, with particular emphasis on work in history and the social sciences.

However, the literature that addresses physical mobility as defined above, is sparse. Thus, it has been necessary to make use of a broader approach that utilises available research on transport as well as the car. This means that we try to translate the discussion of the standard "transport problem" and the "car problem" to identify insights and findings that are relevant to the challenge of understanding modern physical mobility. In so doing, of course, the standard questions about transport, how much and how to develop suitable systems, have to be asked. However, the translation from cars and transport to mobility extends the problem-focus as well as bringing in demand-side issues. We believe that this move holds promises to improve on the rather narrow-minded and rationalist transport discourse as well as a rather moralistic discussion of cars, even if these approaches provide a lot of interesting knowledge.

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<sup>3</sup>It should be noted that we have not tried to make a comprehensive review of the research on transport issues. This literature is simply too vast and too varied to make such an exercise meaningful, not to say doable. We have made use of standard search techniques, using various combinations with "mobility" as the search basis, but this gave a rather modest result. Just to use "mobility" raised other problems, because there is a substantial literature on social mobility that raises a very different set of issues. Thus, we have supplied the computerized search with inputs from previous studies of automobility, as well as a computerized searches using the citation snowballing potential of the ISI database. The paper has no pretensions of giving a complete picture, but - given the professional departure from history and social science - the review should be reasonably broad in its coverage of different approaches and research traditions.

## 2. Approaches to mobility

The literature on transport and the "transport problem" is vast, varied and difficult to summarize in a brief format. In some sense, it is also paradoxical in its shifts between worries that transport grows too much and too fast on the one hand, and concerns that transport may stagnate or even decline on the other (see, e.g. Jansen et al. 1985, Nijkamp et al. 1990). However, its most important quality is its embeddedness in a planning discourse. Transport studies are mainly performed as knowledge input to several areas of physical as well as economic planning. This makes them less useful for our purposes.

From a historical-sociological point of view, the most striking aspect of transport and mobility is probably the way it is taken for granted. Clearly, the very large increase in mobility of the 20<sup>th</sup> century as well as the gigantic technological apparatus set up to provide the required amount of transport, constitute a very influential social drama. Nevertheless, this drama is only hinted at in most work in general sociology or social theory. This probably reflects that physical mobility is perceived as a derived quality, as something performed to achieve other goals, and thus not very interesting. However, one might also suggest that social theory in this respect falls victim to the widespread instrumental fallacy of reducing mobility to transport needs.

An interesting expression of the way transport and physical mobility is a *doxa* of social theory, is Anthony Giddens' analysis of modernity (1990). The phenomena he is concerned with, like the change of meaning of time and space, the dialectic of disembedding and re-embedding, the circularity of the universal and local, clearly depend on the socio-technical system of mobility. However, the nature of this system is neither explored nor problematised. It disappears in the process of abstract analysis.

In contrast, available historical literature provides important insights. Flink (1988) is perhaps still the best overview, providing an analysis of the role of the motorcar in the development of modern US society. Clearly, this story has to be concerned with the growth of the gigantic car manufacturers, but other aspects are as important. Above all, the construction of the infrastructure, in particular the system of roads and highways, is important. On the other hand, Flink reminds us that we have to keep in mind the establishment of what he calls the automobile-refrigerator complex, a new practice of shopping and management of food supply to households, and thus a quite dramatic change is the organization of everyday life:

"By midcentury, the automobile had become, to the American housewife of the middle classes, what the cast-iron stove in the kitchen would have been to her counterpart of 1850 - the vehicle through which she did much of her most significant work, and the work locale where she could be most often found" (p. 164).

There is an strong relationship between industrial development and evolving socio-cultural practices that has to be studied.

Clearly, the analysis of mobility and the underlying causes of mobility demand should be undertaken on a broad scale. For example, Nijkamp et al. (1990:22-24) argues that such a study should be undertaken through reference to four broad themes:

- socio-economic context analysis, that focusses the attention of the influences of exogenous socioeconomic conditions upon spatial patterns of interaction
- technological context analysis, that deals with the implications of changes in the technological "environment" upon the spatial behaviour of individuals or groups in our society
- behavioural analysis, that focusses attention on motives, constraints and uncertainties facing individuals, households and groups when taking decisions regarding transport, communications and mobility
- policy analysis, that concerns the evaluation of actions, usually policy instruments or measures of decision making agencies regarding transport.

They find that the growth in demand for mobility is related to demographic and household changes, including an increase in labour market participation, particularly among women. The rise in personal income, combined with the evolution of car habits, is also of prime importance. However, the impact of technological change and policy is found by Nijkamp et al. to be rather ambiguous, with no clear-cut pattern of relationship.

The kind of argument provided by Nijkamp et al., is more or less shared by most authors that address the issue. It locates the dynamics of demand for physical mobility in the socio-economic development and structure of modern society. To a considerable extent, this makes a long-term growth in mobility unavoidable, even if it is problematic to manage. Regulation is mainly possible to influence the way mobility is practised; public rather than private transport, limiting traffic in certain areas like city centres, and managing the temporal and spatial characteristics of traffic flow.

A possible contrast is of course the literature that voices criticism of the role of the motor car and the high priority given to mobility concerns in modern society. This tradition includes such work as Mumford (1961, 1963) and Jacobs (1961) who bluntly argue that modern traffic is destroying modern cities. There is also the consumerist argument that cars are too expensive and of too low quality (e.g. Nader 1965), and the environmentalist view that cars consume too much resources and pollute extensively (e.g., Schneider 1971, Renner 1988, Lowe 1990, Zuckerman 1991, Nadis & MacKenzie 1993). Finally, one may add the analysis of cars that emphasizes the economic interests related to the widespread use of automobiles, and how this has been facilitated through the demise of public transportation (e.g., Wolf 1996).

The explanations of mobility demand in this literature vary. A comprehensive view is found in Kay (1997). She shares the view of many car



critics that the modern car represents a kind of technological imperative (Ellul 1964), a logic that seems to evolve on its own, with few if any alternatives. However, Kay also identifies the following factors:

- present land use policy that tends to spread houses, workplaces and service institutions over wide areas, thus planning for people to have great need for physical mobility
- the low quality and availability of public transport
- the cheapness of driving, due to extensive public subsidies of the infrastructure and the "hidden costs" of cars.

If one compares the approach of, e.g., Nijkamp et al. with the approach of, e.g., Kay, there is of course a striking difference in the style of argument and writing. However, perhaps surprising, there is a considerable overlap in concerns as well as in explanations. This suggests that it may be less fruitful just to juxtapose "critical" and "non-critical" approaches to mobility, but rather to look at more specific agendas. We have chosen to focus on the following:

- socio-economic issues of transport and mobility
- historical and political-economic aspects of transport and mobility
- mobility, land use and urban planning
- mobility habituation and its cultural underpinnings
- new technologies, transport and mobility.

Of course, this choice as well as the following discussion is flavoured by an intellectual point of departure in history and sociology as well as in science and technology studies.

Some concerns cut across the above-mentioned issues. In particular, there are environmental considerations and policy affairs. Environmental arguments, at least when they are extended to include the quality of urban life and city planning, are the main reasons to ask critical questions about mobility, independent of the approach used to pursue these questions. Without such arguments, mobility would be mainly a technical problem of flow management.

Policy affairs are a different matter, and they have a somewhat paradoxical role in the mobility discourses. Clearly, the work on mobility is meant to influence policy, and a lot of it is motivated to improve the knowledge base of transport planning and mobility demand management. However, this means that often, policy is side-stepped as an object of analysis. One makes observations about deficiencies in present policy measures, but these deficiencies are mainly analysed as planning problems (e.g., the use of insufficient or wrong measures, discoveries of "side-effects" of the measures applied, etc.). The problem is within the professions of planning, rather than in the policy forming process. Also, the critical literature on cars often purveys a simplistic image of policy as a monolithic field of insiders and outsiders, rather than as a process filled with struggles and disagreements.

### 3. Addressing transport, analysing mobility?

As indicated above, the literature review could not be performed as simply a review of the state of the art of mobility studies because mobility is not the major focus of most of the relevant literature. A review of the state of the art of transport studies or the history and sociology of cars would not be appropriate either, because that might move the focal point away from mobility. In the discussion of the “main currents of thought” below, we have mainly tried to give an outline of how mobility is approached and through which terms it is analysed, rather than to identify “the research front” of each topic.

#### 3.1. *Socio-economic dimensions*

The literature that elucidates the socio-economic dimensions is very large indeed. It represents the most common approach to the analysis of mobility and transport, and probably also the one that is best developed (see, e.g., Cole 1998, Oum et al. 1997, Button 1993). From this point of view, transport is basically an economic activity that reflects the economic conditions of mobility as well as its economic role, to be analysed by standard micro-economic methods and theories (see also de Rus & Nash 1997). The long-term increase in transport activities found across the industrialised world is an expression of, and a condition for, economic growth. Thus, increased mobility is a necessary part of modern economic development.

This is evident from many economic indicators, for example infrastructure investments, cost of public infrastructure agencies, transport costs as part of private consumption expenditure, and the level of employment in the transport industry (Bjørnland 1997). The long-term growth is found in personal mobility as well as in the transport of goods. The latter development is of course also a reflection of the growth of international trade.

There are a lot of sophisticated efforts to model transport demand and forecasting, including studies of transport costs, pricing of transport services and price elasticity, as well as studies that evaluates policy efforts to affect transport systems (de Rus & Nash 1997, Oum 1997, Button 1993). However, we will not enter detailed discussion of the findings since this literature is less relevant from our point of view. This is due to the fact that transport economics is only marginally interested in the broader issue of mobility as a political and cultural phenomenon.

Nevertheless, there is the interesting point made that transport often is a derived demand, rather than a good in itself (Verhoef 1996, Cole 1998). Cole mentions some exceptions, like two-hour Concorde ‘supersonic experience’ flights around the Bay of Biscay (p. 18), but the main conclusion is that “Transport is a service rarely in demand for its own characteristics” (Cole 1998: 17). Nevertheless, when he lists six major factors that affect demand: physical

characteristics of what is to be transported, price, relative prices charged by different modes or different operators, passenger income, speed of service and quality, this allows us to see that transport as well as mobility cannot be analysed in a purely instrumental, objectivist mode. In particular quality is very much a subjective dimension.

Transport has for a long time been a public concern, and as noted by Bjørnland (1997) it has been one of the best sheltered sectors of modern economies. This makes it difficult to assess the economic efficiency of transport system, in particular because there are many hidden costs and subsidies. Nevertheless, economics has provided a much-used tool-kit to regulate transport and mobility, namely taxes and relative prices. One example of this is road-pricing schemas that are thought to be efficient means of creating more "optimal" flows of traffic in time and space (see, e.g., Jones & Hervik, 1992). The elegance of relative prices as a means of regulating traffic lies in its assumed ability to influence the logic of the decision-making of individuals without interfering with their ability to cater economic optimisation. The continued growth of personal mobility in the face of increased usage of transport taxes suggests that the tool-kit is not as efficient as economists may want us to believe. "When formulating regulatory road transport policies, it should never be forgotten that the demand for road transport is a derived demand. Unless sufficient adaptations take place in the factors behind that demand ..., direct regulation of road transport is likely to be frustrated by inelasticity of demand, which lowers the social feasibility by increasing the distributive impact of regulatory taxation relative to the efficiency impact" (Verhoef 1996:248, see also OECD 1997). However, there are other ways of applying transport economics, for example in the performance of cost-benefit analysis of infrastructure investments, the so-called 'integrated transport policy' of combining different transport modes, and direct regulations (Cole 1998, 241 ff).

By way of conclusion, we find the observation that mobility is embedded in economic growth as very important, even if the argument is based on historical data and cannot be taken as a statement of a necessary relationship. The understanding of transport as a derived demand rather than as a good in itself is important also as a way of characterising mobility (even if there are important modifications to this thesis). Further, there is no doubt that the organisation of economic activities like industry and trade and the economic evaluation of transport options have a large impact on the level of transport as well as on the choice of transport channels. However, the fact that the economic system has a great influence on transport raises new questions about the historical emergence and long-term social shaping of the current mobility pattern. How come that transport, in particular by car, gained such a large economic and cultural importance?

### *3.2. Historical and political-economic aspects of mobility*

Historical studies of mobility and car-use do not challenge the observation that transport is related to economic development, but they provide us with different insights in the dynamics of the sector. In particular, historians have emphasized the role of politics in the shaping of mobility patterns and the transport system by juxtaposing public transport, in particular railways, buses and urban transit systems, and the private mobility based on the use of cars.

Flink's (1988) study is perhaps the most comprehensive analysis of the emergence of the American car culture. Here, the automobile manufacturers are the most important players as he maps out their various strategic moves to give the motorcar its dominant role in US society. The success of these moves, however, depends on the interplay between economic interests, politics, and culture. The car is not forced upon society, but it is made attractive, not just in itself, but through the development of a system of roads and highways that makes driving more efficient and pleasant, while at the same time, public transit alternatives gradually become less available. An everyday culture evolves, with considerable mobility needs, due to the dispersed physical structure of housing, workplaces, and service institutions, and the emergence of a style of life and human activities that are highly car dependent.

Wolf (1996), in his account of the mainly European history of transport, compares the development of the railway and the car system. His argument, basically similar to Flink's, is that the railway system lost out as an alternative to the car because of political decisions. According to Wolf, the car system was chosen because it gave greater possibilities for profit. The car system offered much better prospect for private industry than the public railway system. In addition, Wolf maintains that the car is better suited the culture of capitalism, a culture that produces unfulfilled needs, alienation, and powerlessness that somehow may be overcome by car use and ownership.

Whatever framework one may want to apply, it is clear that the large car companies have been strategic actors in the production of the modern pattern of mobility. From the turn of the century, they put a lot of efforts into making cars cheaper and more generally available. Large marketing efforts helped to establish them as a prime and branded good of modern society (see, e.g., Tedlow 1990). The companies lobbied for more and better roads (Flink 1988). However, here they found the community of highway engineers more than willing to be of service (Seely 1987). In a country like Norway, without any car manufacturing, highway engineers played a decisive role in the establishment of the car-based system of mobility so characteristic of modern industrialised societies (Østby 1996, Sørensen 1991).

The integration of the car also meant that the car became part of political programmes of modernization (Ling 1990, Østby 1996) as well as a constitutive part of modern urban planning (Bottles 1987, Wachs & Crawford 1992, Thomassen 1997). Thus, while one should not underestimate the political and

economical influence of the large car manufacturers, the political economy of modern mobility is more complex in its anatomy than just the car industry. Arguably, the car had properties that were particularly well suited to be translated into a wide set of political, economical and even professional interests. These translations need to be considered more carefully in order to understand their dynamics and their influence upon mobility.

As should be expected, the historical literature suggests a succession of mobility regimes, from the low mobility regime of pre-modernity through the transitory regime of canals and railways, to the car-based high-level mobility regime of the post 1945 period. However, to understand the nature of the latest regime, we need to explore other approaches as well. In particular, there are two sets of arguments that need to be considered more carefully. First, there is the role of physical planning and the meaning of the physical structure of modern industrialised countries. Have modern societies been built to crave mobility, and has this resulted in a technological entrenchment of a high level of mobility? Second, there is the issue of the cultural underpinnings of mobility. Is there a culturally produced pattern of mobility that shapes not just the amount of travel, but also how travel demands should be met?

### *3.3. Mobility, land use and urban planning*

The development of railway systems around cities facilitated the emergence of sub-urban housing. It meant that the middle class could live in countryside-like housing areas, away from the unhealthy and immoral cities, while still working in them (Tarr 1988). This introduced a spatial differentiation between work and home that could only be overcome by increased mobility.

However, it was the idea of the private car that really accelerated this process. In North America, cities were transformed to allow large highway systems to go through them (Flink 1988, McShane 1994). Most European cities have not allowed such drastic changes, but the overall pattern is clear. Urban planning began to have the private car as a basic premise of mobility, and this allowed an idea of urban space as dispersed and widespread. Cities could be made to enable distinct functional specialization of areas, as industrial spaces, shopping spaces, residential areas, and so on. The precondition of the flexible mobility of the private car also came to be a necessity. Increasingly, urban life demanded a car-based mobility (Wolff 1996, Kay 1997). The paradox is striking. To allow people to live in green residential areas outside the cities, ever more land had to be used for roads and highways, leaving less and less green areas for housing.

Increasingly, this paradox has been noted in the literature, and urban planning research has explored the nature of the relationship between car use and the spatial structure of cities (e.g., Banister et al. 1997, Banister 1996, Kenworthy & Laube 1996, Newman & Kenworthy 1989, 1996). Several studies have

demonstrated a strong correlation between population density and car use, or urban form and automobile dependency (e.g., Handy 1996, Næss et al. 1996, Næss 1995, Bieber et al. 1994). Literally, modern cities have an in-built demand for car-based mobility that cannot easily be dismissed. This has of course may consequences for the nature of modern urban life and the culture of cities (Whyte 1988).

The lock-in between urban form and car use is not unavoidable. There is a wide set of actions possible to change the link between urban form and car use, not just by replacing private mobility by public transport, but also by circumventing the growth in mobility demand (Hensher 1993, Bieber et al. 1994, Newman et al. 1995, Newman & Kenworthy 1996, Banister et al. 1997, Hall 1994, Bartholomew 1995). The latter set of actions include efforts to increase housing density and to reverse functional specialisation of urban spaces. In addition, the issue of transport costs and relative prices is being raised also in this literature. For example, Newman et al. (1995) argues that these concerns need to be integrated in physical planning. Also, there is some hope that new information and communication technologies may help to make traffic more efficient, or even to reduce the need for physical mobility.

The strong link between urban form and car use is not a display of technological determinism. Many of the authors cited above argue that the relationship is embedded in widespread ideas about urban living and lifestyles that reinforce the demand for physical, car-based mobility. Thus, culture and social values need to be considered and maybe reformed if one wants to reduce the present level of car dependency (Newman et al. 1995, Bieber et al. 1994).

### *3.4. Mobility habituation and its cultural underpinnings*

Physical mobility, as noted, increased very substantially in the 20<sup>th</sup> century. In western Europe the major part of this increase took place after 1945, linked, of course, to the growth of car ownership in the same period. Nevertheless, it is important to note that the large demand for personal mobility is a fairly recent phenomenon. As discussed in the previous sections, this reflects economic growth as well as changes in urban form, but it is also an expression of cultural processes. How come that the present level of mobility is so seldom problematised, so often taken for granted? Why have modern men and women so easily adjusted to increased physical mobility?

The latter question could, as previously indicated, be addressed in an abstract manner by reference to the experience of modernity. This is an experience that is about movement and where mobility is a very basic constituent (Bermann 1983). Modernity means growth and change. Thus, increased mobility fits very well with the trajectory of modernisation in the Western societies also in a cultural sense.

However, much of the work on cultural aspects of mobility is mainly exploring the car as an object of cultural studies. We get to learn that the car has been integrated into the arts as well as popular culture, as a stage for human actions but also as a sort of actor in itself (Dettelbach 1976, Lewis & Goldstein 1983, Jennings 1990). A particular emphasis has been put on "irrational" aspects of the automobile. Sachs (1992) shows how the car has been an object of desire, an infatuation of modern man - and woman. Thus, there is something immoral about it (Bayley 1986).

Nevertheless, many would follow Henri Lefebvre when he maintains that the car is the leading object of modern society. It controls, he argues, human behaviour in the different spheres, from economy to speech: "The car is a status symbol, it stands for comfort, power, authority and speed, it is *consumed as a sign* in addition to its practical use, it is something magic, a denizen from the land of make-believe (...) The Leading-Object has not only produced a system of communication but also organisms and institutions that use it and that it uses" (Lefebvre 1971 [1968]:102-103).

To a surprising degree, however, the culturally oriented literature sidesteps the issue of mobility to focus on the cultural qualities of the car as an object. The focus on meaning leads to a concern for the car's symbolic characteristics and its cultural integration (see, e.g., Jennings 1990). This comes across strongly in studies of car-based sub-cultures as well, like Lamvik's (1996) about an American Car Club in Norway and Rosengren's (1994) analysis of a male motoring community in a small Swedish community. These contributions also emphasize the way that the motorcar allows some, basically male, groups to perform a critique of everyday life by breaking away from the bureaucratic routines of their work and households.

Similar arguments may be made about the symbolic nature and importance of other transport technologies. Dimendberg (1995), for example, shows how movie images of roads and highways portray the technology in a romantic fashion and supports what he calls "the will to motorization". In this way, we may be led to believe that it is the technologies of mobility, rather than mobility itself that constitutes the modern culture. However, both Lamvik and Rosengren show that the act of moving around is an important aspect of the car-based sub-cultures, even if it is the cultural qualities of the cars (American cars or the Volvo Amazon) that are the defining properties. Baudrillard makes a similar, poetic observation as Lamvik, that American cars produce a different experience of driving than European: "The way American cars have of leaping into action, of taking off so smoothly, by virtue of their automatic transmission and power steering. Pulling away effortlessly, noiselessly eating up the road, gliding along without the slightest bump ..., braking smoothly, but instantly, riding along as if you were on a cushion of air, leaving behind you the old obsession with what is coming up ahead, or what is undertaking you" (Baudrillard 1988:54). If we move further into the kind of cultural statements made by Jack Kerouac in his famous 1957 novel *On the road*, we learn that mobility as well as the vehicles of mobility

is important. "Road novels" support dreams about movement even more than dreams about cars.

The cultural integration of the car as an object and mobility as routine practice may of course also be observed from studies of everyday life. One of the most telling descriptions is found in the perhaps most famous of the sociological community studies, Helen and Robert Lynd's analysis of "Middletown" from the inter-war period. They cite people who say they rather would have a car than food, and they conclude:

"If the word 'auto' was writ large across Middletown's life in 1925, this was even more apparent in 1935, despite six years of depression. (...) Car ownership was one of the most depression-proof elements of the city's life in the years following 1929 - far less vulnerable, apparently, than marriages, divorces, new babies, clothing, jewelry and most other measurable things both large and small. (...) (S)ince 1920, the automobile has come increasingly to occupy a place among Middletown's 'musts' close to food, clothing, and shelter" (Lynd & Lynd 1937:265-67).

When the car became a must, it is because mobility becomes a must. It may be argued it was "accidental" that the car became the prime vehicle of mobility (Wolf 1996), although it should be noted that this accident in many ways was in line with dominant features of the modern liberal ideology: "When given choices ... most Americans act so as to preserve family life and family autonomy. The single-family home and the private ownership of tools are social institutions that act to preserve and to enhance the privacy and autonomy of families" (Cowan 1983:150). Americans may be more strongly embedded in this ideology than Europeans, but probably not much.

The establishment of a practice of high individual mobility, based on the private car, thus seems to be in tune with the ideology of individualism. One might even argue that the automobile helped to change the ideas of mobility, individuality, and autonomy, and tied them together into a new value complex "automobilism" (Burkart 1994, see also Tengström 1992). However, it is also related to the establishment of new activities, like camping (Belesco 1979), and the transformation of old ones, like shopping, that extend the space that is considered to be within reach. Increasingly, everyday life activities have become demanding in terms of mobility. The domestication of the motor car, its cultural, economic and political appropriation, has intersected so many parts of modern life that mobility has become an integrated dimension of modernity (Sørensen & Sørsgaard 1994).

This means that to be brought up in modern society means to be socialised to cars and individual mobility (Hjorthol 1998, Aune 1998). An extended space of everyday life, an individual freedom to move around, has become nearly a doxa of modernity, a more or less taken for granted aspect of a modern lifestyle. Arguably, mobility has become a political right in itself. It seems to have turned into one of the basic freedoms of modern democracy.



Still, of course, the system of mobility reflects pattern of social inequality, including gender. Access to transport is not equal. Children and elderly people use public transport more frequently than the middle-aged, and women more often than men. This reflects inequalities in car ownership (Hjorthol 1998). Also, cars have different meaning to men and women and form the backbone of the construction of gendered mobility practices (see, e.g., Sørensen & Sørgaard 1994, Tengström 1992, Scharff 1991, McShane 1994:149ff). On the other hand, these differences are changing, and the gendering of the meaning of cars is not simply that cars have masculine connotations (Hubak 1996). The importance of cars is not so much along the dimension of have-have not, but rather in terms of the kind of car you drive. The cultural meaning of car-based mobility is increasingly a matter of differences between different brands and models.

The cultural aspects of mobility are complicated, and the dynamics of the current regime is not well understood, as noted earlier. Clearly, there is a strong cultural basis for the present level of mobility as well as for its particular reliance on the private car. Thus, to change today's mobility practices would imply quite profound cultural changes. That does not mean that changes are impossible. However, to bring about changes, one needs to consider carefully the cultural underpinnings of mobility. In particular, strictly fiscal or technological strategies should be viewed as insufficient.

Of course, the present mobility regime has developed in tandem with changes in technologies related to transport. The main thrust of this process has been growth. Technological innovations have made transport relatively cheaper and helped to increase availability as well as capacity. Since technological change has been a dominating response to the "transport problem", we need to consider the implications of this for mobility.

### *3.5. New technologies and mobility*

As previously mentioned, there is general agreement that technological change is important to the analysis of transport and mobility. Nijkamp et al. (1990) includes "technological context analysis" as one of their four dimensions of mobility determinants. They argue that we need to deal with the implications of changes in the technological "environment" upon the spatial behaviour of individuals or groups in our society. The conclusion is that these implications are ambiguous. Some innovations are made to increase physical mobility, others, like telematics, have the potential to facilitate a reduction. This observation regarding new technologies and mobility is perhaps the most important one.

Hepworth & Ducatel (1992) emphasizes the growing interdependence between transport and information technology. They argue the possibility of a trade-off between telecommunications and transport, but above all, they emphasize the way that new information and communication technologies may be used to change the conditions of performing transport:

- “the logistical revolution”, based on the potential for improved planning of transport and electronic document interchange.
- electronic road pricing, which introduces new means of regulating traffic as well as funding the infrastructure
- improved passenger information systems, which may make public transport systems more user friendly.

Much efforts are put into the development of new technologies to improve the efficiency of transport. Road Transport Informatics (RTI) is an interesting example where information technology is developed to improve the capacity of existing networks of roads and highways, and even to reduce the number of accidents (Juhlin 1997). If RTI is successful, it may facilitate increases in mobility, but it may also provide means to reduce it or to reshape the way mobility is practised (Wootton 1999).

The major effort is nevertheless concerned with the possibilities of constructing technological alternatives to or improved versions of the gasoline-driven motorcar. Nadis & MacKenzie (1993) argues that new technology could make cars, and thus mobility, more sustainable through the reduction of emission and less fuel consumption. However, they claim, this potential is not made use of. The automobile industry has for a long time been unwilling to engage in such innovations. Hård & Jamison (1997) maintains that the gasoline engine has become established as the only “real” car engine, through its symbolic power, its embeddedness in organizational structures, and the strong tradition of behaviour that has developed with this engine and that demands the qualities of the gasoline powered car. Thus, there is a dominant image of the car that makes it difficult to replace by alternatives like electrical vehicles.

This means that any development of an alternative car would need strong political support, either through legislative actions that force the construction of technology to become “alternative” or by the creation of market niches that allows radical innovations to find sufficient demand (Schot et al. 1994, Kemp et al. 1998). There is also the interesting argument that such alternatives need to be developed by outsiders to the car industry (Truffer & Dürrenberger 1997).

The emergence of modern mobility has clearly depended upon the development of different transport technologies, including the car itself as well as road and highway construction (see, e.g., Flink 1988). However, the role of ideas about the advantage of mobility as shaping forces in this development remains unclear. We know that highway engineers already at the turn of the century catered such ideas (Sørensen 1991), but the emerging car industry was seemingly more concerned about the potential of the automobile to increase comfort and to serve as an icon of wealth. The modern mobility regime is not very well explained by reference to the development of new technologies.

However, it is difficult to see that the modern mobility regime may be reformed without the use of new technologies. Since the potential for technology-related changes may be found throughout the whole system of transportation as well as in most human activities generating mobility needs, there are a great

number of possible candidates for scrutiny. However, due to the thoroughly social nature of mobility, the analysis of technological options have to be performed in tandem with the study of the economic, political, and cultural dynamics of the present and future regimes.

A particular challenge is to understand the emergent changes in the new perceptions of space, relations, belonging and identity that seem to be emerging together with the present development and appropriation of information and communication technologies (see, e.g., Crang et al. 1999). The ideas of "virtual" social practices, in particular those performed through the Internet, could have considerable impact on the need for physical movement

#### **4. Main currents of thought about mobility: Ford, Le Corbusier, Hollywood, and the Highway Engineers**

The identification of "main currents of thought" about mobility may be made by reference to the various disciplines and professions engaged in such studies. For most purposes, this would not be very fruitful because the strategy would basically produce just another account of differences between disciplines. Moreover, the number of "main currents" would be impractically large for analytical use. In fact, with a few exceptions where history of technology is the most important, the analysis of mobility is found in a small number of interdisciplinary areas: transport studies, urban planning and the critical discourse on cars. This might lead to the conclusion that there are three main currents of thought about mobility. The first is the so-called *transport problem*, where the challenge is to find solutions to the problems raised by the current, high level of mobility. Contributors may take notice that mobility is influenced by economic growth and the standard of living, but the main concern is to predict and manage increased flows of traffic. This means that mobility is made into a backstage issue, while transport and instrumental reasoning around the transport problem remains the frontstage concern.

The second main current of thought is the *land use problem*, a subject matter particularly for urban planners. They perceive mobility as an interactive outcome of land use, car use and urban form. The main challenge with which they are concerned, is the possibilities of change of land use policy and the principles of urban planning.

The third and final main current of thought may be labelled the *car problem*. This literature takes a critical stance towards the role of the motorcar and the modern dependence on car-based mobility. In particular, the critique is based on observations of pollution, excessive use of resources, and the reshaping of cities into traffic machines. Many authors are also concerned to analyse the process through which modern mobility came to be so car-dependent as it presently is.

Arguably, we could use four metaphors to represent four very important determinants of modern mobility: Henry Ford, Le Corbusier, the community of

highway engineers and the movie industry in Hollywood. They highlight four different ways of thinking about mobility and mobility regimes.

Ford is the inventor of the car as an object of mass consumption, to be produced cheaply through the technology of the conveyor belt. Without this invention, mobility would have developed in a very different manner and probably with much slower growth. Many studies argue, explicitly or implicitly, that the car industry was the main instrument behind the shift from public to private transport and the installment of the car as a modern necessity. Much effort of marketing and lobbying have been made to achieve this result. Today, the economic interests related to the manufacturing and maintenance of cars are still very strong and with considerable influence upon the different dimensions of transport and traffic policies. Mobility is strongly embedded in these interests.

The French architect Le Corbusier may represent the thinking about cities and physical planning that made car-based mobility a chief premise. He emphasized that society needed "a new type of street" that should be a "factory to produce traffic". His *The City of To-Morrow and Its Planning* provides us with the following suggestive images: "(The) sky-scrapers will contain the city's brains, the brains of the whole nation. (...) Everything is concentrated in them: apparatus for abolishing time and space, telephones, cables, and wireless; the banks, business affairs and the control of industry; finance, commerce, specialization. The station is in the midst of the sky-scrapers, the Tubes run below them and the tracks for fast traffic are at their base. And all around are vast open spaces. There need be no limit to the number of motor vehicles, for immense parking areas linked up by subterranean passages would collect together the host on wheels which camps in the city each day and is the result of rapid individual transit. (...) One can only come to one conclusion; that the city which can achieve speed will achieve success" (Le Corbusier 1987: 187-89).

This kind of thinking has shaped the physical structures of modern society to sustain demands for flexible mobility, best met by the private car. The problem is not just the way buildings are scattered over large areas, but also the functional differentiation between areas of work, services and residence. Changing the urban and sub-urban landscapes to facilitate a new mobility regime will be expensive and difficult.

The construction work of highway engineers has supplemented the efforts of city planners. Their shared vision of a future with a high level of mobility, mainly based on the use of private cars, has been the basis of self-fulfilling prophecies about the need for more and better roads and extended car ownership. Finally, the cultural industry - with Hollywood as the dynamic centre - has moulded the visions of engineers and architects into attractive as well as profitable dreams about freedom and self-fulfilment through mobility and cars. There have been many communities of actors that have helped shape the society of high mobility.

This means that we should be careful to avoid the uncritical adoption of the view proposed by much of the car problem literature, namely that the present high

level car-based mobility is the result of a design by car manufacturers and oil companies to curb public transport. The present mobility regime, with its strong car dependence, has undoubtedly resonated very well with the dreams of most people about autonomous and comfortable transport (Dunn 1998, Sørensen & Sørgaard 1994). Even if one is critical of the way that the car-based mobility has changed the modern landscape and cities and of its environmental impacts, the cultural underpinnings of this practice cannot be easily dismissed.

Having said that, it is important to add that the dynamics of the demand for mobility is not very well explored in the current literature. The transport problem approach is too much based on socio-economic indicators to come to grips with the issue, while the land use problem approach is too singularly focussed on land use and urban form, i.e. physical and structural aspects of mobility. Even the car problem literature tends to sidestep the issue, maybe because it does not resonate well with normative ideas that most people should be willing to travel less.

From the latter point of view, of course, it would be important to study whether it is at all possible to imagine a modern society without cars. The argumentative thrust of this paper gives the private car a strategic role in the construction of a time-space distanced late modern society. Does that imply that a radically different pattern of car use with a considerable reduction in physical mobility is inconsistent with our notions of modernity?

This question points to at least three important issues. One concerns the importance of *face-to-face relationships* and the possibilities of transforming such interactions into something which may be mediated electronically, e.g. through telephones, videophones, e-mail, and so on. Could physical mobility be replaced by "telepresence"? The second relates to the potential for a *reconfiguration* of the present, car-based pattern of *mobility praxes*, in particular with regard to the mobility produced through leisure and shopping. Preliminary studies also indicate that another type of cars may imply changes in user praxes. Can we envision a return to a more locally embedded form of life without regaining a premodern boundedness? The third issue is *the spatial organization of society* and the need to rebuild it. What would be the preconditions of accepting a way of living based on a society which - in physical terms - is more intimate and connected?

These issues all imply a questioning of the widespread image of modernity as the ever-changing, mobile and globalized system, beset with speed and range, as well as confronting the physical network constructed with the motorcar as its prime vehicle. The obstacles for such changes are not just residing in the solid entrenchment of the car network and our cultural relationship with the car (Sørensen 1992), but also the simultaneous, even more solid, entrenchment of the concept of modernity. To remain with our present constructions of what it means to be modern, we need to come to grips with the problems of private cars in a different manner.

Of course, the literature surveyed in the preparation of this paper proposes many examples of less dramatic actions. There are efficient policy options to reduce car use in cities (see, e.g., Pucher 1998, Banister et al. 1997, Newman

1996, and Newman and Kenworthy 1996) and to explore the potential of combining direct and indirect (fiscal) regulations with improved public transport (e.g., Kenworthy & Laube 1996, Newman 1996, Hall 1994 and Hensher 1993). Often, such policies are implemented locally and on a basis of perceived local crises of transport and/or environment (Bratzel 1999).

Banister (1997) argues that it is primarily through urban planning that one may reduce the need to travel. However, many if not most authors argue a broader and more complex approach (see, e.g., Wootton 1999, Dutton 1998, Pucher 1998 and Kay 1997). It should be noted that there are examples of successful policies (e.g., Pucher 1998, Newman 1996), and perhaps even more important, that there are considerable countrywise and citywise differences in mobility and mobility regimes (Newman & Kenworthy 1996, Newman 1996).

Dunn (1981) contrasts US and European transport policy and concludes that there are three crucial differences:

- the nature of the priorities given to certain transportation modes,
- the scope accorded to market processes in the transportation sector,
- the ends and means of authority exercised in that sector.

Above all, Dunn notes that "Europeans tend to have a different image of the ultimate social meaning of transportation than Americans. While they recognize the need for efficient methods of moving people and goods from one location to another, they are in general not so enraptured by the very process of motion as Americans. They tend to give greater weight to the societal costs of transportation and be somewhat more skeptical of the benefits of additional increments of transportation capacity above what seems adequate to the task" (Dunn 1981:165). This may make mobility reform a more viable prospect in Europe than in North America.

The development of reform strategies is, as should be evident from this survey of relevant literature, a controversial matter. Given the importance of values and politics to the evaluation of the car and our present mobility regime (compare, e.g., Kay 1997 with Dunn 1998), we should not expect anything else. However, it is somewhat disappointing to observe the lack of efforts to integrate a concern for reform with a historical-sociological understanding of mobility and an interest in the potential role that may be played by new technologies. Usually, new technologies are perceived as an issue in itself, to be studied with a focus on the processes of innovation or on the barriers to make use of them. The transport problem approach takes the potential on board, but does not make much of it. The land use problem approach neglects it, while the approach of the car problem displays a deep ambiguity towards new technologies. In this respect, the literature surveyed here does not examine the potential of thinking transport and mobility in relation to a technology oriented policy that would seek to develop socio-technical strategies of reform.

Having said that, this review has supported the initial assumption about the gains of considering mobility, rather than transport. This allows a much broader focus and, in particular, a greater concern for the way mobility needs are

produced and the nature of the mobility regimes that are shaping the conception of the "transport problem". Still more research is needed to improve our understanding of these relationships and also to explore the full range of implications of the transport economists' observation that transport and mobility is derived demand.

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