TRANSPORT AND SOCIETY

ROUTLEDGE

Mobilities: new perspectives on transport and society

EDITED BY
MARGARET GRIECO
AND JOHN URRY

MOBILITIES: NEW PERSPECTIVES ON TRANSPORT AND SOCIETY

This page has been left blank intentionally

Mobilities: new perspectives on transport and society

Edited by

MARGARET GRIECO
Edinburgh Napier University, UK

and

JOHN URRY
Lancaster University, UK

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2011 by Ashgate Publishing

Published 2016 by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN
711 Third Avenue, New York, NY 10017, USA

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing in Publication Data
Mobilities : new perspectives on transport and society. --
(Transport and society)
1. Transportation--Social aspects.
I. Series II. Grieco, Margaret, 1950- III. Urry, John.
303.4'832-dc22

Library of Congress Cataloging-in-Publication Data
Mobilities : new perspectives on transport and society / [edited] by Margaret Grieco and John Urry.
p. cm. -- (Transport and society)
Includes bibliographical references and index.
ISBN 978-1-4094-1150-5 (hbk) -- ISBN 978-1-4094-1151-2 (ebook)
1. Transportation--Social aspects. 2. Migration, Internal--Social aspects. I. Grieco, Margaret, 1950- II. Urry, John.

HE151.M64 2011
303.48'32--dc23

2011030405

ISBN: 9781409411505 (hbk)
ISBN: 9781315595733 (ebk)

Contents

List of Figures

List of Colour Plates

List of Tables

Notes on Contributors

Paulus Aditjandra is a Research Associate in urban freight travel behaviour at NewRail – Centre for Railway Research based in the School of Mechanical Engineering and Systems, Newcastle University. He was previously a Research Fellow at the Centre for Transport Research, University of Aberdeen working on various aspects of passenger transport research spanning from his main core research interest derived from his PhD (awarded in 2009 from Newcastle University) in urban form impact on travel behaviour. His published output can be found in the *TRB Transportation Research Record* and *MIT Journal of Planning*.

Kay W. Axhausen is Professor of Transport Planning at the Eidgenössische Technische Hochschule (ETH) Zürich. Before this he worked at the Leopold-Franzens Universität, Innsbruck, Imperial College London and the University of Oxford. He has been involved in the measurement and modelling of travel behaviour for the last 25 years contributing especially to the literature on stated preferences, micro-simulation of travel behaviour, valuation of travel time and its components, parking behaviour, activity scheduling and travel diary data collection. Current work focuses on the agent-based micro-simulation toolkit MATSim (see www.matsim.org).

Monika Büscher is Senior Lecturer in the Department of Sociology, Lancaster University. She studies everyday practices of physical and virtual mobility. Her analytical orientation is ethnomethodological, informed by Science and Technology Studies and the mobilities paradigm. She is director of mobilities.lab, she carries out experimental, mobile, public social science research – to inform public debate, technology design, and policy making.

Paul Coulton is Game Designer, Senior Lecturer in the School of Computing and Communications at Lancaster University, and founder of the Mobile Radicals. His work is centred on creating novel games and playful experiences utilising the unique capabilities of mobile devices and he is widely recognised as a pioneer of this field with a number of his projects receiving international awards for innovation.

Tim Dant is a Reader in Sociology and Head of Department at Lancaster University. As well as pieces on driving and cars, he has published on the sociology of knowledge, critical theory and the sociology of material culture including *Material Culture in the Social World* (Open University Press 1999) and

Materiality and Society (Open University Press 2005). He is currently writing on the impact of the small screen on the moral culture of late modern societies.

Colin Divall is Professor of Railway Studies at the University of York and Head of the Institute of Railway Studies and Transport History, run jointly by the University and the National Railway Museum. His main research interests are in the history of transport and mobility, the history of technology (particularly in the nineteenth and twentieth centuries), and the public histories of both of these fields. Colin is also a member of the editorial boards of the *Journal of Transport History* and the *International Journal for the History of Engineering and Technology*, and a contributing editor of *Technology and Culture*. He is currently a Vice President of the International Association for the History of Transport, Traffic and Mobility (T2M) and on the Executive Council of SHOT, the international Society for the History of Technology.

Sipho Dube is a Researcher for the CSIR's Built Environment Unit, with a special focus on the intersections between socio-economic needs, transport and accessibility in rural areas. Current key responsibilities include designing, conducting and analysing research findings with a view to advancing an evidence-based rural development agenda. Sipho holds an honours degree in Environment and Development Studies with the University of KwaZulu-Natal. He has been with the CSIR for the last four years.

Christos Efstratiou is a Senior Research Associate in the Computer Laboratory, University of Cambridge. He received his PhD in 2004 from Lancaster University (UK). He has been a Research Associate in Lancaster University and a visiting researcher in Sony Electronics Distributed Systems Lab in San Jose. His early work focused on the support for adaptive and context-aware applications in mobile environments. More recently, he has been actively involved in research projects in the areas of wireless sensor networks, and pervasive computing. He is currently working on system support for federated sensor networks.

Hans Gellersen is Professor at the Computing Department at Lancaster University. He has been active in the ubiquitous computing research community for over 10 years, initially as director of the TecO research group at the University of Karlsruhe, and since 2001 in his current position. In 1999, he initiated the Handheld und Ubiquitous Computing conference, which has since been shortened to 'Ubicomp' and become established as the premier conference in the field.

Konrad Götz is a sociologist at the Institute for Social-Ecological Research (ISOE), Frankfurt. He is an expert on empirical studies about lifestyle and mobility. His doctoral dissertation was published as *Leisure Time Mobility in Everyday Life*. Before starting at ISOE he worked as a market researcher at the Sinus Institute in Heidelberg.

Margaret Grieco is a Professor of Transport and Society at Edinburgh Napier University. She holds her doctorate from the University of Oxford in Sociology, and her undergraduate degree in Government and Sociology from the University of Essex. She has published extensively in the field of transport and society and access to these publications can be found at http://www.geocities.com/transport_and_society. She is also series editor of the Transport and Society series published by Ashgate and a member of the Academic Advisory Board of the Glasgow Museum of Transport. She has a strong interest in transport policy, including issues of gendered mobility, and has undertaken research for national and international agencies, including government, in this field. At Edinburgh Napier University, she is an active member of the Transport Research Institute.

Kate Hampshire is a Senior Lecturer in Anthropology at Durham University (UK). Her main research interests are on health, well-being and mobility in Sub-Saharan Africa, with a particular focus on children and youth.

Drew Hemment in Associate Director of the ImaginationLancaster creative lab at Lancaster University and Founder and Creative Director of FutureEverything, an innovation lab and festival for art and digital culture. Recent projects have been on open data, social sensing, urban interface and globally networked events. Winner of Lever Prize 2010 and Honorary Mention at Prix Ars Electronica 2008.

Julian Hine is Professor of Transport in the Built Environment Research Institute at the University of Ulster. He has published extensively on the linkages between transport policy, planning and transport disadvantage. His book on *Transport Disadvantage and Social Exclusion* (with F. Mitchell) is widely cited in the academic literature. He is currently leading the development of transport research activity at the university.

Frances Hodgson currently provides leadership to research in mobilities at the Institute for Transport Studies, University of Leeds (UK). A sociologist by training, she has an MSc in transport planning and is a Senior Research Fellow with a track record of breaking new ground; she was PI in collaboration with Professor Urry on the first ESRC Network on Mobilities in 2002. She has 20 years of experience in researching travel and has specialist knowledge in the area of walking, gender, social networks, new information technology and social research methods. Her recent research on social networks and walking will be published as a book for Ashgate in 2011 and her current research work focuses on the interaction of Web 2.0 application with the transport sector, exploring its potential for the travel of older people and its interaction with incentives for different communities and transport systems. Her work has been funded by a variety of national and international funders.

Peter Jones is Professor of Transport and Sustainable Development at University College London, and specializes in travel and activity behaviour, and public attitudes. Before joining UCL in 2005, Peter was director of the Transport Studies Group at the University of Westminster where he carried out numerous research projects funded by organisations including the Department for Transport, the European Commission, the Joseph Rowntree Foundation, and BAA. He has also acted as a consultant to Transport for London.

Matthias Kowald studied social science at University Duisburg-Essen where he graduated in 2007. Since 2008 he has worked as a research assistant and PhD candidate at the Institute for Transport Planning and System (IVT) of ETH Zurich in the group of Professor Dr K.W. Axhausen. His research addresses the influence of actors' social contacts on the individual travel behaviour. To particularly investigate social contacts' influence on leisure travel he manages a survey project that collects data on egocentric leisure networks. To obtain a detailed picture of both, personal networks as well as their connected 'global' structure, the study takes a snowball sample.

Eric Laurier is Senior Research Fellow at the University of Edinburgh. He has carried out two ESRC-funded projects on car travel: one on how cars are used as office spaces by mobile workers, and the other on how social groups such as families, friends and colleagues organise travelling together. What fascinates him about the car is the myriad of practices we find taking place in its cramped interiors.

Claire Levallois-Barth is Doctor in Law, Researcher at the Social Science department at Telecom Paristech. She specializes in privacy and data protection law both at the French and European level. Her studies are related to the application of these legal aspects to new technologies such as location-based services, Bluetooth, RFID and social networks. She is the member of the board and General secretary of the French Association of Data Protection Officers (Association Française des Correspondants à la Protection des Données à Caractère Personnel – AFCDP) and member of the board of the Master Management and Personal Data Protection of the Institut Supérieur d'Electronique de Paris (ISEP).

Christian Licoppe is Professor of Sociology and Head of the Social Science department at Telecom Paristech. Trained in sociology of science and technology for several years he has been studying the organisation of interactions and activities mediated by information and communication technologies. In the particular field of mobile studies he has introduced the notion of 'connected presence' and conducted (with Yoriko Inada) one of the first extensive studies of a location aware community of mobile players. He is currently interested in the co-shaping of locative media and mobile user behaviour.

Karen Lucas is a Senior Research Fellow with the Transport Studies Unit at Oxford University. Over the past ten years, Karen has established an international reputation for her pioneering research looking at the role of transport in social exclusion and has published extensively on this topic. Her specialist research interest is in making evident the links between the social and environmental aspects of sustainable development, with a particular focus on meeting the needs of people living in deprived and excluded communities within developed societies. In 2002/3, she was seconded to the UK Social Exclusion Unit as a policy advisor on its pioneering study of transport and social exclusion. Karen is Book Review Editor for the *Journal of Transport Geography* and a member of its Editorial Board. She is an overseas representative for the US Transportation Research Board's Environmental Justice and Social and Economic Factors in Transportation Committees and a founder member of the coordinating team for the UK Government's Sustainable Development Research Network and continues to act as a member of its Advisory Committee.

Glenn Lyons is the Founder of the Centre for Transport & Society and was its first Director until August 2010 when he was appointed as Associate Dean, with responsibility for research, in CTS's parent Faculty of Environment and Technology. The prevailing theme of his research today is transport and society. This encompasses the three-way interactions between telecommunications, personal travel and social participation. From 2007–2010 he was Chairman of the Universities Transport Study Group in the UK and in 2008 he became a Trustee of London Transport Museum Limited. In 2010 Glenn was awarded an Honorary Transport Planning Professional qualification in recognition of his contribution to the field of transport planning.

Mac Mashiri is a transportation and development planning consultant based in Tshwane South Africa. He is an experienced researcher and leader of multidisciplinary teams with specific reference to technical, economic, social, institutional and strategic planning aspects of transport infrastructure and services. He has undertaken assignments mostly in eastern and southern Africa for the public and private sectors, quasi-governmental organisations, NGOs, development and donor agencies. He has lead, managed and participated in project missions to Uganda, Zimbabwe, Kenya, Tanzania, Mozambique, Malawi, Botswana, Lesotho and Ghana.

John D. Nelson holds the Sixth Century Chair of Transport Studies at the University of Aberdeen where is Director of the Centre for Transport Research and theme leader for Accessibility and Mobilities in the dot.rural RCUK Digital Economy Hub. He is particularly interested in the application and evaluation of new technologies to improve public transport as well as the policy frameworks and regulatory regimes necessary to achieve sustainable transport systems. Recent publications include *Taxi! Urban Economies and the Social and Transport*

Impacts of the Taxicab (co-authored with Cooper and Mundy; Ashgate, 2010) and *Infomobility Systems and Sustainable Transport Services* (co-edited with Ambrosino, Boero and Romanazzo; ENEA, 2010).

Timo Ohnmacht holds a PhD in Sociology from the University of Basle. He is a Research Assistant at the Swiss Federal Office for Spatial Development where he is project manager of the Swiss Microcensus on Travel Behaviour 2010/2015. Furthermore, he is a lecturer at Lucerne University of Applied Sciences and Arts where he focuses on mobilities, inequality, and modernity as well as leisure and tourism travel.

Jean-Pierre Orfeuil is Professor at the Paris Institute for Land Planning of the Paris Est University, and Head of the Scientific and Advisory Council of the 'City on the move' Institute. His main research interests are mobility behaviour analysis and the societal stakes linked to mobility.

Colin G. Pooley is Professor of Social and Historical Geography in the Lancaster Environment Centre, Lancaster University. His research focuses on the social geography of Britain and continental Europe since the eighteenth century, especially aspects of migration, mobility, ethnicity, housing, health, crime and social change. Publications consist of 12 books and over 90 articles and book chapters including Pooley, C., Turnbull, J. and Adams, M. *A Mobile Century?: Changes in Everyday Mobility in Britain in the Twentieth Century* (Ashgate, 2005), Pooley, C. and Turnbull, J. *Migration and Mobility in Britain since the Eighteenth Century* (UCL Press, 1998), Pooley, C., Pooley, S. and Lawton, R. (eds) *Growing Up on Merseyside in the Late-Nineteenth Century: The Diary of Elizabeth Lee* (Liverpool University Press, 2010). Professor Pooley's current research is focused on an EPSRC-funded project 'Understanding walking and cycling' which is examining the complexities and contingencies associated with household decision-making for everyday travel.

Gina Porter is Senior Research Fellow in the Department of Anthropology, Durham University (UK). She has conducted field research on transport institutions and gendered mobility in Sub-Saharan Africa over a 30-year period. Her current research focuses on children and young people's mobility in Ghana, Malawi and South Africa.

Fiona Rajé has worked in a number of teaching, research, consultancy and operational roles in transport and tourism in the Caribbean and the UK. She teaches for the Open University, as well as working independently as an assessor for the School of Business at the University of Sunderland, and is a member of the UK Air Transport Users Council and the Newcastle International Airport Consultative Committee. She is the author of books on user experiences of the transport system and on transport and ethnicity. She has been an academic reviewer and contributor

to journals such as *Transport Policy*, *Municipal Engineer* and *European Spatial Research and Policy*.

Mimi Sheller is Professor of Sociology in the Department of Culture and Communication at Drexel University, and Director of the Center for Mobilities Research and Policy. She is also Senior Research Fellow in the Centre for Mobilities Research at Lancaster University (UK), and co-editor of the journal *Mobilities*. She is the author of *Consuming the Caribbean* (Routledge, 2003); *Democracy After Slavery: Black Publics and Peasant Radicalism in Haiti and Jamaica* (Macmillan Caribbean, 2000); and *Citizenship from Below: Caribbean Agency and Modern Freedom* (Duke University Press, forthcoming). She is co-editor of *Mobile Technologies of the City* (Routledge, 2006); *Tourism Mobilities* (Routledge, 2004); and *Uprootings/Regroundings: Questions of Home and Migration* (Berg, 2003), and has published numerous articles in the fields of mobilities research, Caribbean studies, cultural geography, and social theory. She is currently conducting NSF-funded research on the aftermath of the earthquake in Haiti, and is a regional Fellow in the Penn Humanities Forum on 'Virtuality' at the University of Pennsylvania in 2010–11.

John Urry is Distinguished Professor of Sociology and Director of the Centre for Mobilities Research, Lancaster University. His research focuses upon the changing nature of mobility within contemporary societies. He is one of the founding editors of the journal *Mobilities*, and has been the editor of the *International Library of Sociology* since 1990. Recent books include *Performing Tourist Places* (Ashgate, 2004); *Mobilities, Networks, Geographies* (Ashgate, 1996); *Mobilities* (Polity, 2007); *After the Car* (Polity, 2009); *Mobile Lives* (Routledge, 2010); *Climate Change and Society* (Polity, 2011); *The Tourist Gaze, 3.0* (Sage, 2011).

This page has been left blank intentionally

Introduction: Introducing the Mobilities Turn

Margaret Grieco and John Urry

The importance of social synchronisation in organising travel and transport had been largely ignored within the study of transport until the advent of the 'activity' approach developed some decades ago at the Transport Studies Unit at Oxford (Jones et al. 1983). But in recent years even this approach had been critiqued for not going far enough in the insertion of the 'social' into analysing travel and transport. The importance of 'multiple mobilities' in social synchronisation and action has recently been transformed by the 'new mobilities' paradigm now developing around the world within various centres, groups, networks, conferences, journals and book series (see Sheller and Urry 2006).

There are highly negative intellectual and policy consequences to neglecting the social although in the UK the advent of the New Labour new social inclusion agenda made some inroads into charting travel and transport social disadvantage and deprivation (Social Exclusion Unit 2003). The social exclusion/inclusion agenda places the focus on transport in relation to very uneven levels of societal participation across various domains. However, this perspective stopped short of the full incorporation of multiple users within transport service design and operation. Yet the affordances of the new information communication technologies make user participation in the design and determination of levels and patterns of mobility much more a possibility, as various chapters below explore.

Moreover, new information technologies permit the detailed auditing of new mobilities at every level from the household to the state and meta-state; they also enable the development of new forms of rapid social coordination and collective mobility even within the most local and routine of circumstances. The enhanced auditing capabilities of modern society also have consequences for developing new perspectives of environmental and transport justice. The ethics of different mobilities is now a major arena of debate and contestation – within this framework, new discussions are to be found such as those on the perverse organisational structures which require the mobilities even of the sick.

This volume brings together most of the leading authors currently working at the intersection of social science and transport science reviewing the field of mobilities research as it emerged from these various traditions and trends. The aim of each chapter and of the volume as a whole is to bring closer and richer consideration to the issues, practices and structures of multiple mobilities which

shape the current world but which have typically been overlooked or minimised. What this paradigm seeks to do is not only to draw attention to many new areas of research and investigation relating to mobile lives, but also to point to new theories and methods by which such lives have to be researched and examined, theories and methods which contributors here are themselves developing and enhancing. Such new theories and methods are relevant both to rethinking 'transport' studies as such but are also recasting 'societal' studies as 'transport' comes out of the ghetto and enters mainstream social science (see the companion edited volume, Büscher et al. 2011).

References

Büscher, M., Urry, J. and Witchger, K. (eds) (2011) *Mobile Methods*, London: Routledge.

Jones. P.M., Dix, M.C., Clarke, M. and Heggie, I.G. (1983) *Understanding Travel Behaviour*, Aldershot: Gower.

Sheller, M. and Urry, J. (2006) The new mobilities paradigm. *Environment and Planning A*, 38: 207–26.

Social Exclusion Unit (2003) *Making the Connections: Final Report on Transport and Social Exclusion*, London: SEU.

Chapter 1
Does Mobility Have a Future?

John Urry

Introduction

Lives in the rich North have been premised upon increasing incomes, wealth, security, movement, wellbeing and longevity. This was the modern dream which, in that rich North, had apparently been set in stone certainly since 1945. The twentieth century looked like it was here for good especially as its only rival, state socialism in Eastern Europe, had imploded in and around 1989. Indeed the 'roaring [nineteen] nineties' made it seem as though the rich North had struck gold. The economies of North America, Western Europe and parts of Asia seemed to be set fair for many decades of growth fuelled by the high carbon systems of production and consumption. The twenty-first century appeared to be business as usual, more of the same, as these high carbon systems increasingly spread around the world engulfing so many different countries and cultures. High carbon consumption seemed to have 'no borders' and no 'limits to growth'.

There is in the modern world an accumulation of movement analogous to the accumulation of capital – repetitive movement or circulation made possible by diverse, interdependent systems of movement. The human 'mastery' of nature was effectively achieved through movement over, under and across it. In the twentieth century, this becomes even more marked especially beginning with a new metabolism in the US. An array of powerful, high carbon systems was unleashed:

- the development of electric power and national grids so ensuring that more or less every home in the global north is lit, heated and populated with electric-based consumer goods (resting especially on coal and gas);
- the spreading of the steel-and-petroleum car (now over 650 million cars worldwide) and associated roads and a widely distributed, or sprawling, infrastructure linking most places of residence, work and leisure;
- the development of suburban housing distant from places of work and which has to be commuted to by car/bus and can be filled with household consumption goods powered by electricity;
- the emergence of various electricity-based technologies, stand alone telephones, computers, laptops, networked computers, mobile phones, Blackberries and so on, meaning that network colleagues, friends and families can now be more geographically dispersed;

- the proliferation of many specialised leisure sites, supermarkets, fast food outlets, national parks, sports stadia, theme parks, most necessitating travel from home and neighbourhood especially by car and new systems of air travel (also normally involving the long distance movements of objects and water).

These high carbon systems were trialled and developed as mass forms within the US before and after the Second World War. They were a product of the American Dream and involved partial public funding and their growing path dependent interrelationships. The American Century, as the twentieth century should be termed, involved developing the conditions for these five interdependent systems. Thus there were established in the twentieth century hyper-high carbon societies involving gigantic building, profligate use of energy and water, the vast use of oil to transport people and objects in and out and multiple addictions generated under the name of 'choice'.

But the early twenty-first century involved a new scale, impact and quality of 'disruption' in the heart of the rich North: including 11 September and other bombings, heatwaves killing thousands, 'oil wars', Hurricane Katrina, and the 2008 Great Crash and Depression. At the beginning of the new century there are overlapping system changes, and a global scale of disruption as many systems go into reverse and there is the undermining of the long-term resource base of modern societies. There are many limits suddenly, many 'bads'.

Mobilities

Movement became significant in the contemporary world – indeed the freedom of movement, as represented in popular media, politics and the public sphere, is the ideology and utopia of the twenty-first century. The UN and the EU both enshrine rights to movement in their constitutions. More than knowledge, more than celebrity, more than economic success itself, it is the infinity of promised and assumed consumption possibilities arising from multiple movements that characterises the neo-liberal dream. Also many people have mobility thrust upon them as the number of refugees, asylum seekers and slaves hit record levels in the early twenty-first century.

More specifically we can identify five interdependent 'mobilities' that are producing social life organised across multiple distances and which form (and re-form) its contemporary contours. These five interdependent mobilities are:

- the *corporeal* travel of people for work, leisure, family life, pleasure, migration and escape, organised in terms of contrasting time-space patterns ranging from daily commuting to once-in-a-lifetime exile;

- the physical movement of *objects* include food and water to producers, consumers and retailers; as well as the sending and receiving of presents and souvenirs;
- the *imaginative* travel effected through the images of places and peoples appearing on and moving across multiple print and visual media and which then construct and reconstruct visions of place, travel and consumption;
- *virtual* travel often in real time transcending geographical and social distance and forming and reforming multiple communities at-a-distance;
- *communicative* travel through person-to-person messages via personal messages, postcards, texts, letters, telegraph, telephone, fax and mobile.

Especially significant are fast modes of travel, often at the expense of slow modes such as walking and cycling. While in 1800 Americans travelled 50 metres a day principally by foot, horse and carriage, they now travel 50 kilometres a day, principally by car and air (Buchanan 2002: 121. See also Kellerman 2006, Cresswell 2006, Urry 2007). Today it is estimated that world citizens move 23 billion kilometres each year. By 2050 it is predicted that if resource constraints do not intervene this will increase fourfold to 106 billion (Schafer and Victor 2000: 171). This growth in fast travel stems from various interdependent processes.

- the growth of automobility throughout the world increasingly in the world's two most populous societies of China and India;
- the rapid growth of cheap air travel based on new budget business models;
- a significant resurgence of rail transport especially of high speed trains across Europe and Japan;
- new kinds of globally significant themed leisure environments that have to be visited from afar;
- increased 'miles' both flown and travelling on the world's 90,000 ships by manufactured goods, components and foodstuffs;
- much greater distances travelled by work colleagues, members of leisure organisations, families and friends in order to sustain patterns of everyday life that are 'at-a-distance';
- carbon use within transport accounts for 24 per cent of total greenhouse emissions -second fastest growing source of such emissions and expected to double by 2050.

There are many different social practices in the contemporary world, each involving specific moving assemblages of humans, objects, technologies and scripts:

- asylum, refugee and homeless travel and migration;
- business and professional travel;
- discovery travel of students, au pairs and other young people on their 'overseas experience', where this constitutes a 'rite of passage' and involving going overseas to civilisational centres;

- medical travel to spas, hospitals, dentists, opticians and so on;
- military mobility of armies, tanks, helicopters, aircraft, rockets, spyplanes, satellites and so on which have many spinoffs into civilian uses;
- post-employment travel and the forming of transnational lifestyles within retirement;
- 'trailing travel' of children, partners, other relatives and domestic servants;
- travel and migration across the key nodes within a given diaspora such as that of overseas Chinese;
- travel of service workers around the world and especially to global cities including the contemporary flows of slaves (estimated at 27m);
- tourist travel to visit places and events and in relationship to various senses especially through the 'tourist gaze';
- visiting friends and relatives but where those friendship networks may also be on the move;
- work-related travel including commuting which is itself increasingly varied and complex.

One consequence of these social practices is the variety of people's social networks and how they make the complexities of social life work within the social context of others who are often 'at-a-distance'. These others, family, friends, work and leisure colleagues, are themselves 'networked'. Making social life 'work' thus involves much scheduling and rescheduling of events, meetings, dates, trips, video-conferences and holidays. Such scheduling is desynchronised from certain neighbourhood settings. There is more of a do-it-yourself, individualised time-space patterning in and through which people in the richer third of the world can cover more ground, consume abundantly, live more varied lives but need to be on the go 'coordinating life'.[1] At least for the rich third of the world, partners, family and friends are more a matter of choice, increasingly spread around the world. There is a 'supermarket' of friends and acquaintances, and people depend upon an array of interdependent systems of movement to connect with this distributed array of networks but often meet up within distinct places.

Life in such a world is hurried and what Linder termed 'harried', as it criss-crosses the globe it presses in upon the self, on its everyday routines, scripts of selfhood and textures of emotion.[2] The rise of a mobile society reshapes the self – its everyday activities, interpersonal relations with others, as well as connections with the wider world. Such individualised mobility routinely implicates personal life in a complex web of social, cultural and economic networks that can span the globe or at least certain nodes across parts of the globe. This engenders the 'small world' experience by which those meeting in distant places discover that they are

1 Beck and Beck-Gernsheim 2000. On the complexities of making and remaking arrangements for such a life, see Larsen, Urry and Axhausen 2008.

2 See Linder 1970. This is explored in Elliott and Urry 2010.

connected through a relatively short set of intermediaries. As many people state: 'It's a small world, isn't it?'

Life 'on the move' is the kind of life in which the capacity to be 'elsewhere' at a different time from others is central. Email, SMS texting, MP3 audio, personal DVD recorders, internet telephonic services enable people to seek escape from the constraints of pre-existing neighbourhoods under more fluid patterns and practices. Much equipment becomes part of that life.

Mobile practices also presuppose many other people whose lives can be relatively immobilised. These include check-in clerks, hotel room and aircraft cleaners, the repairers of mobile phone masts, those making fashionable clothes in sweatshops, baggage handlers, security guards on Iraqi pipelines and the conference organisation teams, who are all on-hand around the world in order to make a mobile 'just-in-time' life on the move just about feasible. Life 'on the move' appears to unfold faster and faster in the early days of the twenty-first century, as people become more reliant upon interdependent digital systems. Through the use of *miniaturised mobilities* (mobiles, laptops, iPods) people track the twists and turns of social life inherited and co-created with others. Through 'do-it-yourself' scheduling and re-scheduling people plan courses of action and forge plans with others that comprise complex interplays of connection *and* disconnection (Southerton 2001).

Places of Consumption

Thus far I have set out various elements of a high carbon mobile life. But such mobile practices have further major high carbon effects upon those very places where these networks intermittently encounter each other. Many such places have become centres for such encounters, for 'meetingness'. In the last couple of decades one place in particular has become emblematic of the new world order, the small former British Protectorate of Dubai which only became independent in 1971.

Dubai started drilling for oil in 1966 but soon the oil began to run out so a gigantic visitor, real estate and consumption economy replaced it. Instead of being a major oil producer, over 90 per cent of Dubai's revenue is now non-oil related (Davidson 2008: 1). Dubai is a huge consumer of oil, used to build islands, hotels and attractions in what was the world's largest building site, to transport in and out very large numbers of visitors and workers, and to provide spectacular cooled environments for visitors where average temperatures are over 40°C. This is a place of energy excess, of hugely high temperatures because of the unrelenting sun and a vast consumption of energy especially by air conditioners blowing full blast into the open air to make gardens cooler, and the indoor ski resort where sub-zero temperatures are maintained in the middle of a desert. Not surprisingly the UAE ranks second in the global league table of per capita carbon emissions, beaten only by its neighbour, Qatar.

The Dubai skyline has shown dozens of megaprojects on the go. These include two palm island developments that extend the coastline by 120 kilometres; a string of new islands shaped like the world; vast shopping complexes; a domed ski resort and other major sports venues; the world's tallest building, the Burj Khalifa; the world's largest hotel, the Asia-Asia with 6,500 rooms; and the world's first 7-star hotel, the Burj Al Arab with 100-mile views.[3] This is a place of literal monumental excess. Dubai's ambition is to be number one in the world. If it is to become such a luxury-consumer paradise especially for Middle Eastern and South Asian visitors 'it must ceaselessly strive for visual and environmental excess' (Davis 2007: 52). And it has sought to achieve this through architectural gigantism and perfectibility, with many massive simulacra for play, of dinosaurs, the Hanging Gardens of Babylon, the Taj Mahal, the Pyramids, and a snow mountain, simulacra more perfect than any original. This is a place of overconsumption, of shopping, eating and drinking, but also of extensive prostitution and gambling. Guilt, in what is nominally an Islamic country, is not to consume to the 'limit' (see Diken and Lausten 2005).

Dubai is only made possible by migrant contract labourers travelling from Pakistan and India and then bound to a single employer (Davis 2007: 64–6). This is accumulation through dispossession (Harvey 2005). And as befits a paradise of consumption, 'its official national holiday … is the celebrated Shopping Festival, a month-long extravaganza' (Davis 2007: 60). There is a YouTube video on Dubai entitled *Do Buy*. It is a 'city built on glitz and bling' (Bedell 2010). It thus developed into the iconic place of consumption excess, both by visitors and also by (rich) locals. As Davis and Monk say: 'the winner-takes-all ethos is unfettered by any remnant of social contract and undisturbed by any ghost of the labor movement, where the rich can walk like gods in the nightmare gardens of their deepest and most secret desires' (Davis and Monk 2007: ix, Davidson 2008: 181).

Such new places of attraction are designed, constructed and imagined as places of and for the practices of movement, for the forming and complex reforming of transnational lifestyles (see Walsh 2009). Indeed Dubai 'has become a place where global flows of capital, people, culture, and information land and intersect' (Junemo 2004: 184). And more generally there are increasingly many places where the self gets fashioned and refashioned through being able to consume goods and services from around the world within designed, themed environments. Such consumption presupposes large numbers of consuming visitors roaming the world and consuming places made for them and for their excessive and playful consumptions, often conducted in and through complex relations with work colleagues, family, friends, lovers and partners, including especially those pairs who are 'living apart together' (see Walsh 2009).

This more generally reflects shifts in how many people experience 'place'. Places are less-and-less something that is belonged to and moved within through

3 See http://www.burj-al-arab.com/. On Dubai, see Junemo 2004; Davis and Monk 2007; Schmid 2006; Davidson 2008; Walsh 2009.

slow modes of movement. Places have become more something experienced as visitors. People are increasingly connoisseurs and collectors of places which they visit from time to time using fast modes of movement. This connoisseurship and hence the further spreading of mobility has come to apply to very many places around the world. These are known about, branded, themed and collected. Markers of place include good beaches, clubs, views, walks, restaurants, mountains, unique history, surf, music scene, historic remains, good jobs, food, landmark buildings, gay scene, party atmosphere, universities and so on. As fast as places are produced and marketed, so they are visited from afar. Places are thus more a set of abstract characteristics as indexed in multiple 'guides' and less sites that are moved slowly about within. They are less places of 'land' and more of 'landscape'.[4] There is a high carbon construction and reconstruction of places principally visited and assessed from afar.

This means that travel practices can move on and leave behind places no longer of global significance. In such a 'touring' world, places come and places go, some places speed up and others slow down or die, as the connoisseurs of such places leave them behind. Places then 'need' retheming at significant financial and carbon cost.

In the neo-liberal epoch new or designed places of consumption excess have been especially developed, involving various 'dispossessions' of workers' rights, of peasant land-holdings, of the state's role in leisure, of neighbourhood organisations, and of customary rights. David and Monk refer to these as 'evil paradises'. Examples include Arg-e Jadid, a Californian oasis in the Iranian desert; the $40 billion 2008 Olympics in Beijing; Palm Springs gated community in Hong Kong; Sandton in Johannesburg; and Macao. The last of these involves a $25 billion investment oriented to providing leisured gambling for the reinvented China and the 1.3 billion Chinese. Simpson notes that in the very same year that Macao was declared a Unesco World Heritage site the first steps occurred in constructing a vast 'Fisherman's Wharf' of themed reproductions of a Roman Coliseum, buildings from Amsterdam, Lisbon, Cape Town and Miami, and an exploding volcano (Davis and Monk 2007, Simpson 2008).

These places of high carbon 'consumption' have various characteristics. Their speculative development is often only made possible by large infrastructural projects involving celebrity architects. The associated new transport systems are typically paid for with public money. Building such places typically involves the profligate consumption of water, power and building materials in order to build on reclaimed land (as in Macao or Dubai) or in deserts (Gran Scala, Abu Dhabi). Such sites are highly commercialised with many simulated environments, more 'real' than the original from which they are copied. Gates, often digitised, prevent the entry and exit of local people and those visitors who do not have signs of good credit. Norms of behaviour are unregulated by family/neighbourhood with bodies being subject to many different forms of commodification. They are

4 See Urry 2007, chapter 12, on the distinction between land and landscape.

beyond neighbourhood with liminal modes of consumption and only pleasure and no guilt unless insufficient consumption occurs. Indeed these places are sites of potential mass addiction especially gambling and related forms of criminality. Such consumption zones come to be globally known for their consumption excess which marks that zone off as distinct. Thus: 'Ibiza is a post-Oedipal social space in which there is no law (and no misbehaviour).'[5]

And we are all implicated in such high carbon excess!

First, these places establish exemplars of development which developers elsewhere then seek to emulate and to produce mass market versions of such places of excess, including themed restaurants, downmarket resorts and suburban shopping malls. So what gets imagined and constructed at the select or elite end then moves to mass market forms. Thus: 'Atlantic City … is just one example of a wider global trend in economies of excess, spectacle, and speculation', of the toxic combination of spectacle-making, speculation and high carbon excess (Sheller 2008: 123). While commentators on the Mediterranean describe 'the excessive character of mass tourism … the limits of mass tourism are not those of shortage but of excess, with excess of speculation, excess of hedonism, excess of drugs and alcoholism, excess of pollution and water consumption' (Pons, Crang and Travlou 2009: 171).

Second, many of these places attract the super-rich 'offshore' and this reduces the tax-take of states and lowers the level and scale of public provision especially of low carbon initiatives. This reduced tax take can affect both the resort and the country from which visitors travel. The scale of such tax havens and of resulting tax losses is immense, with the US estimate approaching $100 billion a year.[6]

Third, these places of consumption are part of a 'splintering urbanism', excluding many people and hence reducing the availability of public space more generally around the world (see Graham and Marvin 2001). This is shown in the ways that many beaches throughout the world are closed or semi-closed to 'locals' or to poorer visitors from elsewhere.

Fourth, the development of these places for visiting has the effect of further extending the mobility field and hence producing further inequalities between the economic and network capital rich and the economic and network capital poor. In turn this extending mobility field further ratchets up the scale and impact of high carbon systems.

Finally, these dreamworlds for the super-rich provide models of lives that, through global media and travel, enflame the desire for similar kinds of experience in much of the world's population. Davis and Monk argue that these 'dreamworlds enflame desires – for infinite consumption, total social exclusion and physical security, and architectural monumentality', and we might add for high carbon lives lived at-a-distance (Davis and Monk 2007: xv).

---

5 As shown in Diken and Laustsen 2005: 110.

6 http://www.guardian.co.uk/business/2009/feb/02/tax-gap-avoidance [accessed 8 June 2009].

Beyond Oil

Oil played a significant part in the complex story of Dubai. More generally, today's global economy is deeply dependent upon, and embedded in, abundant cheap oil. Most industrial, agricultural, commercial, domestic, and consumer systems are built around the plentiful supply of oil or 'black gold'.

During the second half of the nineteenth century from 1859 onwards, there were increasing discoveries of oil. From the 1890s onwards it came to be the fuel that moved cars and trucks (Dennis and Urry 2009: chapter 2). While oil in the form of kerosene powered aircraft after the Wright brothers' 'invention' of airflight in 1903 (Cwerner, Kesselring and Urry 2009). The increasingly mobile twentieth century was thus path dependent upon cheap and plentiful 'mobile' oil.

The 'social practices' of modern life that we have been examining came to involve regular and predictable long distance movement of people (commuters, holidaymakers, and families and friendship groups) and of objects (including water and food). These became habitual. Today's global economy and society became deeply path dependent upon abundant cheap oil: '[O]il powers virtually all movement of people, materials, foodstuffs, and manufactured goods – inside our countries and around the world' (Homer-Dixon 2006: 81). Oil is remarkably versatile, convenient and was, during the twentieth century, relatively cheap. It became vital to virtually everything that *moves* on the planet including many foodstuffs and, in the form of plastic, to most manufactured goods (Maass 2009: 194). The worldwide transport sector has a dependency on oil of at least 95 per cent, accounting for about half of all oil consumption and about one-fifth of all energy consumption. Ninety-five per cent of all goods in shops involve the use of oil. The world consumes more than 80m barrels per day. There has been an annual average growth rate of oil production of more than 2 per cent (Pinchon 2006, Leggett 2005: 21).

But in the *twenty-first* century oil is a huge problem. This is for three reasons. First, its widespread use generates greenhouse gas emissions and hence hugely contributes to climate change. John DeCicco and Freda Fung simply note that 'America's cars are one of the world's largest sources of global warming pollution' (DeCicco and Fung 2006: 1). Second, the supply of oil is finite and some argue that we have reached or are about to reach a peak in oil supply. Third, for machine-based movement there is so far no alternative to oil, there is no plan B that could begin to replace oil that accounts for almost all current transportation energy.

The peak oil hypothesis states that extracting oil reserves has a beginning, a middle and an end. At some point it reaches maximum output, with the peak occurring when approximately half the potential oil has been extracted. After this peak, oil becomes more difficult and expensive to extract as each oil field passes the mid-point of its life.[7] Oil production typically follows a bell-shaped curve

7 See http://www.peakoil.com. For a parallel analysis of 'peak gas', see Darley 2004.

following Hubbert's peak model.[8] This does not mean that oil suddenly runs out but that the supply of oil drops and prices rise, sometimes dramatically in the form of spikes. After peak the oil extraction process within that field becomes less profitable. This is known as the Energy Return on Energy Investment (EROEI).

Some suggest that global peak oil occurred as early as the late 1990s. Others estimate that oil peaked in 2004 or 2005.[9] More optimistic predictions locate peak oil around the 2020s or 2030s. Even the International Energy Agency now maintains that the peaking of oil will occur but around 2020.[10] The largest oilfields were discovered over half a century ago, with the peak of oil *discovery* being 1965. There have been no really vast discoveries of oil since the 1970s. Three to four barrels of oil are now consumed for every new one that is discovered. The peaking of oil in the US, which is where the global addiction to oil began, occurred in 1970 although in the 1960s the 'problem' of oil was that there was too much and the price too low! The US now imports 60 per cent of its supply and this will rise to 75 per cent by 2030.[11]

It thus seems a fair estimate that oil production worldwide peaked by around 2010.[12] Thus over the long term oil will be increasingly expensive and there will be frequent shortages because of the fall in *per capita* availability around the world. There is not enough oil to fuel worldwide systems of global consumption that need, with 'business as usual', to double by 2050 (Homer-Dixon 2006: 174). Thus 'industrial civilization is based on the consumption of energy resources that are inherently limited in quantity, and that are about to become scarce … in the end, it may be impossible for even a single nation to sustain industrialism as we have known it during the twentieth century' (Heinberg 2005: 1).

Thus the 'petroleum interval' in human history could turn out to be only a brief (twentieth) century or so of Easy Oil. Energy will be increasingly expensive and there will be frequent shortages, especially with the world's population continuing to soar. Both the US Department of Energy and the International Energy Agency suggest that global demand for oil has been increasing by 2 million barrels a day over the last few years. This oil demand could rise from 86 million barrels a day to 125 within the next two decades, this huge increase having to be mainly met from Middle Eastern oil fields. However, few OPEC countries had more production capacity in 2006 compared with that in 1990. With Saudi Arabia holding an estimated 22 per cent of global oil reserves, many commentators doubt whether

8 In 1956, M. King Hubbert, a geologist for Shell Oil, predicted that the peaking of US oil production would occur around 1965–1970 (actual peak was 1970). This became known as the Hubbert curve and Hubbert peak theory (or peak oil).

9 Colin Campbell of the Association for the Study of Peak Oil and Gas (ASPO); and Deffeyes 2005.

10 2020 vision', *The Economist*, 10 December 2009: Leggett 2005.

11 Strahan 2007: chapter 2; Burman 2007: 26–9 although see Bower 2009: chapter 15

12 Heinberg 2005. See Leggett 2005, chapter 2, on how to prospect for oil and the diagram on p. 57.

it is capable of significantly increasing its production. Indeed oil supplies are concentrated amongst few countries and this increases the likelihood of uneven and problematic supplies. These oil interests, both corporations and states, have consistently exaggerated the size of their reserves, upon which estimates official global figures depend. Shell was notably found out in 2004 for over-estimating its reserves by 24 per cent (Maass 2009: 19, Dodson and Sipe 2008: chapter 3. These carbon interests maintain that the peaking of global oil is further away in time and relatedly are leading funders of climate change scepticism and related lobbying against regulation and intervention in energy markets.[13]

The oil surplus period of the late 1980s and early 1990s led to oil trading at a mere $10 per barrel (in 1998). However, by mid-2008, the price per barrel of oil had dramatically risen to over $135. Airlines were beginning to collapse; US car manufacturers were noting reduced sales especially of larger models; the US was no longer the world's largest car market; and around the world slower driving speeds were being recorded. Instabilities in oil producing countries and greatly increased speculation de-stabilised oil supply, price and reduced energy security. Such fluctuations result in intermittent oil price surges that almost immediately impact upon oil-dependent industries (which is almost all). More generally, American and European foreign policies are driven by global oil interests. In the US increased access to oil sources from outside the US, since its decline in oil production in the 1970s, has led to its attempted subjugation of Middle Eastern oil interests in the name of the 'freedom' of US citizens to drive, to live in suburbs and to fly. This generated oil wars and continued support for extraordinarily undemocratic regimes.

Also impacting upon oil reserves is increasing energy consumption from the developing industrial economies, especially China and India. From 1999 to 2004 China's oil imports doubled. If China reaches the US's per capita level of car ownership 'it would have some 970 millions cars, 50 per cent more than the entire worldwide car fleet in 2003' (Girardet 2004: 136). The International Monetary Fund estimates that car numbers in China will increase from 21m in 2005 to a staggering 573m in 2050 and this is part of an almost sixfold global increase over this period (Chamon 2008: 243–96). Given thus the rapid urbanisation and industrialisation in the emerging markets of Asia and Africa, and especially in China and India, potential car growth is astronomic. If people in developing countries, especially on the back of rising economies, demand 'western' levels of private car ownership, this will transform domestic transport infrastructures, road safety, global world fuel resources and the global environment. This was reflected in the very mixed reaction to the exceedingly cheap People's Car to be built by Tata and sold in India in huge numbers.[14]

---

13 See on the politics, Bower 2009.

14 See http://www.tata.com/tata_motors/releases/20080110.htm [accessed 11 Jamuary 2008].

The Transition Towns movement interestingly seeks to organise around the global significance of the ending of cheap, plentiful oil, by moving from 'oil dependency to local resilience'.[15] But it may be that in a world of globally contested, and diminishing, oil and energy reserves, a rush for remaining resources will ensue. The main industrial states and corporations will try to secure available supplies and distribution channels (which is trickier since many pipelines run through unstable geo-political regions). Not having sufficient oil to sustain rising levels of global economic growth and consumption will generate significant economic downturns, more resource wars and lower population levels. Also, the world's fuel resources are under threat of petro-political blackmail from oil-producing states.

Heinberg sees the event of peak oil as hitting global energy markets within two decades or less, leading to much political and civil unrest. Kunstler (2006: 65) considers the systems effects to be dire:

> At peak and just beyond, there is massive potential for system failures of all kinds, social, economic, and political. Peak is quite literally a tipping point. Beyond peak, things unravel and the center does not hold. Beyond peak, all bets are off about civilization's future.

When oil production goes past peak, so also the size and general effectiveness of the world economy and society will pass peak (Stahan 2007: 123; Homer-Dixon 2009: 13). Indeed we might consider that one shock to the systems propelling the world to serious global climate change is a massive prolonged spike in oil prices caused perhaps by huge instabilities in one of the few major oil producing nations. The peaking of oil could do more to mitigate global climate change than all the well-considered climate change policies put together but only in the context of what would be huge reductions in the size of the global economy and society in a post-peak oil context.

The Great Crash and Oil

I now show how the probable peaking of oil has *already* had major economic and social consequences that could be a harbinger of future catastrophes. The Great (Economic and Financial) Crash of 2008 was partly activated by the speculative building and risky funding of extensive tracts of 'marginal' suburbs and related shopping and leisure developments within the US. There is significant potential for what Homer-Dixon terms 'synchronous failure' engendered by 'extreme events' that produce the 'convergence of stresses that's especially treacherous' (Homer-

15 Hopkins 2008; see the dramatic graph of past and present oil production in Heinberg 2005: 31.

Dixon 2006: 16). Such major stresses may all come about and amplify each other at more or less the same time.

Central to neo-liberalism has been the speculative intertwining of property and finance. This involves new forms of indebtedness directed to new kinds of property purchaser, the parceling up of these debts into new financial packages, and then the selling on of these derivatives so creating a financially complex 'house of cards'. From the 1980s onwards many new American suburbs were built, distant from city centres and not connected by mass transit which is anyway fairly rare. These suburbs, what Richard Ingersoll terms *Sprawltown*, depend upon car travel and hence upon cheap oil for the work, leisure and social lives of their residents (Ingersoll 2006). Cheap oil there was in plenty for much of this period. The US index of petrol prices in money terms was 134 in 1990 and the same (138) in 2000 (end of year figures). The roaring 1990s especially of house price inflation, which ran 2.5 times the increase in per capita income, was thus based upon the falling real price of petrol (Cortright 2008: 3). Such prices remained more or less constant until 2003 (145). Australia too was a society based upon cheap oil and extensive tracts of sprawltown (Dodson and Sipe 2008).

But then oil shortages generated a rise in petrol prices both worldwide and in the US. The oil price dramatically spiked reaching 302 by 2007 and a peak of 405 by 2008 (July). In February 2009 the petrol index was still higher than at the beginning of this process at 186 (http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_history.html; accessed 27 February 2009).

This suburban housing had been mainly 'sold' to people with 'sub-prime' employment, credit and housing histories. This involved new financial 'innovation'. So although the sub-prime housing is known to have been 'causal' within the events that 'triggered' the Great Crash, what has not been examined is how these sub-prime suburban tracts were driven to the brink by high levels of oil dependence and oil price spikes in the few years beforehand. This was the extreme event, the black swan, that 'came from nowhere' but which rocked the unstable US housing-finance system based upon unstable indebtedness. This oil price spike also seems to have put paid to the Dubai model of development since it has grown: 'Too high, too fast: the party's over for Dubai' with Abu Dhabi recently giving Dubai $10 billion to stave off economic collapse.[16]

So there was a very significant increase in petrol prices in the middle of this current decade. Cortright's research shows the dependence of suburban housing upon the price of oil and more generally on how the exceptional American housing boom was brought to a shuddering halt through the escalating price of petrol which tipped financially weak households over the financial brink. As the price of petrol increased, buyers of property had to reduce what they were able to pay for housing and at the same time had less money to pay for other goods and services including cars. According to Hamilton, the 'the oil price increase was one factor pushing

16 Lewis 2009. See Davidson 2008, chapter 8, on Dubai's connections with human trafficking, money laundering, slavery, gunrunning and Islamic terrorism.

home sales and house prices down' very rapidly.[17] Cortright maintains that 'in the heated atmosphere of the bubble, gas [ie petrol] price increases may have been the trigger that broke the expectations of continued growth' (Cortright 2008: 5). This resulted from the rising cost of lengthy commutes, of visits to friends and family and for shopping and leisure trips. These house price reductions in far-flung suburbs were most marked where there were no alternatives to the motor car and hence there was the greatest dependence upon the price *and* the availability of petrol. Households were spending up to 30 per cent of their income on travel. Indeed as a result of these processes there has been a 4.3 per cent reduction in the distances that are American travelling, the first downward shift of US mileage for 30 years or so (Ghazi 2008; Cortright 2008: 17.).

Thus house prices in commuter belts dropped very steeply, so much so that some suburbs came to be known as 'ghostburbs', full of for sale signs. This generated a more general reduction in consumer spending, similar to 1990–91 during the first Gulf War. These reductions in turn seem to have produced a marked decline in car sales. The iconic twentieth-century American car firms that have been such key constituents of American dominance are close to collapse because of the oil price increase and the ensuing Great Crash.

Conclusion

So in this chapter we have seen just how central many forms of movement are to the social practices of high carbon living. This pattern came to be locked in during the twentieth century, the century of oil. Neo-liberalism then massively ratcheted up the global scale of such practices. Oil was crucial to them and so far there seems no likelihood of eliminating that high carbon dependency without massive reductions in the scale and scope of these oil-dependent social practices. These practices depend upon and reinforce the carbon society and a Corbusier imagining of the future.

There are however a few signs of 'post-carbonism', with the Great Crash signalling that systems do not last for ever and that oil and resources more generally can bite back with interest. With 'post-carbonism' (rather than 'post-modernism') societies would overturn many components of the modern world and especially its carbon-heavy mobile machines that have become such key elements of mobile social practices. The decline in the per capita availability of oil as refigured by the Great Crash of 2008 may well transform such habitual social practices as a potential 'de-mobilisation' and an *Autogeddon* comes to stalk the world. Issues then of resilience, vulnerability and disasters may well be the topics for the upcoming century and its social science as the world moves beyond the carbon

17 James Hamilton, 'The oil shock and recession of 2008: Part 2' *2009 Econbrowser* http://www.econbrowser.com/archives/2009/01/the_oil_shock_a_1.html [accessed 10 March 2009].

century and its momentary period of carbon hubris. There do indeed seem some very powerful limits to growth. And maybe the American car industry can provide pointers here. Some commentators describe the 'perfect storm' that afflicted US and then Japanese car makers. This may be a first step in the 'de-mobilisation' of American and indeed western life more generally.

In that storm Detroit astonishingly symbolises such decline. It was the frontier city in the American motorised dream, the place where mobile modernity was really established and generalised, that really made America and hence the twentieth century. Now filmmaker Julien Temple describes Detroit's 'Last days'. There are empty ghost freeways, the rusting hulks of abandoned car plants, the blackened corpses of hundreds of burnt out houses with one in five empty, full grown trees spouting from the tops of deserted skyscrapers, half of its children live below the poverty line and almost half the adults are functionally illiterate. Most striking of all is that over a quarter of the inner city is already reclaimed by 'nature'. This is rather like, he says, the lost cities of the Mayan civilisation that played such a role in the collapse of civilisation literature examined above and which may similarly index the potential seriousness of multiple intersecting system failures. What happens in Detroit and the reclaiming of a carbon world by nature may provide important lessons for us all (Temple 2010).

When future generations sit their children down to tell the story of the Great Crash of the early twenty-first century and subsequent events of changing climates, they may begin with the parable of a remarkable place called Dubai. This was a place where nature could not be allowed stand in the way. Where there were no beaches, beaches were made, crafting them so that the Gods could see the shape of a palm tree or a map of the world. So much money, so fast, it was impossible to keep up with Dubai and its overcoming the limits of nature in the most inhospitable of environments.

There were a few problems. The money was borrowed. There was also no real economy. Dubai did not actually make anything. All that luxury was built on the backs of foreign workers, toiling in forms of modern bondage. Over a million men and women from across Asia turned Dubai from a sleepy village into a shimmering Arabian Las Vegas.

The place had to use colossal amounts of energy to combat the excess of sun. The sun is an astonishing source of energy as George Bataille famously noted but one that is very difficult to 'harness' (Stoekl 2007: 40–41). Bataille is perhaps the leading forerunner of a post-carbon analysis in examining the centrality of energy to economies. But for him there is always a surplus of energy, there is always the excess or 'accursed share' of the sun's energy which has to be used up or wasted.

But Dubai is this new century surely shows that there may be too much wastage and too little energy to offset the sun and its extraordinary and unrelenting energy. Dubai shows energy sources fighting against each other and how there can be massive and catastrophic energy depletion. As a result of such depletion this Arabian Las Vegas may slide back into the sand from where it had come from. Neo-liberalism summoned up some perfect mirages in the desert, in places

of excess energy use such as Dubai and of course in countless other places around the world seeking to conjure up more mirages of costless energy.

References

Beck, U. and Beck-Gernsheim, E. 2000. *Individualization*. London: Sage.
Bedell, G. 2010. A tall story of a city built on glitz and bling, *The Observer*, 10 January.
Bower, T. 2009. *The Squeeze. Oil, Money and Greed in the Twenty First Century*. London: Harper Press.
Buchanan, M. 2002. *Nexus: Small Worlds and the Groundbreaking Science of Networks*. London: W.W. Norton, 121.
Burman, S. 2007. *The State of the American Empire. How the USA Shapes the World*. London: Earthscan, 26–9.
Chamon, M., Mauro, P. and Okawa, Y. 2008. Mass car ownership in the emerging market giants. *Economic Policy, IMF*, 243–96.
Cortright, J. 2008. *Driven to the Brink*. Chicago: CEOs for Cities.
Cresswell, T. 2006. *On the Move*. London: Routledge.
Cwerner, S., Kesselring, S. and Urry, J. (eds) 2009. *Aeromobilities*. London: Routledge.
Darley, J. 2004. *High Noon for Natural Gas*. Vermont: Chelsea Green.
Davidson, C. 2008. *Dubai. The Vulnerability of Success*. London: Hurst and Company.
Davis, M. and Monk, D.B. (eds) 2007. *Evil Paradises*. New York: The New Press.
Davis, M. 2007. Sand, fear, and money in Dubai, in *Evil Paradises*, edited by M. Davis and D.B. Monk. New York: The New Press.
DeCicco, J. and Fung, F. 2006. *Global Warming on the Road*. Washington: Environmental Defense, 1.
Deffeyes, K. 2005. *Beyond Oil – the View from Hubbert's Peak*. New York: Hill & Wang.
Dennis, K. and Urry, J. 2009. *After the Car*. Cambridge: Polity, chapter 2.
Diken, B. and Laustsen, C.B. 2005. *The Culture of Exception*. London: Routledge.
Dodson, J. and Sipe, N. 2008. *Shocking the Suburbs*. Sydney: UNSW Press.
Elliott, A. and Urry, J. 2010. *Mobile Lives*. London: Routledge.
Ghazi, P. 2008. Gas guzzlers and "ghostburbs". *The Guardian*, 2 July.
Girardet, H. 2004. *CitiesPeoplePlanet*. Chichester: Wiley-Academy, 136.
Graham, S. and Marvin, S. 2001. *Splintering Urbanism*. London: Routledge.
Hamilton, J. 2009. The oil shock and recession of 2008: Part 2. *2009 Econbrowser*. Available at: http://www.econbrowser.com/archives/2009/01/the_oil_shock_a_1.html [accessed 10 March 2009].
Harvey, D. 2005. *The New Imperialism*. Oxford: Oxford University Press.
Heinberg, R. 2005. *The Party's Over: Oil, War and the Fate of Industrial Society*. New York: Clearview Books, 1.

Homer-Dixon, T. 2006. *The Upside of Down. Catastrophe, Creativity, and the Renewal of Civilization*. London: Souvenir.
Homer-Dixon, T. (ed.) 2009. *Carbon Shift*. Canada: Random House.
Hopkins, R. 2008. *The Transition Handbook*. Totnes: Green Books.
Ingersoll, R. 2006. *Sprawltown*. New York: Princeton University Press.
Junemo, M. 2004. "Let's build a palm island": playfulness in complex times, in *Tourism Mobilities*, edited by M. Sheller and J. Urry. London: Routledge.
Kellerman, A. 2006. *Personal Mobilities* London: Routledge.
Kunstler, J. 2006. *The Long Emergency: Surviving the Converging Catastrophes of the 21st Century*. London: Atlantic Books.
Larsen, J., Urry, J. and Axhausen, K. 2008. Coordinating face-to-face meetings in mobile network societies. *Information, Communication and Society*, 11: 640–58.
Leggett, J. 2005. *Half Gone. Oil, Gas, Hot Air and Global Energy Crisis*. London: Portobello Books.
Lewis, P. 2009. Too high, too fast: the party's over for Dubai. *The Guardian*, 14 February.
Linder, S. 1970. *The Harried Leisure Class*. New York: Columbia University Press.
Maass, P. 2009. *Crude World. The Violent Twilight of Oil*. London: Allen Lane.
Pinchon, P. 2006. *Future Energy Sources for Transport: Background*. Brussels: Future Energy Sources for Transport.
Pons, P.O., Crang, M. and Travlou, P. 2009. Corrupted seas: the Mediterranean in the age of mass mobility, in *Cultures of Mass Tourism*, edited by P.O. Pons, M. Crang and P. Travlou. Farnham: Ashgate.
Schafer, A. and Victor, D. 2000. The future mobility of the world population. *Transportation Research A*, 34: 171–205.
Schmid, H. 2006. Economy of Fascination: Dubai and Las Vegas as examples of a thematic production of urban landscapes. *Erdkunde*, 60: 346–361.
Sheller, M. 2008. *Always turned on, in Consuming the Entreprenerial City*, edited by A. Cronin and K. Hetherington. London: Routledge.
Simpson, T. 2008. Macao, capital of the 21st century. *Environment and Planning D: Society and Space*, 26: 1053–79.
Southerton, D. 2001. Squeezing Time: allocating practices, co-ordinating networks and scheduling society. *Time and Society*, 12: 5–25.
Strahan, D. 2007. *The Last Oil Shock*. London: John Murray.
Stoekl, A. *Bataille's Peak*. 2007. Minneapolis: University of Minneapolis Press, 40–41.
Temple, J. 2010. Last days. *The Guardian*. 11 March.
Urry, J. 2007. *Mobilities*. Cambridge: Polity.
Walsh, K. 2009. Geographies of the heart in transnational space: love and the intimate lives of British migrants in Dubai. *Mobilities*, 4: 427–45.

This page has been left blank intentionally