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Transport, Mobility, and the Production of Urban Space

Edited by
Julie Cidell and David Prytherch



Transport, Mobility, and the Production of Urban Space

The contemporary urban experience is defined by flow and structured by circulating people, objects, and energy. Geographers have long provided key insights into transportation systems. But today, concerns for social justice and sustainability motivate new, critical approaches to mobilities. Reimagining the city prompts an important question: How best to rethink urban geographies of transport and mobility? This original book explores connections—in theory and practice—between transport geographies and “new mobilities” in the production of urban space. It provides a broad introduction to intersecting perspectives of urban geography, transport geography, and mobilities studies on urban “places of flows.” Diverse, international, and leading-edge contributions reinterpret everyday intersections as nodes, urban corridors as links, cities and regions as networks, and the discourses and imaginaries that frame the politics and experiences of mobility. The chapters illuminate nearly all aspects of urban transport—street regulation and roadway planning, intended and “subversive” practices of car and truck drivers, planning and promotion of mass transit investments, and the restructuring of freight and logistics networks. Together these offer a unique and important contribution for social scientists, planners, and others interested in the politics of the city on the move.

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Francisco Javier Carrillo, Tan Yigitcanlar, Blanca García and Antti Lönnqvist
- 53 Migration, Risk and Uncertainty**
Allan M. Williams and Vladimír Baláž
- 54 Transport, Mobility, and the Production of Urban Space**
Edited by Julie Cidell and David Prytherch

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From Julie to Ted, Jean, Joseph, and Josephine
From David to Kathleen, Eleanor, Vivian, and Mary Ann

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Contents

<i>List of Figures</i>	xiii
<i>List of Tables</i>	xv

Approaching the City as Place of Flows

Foreword 1: Transportation Geographies and Mobilities Studies: Toward Collaboration	3
SUSAN HANSON	
Foreword 2: Mobilizing Transportation, Transporting Mobilities	12
MIMI SHELLER	
1 Introduction: Transportation, Mobilities, and Rethinking Urban Geographies of Flow	19
DAVID PRYTHERCH AND JULIE CIDELL	

PART I

Intersections: Everyday Places as Nodes

2 Rules of the Road: Choreographing Mobility in the Everyday Intersection	45
DAVID PRYTHERCH	
3 Concrete Politics and Subversive Drivers on the Roads of Hyderabad, India	64
BASCOM GUFFIN	
4 A Bridge Too Far: Traffic Engineering Science and the Politics of Rebuilding Milwaukee's Hoan Bridge	81
GREGG CULVER	

PART II

Corridors: Links in the Network

- 5 **From Climate Fight to Street Fight: The Politics of Mobility and the Right to the City** 101
JASON HENDERSON
- 6 **The Social Life of Truck Routes** 117
PETER V. HALL
- 7 **Uncanny Trains: Cities, Suburbs, and the Appropriate Place and Use of Transportation Infrastructure** 134
JULIE CIDELL

PART III

Networks: Cities and Regions in Wider Context

- 8 **Place-Making, Mobility, and Identity: The Politics and Poetics of Urban Mass Transit Systems in Taiwan** 153
ANRU LEE
- 9 **Contesting the Networked Metropolis: The Grand Paris Regime of Metromobility** 172
THERESA ENRIGHT
- 10 **Towards a City-Regional Politics of Mobility: In Between Critical Mobilities and the Political Economy of Urban Transportation** 187
JEAN-PAUL D. ADDIE

PART IV

Circulation: Assemblages and Experiences of Mobility

- 11 **Selling the Region as Hub: The Promises, Beliefs, and Contradictions of Economic Development Strategies Attracting Logistics and Flows** 207
MARKUS HESSE
- 12 **The Politics of Public Transit in Postsuburban Toronto** 228
CHRISTIAN METTKE

13	Place-Framing and Regulation of Mobility Flows in Metropolitan ‘In-Betweens’	245
	SOPHIE L. VAN NESTE	

14	‘Peace, Love, and Fun’: An Aerial Cable Car and the Traveling Favela	263
	BIANCA FREIRE-MEDEIROS AND LEONARDO NAME	

Moving Forward

15	Rethinking Mobility at the Urban-Transportation-Geography Nexus	281
	ANDREW E. G. JONAS	

	<i>Contributors</i>	295
	<i>Index</i>	299

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Figures

2.1	Intersections like this in Hamilton, OH are ubiquitous and uniform settings for everyday mobility.	47
2.2	Intersections like Main/MLK are ‘controlled’ through signs, signals, and standard markings (shown here) (Source: FHA, 2012).	55
3.1	An attempt to calm traffic near Space Station’s intersection via signage is unsuccessful.	72
4.1	Case study location, Milwaukee’s Hoan Bridge.	87
4.2	Excerpts from WisDOT document depicting LOS impact of Alternative 1A as a “red flag” and “major concern.”	90
6.1	Major Road Network (2014) mapped by the South Coast British Columbia Transportation Authority.	122
7.1	Map of the Chicago region, including CN and EJ & E lines.	136
7.2	At-grade crossing of EJ & E tracks at Old McHenry Road, Hawthorn Woods, IL.	141
8.1	“The Dome of Light,” Kaohsiung MRT Formosa Boulevard Station.	165
11.1	The spatial representation of <i>Venlo central</i> .	215
11.2	The spatial representation of <i>Wallonia central</i> .	219
12.1	Conceptualizing the techno-urban development path.	232
12.2	Transit City and residents without a Canadian passport.	237
12.3	Techno-Urban Development Path of Public Transit in the GTA.	240
13.1	The Randstad, with its four main cities.	250
14.1	The favela from above.	271
14.2	Palmeiras, the last cable car station at Complexo do Alemão.	272

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Tables

8.1	List of acronyms	155
13.1	Definitions of the key notions used to study place-framing.	248

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Approaching the City as Place of Flows

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Foreword 1

Transportation Geographies and Mobilities Studies

Toward Collaboration

Susan Hanson

I recently gave a talk about transportation to a group of highly accomplished social scientists from diverse fields (none from geography or transportation) and began with a simple observation: The essence of transportation is not planes, trains, and automobiles, but rather mobility and access. I then pointed out that transportation is implicated in just about everything else, especially those areas that people with a policy bent—like those in that audience—are interested in: employment, environment, climate change, sustainability, national security, inequality, health, education, energy, family life, information technology, cybersecurity, access to food, the political process itself. Is any major policy area untouched by transportation? After the talk, several in the audience told me these introductory remarks—which are simple, accepted basics in human geography—came as a ‘eureka’ moment for them. They’d never thought of transportation in this way before and confessed with some embarrassment that they found this ‘new’ view of transportation far more engaging than what they had thought the field was all about.

I don’t really know where people get the idea that transportation *is* planes, trains, and automobiles (no doubt there’s an interesting study lurking in that impression), but I wonder if the prevailing goals and strategies of traditional transport planning—along with the familiar materiality of transportation infrastructure—might understandably underwrite such a view. From its inception, transport planning has focused on ‘saving’ time, through its almost exclusive emphasis on motorized travel and on increasing speed, which has been accomplished via designing ever faster modes of travel (planes, trains, and automobiles) and building ever larger and straighter infrastructure (airports, bridges, tunnels, superhighways) to accommodate high-speed travel. That simply walking to a neighborhood store might also be considered transportation, and might even be considered more pleasurable than driving to a supermarket, can get lost in a fixation on speed and the technologies that support and promote it.

Transportation—in all its forms—is woven into the fabrics of our lives and the places we live, from the dwelling-unit scale to the scales of the neighborhood, region, and globe. Because transportation permeates places and lives,

it is far more than just a means of reaching a destination. It is deeply implicated in the economic, social, political, and cultural well-being of places. It can also be a source of pleasure and annoyance, a wellspring for feelings of pride or insecurity, the basis of a sense of entitlement or exclusion; it can be enabling and simultaneously constraining. In fact, as editors Julie Cidell and David Prytherch point out in their introduction to this book, transportation is rife with dialectics and contradictions: movement/stability, nodes/links, dwelling/mobility, winners/losers, self/other, flows/spaces, among others.

Transportation geographies and mobilities studies have both explored these contradictions, sometimes pursuing different goals, often using different methodologies, and frequently competing for intellectual territory. For more than 50 years transportation geographers and other social scientists have analyzed transportation systems and processes, primarily using the tools of quantitative social science and engineering. More recently, the field of critical mobilities studies has emerged to focus on the experiential and cultural dimensions of movement. My aim in this brief essay is to illuminate some of the common threads in transportation geographies and mobilities studies, to point to some of the ways in which mobilities studies grow out of transportation geographies, and to contend that close collaboration between the two is sorely needed to tackle a suite of pressing problems, such as sustainability. I use the plural 'geographies' and 'studies' intentionally to signal that neither endeavor is monolithic or unitary; each category masks considerable diversity, some associated with change over time, some with differences in goals and foci. To lay the groundwork for understanding the evolution of these two intersecting fields, the emphasis here will be on transportation geographies, particularly the early decades of that field. Because the editors delve into the history of transportation geographies in some detail in their introduction, this preface will sketch only broad outlines. The changing contexts within which each of these fields has developed are a key part of the story.

One need hardly note that since WWII much has changed within the social sciences and the discipline of geography, as well as in society writ large in the United States and around the world. These interwoven societal and disciplinary changes are essential to understanding transportation geographies and their relation to emerging mobilities studies.

What was the context within which transportation geography emerged? Transportation principles were at the core of the economic geography of the 1950s and 1960s, which itself was grounded in nomothetic (generalized) theories as opposed to ideographic (particularized) case studies.¹ The so-called quantitative revolution of the late 1950s and 1960s was only in part about adopting quantitative methods; more important was the call to make geography a 'systematic' science, one focused on illuminating general principles of spatial organization (e.g., Berry and Marble 1968; Abler, Adams, and Gould 1971). Transportation in the form of connectivity between places played a starring role.

Also important to the early days of transportation geography was the larger post–World War II context of escalating car ownership, mobility, and urbanization in North America and elsewhere. These changes, prompted by growing affluence and increasing suburbanization, posed very real challenges for planners: how to accommodate all this urban growth and how to keep automobiles moving so as to prevent strangulation of the cities. The field of modern urban transportation planning emerged in the U.S. to take up this challenge, with the primary responsibility falling on civil engineers, the group traditionally involved in designing and building infrastructure, including roads (e.g., the Chicago Area Transportation Study, completed in the late 1950s and described in Black 1990). In the calculus of traditional urban transportation planning, congestion is the enemy and more infrastructure, known in the planning realm as more ‘capacity,’ is the solution (Mitchell and Rapkin 1954). Planners and engineers now know that they cannot build their way out of congestion, because more capacity tends to generate more travel.

Civil engineers are not social or behavioral scientists, yet designing transportation systems to accommodate growth in mobility while keeping congestion to a minimum (the traditional goal) requires at least some understanding of social and behavioral processes. Transportation geographies are not the same thing as urban transportation planning, but the two have become intertwined, in large part because transportation geographers *are* trained in the social and behavioral sciences. Concepts embedded in behavioral geography (e.g., Cox and Golledge 1969), which emerged in the late 1960s, are one example of how transportation geographers have influenced transportation planning.

From its inception transportation planning has used zones (areas) as the units of analysis (the origins and destinations of trips) to measure and model flows of people and goods so as to estimate the location and sizing of infrastructure. Data for these zones represent aggregations of individuals and households for that area—individual differences within zones are lost. Behavioral geography, however, focuses on the individual or the household as units of analysis, and (more important) shifted attention away from the unitary understanding of humanity embodied in the concept of ‘economic man.’ In other words, a major contribution of behavioral geography was to recognize the importance of differences among people and in how people make mobility-related decisions, an insight that enables consideration of perceptions, values, preferences, and the like, and queries the sources of those differences (e.g., Pipkin 1986).

In the early 1970s behavioral geographers—along with some economists and civil engineers—with interests in transportation began to point to the value of adopting disaggregate approaches in understanding human mobility and in transportation planning. Such approaches are now an accepted part of transportation planning practice, not so much in the macromodels for urban regions (although they are increasingly being used there), but, for

example, to identify people who lack adequate mobility to meet their daily needs or to design intra-neighborhood-scale infrastructure to foster walking and biking. One reason that behavioral geographers were able to communicate effectively with economists and civil engineers in the transportation arena is that they were/are grounded in a quantitative-analytic, data-rich research tradition.

For these and other reasons, the early 1970s saw the dawning of the explicit recognition that transportation was not just about infrastructure *but also about people*. Torsten Hagerstrand's influential 1970 article, "What About People in Regional Science?," not only introduced the concepts of time-geography but could also have been called "What About People in Transportation?" (Hagerstrand 1970). The precepts of time-geography are powerful, but proved difficult to operationalize empirically (i.e., to examine the space-time paths of large samples of individuals or of groups) until the advent of well-developed GISs and high-speed computers. With these technologies now well in place, time-geography is increasingly used as a framework for understanding urban mobility, especially new forms of mobile device-based mobility and other emerging mobility trends.

Mention of computing power raises another key dimension of the societal context within which transportation geography first emerged: Digital computing was in its infancy, or perhaps still in gestation, so from a research standpoint analyzing large data sets, especially those with spatially explicit variables, was exceedingly cumbersome. And of course the Internet, social media, and mobile devices—all of which play increasingly important roles in shaping human mobility—were barely imagined. Indeed, the first scholars to ask how communications technology might affect travel were thinking of the impact of the telephone (e.g., Abler 1975).

The expert-driven way in which transportation planning was carried out in the early years (1950s and 1960s), and the changes that were set in motion as a result of this top-down approach, set the context for shifts within transportation geography in the 1970s. It is significant in the context of this book, which is conceptually grounded in urban geography, that—within geography—it was scholars with strong backgrounds in intraurban, and especially urban-social, geography that initiated these fundamental shifts in mobility-oriented studies. With its long held focus on multifaceted dimensions of cities in terms of those dimensions' interrelatedness in place and across space (e.g., residential, industrial, commercial land uses; the social, economic, and political aspects of urban life; the influences of connectivity between and among settlements), the theoretical framework of urban geography was perhaps not an unlikely midwife for these shifts in transportation geography that occurred in reaction to early urban transportation planning efforts. In particular, the social and environmental externalities of major transportation infrastructure projects—especially urban freeways—were essentially ignored in the early days of highway building. Highways were built through urban neighborhoods, usually in places where the residents

had little political power or voice; freeways significantly increased accessibility for some groups (e.g., those living near interchanges) while significantly disrupting urban life in many places (e.g., by increasing noise, decreasing air quality, reducing access, destroying neighborhoods, and highlighting disenfranchisement).

However, by the end of the 1960s freeway revolts were in full swing in the U.S., with activists focusing their agenda on ensuring public participation and voice in the planning process and minimizing adverse environmental impacts, such as the destruction of neighborhoods or animal habitat. The passage of the National Environmental Policy Act (NEPA) in 1970 made public participation and formal review of potential environmental impacts integral to the planning process for all projects involving federal funds in the U.S. freeway revolts. Along with citizen backlash against large-scale 'urban renewal' projects of the 1950s and 1960s in the U.S., this led, in the early 1970s, to advocacy planning, in which planners work pro bono on behalf of disenfranchised neighborhoods and groups, and to participatory planning, which aims to involve all voices in a community in the planning process. Clearly a reaction to earlier, experts-only approaches, such democratization highlighted key questions about inequalities, inequities, and power imbalances in the deeply political process of planning the transportation system. To whom do NEPA and other laws give voice? Who will participate? Whose values will guide the process? Whom will a project benefit? Whom will it affect adversely?

The research of social scientists, and particularly human geographers, interested in this nexus of issues put the social, political, ethical, and, to some extent, institutional dimensions of transportation on the research agenda in the 1970s and 1980s. Examples abound. Economist John Kain (1968) pointed out that members of minority groups trapped in urban ghettos by residential segregation and inequities in housing markets lacked access to employment, which had been rapidly suburbanizing since WWII. Sociologist David Caplovitz (1967) documented that residents of low-income neighborhoods often pay more than others for the same or inferior goods—especially food—because they lack the needed mobility to travel outside their neighborhoods. In addition, geographers made diverse and important contributions. David Ley (1974) demonstrated the devastating impacts (especially on children and pedestrians) of a major highway through an impoverished African-American Philadelphia neighborhood. Roger Kasperson and Myrna Breitbart (1974) analyzed the complexities of giving voice to the powerless via advocacy and participatory planning. David Hodge (1981) showed that subsidies to the Seattle transit system were disproportionately borne by low-income urban residents, who also received inferior service compared with their suburban counterparts. David Banister (1980) examined variations in individuals' access and mobility in rural parts of Oxfordshire, UK. Jacky Tivers (1985) delved into the access and mobility issues facing women with young children, and others began to document gender inequalities in

access: Sophie Bowlby (1979) in the context of access to grocery stores in Oxford, UK, and Susan Hanson and Perry Hanson (1980) for travel activity patterns in Uppsala, Sweden.

Beyond work in the economic geography tradition—from which transportation geography had emerged—by the early 1970s the social and political elements of transportation had become central to transportation studies itself. And they have remained so ever since. But such social and political dimensions did not then include the cultural. Cultural dimensions of transportation, mobility, and access received little attention until geography and other social sciences began to absorb the messages emanating from feminist and cultural studies. Likewise, quantitative approaches remained predominant in studies of mobility and access until the influences of the qualitative methods being used in sociology, anthropology, and feminist studies were felt. Against this historical backdrop, mobilities studies, spearheaded mainly by sociologists, emerged in the early 2000s to highlight the long absent—and hugely important—dimension of culture (and related elements) and the potential richness of qualitative approaches to questions of mobility, access, and transportation.

Consider for a moment how distinct the disciplinary and societal contexts of the middle of the 20th century were compared to the dawn of the 21st (when mobilities studies first appeared). Culture had been drummed out of the spatial science side of the discipline in the late 1950s as too ‘soft’ and therefore too hard to measure and model; but by 2000 its importance was once again widely appreciated within geography. Whereas in 1950 many parts of the U.S. and the world lacked electricity and telephones, mobilities studies came into a world in which cell phones were widespread, the Internet was diffusing, and social media were on the horizon. Once hailed as a marker of progress, the growth in vehicle miles traveled in the U.S. and around the world had become a source of multiple concerns. Additionally, the hegemony of the automobile—itself the product of intentional planning and policy—had come to prompt concerns, not only about the social and political inequities still permeating the transportation/mobilities arena and the adverse impacts of high-speed motorized mobility on quality of urban life, but also about relatively newer concerns surrounding resource (especially fossil fuel) consumption and associated assaults on the environment, health, safety, and the global climate; rising congestion; the geopolitical complexities of petroleum reliance; and the very sustainability of planet earth.

To these and other problems, mobilities studies have brought fresh approaches and different perspectives. In addition to welcoming qualitative methods and fully recognizing the significance of culture and values, mobilities studies explore people’s experiences and associated meanings of travel and of immobility. Such studies appreciate the generative roles of symbolism and discourse in shaping the mobilities patterns and the transport infrastructure that have long interested transportation geographers.

These perspectives have enabled mobilities scholars to shine new light on the political processes and conflicts surrounding mobility-related projects throughout the world.

Clearly, mobilities studies have brought new dimensions of understanding to questions of access and mobility. At the same time, mobilities studies share a long history with transportation geographies, perhaps best illustrated by the long list of enduring themes that span and permeate both traditions: mobility, access, networks (nodes and links, places and flows), connections, connectivity, scale, social justice, externalities, politics, citizen involvement, activism, and governance, among others. Mobilities scholars have sometimes tried to distance themselves from this shared history, emphasizing differences over commonalities and shared interests. But the seriousness of the problems now confronting global society will require collaboration and all the intellect that can be brought to bear from every angle. The perspectives of mobilities studies *and* those of transportation geographies together have a much greater chance of charting ways forward than would either one flying solo. The conundrums demanding such collaboration are many, among which are: How will mobile technologies and new forms of mobility (e.g., car sharing) change urban life? What strategies will move the world most quickly, effectively, and justly to a low-carbon future? How best to unravel the complex relationships between transportation and prosperity? How best to accommodate a diversity of values about mobility and dwelling places in envisioning a viable future for humanity?

These and other pressing questions demand an active and robust collaboration between transportation geographies—with their still strong theoretical, quantitative tradition—and mobilities studies, with their orientation toward questions of culture, experience, meanings, and qualitative approaches. As I have argued elsewhere (Hanson 2010), transportation policies aimed at promoting sustainability (as just one example) cannot be based simply on the large sample, quantitative studies of mobility patterns that show, *inter alia*, that some population groups engage in less vehicular travel (and thereby demonstrate ‘more sustainable’ travel patterns). These studies alone are an insufficient policy guide because they leave aside the question of what reduced travel means to, and for, those travelers: Is it the outcome of choice, a reflection of, say, a conscious effort to reduce fossil fuel consumption? Is it an indicator of deprivation, the result, say, of an inability to drive? Or does the reason lie elsewhere? Answering these questions of meaning, usually via in-depth, qualitative studies with relatively small samples of people (by necessity), is imperative to crafting policies that will be equitable while moving the transportation system toward a more sustainable future. As this example illustrates, both wellsprings of expertise—transportation geographies and mobilities studies—and no doubt others as well will be essential for moving forward. Other policy fronts that require a joint effort are legion—as just three examples illustrate: education (how most effectively to match school size with the distances students must

travel to maximize the benefits of education), energy (how to reduce fossil fuel consumption in transportation without compromising mobility needs), and responding to climate change (how to build resilient communities, in which access to essential goods and services is maintained when transportation infrastructure fails).

With its sweeping geographic scope, representing many corners of the globe, and its diverse, wide-ranging topics, this book is an excellent starting place for the collaborative work such problems demand. The emplacement of infrastructure is at the core of several chapters here, while people's perceptions, experiences, values, and meanings also figure largely. The editors rightly ground the integrative goals and function of the book in urban geography, a field that by its very nature practices integration in place: between, for example, the built environment and social/cultural/political environments, between flows and dwelling, between the policy world and the lived experience of everyday life, between material infrastructures and cultural meanings, between a local place and distant places. I hope that this book will be the first of many such efforts that will help the world to reap the benefits of combining transportation geographies and mobilities studies.

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NOTE

- 1 Transportation had also been a part of regional geography, the dominant paradigm into the 1950s.

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Foreword 2

Mobilizing Transportation, Transporting Mobilities

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The fields of transport history, transportation research, and transportation geography have all been influenced by the burgeoning and diverse perspectives of critical mobilities research, while mobilities research itself has widened and deepened its theoretical and methodological approaches to transportation systems, experiences, meanings, politics, and social practices. Mobilities research is increasingly recognized as an important addition to the fields of transportation research (Knowles et al. 2008; Shaw and Docherty 2014), transport geography, and transportation planning, in part because it can help to “bridge the quantitative–qualitative divide” (Goetz et al. 2009; and cf. Jensen et al. 2014). Even more importantly, the recent productive commingling of research in these adjacent fields has refreshed the ways in which we approach a whole range of classic topics in urban studies: e.g., the design, building, and appropriation of urban infrastructure systems; the processes of large-scale technological change, especially sustainability transitions; scalar politics and the production of spatial relations through transportation investment or disinvestment; the relation between systems complexity, risk, failure, and resiliency; the embodied experience of streets, stations, and various kinds of vehicles and ways of moving; and the concerns with accessibility, social exclusion, and the dynamic contestation of the right to the city.

There has been a mobilizing of transport studies, so to speak, and a transporting of mobilities studies. At the heart of this transformation is a theoretical shift that seeks to understand spatiality in more relational ways, and to understand the relations enabled by transport in more mobile ways. The methodological diversity of these new hybrid perspectives and the move towards relational ontologies of the “new mobilities paradigm” (Hannam, Sheller, and Urry 2006; Sheller 2014) have far reaching implications for how we understand transportation and urban geographies. Mobilities research builds on a range of philosophical perspectives to radically rethink the relation between bodies, movement, and space; thus, it can inform research on the production of space, the politics of transport, and the subtle meanings and diverse experiences of (im)mobilities in the city. It includes new ways of thinking about walking, driving, passengering, flying, and other modes

of movement; the social and political dimensions of the production and consumption of the built environments that afford such mobilities; and the enacted spaces, cultural meanings, and diverse lived experiences of moving through such mobile (and immobile) places.

This volume, *Transportation, Mobility, and the Production of Urban Space*, brings a welcome addition to these conversations through its careful case studies of transportation politics at the interface of urban geography and mobilities studies in specific cities located in Asia, Europe, and North and South America, including Chicago, Kaohsiung, Milwaukee, Hyderabad, San Francisco, Grand Paris, Rio, Rotterdam and The Hague, Toronto, and Vancouver. These diverse cases illustrate how every transportation planning decision is grounded in, and has longlasting impacts on, urban (and suburban) spatiality, urban inequality, and urban culture. What we learn here is that every transportation decision entails both connecting places together and excluding or bypassing other places; and every transportation investment adds value to some places, while destroying value in others, or sometimes destroying place itself. Urban form is shaped by transport design, and transport choices, plans, and investments are shaped by urban politics.

Cities are formed by mobilities: Often located at the confluence of rivers, roadways, ports, rail termini, and airports, they orchestrate flows of people, goods, information, and ideas (Sheller and Urry 2000). At the same time, everyday mobility practices and associated mobility regimes are in turn formed by urban dynamics and political contestation, such as the conflict between automobility and bicycling (e.g., Furness 2010); by public policies concerning urban migration, urbanization, and right to the city (Mitchell 2003); by forms of urban governance and policy that shape transport and communication infrastructures, and access to them; and by urban technological innovation and regional agglomerations that shape the spatiality and scale of mobility systems and infrastructures such as highway systems (Merriman 2007, 2009). Mobility systems persist and combine into local, national, and even transnational cultural assemblages of mobility that remain very durable over long periods of time (Mom 2014). Living in the midst of a deeply “dominant system of automobility” (Urry 2004), it is difficult to see how we will move beyond it. Nevertheless, the past teaches us that even mobility systems that have been around a long time will eventually be replaced.

What will come next, “after the car” (Dennis and Urry 2008)? Where are the openings for new transportation systems or mobility regimes to emerge (Dudley et al. 2011)? Can such transitions in mobilities be accelerated, directed, guided, or fostered? And what can we learn from the current transitions that are taking place in some cities? Mobilities research suggests that we cannot look at transportation in isolation, but must also consider how systems such as mobility and communication interact. Certainly the emergence of autonomous and connected vehicles will be highly disruptive to existing transport planning paradigms, such as the prediction of traffic

volumes; and mobile locative media are already challenging existing models for multimodality (with vehicle-sharing and ride-sharing technologies already pushing public transit and taxi services to modernize their operating systems). Complexity and system dynamics are also crucial; for example, the impact that higher-speed rail in the United States will have on air transport networks for intercity travel in sprawling urban areas such as the Northeast, not to mention how drone delivery systems, 3D printing, and additive manufacturing systems might reconfigure freight logistics (Birchneil and Urry 2014).

At this lively intersection of transportation studies and mobilities research, many researchers are concerned not only with delineating and describing the emergence of historical and contemporary mobility regimes, technologies, and practices, but also with critically addressing normative issues of mobility justice (such as movements for sustainable mobility and mobility rights) and mobility capabilities (such as the demands of social movements for rights of access to the city and transportation justice). The chapters in this volume help us to really get down into the nitty-gritty of urban politics and transport geographies, to see some of the processes driving these slow transitions.

There is, in a sense, a mobilization of space itself, as places are moored or unmoored from different transport infrastructures. And this should not be a passive verb: Specific actors do the conceptual, technical, and physical work of (un)mooring urban space through transportation system plans, designs, standards, measures, rhetorics, marketing, and decisions. Sometimes those actors are specific individuals or groups, but other times they are agreed upon forms of ‘objectivity’ and rationality such as cost-benefit analyses, or ‘level of service’ measurements. Thus, the contributors to this volume remind us that it is important to attend to the logics of justification and to pick apart how different social actors use narratives to frame transportation issues and shape decision-making contexts, even before any decisions are made. This dovetails with critical geographies of mobility that focus on the history of mobility, its modes of regulation, and the power relations associated with it—in short, the politics of mobility (Cresswell 2006, 2010; Adey 2009).

Whether to promote existing patterns of automobility or enable healthier modes of active transport, whether to build light rail systems or high-speed rail, to extend metro lines or change local zoning codes, to disinvest from public transit or privatize bus systems—these are all political decisions framed by competing constituencies exposed to differing costs and benefits, and more or less included or excluded from decision-making. Such decisions also have huge impacts on quality of life, levels of pollution, the health of entire communities, and the lock-in of massive infrastructures that are difficult to remove once built. As cities across the world face the effects of climate change, better understanding of these decision-making processes will be crucial to both mitigation and adaptation strategies. Insofar as our old

ways of transporting goods and moving people are broken, or at the very least are reaching limits of capacity and sustainability, then our old ways of planning transport, and indeed of doing transport studies, are also in need of updating (Grieco and Urry 2012). We need to be more innovative, more creative, more multidisciplinary, more humanistic, more empathic, more exacting, and more critical in the standards we hold ourselves to, the methods we employ, and the theories we advance.

The field of mobilities research consists of efforts to do just this, in order to push the conversation about transportation and urban geography in new directions. It is with these kinds of question in mind that mobilities research puts emphasis on the relations between mobilities and immobilities, scapes and moorings, movement and stillness (Hannam et al. 2006, p. 3). These co-constitutive frictions of differential mobilities and relative velocities are at the heart of recent mobilities research (Adey et al. 2014; Cresswell 2014; Vannini 2014), and have much to contribute to our understanding of transport geographies and urban geography. Mobilities research furthermore reminds us that culture, lived experience, and meanings are also crucial elements of technological systems (Cresswell 2006; Freudendal-Pedersen 2009). Any city is made up of technologies, practices, infrastructures, networks, and assemblages of all of these—as well as narratives, images, and stories about them—which together inform its mobility culture. Transitions in mobility systems rest not just on individual choices, technological transformations, or economic forces, but on transitions in mobility cultures and the ways in which practices and networks are culturally assembled in producing and performing the mobility space of the city.

Critical mobility thinking in the field of urban studies also calls for “re-conceptualising mobility and infrastructures as sites of (potential) meaningful interaction, pleasure, and cultural production” (Jensen 2009), where people engage in “negotiation in motion” and “mobile sense making” (Jensen 2010). Histories of mobility and place-making emphasize the rhythms, forces, atmospheres, affects, and materialities of various modes of transport (Edensor 2014; Merriman 2012; Adey 2010). Building on Georg Simmel’s ideas of ‘urban metabolism’ and Henri Lefebvre’s ‘rhythmanalysis’ (2004), mobility theorists argue that bodies and objects shape cities, and in turn are shaped through their rhythms of movement, their pace and synchrony (Edensor 2011, 2014). The recent *Routledge Handbook of Mobilities* (Adey et al. 2014), for example, is organized around the categories of qualities, spaces and systems, materialities, subjects, and events, rather than more traditional ‘transportation-related’ topics. Along with spatiality and materiality there is also a growing interest in temporalities. Temporalities of slowness, stillness, waiting, and pauses are all part of a wider, sensuous geography of movement and dwelling in which human navigation of embodied, kinaesthetic, and sensory environments are crucial (Merleau-Ponty 1962; Jensen 2010).

Where, then, are emergent new cultures of mobility reshaping transportation and potentially urban space? To take just one example from my