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VISIONS – SPACES – CONFLICTS

Mobility and Environment in the 20th and 21st Centuries

›Travel quietly over the rooftops‹ read the headline of an article on urban cable cars in the autumn of 2012. The key advantage of this means of transportation, we learn, is that its users, suspended high above the congested streets, reach their destination in near silence, without delays, and with almost zero carbon emissions. One of the best known prestige projects in Europe for this new form of urban mobility is the aerial cableway *Emirates Air Line*, named after its sponsor, which opened for the 2012 Summer Olympics in London.[1] It was modelled on the urban cable cars in Asia and Latin America, though the odd Western city, such as Barcelona, New York and Coblenz, had also embraced this concept in the late 20th and early 21st century. In metropolitan regions and megacities in particular, seeing themselves confronted with massive traffic volumes and exponential population growth, the cable car increasingly appeals to utopias of future transportation.[2]

Urban cableways can potentially have clear advantages over conventional forms of public transportation like buses, trams and underground railways, particularly in hilly and difficult terrain – they take up less of the already limited urban space, and they are

1 Cf. Felix Stephan, Leise über den Dächern reisen. Mit der Seilbahn erobert ein Transportmittel die Stadt, das bisher vor allem Bergwelten erschlossen hat. In London und Berlin soll sie nun Verkehrsprobleme lösen, in: ZEIT Online, 16 September 2012; <http://www.emiratesairline.co.uk>. On urban cable cars in general, see also Heiner Monheim et al. (eds), *Urbane Seilbahnen. »Moderne Seilbahnsysteme eröffnen neue Wege für die Mobilität in unseren Städten«*, Cologne 2010.

2 Cf. Felix Lill/Javier Sauras/Michele Bertelli, Die grüne Linie von La Paz. Längste Seilbahn der Welt in Bolivien eröffnet, in: *Tagesspiegel*, 18 November 2014; Sandra Weiss, Per Shuttle übers Chaos. In Lateinamerika versuchen immer mehr Metropolen, ihre Verkehrsprobleme mit Seilbahnen zu mildern. Jetzt auch in Mexiko, in: *Tagesspiegel*, 25 September 2016.

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inexpensive to build. They are ideal as feeders to central traffic routes or as links between parts of a city that are not connected due to geographical features (such as rivers or hills).[3] And pollution in metropolitan areas can be somewhat reduced with this mode of transport. Political and public debates regularly discuss how mobility might be managed and designed from an environmental point of view. We have seen this not least in the controversies around possible bans on driving diesel cars in German cities, and the massive smog problem in megacities like Beijing. Mobility and the environment are thus closely interrelated.

This connection has scarcely been addressed in historical and social science research on mobility and transport to date. Such studies have indeed analysed many different aspects of mobility, from economics, politics, society and technology to related sociocultural patters of perception. But the environment was always treated merely as a subordinate category, as a subset of subjects such as geography or waste.[4] The following proposes an alternative approach: mobility and environment are discussed as leading categories that are closely intertwined.

This special issue investigates how perspectives on mobility and the environment have shifted in the 20th and 21st centuries, ranging from *visions* of future mobility and the landscaping of *spaces* to incipient regional and national *conflicts*.[5] The articles also make it clear that mobility is a ubiquitous social phenomenon and one that takes many different forms, as British sociologist John Urry – among others – has pointed out.[6]

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3 There was a similar proliferation of urban transport concepts responding to dwindling urban space with elevated railways in the early 1970s. But these projects generally got bogged down or failed completely; see Barbara Schmucki, Individualisierte kollektive Verkehrssysteme und kollektivierte individualisierte Verkehrssysteme. Die Vision von Neuen Technologien zur Lösung der Verkehrsnot in den 1970er Jahren, in: Hans-Liudger Dienel/Helmuth Trischler (eds), *Geschichte der Zukunft des Verkehrs. Verkehrskonzepte von der Frühen Neuzeit bis zum 21. Jahrhundert*, Frankfurt a.M. 1997, pp. 147-169; Bruno Latour, *Aramis, or the Love of Technology*, Cambridge 1996.

4 Cf. e.g. Ralf Roth/Karl Schlögel, Einleitung: Geschichte und Verkehr im 20. Jahrhundert, in: Roth/Schlögel (eds), *Neue Wege in ein neues Europa. Geschichte und Verkehr im 20. Jahrhundert*, Frankfurt a.M. 2009, pp. 11-26; Hans-Liudger Dienel/Colin Divall, Changing Histories of Transport and Mobility in Europe, in: ibid., pp. 65-84; Kevin Hannam/Mimi Sheller/John Urry, Editorial: Mobilities, Immobilities and Moorings, in: *Mobilities* 1 (2006), pp. 1-22, here pp. 9-15; Peter Adey et al., Introduction, in: Adey et al. (eds), *The Routledge Handbook of Mobilities*, London 2014, pp. 1-20; Jon Shaw/Iain Docherty, Geography and Transport, in: ibid., pp. 25-35; Colin Divall, Mobilities and Transport History, in: ibid., pp. 36-44; Mimi Sheller, *Aluminum Dreams. The Making of Light Modernity*, Cambridge 2014; Ruth Oldenziel/Helmuth Trischler, How Old Technologies Became Sustainable: An Introduction, in: Oldenziel/Trischler (eds), *Cycling and Recycling. Histories of Sustainable Practices*, New York 2016, pp. 1-12.

5 On visions for the future in general, cf. Joachim Radkau, *Geschichte der Zukunft. Prognosen, Visionen, Irrungen in Deutschland von 1945 bis heute*, Munich 2017; Jens Beckert, *Imagined Futures. Fictional Expectations and Capitalist Dynamics*, Cambridge 2016; Rüdiger Graf/Benjamin Herzog, Von der Geschichte der Zukunftsvorstellungen zur Geschichte ihrer Generierung. Probleme und Herausforderungen des Zukunftsbezugs im 20. Jahrhundert, in: *Geschichte und Gesellschaft* 42 (2016), pp. 497-515; Elke Seefried, *Zukünfte. Aufstieg und Krise der Zukunftsforschung 1945–1980*, Berlin 2015. On the connection between mobility and the environment, see the journal ›TeMA. Journal of Land Use, Mobility and Environment‹ (first published in 2007/08): <http://www.tema.unina.it/index.php/tema>.

6 John Urry, *Mobilities*, Cambridge 2007, pp. 3-12.

›Emirates Cable Car‹ in London, July 2012
(Wikimedia Commons, originalpickaxe [<https://commons.wikimedia.org/wiki/File:Emirates_Cable_Car_,_Royal_Victoria_Dock_,_London_,_July_2012_-_panoramio.jpg>], »Emirates Cable Car, Royal Victoria Dock, London, July 2012 – panoramio«, <https://creativecommons.org/licenses/by/3.0/legalcode>)

The authors of this special issue show how differently certain actors have interpreted mobility and the environment in their respective historical and geographical contexts, and how perspectives have shifted and changed. Mobility is defined as the movement of people, goods and ideas. It also encompasses the ways in which forms of mobility are used and the spread of environmental pollution within a geographical space, which may extend from the local and regional to the national or transnational level.[7] There are therefore two aspects to the notion of ›environment‹: Firstly, environment is defined spatially in terms of the geography and how this has been altered through landscaping or architecture. Secondly, environment has an ecological dimension that encompasses most notably pollution and noise, but also the often extensive interference with flora and fauna.

7 A similar definition is used by Hannam/Sheller/Urry, Editorial (fn. 4), p. 1; Peter Merriman, Roads: Lawrence Halprin, Modern Dance and the American Freeway Landscape, in: Tim Cresswell/Peter Merriman (eds), *Geographies of Mobilities. Practices, Spaces, Subjects*, Farnham 2013, pp. 99-117, here pp. 99-100; Adey et al., Introduction (fn. 4), pp. 8-10; Divall, Mobilities (fn. 4), p. 36.

A Pan Am aeroplane landing at Berlin-Tempelhof airport, 1971
(bpk/Liselotte and Armin Orgel-Köhne)

1. Contemporary History Perspectives on Mobility and the Environment

Mobility, technology, geography or space and the environment are closely interwoven and mutually influence each other. Forms of mobility enable users to access new spaces, and this shapes their cultural patterns of perception. At the same time, the environment – the landscape or the space itself – is transformed with the building of new infrastructures like streets or airports, for example, or the impact of increasing environmental pollution on vegetation and the threat it can pose to human health. Secondly, new forms of getting around become established, either competing with or complementing existing systems. This sets in motion a social negotiation process about which forms of mobility should be given preference, subsidised, rejected, or even banned. Historical case studies on the subject generally talk about the conflict between public and private transport, which led for instance to trams in Los Angeles being discontinued to make way for cars from the late 1930s onwards.[8] In the case of cable car construction in South America, on the other hand, numerous taxi and minibus drivers protested, fearing their earnings would plummet. Thirdly, the various

8 Cf. Scott L. Bottles, *Los Angeles and the Automobile. The Making of the Modern City*, Berkeley 1987, pp. 2-4.

forms of transport come to be used in different ways. Cable cars initially served to make mountainous regions accessible to tourists. Since the late 20th century they have increasingly come to be used for public transport in densely populated regions. Cars, meanwhile, were more than just a means of transport at the beginning of the 20th century – they also served as stationary power sources on rural American farms, where they were used to power saws and washing machines.[9]

This special issue explores the relationship between mobility and the environment, the related social negotiation processes, and the changing ways in which modes of transport are used. It centres on four approaches. Firstly, the articles look at different forms of land use and demonstrate how political interests differed at national, regional and local level. They also look at local protest groups, contrasting their arguments with those of the political decision-makers and analysing how the concepts of mobility differed depending on long-standing environmental objectives and economic and ecological interests. These aspects highlight how ›environment‹ was defined by the different social groups, where the question of ›sustainability‹[10] arose, and which models of ›sustainable‹ mobility were considered. Secondly, the articles look at the actors: Who used the forms of mobility that were available? Who pursued infrastructure projects and innovations in transportation? What arguments and interests were at play? How did non-users react to the changes? What tensions were there between different social groups? Tying in with this, the third

Vertical parking lot in Chicago, 1937
(bpk/Bernd Lohse)

9 Cf. Ronald R. Kline/Trevor J. Pinch, Users as Agents of Technological Change. The Social Construction of the Automobile in the Rural United States, in: *Technology & Culture* 37 (1996), pp. 763-795, here pp. 773-777.

10 On the term, cf. the United Nations ›Brundtland Report‹ (1987): <https://www.nachhaltigkeit.info/artikel/brundtland_report_563.htm>.

People washing their cars on the Main river, Bügel near Offenbach, 1967
(bpk/Abisag Tüllmann)

question asks how the different forms of mobility and interpretations of ›environment‹ gave rise to specific local, national or transnational identities, how they changed from a historical perspective, and why conflicts came about. Patterns of cultural conditioning were also changing during the last third of the 20th century, and this was reflected in specific social practices. While in the 1960s and 70s it was still quite normal to wash your car on a regular basis outside your own garage or in public, on streets and next to rivers or lakes, the arrival of groundwater protection measures meant that this gradually became more heavily regulated, and sometimes forbidden.[11]

11 For a similar discussion about changing cultural patterns, cf. Peter Soppelsa, Intersections. Technology, Mobility, and Geography, in: *Technology & Culture* 52 (2011), pp. 673-677; Kevin L. Borg, Introduction. Constructing Sociotechnical Environments – Aurality, Air Quality, and Automobiles, in: *Technology & Culture* 55 (2014), pp. 287-298; Mike Esbester/Jameson M. Wetmore, Introduction. Global Perspectives on Road Safety History, in: *Technology & Culture* 56 (2015), pp. 307-318. On road traffic conflicts in the early days of the automobile, cf. Kurt Möser, The Dark Side of ›Automobilism‹, 1900–30. Violence, War and the Motor Car, in: *Journal of Transport History* 24 (2003), pp. 238-258. For a sociological approach to mobility, cf. Hannam/Sheller/Urry, Editorial (fn. 4); Adey et al., Introduction (fn. 4).

Car-free Sunday in Bonn, Konrad Adenauer Bridge, 8 June 1980
(Bundesarchiv, B 145 Bild-F058395-0014, photo: Engelbert Reineke)

Fourthly, the ecological impact of mobility is addressed, in particular noise and air pollution; less so climate change, which only became a politically explosive issue in the second half of the 1980s.[12]

This already indicates the period concerned here. It extends primarily from the 1960s to the early 1980s, though there are a number of departures from this time span. Some of the articles extend the perspective into the 19th century and demonstrate the long lines of continuity in the spread of forms of mobility. This also sheds light on how the social perception of mobility and the environment changed over the course of the 20th century. In addition, more recent developments are analysed and compared with notions of mobility in previous eras from a transtemporal perspective. These two broader perspectives then make it possible to identify the 1970s more precisely as a pivotal historical phase in the transformation of mobility and the environment. This approach also enables us to link the history of the environment and of transport and mobility, which have traditionally generally been treated as separate strands.

12 Cf. Peter Weingart, *Die Stunde der Wahrheit? Zum Verhältnis der Wissenschaft zu Politik, Wirtschaft und Medien in der Wissensgesellschaft*, Weilerswist 2005, pp. 275-277.

2. Contemporary History, Environmental History and the History of Mobility: Research Contexts and Preliminary Findings

This special issue addresses current trends in environmental history and the history of mobility that classify the 1970s as a ›key decade‹ and a central transformational phase in terms of social attitudes to mobility and the environment.[13] Thus historian Joachim Radkau locates the ›ecological revolution‹ around the year 1970. Social scientists and transport historians, on the other hand, have identified ›mobility‹ as an essential feature of social development in the last half century, as encapsulated by historian Anne-Katrin Ebert in a review essay.[14] Nevertheless, previous studies have often failed to answer the question of where there were breaks in the 1970s in areas related to mobility and the environment, and where it would be more correct to speak of a continuity, which the contemporary crisis discourses may have obscured. In this regard, the special issue also picks up on debates in contemporary history research on varying interpretations of the 1970s, ranging between the two poles of ›boom‹ and ›crisis‹.[15] In addition, this issue suggests some possible answers to the question of how social groups and business and political leaders are seeking to reconcile the issues of ›environment‹, ›environmental pollution‹ and ›environmental protection‹ with ever-expanding forms of social mobility.

The articles also show how people, conceptions and uses of forms of mobility, as well as pollution and noise, moved both within a country and across national borders. By their very definition, the international holiday trips and air travel that have become popular since the 1970s provide a transnational perspective on mobility and the environment.[16] The analysis centres in the first instance on mass tourism and mass transport. Other articles look at private transport. While cars and bicycles are used by their owners individually, at the societal level the way people drive and their mobility habits are replicated millions of times or repeated with certain modifications. From this

13 On the different connotations of ›environment‹, cf. Joachim Radkau, *Die Ära der Ökologie. Eine Weltgeschichte*, Bonn 2011, pp. 16-18, pp. 124-164 (English edition: *The Age of Ecology. A Global History. Translated by Patrick Camiller*, Cambridge 2014); Frank Uekötter, *Umweltgeschichte im 19. und 20. Jahrhundert*, Munich 2007, pp. 28-38, pp. 73-75.

14 Cf. Radkau, Ära (fn. 13), p. 124; Anne-Katrin Ebert, Mobilität(en) – ein neues Paradigma für die Verkehrsgeschichte?, in: *NTM. Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin* 23 (2015), pp. 87-107.

15 For a summary, cf. Frank Bösch, Boom zwischen Krise und Globalisierung. Konsum und kultureller Wandel in der Bundesrepublik der 1970er und 1980er Jahre, in: *Geschichte und Gesellschaft* 42 (2016), pp. 354-376, here pp. 354-356. See also the special issue ›The 1970s – Looking Back on an Era of Change‹: <http://www.zeithistorische-forschungen.de/3-2006>.

16 Cf. for example Hasso Spode, Von der Luftpolitik zur Deregulierung. Das Flugzeug und der Massentourismus, in: Roth/Schlögel, *Neue Wege in ein neues Europa* (fn. 4), pp. 491-514; Sina Fabian, Massentourismus und Individualität. Pauschalurlaube westdeutscher Reisender in Spanien während der 1970er- und 1980er-Jahre, in: *Zeithistorische Forschungen/Studies in Contemporary History* 13 (2016), pp. 61-85.

perspective, private transport is also a mass phenomenon with far-reaching implications. Whereas historical studies have analysed these developments chiefly for Europe and the USA, the present special issue will also look at the correlation between mobility and the environment in South America and Asia – with case studies from Brazil and China. The broadening of the perspective from the Global North to the Global South strengthens the focus on transnational dimensions of the connection between mobility and environment. Social inequalities caused or intensified by mobility at national or international level are addressed here, as is the question of fairness. It is, after all, difficult to justify globally why people in certain countries and regions – mostly in the southern hemisphere – should be denied mobility.

The way in which mobility affected social inequality and hierarchies as well as cultural mentalities in an urban environment is explored by *Shawn W. Miller* in a case study on road use in Rio de Janeiro from the late 19th to the mid-20th century. He asks how the street as common property and as social space where people not only got from A to B, but also played football and held celebrations, developed into a transport route whose usage was narrowly defined. Miller dates this change to the first half of the 20th century, when motor traffic was spreading rapidly and supplanting other forms of road use. A new kind of control over social spaces emerged; automotive culture led to additional conflicts between the social elites and other levels of society. Miller complements earlier works that have looked at opposition to the proliferation of cars in North America and Europe.[17]

The articles in this special issue also expand on previous studies on the history of mobility by re-evaluating their findings. They build for instance on studies on the history of cars in the US and Europe that have highlighted how production and consumption were intertwined with mobility and the environment. These studies devoted particular attention also to the conflicts around petrol, steam and electric propulsion.[18] In the middle of the century, noise pollution, polluting emissions and the growing number of deaths caused by traffic accidents shifted the focus to other problems.[19] *Peter Itzen* addresses the latter. Taking traffic accidents as a case in point, he discusses how lawyers, politicians, engineers and doctors have dealt with everyday risks in modern societies and sought to limit them since the early 20th century. There was then a

17 Cf. Uwe Fraunholz, *Motorphobia. Anti-automobiler Protest in Kaiserreich und Weimarer Republik*, Göttingen 2002; Christoph Maria Merki, *Der holprige Siegeszug des Automobils 1895–1930. Zur Motorisierung des Straßenverkehrs in Frankreich, Deutschland und der Schweiz*, Vienna 2002; Möser, Dark Side (fn. 11); Kline/Pinch, Users (fn. 9), pp. 768-773; Ronald R. Kline, *Consumers in the Country. Technology and Social Change in Rural America*, Baltimore 2000, pp. 57-62.

18 Cf. Gijs Mom, Das ›Scheitern‹ des frühen Elektromobils (1895–1925). Versuch einer Neubewertung, in: *Technikgeschichte* 64 (1997), pp. 269-285; Mom, *The Electric Vehicle. Technology and Expectations in the Automobile Age*, Baltimore 2004; Kurt Möser, *Geschichte des Autos*, Frankfurt a.M. 2002, pp. 62-66.

19 Cf. esp. Borg, Introduction (fn. 11); Gijs Mom, Orchestrating Automobile Technology. Comfort, Mobility Culture, and the Construction of the »Family Touring Car«, in: *Technology & Culture* 55 (2014), pp. 299-325; Karin Bijsterveld et al., *Sound and Safe. A History of Listening Behind the Wheel*, Oxford 2014; Tom McCarthy, *Auto Mania. Cars, Consumers, and the Environment*, New Haven 2007; Esbester/Wetmore, Introduction (fn. 11); Peter Norton, Four Paradigms: Traffic Safety in the Twentieth Century United States, in: *Technology & Culture* 56 (2015), pp. 319-334.

critical reassessment of traffic accidents in the 1970s – just as cars were losing their aura as an emblem of modernity. As other key changes were also taking place at this time, this decade can be interpreted as marking a turning point in general. The energy crises saw the demand for private cars shift to smaller and more economic models. And the public debate around the subjects of resource consumption, pollution and vehicle safety led to massive criticism of cars as consumer goods, culminating in the early 1980s when they came to be seen as ›environmental enemy number one‹, at least in Germany – though this in fact did little to change social mobility behaviours.[20]

In the 1970s, car manufacturers faced rising costs and steeper competition. In addition to worsening export conditions for German producers, the situation on the US and European domestic markets also became more difficult as Japanese producers increased their market shares.[21] In order to strengthen their own position, the German manufacturers changed their strategies. They diversified vertically and horizontally, moving into new market segments with a full-range policy encompassing small and compact cars. Owners of a particular model were able to switch to a higher or lower class from the same manufacturer. At the same time they differentiated their ranges in the various type classes, enabling them to cater to different requirements within a segment. This competitive strategy was designed to increase brand loyalty and distribute the risk over several segments, making it easier to cushion sales fluctuations. It also filled product niches. In addition, the carmakers sought to achieve a further competitive advantage through technical innovations in the fields of engine technology, vehicle safety and lightweight construction, and by increasingly digitalising their automotive technology.[22] What had been viewed since the late 19th century as a specific strength of German science, technology and economy was more evident than ever in the automotive sector as well: the ability of science and industry to cooperate to

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20 Richard Gaul/Irene Mayer-List, Sauber, sauber. Die neue Bundesregierung macht ernst: Das Auto, schon von der sozialliberalen Koalition als »Umweltfeind Nummer Eins« gescholten, soll jetzt endlich entgiftet werden, in: *ZEIT*, 29 July 1983, pp. 9-10. Summarised in Christopher Neumaier, Die Einführung des »umweltfreundlichen Autos« in den 1980er-Jahren im Spannungsverhältnis von Wirtschaft, Politik und Konsum, in: Themenportal Europäische Geschichte, 2012, <http://www.europa.clio-online.de/essay/id/artikel-3626>. Cf. for example Rudi Volti, *Cars and Culture. The Life Story of a Technology*, Baltimore 2006, pp. 115-135; McCarthy, *Auto Mania* (fn. 19), pp. 148-230; Möser, *Geschichte* (fn. 18), pp. 257-288; Ingo Köhler, Marketing als Krisenstrategie. Die deutsche Automobilindustrie und die Herausforderungen der 1970er Jahre, in: Hartmut Berghoff (ed.), *Marketinggeschichte. Die Genese einer modernen Sozialtechnik*, Frankfurt a.M. 2007, pp. 259-295, here p. 259.

21 Cf. Köhler, Marketing (fn. 20), pp. 266-268; Köhler, Marketingmanagement als Strukturmodell. Der organisatorische Wandel in der deutschen Automobilindustrie der 1960er bis 80er Jahre, in: *Zeitschrift für Unternehmensgeschichte* 53 (2008), pp. 216-239, here p. 217.

22 Cf. Köhler, Marketing (fn. 20), pp. 279-281, p. 284; Köhler, »Small Car Blues«. Die Produktpolitik US-amerikanischer und deutscher Automobilhersteller unter dem Einfluss umweltpolitischer Vorgaben, 1960–1980, in: *Jahrbuch für Wirtschaftsgeschichte* 51 (2010), pp. 107-135, here pp. 130-131; Köhler, Overcoming Stagnation. Product Policy and Marketing in the German Automobile Industry of the 1970s, in: *Business History Review* 84 (2010), pp. 53-78, here p. 67; Christopher Neumaier, *Dieselautos in Deutschland und den USA. Zum Verhältnis von Technologie, Konsum und Politik, 1949–2005*, Stuttgart 2010, pp. 65-69; Borg, Introduction (fn. 11), p. 293; Borg, *Auto Mechanics. Technology and Expertise in Twentieth-Century America*, Baltimore 2007, pp. 138-169.

produce not only basic innovations like the airbag or anti-lock braking system (ABS), but also a constant stream of incremental innovations that convinced customers worldwide of the quality of German engineering.[23] The transnational ›emissions scandal‹ that has been coming to light since 2015 is therefore as much a crisis of confidence as it is an environmental problem.

As the number of cars in Germany rose from some 4.5 million in 1960 to almost 14 million in 1970 and approximately 23 million in 1980, finally reaching more than 30 million in 1990, a social and political negotiation process began which led to a re-evaluation of the car.[24] Two issues were at the fore: What emissions and what limits were to be deemed ›harmful to the environment‹, and how could politics, technology and industry respond to the associated risks? What was ›safe‹, and what safety technologies or regulatory approaches should be pursued?[25] These changes led to tighter controls on mobility forms and transport technology from the mid-1960s onwards – at a time of economic policies of deregulation.[26] The process began in the USA with the US Clean Air Act of 1963 and the National Traffic and Motor Vehicle Safety Act of 1966. Further regulations followed in the 1970s, including the Clean Air Act Extension in 1970 and the Energy Policy and Conservation Act of 1975. Corresponding moves in Germany include the lead-in-petrol law of 1972, the obligation to install safety belts in new cars in 1974 and the Federal Emission Control Law from the same year. These regulations were designed primarily to reduce noise and exhaust emissions from cars and increase active and passive driving safety. It was, up to a point, also about conserving resources.[27]

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23 Cf. Ulrich Wengenroth, Vom Innovationssystem zur Innovationskultur. Perspektivwechsel in der Innovationsforschung, in: Johannes Abele/Gerhard Barkleit/Thomas Hänseroth (eds), *Innovationskulturen und Fortschrittserwartungen im geteilten Deutschland*, Cologne 2001, pp. 23-32, and Helmuth Trischler, »Made in Germany«. Die Bundesrepublik als Wissensgesellschaft und Innovationssystem, in: Thomas Hertfelder/Andreas Rödder (eds), *Modell Deutschland. Erfolgsgeschichte oder Illusion?*, Göttingen 2007, pp. 44-60.

24 Cf. <http://www.kba.de/DE/Statistik/Fahrzeuge/Bestand/FahrzeugklassenAufbauarten/b_fzkl_zeitreihe.html>. The number of cars worldwide also rose significantly in the same period: 98 million (1960), 193 million (1970), 320 million (1980) and 445 million (1990). Cf. figures quoted by Ward's Automotive Group: <https://web.archive.org/web/20130608100749/http://www.automotiveonline.co.za/site/files/6860/13_World_VIO_History.htm>.

25 See also Esbester/Wetmore, Introduction (fn. 11), pp. 310-311; Norton, Four Paradigms (fn. 19); Jameson M. Wetmore, Delegating to the Automobile. Experimenting with Automotive Restraints in the 1970s, in: *Technology & Culture* 56 (2015), pp. 440-463. For a theoretical approach to regulatory processes, cf. Lee Jared Vinsel, Designing to the Test. Performance Standards and Technological Change in the U.S. Automobile after 1966, in: *Technology & Culture* 56 (2015), pp. 868-894.

26 Cf. Spode, Luftpolitik (fn. 16); Daniel T. Rodgers, Age of Fracture, Cambridge 2011, pp. 60-64; Christopher Neumaier, article ›Trucking‹, in: Christof Mauch/Rüdiger Wersich (eds), *USA-Lexikon. Schlüsselbegriffe zu Politik, Wirtschaft, Gesellschaft, Kultur, Geschichte und zu den deutsch-amerikanischen Beziehungen*, Berlin 2013, pp. 1081-1082; Ebert, Mobilität(en) (fn. 14), pp. 92-93. See also the special issue on ›Marketization‹: <http://www.zeithistorische-forschungen.de/3-2015>.

27 Cf. Köhler, Marketing (fn. 20), pp. 274-275; Köhler, Overcoming Stagnation (fn. 22), p. 60; Köhler, »Small Car Blues« (fn. 22), p. 122; Borg, Introduction (fn. 11), p. 293; Volti, *Cars* (fn. 20), p. 117, p. 121, pp. 124-125; McCarthy, *Auto Mania* (fn. 19), p. 171, pp. 176-192, p. 217.

Christopher Neumaier investigates how the issues being debated in society – energy crises, resource consumption, environmental pollution and traffic safety – affected car industry advertising slogans in Germany and the USA. Though manufacturers adapted their marketing to the national cultural interests of the consumers, there were still a number of similarities. For all the debates about energy consumption, the topos of engine power did not disappear from advertisements by the West German manufacturers Volkswagen, BMW and Mercedes-Benz. The result was that the consumer response to cars in the 1970s was not purely rational or objective. At the same time, the advertising slogans were recoded, creating a stronger link between functions and emotions. Thus even a high-performance car could be marketed as ›sensible‹ if it also consumed relatively little fuel and promised excellent vehicle safety. The subject of pollution, on the other hand, was largely absent from the advertisements.

Some of the developments of the 1970s and 80s described above also applied to civil aviation. Due in no small part to air traffic deregulation, passenger numbers in the USA increased significantly. But passenger volumes in North America had already been on the rise, and many cities had begun expanding their airports back in the early 1970s. As well as the architectural design of the buildings and their integration into the landscape, this change also gave rise to a new travel culture – the more so as air travel shifted in the second half of the 20th century from an elite occurrence to a mass phenomenon.[28] The present issue looks at air travel beyond the predominant tourism history perspectives and examines, firstly, the ecological and social consequences of airport development. Despite increasing passenger volumes, the debates about dwindling energy resources and environmental pollution meant that for the airlines, too, the 1970s were a decade of crisis. The second point discussed is therefore how air travel advertising responded to these debates. Thirdly, this issue analyses the local and regional implications of the mass phenomenon of air travel.

Moritz Glaser examines how national, regional and local politicians in Spain assessed the impact of mass tourism on Spanish society and the environment during the 1970s, and looks at the conclusions they drew. Environmental groups and citizens' initiatives discussed the relationship between tourism and the environment and the ecological, economic and social consequences this entailed. By looking at those on the receiving end of this tourism, Glaser is able to show how political decisions and local mindsets in Spain changed fundamentally with regard to tourism, landscape and the environment. The transition from a primarily instrumental view of tourism and the environment to a questioning of further tourism development was notably the result

28 Cf. Spode, *Luftpolitik* (fn. 16); Sonja Dümpelmann, *Flights of Imagination. Aviation, Landscape, Design*, Charlottesville 2014; Anke Ortlepp, Friendly Skies? Cultures of Airtravel in Postwar America, in: *Bulletin of the German Historical Institute* 40 (2007), pp. 115-125; Ortlepp, Airport Security and the Limits of Mobility. The Case of the United States, in: *Traverse. Zeitschrift für Geschichte* 16 (2009) issue 1, pp. 75-88; Hannam/Sheller/Urry, Editorial (fn. 4), pp. 5-7; Scott McCabe, Tourist, in: Adey et al., *Handbook of Mobilities* (fn. 4), pp. 349-357.

Vancouver International Airport, January 2007. This airport has undergone a series of expansions since the heavy increase in air traffic in the 1960s and 1970s. An extensive master plan for the years 2017–2037 envisages increasing its capacity to 35 million passengers annually.
(Wikimedia Commons, Alejandro Erickson [<https://commons.wikimedia.org/wiki/File:Vancouver_International_Airport_Aerial.JPG>], »Vancouver International Airport Aerial«, <https://creativecommons.org/licenses/by/3.0/legalcode>)

of environmental considerations. Focusing on the Costa Brava as well as Mallorca, the essay can also be read implicitly as a contribution to the background of the current moves for Catalan autonomy.

The rapid growth of travel not only influenced the holiday destinations, it also had far-reaching consequences for the flight departure points. Here the infrastructure required for mobility had to be designed and built, a process traced by *Bret Edwards* in his essay on aeromobile sprawl, the expansion of Canadian airports between the 1960s and the early 1980s. In a case study on Vancouver, Edwards analyses how the architecture of airports and their impact on the environment altered local identities and the sociocultural fabric of the communities as well as the ecological situation. He looks at protests in the regions in the vicinity of the Vancouver airport and contrasts these with the opposition to the expanding airports in Montreal and Toronto.

A third perspective on tourism is afforded by *Anke Ortlepp's* article on air travel advertising in the 1970s and 1980s. She argues that advertisements can be read as a utopian response to the crisis discourse of these two decades. The airlines marketed

escapism as a coping strategy, allowing Americans and West Germans to block out the energy crises and environmental pollution. Different cultural contexts and economic environments also affected how air travel was cast as a liminal experience.

An essay by *Ruth Oldenziel*, meanwhile, broadens the scholarship on the history of the bicycle. Previous studies have analysed in particular the transition in the second half of the 19th century from the penny-farthing, or high-wheeler, to the low-wheeler, and the cultural significance of cycling in the early 20th century. It is only recently – triggered not least by the ›ecologically driven renaissance of the bicycle‹[29] during the 1970s and 1980s – that historical scholarship has ›rediscovered‹ the sociotechnology of cycling for the late 20th century. Departing from the traditional Western European perspective, this research has focused among other things on cycling's ecological, social and economic significance.[30] Oldenziel picks up on this trend and discusses the sociocultural, economic and ecological implications of the mass use of the bicycle as the preferred means of private transport in China during the second half of the 20th century. Economic factors were behind the cycling boom from the 1950s to the 1970s, the author argues, before cars became more widespread from the 1980s and increasingly in the 1990s (though they did not become as dominant as in Europe and the USA). This shift demonstrates not only the changing economic environment in China, but also the upward mobility of the buyers. At the same time, these changes brought about a marked increase in environmental pollution and traffic volumes. In the large urban agglomerations in particular, exhaust emissions caused a significant deterioration in air quality, and the daily traffic jams saw mobility grind almost to a halt. Oldenziel asks how political decision-makers and local actors responded to these consequences and developed new mobility concepts based on bicycles and electric scooters, and which sociocultural factors stood in the way.

Further studies might explore how these findings on the role of bicycles, motorcycles and cars in China can be applied to other countries that are currently confronted with ecological problems (such as India). This is also very relevant in view of the current debate about the ›decarbonisation‹ of traffic – the transition to new forms of mobility consuming less or no fossil fuels –, something mobility researchers have identified as a ›megatrend‹.[31] And it raises the question of the role to be played by electric cars, public transport and bicycles in future (urban) mobility concepts and how ingrained notions of mobility affect consumer behaviour today.

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29 Christoph Maria Merki, *Verkehrsgeschichte und Mobilität*, Stuttgart 2008, p. 50.

30 Cf. for example Wiebe E. Bijker, *Of Bicycles, Bakelites, and Bulbs. Toward a Theory of Sociotechnical Change*, Cambridge 1995, pp. 19-100; Anne-Katrin Ebert, *Radelnde Nationen. Die Geschichte des Fahrrads in Deutschland und den Niederlanden bis 1940*, Frankfurt a.M. 2010; Tiina Männistö-Funk, The Crossroads of Technology and Tradition. Vernacular Bicycles in Rural Finland 1880–1910, in: *Technology & Culture* 52 (2011), pp. 733-756; Oldenziel/Trischler, *Cycling and Recycling* (fn. 4).

31 Cf. Weert Canzler, Zukunft der Mobilität: An der Dekarbonisierung kommt niemand vorbei, in: *Aus Politik und Zeitgeschichte* 65 (2015) issue 31-32, pp. 19-25.

Smog in Beijing, December 2015 – pedestrians routinely have to wear face masks to protect themselves from the high levels of particulate matter pollution.
(picture alliance/AP Photo/Andy Wong)

Neither mobility nor pollution stop at national borders, so future studies would also do well to shed greater light on the international, transnational or global dimension of both aspects (and their entanglements). This is touched on several times in the present special issue, but needs to be explored in greater detail. Thus an essay by *Christoph Bernhardt* discusses the metamorphoses undergone by the concept of the ›car-friendly city‹ in Germany since the 1920s. He outlines in particular the urban development concepts behind this model. Looking at West Germany after the Second World War, Bernhardt demonstrates that these visions were often not practicable due to the existing city centres. He goes on to argue that a distinct conception of the ›car-friendly city‹ developed in the GDR. There were therefore different interpretations of the catchword ›car-friendly city‹ in the two parts of Germany, but the urban development concepts did not fundamentally differ. Even the critical distancing from the USA was something they shared. Furthermore, as Bernhardt also suggests, the perspective should be broadened to take greater account of the socialist and post-socialist states of East (Central) Europe, identifying different environmental policies and mobility concepts specific to the respective systems and considering how these changed in the course of the socio-economic transformation after 1989/90. This will make it possible

to explore in particular the influence of economic and environmental policies from other regions on East (Central) Europe and the different ways in which they were adapted there.[32]

Media analysis can also help us understand the interrelationship between mobility and the environment since the end of the Second World War in a global perspective. *Massimo Moraglio's* article on the classic American movie and critique of civilisation *Koyaanisqatsi* (1982) – an associative, sometimes didactic experimental film – explores how alienation effects can sharpen the perception and reception of environmental problems. Resource depletion and environmental pollution are presented so vividly that viewers are forced to reflect on them. And they may be inspired to develop utopian visions to limit or overcome ecological problems, as seen for example in the recent debates about electric cars or cable cars in congested urban areas.

(Translated from the German by Joy Titheridge)

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32 Kathy Burrell/Kathrin Hörschelmann (eds), *Mobilities in Socialist and Post-Socialist States. Societies on the Move*, Basingstoke 2014; Luminita Gatejel, Driving Behind the Iron Curtain. Automobility in the Eastern Bloc, in: *Mobility in History* 7 (2016), pp. 117-122.