

Energy and Innovation

Annual Conference of the International Association
for the History of Transport, Traffic and Mobility (T2M)
Luzern, 5. bis 8. November 2009

Every kind of movement of people, goods and information through space and time consumes energy. Therefore, the history of traffic, transport and mobility is interwoven with the history of energy sources. This relation and the different kinds of innovation connected to it defined the theme „Energy and Innovation” of the 7th annual conference of the International Association for the History of Transport, Traffic and Mobility (T2M). On four days, historians, sociologists, transportation planners and engineers discussed a great variety of issues related to the topical framework. The Swiss Museum of Transport in Lucerne with its large exposition and its well-equipped conference centre proved an ideal place to host this interdisciplinary discourse. The locomotives, cars, ships and airplanes on display made the notions of energy and innovation tangible and thus ideally counterbalanced the more abstract talks and discussions.

In his introductory lecture, *Patrick Fridenson* (École des Hautes Études en Sciences Sociales Paris) emphasized the importance of historical perspectives on the topics of energy and mobility. Historians, he argued, had to ask about path dependent developments and locked-in situations like the oil-driven development of modern mobility or the lock-in of the combustion engine in cars. Historical analysis could also show that paths can be altered. As a driving force for such change Fridenson identified social, political and economical currents that could induce innovation. Especially socio-economic factors such as consumer behaviour and the emergence of niche markets could play equally vital roles in innovation processes as could technical developments or the need for infrastructures. Neither of them should therefore be underestimated, as Fridenson exemplified on the cases of the developments of hybrid cars and the A380 airplane.

The environmental historian *Christian Pfister* (University of Bern) took up the thread of energy, innovation and society in his keynote speech. He outlined the history of western civilization as a history of progressing technical abilities to find new energy resources and exploit them efficiently. Social, cultural and economical developments such as the shift from agricultural to industrialized society are in his view closely connected to Schumpeterian innovation cycles related to energy: The invention of bridle and harness enabled people to use the power of animals to plough their fields more effectively. Growing crop yields led to population increases and subsequently to societal transformations. Similarly, the invention of the steam engine made possible large-scale mining of iron ore and coal, two important incentives of industrialization. As the most recent example of this „energy-drives-innovation”-mechanism Pfister mentioned the shift from coal to oil as main energy source after 1950 and the changes this triggered for industrial production, transport and consumption. His notion of energy as the main source of innovation was challenged, though: several speakers from the audience argued that energy could only be one of many different factors for such comprehensive developments as industrialization. Nevertheless, Pfister made a strong case for his belief that historians should take energy and its effects into account when trying to explain innovation – especially in the fields of technology and transportation.

With 150 participants from 21 countries, this year's conference happened to be the biggest T2M meeting to date. 80 speakers in 24 parallel sessions contributed to an abundance of talks and discussions. Embracing the conference theme, several sessions explored the interrelations of mobility, energy and innovation from different angles: Problems of energy consumption caused technical innovation in transport systems such as railways or airplanes. The political and economical implications of different fuels were discussed as well as forms of mobility depending only on the energy produced by their users like bicycles and pedestrians. Some sessions were concerned with political, economical or touristic aspects of transport systems and infrastructures. Others focussed more on social and cultural aspects of mobility such as „car culture at the European periphery”, the phenomena of „mobile cocooning”.

One particularly interesting session from this social and cultural field was dedicated to unintended consequences of early automobility. Traditionally, the boulevards, streets and squares of cities were places where people worked and met. Traffic was a part of this *mélange*, but not the all-dominating aspect it became with the appearance of cars and motorbikes during the first decades of the 20th century. Although cars were a privilege of the upper classes, it was not only the poor who were hostile to them as *Massimo Moraglio* (University of Torino) demonstrated on some cases from northern Italy. With their speed and their „unhealthy fumes”, cars not only shunted working people and playing children from „their” streets but also the bourgeois who had to find new ways to promenade. In this particular context, the shared contempt for these new means of transport united people across all social classes.

The „perils of automobility” were at the centre of *Mike Esbester's* (University of Reading) talk: He portrayed the attempts of the British car industry, automobile associations and authorities to create „safe and responsible road users”. Their message that „motoring is not dangerous and accidents can be prevented” was brought to the public by way of traditional educational measures (schooling of car drivers and pedestrians alike, leaflets and posters). More imaginative were ideas like creating board games and printing cards that could be collected by kids. Adults were addressed on milk bottles or beer mats. The cause for all these efforts was rather profane though: It was easier and cheaper to invest in road safety training than to change road design or invest in technical safety measures on the cars.

Relating to the topics of both previous speakers, *Barbara Schmucki* (University of York) traced „innovations at the crossroads” through the years. Engineers and planners tried to confine pedestrians to sidewalks and wanted to discipline their movements across streets. Between 1920 and 1970, written signs, Zebra crossings, guard rails, different types of blinking beacons and traffic lights were invented. But still, people seemed not to respond to this kind of „education” in the intended way. Although the physical safety measures were complemented with educational programmes in the media, Schmucki concluded that all these efforts were futile. They failed because they did not take into account the basic incompatibility of pedestrians and the modern, car-centred road design optimised for fast traffic flows.

Reflecting the stormy development the field of transport and mobility has undergone during the past two centuries (and mirroring the geographical distribution of T2M members), a majority of the presented papers covered 19th and 20th century subjects from Europe and North America – only few talks took notice of earlier periods of transport history or of issues concerning Africa and Asia. Nonetheless, one session comparing pre-industrial forms of road transport in Europe, Russia and China, came quite close to bridge both these gaps while a second featured two talks on tourism in the Arab world and Iran.

Another of the few shortcomings of this conference was the seeming lack of reflection on theoretical and methodological matters of transport history. However, the third keynote speech at the close of the conference hinted at these topics. Transport planner *Kay W. Axhausen* (Eidgenössische Technische Hochschule Zürich) compared approaches used by transport and spatial planners and historians. According to Axhausen, what

sets planners and historians apart is their understanding and use of models: While historians deconstruct and contextualize past developments and try to understand them in detail, planners want to gain oversight. They construct models in order to generalize the factors contributing to a problem and to simulate future developments of that problem.

Although this thinking in generalized terms and models has its merits, it has its dangers too: Despite the achievements of modelling and simulation, models only are mathematical approximations of real-world problems – they have to simplify the problems in order to provide oversight. As was pointed out in the following discussion, they can deal with quantifiable things, but they do not satisfactorily take into account „soft“ factors such as cultural and psychological circumstances. Planners tend to forget this and sometimes put too much store in their models. Axhausen argued that with their work of analyzing historical data and contextualizing (planning) actions of the past, historians could „confront models with the real world“ and thus act as a corrective to the planners’ somewhat over-optimistic use of models.

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Conference overview

Innovation in Energy (Chair: Gisela Hürlimann)

Stephenson, Paul: Railway Energy Sources and Innovation in Canada

Kreuzer, Bernd: Transport and Energy Innovation in the Austrian Salzkammergut Region: A Case Study on Water, Horse Power, Steam and Electricity, 1830-1930

Martínez López, Alberte: Energy, innovation and transport: the electrification of tramways in Spain, 1896-1930

McShane, Clay: Innovation in Urban Rail Transport in the U.S.

The Politics of Motor Fuels: Innovations, Expectations and Disappointments (Chair: Monika Dommann)

Ekerholm, Helena: Fuelling the Nation: Military Incentives for Domestic Fuel Development in Sweden 1919-1950

Marald, Erland: There Will Be no Revolution: Alternative Fuels as a Mirage in the 1970s Energy Debate in Sweden

Eklöf, Jenny: The Future is Here? Second Generation Biofuels as a Tool for Combating Climate Change

Driving Innovation? The Unintended Consequences of Early Automobility (Chair: Mathieu Flonneau)

Esbester, Mike: The Perils of Automobility: Creating Safe and Responsible Road Users in Britain, c.1900-70

Moraglio, Massimo: A dangerous innovation. Bikers and drivers as criminals in the early 1900s: an Italian case study

Schmucki, Barbara: Innovations at the crossroads: Walking technologies and techniques in the age of mass motorisation

Faugier, Etienne: Histoire croisée of the Introduction of Automotive System and its Impacts In Rural Spaces in the Rhone Region and Quebec Province (1919-1961): Review of a Work in Progress

From Rails to Roads (and vice versa?) Part I: Rails and Roads between Competition and Interdependency (Chair: Stéphanie von Erlach)

Roth, Ralf: Rails and Roads between Competition and Interdependency – A Long and Winding Relationship with Many Innovations That Failed

Divall, Colin: Building Networks: The London and North Eastern Railway's Response to Road Distribution

Edwards, Roy: Technological Change and the Transition from Rail to Road c.1920 – c.1939: An opportunity Lost?

Harcourt, Keith: Rail Containerisation in the United Kingdom and Europe during the 1920s and 1930s

Mobile Cocooning I – An Interdisciplinary Endeavor (Chair: Gijs Mom)

Mom, Gijs: The Prosthetisation of the Car. A History of Automobility, Art and Senses

Krebs, Stefan: Closing the Body: Car Technology, Acoustics and Driving Experience in the 1920s

Terranova, Charissa N.: The Nows of the Automotive Prosthetic

Bertho Lavenir, Catherine: Flirting in the Car: An Anthropological Approach

Integration of European Transport Infrastructures in Comparative Perspective (Chair: Gerold Ambrosius)

Franke, Christian: Changing Patterns of International Infrastructure Governance in the 19th and 20th Centuries in Europe

Dienel, Hans-Liudger: Fractal Integration: International Integration and National Autonomy in Railway Infrastructures

Schot, Johan: Why European Transport Policy Was Lagging Behind other Fields of Infrastructural Integration

Tomeš, Zdeněk: European railways – an application of the life-cycle theory

Take-Off, Turbulenzen, Langeweile. Energie und Innovation in der Zivilluftfahrt nach 1945 am Beispiel der Schweiz (Chair: Javier Vidal Olivares)

Meyer, Benedikt: Offer Creates Demand: The Invention of Air Travel for Mass Consumption

Jaquement, Juri: Technical Innovation and Energy Efficiency in Civil Aviation after 1945

Fehr, Sandro: Aviation Infrastructure as a Condition for the Implementation of Avionic Inventions and as an Area of Invention on Its Own

Lyth, Peter: Afterburning: Concorde, paradigm shift and the slow death of supersonic travel

Crossing Borders: Railways as Agents of National, Transnational and Imperial Integration, 1840-1940
(Chair: Colin Divall)

Sperling, Walter: Imperialist Tropes of Integration: How Railroads ‚Discovered‘ Asia and Imperial Russia (1859-1914)

Kunz, Andreas: Crossing Internal Borders: The German States and Railway Building during the Nineteenth Century

Buiter, Hans: Crossing International Borders: The Cases of Dutch and Belgium Railways, 1835-1940

Killick, John & Keeling, Drew: Transport and Migration: An Index of Transatlantic Fares, 1815-1914

From Rails to Roads (and vice versa?) Part II: Mobility on Roads, an Innovative Success Story of the 20th Century (Chair: Ralf Roth)

Ruppmann, Reiner: Frankfurt am Main and the Autobahn – The Long-Time Impact of the Genetic Code of the „City of Roads“ on Traffic Structures

Vahrenkamp, Richard: Trucking Europe – The European Motorway Network and the European Traffic Policy Boosting Logistics 1950-2000

Flik, Reiner: Creative Destruction? Cars and Road Construction in a Schumpeterian View

History Matters (Chair: Christopher Kopper)

Gray, Ian & McLean, David: History for Policy: What can history do for transport policy and how can it be made most fruitful for that purpose?

Tighe, David: Is history useful or just fun? Ça depend, as my African friends would say. A real-world attempt to draw on it within a website on rural transport planning in less-developed countries

Alam Bhuiyan, M.: Looking Forward to the Future through the Windows of Politics of Transportation Mobility in the United States in Post-WWII Era: A Holistic Approach

Car Culture at the European Periphery 1950s-1970s (Chair: Catherine Bertho Lavenir)

Sousa, M. Luísa & Marques, Rafael: Political Transition, Value Change and the Motorization in Portugal in the 1970s

Gatejel, Luminita: Motorisation from Above. Building Cars and Creating Automobile Desires in Socialist Romania

Østby, Per: Driving Wild in the Northern Periphery – Mass Motorization 1950 to 1970

Errázuriz, Tomás: New technologies, new citizens: urban transport motorization and the arise of modern traffic experiences

Overcoming adversity. The development of Portuguese land and water communications (Chair: Paul Van Heesvelde)

Prata, Ana: The Portuguese Seaport Sector Development: Trial and Error

Fernandes, André: Tagus Traditional Boats and the Modernisation of Regional Transportation System: From a Mode of Transport to a Cultural Construct

Galiau, Sónia: Between the Portuguese Historical Railway Stagnation and the Innovation of High Speed: Opportunities and Threats

Salgueiro, Ângela: The Companhia Real dos Caminhos de Ferro Portugueses: An Instrument of Modernity in Portugal

Cities, Energy, and Networks (Chair: Hans-Liudger Dienel)

López Galviz, Carlos: Electric Underground: Technology and the City Railway, London and Paris, c.1880-1910

Berio, Fabio: Public Transport, Technological Innovation and Competition between Road and Railway: The Evolution of Railcars in Fascist Italy (1922-1932)

Passalacqua, Arnaud: Innovation and Ideology in a Context of Energy Shortage: Keeping the Parisian Bus Network Running during World War II

Bauernschmidt, Stefan: Ford in Inter War Berlin. ‚American Threat‘ – from ‚auto intoxication‘ to ‚inequalities of consumption‘

Automobility, Road (Chair: Christoph Maria Merki)

Booth, Rodrigo: Scenic road in Chile. Motoring and tourist landscape in Viña del Mar, 1917-1931

Cornell, Laurel: Innovations in Truck Design and the Character of the Road System in the U.S.: An Analysis from the Viewpoint of the AASHTO Road Designer, 1954-1990

Burchardt, Jørgen: The transport's industry for the industry's transport: The development of the road transport since 1950

Sumi, Christian: Landscape myths and technology –infrastructure buildings and their implications on changes of landscape

Mobile Cocooning II (Chair: Massimo Moraglio)

Peleman, David: Feeling at home in the car. Innovations in the automobile industry and the exploration of the Belgian territory, 1925-1938

Priyanto, Sigit & Sukanto: Motorcycle Mobility and its Characteristics

Allende, Fermín Portillo: Travelling by Railway from Fictional Literature to Economic History

Comparative perspectives on pre-industrial road transport: Europe, Russia and China (Chair: Hans-Ulrich Schiedt)

Popplow, Marcus: European road transport in the early modern period – developing an agenda for a comprehensive perspective

Kim, Nanny: Road transport in the Far Southwest of the Qing empire

Randolph, John: Understanding the Muscovite Postal Network: Sources for the History of Mobility in Early Modern Russia

Flückiger, Daniel: Transport in the age of bioenergy. A plea to connect isolated approaches to inland transport before the railways

Touristic Innovation? – Tourism in authoritarian regimes Part I (Chair: Heike Wolter)

Duda, Igor: Unwanted Modernization? The Acceptance of Tourism in Croatia under Yugoslav Socialism

Keck-Szajbel, Mark: „Wsiadaj Bracie, Dalej Hop” – How Polish State Socialism fostered Hitchhiking

Inchovski-Turnin, Stanislav Veselinoff: Tourism – Rise to Conflicts? Clash in Various Forms of Mountain Tourism in Bulgaria

Lénárt, András: Tourism in Authoritarian Hungary – A Presentation Based in Interviews with Professional Guides in the Socialist Era and Official Documents

Bicycle and Human-Powered Mobility (Chair: Ueli Haefeli)

Cox, Peter: Energy and the bicycle – Human powered vehicles in perspective

Landerer, Helmut: Law and the Diffusion of Bicycles and Automobiles

Stoffers, Manuel: The Human Powered Vehicle movement and the renewal of transport ideology in the 1970s and 1980s

Innovation in transport and its importance for the tourist industry: accessibility, comfort and prestige (19th-20th century) (Chair: Laurent Tissot, Cédric Humair)

Lapointe, Julie: Lifts in Lake Geneva Hotels in the late 19th Century : Symbols of Modernity, Mobility and Innovation

Sulmoni, Stefano: Innovation and comfort: the example of the Compagnie Générale de Navigation du Léman (1873-1914)

Gigase, Marc: From Geneva to Mount Salève with the First European Electric Rack Railway

Spode, Hasso: „Fremdenverkehr” as an Object of Research On the Origins of Tourism Theory and Tourism History

The impacts of the oil crisis on transport sectors: between innovations made by the private sector and guidelines given by public authorities (Chair: Garth Wilson)

Burigana, David: Pound Trust, Fuel Consumption and Air Traffic Control in Europe. Beside a „Communitarian” Reorganization of Air Industries in the 1970s, the Multipurpose „National” Solutions to Oil Crises of Engines and Airframe Firms, of Airlines and their Governments

Hamelin, Fabrice: How Does the 1973 Oil Crisis Impact Scientific Research on Transport? A Comparison between France and England

Moguen-Toursel, Marine: Elaborating a Less Polluting Vehicle: Between Research Made by Car Makers and Impacts of Public Authorities

Thomes, Paul & Jost, Nina: The electric vehicle – historical burden or tomorrows motive force?

Railway Technology (Chair: Paul Van Heesvelde)

Dougherty, Carolyn: Speed and efficiency in the design of early steam railways

Kvizda, Martin: Odd military lines – a comparative analysis of the Czech railway network's Efficiency

Kluehspies, Johannes: The Maglev option: A high tech innovation – indefinitely delayed?

Schiefelbusch, Martin: Passengers as drivers of innovation in transport planning? Conceptual issues and experiences

Traffic Planning and Funding (Chair: M. Luisa Sousa)

Popkema, Marcus: The establishment of trafficengineering in the Netherlands

Huguenin, Régis: Technical Choices, Management Models and Funding for a Tramway Network in Neuchâtel (1880-1914)

Marquez, Victor: Negotiating Innovation: A Century of Change in the Landside-Airside Boundary

Dietrich, Willi: Die Wahl des Transportmittels – Zur noch jungen Geschichte einer innovativen Mobilitätspraxis

Touristic Innovation? – Tourism in authoritarian regimes Part II (Chair: Peter Lyth)

Howind, Sascha „Kraft durch Freude“ – State Tourism between Fascist Propaganda and Social Reality

Wolter, Heike: Touristic Innovation or plagiarism –GDR's Tourism in Historical Comparison

Steiner, Christian & Richter, Thomas: Tourism Development as an Authoritarian Innovation in Egypt and the Arab World: Strategies, Patterns and Results Since the 1970s

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