

Stephen Graham and Simon Marvin (2001) Splintering Urbanism: Networked Infrastructures, Technological Mobilities, and the Urban Condition. New York: Routledge.

<http://www.ncl.ac.uk/cut/publications/splinteringurbanism.html>

<http://www.lboro.ac.uk/gawc/rb/al3.pdf> Introduction

Excerpts from Splintering urbanism

In their insightful book titled Splintering Urbanism Networked Infrastructures, Technological Mobilities, and the Urban Condition, Graham and Marvin (2001) analyze two defining processes shaping our age: the urbanization of our planet and the uneven connections of globalization. Both of these processes, the authors argue, are underpinned by radical transformations of networked infrastructures: telecommunications, transport, energy, water, even urban streets.

A critical focus on networked infrastructures—transport, telecommunications, energy, water, and streets—offers up a powerful and dynamic way of seeing contemporary cities and urban regions.

When our analytical focus centres on how the wires, ducts, tunnels, conduits, streets, highways and technical networks that interlace and infuse cities are constructed and used, modern urbanism emerges as an extraordinarily complex and dynamic socio-technical *process*. Contemporary urban life is revealed as a ceaseless and mobile interplay between many different scales, from the body to the globe. In fact, mobile interactions across distances and between scales, mediated by telecommunications, transport, energy and water networks, are the driving connective forces of much-debated processes of 'globalisation'. In this perspective, cities and urban regions become, in a sense, staging posts in the perpetual flux of infrastructurally-mediated flow, movement and exchange. They emerge as processes in the distant sourcing, movement and disposal of water reserves and the remote dumping of sewerage and waste. They are the hotbeds of demand and exchange within international flows of power and energy resources. They are the dominant sites of global circulation and production within a burgeoning universe of electronic signals and digital signs. They remain the primary centres of transnational exchange and distribution of products and commodities. And they are overwhelmingly important in articulating the corporeal movements of people and their bodies (workers, migrants, refugees, tourists...) via complex and multiple systems of physical transportation. (excerpt from Intro., p. 8)

Urban Infrastructure Networks as 'Congealed Social Interests'

Second, and following on from this, infrastructure networks, with their complex network architectures, work to bring heterogeneous places, people, buildings and urban elements into dynamic relationships and exchanges which wouldn't otherwise be possible. Infrastructure networks provide the distribution grids and topological connections that link systems and practices of production with systems and practices of consumption. They unevenly bind spaces together across cities, regions, nations and international boundaries whilst helping also to define the material and social dynamics, and divisions, within and between urban spaces. Infrastructure networks interconnect (parts of) cities across global time zones and also mediate the multiple connections and disconnections within and between contemporary cities (Amin and Graham, 1999). They dramatically, but highly unevenly, 'warp' and refashion the spaces and times of all aspects of interaction -- social, economic, cultural, physical, ecological. Infrastructure networks are thus involved in sustaining what we might call 'socio-technical geometries of power' in very real -- but often very complex -- ways (see Massey, 1993). They tend to embody "congealed social interests" (Bijker, 1995). Through them people, organizations, institutions and firms are able to extend their influence in time and space beyond the 'here' and 'now'; they can, in effect, "always be in a wide range of places" (Curry, 1999, 103). This applies whether users are 'visiting' web sites across the planet, telephoning a far-off friend or call centre, using distantly-sourced energy or water resources, shifting their waste through pipes to far-off places, or physically moving their bodies across space on highways, streets or transport systems. (excerpt from Intro., p. 11).

Collapsing Technological Systems The doomsday scenarios about the collapse of infrastructure and technological systems due to the 'Y2K' bug were not, on the whole, matched by experience. But, almost without comment, the last few years have seen the very real and widespread collapse of electricity, power and communications systems in Russia. One of the central modernization efforts of the communist state had centred on the development of extensive and accessible electricity, telephone, water and heating systems within and between Russian towns and cities, initially to support industrialization. Since the collapse of communism, however, many of these systems have decayed and collapsed. Sometimes this has been due to simple neglect and the lack of resources, spares and skilled technicians. In the northern cities of Russia, for example, the free municipal heating systems that made the climate more bearable have often ceased to function, a process that has significantly accelerated out-migration. But the more worrying trend is the large-scale theft of infrastructure networks, especially trunk electricity systems and communications grids. Over 15,000 km of electrical trunk cable have been stolen in recent years by criminal gangs and people in desperate poverty, to produce metals that can be sold on the black market for export. In a striking process of 'demodernisation', large parts of Russia now face power and electric outages for long periods of time as the tendrils that connected them to modernity are literally carted off and melted down for a quick buck. Not surprisingly, there have been devastating consequences for quality of life, economic development and essential services. This process, needless to say, has forced the wealthy and powerful to secure private and uninterrupted power and communications resources for the enclaved spaces where they live. However, those outside such increasingly defensive enclaves are not so fortunate. (excerpt from Prologue, p. 4)

Cities as Socio-Technical Process

In a sense, then, the life and flux of cities and urban life can be considered to be what we might call a series of closely related 'socio-technical processes'. These are the very essence of modernity : people and institutions enroll enormously complex technological systems (of which they often know very little) to unevenly extend their actions in time and space (Giddens, 1990). Water and energy are drawn from distant sources over complex systems. Waste is processed and invisibly shifted elsewhere. Communications media are enrolled into the production of meaning and the flitting world of electronic signs. And people move their bodies through and between the physical and social worlds of cities and systems of cities, either voluntarily or for pleasure or, it must be remembered, through the trauma and displacements of war, famine, disaster or repression.

Social biases have always been designed into urban infrastructure systems, whether intentionally or unintentionally. In Ancient Rome, for example, the City's sophisticated water network was organised to deliver first to public fountains, then to public baths, and finally to individual dwellings, in case of insufficient flow (Offner, 1999, 219).

Increasingly, as Manuel Castells (1996, 1997, 1998) suggests, these processes are directly supporting the emergence of an internationally-integrated and increasingly urbanised, and yet highly fragmented, *Network Society* that straddles the planet. New, highly polarised urban landscapes are emerging where 'premium' infrastructure networks -- high speed telecommunications, 'smart' highways, global airline networks -- selectively connect together the most favoured users and places, both within and between cities. Valued spaces are thus increasingly defined by their fast-track connections elsewhere, as any examination of the intensifying transport, telecommunications and energy links between the dominant parts of 'global' cities reveals. At the same time, however, premium and high-capability networked infrastructures often effectively by-pass less-favoured and intervening places and what Castells calls 'redundant' users. Often such bypassing and disconnection is directly embedded into the design of networks, both in terms of the geographies of the points they do and do not connect, and the control placed on who or what can flow over the networks. Through such processes, Castells predicts that: "The global economy will expand in the 21st century, using substantial increases in the power of telecommunications and information processing. It will penetrate all countries, all territories, all cultures,

all communication flows, and all financial networks, relentlessly scanning the planet for new opportunities of profit-making. But it will do so selectively, linking valuable segments and discarding used up, or irrelevant, locales and people. The territorial unevenness of production will result in an extraordinary geography differential value making that will sharply contrast countries, regions, and metropolitan areas. Valuable locales and people will be found everywhere, even in Sub-Saharan Africa. But switched-off territories and people will also be found everywhere, albeit in different proportions. The planet is being segmented into clearly distinct spaces, defined by different time regimes" (1997, 21).

Virtually all cities across the world are starting to display spaces and zones that are powerfully connected to other 'valued' spaces areas across the urban landscape as well as across national, international and even global distances. At the same time, though, there is often a palpable and increasing sense of local disconnection in such places from physically-close, but socially and economically distant, places and people. Some have even interpreted this widespread pattern of development as signifying some form of convergence between developed, newly industrialised, post communist and developing cities (Cohen, 1996). Because of these dynamics, and the intensifying uneven development of infrastructures, physically-close spaces can, in effect, be relationally severed (Graham and Healey, 1999). At the same time, globally-distant places can be relationally connected very intimately. This undermines the notion of infrastructure networks as binding and connecting territorially-cohesive urban spaces. It erodes the notion that cities, regions and nations necessarily have any degree of internal coherence at all. And it forces us to think about how space and scale are being refashioned in new ways that we can literally see crystallising before us in the changing configurations of infrastructure networks and the landscapes of urban spaces all around us. P. 25

Parallel Disciplinary Failings

.....the inertia of disciplinary and subdisciplinary boundaries has severely hindered understanding of a subject which intrinsically demands and interdisciplinary or transdisciplinary starting point. When literatures on networked urban infrastructure have emerged in planning, geography, urban studies, engineering, and architecture, they have often been inward-looking, technical, and overly-specialist. By way of illustration, we can identify parallel failings across geography, sociology and architecture, which have contributed in different ways to these disciplinary failings to develop critical, cross-cutting perspectives on urban infrastructures and technological networks as a whole. In sociology the early efforts of writers like Lewis Mumford (1934) to create overarching and historically-informed treatments of the interplay of cities, mobilities and technologies, has not been built on.

Breaking Down Interdisciplinary Barriers Firstly, we want to start to break down barriers between a range of largely separated debates about cities, technologies and infrastructure networks. We believe that such disciplinary barriers have long inhibited sophisticated treatment of the interplay between cities and the socio-technical constructions of infrastructure networks and the diverse mobilities they underpin. In this book we therefore try to draw together relevant discussions and debates in urban studies, geography, planning, sociology, architecture, urbanism, urban history, science, technology and society (STS), engineering, social theory and communications studies into a single, integrating narrative. p. 51

As Michael Peter Smith has argued, all urban places are now, in a sense, 'translocalities' with multifaceted and multiscaled links and connections elsewhere. This means that "there is a need to expand the study of transnational urbanism to encompass the scope of transnational processes, as well as to focus future urban research on the local and translocal specificities of various transnational sociospatial practices" (2000, 133). To him "future urban research ought to focus considerable attention on comparatively analyzing diverse cases of *transnational network formation* and *translocality construction*" (ibid. 134, original emphasis).