Guest Editorial

Understanding Architecture, Accounting Society

The special issue tackles two problems in the STS field: First, the gap of knowledge on cities, urban networks, architectural design and innovation in the STS theory, and second, the lack of dialogue between scholars who have explored urbanism with STS tools but ignored architectural design, and those who pursued STS analysis of design thinking without considering cities and urban change. Thus, the volume explores the role STS theory can play in furthering our understanding of architecture and cities: What does it mean to produce a socio-technical explanation of buildings, urban networks, design processes, city developments? What kind of conceptual tools are needed to understand innovation in architecture or the dynamics of urban change, cognition in design or the practices in the studio, cities as socio-technical phenomena or the invisible urban networks that shape big metropolises?

Science Studies have recently begun to tackle more explicitly questions of how space, locality, urban infrastructure and city development matter in the production of scientific knowledge. Taking inspiration from geography, urban studies and architecture, historians of science have drawn attention to the importance of space to the credibility of scientific claims, and looked at the city infrastructure and the architecture of various scientific buildings and laboratories as socio-spatial settings affecting the production of knowledge. This recent development in history of science included key publications from both historians of science and geographers (Galison and Thompson, 1999; Livingstone, 2003; Gieryn, 2006; Osiris 18 (2003); Osiris 19 (2004)).

The analytical potential of connecting STS and urban studies is not new. Looking back ten years or so we can find calls for just such a marriage. What characterizes this engagement is the desire for conceptual means to mediate the relationship between the materiality of buildings and cities and the heterogeneous processes and practices through which the built environment is designed, developed, inhabited, redesigned, demolished, rebuilt and re-inhabited. Dissatisfied with readings of the city that saw buildings as a mere backdrop or 'theatre' for social interaction, or alternatively, readings of city form as determining social structures and practices, these researchers desired a more relational understanding. Brain, for instance, highlighted the need to unravel "what social relations, strategies of action, and possibilities for transformation are built into cultural artefacts" (such as buildings) (Brain, 1994: 216). Drawing upon STS, he encourages us to view architects as 'engineer-sociologists' who "define both the characteristics of the artefact and the 'social universe' in which it is to function- (Brain, 1994: 198). Other attempts of approaching urban and architectural issues with STS methodology followed: they investigated the invisible networks that shape big metropolises (Latour, 1998), the town planning as technology and the city as an 'enormous artefact' (Aibar and Bijker, 1997); urban obduracy and change (Hommels, 2005); the 'interpretive flexibility' of sustainable architecture (Guy and Moore, 2005), the different actor-networks that under-pin buildings and the complex negotiations

in the process of design and development (Guy and Shove, 2000).

In spite of the few attempts highlighted above, STS attention is still rarely focused on the architectural practices or urban development. However, there appears a growing interest of the STS community to the issues of urbanism, architectural and urban design[1]. Certainly, recent conferences and workshops have witnessed this interest[2], while some publications in the architectural press have also expressed an interest in STS topics and methodology[3]. It is note-worthy that these attempts to relate STS and Urban & Architectural Studies relied to a particular sub-field of STS – Social Construction of Technology (SCOT). Although the Actor-Network-Theory (ANT) has been largely used over the last thirty years to understand science, expanding its methods to engineering design, technological innovation, medicine and economics by 'following the actors' in their routine practices, accounting for their actions and transactions in complex spatial settings and unpacking the materialisation of the successive operations they perform, it has been rarely used to account for the production and consumption of urban and architectural artefacts, and for the change in the built environment. The architectural practice has for the most part escaped the attention of the anthropologists of science (however see: Callon, 1996; Yaneva, 2005; Houdart, 2006). In sum, there appears to be little dialogue between scholars who have addressed issues of STS & Urbanism (using mainly the studies of Large Technological Systems or the Social Construction of Technology approach) and those who have tackled architectural thinking and design processes using primarily the Actor-Network-Theory.

Thus, taking as a starting point the assumption that STS theories are relevant for the analysis of cities, architectural design, and urbanism, we propose to put a variety of new or rarely addressed topics on the pages of *Science Studies,* and on the STS agenda—architectural and urban design, buildings, urban networks, cities—and by so doing to also encourage a new dialogue between Architectural and Urban Studies, from one side, and STS/ ANT, from the other; a dialogue that, we believe, will cross-fertilize the two fields.

The main themes presented in this issue[4]

The contributions in this volume are based on extensive fieldwork in architectural offices or surveys of design and urban development processes and cover a vast range of empirical examples and case studies, such as: the city of Kavala on the Balkans, the perspective drawings of the Japanese architect Kengo Kuma, the 'surprises' of a recalcitrant building undergoing renovation in the city centre of Vienna, etc.

Maria Rentetzi interprets the architecture of an early century industrial building—the tobacco warehouses in Kavala, Greece—as a powerful tool for configuring the identities of tobacco workers providing the means to tobacco merchants to publicly present themselves and their achievements. Drawing on the science studies tradition that questioned the multiple connections between architecture, spatial and material arrangements of scientific buildings and the particular types of scientific knowledge and identities that are being forged with architectural and urban tools (Galison and Thompson), Rentetzi sees the warehouse architecture in a similar fashion—as facilitating better productivity

and generating specific identities. She connects in a novel way the architectural profile and spatial arrangement of this building type with the particular way it acted as a natural mechanism for emphasizing the hierarchical dichotomy of private and public spaces, the relations between skilled and unskilled workers, between the overseers and the overseen, between strikers and strike breakers. Industrial buildings, one can learn from Rentetzi's contribution to the volume, similar to science buildings, play an active role in transforming identities, setting divisions and exercising control and surveillance.

Moore & Karvonen set out to explore how STS analyses can be enriched by epistemological debates in design studies around the relationship of design to context. Drawing upon the work of planning theorist Bent Flyvbjerg, they identify three modes or dispositions of design—context-bound, context-free, and context-rich, which they explore as design dispositions, each with a distinct technological frame that relates communities, individuals, designers and the artefacts they design. They compare and contrast these three frames as 'ideal types' of design thinking in relation to their assumptions about individuals and designers, forms of knowledge, attitudes to truth, futures and technologies and so on, exemplifying each frame with typical construction practice—straw-bale, prefabrication and design/build. These three design dispositions, they argue, offer alternative ways for STS researchers to engage with the design of the built environment. In particular, the context-rich disposition echoes the inclusive relationship to users already familiar in constructive technology assessment approaches and aims towards the co-construction of urban futures. Learning from the work of designers working in a 'context-rich' frame, the authors argue, could facilitate a more engaged STS practice towards the built environment.

Drawing on the actor-network-theory, *Sophie Houdart* accounts design in the making in the office of the Japanese architect Kengo Kuma. Basing her findings on extensive ethnography of this practice, Houdart shows architectural montages as cosmologies in the making and depicts their production as a process of gradual shaping of new social worlds, which make possible the cohabitation of a variety of humans and non-humans. She sets some provocative questions for architectural theorists—How do architects shape new worlds? What are the cosmologies they render and version in design?—suggesting that architectural design is also a complex work of testing and shaping new social configurations and cosmologies. A careful ethnographical account of the minute operations of rendering, translating, computerising, and substantialising the perspective drawings guides us slowly towards a better understanding of the practices of designing architects in this Japanese office. To render drawings in design means, according to Houdart's ethnography, *to render* particular social worlds. If Rentetzi's case shows convincingly how the design of industrial buildings is capable of shaping particular social identities, with Houdart's case we rather witness the specific micro-shaping of individualities at the level 'pixellisation', and observe how the nature of all those beings that populate the architectural visuals is redistributed through minuscule design operations of matching, mapping and importing.

Using a similar ANT approach to follow design practices, *Albena Yaneva* investigates a building renovation case. Like Houdart, she has spent entire years to

follow and account the practices and the variable ontology of numerous human and non-human actors involved in design and construction processes. As compared to Houdart, whose ethnographical observation does not quit the practice of Kuma's office, Yaneva engages in an 'outside-studio' ethnographical survey of practitioners at work. Following the slow transformations of a building undergoing renovation and accounting some situations of 'surprise', she shows that renovation, repair, and adaptation related design brings the social and technical factors in one analytical view and reshuffles them all together. 'Surprise' points to an epistemology of the practice of building renovation that entails all the participants to redefine their knowledge, competences and artistry in the moment when the design routines are 'breached'. Dismissing the traditional definitions of buildings as static backdrops of activities or as entities subservient to the laws of technical causality, a building-in-renovation emerges as a full-blown actor. That is, an anti-substantialistic understanding of buildings based on an observation of what they do, i.e. on their repertoire of actions—docility, obedience, counter-actions and recalcitrance. Far from being a passive material in the hands of preservationists and renovators, an intermediary that would transport meaning without transformation and would reify the social, a building-in-design rather acts as a complex mediator skillfully redistributing the agency among human and non-humans, provoking contextual mutations and *modifying* the social meaning attributed to it instead of faithfully transporting it through the centuries.

A second special issue that develops the same theme is planned by the guest editors

Notes

1 Some articles in a thematic issue of the *Journal of Architectural Education,* "Technology and Place", Spring 2001 (edited by Steven A. Moore and Kenneth Frampton) have focused on STS methodology as an interpretive tool for architecture in North America, but have used mainly the research methodology of social constructivism to investigate the complex and conflicted values of architecture. Two special Issues of *Osiris,* 2003 and 2004 (Journal of History of Science) have explored recently the connections between history of science and urban studies, and history of science and medicine and environmental history and geography.

2 "Transforming Spaces: The Topological Turn in Technology Studies", 2002, Darmstadt, Germany; Special session "Doing Architecture, Accounting Society: Social Studies of Architecture Practices", EASST 2002, York, UK; "The Artistry of Thinking like an Architect: Stories from the Architectural Office", 2005, Akademie Schloss Solitude, Stuttgart, Germany; Session on "STS and the city", 4S Society in Vancouver, November 2006.

3 See some recent publications in Grey Room and more specifically Martin (2005).

4 Some of the papers included in this issue have been presented and discussed at a special session, organised by the guest editors: at the annual conference of the British Sociological Association

in April 2007 (http://www.britsoc. co.uk/events/Conference.htm). This session entitled "Connecting Sociology to Architecture: Learning from STS" gathered scholars from different disciplines who have already undertaken research on architecture and urbanism from an STS perspective. We benefited from the comments of Professor Bruno Latour who acted as a discussant in the session.

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Albena Yaneva
Manchester Architecture Research Centre,
University of Manchester, UK

Simon Guy
Manchester Architecture Research Centre,
University of Manchester, UK