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Afterword: Planning and the Non-Modern City

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Planning has always been relational. Since its founding in the first decades of the twentieth century, planning has involved multiple processes of aligning people and things in specific configurations through policy making, regulation, zoning, masterplanning, participatory decisionmaking, and visioning. Macmillen and Pinch (this volume) note that the planner's worldview is a holistic one that identifies and knits together the city as a whole. From this perspective, the term 'relational planning' is a tautology. What would a non-relational form of planning look like? And how would it achieve planning's general aims and objectives?

However, acknowledging that planning is relational is a far cry from *understanding* this relationality. Interpreting and shaping the multitude of human and non-human relations in cities is a perennial challenge for planning scholarship and practice. This is where Science and Technology Studies (STS) comes in. By employing a range of theoretical approaches and ideas, STS disrupts conventional approaches to planning that are based on certainty, control, and prediction. Instead, the STS perspective champions the indeterminate, multiple, and muddled character of cities. Such a post-positivist perspective is a ready target for critique as intellectual grandstanding that employs unnecessary and opaque terminology to create arguments that ultimately lead nowhere. But this would overlook the usefulness of STS concepts to decentre and destabilise prevailing planning theory and practice and to produce deeper and more nuanced accounts of cities as relational achievements.

At the root of this scholarship is a profound dissatisfaction with the technocratic, modern origins of planning as well as the discursive, post-modern communicative approaches that have dominated since the 1980s (Kurath, this volume). Instead, an STS-inspired planning explicitly engages with associated disciplines – geography, architecture, sociology, anthropology, political science, and economics, among others – to develop a *non-modern* perspective on how planning theory and practice shapes cities. A non-modern view of planning recognises that existing urban conditions are not inevitable, stable, and easily understandable; instead, cities are contingent, incomplete, and always in the making. This opens up planning to new ways of knowing and doing and has the potential to make the discipline more vibrant, engaging, and relevant.

An STS approach to planning theory and practice

Traditional planning is based on a positivist understanding of a singular world where linear chains of cause and effect invoke change. In contrast, STS scholars take a post-positivist stance to unpack the modern underpinnings of planning theory and practice. They emphasise the significance of contingency, uncertainty, fluidity, and plurality (Metzger, this volume). Adopting such a *sociotechnical* perspective recognises that humans are bound up in technological systems and there is a need to understand how these systems are conceived, designed, constructed and maintained, and by whom and for what purposes. At the centre of STS analysis is an inquiry into knowledge production and how competing claims about the world are developed, debated, and ultimately settled. There are many parallels here between scientific and technological knowledge production and the ways that planners conceive of and shape cities with competing knowledge claims and expertise. In addition to its epistemological stance, STS forwards an alternative ontological perspective that encourages us to interpret the world differently. Non-humans such as animals, plants, bricks, automobiles,

digital images, and so on are equally important to human actors in planning activities. As Kurath and colleagues (this volume, p. 4) note, 'materiality can be used to rethink power, space and its distribution in planning processes.' This results in a more heterogeneous worldview that is simultaneously hybrid and relational.

Despite these epistemological and ontological shifts, the radical character of the STS approach is not always apparent. This is in part because STS does not embody a formal discipline or coherent discourse; instead, it is more accurately described as an attitude, a perspective, or a sensibility (Söderström, this volume). There is no sociotechnical recipe book that can be followed to study planning practices. Instead, STS provides inspiration and guidance on studying planning in new ways; it is performantive rather than prescription. The overarching aim is to develop deeper, more nuanced understandings of cities by moving beyond conventional categories of analysis and explanation (Guy and Karvonen 2011). It stretches and disrupts existing modes of inquiry and practice, resulting in more complex and richer accounts. The lack of concreteness, boundaries, and definitions is at once stimulating and confounding. It can be playful, inventive, and curiosity-driven but can also be confusing, nonsensical, and contradictory. It encompasses a subtle but profound revolution in thinking about cities.

In the 1980s, STS scholarship that engaged with cities was relatively contained and easy to summarise. A common touchstone was the work of historian Thomas Hughes on electricity networks and his notions of the seamless web and technological momentum. This inspired the discourse of Large Technical Systems that expanded beyond electricity to include detailed sociotechnical studies of water, transportation, and other urban infrastructure networks (e.g., Mayntz and Hughes 1988, Summerton 1994, Guy 1997, Latour and Hermant 1998, Graham and Marvin 2001, Coutard 2002, Hommels 2005). At the same time, a handful of geographers, architects, sociologists, and political scientists began to adapt the early STS work on natural science laboratories and science and technological knowledge production to the urban context (e.g., Brain 1994, Murdoch and Marsden 1995, Philol 1995, Söderström 1996, Swyngedouw 1996, Aibar and Bijker 1997, Graham 1998, Harvey and Chrisman 1998, Star 1999). By the early 2000s, STS notions of cyborgs, boundary objects, actants, technological frames, and hybrids were proliferating through the urban disciplines at a rapid pace, instigating a multitude of new ideas related to knowledge production, materiality, embodiment, and politics. Today, one would be hard pressed to define a coherent 'urban STS' discipline or discourse. Instead, STS inhabits a wide range of existing disciplines, stretching and amplifying debates while resisting a tidy and coherent literature review or categorisation.

This volume reveals the diversity of STS theories and approaches that are being employed to understand a particular facet of urban scholarship, namely planning. There is a strong influence of actor network theory (ANT), and the early work of Bruno Latour in particular, as inspiration for unpacking the knowledge claims and hybrid character of planning practice. However, the chapters demonstrate how Latour's version of ANT is but one of many approaches that is useful for studying cities; the contributors also bring in ideas from assemblage theory, cosmopolitics, the social construction of technology, material politics, and beyond. Moreover, the diversity of STS is embodied in the contributors themselves. Some of the authors consider themselves to be STS scholars who happen to study cities while others self-identify as urban scholars who use STS tools and terminologies to enhance and extend their work. Their shared aim is to understand how knowledge is constructed and deployed, and how human and nonhuman come together, in an attempt to bring planning scholarship closer to how cities actually exist.

Doing STS in cities

A common characteristic of STS studies of planning is to gather empirical data through activities of tracing or following (Rydin et al., this volume). Research methods tend to be qualitative and descriptive with a strong emphasis on producing detailed accounts. Sepulveda (this volume) refers to this approach as a 'micro focus' of

data gathering. This contrasts with the majority of existing planning scholarship that relies on predefined categories and structures to produce more general accounts of planning practice. With STS, there is a conscious rejection of predetermined categories and instead, insights are generated from gathered evidence. There is a focus on following knowledge claims to understand how they are conceived, negotiated, combined, and taken up. However, this is not so much inductive form of scientific inquiry but rather the employment of abductive reasoning as is common in American Pragmatism and in particular, the work of John Dewey (Latour, 2004; Marres 2007, 2012; Farías, 2011; Karvonen, 2011; Blok, this volume). There is a focus on the doings of planners, of studying those activities and conditions on the ground that make and unmake the relations that hold cities together. Description and interpretation are championed over causal links and this is all situated in particular places. As Farías (this volume) describes it, STS is 'an open investigation into the world'.

This methodological approach of tracing produces rich narratives with nuanced understandings of how urban realities come into being. And the hybrid ontology of STS means that tracing is not restricted to humans but also includes non-humans. Examples in this volume including public markets, masterplans, texts, exhibitions, zoning codes, maps, abandoned buildings, visualisations, and even entire cities. Macmillen and Pinch (this volume, pg 4) acknowledge the 'quiet, unremarkable agency of objects' as central to how planning is conceived and undertaken. Such a 'more-than-human' (Whatmore, 2006) approach extends planning studies beyond discursive accounts of cities and instead, it reveals the experiential and embodied character of planning where things are as important as humans (Beauregard, 2015; Rydin et al., this volume). And the inclusion of the non-human recognises that the relations are not simply networks but atmospheres, we are not just connected to but embodied by things (Söderström, this volume; Paulos, this volume).

Beyond the inclusion of non-humans, STS studies of planning are focused on tracing the relations between humans and non-humans. This raises fundamental questions about what exactly is being related and how the relating occurs. Mediation serves as a recurring theme in this volume and reveals how particular actors (both human and non-human) introduce and hold together particular linkages. Mediation can be done by humans but also by nonhumans including images, plans, maps, models, and discourses (Söderström, this volume; Rydin et al, this volume). Planning here is a process of aligning and harmonising. Alternatively, tracing activities can be used to 'open the blackbox' of planning practices to reveal what has been hidden, suppressed, taken for granted, or ignored (Marskamp, this volume; Farías, this volume; Hommels, this volume; Blok, this volume). In both cases, planning is understood as an activity of relation building or sociomaterial assembling. It involves the constant but partial orchestration of ideas and things in particular places. Such a perspective shifts our gaze from powerful actors and their actions to the connections between actors and artefacts.

Planning and the non-modern city

Cities are messy, planning is messy. Things do not come together as nicely as we would like, they do not necessarily add up (Metzger, this volume). It is one thing to say that cities are multifaceted and complex and quite another to engage with and study this complexity and make sense of it. STS provides a way to interpret and engage with urban messiness without oversimplifying and missing out on the essence of cities. Moreover, STS sparks the urban imaginary and challenges us to think differently about the spatial, material, and discursive aspects of cities. The contributions to this volume demonstrate how planning scholars are engaging with the non-modern character of cities; its complexity, ambiguity, indeterminacy, and uncertainty. While this is a more challenging way to interpret and understand the world, when done well it provides is more accurate and arguably more useful accounts.

The relational planning perspective shared by STS scholars in this book is a means to provide richer accounts of planning ideas and activities. Relationality is not as simply an acknowledgement that things are connected but embodies a radical ontological and epistemological shift. If we intend to embrace this perspective seriously,

then we need new methods and procedures to conduct planning. Surprisingly, the methods used to study planning from an STS perspective are largely conventional: interviews, site visits, focus groups, observation, discourse analysis. These methods are useful for gathering empirical data and developing rich accounts of planning practices. However, they tend to interpret nonhumans rather than engaging with them directly. Emerging non-representational methods that are spatial, embodied, and action-based have yet to be employed to unsettle the research process and bring in a wider range of empirical findings (Pryke et al 2003, Thrift 2008, Vannini 2015, Kurath this volume, Metzger this volume). This has the potential to destabilise the research process and potentially making the empirical accounts more robust while bringing in material agency in more substantive ways.

Another challenge of STS and planning scholarship is to go beyond description and interpretation and help us plan cities more effectively. While the perspective reveals new insights about policymaking, zoning, masterplanning, participation, and design practices, followup activities are rarely considered or proposed. There is a need to develop modes of scholarship that are not only descriptive and reflective but that can also engage with the politics of urban development (Woodhouse, et al 2002; Coutard and Guy, 2007; Blok, this volume). This would foreground the normativity of planning and help to articulate and support the often implicit agenda of planners to create a 'better' world (Marskamp, this volume). Fortunately, the planning practice provides multiple modes of action research and applied teaching and learning that can supplement and enhance the STS perspective. In this way, we cannot only expect STS to influence planning but also for planning to influence STS.

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