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INTRODUCTION

BRIGHT LIGHTS, GLOBAL CITIES

The global city has been with us for some time now. At some point in the 1990s, it became clear that the imagined geography of the nation-state was being challenged by the likes of New York, Tokyo and London, that cities were making impacts on the world disproportionate to their territorial footprints and that the apparently inexorable suburbanization of economic activity was faltering. More recently, Asia Pacific cities such as Shanghai, Singapore and Sydney began to be mentioned in a similar vein as they grew rapidly in both stature and size. The symbols and signifiers of these cities were often presented in the media with both bravado and disdain: scurrying crowds of suited bankers, gleaming office towers, luxury brands, extravagant bonuses.

Many working to promote this image were far from disinterested. It has been increasingly obvious that consultants seeking global brand recognition see cities as a universal field of understanding. And so, the long-established Brookings Institution partners with the investment bank JP Morgan to develop global cities benchmarking; the management consultancy Accenture produces its Global Cities Strategy; the architecture and engineering firm Aecom launches its own Global Cities Institute; the giant information technology firm IBM promotes smart cities strategies which seek a universal systems-based solution for urban issues. Then there are the seemingly endless lists of city rankings, often promoted by media brands: the magazine *Monocle* produces its own quality of life urban rankings, *The Economist* orders cities according to ease of doing business. The list could go on, but the point should be clear: even speaking about global cities is an industry in its own right. And, above all, there is a sense that cities are always involved in practices of comparison, self-assessment and promotion for reasons that are sometimes very practical, and sometimes highly nebulous.

The response within scholarship has been widespread and varied. Globalization as a theory has been gathering in significance across the social sciences and humanities since the 1970s (James and Stenger 2014). Saskia Sassen's *The Global City: New York, London, Tokyo* (1991) brought this to the study of cities, arguing that the mere possession of corporate headquarters was not enough for cities to 'command and control' the increasingly financialized world economy of the 1980s. Rather, it was the co-presence or agglomeration of interacting producer services firms that gave cities their ability to influence global flows. From the UK, a cluster of scholars working within Loughborough University generated both significant theoretical framings of a world cities network (for example, Beaverstock et al. 2000; Taylor 2004), as well as

hosting the the Globalization and World Cities (GaWC) website which gathered a diverse range of working papers and reports from scholars worldwide. The landmark *Global Cities Reader* (Brenner and Keil 2006) runs to 50 extracts from a wide range of perspectives including fields of representation, cultural identity, and the nature of the concept as a sociological and geographical problematic. The field continues to be expanded and developed, both in terms of an explicit exploration of global cities as a concept (for example, Acuto and Steele 2013; Bassens and van Meeteren 2015), but also through ongoing debates about the nature of ‘city’ and ‘urban’ as explanatory concepts (for example, Robinson 2006; Brenner and Schmid 2015; Davidson and Iveson 2015a, 2015b).

My focus here is on exploring a set of quite diverse literatures which together explain, or call into question, what, exactly, could be called global, what constitutes a city, and what objects and practices are involved in putting the two together. A number of theorists have worked to provide contrasting entry points to the world cities and global cities literatures: Richard Smith (2003a, 2003b), who provided some early, radically post-structural set of analyses to the field; Jenny Robinson (2002, 2005, 2006, 2011, 2013), whose ‘ordinary cities’ motif sees the global ascription as being part of a categorizing impulse rooted in Western modernity; and anthropologists who explore the nature of local knowledge and contingency (e.g. Roy and Ong 2011). My purpose in the book is to work across these different literatures in a dialogue with my own empirical observations over the years (e.g. McNeill 2003, 2009a, 2010, 2014, 2015a, 2015b). I have also like many been influenced by the work of actor-network theorists, and especially Bruno Latour, whose ‘flat’ ontology of networks is well known and aggressive in its opposition to scalar analysis; as one commentator summarized, ‘the actor does not pre-exist the network but arises as a product of it ... the actor [is] a relational effect ... it does not take actors’ capacities as pre-given black boxes but problematizes the very process and precariousness of assembling them’ (Müller 2015: 72).

Throughout, I have focused on a series of objects or sites that serve to *concentrate* the city. Their material density means that a small number of sites have a disproportionate effect on the surrounding urban territory and have powerful, long-lasting, durable impact on their relations with other places, objects and peoples. Through a wide range of urbanized practices such as sacralization, ordering, governmentality, indexicality, hospitality, air conditioning and prediction, these cities are being both composed and acted upon in a material way. However, just listing and describing these practices, devices and sites is not sufficient in itself, and the book works with several standpoints of origin: the importance of cultural and political economies of cities; the significance of the material density of global cities, and their concentration of devices; and the nature of how people and objects, the socio-material, act together to produce these spaces.

Certainly, following materiality through to its logical conclusion could be as exhausting as it is exhaustive. So in these chapters, I follow the materiality of key techniques in the production and programming of big city space. By production,

I am alluding to Lefebvre's broad-based discussion of Marxian forms of space development, with its underpinnings of land value, architectural space shaping, modes of maintenance, leasing and redevelopment. By programming, I refer more specifically to the ways in which space is organized for analysis in various ways:

The notion of programmes, or the realm of the programmatic, refers to all those designs put forward in a wide range of more or less formal documents by those who seek to configure specific locales and relations in ways thought desirable. Philosophers, political economists, philanthropists, government reports, committees of enquiry and so on all seek to re-present the real as something programmable, susceptible to diagnosis, prescription, improvement, and even cure. (Mennicken and Miller 2012: 17)

To do this, each of the chapters makes reference to a range of sites within 'big cities' to form a stage where a set of tales might be set forth that can build to an urban theory of global cities. They include Rome, Paris, Hong Kong, London, Mumbai, San Francisco, New York, Singapore and Sydney. These cities are of interest precisely because they have massive 'hinterland' effects, both as models to be copied, but also as centres of influence.

While there is a perception that global cities are linked everywhere, all the time, always on, specifying their power is a lot more elusive. Moreover, economically powerful cities may be far less significant than cultural and political centres. It is important to think about cities like Jerusalem, which pervades any discussion of the Middle East, the political division of Berlin during the Cold War, the status of Washington, DC and Brussels as places with, perhaps, the greatest number of accredited journalists in any one city, or, in one case I examine here, the role of Rome as the secular container for the world's smallest sovereign state, but the home of the largest global institution in terms of active membership. In getting to grips with this global and local dilemma, I draw on Latour's far-reaching observations, on networks, relations and interactions. I discuss this more in Chapter 2, but for now, consider the following argument:

no interaction is what could be called isotopic. What is acting at the same moment in any place is coming from many other places, many distant materials, and many faraway actors ... no interaction is synchronic ... and interactions are not synoptic. Very few of the participants in a given course of action are simultaneously visible at any given point. (Latour 2005: 200–1)

The aim is, then, to zoom into some of the key engineering sites in the concentrated city. To be more specific, each chapter in the book illustrates some kind of urban technology and city material: the cathedral of St Peter's, itself a machine for expressing power; the sometimes clunky apparatus of the state, with its files, surveyors' offices, litter-bin warehouses and traffic engineers; airports, skyscrapers, glasshouses and hotels.

The mundane operations of these urban spaces are sometimes taken for granted, but are underpinned by calculative practices which value, monitor, and order how people and objects co-produce cities.

It is increasingly fashionable to present the city as having floated free from the nation-state as a site of both prosperity and cosmopolitan identity. Texts such as Ed Glaeser's *Triumph of the City* (2011) or Richard Florida's *The Rise of the Creative Class* (2002) surf upon simplified metanarratives of what cities are and where they are going. By contrast, scholars such as Aihwa Ong (2006), working in a post-developmental context, have argued that many nation-states have been reconfiguring many of the existing power relationships within nation-states and creating a 'graduated sovereignty' of rights and territories. Anderson (1996) explores the possibilities of a 'new medieval' approach to territoriality that conceives of political power as being expressed through multiple organizational forms, some of which are territorial, and some of which are not. In a similar vein, Elden traces the evolution of the concept of territory as being a calculative construction:

Since the seventeenth century, the predominant ontological understanding of the world has been its calculability. If we are to make progress in understanding the geographies of globalization in relation to their territorial, deterritorialized and reterritorialized aspects, it behoves us to understand what their conditions of possibility are. The point is where to begin. (2005: 16)

Elden doesn't explicitly discuss cities in this essay, but he does give some indications about how we might conceive them. On the one hand, cities lie completely within state borders: they appear to be safely territorialized, showing up in censuses, with a city government that sits within a neatly scaled hierarchy of authority. On the other, they are famously porous and unruly due to their density and sheer population size: they are often described as difficult, problematic to govern, unstable. As Elden has argued elsewhere, territory 'is a process, not an outcome ... a political technology, or a bundle of political technologies, understanding both political and technology in a broad sense: techniques for measuring land and controlling terrain' (2013: 36).

The purpose of the book is to identify some specific processes, practices, devices and sites that help to position the term. This involves getting beyond the scalar trap that often dominates debate:

Especially within the social sciences, it has been common to encounter fundamental splits in terms of scale: discussions are often organized in terms of the micro, macro, and meso, for example, as well as local and global. Often rancorous disputes are organized around a host of similar-sounding dualisms: micro/macro, large/small, global/local, particular/general, near/far, and so on ... Typically, adherents to 'micro' analysis are criticized for their resistance to broad generalization. Those in the 'macro' camp are criticized

for their vagueness, for lack of rigour and for the ease with which they jump from particular examples to general conclusions. (Thrift et al. 2014a: 2–3)

For this reason, many scholars are now turning to a range of practice-based measures to work out how cities and globalization are brought into being, on a continual basis. In what follows I tell some stories of cities – or sites, better said – because of their uniqueness, but also processes that are by their nature highly generalized. It isn't either/or, but both.

Furthermore, this means that the sites of the formation of global cities cannot be assumed, or parodied, or glossed. It requires a textured and fine-grained discussion of how sites such as airports are far from being non-places, but are rather constructed through intense specialist practices and workplace sociality that enable and enact both short- and long-distance mobilities; that offices are so important to societies and economies that they might, in aggregate, be regarded as 'territories'; that hotels of all types and standards act as a motor for the essential circulatory nature of global capitalism; and that cathedrals, mosques and temples and their associated buildings are influential organizational sites in shaping wider societal attitudes to the world. From this we can see that there are key individuals who use these sites as a way of ordering societies and capitalism: the CEOs and executives of firms, the engineers, designers and managers, the theologians and preachers.

Similarly, these human actors work with objects and devices, together making or performing the economies of these sites (Barnes 2002, 2008; Christophers 2014). Timothy Mitchell, whose book *Rule of Experts* (2002) charts the formation of the territorial Egyptian state, suggests the need to provide a 'genealogy of the economy' (p. 83), focusing on the tools and techniques deployed to build the state. A growing population had to have certain services provided; to provide the services, revenues for taxation had to be raised. Without knowledge of who owned what piece of land, rent collecting was very patchy. And so, the Egyptian government developed a mapping office which was combined with a set of calculative, statistical practices in order to provide a 'scientific' reading of the economy. As Mitchell says:

New forms of architecture, engineering, science, schooling, statistical knowledge, finance, commerce and government were ordering up a world in which buildings, educational establishments, technologies, commercial houses and the 'visible institutions of the state', in Simmel's phrase, presented to the individual what now looked like an 'objective culture'. (2002: 97)

And yet, the techniques of measurement and division – fairly crude – were subject to material degradation and disrepair, affecting government's ability to be performed. An absence of trained surveyors would hinder the speed with which the territory was established as a stable object of governance. Little has changed in the context of the global city.

CULTURAL AND POLITICAL ECONOMIES

Cities – and for that matter other spatial formations – are not purposeful or bounded economic entities, but sites where the full variety of the ‘economy in general’ is made visible and juxtaposed, but with crucial effects resulting from the particularities of ‘placement’. The urban is not just a microcosm of the world, a window through which the economy can be read, but also a forcing house with considerable power to drive and shape the economy through its gatherings. (Amin and Thrift 2007: 150)

In two significant commentaries, Ash Amin and Nigel Thrift (2002, 2007) set out to reorient ways of theorizing cities as being driven by a performative, experimental capitalism. Their particular interest here is the city as an economic engine, not as an ‘economic sphere in its own right’, but instead as a ‘composite space with compositional capability’ (2007: 150). In some ways, this could be seen as a cop-out: the ill-defined city with a vague sense of agency. Nonetheless, they are correct in identifying ‘the need to grasp a phenomenality that cannot be known through theory or cognition alone’ (p. 9). ‘An everyday urbanism’, they argue, ‘has to get into the intermesh between flesh and stone, humans and non-humans, fixtures and flows, emotions and practices’ (p. 9).

Amin and Thrift have provided an important stimulus to understanding the concept of ‘cultural economy’. This term has moved beyond the early ‘additive’ model (‘in which all that was attempted was to add a cultural element to an economic explanation’), to a ‘hybrid model in which the two terms, culture and economy, are dispensed with, and instead, following actor-network theory and similar approaches, attention focuses on different kinds of orderings’ (2004: xiv). Read in conjunction with the broader shifts in economic sociology and political philosophy that underpinned their book, they made a significant attempt to bridge the cultural and the economic, often seen as two very different epistemological standpoints. Three of their keywords were transitivity (‘spatial and temporal openness of the city’, 2007: 9), rhythms (a Lefebvrian, or perhaps James Joycean, emphasis on everyday encounter and multiple and parallel time-spaces of daily life) and footprints, a simpler metaphor that dealt with the presence of things left behind, either from many years hence, or the split second of anteriority that can be cognized by the urban user.

However, this opening to a fuller sense of the cultural sometimes underplays the important structuring role of specific firms and business coalitions in the constitution of urban economies. In diverse ways, firms large and small channel many of the objects and experiences that we understand as urban culture. In this book we encounter several of them, from the software products of Uber and IBM, to the portfolio strategies of property developers, to the hotel-management practices of the likes of Hilton and Marriott, to the increasingly commercial practices of airport operators. While many discussions of the flow of goods and ideas

through cities have focused on state action, there is little doubt that there is a suite of global service firms that seek to standardize sets of practices, standards and norms that enable the global harmonization of trade, investment and transactions (Beaverstock et al. 2013; Faulconbridge 2006; Boussebaa et al. 2012).

In particular, a relatively small world of accountancy firms – the ‘Big Four’ audit firms of KPMG, Ernst & Young, Deloitte and PwC – along with major management consultants such as McKinsey are present in many cities worldwide, and normalize business standards through a ‘zonal’ establishment of rules, procedures, and norms (Barry 2006). Similarly, major IT and computing firms such as SAP, IBM and Apple seek to produce economies of scale in selling their products, and increasingly seek to actively produce the markets they are operating in, by shaping consumer loyalty and satisfaction, as well as by selling more quantity or diversity of products (Rossiter 2016).

To make sense of this requires a reinvestment of time into an understanding of numbers. Barnes and Hannah (2001) have argued that ‘the inscription of figures, and later their joining to probability calculations within a burgeoning set of both commercial and statist networks, produced worlds to be organized, controlled, manipulated, studied, and known’ (p. 379). Here, the gathering, categorization and deployment of numbers, and an understanding of the work they do to fix a particular thing in place, is an important task that requires an analyst who understands statistical practice *per se*, but also the representational tropes that it deploys. And it also requires attention to the visualization of complex numbers, as in the intense world-making calculative practices being undertaken through human–screen interactions within cities on a daily basis (Pryke 2010; Zaloom 2010).

MATERIAL TURNS

This book aims to build out an argument about materiality in the construction and operation of global cities. It takes as its starting point a coalition of work that sets out to understand the materiality of cities in their widest sense, which includes the nature of their capitalist economies, an ontology of actors and networks, and an ethnographic epistemology of the state (Amin and Thrift 2002; Latour and Hermant 2006; Bennett and Joyce 2010; Farías and Bender 2010). Through these works, it is proposed that we can approach these big, global cities in a slightly different way, one in which we can hold down, provisionally, a very complex assemblage of facts, theories, observations, artefacts, anecdotes and practices. This partly requires an engagement with the ontology, practice and performance of capitalist society, and in turn an engagement with what is meant by the urban economy.

However, while most scholars are happy to accord some degree of importance to materiality, there are significant differences as to how this is actually theorized. As Chris Otter has pointed out in an insightful essay, the range of diverse traditions that contribute to urban analysis have very significant differences between them:

With urban sociology, the material is a *background* or *arena* within which social forces act and social structures are formed. With capital, the material is an *outcome*, but also a *medium* through which capitalist social relations are reproduced and an *obstacle* to later capitalist development. With culture, the material is a *text* to be decoded or a *symbolic* bearer of meaning. Obviously, material things and systems *do* often function as background, arena, outcome, medium, obstacle, text or symbol. However, every one of these functions leaves materiality itself – the forms, states and qualities of matter – analytically underexplored. (2010: 43, italics in original)

By extension, explanations of why cities grow, and why they fare differently, would have to address this point. As Otter (2010) continues many theories of the urban dematerialize our understandings of cities *on purpose*. He identifies three distinct theoretical approaches that have done this for different reasons. For early twentieth-century sociologists such as Simmel or Park, new modes of social organization – dense living, for example, and crowded streets – ‘made’ people socialize differently. For Marxists such as Lefebvre, Castells and Harvey, the urban was ‘the site for, and medium of’ (p. 40) social relations based on access to capital. And for cultural theorists the focus shifted towards semiotic strategies that tried to decode and decipher landscape, space and building and ‘read off’ their representational power.

In this latter approach, influenced by the impact of post-structuralism in the humanities, social identities are seen to be mediated and produced through different texts. Otter (2010) suggests that the re-emergence of materialist interpretive frameworks was a response to this ‘cultural turn’ in urban theory, where a focus on meaning, representation and interpretation – especially in visual terms – became the dominant mode of urban critique. As Otter notes:

Material things ... were never entirely ignored in such analyses, but they remained undifferentiated and black-boxed. Little serious attention was devoted to physical qualities: molecules, forces and textures. In urban sociology, material space was primarily a backdrop for social action ... The cultural turn threatened a wholesale, reductive dematerialization of the city. (2010: 43)

Otter introduces three alternative modes of interpreting materiality. The first, ‘thing theory’, provides an abstract understanding of how the materiality of objects lead to different human understandings and moral judgements, related to mystery, excess, innate potential, consumption and so on. This object-oriented philosophy was popularized through influential books such as Jane Bennett’s (2010) *Vibrant Matter*, which advocates a ‘molecular’ level of material analysis, either a fundament or a triviality depending on your viewpoint. The philosophical intricacies of this are not my main focus here, though it is important to recognize the significance

of Immanuel Kant and Martin Heidegger in debates over how to theorize the separation of human intention from objects. Arguably, this has helped drive the continuing ‘backdrop’ or ‘blackboxing’ of urban technologies that has gone on through generations of social theory.

The second approach, material agency, is often linked to science, technology and society (STS) approaches or actor-network theory (ANT). Here, matter generates agency even without intent or consciousness. There is an affinity between these literatures and the practice of researching the city because of the importance of large infrastructural networks in the constitution of the urban. As David Madden suggests: ‘some qualities of cities themselves might make urban studies particularly fertile territory for ANT. Where subway lines can be shut down by distant signal failures and architects take into account the behavioural tendencies of rats, the idea of nonhuman agency is intuitively plausible’ (2010: 585). And so, what attracts and appeals about ANT is its basis of ‘irreducibility and infinite combinability’:

Despite the word ‘theory’ in its name, ANT is not a theory. It is a method for framing field sites and research objects ... Staunchly opposed to essentials of any sort, ANT sees the world as immanent, contingent, absolutely heterogeneous, and as ontologically flat, disclosing no other levels, final explanations or hidden core. (Madden 2010: 584)

Urban technologies are, at first sight, obvious: the things that save us time, make us safer, or save us from chaos as we crowd in our cities, such as elevators, smoke alarms, traffic lights, and so on. We nowadays associate technology with automation, though we might also think about simpler manual devices – keys, combs, park benches – in this vein. But we can also include representational tools such as stained-glass windows, maps and guidebooks, all of which help communicate ways of thinking about cities. So while there is much current discussion about smart cities and their technologies, it is important to account for the role of objects in holding cities together. We should also bear in mind the recent debates in this field regarding the ‘affordances’ of objects, and their variable abilities to sustain, enhance or weaken urban life (Otter 2008; Bennett and Joyce 2010).

Third, there is the political economy tradition, which – although politically heterodox – can be seen to be extending Marx’s concept of historical materialism, where societies develop through the manipulation, circulation and accumulation of capital of various forms. And so there has been a plethora of important works based around the materiality of infrastructure, such as water, waste, power and so on, and its structuring influence on urban life and city form. Graham and Marvin’s *Splintering Urbanism* (2001) provided a comprehensive overview of these trends, offering a relational ontology of the urban which showed how unequal access to basic services in many cities is. Others, working in a Lefebvrian tradition, have extended this to explore how this might be a ‘planetary urbanization’ where the exploited value of scarce natural resources is redistributed into cities, thus linking the most extreme

anti-urban regions of the planet, such as Antarctica, into our global urban present (Brenner and Schmid 2013, 2015; and see the response by Walker 2015).

So, how can these various material approaches be applied to global cities scholarship? First, there have been a set of works that seek to chart how the global is constituted by moving objects. Here, we can see attempts to provide an inventory of 'global objects'; there are books that gather together apparently disparate phenomena as gap years, university graduation ceremonies, barcodes, containers, cut flowers and so on (see Pile and Thrift 2000; Thrift et al. 2014b). Second, if we could all agree on a set of 'global cities' and add up all their material components (such as in a 'footprint' approach) it would soon become clear that they constitute only a fraction of the world's 'stuff'. However, we would also find that we could locate many of the people who ordered, designed and financed the production of that stuff in these global cities. Third, in attempting to take objects and materiality seriously, some hard thinking has to be done about – as Otter puts it – the 'molecules'. There can be a tendency to think of materiality as stuff in cargo containers, and these are important of course. But there are other forms of materiality, including code, air and speech, which are more elusive. Fourth, there is a growing interest in the power of the animal world to shape territories; Timothy Mitchell's (2002, Chapter 1) influential attempt to retell the modern history of Egypt in *Rule of Experts* is a case in point: 'Can the mosquito speak?', he asks, in his insect-centred economic narrative. More specifically, there has been a macrohistorical and philosophical interest in examining the power of – apparently lifeless and human-controlled – objects as generators of significant social changes, as in Jared Diamond's *Guns, Germs and Steel* (1997) and Jane Bennett's *Vibrant Matter* (2010) respectively.

Aside from the guns and the germs, though, there is also a story of urbanization that is boring in its nature but world-making in its impact. The spread of standards, norms, templates, forms, languages and anything that seeks to make things 'seamless' or inter-operable is a major story of the last few hundred years. Processes such as the ongoing production of clean water involves a linked set of 'routine practices' which involve water-treatment plants, compliance to remote set standards, laboratory testing and pipelines. Yet while this is often a fairly localized or national process, it can be brought into a global framework that allows countries to be measured and ranked against each other: 'it is in the laboratories that the sample is transformed into a number on the computer screen and can finally be compared to the global standard' (Zeiss 2014: 107).

There is also a very real set of materialities surrounding the movement of bodies. There is definitely a need to understand the 'geographies of the super-rich' (Beaverstock et al. 2004), as well as the role of intermediaries such as recruitment agents in their promotion of a 'global war for talent', typically to fill the ranks of globally operative corporations. Set against this is the 'commoditization' of labour, with posts that require little training or even contractual obligation (Hill 2015; Mezzadra and Neilson 2013). And so we might think of global cities, so often conceived as cosmopolitan sites of mixing, as being at the sharp end of border technologies,

structured by the often competing desires of firms, on the one hand, who only really have to consider the wage relation with their employees, and governments, on the other, who are increasingly driven by the technological costs of processing and maintaining migrant bodies.

THE ORGANIZATION OF THE BOOK

Each chapter of the book tells a very distinct tale of how these practices have played out in particular places. An important point to flag here is that although many of these practices are transferable, they have a point of origin or strength, a *genius loci*, that generates its own momentum, sometimes called path dependence. The book aims to convey a sense of the spatial political economy of why some cities have been more influential than others, and why some parts of cities have become central to the organization of global practices, concentrated zones of ordering, developing, curating, designing, engineering, accounting, worshipping.

To progress along these lines, the book begins in Chapter 1 with a discussion of what could be called the ‘original global city’, Rome, and its particular association with one of the most obvious and most influential of global institutions, the Catholic Church. Religion is a key structuring force of contemporary cities, but it is often absent from the global cities literature, and has been associated with a perceived secularization of urban life. How it comes into being as a spatial phenomenon has rarely been studied. In this chapter, which outlines a spatial ontology of Roman Catholicism, I use Rome to provide an express route through some of the key problems faced in attempts to theorize global cities, which includes ‘methods of long distance control’ (Law 1986, 2004), and the existence of non-economic forms of global identity. This is the site of the world’s largest global institution, and its smallest sovereign state, after all, and the institution has exploited its territorial inheritance of the Roman Empire in various ways. But it also relies on material devices and technologies to sustain its globality: the theological interpretations of the Bible, the architecture and design of cathedrals, and the Popemobile are all mechanisms by which the Vatican *attempts* to exert its control of a global Church, even while many Catholics seek to generate their own, culturally specific practices of worship and everyday life.

While Chapter 1 speaks of centrality and attempts to impose and sustain hierarchy, Chapter 2 comes from a radically different approach: one that sees flatness, rather than scale or hierarchy, as the best way to understand how cities are in fact assemblages of power. This moves the discussion to another European city, Paris, which is inextricably linked with two often combative traditions of urban theory: the political economy traditions of spatial theorists such as Henri Lefebvre and David Harvey, and the actor-network theory of Bruno Latour. In *Paris, Ville Invisible* (2006), Latour and his colleague Emilie Hermant provide an absorbing journey through Paris. This work is in many ways an urban field guide to Latour’s *Reassembling the Social* (2005),

and applies the tenets of actor-network theory to the study of a single city. Latour's focus is on disaggregating the casual knowledge that is held about such apparently stable signifiers as 'Paris', revealing the objects, humans and actants that are constantly revitalizing it, reassembling it through networks and objects in a series that he terms 'sequences'. In many ways, the terrain of struggle here is as much about how far a single site can speak to a global process, and how far the aggregation of site-specific arrangements of institutions, markets, objects and practices – which Latour presents as a kind of localized mesh of networks – can then be recomposed in a way that specifies, rather than assumes, how cities exist as a set of network ontologies.

Chapter 3 develops this by concerning itself with the ordering mechanisms and practices that place cities within hierarchies and ranks. The chapter explores a debate between those who seek a 'metageography' of globalization as composed by inter-city links, and a literature that is sometimes known as the 'ordinary cities' perspective. The latter group of scholars tend to perceive a Western or Euro-American bias in the dominant theoretical perspectives that have framed the study of global cities. However, while undoubtedly true, my argument is that standardization is a process that requires many hands, and so the chapter explores the embodied knowledges, objects and technologies that standardize cities, such as hotels and air-conditioning systems.

By now, with studies of Rome, Paris and various 'ordinary cities' under discussion, the discussion moves towards a more extensive, distanced consideration of the structured practices of global mobility. In Chapter 4 the discussion explores what has been called 'logistical territories', material systems for organizing global navigation. It considers what the concept of 'port ontologies' might offer for the study of global cities, and does so by considering two 'machinic complexes' that organize the circumnavigation of the globe, ships and airports. In this sense ports are a key machinic complex for the reorganization of cities (Amin and Thrift 2002), but also require a take on 'surface' and territory, because how these maritime and aerial launch-pads are configured is crucial to capitalist economies.

However, the study of intense and fast flows between cities can obscure the fact that while economic activity is dispersing globally, this actually increases the need to concentrate the people responsible for its co-ordination and calculation. This insight, which is the cornerstone of Sassen's global city thesis, means that we might see global cities as actually referring to a very small footprint – office territory – within the cities of London, San Francisco or Shanghai. Chapter 5 further develops the actor-network concept of 'centres of calculation', describing various examples of the embedded calculative practices of contemporary capitalism, and different ways of narrating this. It places the material organization of office geographies at the centre of this approach, suggesting that these are specific spatial arrangements that provide the constitutive power of global city status. In doing so, it seeks to reinvigorate the concept of the central business district, or CBD, using it to gather a set of ethnographic research sites that can illuminate practices of global city making, positioned between radical flatness and overbearing hierarchical power.

Having set out a case for the fine-grained study of the work going on in corporate offices and central business districts, Chapter 6 moves the optic back to a mobile, relational ontology by considering how these are zones of embedded knowledges which are ‘world-making’. It examines the spread of ‘global’ business knowledge through individual ‘gurus’ such as Richard Florida and Ed Glaeser, but also through the structured marketing of knowledge by management consultancies. The chapter then sets out some of the ‘experimental’ and ‘exhibitionary’ city platforms that have emerged in recent years, from eco-cities to smart cities. These are key elements in the ongoing reproduction of urban policy and city-focused products, key elements in the erasure of difference between cities. These have their own business models, and the chapter briefly profiles how San Francisco acted as a launch-pad for Uber, sitting within a few kilometres of Silicon Valley, perhaps the world’s most concentrated innovation system.

I began this book with the well-worn cliché of ‘bright lights, big cities’. And in many ways, this is a very biased book in its focus on the things that are exciting about globalization. The mysteries of the Boeing 747 are as great as those of the miracles of Roman Catholicism, the micro-geographies of offices and the new urban maps of Uber are fundamental underpinnings of the ‘essential’ city, and the big things of the study – Silicon Valley, Hong Kong International Airport, the Vatican, the City of London – become more and more interesting when they are interpreted as a rather looser aggregation of practices than is often assumed.