

Skyscraper geography

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Abstract: This paper argues that geographers have tended to neglect the substantial impact of skyscrapers on urban life. Yet the significance of these buildings – in terms of height, levels of human occupancy, aesthetic impact and popular representation and use – is in need of careful geographical interpretation. Synthesizing work from a number of disciplines – geography, social history, architecture, planning, and cultural studies – it argues that the skyscraper is an extremely complex spatial phenomenon. First, the development and diffusion of skyscrapers as a global form is considered in terms of its geographical contingency, and the relational nature of its production. Secondly, the representational nature of the form in relation to cities is discussed, including attention to cinematic, biographical and everyday practices of representation. Thirdly, the volumetric nature of the skyscraper in urban form is briefly reviewed, focusing on its differing impacts on urban space and at various physical strata of the city. Taken together, there are important urban, political, social, cultural and economic debates that underpin this apparently regularized, rationalized built form.

Key words: architecture, cinematic city, design, skylines, tall buildings, urban geography.

I Introduction

For the skyscraper is not only the building of the century, it is also the single work of architecture that can be studied as the embodiment and expression of much that makes the century what it is ... For better or for worse, it is measure, parameter, or apotheosis of our consumer and corporate culture. No other building type incorporates so many forces of the modern world, or has been so expressive of changing belief systems and so responsive to changing tastes and practices. It romanticizes power and the urban condition ... The tall building probes our collective psyche as it probes the sky. (Huxtable, 1984: 11)

Which discipline owns the skyscraper? Architectural theorists, social historians, engineers

and urban planners all have good cause to consider as their own the presence of these densely inanimate, yet vibrantly human, interventions in urban societies. Yet recent debates on the future of tall buildings, only given urgency by the attack on the World Trade Center, may benefit from insights drawn from various subdisciplines of human geography. These machines for working in, these huge interruptions to place identity, these knots in a mesh of flows, these gargantuan footprints on the urban geography of the city are open to experiential, perspectival, sensual, locational and sociological phenomena that remain barely explored.

In framing this discussion, I am not overly concerned with an enforced categorization. Some refer to the 'tall building' as opposed to a skyscraper. The fairly minimal definition adopted by the most detailed compendium of the skyscraper form – www.emporis.com – details all buildings in the world over 35 metres in height, giving a total of 85,350 at the time of writing (which includes 5158 under construction, and 1402 demolished). This website includes a table of the world's 200 tallest skyscrapers (currently led by Taipei), a skyline 'impact' index (led by Hong Kong), and – most intriguingly perhaps – a table of skyscrapers by population size (led by the Spanish resort of Benidorm). Perhaps most significant, however, is that of the world's 15 tallest buildings, only three are in the USA, and none are in Europe. In debates over the future of urban form, existing western-biased theories and models are of questionable relevance.

Furthermore, many of the arguments presented below are concerned with the tall office building, and the sociology of work that attaches to that. However, many skyscrapers are, of course, apartment blocks, which can range from cramped, cheaply constructed forms of social housing to luxury condominiums. A substantial number of tall buildings are occupied by hotels, where lofty aerial perspectives become a commercial selling point. Finally, there is a growing tendency among developers and policy-makers to favour mixed-use developments, where office, hotel and residential uses are shared within one building.

Such insights give a flavour of the locational geography of the skyscraper, but, while acknowledging the importance of aggregate statistics and rankings, it is clear that *some* skyscrapers, *some* architects, and *some* skylines are more discussed, represented and cognized than others. Here, the historical emergence of tall buildings in certain key cities – New York and Chicago, particularly – has established the form as a vernacular. The debate over the rebuilding of the World

Trade Center site provided yet another twist: a skyscraper as monument and memorial. The collapse of the WTC gave succour to those keen to herald the demise of the skyscraper, who came from many political directions, from those who saw it as an abhorrent imposition upon the human scale of cities, to those, such as Mike Davis, who see a geopolitics of capitalist fear at the heart of urban decision-making in major cities:

There is little doubt ... that bin Laden *et al* have put a silver stake in the heart of the 'downtown revival' in New York and elsewhere. The traditional central city where buildings and land values soar towards the sky is not yet dead, but the pulse is weakening. The current globalization of fear will accelerate the high-tech dispersal of centralized organizations, including banks, securities firms, government offices, and telecommunications centres, into regional multi-site networks ... In this spatial model ... satellite offices, telecommuting and, if the need be, comfortable bunkers will replace most of the functions of that obsolete behemoth, the skyscraper. (Davis, 2001: 44)

Yet, while in the aftermath of the World Trade Center attack doubt was cast on the future of the tall building in the city, it soon became clear that, if anything, it stiffened the resolve of architects and developers to improve evacuation, fire and structural technologies.

My argument in this paper is that geography is well positioned to provide the holistic interpretation of such materially substantial interventions in the urban context. The eclecticism of geography – with a corpus of theory on place identity (and the placelessness often associated with the skyscraper form), on the relational geographies of financial and corporeal flow that provides a rationale for the existence of such structures, with an interest in urban form and city life, and with an understanding of the nature of everyday urban space and space usage – provides a series of critical perspectives that might explain the prevalence and significance of these structures. Yet, in Sorokin and Zukin's (2002a) edited collection, *After the World Trade Center*, only

two of the contributors – Neil Smith and David Harvey – would be considered mainstream geographers, perhaps explicable by local factors in the case of this specific collection, but symptomatic of a wider issue. When considering the materiality of the urban – how it is planned and designed, how it has evolved historically – a considerable amount of the best work has been undertaken in other disciplines. In what follows, I make a call for geographers to take a fuller interest in the skyscraper, through three main bodies of work: first, the literature on globalization, flow and mobility, which opens up a number of perspectives on skyscrapers as an essential part of the global economy and *ecumene*; secondly, the relationship between the tall building and the ‘city’ as an identifiable place with its own identities, histories, myths and collective place narratives; thirdly, a discussion of the plasticity and multidimensionality of the urban experience. Much of the work reviewed in this paper hails from outside geography, including social history, urban studies, film studies, sociology and – of course – architectural history and criticism. However, it is my contention that a number of geography subdisciplines – economic, cultural, political and of course urban – could both enrich and be enriched by a greater sensitivity to this literature.

II Relational geographies of skyscrapers

I Skyscrapers, spatial stretching and urban ecologies

Relational links within and between cities are far too multiple and complex, and far too mediated by local and glocal networked infrastructure, to obey any naïve geographical laws implying that far-off people and places do not relate while close up ones do. Infrastructure networks become a means of securing spaces from surrounding cities whilst at the same time tying their inner workings intensively into global vectors of flow and interconnection. (Graham and Marvin, 2001: 204, 208)

The growing trend in understanding urbanization as a relational process requires a view

of specific, material spaces as being switching points or containers of people and technologies that are interconnected with other similar spaces many miles distant. As with airports and communication towers, skyscrapers are obvious candidates for housing globalized flows, whether metaphorical or material. Yet this ‘global’ history of the skyscraper conceals a range of complex relational geographies, from a conventional locational geography (the distribution of tall buildings in the world’s cities), to a mobile range of visual codes and corporeal movements, to debates over the nature of transnationalism, global-local relations, and ideals of a ‘universal’ building style popularized by the modernist movement. Within economic geographies, the density of human occupation afforded by the skyscraper is an important element of the modern economy. On the one hand, they are central points in the debate over ‘cities as sites’ of both tacit and codified knowledge allowing the kind of logistical access required to sustain urban clusters, and often housing some of the ‘light institutions’ deemed significant to the functioning of the contemporary economy (Amin and Thrift, 2002: 53–77). This has been central to the relaxation of planning controls on tall buildings in the City of London in recent years, for example (McNeill, 2002). On the other hand: ‘once we replace the idea of the city as a territorial economic engine with an understanding of cities as sites in spatially stretched economic relations, a rich ecology of urban life opens up for consideration’ (Amin and Thrift, 2002: 63). At first sight, this ecology will star the hypermobile business traveller, or the highly paid knowledge specialist, with their associated consumption choices in hotels, apartments, restaurants, shops and gyms. Yet these specialists require support, and the complex ecology of the skyscraper will also include bicycle couriers, photocopier maintenance specialists, cleaners, lift engineers, receptionists, security guards, software and systems specialists; those who deliver

sandwiches, wash the windows, drive taxis, and so on. The social impact of this should be obvious: as Graham and Marvin (2001) explore in *Splintering urbanism*, contemporary skyscrapers are often designed as nodes in 'premium' infrastructure networks – 'high speed communications, "smart" highways, global airline networks [that] selectively connect together the most favoured users and places, both within and between cities' (p. 15). From this perspective, these buildings have tiny footplates but huge aggregate impacts on the city or metropolitan form.

2 Knowledge flows in the design, architecture and engineering of skyscrapers

While processes of globalization have captured the attention of many scholars, tall building technology has been an important US export for much of the twentieth century (Cody, 2003). Companies such as New York's Milliken Brothers prefigured contemporary debates with their establishment of branch offices in cities as diverse as London, Capetown, Mexico City, Honolulu and Sydney to serve different regional markets in the first decades of the twentieth century. Nonetheless, it is clear that this has moved to a different level – globally operative clients (such as Ernst and Young or Cisco Systems) tend to use trusted teams of architects (such as KPF or HOK), engineering firms (such as Arup), and interiors designers (such as DEGW) who may be responsible for office projects for these firms in whatever cities they choose to locate in around the world. This may have a regional dimension. Olds (2001) has identified the growth of a 'Pacific Rim' expert knowledge market of transnational flows in engineering, property and surveying firms (see also Rimmer, 1991). However, Olds argues that existing analysis of such spaces 'are fundamentally abstracted, decontextualized, and dehumanized' (p. 40). Here, there is little attention given to the subjectivities and motivations of 'the formulators, funnellers, and skimmers' (p. 40) of the flows. In particular, Olds argues that

accounts have to be far more provisional, more acute in the nuances of specific locations, historical contexts, and diverse social goals and identities of the actors involved in these flows.

Nonetheless, we can identify a 'star system' of architects with a recognizable 'signature' skyscraper style that appears in projects around the world. Again, this is nothing new. Cohen (1995) has identified the inspiration to European intellectuals that the American city provided in the earliest decades of the twentieth century, in literature as much as architecture and the arts. Such an observation is encapsulated in one of the most famous of the trans-Atlantic voyagers, Mies van der Rohe, who wanted to build skyscrapers in Berlin, but through circumstances beyond his control would take his designs to be built in Chicago and New York. More recently, and alongside the major US firms with an established a reputation for skyscraper design, a number of European-based architects such as Renzo Piano, Santiago Calatrava, Richard Rogers, Norman Foster and Rem Koolhaas have begun to snare high-profile skyscraper commissions. Of course, these designers are deeply embedded within complex networks of property development finance, consultants specialist in circumnavigating locally specific urban planning regulations, engineering firms, service and interior firms, and – increasingly – public relations. But it is clear that many of these architects are engaged in a complex transmission of ideas and aesthetics.

On the one hand, there is the stylistic response made by western architects to the (perceived) cultural context in which they find themselves working. Within a lot of architectural discourse, the rather crude 'global-local' construct recurs frequently as practitioners and critics alike seek to interpret the uneasy interplay of standardized building production systems, centuries of indigenous design history and relatively distinct modes of living and working. This presents particular challenges in the developmental states of

southeast Asia that have explicitly adopted skyscrapers and infrastructure projects as symbols of national modernization. For example, Kuala Lumpur's Petronas Towers were designed by an international architect (Cesar Pelli) with Islamic motifs incorporated into the façade and floor-plans, an attempt to fuse standardized western production methods with a locally sensitive design vocabulary, sending 'intentionally mixed ethnic messages ... while obfuscating the metaphors so that a single one does not dominate' (Steele, 1997: 381). While some critics have seen these motifs as simplistic, Bunnell (1999; 2004a; 2004b) argues that this is to miss the point, that the towers were explicitly used to advertise a distinctive Malaysian modernity through easily quotable iconic architecture that would feature in adverts, in-flight magazines, postcards and even Hollywood feature films (see below).

However, there has been a stylistic counter-reaction from western-educated Asian architects such as Ken Yeang (Malaysia), William Lim and Tay Kheng Soon (Singapore), and Sumet Jumsai (Thailand) who have *had to* develop new design strategies as a means of countering the market hold of the likes of major US architectural firms such as Pelli, Kohn Pedersen Fox, or Skidmore Owings and Merrill (Kusno, 2002: 131). The difficulty faced by these architects is in stepping beyond a nationalist imagining to a pan-Asian concept that gives them a competitive economy of scale in the region's construction markets, confronting 'the relative failure of the Modern Movement to even consider appropriate environmental solutions to the problem of the high-rise in the tropics' (Steele, 1997: 383).

So, it should be clear from this discussion that, while skyscraper technology is predominantly exported by western firms (Cody, 2003), the design process may be significantly influenced by context-specific factors, be they climatic, aesthetic or cultural. For example, an obeisance to *feng shui* guides many Chinese skyscraper designs. The design

codes exhibited in Norman Foster's Hong Kong and Shanghai Bank, and the competing Bank of China design by I.M. Pei, are often interpreted by geomancers as influencing Hong Kong's transition from British to Chinese rule. The designs can often be interpreted in a way that contradicts the architect's best intentions: as Cheng (1997) suggests, Pei's failure to adopt circular motifs 'that traditionally symbolize harmony and prosperity' gives us a result that 'is indeed a classic modernist failure' (p. 111). The triangular shafts used by Pei have been identified by local geomancers as daggers that hack into surrounding skyscrapers, and which had a malign influence on the British Government House during the handover of control to China (see also Abbas, 1997: 79–90). Similarly, tall building design in earthquake-prone areas is a key factor in countries such as Japan and Taiwan, and many of the aforementioned 'critical regionalist' responses offered in southeast Asia are centred around climatic concerns. In Yeang's case, the 'bioclimatic skyscraper' gives us a range of new forms driven by the need to capture winds and provide shading; Tay's stress on tropicality is driven by a clear-sighted avoidance of symbolic quotation and the need to adopt technological form to tropical climates, to harness western-developed technology to specific climatic conditions. (Kusno, 2000; 2002; and the collection in Tzonis *et al.*, 2001).

Given the complexity and contingencies of these flows, it is ironic that many of the metaphors, adjectives and tropes used to represent and talk about the skyscraper emphasize fixity, solidity, rootedness and permanence. They are often central to debates about the changing nature of particular cities, and their place in the urban landscape and the city biography are worthy of fuller exploration.

III Cityscapes and city narratives

In contrast to the idea that skyscrapers are indissociable from the capitalist system, the 'faceless' corporation, or the abstract flows

of capital that undermine place, there is an argument that tall buildings give cities identity through 'skyline', an identifiable array of icons that provide orientation for walkers and drivers, and narrative markers for urban historians (both professional and casual). They have played an important role in the visual history of the twentieth and twenty-first centuries, witnessed in countless films, postcards and adverts. They also provide a poignant reminder of visibility in society, both of the powerful, who buy, sell, design or promote the buildings, and of the hidden labourers who construct and maintain them.

1 Skylines

Impossible to ever inhabit in its totality, existent in full dramatic form only from a relatively distant perspective, the skyline is nonetheless the most frequently invoked image when considering the impact of skyscrapers on cities. Wayne Attoe's (1981) entertaining analysis of the social significance of these urbane horizontals rests on the basic premise that 'a book about skylines of cities would not have been written a hundred years ago, for skylines are largely a 20th century concern' (p. xi). The invention of the skyscraper form has dwarfed the ecclesiastical or regal dominance of many city skylines, not least when capped with a neon corporate logo. Attoe's narrative draws rightful attention to other forms of skyline markers (churches, mountains, communication towers, for example) that challenge the skyscraper, and it is often the perceived damage done to existing – and seemingly untouchable – structures (St Paul's Cathedral dome in London, or the Eiffel Tower, for example) that limit or divert the zoning for new skyscraper office buildings.

However, a feature of the postmodern architectural turn in skyscraper design (Steele, 1997) was the mobilization of tall buildings as civic markers. Cesar Pelli, architect of Canary Wharf Tower, (currently the UK's tallest building), New York's World Financial Center (adjacent to the WTC),

Petronas Towers (until recently the world's tallest buildings) and many others has made this argument, as Crilley notes:

Fundamental to [Pelli's] argument is a hierarchical distinction between 'true' skyscrapers and mere tall buildings. The latter are just vertical objects that do not carry the civic responsibilities of true skyscrapers. True skyscrapers, he maintains, are charged with representational responsibilities to act, by virtue of their towering height, as markers of place, sculptors of the city silhouette and as conveyors of public image. They must not finish abruptly in the flat top of modernist glass boxes, but culminate in a celebratory gesture. (Crilley, 1993: 145).

In this sense, the skyscraper has always played a role in the representational strategies of financial and political elites to endow their city or nation with a projected self-consciousness. The contemporary race for the tallest building in the world is evidence of this.

Of course, post-9/11, the vanished World Trade Center has become representative of New York, and its structural form has been endowed with an entirely different public understanding than during its life. Its hotly debated replacement – the Freedom Tower – is being conceived as a tower that also acts as commemoration, that takes on a monumental role alongside its more orthodox provision of office and retail space. In this context, the World Trade Center calamity was reflective of the foundational nature of city skylines, as M. Christine Boyer remarks:

The overwhelming trauma produced by the wound in the skyline and on the ground forces an exploration of two sets of graphic images and their related stories – those of the skyline of Manhattan and those of the collapsed World Trade Center. One narrates the glory of skyscrapers, while the other recounts the trauma of their demise ... These acts of constructing and deconstructing are intimate and compassionate: they tie the skyline to the ground from which it materialized and to which it returned. They draw into a unity both creating and wounding, both the celebration of making and the injury of unmaking. (Boyer, 2002: 100–11)

In this context, Boyer then reviews the range of images that emerge from Ground Zero, be it the filmic moment of impact, the plumes of smoke that marked the immediate aftermath, the tangled chaos of the site's clearance or the humanity and bravery of the rescue operations. The subsequent struggle over how to memorialize and respect those who died, the need to address its 'ghosts', is one that has exercised the minds of some of the world's most prominent architects, and many of New York's citizens (Goldberger, 2003).

2 The cinematic city

In Höweler's (2003) categorization of the latest generation of skyscrapers, he identifies 'mediatic' examples which are 'choreographed, not designed ... a shift from the purely quantitative (i.e. how tall) to the design of urban effect (i.e. how spectacular)' (pp. 160–61). Here, the façades of buildings such as the KPN Telecom tower in Rotterdam, The Centre in Hong Kong or 5 Times Square in New York are designed to allow light shows, and high-resolution animation, in effect becoming projection screens for a new form of urban sensation, that 'manifest a presence in excess of their physical dimensions – a kind of hyper-presence' (p. 160). The impact of these designs can be dramatic, but can also be seen as a simple extension of the ways in which major buildings have always dominated their surroundings through projection, traced back to the bell-ringing of medieval cathedrals (Höweler, 2003: 160).

Given its dramatic proportions and striking visual impact, the skyscraper has become a central actor in films and settings as diverse as: *King Kong* (1933); the Emerald City on the skyline in *The Wizard of Oz*, (1939) with its trope of travelling from country to city down the yellow brick road; *Batman* (Gotham); disaster (*The Towering Inferno*, *Die Hard*); futurism (Fritz Lang's *Metropolis*; see also Finkelstein, 2002, on skyscrapers in early science fiction cartoons); or in more recent high-located dramas as *Working Girl*, or *The Hudsucker Proxy* (Sanders, 2001). This

often blends into advertising campaigns. For example, the World Trade Center towers had been a recurring image in many adverts, as backdrops to Gap and Bacardi products among others, their form present on billboards, television commercials and magazine adverts alike (Darton, 1999: 185–87).

However, the visuality of skyscrapers is not limited to appreciating them from distance. As Sanders argues, New York has a plasticity or dimensionality that makes it highly visual:

[New York] is a city of powerful imagery, of powerful verticals and rushing horizontals, of bright walls and dark shadows and subtle tonalities in between; in the most elemental sense, it makes a good picture. (Sanders, 2001: 21)

As Sanders proceeds (2001: 120–40), his survey reminds us of the significance of tall buildings in a number of feature films, at times taking central roles in the plot, such as in *The Hudsucker Proxy*, or, more obviously, *The Fountainhead*. By extension, Mike Davis includes 'sentient buildings' in his 'new lexicon of social control' set out in *The Ecology of Fear*, where 'that anachronism of the nineteenth century: the skyscraper' is central to the carceral nature of downtown (Davis, 1993: 368): 'The sensory systems of many of Los Angeles's new office towers already include panopticon vision, smell, sensitivity to temperature and humidity, motion detection, and, in a few cases, hearing' (p. 368). So, the sentient skyscraper of *Die Hard* 'anticipates a new generation of architectural antiheroes as intelligent buildings alternately battle evil or become its pawns' (p. 368).

While such cinematic confections can feed into imaginative geographies, the iconic building may itself be a material element in power-laden discourse. In Bunnell's (2004b) analysis of the use of the Petronas Towers in Fox's film *Entrapment* (starring Sean Connery and Catherine Zeta-Jones), the megastructure in turn allows 'megaprojection'. Here, the repositioning of Kuala Lumpur in a global economy – facilitated in the creation of

a new city centre and high-technology corridor of new towns – was, as noted above, part of prime minister Mahathir's attempt to represent Malaysian modernity. Yet the film undermined the attempt, effectively 'orientalizing' Kuala Lumpur by cutting in scenes and frames of underdevelopment filmed 150 kilometres away in Malacca, splicing them with the hypermodern backdrop of the Petronas Towers:

Kuala Lumpur here remained imaginatively entrapped within a 'third world' that had motivated Mahathirist postcolonial redevelopment. 'Slums', 'pollution', 'poverty' – all those signs of underdevelopment that a decade of urban investment had sought to erase or, at least, render out of sight, had been collapsed into a single cinematic frame alongside Kuala Lumpur's world class architectural centrepiece. (Bunnell, 2004b: 300)

Such cinematic licence provoked a diverse range of responses among the Malaysian public and political class. Yet more broadly, too, the film was merely replicating a 'slums and citadels' trope that has prevailed in urban discourse for centuries.

3 Biography and autobiography

Within the compass of their spectacular thrusts, our skyscrapers hold an accumulation, story by story, of the city's strivings, conflicts and contests for survival and domination. In their design and materials, their scale and proportions, their financing, their intended purposes and ongoing consequences – in the sorts of human interactions that do and do not take place within, among, and around them – Manhattan's commercial spires offer themselves up as a living language of the city's struggles, writ large. (Darton, 1999: 6)

The idea of the skyscraper as being central to the narration of the urban history of cities, the idea that they possess biographies, is evident in a range of publications that tell the history of single buildings; Tauranac's *The Empire State Building* (1995), Darton's *Divided we Stand* (1999) and Gillespie's *Twin Towers* (2002) are only three examples. In this mode of urban writing, two biographical forms

are fused: the idea that the major skyscraper is somehow representative both of the historical narrative of the city and of the life stories of property developers, politicians or architects. This analysis is often associated with the phallic and/or egotistic associations of the form, as with Donald Trump, for example:

I like thinking big. I always have. To me it's very simple: if you're going to be thinking anyway, you might as well think big. Most people think small, because most people are afraid of success, afraid of making decisions, afraid of winning. And that gives people like me a great advantage. (Trump, 1988: 33)

While the male ego's desire for the tall building makes good journalistic copy, academic work has usually been more thoughtful about theorizing the individual role in the building process. Meaghan Morris's (1992) considered take on Sydney's high-rise CBD landscape, and the analysis of the role of Australian property tycoon Alan Bond in mirroring a Trump-like self-obsession, is an important contribution. Similarly, Domosh (1989) uses the case study of the construction of New York's World Building in late nineteenth-century Manhattan to problematize academic theorizations of major buildings. She narrates the desire of Joseph Pulitzer to possess a building that promoted his newspaper (*The World*) that at the time was in close competition with two other papers (the *Tribune* and the *Times*) that had each constructed the (then) tallest buildings in the city. However, Domosh illustrates the need to locate this within a political economy of skyscraper construction, arguing that factors such as land value, and technological innovations such as elevator development, played significant roles in the process. Of course, this raises a perennial question in cultural analysis. While Domosh's account (elaborated in her 1996 book) is thorough, she faces the problem of bridging empirical and theoretical gaps:

In other words, to understand the World Building necessarily involves one in several layers and types of explanation – both

functional (land values) and symbolic (need for legitimacy), of immediate relation to the object (Pulitzer's concerns) and very distant from the object (development of a class-based society). And these different layers and types of explanation are certainly interrelated, although how those relationships work may not be so readily apparent. (Domosh, 1989: 350–51)

The theoretical weighting given to each 'layer of explanation' varies depending on the perspective of the writer, and it is worth reflecting on how the theoretical baggage of the geographer (e.g., Harvey, 1994, on Canary Wharf) may contrast with that of the architectural critic or historian.

4 The skyscraper and everyday life

One dominant mode of representing the Expressionist city was to focus upon the inner life of the human subject in the city streetscape bombarded with all dynamic effects upon the individual. Here, the street at a distance, the street viewed from above familiar to many Impressionist representations of the metropolis, was replaced by an increasingly fragile human subject buffeted by the throng of the chaotic urban crowd, its traffic and its threatening built structures, an urban nexus imploding upon the individual. (Frisby, 2001: 21)

The Expressionist aesthetic that emerged in central European cities in the interwar period provides a powerful counter-perspective to viewpoints that stress the order, rationality and discourse of progress that often surrounded the development of the modern skyscrapers. In cities such as Paris, the Corbusierian ideal of a city of towers set back next to expressways (killing the street) has a long history of opposition. By contrast, there is a rich – if poorly documented – history of popular interpretation of the city, where the bombast, power and prestige of the building are ridiculed, romanticized, misrepresented or undermined. As Bunnell (1999) shows, the Petronas Towers in Kuala Lumpur were the subject of considerable local rumour or comedy (that Prime Minister Mahathir had taken the penthouse suite, that one tower was leaning, and that if the buildings fell they

would become the longest, rather than the tallest, in the world). Here, therefore, the skyscraper is discursively mobilized in practices of talking. Allen's *The city in slang* captures the etymology of the term's birth in New York, where cloud-supporter, cloudscraper and skysweeper were eventually superseded in popular usage. Similarly, new social types became associated with the form, such as the 'sidewalk superintendent', the 'humorous name for a pedestrian observer at the edge of a construction site' (Allen, 1993: 127–35).

Finally, there is a hidden, but very vital, social geography to most skyscrapers. On the one hand, there are the previous cityscapes wiped away by the tall building, as celebrated by Norman Klein (1997), whose fascination with urban erasure moves him to construct walking tours of vanished landscapes (see also, for example, Darton, 1999, on the previous incarnations of the site of the World Trade Center). Then there is the economy and organizational culture of the labour processes of the construction industry, class struggles around on-site safety and worker protection, and the migrant labour responsible for the site clearance and building of these structures. And then there are the genuine outcasts, the 'smokers' huddling or solitary at the doorways of smoke-free offices, captured in Louise Dignand's photography (in Barley and Ireson, 2001: 84–85), all the while engaging in an interesting and complex form of sociality.

IV Skyscrapers and city levels

So far, I have briefly explored the ways in which skyscrapers inhabit disembodied relational geographies, and frequently appear in representations of cities. In this final section, I address the skyscraper as experiential, embodied landscapes which figure in the city's 'simultaneity of trajectories' (Amin and Thrift, 2002: 22), of individual lives brought into intense copresence. In other words, it is time to stop worrying about the façades and the silhouettes, cross the lobby and step into the elevator.

1 Three-dimensionality

If we take for instance, a city's Central Business District (CBD), with an area of 20 hectares and a height limit of 30 storeys (or 120 metres assuming a typical floor height of four metres), the planning study area is in effect the entire three-dimensional spatial matrix over the 20 hectares land area up to a height of 120 metres. The expanded urban planning area becomes a three-dimensional zone above the land area. Planning is no longer on the horizontal plane, with extruded high-rises linked essentially at the lower levels or at the ground plane, but the entire spatial zone that extends vertically above the site. This zone has a network of potentially linkable 'places-in-the-sky' that will have their own complex set of planning and urban design rules. (Yeang, 2002: 79)

The importance of skyscrapers to the volumetric dimensions of urban space is, of course, one of their major contributions. As the Malaysian architect Ken Yeang argues in *Reinventing the Skyscraper* (2002), there is also a sense in which the rationality of skyscraper planning is tyrannical. Yeang's speculative remarks quoted above are untrammelled by the commercial demands of the property development market, but his argument about how tall buildings should be seen as three-dimensional, habitable, potentially diverse spaces provide a refreshing diversion of a debate polarized between impact on the skyline and engagement with the street. Why not have an Oxfam shop on level 16, as Yeang playfully suggests?

In a similar way, the imaginative *City levels* (Barley and Ireson, 2001) playfully but piercingly identifies various issues surrounding the plasticity of urban form, including 'elevated territories' (those spaces high above ground from penthouses to office floors to flats to tourist viewing platforms), the nature of the street as a level, and the dynamic worlds of the subterranean city. Here, the challenge is 'to give voice to a rich, fluid and multi-layered urban reality that cannot be described by a conventional map' (Ireson, 2001: 7), a city sliced into layers, accessed by the mundane stairwell and the

rapid vertical transport offered by the express elevator.

2 Rapid verticality

The elevator is a special prop for the imagination ... As the *axis mundi* that moves between concentric rings of gravitational pull, or between orders of organization or power, the elevator has a role in the scenarios of philosophy and futurology ... In fiction and cinema, the elevator is the site of wordless embarrassment or cool and final goodbyes, not prolonged hanky-waving farewells. It is a black box that erases notions of scale, external points of reference, and sometimes, in our imagination, memory, time, or distance. (Easterling, 2003: 125)

It is the elevator, rather than structural technology *per se*, that has humbly driven the skyscraper since its inception. And – as Easterling's (2003) essay on its history argues – it is innovation in elevator technology that will drive future skyscraper form. Prior to the attack on the World Trade Center, the Otis Elevator Company's Odyssey system – which allows elevator cars to 'overtake' in a 'three-car shuffle' as the company puts it – had the potential to vastly extend the potential height of skyscrapers, and was being marketed to a number of new tower developments.

The issue of rapid movement between levels has been at the heart of skyscraper form in the twentieth century. The elegant cinematic and social history of elevators, escalators and moving pavements contained in Goetz (2003) is a sign of a growing interest in both the plasticity of cities and the complex communities of users that inhabit the apparently lifeless tall building. The futuristic glamour associated with the express glass lifts (favoured by Roald Dahl's *Willie Wonka*, and pioneered by John Portman's 1967 Hyatt Regency in Atlanta; see Patton, 2003), or the elevator imaginaries discussed in Garfinkel (2003) and Hall (2003), demonstrate the powerful hold that these technologies have had on city users. Of course, as on ground level, the issue of access and positioning of

the public at various points in the skyscraper is often controversial. Public access to rooftop bars, restaurants, viewing platforms or gardens is now seen as being an important issue in skyscraper planning permission (although security concerns are often used to thwart this).

3 Roots

Imagine grabbing Manhattan by the Empire State Building and pulling the entire island up by its roots. Imagine shaking it. Imagine millions of wires and hundreds and thousands of cables freeing themselves from the great hunks of rock and tons of musty and polluted dirt. Imagine a sewer system and a set of water lines three times as long as the Hudson River. Picture mysterious little vaults just beneath the crust of the sidewalk, a sweaty grid of steam pipes 103 miles long ... rusty old gas lines that could be wrapped twenty-three times around Manhattan ... (Sullivan, 1947, in Graham, 2000: 273)

Graham's welcome unearthing of this wonderful metaphor brings forth the kind of imaginative leap required to grasp the complexity, and banality, of the hidden roots of the skyscraper. After all, the skyscraper has a complex orientation with the *street* and *underground*. This is often expressed in new planning regulations, anti-terrorist planning, congestion charging and road pricing. The nature of *underground* levels in space-starved major cities that still trade off the benefits of centrality will come to dominate urban politics in years to come. Access to densely filled tower blocks will increasingly only be possible with a system of integrated underground public transport, and already sites for tall buildings are being assembled around major transport interchanges (as at La Défense in Paris). For example, in the City of London, planning permissions for tall blocks are often only being granted with the barest provision for car parking, putting additional pressure on existing underground links. Similarly, the question of access to information and communications technology depends on control of sub-street space. For example, Graham and Marvin's (2001) *Splintering*

urbanism identifies the problems faced by the contemporary skyscraper as a 'terminal':

It is paradoxical ... that an industry which endlessly proclaims the 'death of distance' actually remains driven by the old-fashioned geographical imperative of putting physical networks in trenches and conduits in the ground ... The greatest challenge of the multiplying telecommunications firms in global cities is what is termed the problem of the 'last mile': getting satellite installations, optic fibre 'drops' and whole networks through the expensive 'local loop'. In other words, the challenge is to thread fibre under the congested roads and pavements of the urban fabric, to the 'smart' buildings, dealer floors, headquarters, media complexes and stock exchanges that are the most lucrative target users. (Graham and Marvin, 2001: 316)

While ways are being sought to free IT-rich buildings from the earth, the streets and pavements surrounding many of the world's leading banks and finance houses will remain beneath 'at work' signs for years to come.

4 Seeing from high territories

While in a previous section I discussed the role of the skyline in the modern urban experience, the politics of the *view*, of being located *within* high territories, is often implicated in social geographies. For Griffin (2003), musing on the high-rise residential landscape of Australia's eastern seaboard, 'living the view' is an urban experience that has altered over the years in accordance with changing social tastes. For example, the desire to achieve 'a wide-screen view of the Pacific' has, he speculates, been part of a more recent revaluation of (tamed) nature, contrasting with previous attitudes to the sea as being malign and/or uninteresting. Even more vividly, Wharton's (2001) history of the Hilton hotel chain stresses the ability to gaze down on foreign territories (such as Cairo), a western foothold in the 'east' and communist Europe during the cold war:

The Hilton was a machine for viewing. In the foreground that it framed was the body of the guest; in the background was the immediate

source of the patron's status, the foreign panorama. The extended vista opened through the plate glass windows, offering visual control of an alien urban landscape from an entirely secure site of observation. (p. 5)

Also, while high-level territory such as pent-houses and luxury hotels is often associated with elite power, humbler forms of social housing often stressed a democracy of views, which was often used as a justification in the development of the high-rise public housing form.

V Conclusions

The materiality of the skyscraper – its height, form, massing, footplate, infrastructure and neighbourhood – endows it with a special place within urban territories. Socially, it opens up numerous questions about the nature of transnational knowledge flows, and how barely visible material transactions are *housed*. Collectively perceived as a skyline, it is able to horizontally define cities in a convenient representational frame, exploited by film-makers, politicians and architects alike. Its sheer verticality raises questions about urban futures, and the art and work of living high, but also demands an attention to roots and the invisible cities of service areas and underground transport.

Ironically, the attack on the World Trade Center has given the skyscraper a new social symbolism of defiance. There has been no slackening of the drive towards building high (apart from the normal market cycles). The building professions have responded with enhanced safety and evacuation specifications. Skyscrapers remain central to urban life, and may – as population densities increase and sustainability arguments are voiced more frequently – become even more pervasive (particularly in residential construction). Certainly, evidence from cities as diverse as London, Barcelona and Singapore suggests that centrality of location is undiminished given the financial return to developers of high building, and the increasing acceptance of arguments for the 'green skyscraper'

(exploiting natural wind-cooling systems, for example) has added extra justification to the desire of property developers to build high.

So where might work on the skyscraper go from here? I suggest four strands of a research agenda. First, much needs to be done to clarify the city-urban nexus within a relational and representational geography. Crudely, skyscrapers are often caught within a Manichean debate ('Olympian or Orwellian, depending on how you look at it', Huxtable, 1984: 11) which either demonizes their impact on public life or, by contrast, celebrates them as totems of financial vibrancy.

Secondly, despite Knox's (1987) attempt to stimulate such debate, and some high-profile interventions on the significance of architectural production within 'late capitalism' (see Harvey, 1994, on Canary Wharf), there has been only sporadic attention from geographers to how the contemporary landscape is being *actually* grounded in architectural practice, construction technology, and property development and finance (but see how the economies of organizing office spaces have been analysed by O'Neill and McGuirk, 2003, and how zoning regulations and building cycles have shaped skyscraper vernaculars in New York and Chicago, Willis, 1995). Nonetheless, Kris Olds (2001) has provided a valuable theorization of where this could be taken, and it would be interesting to develop some of these ideas to consider, to take just a few examples, the training and professional ties of architects and structural engineers such as Skidmore Owings Merrill's Fazlur Khan (Ali, 2001); the means by which architectural styles travel and are mediated, through monographs and design competitions, for example, before being absorbed by clients; and the ways in which 'signature' architects are able to organize their creative teams, and operate within the specific local urban contexts of cities that may be miles from their base office and birthplace.

Thirdly, work on the materiality of everyday life could be profitably developed in relation to the tall building. This could range

from ethnographies of living in elevated territories (Barley and Ireson, 2001) to considering the social and cultural geographies of the view (Griffin, 2003). There are intriguing questions over the nature of skyscrapers and the visual (including the increasingly creative use of façade and interior lighting), which may perhaps be connected to debates over the privileging of visibility in the imagining of cities. There is growing evidence to suggest that tall buildings might be considered as code-space (to borrow from Dodge and Kitchin's (2004) analysis of the modern air travel system), given the complex security, climate and information systems used in regulating these structures (see Philip Kerr's (1996) novel *Gridiron* for an entertaining satire on this).

Fourthly, political geographers might be moved to consider the significance of tall building *sites* as a nexus of power made visible, as the aftermath of the World Trade Center attack revealed:

Recovering this site for the living city is, therefore, inescapably political. Political, to be sure, because New York now takes its place in the long line of cities that have been damaged or nearly destroyed by terrorist and military attacks stretching, through the recent past, from Hiroshima and Berlin to Sarajevo and Kabul. Political because of Wall Street's role as an epicentre of world capitalism. Political because of Manhattan's site at the nexus of finance and real estate development – the city's most important industry. Political because of the power-brokering that will determine Downtown's future development. Political because of the growing clash between hallowed ground and buildable space. (Sorkin and Zukin, 2002b: xi)

To conclude, I have suggested in this paper that by drawing on various subdisciplines of geography, the skyscraper can be explored in a *holistic* manner. While it is easy to fetishize the significance of the tall building, I end with one thought: as I started the final revisions of this paper, I listed in the second paragraph the number of buildings in the world over 35 metres in height as 85,350, with 5158 under construction and 1402 demolished, according to www.emporis.com. A few weeks later, as

I write these words at the start of July 2004, the same database gives corresponding figures of a world total of 87,881, with 5534 under construction and 1449 demolished. That these numbers – like the buildings that they signify – will continue to rise and fall suggests the immediacy and dynamism of the skyscraper as a spatial phenomenon.

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