FUTURE PUBLICS: POLITICS AND SPACE IN EAST ASIA'S CITIES
SPRING 2013

Contents

Future Publics: Politics and Space in East Asia's Cities

Gregory Bracken and Jonathan D. Solomon

Historian Joel Kotkin sees urban areas as having performed three basic functions from their very earliest origins: the creation of sacred space, the provision of security, and the siting of marketplaces. It is interesting, therefore, that the Chinese term for a city is *cheng shi*, *cheng* meaning wall and *shi* marketplace.

The *cheng*, or city wall, was what separated the city from its rural hinterland. It differentiated the urban from the rural. The *shi*, or marketplace, was considered something of a necessary evil in Confucian society, which had a particular disdain for any kind of trade. Markets, along with temples, also low on the Confucian hierarchy, tended to be placed on a city's periphery. Older Chinese cities were simply referred to by the term *cheng*, as in *Beijing cheng*, which while old-fashioned does not sound alien to the Chinese ear. The Chinese, it seems, made little or no distinction between the terms 'wall' and 'city', using them as if they were interchangeable, one denoting the other. With the disappearance of city walls from Chinese cities in the twentieth century, the term *cheng* seems to have fallen out of use; it is now more common to refer to cities as *shi*, as in *Shanghai shi*, or *Beijing shi*. The city, once a bulwark of traditional values, has become an institution for trade and exchange.

In the Western tradition, the city has long been a place for abandoning traditional social hierarchies. *Statsluft macht Frei* – 'city air makes you free' was the medieval German shorthand for the law allowing freedom for serfs who lived a year and a day in the city, or off the fields. The mercantile city offers such a promise today in rising Asian economies, where migrant workers flock to urban centres in search of liberation from rural toil. Yet all are not free after a year and a day: significant legal and cultural hurdles, such as China's *hukou* system, which convey unequal rights on rural and urban residents, and resist integration for newcomers to Asia's growing cities.

In 2010, the International Institute for Asian Studies (IIAS) in Leiden, the Delft School of Design (DSD), and the University of Hong Kong convened a workshop to share new forms of public space in Asia. The goal of this workshop was to explore new uses of traditional spaces or entirely new forms of public space; make comparisons that engage the historical processes in the development of urban form; compare new political or cultural frameworks for the development and use of space; and identify future opportunities for and threats to public space in Asian cities.

The common challenge faced by the region's otherwise diverse cultures, economies, and geographies is rapid growth. Asia is growing in population, and its economies are among the fastest growing in the world. Growth in cities occurs when migrants move in and when sprawling cities expand outwards. Bangkok added 2.5 million residents between 1990 and 2010 as rural residents moved to the city to find work. In 1997, Chongqing expanded its

municipal boundaries, ballooning from a megacity of 15 million residents to a mega-region of 30 million. Asia's urban growth in the past two decades has, in contrast to the United States' post-war dispersion, been accompanied by strong desires to be in the centre. Centralization, while it has the benefit of encouraging density, poses severe challenges to mobility and health. This has been the case in emerging economies like China and Thailand where rural to urban migration holds out the promise of a better life, and in advanced economies in stasis such as Korea and Japan, where an ageing and depopulating countryside stands in stark contrast to ever-growing cities.

Beijing has nearly doubled its population in two decades, adding 9 million residents between 1990 and 2010. To accommodate this growth the city extended a historically centralized urban plan. Beijing built a series of four ring roads outside the Forbidden City and the former city wall (considered the first and second rings), sprawling into its suburban hinterlands. The centralized model has maintained the prominence of Tiananmen Square and the political and cultural heart of the city and nation, but at the cost of extraordinary strain on the city's mobility. During heavy rains in June 2011, when portions of the network were blocked and subways were closed by floods, traffic around the city became so unmanageable residents were unable to return home to the periphery from their workplaces in the centre.

Space and politics are inexorably entangled in societies strained by growth, whether directly or indirectly. The case of Hong Kong is exemplary and instructive. Now looking back on 15 years of Chinese rule characterized by economic prosperity but increasing strain on the environment and quality of life, the city is struggling with its identity as a space of freedom and exchange. Having grown historically from a military outpost to a post-war metropolis through an influx of refugees fleeing

upheaval in China in the 1950s and 1960s, The city faced an entirely new influx of Chinese residents after 1997; empowered both financially and politically, this population influx is setting off a politics of *shi* and *cheng* increasingly played out in the occupation of the city's existing public spaces and the planning of new ones.

Public space has become both the territory and the subject of Hong Kong's contemporary urban politics. In 2006, protesters, largely youths of the so-called Post-80s generation, had to be forcibly removed from the site of the Central Star Ferry Pier, a landmark that was eventually demolished for a new roadway. Though not successful at saving the Pier, the protests dramatically changed the relationship between the Hong Kong Government and the public in discussions on development, public space, and cultural identity. The government plans to erect an escalator on Pound Lane, a hillside street passing the city's first public park, have met with organized neighbourhood opposition. Advocates in the Pound Lane Concern Group organize picnics and art exhibitions on the street, contributing political activity to the rich range of informal uses they seek to preserve in the district. In different ways the Star Ferry protests and the Pound Lane Concern Group are both examples of resistance to the *shi*, or market forces driving development, but both embrace the *shi* of free exchange in ideas. Both seek to establish a *cheng*, or defence of the city's social space for the breathing of 'free air'.

The Conflict between *Cheng* and *Shi* in Hong Kong

On 10 September 2012, police-court officers evicted a group of anti-capitalism protesters calling themselves Occupy Hong from the plaza below the HSBC Headquarters in Central Hong Kong, bringing a 306-day encampment to an end. The action went all but unnoticed, as it coincided with the culmination of a week of protests throughout the city. Focused on the new Hong Kong Legislative

Council (LegCo) headquarters complex on the shores of Victoria Harbour, crowds estimated by the organizers at 100,000 (and 27,000 by the police) gathered on roads, footbridges and on the grounds of the complex itself to protest against the forced implementation of a new curriculum for Hong Kong schoolchildren extolling the achievements of the Chinese Communist Party. The protests, which largely dispersed when the city's Chief Executive C.Y. Leung relented on some aspects of the plan, were, like the Occupy movement, an expression of the struggle between the social contract implicit in the Confucian *cheng* and the freedom of exchange embodied by the capitalist *shi*. Occupy protesters demonstrated against the dominance of the *shi*, or global market, and deterioration of the *cheng*, of social contract. Anti-National Education protesters demonstrate for *shi*, free exchange of ideas, and against the imposition of a dominant and to many still foreign *cheng*, or dominant ideology.

The LegCo protests were all the more meaningful because they centred on a spatial product of the city's political development after the handover. Referred to as the Tamar Complex, after a British Naval Vessel that used to dock in the berth reclaimed from the harbour for its construction, opened in 2011. The former council chambers had been located in the old High Court building, facing Statue Square, a remnant of the colonial era, perpendicular to an axis running north from Government House, under the atrium of the HSBC Headquarters to the Central Star Ferry Piers and by extension to London and the seat of colonial authority. With its colonnade and dome, and relationship to the square, the High Court site established known relationships between the public and the city's major government and financial institutions. The Tamar site in contrast is inaccessible by the public save for a few elevated footbridges. In place of a square, a sloping lawn passes through the complex's main architectural feature: a gate formed by two office blocks topped by a sky bridge. Designed by local architect Rocco

Yim, the Tamar site makes use of glass façades and asymmetrical forms more commonly associated with an office park than a seat of government. With the destruction of the Star Ferry Piers and relocation of LegCo, a new axis is developed through the gate of the Tamar site, over the sloping lawn and across Victoria Harbour to the new terminus of the Express Rail lines to China, with 350-kph service to Beijing set to open in 2015.

Transport and trade aggravate the conflict between *shi* and *cheng* in Hong Kong. On 15 September 2012, local residents of Sheung Shui, near Hong Kong's border with the Chinese city Shenzhen, protested at the village train station against mainland Chinese smugglers, or 'parallel goods traders', who cross the border several times daily to buy and transport goods to the north. Focusing on luxury goods available without the mainland's high import taxes and food products perceived as safer than those available on the mainland, such as powdered infant formula and the Hong-Kong manufactured Japanese yogurt drink Yakult, this cross border trade is both illegal and inconvenient for local residents who have taken to referring to the mainland interlopers as 'locusts' – a pestilence. The protests at Sheung Shui included bitter exchanges between Hong Kong and mainland residents, including a group of Hong Kongers waving the territory's colonial flag in a clear jibe to Beijing. The parallel goods traders are also an expression of the tension between *shi* and *cheng*: mainland Chinese seek the freedom of Hong Kong's *shi*, or markets; while Hong Kong protesters struggle to defend their rights to define the city's *cheng*, or identity and social codes.

Assertions of rights to *shi* and *cheng* in Hong Kong are linked to growth and to the movement of populations and how this effects space in different ways. In 2010, 45 per cent of babies born in Hong Kong were to mainland women, many of whom are 'birth tourists': they come to the city to give birth and bestow coveted Hong Kong residency

on their children. Even shortly before taking office in 2012, Chief Executive Leung announced that mainland women would not be permitted to give birth in Hong Kong unless they were married to a legal permanent resident or held a valid work visa. The city also capped births by non-local women in public hospitals. While mainland mums fill the city's hospital beds, mainland money has driven a speculative real-estate market that is out-pricing local residents. On 30 August 2012, Leung announced that his administration would begin drafting laws to restrict the sale of housing to foreigners. At the same time, to accommodate growing numbers of mainland residents and joint business ventures, the Leung administration is pursuing plans for a New Town in the city's northwest New Territories, close to the Chinese border. Critics have objected to these plans on the basis that they are being developed for the needs of mainlanders and not for local residents. Hong Kongers seek to protect their rights to the physical space of the city, to erect a *cheng* against the forces of Chinese investment, an intrusive *shi*. All issues that are relevant to Hong Kong, to China, and to the wider Asian context in which they find themselves.

Future Publics: The Papers
We now turn to the papers in this special issue of *Footprint*, beginning with David Grahame Shane's 'Asian Public Space Since 1945: From Mao to the Mall and Beyond', which tracks the retreat of the European imperial space systems as Asian nations gained independence and the multicentre, global corporate system of public space began to emerge between 1990 and 2008. Fitting seamlessly into his distinguished oeuvre, Shane's survey tracks the specifically Asian rural-urban space-making system of urban villages that has emerged from the long cultural continuity in and around Asian cities. His paper examines four models of urban space: the Metropolis, the Megalopolis, the Fragmented Metropolis, and the Megacity/Metacity, and posits how different actors hybridize and mix models at

different times and in difference places, something that can be seen in the Asian city with its spatial heterogeneity and also its great resilience and varied capacity for innovation at multiple scales.

Paper two, '(Recovering) China's Urban Rivers as Public Space', by Kelly Shannon and Chen Yiyong, deals with something that is not normally thought of as public space: the river. Beginning with a brief overview of some of the canonical geography classics, including a summary of Wittfogel's 'hydraulic civilisation', this fascinating paper highlights the revered role rivers once held in China. Important for transport, defence, and livelihoods, they also demanded respect, as they represented profits, power, and danger. Four historical cases testify to the fact that China's great cities were settled on riverbanks and developed in tandem with floodplain dynamics. With industrialization and technological development there was a growing disconnect between waterways and these settlements. Canalization fundamentally altered the nature of rivers, often becoming physical, cultural, and economic dividers, sometimes even simply open sewers. There has been a rediscovery of Chinese riverscapes in recent years and this paper illustrates three recent interventions by design firm Turenscape where the cities of Ningbo, Kunming and Qian'an have begun to recover the urban, scenic, cultural, and functional nature of their rivers.

Gregory Bracken's 'The Shanghai Alleyway House: A Threatened Typology' is another paper that sees dereliction turning into revitalization, and the hope that that might bring for the future of what he calls the 'Shanghai alleyway house'. This house type, unique to Shanghai, was a rich and vibrant generator of street life. Occupying the ambiguous space between the traditional Chinese courtyard house and the street, its system of 'graduated privacy' (a term coined by Nelson I. Wu) ensured a safe and neighbourly place to live. Due to rapid redevelopment in recent decades in this city, this

once ubiquitous typology is under threat. This paper takes a look at the history of the typology as well as at three recent redevelopments of it in the city: Xintiandi, Jian Ye Li, and Tianzifang, and asks what future there can be for a typology that seems to have outlived its usefulness.

Xing Ruan's elegantly argued piece, 'The Temperament of a City: A Postscript to Post-Olympic Beijing', posits two kinds of amazement in art and architecture: one, which relies on the ingenuity of artifice to arouse feelings of enchantment; and the other, which causes awe-inspiring ecstasy through the shock of the new. Beijing, especially with recent spectacles such as the 2008 Summer Olympic Games, falls into this latter category, but does this prove that the city has been reinvented? Dwelling on these two kinds of amazement this paper examines two pairs of showcase buildings recently built in the city: Terminal 3 of the Beijing International Airport and the Olympic Tennis Centre, versus the Olympic Stadium and the CCTV Tower. What do these buildings say about Beijing and its temperament, if it has one? Which leads the author to an even more provocative question: Is it actually possible to reinvent a city once its temperament has been formed?

The fifth paper is Jason Carlow's '[Re]Forming Public Space: A Critique of Hong Kong's Park Governance through Architectural Intervention', which critiques the Hong Kong government's somewhat too rigid approach to regulating public space, such as parks. It offers four designs as an antidote, interventions for Tuen Mun Park by architecture students from the University of Hong Kong.

'War, Trade, and Desire: Urban Design and the Counter Public Spheres of Bangkok', by Brian McGrath, examines what the author calls an 'emergent public sphere' in Bangkok in an effort to reveal the gap between the ideals of public space, as a representation of power, nationhood, and

modernity, versus its social production in everyday political struggles. It looks at the location of the city's recent political demonstrations, which shifted in 2010 from the more usual Ratchadamnoen Avenue to the Ratchaprasong intersection, the heart of Bangkok's upmarket shopping district. This provocative and thought-provoking paper argues that Bangkok's historical cycles of blood and massacre in its streets could lead to the possibility of finding new forms of urban design and, as a result, a public sphere that has not yet been imagined by the West.

The final paper in this volume is Tang Lian and Ding Wowo's 'A Tentative Approach to Mapping Street Space: A Case Study of Chinese Central Urban Districts'. This is part of an ongoing PhD research into something that is often overlooked in discussions of public space: namely signage. Focussing on an exploration of a quantitative approach to mapping street space, which the authors regard as the most common type of urban public space, they claim that the characteristics of street space can hardly be described and explained using only a description and analysis of traditional architectural forms, especially in modern cities. They see a difficulty arising because of the lack of relevance between these forms and people's activities in them, which presents a challenge to traditional mapping methods. Therefore, they suggest that an expansion of mapping elements could be a viable path to follow. But this presents the researcher with the problem of deciding which element would be the most effective, and how it should be measured and mapped. Bearing in mind the characteristics of Chinese cities, the authors have chosen to use interface signs as their experimental element in this paper. They selected a large area in central Nanjing and analysed the distribution and physical characteristics of interface signs and pedestrian flows to produce a database and statistical analysis of these. This is a rigorously scientific approach to measuring something that is usually considered ineffable and hard to define, namely what public

space constitutes. The research's point of departure is theoretical, but its scientific approach is showing some promising results. Whether these signs are actually the cause or the effect of certain streets' dynamism still has to be shown, but we invite you, the reader, to keep an open mind as you explore this, and indeed all the issues presented here.

Notes

First of all we would like to thank all the participants in the Shanghai seminar in 2011. We would also like to say a special thank you to Xing Ruan, whose idea this publication was, and we owe a special debt of gratitude to Gerhard Bruyns, Patrick Healy, Manon Osseweijer, Lara Schrijver, and Andy Fuller.

Biographies

Dr Gregory Bracken is a lecturer and studio master at the Faculty of Architecture, Delft University of Technology, and a founding member of the *Footprint* editorial board. He is also a research fellow at the International Institute for Asian Studies (IIAS), Leiden, where he co-founded (with Dr Manon Osseweijer) the Urban Knowledge Network Asia (UKNA). He has recently set up the Asia Research Cluster (ARC) at the TU Delft with the aim of facilitating the study of Asia's architecture and urban environment.

Jonathan D. Solomon is Associate Dean at the School of Architecture at Syracuse University. His work explores public space and the contemporary city, through design projects such as Ooi Botos Gallery, a shop-house in a Hong Kong street market converted into a gallery for contemporary Chinese photographic art; research projects such as his 2004 book *13 Projects for the Sheridan Expressway*, the 26th volume in the Pamphlet Architecture series; curatorial projects such as 2010's Workshopping in the US Pavilion at the Venice Architecture Biennale; and publication projects through 306090 books, where he has served as a founding editor since 2001. Solomon has taught design at the City College of New York and, as a Banham Fellow, at the University at Buffalo, as well as the University of Hong Kong, where he led the Department of Architecture as Acting Head from 2009 to 2012. He is a licensed architect in the State of Illinois and Member of the American Institute of Architects.

Asian Public Space since 1945: From Mao to the Mall and Beyond

David Grahame Shane

While the United Nations predicts the shift of the majority of the urban world population to cities in Asia, the form of the city and its public spaces are also changing. This short survey tracks the retreat of the European imperial space systems as Asian nations gained their independence and then the multicentred, global corporate system of public space-making that emerged as the dominant system from 1990-2008. This survey also tracks the appearance of a specifically Asian rural-urban space-making system of urban villages that has emerged as a long cultural continuity in and around Asian cities.

A shifting cast of urban actors, each of which thought their way of making space was the best, employed four models of urban space: the Metropolis, the Megalopolis, the Fragmented Metropolis, and the Megacity/Metacity. It is tempting to say that each model followed the next at 15-year intervals, but this ignores the different rates of development in different places.[1] All are simultaneously present in the Asian city making a simple narrative extremely difficult. Different actors hybridize and mix models at different times and in difference places, this spatial heterogeneity gives the Asian city great resilience and a varied capacity for innovation at multiple scales. The four thematic models form parallel timelines or narratives, one for each model, weaving around each other over time as the shift in power source (as diagrammed in the illustration below).

After the 2008 crash there is reason to pause and re-evaluate this highly successful, emerging Asian urban system and its public spaces, especially in view of the likely implications of energy supplies and climate change on key Asian cities located in coastal and river valley situations. [fig. 1]

Public Space in the Asian Metropolis, 1945-1970
In 1945 the Forbidden Palace in Beijing represented the old Asian imperial public space system, a remnant of a metropolitan model of the state capital city that had survived for centuries in India and China, with their varying dynasties and surrounding vassal states offering tributes.[2] In these ancient systems a single sacred centre lay in a megablock system at the heart of a hierarchy of public spaces that descended from the emperor in the temple palace, via nested approach courtyards and squares opening out to wide approach avenues, often including canal systems, linking to smaller towns and outlying villages. European and Japanese empires overlaid their versions of commercial enterprise and state organization on these earlier imperial models. Twentieth-century colonial examples of the monumental approach axis and courtyard spatial system include the British Imperial Viceroy's Palace in New Delhi, built in the 1930s, or the Japanese Empire's gridded administrative campuses added to the side of older towns as in Seoul or Taipei.[3]

After the end of empire the leaders of each of the Asian independent states sought to transform these monumental colonial public realms into a new symbolic sphere. Nehru, for instance, employed Le Corbusier to design one of the six Indian New Towns intended to house some of the 17 million refugees made homeless by the 1947 British India-Pakistan partition (and also jump-start an Indian industrial revolution). In an economy without automobiles, Le Corbusier planned a city based on a 1.0 x 1.5-mile grid of broad highways, with deep tree-lined reservations around each megablock district, containing four or five superblocks that Corbusier and his associates described as villages. [fig. 2] The Greek architect-planner Constantine Doxiadis employed a similar auto-scaled 1.25 x 1.25-mile (2 km x 2 km) scheme of megablocks in laying out Islamabad (1961), the new capital of Pakistan.

Le Corbusier's plans did not show the existing agricultural villages on the site, but did preserve the lines of watercourses as linear parks, resulting in a Garden City on a vast scale. Following modernist principles, Le Corbusier also segregated the monumental administrative centre from the commercial market centre, also separating the industrial estates. The heavy state symbolism and colossal scale of the public spaces in the isolated monumental campus has proved difficult to inhabit, with neighbouring villages playing cricket and grazing cows there. Punjabi nationalists divided their local symbolic space from the federal space with a high wire fence.[4]

The dream of leaders such as Mao, Nehru, or Sukarno (in oil-rich Indonesia), was to create a new monumental public realm, to represent the new government in a new metropolis. Moscow, the communist world capital, often formed a potent model for this postcolonial transformation. Mao, for instance, rejected Liang's Sicheng proposal to preserve the old city of Beijing and its walls as a museum and build a modern administrative New Town beside it. Instead he chose to follow the Soviet model of new rings and radial avenues around the compact old core, with new towns and factories on the perimeter linked by public transportation and subways.[5] Within the old city fabric the nationalization of land allowed the housing of multiple families within the traditional single family courtyard houses of the Beijing *hutong* or Shanghai *lilong* lane systems within urban blocks. This vastly increased the residential population. Public toilets and bath houses provided essential water and sanitary services for these traditional areas, where tea houses, bars, and restaurants also survived at a small scale along the perimeter walls.[6]

The new central public space of Tiananmen Square, opened up in 1956, created an enormous new public realm that could accommodate a million people, twice the size of the Red Square in Moscow. From the front balcony of the Forbidden City, Mao could address this mass audience via a loudspeaker system manufactured at the new Dàshānzi electronics factory town (1957), built with technical advice from East German engineers, now known as 798, the Beijing arts district.[7] This factory town housed 12,000 people at its peak, representing a typical Maoist *danwei* 'work unit' with modern factory sheds, prefabricated concrete panel housing blocks set in gardens, central dining halls, recreation centres, schools, hospitals, a cinema, and even its own electrical generation plant, water supply, and sewage system, housed in a megablock of over 160 acres (64 hectares).[8]

The public avenues connecting the old city core and peripheral factory or other public enclaves, like the university campus, military installations, or the airport, were enormous, as in Moscow, far wider than the Parisian boulevards of Haussmann that were their model. The enlarged east-west Chang'an Boulevard, for instance, linking to Tiananmen Square, was 16 lanes wide with 30-ft green set-back reservations of public space on either side, creating
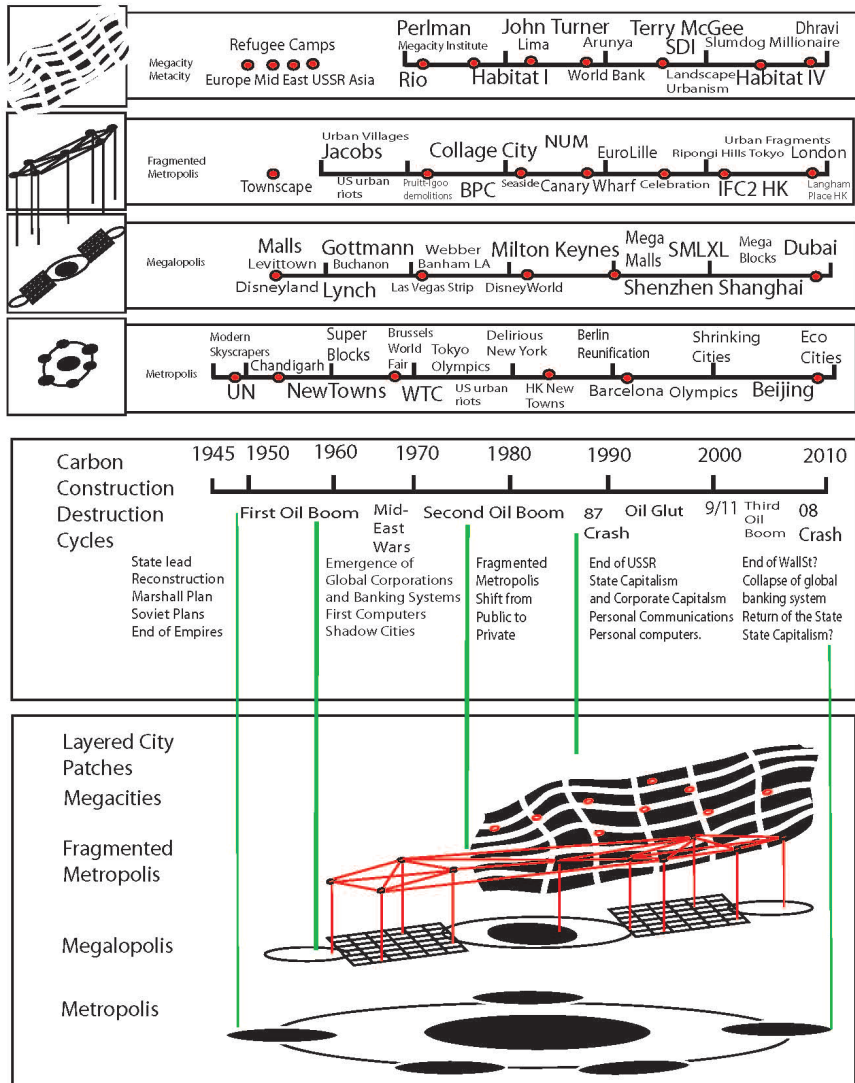
City Model Timelines.

Fig. 1: Diagram of timelines of Urban Design Models 1945-2012; D.G.Shane (from *Urban Design Since 1945; a global perspective*). © D.G.Shane.

a street 1,000 ft wide with public administration palaces, grand hotels, etcetera, arranged along its edges. Agricultural work units in villages in the surrounding green belts and Chinese countryside also provided a new communal space for peasant farm collectivization, as in the Soviet model, resulting in large agricultural cluster settlements with shared facilities among the old field and irrigation patterns.

The European welfare state did pose an alternative to this early anti-colonial reaction against big cities as colonial extractive devices. Abercrombie's 1944 Greater London Plan, based on Ebenezer Howard's 1898 ring radial pattern of New Towns, influenced colonial Hong Kong's planning after the 1954 Shep Kip Mei fire. This disaster made 54,000 shanty dwellers homeless on Christmas Day, beginning the city's mass production housing programme, also influencing Singapore and Tokyo New Town plans of the 1960s. These Asian cities rejected Howard's Garden City cottage morphology (enshrined in Levittown, see below), choosing instead the high-density slab and tower block designs of the Swedish welfare state, exemplified by Vallingby (1953) New Town outside Stockholm. Here housing towers surrounded an open-air shopping mall and small theatre area with a church over a subway station connecting to the city centre.

Vallingby's public urban space posed an important model for American mall designers and Soviet planners alike. The associated 1952 Hotorget development in downtown Stockholm over the same subway line provided another important urban space innovation.[9] This combined a pedestrianized mall in a layered base podium with five skyscraper towers, considerably developing the new urban public-space street section pioneered by Skidmore Owings Merrill at the Lever House, New York (1951). This multilayered mall matrix, with underground by-pass roads, a recessed public space for political meetings, public theatres, street markets,

and a Pompidou-like art gallery space provided an important model for Asian developers, in Tokyo and Hong Kong, even being copied in Moscow in Khrushchev's Novy Arbat Street (1960s).

Today the monumental scale of the modern communist metropolis still survives in a pure form in Pyongyang, the capital of North Korea, but even here reform influences are evident. The Beijing Olympics showed how the monumental dimension of the metropolis could be modernized at a massive new scale in the Olympic Park, which is aligned with the Forbidden City.[10] Elsewhere in Asia the monumental space impulse remains as a colonial trace in grand boulevards and public squares leading to government palaces in Hanoi, in Seoul, or Taipei, or linked to royal palaces and temples as in Bangkok. Occasionally, as in Chandigarh, the grand postcolonial public spaces failed and were abandoned, more often they became choked with either traffic or tourists, sometimes both as in Bangkok or Beijing.

In the Cold War years New York stood as the commercial, dynamic metropolis opposite the centrally planned communist city.[11] From 1945 to 1990, Moscow strictly controlled skyscrapers as isolated, skyline markers, which were not allowed to form clusters as on Wall Street. Contemporary Pudong, across from the colonial-era Bund in Shanghai, demonstrates the continuing power of the New York metropolitan image in communist countries after reform. Here corporate skyscrapers cluster on a peninsular to dominate the skyline of the Asian port city, as in Hong Kong, Singapore, or Mumbai. The monumental scale of Pudong skyscrapers and their layout around a green circle, with their base podiums only now being incrementally connected to public transport by raised shopping mall walkways, provides a salutary lesson on the surprising potential for hybridization of public space typologies in the Asian metropolitan model.
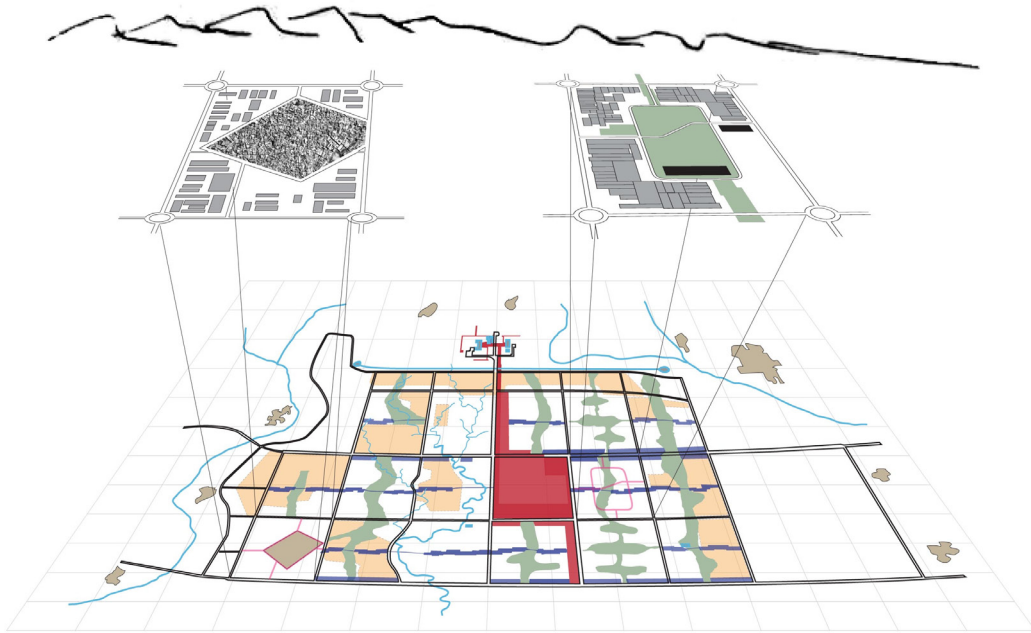
Fig. 2

Fig. 3

Fig. 2: Le Corbusier, P. Jeanneret, Fry and Drew, 1950's, Chandigarh Plan, redrawn by D.G. Shane and U. Wegman to show pre-exisiting villages not included in the masterplan set within diamonds inside 1 mile square highway megablocks. © D.G.Shane and U. Wegman, 2011.
Fig. 3: Milton Keynes plan, 1968; Redrawn by D.G. Shane and U. Wegman to show the historic villages and stream beds preserved within the one kilometer square highway megablocks. © D.G.Shane and U. Wegman, 2011.

Asian Public Space in the Megalopolis and Fragmented Metropolis, 1960-2010

In *Megalopolis* (1961), Jean Gottmann defined the territory of his study as 'the urbanized North Eastern Seaboard of the United States', an area containing 32 million people. His analysis incorporated an enormous regional planning perspective. Gottmann knew where the food and water came from, which suburbs had been built when, and how many flights and phone calls connected Boston, Washington, and New York. New broadcasting systems like television held this area together, carrying advertising for commercial products and outlets, supermarkets, and malls to the dispersed single-family homes as in the 4,400-acre (17.8-km2) Levittown, Long Island, New York (1947-1951).

Contemporary American highway engineers built a low-rise, elevated highway through the heart of Boston in the mid-1950s, whose impact was described by Kevin Lynch.[12] Lynch proposed a system of new urban space notation to preserve the neighbouring historic Faneuil Hall Market District, and to build a new government centre across the highway towards Beacon Hill. In Tokyo at the time of the 1964 Olympics, highway engineers built highrise, 4 lane, elevated roads 60 ft (20 m) above the canal system that penetrated the core of the historic merchant city area. In the same period 1000 ft wide highways reservations with forest side reservations formed a 1 x 1 km (0.62 x 0.62 mi) grid dominating the plan of the last British New Town, Milton Keynes (1968), where architect Derek Walker innovated with an American-style Central Shopping Centre as a city centre.[13] [fig. 3]. During the 1970s Tokyo's elevated highway system became the default Asian solution, cutting though Seoul's shanties above the Cheonggyecheon Stream (1976), flying across central Taipei, and surrounding central Bangkok. In an Asian innovation the areas under these elevated highways often became parks, as in the Yanzhong Park extending west beneath the Yan'an East Expressway (1996) interchange in Shanghai.

Gottmann mapped the transformation of New York, the premier, global, commercial metropolis from a ring-radial city into the new linear format of the megalopolis. New forms of urban public space emerged on the metropolitan periphery. Architect Victor Gruen (1964), for example, described how the typical American regional dumbbell mall needed half a million people within 20 minutes driving time, 40 acres for parking and a 600-ft-long (200-m) pedestrian shopping armature between two 'anchor' department stores, for success. This pattern proliferated later across Asia, as well as drive-in cinemas and strip malls, for instance along Rama I Road in Bangkok during the Vietnam War.[14] Gruen confronted the problem of the introduction of highways as new public spaces in central city areas in the USA in his plan for the pedestrianization of downtown Fort Worth (1955), with an inner ring road, towers on podiums as in Hotoroget and multiple, peripheral parking lots (unsuccessfully applied in Rochester New York, 1956).

In contrast, Kenzo Tange (1960) proposed that the new city was a vast metabolism consuming enormous amounts of energy that should be built out on an enormous highway grid over Tokyo Bay. Compact, high-density, A-section megastructural residential neighbourhoods would house its multiple uses above the highways.[15] Tokyo had grown rapidly after the beginning of the Korean War and the Cold War from the early 1950s onwards. At the World Design Conference in Tokyo, Tange's student Fumihiko Maki (1960) drew a simple diagram illustrating the old Beaux-Arts and modernist pavilion layout systems, the massive scale of the new megastructural city, and contrasted both with the 'collective form' of a small-scale, village-like structure made up of many fractals. This small-scale fabric was similar to the many suburbs being built around Tokyo along the railway lines with each house filling its lot but not touching its neighbour because of earthquake regulations.[16]

While Tange did not build his megastructures in Tokyo Bay, architect Kim Swoogeun built the mile-long Namdaemun Market (1966) mixed-use megastructure in Seoul, South Korea, which was later invaded by the informal electronics market that took over its parking lot and section.[17] In Singapore, the Design Partnership built the Golden Mile (1973) megastructure with a Tange-like split-A-frame section of housing with the addition of a commercial mall below, now occupied by Thai traders. In Tokyo the national railway company began to develop the land above its five ring stations around the Imperial Palace as high-density nodes in fragmented, incremental, megastructural formations, as in Shinjuku (begun with the Kieo Plaza Hotel tower in 1971).

In Shinjuku pedestrian decks and bridges over the railway connected mixed-use office towers that contained railway stations, multilevel shopping malls, department stores, exhibition halls, universities, hospitals, hotels, and residential apartments, beside older parks.[18] An earlier low-rise cheap electronics area survived beside the station, as did earlier villages as a red-light (Kabuukicho), geisha district (Kagurazaka), and entertainment districts (Golden Gai). Tange later added the twin towers of a huge new Metropolitan Government Center (1991), whose base contained a double-layered megablock podium, with a huge new open-air public space inside double-layered connector roads with two-level garden sidewalks joining the different levels. Architect Riken Yamamoto further developed this realm of double-layered new public-private urban space in his highly successful mixed-use Jianwai Soho Beijing (2008), where small offices as well as apartments are mixed in with the towers.

In Asia the megalopolis took on a fundamentally different form from the American original, because oil was expensive, land was restricted, and cars were expensive. As a result Asian cities tended to concentrate and cluster their development around transport hubs, especially railway, commercial developments as in Japan where large companies undertook the unified, modern developments.[19] In the American model the inner-city metropolis decayed as a result of the rapid corridor of suburban growth between Boston and Washington. New York, for instance, lost its tax base, industrial jobs, and population as urban riots erupted in the late 1960s and the city approached bankruptcy in 1976. Under the influence of Jane Jacobs's (1961) arguments in defence of urban villages, the New York City Council rejected the City Planning Commission's 1968 Master Plan with its Robert Moses highways. In response, the newly formed Urban Design Group proposed a system of Special District micro-plans that included a process of village and neighbourhood community consultation as well as developer inputs.[20] The system proved extremely successful and was extended by the state, without participatory component, to Battery Park City, a New Town-in-town planned in 1978.

Battery Park City became a global model for the Fragmented Metropolis based on Special Districts and street corridors in small blocks. Cooper and Eckstut's winning design reintroduced the traditional street grid and 1916 zoning code controls, recreating the public spaces of the traditional New York city-block structure. As the city was nearly bankrupt, this incremental approach made financing easier for developers who also benefitted from innovative public-private-hybrid state-backed bonds. In the centre of Battery Park City, Cesar Pelli designed the World Financial Center (1985-1988) as a Hong King-like mall podium-and-tower complex with sky bridges between blocks.[21] This core set a global model for gigantic urban fragments, a piece of the New York global financial metropolis copied in London at Canary Wharf (1990-1991), in Tokyo (2000), in Hong Kong (International Finance Centre 1 and 2 by Pelli, 2003), and even in Moscow (International Business Center, begun 2001), Shanghai (World Financial Center by Kohn, Pederson, Fox, 2007) and Beijing (World Financial

Center by Pelli, 2009).

Walt Disney's Experimental Prototype Community of Tomorrow (EPCOT, 1982) in his Florida mega-theme park development demonstrated the enclave logic of the new global urban space-making system, based on urban fragments and associated villages in global networks. [fig. 4] Visitors to EPCOT entered past corporate pavilions that emphasized the connective power of corporate America in the global system with General Motors providing transport, AT&T providing communication systems, and Kodak storing our memories. After this entry, visitors confronted a lake, symbolizing the ocean, surrounded by a selection of old empires, like China, Britain, France, Italy, or Japan, all accessible by ferry. Each nation became a village street stage set with a vertical element, the Eiffel Tower for France, Big Ben for Britain, and so forth. Disney designers reversed the spatial relationship between the Saint Mark's Campanile and the Doge's Palace, for instance, to show that the new space was a simulacra, a transformed memory of the old city.[22] Las Vegas casinos copied this global marketing technique as at the $1.8 billion Venetian Casino (1999), with its second floor replica of the Grand Canal below the housing tower. Macao casinos repeated this same pattern of urban village simulacra on an even grander mega-scale (2007).

As Saskia Sassen pointed out in *Global Cities; New York, London, Tokyo* (1991), such global hubs often depended for their servicing on nearby, hidden ghettos of cheap immigrant labour, often contained in illegal urban village settlements. Such settlements could even occur in China's planned economy as in the first Special Economic Zone (SEZ) in Shenzhen (1980), across the border from Hong Kong. Here the symbolism of the enormous public spaces of Mao's Beijing were transformed into a central park surrounded by multilane highways. Milton Keynes' designers Llewelyn Davis Weeks and Partners became advisors to the local Planning Institute,

but no limit was set on the existing Maoist farm collectives captured by the highway network. These villages grew into informal, mini-high-rise clusters housing up to 60 per cent of the many illegal workers who worked in the factories without a proper *hukou* or residential permit. Urbanus (2007) proposed to upgrade these ill-serviced, self-built urban villages by introducing new roof-top communal facilities, bath houses, solar panels, schools, and community gardens in El Lissitzky-like 'Skyhooks' (1920) that preserved the housing below. [fig. 5]

Asian Public Space in the Megacity/Metacity, 1976-2010

Janice Perlman first used the term *Megacity* in her Berkeley PhD thesis to describe Rio de Janeiro and other Latin American cities where informal *favelas* were unmapped but constituted up to 60 per cent of the city.[23] At that time most megacities, defined as having 8 million inhabitants, were either European metropolitan capitals or in North America, Mexico City being one exception. The United Nations accepted the new term and enlarged its definition, first to 10 then 12 million, tracking the shift of megacities from Europe to Asia. The UN has continued to enlarge the scale of the megacity defined in 2011 as megacity regions of 120 million, as exemplified by the Pearl River Delta (PRD), which includes Hong Kong.

At this scale the city becomes a digital construct, a network of statistics that is hard to see on the ground except as a satellite image of urban night lights strung around the world. The Dutch group MVRDV pointed to the conceptual abstraction of this approach in the 2000 Metacity/Datatown project, in which all the information about world urbanization was projected into a virtual data cube. The result was that a single virtual global city, the Metacity, appeared as a series of interactive layers of data inside the cube, a space that could be entered in the original exhibition.[24] The inspiration for this dense cube of data was MVRDV's earlier
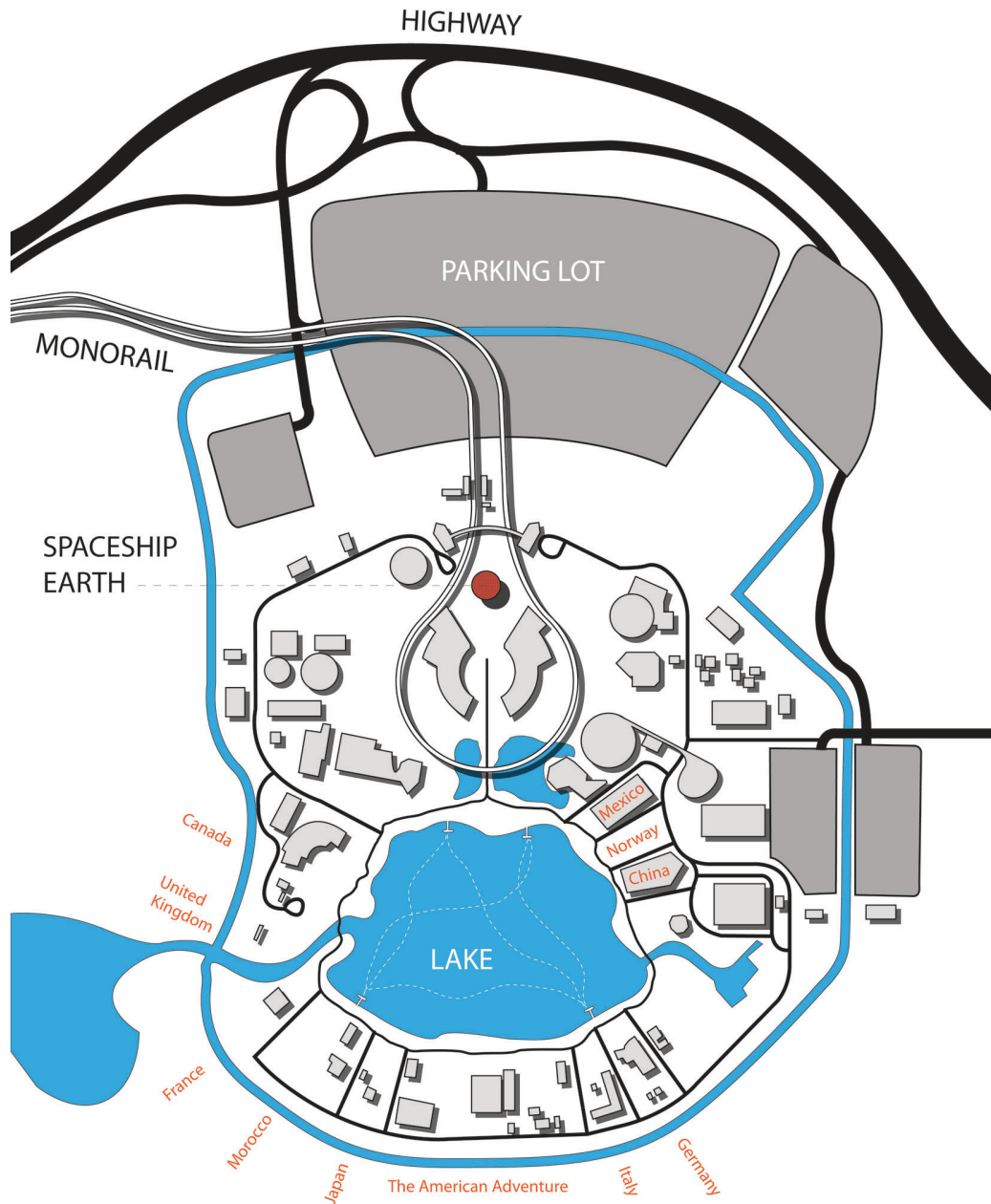
Fig. 4: Disney's Epcot Plan 1982; Redrawn by D.G. Shane and U. Wegman to show the urban villages representing the old European empires, located around a lake with ferries, approached via the ATT corporate communications pavilion (red dot), sited between the General Electric and General Motors Pavilions. © D.G.Shane and U. Wegman, 2011.

research in FAR MAX (1998) on Kowloon's Walled City, a hyper-dense, illegal, self-built urban village demolished by the British authorities in 1998. This data-driven metaphor of the close-packed, three-dimensional city of information was very different from the 'global village' imagined by media theorist Marshall McLuhan.[25]

Canadian geographer Terry McGee described Asian public space as an unusual network that mixed rural and urban characteristics in a new spatial network, naming it the 'desakota', an Indonesian term meaning village-city.[26] McGee's recognition of a new urban territory of dispersal altered the definition of a city in Asian terms. McGee wrote about Jakarta, the capital of the former Dutch colony of oil-rich Indonesia, where colonial and then postcolonial planning had mixed patches of rice-based agricultural *kampungs* (villages) in among factory areas, close to the linear axis of growth that extended from port to central business district. McGee's diagrams identified the desakota as a peri-urban area beyond the edge of the colonial city, usually in river valleys before the 'wild' territory of mountains began (an analysis linked to Patrick Geddes 'valley section' in his *Cities in Evolution*).[27]

McGee highlighted informal 'grey' areas of complex negotiation where new urban publics and spaces, including virtual spaces in new communication systems, could emerge, dependent on a high degree of personal mobility by bike, motor-bike, bus, or ferry. Desakota regions were extremely flexible, as they industrialized and modernized, excess agricultural labour could switch to the factories or small offices. Desakota areas were also spatially heterogeneous, hosting big factories or big-box retail in hyper-modern enclaves, but also containing medium-size firms and small-scale businesses, besides the housing associated with agriculture and industrial needs.[28] McGee's early diagrams showed a generic postcolonial condition that he and other scholars extended through spatial network analysis

from Indonesia to India, Thailand, Taiwan,[29] Japan,[30] and finally China.[31]

The public space of these new Asian urban areas looked nothing like the monumental city of the compact state-dominated metropolis or the intense commercial sprawl of the megalopolis overlain with metropolitan fragments at strategic intervals. In 2003 in announcing the megacity, the United Nations Habitat sounded an alarm about the dangers of the megacity and its messy, mixed-use public spaces and lack of services of their 'megas-lums', a theme echoed by Mike Davis in *Planet of Slums*.[32] The United Nations and Davis pointed to Dhavari in Mumbai as the exemplary megaslum housing 1 million people, threatened with development because of its proximity to the World Financial Center across the street.[33]

David Sattherthwaite pointed out that, based on United Nations figures, 92 per cent of the future urban population will live in cites of 1 to 2 million, only 8 per cent in megacities.[34] This makes the future more manageable as municipal authorities and NGOs can work together to solve situations locally. Sattherthwaite also pointed out that the definition of what constituted a city varied from country to country, and from continent to continent. Sattherthwaite placed great faith in bottom-up, Internet and publicity savvy NGOs like the Mumbai-based Shanty Dwellers International (SDI), which understood the role of villages in Asia, enabling the BBC to present Dhavari as a combination of urban villages; a fishing village, a farming village, a pottery manufacturing village, and an electronics recycling village.[35] Some inhabitants were very poor, some middle class, most inhabited self-built houses on tiny alleyways, but some inhabited government-built slab and tower blocks. The result was a heterogeneous and chaotic mixture of village patches in a river estuary lacking proper water supply and sewage, safe electrical service, and normal munici-pal services, schools, and hospitals, similar to the

Fig. 5: Urbanus, 2005, Plan, photos and project model showing village research program for Gangxia urban village, in downtown megablock, Shenzhen, China. © Urbanus.

favelas of Rio de Janeiro or Caracas, also built in the oil boom years of the 1980s. [fig. 6]

McGee and many other scholars have pointed to the danger that threatens these new Asian networks of urban space as they lie in river valleys and along coastal plains.[36] Here the desakota areas are subject to flooding due to increasingly violent storms and water level changes, as well as drought due to temperature change and changing precipitation patterns. In Vietnam the government has mandated planning for a 2-m rise in water levels, a demand integrated into the Leuven University ASRO Group's demonstration project for the desakota areas surrounding Hue in Vietnam. The United States bombed this old fishing village and colonial port during the Vietnam War. Russian and East-German planners rebuilt the town as a linear industrial city with prefabricated, concrete slab blocks at right angles to the highway leading to the airport. A system of irrigation canals connect the town to a hugely fertile area of rice paddies producing three crops a year, behind a beach resort established by the French colonialists. ASRO proposed to renew the canal system with boats ferrying produce to the town market, also proposing a floating market beside an area of floodable playing fields allowing for the 2-m rise in water level. Raised slab blocks of housing and offices stood on *pilotis* beside the highway bridge across the river, close by the old Soviet-era market hall.[37]

In many Asian megacities, like Jakarta or Tokyo, the heterogeneous mixture of the desakota public space network survives, as in the diverse mixture of village patches around Shinjuku and preserved rice paddies in the megalopolis.[38] In Bangkok, because of the royal ownership of much of the city territory, large apple orchards, fish farms, and rice paddy areas surround the megacity, with one side of the river largely reserved for agriculture as in the Dutch city of Amsterdam. The ancient canal irrigation system still remains interwoven with the royal grid

laid out for agricultural development that became invaded by modern development in the Vietnam War and after, creating one of the premier shopping districts of Asia with gigantic mega-malls. These malls evolved rapidly as an Asian space morphology, from open-air to enclosed multilevel spaces, oriented to the interior and then, with the advent of the Skytrain, flipping to open up to the street.[39] The 1 x 1 km scale of the grid created megablocks that could contain a heterogeneous mixture of uses as interior superblocks, an ancient temple and monks housing with lily ponds connected to the canal, a factory district and housing, the mall podiums and parking garages, with office, residential, and hotel towers above. The megablock incorporated the earlier lane system of the Thai *soi*, a cul-de-sac version of the village-like Beijing *hutong*. All these patches within the megablock also had a virtual presence on the Internet, even the temple, creating a dense informational system that overlaid the traditional desakota system, creating metablocks of information aiding wayfinding and inter-personal communications.

The Bangkok malls' outward turn of public space reflects the major role in the development of this emerging multilayered Asian urban space of Hong Kong's New Towns, pushing forward the Shinjuku heterogeneous network idea. Here architects adapted the dumbbell model of the American suburban mall to new purposes. After Tsuen Wan started in 1959 with a small housing grid and fresh-food market, the town centre expanded in the 1970s as a raised pedestrian network flowing through several multilevel malls between railway stations, surrounded by private and public high-rise housing estates. Subsequent New Towns, like Sha Tin (1973), Tuen Mun (1973) and Tai Po (1976) all followed the same pattern, connecting malls to form the city centre.[40] Above the later malls gardens on the roofs formed the entry to 30-storey, precast concrete housing towers as illustrated by MVRDV[41] and Map Office.[42] Below bus stations, car parks,

Actual

1900

1930

	Residential
	Commercial / Industrial
	Mixed Residential / Industrial
	Nagar of "Koliwada"

D

B

A

C

| | Waterline movement from 1900, to 1930, to present |
| | Marshland circa 1900 |

Selected Communities and their Activities

A. Koliwada Fishermen
B. Leather Tanneries
C. Kumbhar Wada Potters
D. 13 Compound: Recycling

	Developped during 1980 to 1990
	Developped during 1990 to Now
	Formal Buildings

Mithi River

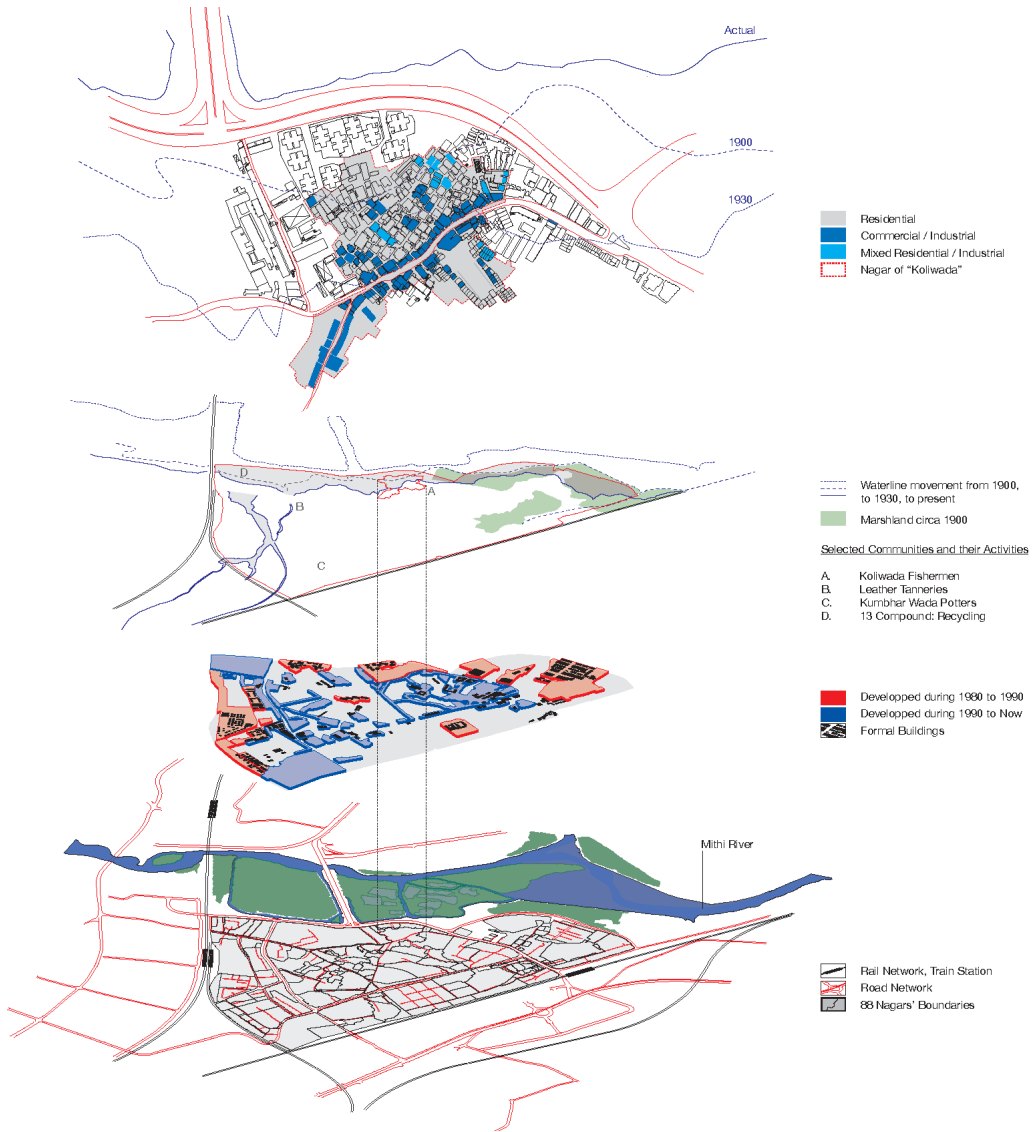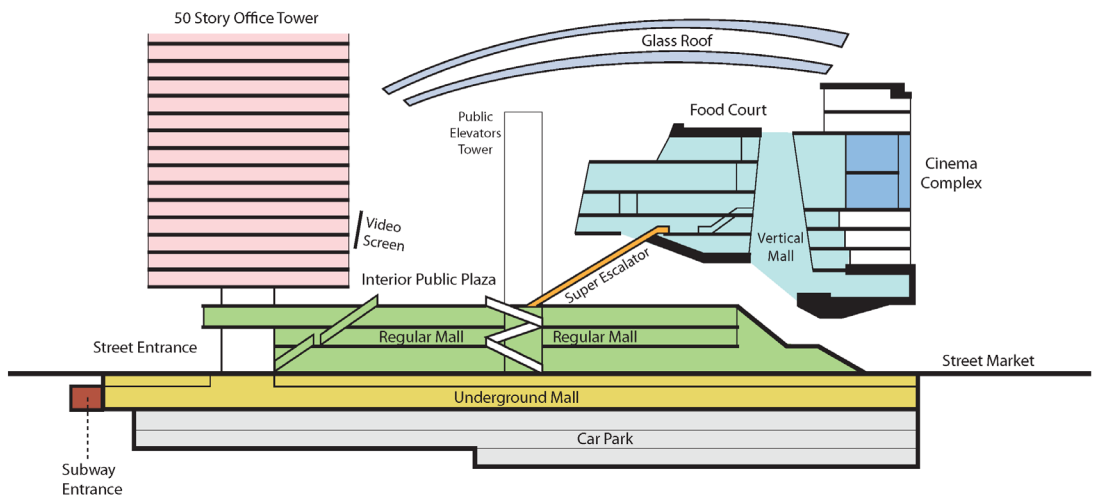| | Rail Network, Train Station |
| | Road Network |
| | 88 Nagars' Boundaries |

Fig. 6:   Analytical Plan of Dharavi Mumbai. © D.G.Shane and Wahid Seraji 2011.

Langham Place, HK, view from Food Court Level.

Langham Place, HK, Section.

Fig. 7:   Langham Place HK Section and collage. © D.G.Shane and U. Wegman, 2011.

Fig. 8: Luodong Community Center Taiwan; Field Office Architects; photo. © D.G.Shane

and subways developed the Hotorget model into a complex net of public transport.[43]

The constellation of Hong Kong New Towns in the New Territories, later extended to Shenzhen as first SEZ, and then to many towns across the Pearl River Delta, forming the basis for the United Nations' Megacity Region designation. Within this vast network of cities that takes three hours to traverse by car, Hong Kong Central and Kowloon Stations have emerged as mega-nodes serving both the mainland hinterland and a global clientele. Here designers have pushed the flexible spatial continuity, interconnectedness, and heterogeneity of the desakota system to new limits, developing a multilevel, mixed-use, layered city section within a three-dimensional megablock. In the 1990s the construction of the Mid-Levels Escalators opened up a hillside village to Central, where multilevel shopping malls formed the base of skyscraper offices and hotel complexes.[44] World Finance Centre 2 (2003) by Pelli added a 1,000-ft-high (305-m) skyscraper with a mall podium that connected not only to the subway, but also to the ferries and the high-speed rail link to the new Foster-designed airport (1998). Across the harbour in the Kowloon Central Railway Station, planned in the 1990s by Farrell's office, subways from Hong Kong Central link into the base of the vast Elements Mall, whose circular roof garden with bars and restaurants forms the base for the 1,000-ft-high International Commerce Centre office tower, a hotel, and several apartment buildings (2007-2011). The high-speed rail station connecting to Beijing is next door, and the new Foster-designed West Kowloon Cultural District will form its waterfront promenade.

Kowloon also contains other examples of the hybridity of the desakota projected into extreme three-dimensional projects, such as Langham Place, designed by Jerde Associates (2005). Here the Hong Kong Mass Transit Railway company (MTR) and a major developer demolished a red-light district but kept its popular street market as a street pedestrian link to three malls stacked on top of each other between two towers. An underground two-level mall connected to the subway, a standard dumbbell mall linked to the street market, and on the roof of this mall a public plaza with Japanese jumbotron TV linked to a vertical spiral mall of boutiques, topped by a restaurant court and multiplex cinemas.[45] [fig. 7]

Echoes of this three-dimensional complexity can be found in Beijing in Steven Holl's Linked Hybrid (2009) project with its ring of skywalks, or in projects like OMA's CCTV Tower with its complex interior sections. The scale and symbolism of the CCTV Tower by OMA, with its own guarded plaza and monumental approach courtyard inside its own, raised superblock also demonstrates the continuing power of monumental public space even in the informational Metacity model. Indeed, the three-dimensional desakota model seems to preoccupy Dutch designers like MVRDV, the originators of the Metacity concept, who went on to design a literal three-dimensional Vertical Village research project in Taipei and then apply it in their controversial Cloud Project Seoul (2011).[46] Here the village fractal terraces will connect the two towers halfway up. Ole Scheeren, Koolhaas's partner on CCTV, went on to design his own MahatNakhonTower (2010) in Bangkok, where small-scale terraces mimicked the desakota spiralling up the building.[47] Scheeren also designed the Angkasa Raya Tower (2011) in Kuala Lumpur with infinity pools in dramatically cantilevered gardens spanning the two towers. UN Studio designed vertical neighbourhoods in the sky above Singapore, their Scott Tower (2011) looking across to Moishe Safde's megastructural Marina Bay Sands Resort (2011) with its roof-top garden spanning three towers.[48]

There are also more humble projections of the desakota mixture into three-dimensional Asian urban space, as in architect Huang Sheng-Yuan's

Luodong Cultural Center outside Yilan, Taiwan (2012), built in increments over several years, and still incomplete. The architect's first move was to convince the neighbouring school to add land to the site in exchange for a new running track that created a larger landscape setting for the new building. After that the municipality financed the construction of a huge steel roof structure in two stages, deep enough to walk inside, that covered a paved surface, beside a car park that sometimes hosts a street market. This paved surface and the neighbouring gardens included power sources for small stands and cultural events. Finally, the municipality built a long, thin steel gallery building, midway up the roof structure, and recently began fitting it out as a cultural centre. It is now possible to ascend via a small pedestrian stairway and ramps to the roof of the gallery, and from there to climb stairs up into the gridded, steel matrix of the great roof structure above. It is difficult to think of a more perfect demonstration of the new multilayered, three-dimensional and multi-use Asian public space, ending with spectacular views to the surrounding mountains. [fig. 8]

Conclusion

The transition from the Asian imperial and European colonial public spaces to modern systems took many forms over the last 60 years. Modern public spaces appeared sometimes as overlays or megastructural insertions in the older systems, but often through the creation of New Town enclaves, peripheral factory micro-districts, and new housing superblocks. It is the argument of this paper that these new enclaves contributed new elements to a well-established, distributed urban system that included agriculture as part of an older Asian desakota tradition. The flexibility of this city-village (desakota) format afforded the public spaces of the urban villages an important role as real and imaginary spaces in Asia's complex urban transitions.

New Asian urban networks are often more flexible, hybrid, and heterogeneous than their imperial or European colonial predecessors, while operating at a similar scale of megablocks. This widely distributed urbanism, now facilitated by satellites and handheld personal communication devices, motorbikes, and micro-busses, supports the formation of new, large-scale, high-density nodes at key intersections. Here, following earlier Tokyo and Hong Kong models, a new, multilayered hybrid public space system has emerged: metab-locks – highly connected, informational urban nodes with a distinctive Asian accent whether in Shanghai or Mumbai, New Delhi or Beijing, Bangkok or Singapore.

Notes

1. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

2. Janet L. Abu-Lughod, *Before European Hegemony: The World System A.D. 1250-1350* (USA: Oxford University Press, 1991).

3. Eric Hobsbawm, *Industry and Empire: From 1750 to the Present Day* (London: Pelican, 1968).

4. Vikramaditya Prakash, *Chandigarh's Le Corbusier: The Struggle for Modernity in Post-Colonial India* (Seattle: University of Washington, 2002).

5. Li Shiqiao, 'Writing a Modern Chinese Architectural History: Liang Sicheng and Liang Qichao', *Journal of Architectural Education,* 56, 1 (2002), pp. 35-45; Hu Xia, 'Preserving the Old Beijing: The First Conflict between Chinese Architects and the Communist Government in the 1950s', paper presented at the 1st Annual James A. Rawley Graduate Conference in the Humanities, Lincoln, Nebraska (2006), available at <http://digitalcommons.unl.edu/cgi/viewcontent.cgi> [accessed 25 June 2012].

6. Tim C. Geisler, 'On Public Toilets in Beijing', *Journal of Architectural Education*, 53, 4 (May, 2000), pp. 216-19.

7. Renée Dekker, *798 Art Zone Beijing: Site of 'Cultural Revolution' or Showpiece of City Marketing?* (Ph.D. Thesis, Ghent University, 2008).

8. Lu Duanfang, *Remaking Chinese Urban Form:*

Modernity, Scarcity and Space, 1949-2005 (London: Routledge, 2006).

9. Olof Hultin et al., *The Complete Guide to Architecture in Stockholm* (Stockholm: Arketektur Forlag, 2004).

10. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

11 Ibid.

12. Kevin Lynch, *The Image of the City* (Cambridge, MA: MIT Press, 1960).

13. Derek Walker, *Architecture and Planning of Milton Keynes* (London: Architectural Press, 1981)

14. Brian McGrath, 'Bangkok: The Architecture of Three Ecologies', *Perspecta,* 39 (2007), pp. 17-29.

15. Reyner Banham, *Megastructures; Urban futures of the recent past* (New York: Harper and Row, 1976).

16. Fumihiko Maki, 'Some Thoughts on Collective Form', in *Structure in Art and Science*, ed. by G. Kepes, (New York: Braziller, 1966).

17. Jeannie Meejin Yoon, *Hybrid Cartographies: Seoul's Consuming Space* (Seoul: Pandacom, 1998).

18. Roman Cybriwsky, *The Shogun's City at the Twenty-First Century* (London: Academy Press, 1998).

19. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

20. Jonathan Barnett, *An Introduction to Urban Design* (New York, Harper and Row, 1982).

21. David Grahame Shane, *Recombinant Urbanism: Conceptual Modelling in Architecture, Urban Design and City Design* (Chichester: Wiley Academy, 2005); David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

22. Karal Ann Marling, *Designing Disney's Theme Parks: The Architecture of Reassurance* (Paris: Flammarion, 1998).

23. Janice E. Perlman, *The Myth of Marginality; Urban Poverty and Politics in Rio de Janeiro* (Berkeley: University of California Press, 1976).

24. MVRDV, *Metacity / Datatown* (Rotterdam: NAi Publishers, 2000).

25. Marshall McLuhan, *The Guttenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962); Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw Hill, 1964).

26. Terry G. McGee, *The Urbanization Process in the Third World* (London: Bell and Sons, 1971).

27. Patrick Geddes, *Cities in Evolution: An Introduction to the Town Planning Movement and the Study of Civics* (London: Williams & Norgate, 1915).

28. Terry G. McGee et al., *China's Urban Space: Development Under Market Socialism* (London: Routledge, 2007).

29. Terry G. McGee, *The Urbanization Process in the Third World* (London: Bell and Sons, 1971); Terry G. McGee, 'The Emergence of Desakota Regions in Asia: Expanding a Hyopthesis', in *The Extended Metropolis: Settlement Transition in Asia*, ed. by N. Ginsburg, B. Koppel, T. G. McGee, (Honolulu: University of Hawaii Press, 1991), pp. 3-25; Terry G. McGee, 'Globalization and Rural-Urban Relations in the Developing World', in *World Cities and the Urban Future*, ed. by Fu-Chen Lo and Yue-man Yeung (Nagoya: United Nations University Press, 1997); Terry G. McGee, 'Jalan, Jalan: Invading, Destroying and Reconstructing the South East Asian City', in *On the Road: The Social Impact of New Roads in South East Asia 158:4* (2002), pp. 637-52.

30. Michael Hebbert, 'Sen-biki amidst Desakota; Urban Sprawl and Urban Planning in Japan', in *Planning for Cities and Regions in Japan,* ed. by P. Shapira, I. Masser, D. W. Edgington (Liverpool, Liverpool University Press, 1995).

31. Terry G. McGee at al., *China's Urban Space: Development Under Market Socialism* (London: Routledge, 2007).

32. Mike Davis, *Planet of Slums* (London: Verso, 2007).

33. Vyjayanthi Rao, 'Slum as Theory: The South Asian City and globalization', *International Journal of Urban and Regional Research,* 30, 1 (2006), pp. 225-32; David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

34. David Satterthwaite, *The Change of Worldwide,*

1950-2000, Settlements Program Discussion Paper, Urban Change 1 (2005), IIED, London; David Satter-thwaite, *The Transition to a Predominantly Urban World and its Underpinnings* (I.I.E.D., London, 2007), available at <www.iied.org/pubs/display.php?o=10550IIED > [accessed 19 August 2011].

35. BBC Dharavi: <http://news.bbc.co.uk/2/shared/spl/hi/world/06/dharavi_slum/html/dharavi_slum_intro> [accessed 28 August 2012].

36. Terry G. McGee et al., *China's Urban Space: Development Under Market Socialism* (London: Routledge, 2007).

37. Michael Hebbert, 'Sen-biki amidst Desakota; Urban Sprawl and Urban Planning in Japan', in *Planning for Cities and Regions in Japan,* ed. by P. Shapira, I. Masser, D. W. Edgington (Liverpool, Liverpool University Press, 1995).

38. Kelly Shannon and André Loeckx, 'Vinh Rising From the Ashes', in *Urban Trialogues; Localizing Agenda 21: Visions, Projects, Co-productions*, ed. by A. Loeckx et al., (U.N. Habitat, Nairobi, Kenya and ASRO, K.U. Leuven, Belgium, 2004).

39. Brian McGrath, 'Bangkok: The Architecture of Three Ecologies', *Perspecta,* 39 (2007), pp. 17-29.

40. HKHA, *Public Housing in Hong Kong* (Hong Kong: Hong Kong Housing Authority, 1996).

41. MVRDV, *FAR MAX* (Rotterdam: NAi Publishers, 1998).

42. Map Office, (F. Gutierrez and V. Portefaix) *Mapping HK* (Hong Kong: Map Books, 2000).

43. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

44. Ibid.; Jonathan D. Solomon, Clara Wong, Adam Frampton, *Cities Without Ground: A Hong Kong Guidebook* (Barcelona: Oro Editions, 2012).

45. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

46. Bridgette Meinhold, 'MVRDV Vertical Urban Villages' (2011) available at <http://inhabitat.com/mvrdvs-vertical-village-exhibition-explores-alternative-urban-densification-in-east-asia> [accessed 28 August 2012].

47. David Grahame Shane, *Urban Design Since 1945: A Global Perspective* (Chichester: Wiley Academy, 2011).

48. Ibid.

Biography

Urban design historian David Grahame Shane teaches Graduate Urban Design at Columbia University and undergraduate students at Cooper Union in New York. He also lectures for the Bartlett School of Architecture's Graduate Urban Design Programme, University of London and at the Polytechnic in Milan, as well as participating in master classes at the University of Venice. He has lectured widely and published in architecture journals in Europe, the USA and Asia. He co-edited with Brian McGrath the *Architectural Design* publication 'Sensing the 21st Century City: Close-Up and Remote' (November 2005). He is the author of *Recombinant Urbanism: Conceptual Modeling in Architecture, Urban Design and City Theory* (2005) and *Urban Design Since 1945: A Global Perspective* (2011).

(Recovering) China's Urban Rivers as Public Space

Kelly Shannon and Chen Yiyong

This article focuses on the revered role rivers in China once held – in cartography, history, mythology, festivals, cities, and everyday life. It begins with a brief review of canonical geography classics and a summary of the 'hydraulic civilization' as coined by German Sinologist Karl Wittfogel. The 'science of wind and waters' or *feng shui* is also shortly discussed. Thereafter, four historical cases testify to the fact that China's great cities and settlements were founded on riverbanks and developed in tandem with the dynamics of floodplains. Rivers were important for transportation, defence, and livelihoods; they also imposed respect. Rivers simultaneously represented profits, power, and danger, yet were the centres of public life. Over time, however, a tension developed between the civilizing force of the city and water's natural energy. As progressive eras of industrialization took hold, organizational abilities allowed, and technology developed, there became a growing disconnection between waterways and settlements. Man tamed, controlled and diverted waterways, constricted the flows, confined the course and canalized rivers. Canalization fundamentally altered the nature of rivers, as they were straightjacketed in concrete linings and in many instances barely resembled rivers anymore. They became physical, cultural, and economic dividers, upset natural habitats and biotopes; open sewers with contamination plumes emptying directly into them. However, there is hope. In the past decade, there has been a rediscovery of Chinese riverscapes, initiated by the Chinese government. The latter half of the article illustrates

in detail the intervention of three case studies that recovered the urban, scenic, cultural, and functional nature of rivers inside the city fabrics of Ningbo, Kunming, and Qian'an by the design firm Turenscape. It develops the role of riverfronts in the (re-) creation of vibrant public space in the cities overrun by market-driven and privatized spaces.

River 川 Water 水 Mountain 山

Water in China once held a privileged position, symbolically and physically. The character for river (川 – *chuan*) represents flowing water, while the character for water (水 – *shui*) is that of a small river with several water drops around it, translating to immobile water. In Chinese cartography, water and specifically rivers are of utmost importance. The first known map of China (1137 CE), from the Song dynasty (960-1279 CE), is engraved in stone and merely shows 80 rivers in the country – those that King Yü (founder of the Xia dynasty) was given credit for being able to tame from flooding, of which he dredged riverbeds and in the watersheds enriched livelihoods by constructing extensive irrigation networks. [fig. 1] Today, Yü the Great, as he has become known, is mythologically idolized by hydraulic engineers, irrigation experts, and water-conservancy workers. Another classic map of China, believed to have appeared before the first century BCE, brings in another important element of ancient Chinese (Asian) cartography, namely that of mountains (山 – *shan*).[1] The *Shan Hai Jing* (classic of Mountains and Rivers), recorded mountains, rivers, animals, vegetation, and legends in different

parts of China. It was considered more representative of ancient tradition, and perhaps magical and ritualistic rather than geographical; 'something of an imagined world concerning man's relationship to mountains, rivers and the sea.'[2]

Between the third and sixth centuries CE, two classic geography books appeared with maps that specialized on the river systems of China, *Shui Jing* (*Waterways Classic*) and *Shui Jing Zhu* (*Commentary on the Waterways Classic*). The former briefly described 137 rivers, while the latter annotated and substantially expanded the first addition, recording 1,252 rivers. It not only focused on their geography (the book was divided into sections by river, following its source, course, and tributaries), but also its connected history and culture. During the Qing dynasty (1644-1911 CE), an encyclopaedia on rivers, *Xing Shui Jin Jian* (Golden Mirror of the Flowering Waters), was completed, which collected historical materials of the source, change, and hydraulic engineering of almost all the rivers in China.

In China, as in all societies, it is evident that the control and appropriation of water was fundamental. Karl Wittfogel, an influential mid-twentieth-century Frankfurt School historian and Sinologist, developed the notion of China as the basis of a 'hydraulic civilization' where social formation was linked to a strong centralized authority and production emerged from water management and control. According to Wittfogel:

> Where agriculture required substantial and centralized works of water control, the representatives of government monopolized political power and societal leadership, and they dominated their country's economy. By preventing the growth of strong competitive forces, such as a feudal knighthood, an autonomous church, or self-governing guild cities,

they were able to make themselves the sole masters of their society that constitutes the institutional essence of hydraulic civilization.[3]

Wittfogel's thesis of the 'hydraulic civilization' identifies an 'intimate link between environmental authority in the form of water control and political power'.[4] Meanwhile, Chinese geomancy, or *feng shui*, the science of 'wind and waters' (already recognized by the beginning of the Han dynasty in 206 BCE), is the art of adjusting the features of the cultural landscape so as to minimize adverse influences and derive maximum advantage from favourable conjunctions of human settlement.[5] It emanates from the geomancer's analysis of the morphological and spatial expressions of the *ch'i* (cosmic breath) in the surface features of the earth. [fig. 2]

Ancient Rivers – and Water-Based Cities

Ever since antiquity, cities and settlements in China have had a close relationship with and relied upon rivers. A great number of important Chinese cities were founded on riverbanks, due to ample water supply, ease of transportation, irrigation, and drainage; they developed in tandem with the dynamics of floodplains. Settlement locality statistics shows that almost all historic cities in China were located along or beside water bodies. From Ma's statistics, all the ancient national capitals and provincial capitals were located along main rivers, and it was usually the same case for local cities.[6] The morphological evolution of cities was inseparable from river systems. Hand-in-hand with urban form, complicated water management systems were developed, thus various water bodies became embedded in cities. There were many different types of urban water systems in different areas of China, which usually adapted to certain geographic contexts, due to their unique water dynamics and demands. Four water-based cities
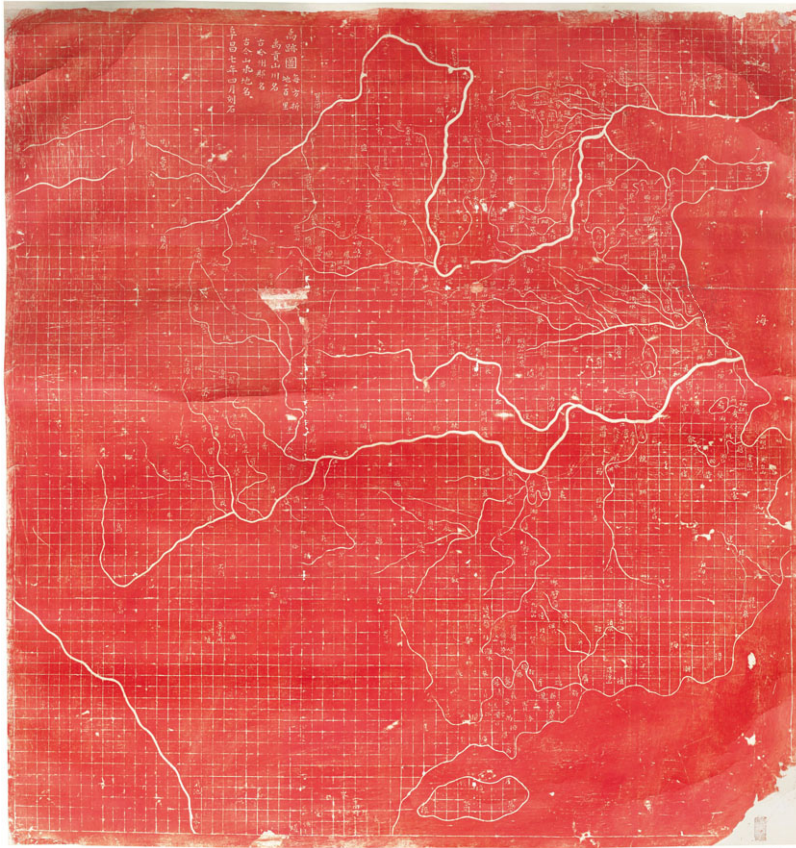
Fig. 1: *Yü Ji Tu* (map of the Tracks of Yü the Great). By an unknown geographer of the Song dynasty (1137) the engraved-in-stone map at grid scale of 1: 4,500,000 shows 80 rivers.
Source: Wang Chengzu, *History of Geography in China* (Beijing: Shangwu Press, 2005), p. 172.

exemplify the inherent water-human relationship in ancient Chinese cities. The cities below are among numerous case studies, but have been chosen for the clear spatial readings evident in cartography and for the different paradigms of indigenous water management that developed hand-in-hand with urbanism and the definition of the public realm. They exemplify the importance of the water in the city for practical and functional reasons, but also based on scenic landscape ideals, religious Taoist beliefs, as revealed through sacred buildings and in various festivals.

In Xiajin, a city in the floodable downstream region of the North China Plain of the Yellow River, there was ingenious construction of a complicated hydraulic system to survive floods, waterlogging, and incredible amounts of alluvial siltation. [fig. 3] As Yu, Zhang, and Li have documented, cities throughout the region have adopted three main strategies to mitigate the difficulties of the environment: living on highland, building circumvallation and circumvallating levees, conserving and excavating retention ponds.[7] In Xiajin, the three strategies were combined and large lakes were dug inside the city's high protective walls to serve as temporary reservoirs during floods. Through a method of cut-and-fill, the earth evacuated from the lakes became the high and safe ground for residence. Unique to Xiajin is the fact that approximately 40 per cent of the area inside the walls was occupied by water. The huge lakes became an integrated part of the urban structure and livelihood. The two largest lakes in the south were used for raising bulrush, the two in the north for farmland cultivation, and others for fish farming. Also, a series of sacred temples were built to honour the gods of water, fire, agriculture, the city wall, and Confucius, all of which were located on the watersides.[8] The sacred buildings made a strong link between the citizens and urban river and water system; the water network was an inseparable component of the economic and socio-cultural life of the city.

Linyi, a city in the hilly area of the northern Shandong province, also has a pond system inside its city walls, not for flood mitigation, but for water supply. [fig. 4] Throughout Shandong province, tank systems were carefully embedded into the topography and along small rivers and streams to collect and store rainwater for various uses, including irrigation and domestic uses. In Linyi, numerous ponds, tanks, and canals were constructed not only in the broad agricultural area, but also inside the city, where waterside public activities were concentrated and colourful. Many important public buildings were situated near the water bodies, such as a temple for Confucius, primary schools, museum, and administrative buildings. The waterside public space was the centre of social activities, particularly during traditional festivals, such as *Yuanxiao* (Lantern Festival, 15 January, the lunar calendar), *Qingming* (Tomb Sweeping Festival, 5 April), *Xima* (Horse-bathing Festival, 6 June), *Qixi* (Magpie Festival, 7 July), *Zhongyuan* (Hungry Ghost Festival, 15 July), etcetera. For example, during the *Zhongyuan* Festival, fishing in the river is forbidden; inhabitants gather at the riverside at night and set all kinds of lit candles adrift in little boats, in memory of their ancestors.[9] The river waters are simultaneously public, personal, pragmatic, and reflective.

Ningbo (meaning 'serene waves'), Zhejiang Province, is one of China's oldest port and trade cities in the heart of the Yangtze River Delta on China's central eastern coast of Hangzhou Bay. [fig. 5] The historical geography of urban water management in Ningbo reveals a highly complex hydraulic system that has become tightly interwoven with the urban structure. Ningbo is located in the Yong Jiang basin at the confluence of two broad rivers, the Yong Jiang and the Yuyao. Since the relocation of the city in 738 CE as a mountain fortress to the coastal plains during the Tang dynasty (when it was known as Mingzhou) in connection with a great land reclamation project, the city's water system was comprised of 24 small canals and two huge lakes

Fig. 2: *Feng Shui* Idealization. 1) The pole star (northerly direction); 2) the highest mountain in the area; 3) the 'azure dragon' mountain in the east; 4) pagoda and monastery in the north-east to protect the site against evil influences; 5) the 'dragon's head' with a source of fresh water (mineral water, etc.); 6) the Great River; 7) the south mountain; 8) pagoda and monastery; 9) the 'white tiger' mountain in the west; 10) the southern slopes of the north mountain with best locations for graves; 11) a small tributary of the Great River, meandering through the valley; 12) the *yang* position for the city with an abundant water supply from the 'dragon's veins.'
Source: Schinz, A., *The Magic Square: Cities in Ancient China* (Stuggart: Axel Menges, 1996), p. 416.
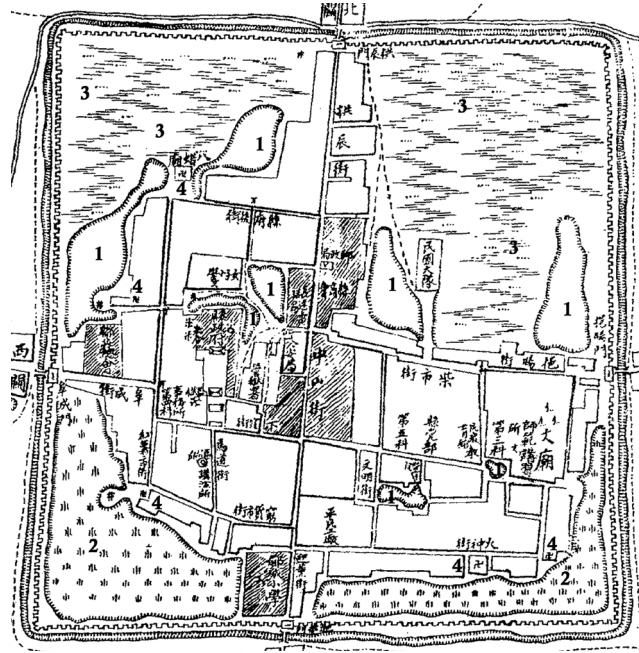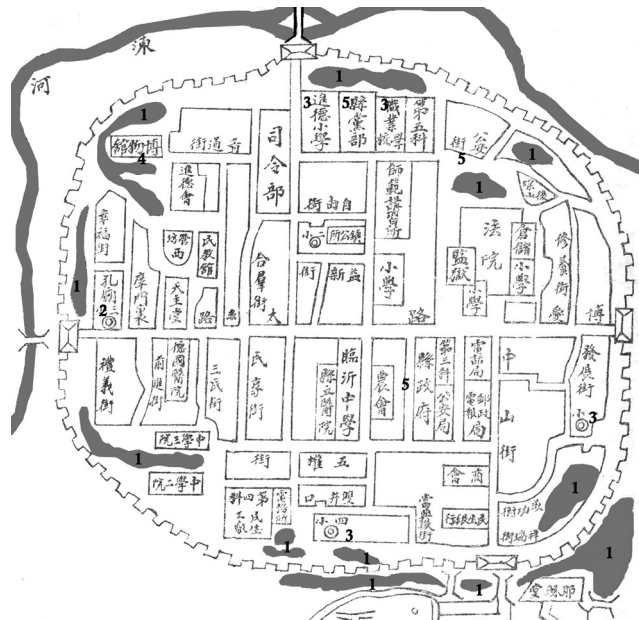
Fig. 3

Fig. 4

Fig. 3: Xiajin, Shandong Province. Xiajin is situated in the Yellow River flood plain, with a high wall and several huge lakes inside the wall: 1) fishing pond; 2) bulrush lake; 3) low farmland; 4) sacred temple.

Source: Xie Xiwen and Xu Zonghai, 'Xiajin County Records' in *Collection of Chinese Chorography*, (Taibei: Chengwen Press, 1968), p. 2.

Fig. 4: Linyi, Shandong Province. Linyi is located beside the Yi river, with ponds both inside and outside its wall: 1) pond; 2) Confucius temple; 3) primary school; 4) museum; 5) administrative building.

Source: Shen Zhaohui and Wang Jinyou, 'Linyi County Records' in *Collection of Chinese Chorography*, (Taibei: Chengwen Press, 1968), p. 2.
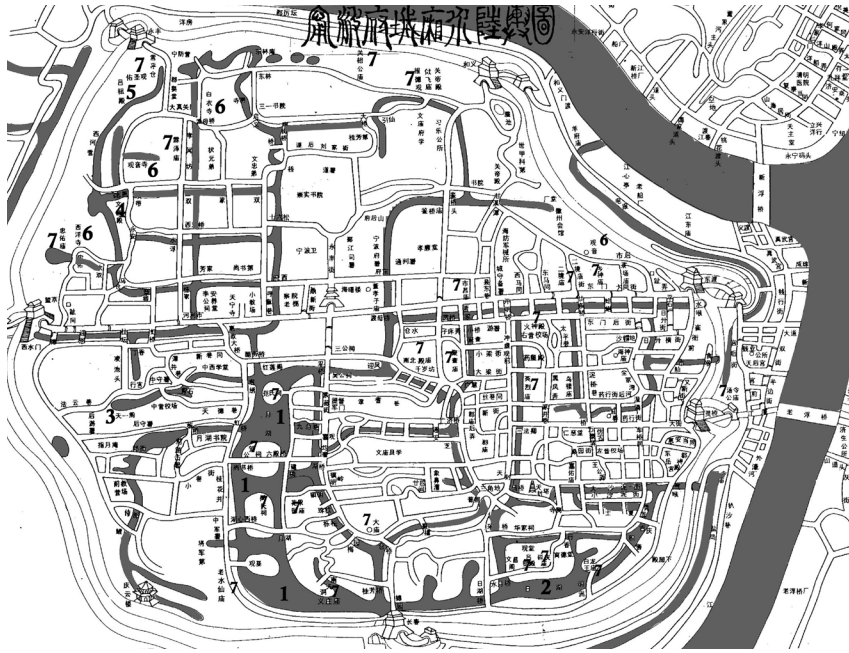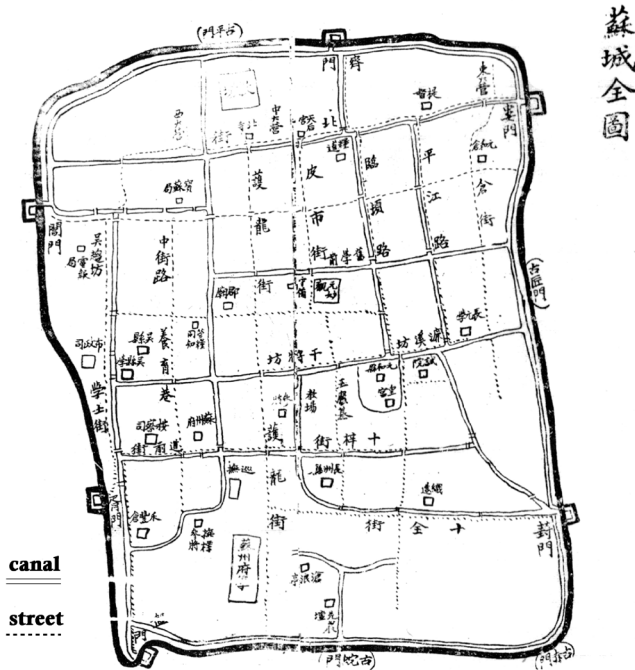
Fig. 5

Fig. 6

Fig. 5: Ningbo, Zhejiang Province. Ningbo is located on the confluence of two rivers, with a network of canals and lakes: 1) Moon Lake; 2) Sun Lake; 3) Tianyi Attic; 4) Wenchang Hall; 5) Lüzu Hall; 6) Buddhist temple; 7) Taoist temple.
Source: Ningbo Prefecture Records Compiling Committee (NPRCC), *Ningbo Prefecture Records*. (Beijing: Zhonghua Book Company, 1995), p. 50.
Fig. 6: Suzhou, Jiangsu province. The map is of the last imperial dynasty of China, the Qing, revealing Suzhou's intertwined nature of canals and streets.
Source: Anon. 'Wu County Records' in *Collection of Chinese Chorography*, (Taibei: Chengwen Press, 1983), p. 10.

(Moon Lake and Sun Lake) inside the city, all of which were connected to one another and linked to the rivers.[10] The total length of the canals was 22.5 km, with a linear river density of 6.44 km/km[2]. Due to its extensive network, Ningbo served as a prosperous business and cultural centre in south-east China; it was connected to the extension of the Grand Canal (which was the main north-south water transportation artery in China). The urban area of Ningbo developed primarily south of the confluence of the rivers:

> […] along the western riverbank where a number of parallel streets connected the landing places on the river with the market street further inland. Since the lower reaches of the Yong Jiang were navigable for ocean-going ships, Ningbo soon became a very important transhipment centre at the southern end of the Grand Canal. Its settlement area increased westward; an administrative centre was established, and residential areas developed around the so-called Moon Lake. At the end of Tang dynasty a wall was built on the west side, connecting the bank of the Yuyao River with the riverbank at the southern end of the harbour area.[11]

Ningbo's water system was not only the infra-structure network, but also the nerve centre of the urban landscape and public activities. In the 1920s, 70 per cent of the cargo was shipped through the canals and most of the city's streets were extended along the canals, including the main business streets. Eighty-two bridges, in different shapes and sizes, were built over the canals, inspiring a host of literature and tourism about and in Ningbo.[12] The hydraulic system also served as a productive landscape, where fish, chestnut, bulrush, and lotus were cultivated. The productive landscape was always linked to waterside activities such as fishing, lotus gathering, and water chestnut harvesting and everyday citizens were engaged in the produc-tion and shared harvests. Today, the inscription of engraved characters on stone tablets along brides

and quaysides serve as witness to past colourful public activities.[13] Along the canals were situated some of the city's most famous buildings, including Tianyige, a well-known library; Wenchang Hall, to honour the god of culture; and Lvzu hall, a Taoist temple. In the south of the city, beside Moon Lake and Sun Lake, some 16 temples were built to honour ancestors and various gods, three of which were on islands in the middle of Moon Lake. The lake is bustling with bridges, temples, and gardens and is among the most beautiful and dynamic area in the city; over the centuries a great number of poems, songs, and paintings have been created to depict and celebrate the cultural significance of the lake. However, since the 1860s, rapid urban development has led to the disappearance of the canal system and with it the urban-water interplay. Today, only part of Moon Lake has survived and the city, like so many in China, has largely become road-based.

Suzhou, long regarded as the 'Venice of the East' on the shores of Lake Taihu (the great drainage basin of the southeast region) and the lower reaches of the Yangtze River in the southeast of Jiangsu province, was a paragon of urban sophistication and elite classical culture – famed by Marco Polo and early Jesuit missionaries to China. [fig. 6] Origi-nally founded in 514 BCE and called Helü Dacheng, capital of the state of Wu, the city was located in the richest rice-growing region of China and an area of great scenic beauty. Suzhou is located at a highland to the east of Taihu Lake, with an average altitude of 4.2-4.5 m above sea level. Mostly, the water level is below 4 m, while the highest water level ever recorded was 4.37 m on 28 July 1954; the city has seldom been flooded during its 2,500-year history.[14] The city was 'laid out according to dictates of classi-cal ritual and historical texts, the square walled city emulated the shape of the universe, in order that the movement of people and goods might mirror the natural flow of primal energies and ensure accord with the cosmos'.[15] Crossing the city wall were eight

overland gates and eight water gates, symboliz-ing the eight *feng* (wind) of the heaven and eight *cong* (earth).[16] A complicated urban canal system structured the urban form, with eight transversal and eight longitudinal canals and a huge moat, all interconnected to Lake Taihu and later connected with the Grand Canal. In Suzhou*,* besides the usual moat around the city wall, there is also a canal along the city wall inside the city; the city is truly a water city with canals measuring 82 km in length and with a density of 5.8 km/km².[17]

Suzhou thrived when China's imperial capital was shifted from Nanjing to Beijing in 1421 and particu-larly when it was connected to the Grand Canal. Its highly developed waterway system propelled it to become China's production centre for luxury goods and textiles (silk) and during the sixteenth century it was the economic and cultural centre of the country's most urbanized and advanced region. The cheap and efficient transport of its waterways was enhanced by a lively urban environment and along the watersides a rich fabric of private gardens, sacred temples, palaces, Buddhist towers, and commercial, residential, and public buildings were developed. The pragmatic function of the city's waterways was married with an aesthetic relation with water (representing the spiritual entity of Tao) and Suzhou has become world-renowned for its venerated urban gardens of literati, inside the tissue's urban dwellings.

Hundreds of bridges, built during several dynasties, spanned the canals and created a warp-and-woof, water-and-pedestrian system as expounded in one verse of a famous poem by Bai Juyi

Green waters surge in all directions of watercourses,
Vermilion painted balustrades stand on three hundred
and ninety bridges.
[…]
Waterways scatter like veins and boats like scales,

Lanes dot like pieces on the checkerboard in this square city.[18]

It was also famously depicted by the Qing dynasty Suzhou court painter and to this day is memorialized in the '*Shengshizisheng* Map', also known as the '*Gusu* lively map', presented to emperor Qianlong to commend prosperity of the country during his rule. [fig. 7] The painting depicts Southern China's landscape, idyllic cottage's officer's houses, ancient boats, small towns along the river, and bustling market scene.

The navigable waterways, fresh water, and location in a region with abundant natural resources, raw materials, and a large market and labour force placed *Suzhou* in the centre of an intensely urban centre of a vast agrarian empire. It was one of the world's most populated cities in the early nineteenth century and only started its decline in the 1860s during the Taiping Rebellion when it was laid to ruin and economically overtaken by nearby Shanghai.

Despite the incredibly rich legacy of China's water-based cities, during successive waves of industrialization and modernization, beginning with the pre-Mao era to Chairman Mao's Period, to Deng Xiaoping's economic reforms, water progressively disappeared from urbanism. As the contemporary global social-capitalism models took hold, organiza-tional abilities allowed, and technology developed, there became both a further disconnection between waterways and settlements, and a new beautified relationship of urban waterfronts and waterside residential districts. As cites became more and more road-based, boats and ships and the everyday commotion of living with the water disappeared, as did a great deal of waterside recreation. Rivers once again became channels for sanitary waste and foul industrial waters until they were eventually polluted, abandoned, or filled in. The great technical progress of civil engineers and hydraulic engineers was able to tame the 'bacteriological city' of sewage

and water supply.[19] Sewage was piped, rivers were covered and/or channelized, and water was quickly flushed from the city. On the whole (but thankfully with a few wonderful exceptions to the rule), health and sanitation regulations led to the bureaucratic pigeonholing of the urban water sector and hydraulic engineers systematically undermined the interplay of water and the city.

Throughout the contemporary world of increased specialization and technological innovation, the infrastructure of urban environments is planned and designed as linear flow systems and the focus is on the transportation of rainwater, nutrients, and wastes out of the city, accompanied by an inefficient use of energy, mineral, and other resources. As one looks back on urban history, water has disappeared from the urban realm, visually and as a collective conscious of urbanites, whether it be in the West or the East.[20] The nineteenth-century epoch of 'clean urbanism' began with the visual banishment of water.[21] From that moment onwards, water became an absent presence in modern urbanism, an engineering trick – out of sight and, consequently, out of mind.

Three River-Recovery Projects by Turenscape
Over the past decade, landscape architect Kongjian Yu and his firm Turenscape have been tackling the overwhelming challenge of China's river channelization of concrete and other hard materials that has become an ubiquitous phenomenon in urbanized areas. Three projects in quite different contexts and with correspondingly varied responses reveal the possibilities to not only ecologically restore, but also imbue a rich public realm into urban cores of urban riverfronts.

Yingzhou Central River Transportation Project in Ningbo
In Ningbo, previously mentioned as a thriving port city, Turenscape's Yingzhou Central River Transformation (2006-2010) project showcases an alternative solution to today's urbanized waterfronts, addressing the challenges of minimum available land and flood control. It successfully transformed a channelized, concrete, rigid, and lifeless river into an eco-friendly, aesthetically pleasant, and productive landscape, harmonizing the relationship between nature and city. The project is located in the centre of the newly developed dense urban Yingzhou District of Ningbo. The rapid urbanization of the region left its rich irrigation, drainage, and transportation network largely filled or channelized using concrete, resulting in rigid and lifeless concrete ditches, which only function for drainage. At the same time, other ecosystems services have been completely ignored. By transforming the former channelized river into an eco-friendly, productive and pleasant water feature, the project proves the possibility of the recovery of the region's water courses as a living ecosystem with the capacity of providing multiple ecosystem services. [fig. 8] The project had to deal with a number of constraints, first of which was limited land use; the central district occupies an area of one square kilometre and its surrounding rivers had all been channelized. The waterfront space is only 50 to 80 m wide between the street and the water line. Along the water's edge is a bend of 10 to 20 m of hard surface pavement rendered in concrete and granite. Beyond this narrow bend is a green strip, which had been planted with trees. Secondly was the problem of flood control. The flood control regulation required that the drainage capacity of the channel could not be reduced. Thirdly, budget was very limited and no massive earthwork was possible. Therefore, the design strategy followed a few key principles: 1) maintain newly planted trees on site as much as possible, so that the cost of tree planting could be reduced; 2) remove the upper part of the concrete embankment, but utilize the base for

Fig. 7

Fig. 8

Fig. 7: *'Shengshizisheng* Map' ('*Gusu* lively map'). A part of the map of the Qing dynasty painting that shows the bustling waterside activity in Suzhou as well as the active street-life in the prosperous commercial centre of the 'Venice of the East.'

Fig. 8: Yingzhou Central River Transportation Project. The former canelized river is transformed into an eco-friendly, productive and pleasant water feature. Source: Turenscape

erosion control of the new earthen bank; 3) reduce the elevation of the riverbank so that a riparian wetland zone could be created (productive lotus flowers are grown and lotus tube can be harvested in the fall); 4) install a boardwalk (as seating and fence) in the middle of the wetland surrounded with rush lotus flowers; 5) create semi-enclosed court-yards (30 x 30 m at intervals of 150 m) to create meeting places and rhythm along the route. The courtyards were inspired by the vernacular typology of the local villages and local materials of tile and granite slates are used for paving. A wood shelter is nestled among the background trees for people to rest, native grasses are grown inside the court-yards, and double steel panels, filled with bamboo, frame the courtyard. In this way, a contemporary new-vernacular experience has been created.

Pan Long River Rejuvenation Project in Kunming

It is clear that China's development pressures are tremendous and environmental and sociocultural consequences are devastating. Throughout China, rivers are hardly recognizable as the cultural gather-ing and social centres they once were. In Kunming, the Pan Long River (Kunming's 'mother river') has become a hardened landscape (with no natural edges) and a sewer for parts of the city. Here, Turenscape (re)developed the landscape structure in tandem with new urbanization and urban/rural requalification across scales. Kunming (popula-tion 5.7 million) is the capital and the largest city in Yunnan Province in southwest China. It lies in the fertile lake basin of the Yungui Plateau at 1900 m above sea level and is surrounded by lakes and limestone hills. It is located near the border with Southeast Asian countries and has always had a special link to that region, as well as to India and Burma. Kunming is known for having one of the mildest climates in China and for its Dianchi Lake ('the pearl of the plateau') – China's sixth-largest fresh-water lake. The city is a huge horticultural centre, the largest flower export base in Asia, and is a growing tourist destination. Its scenic landscape is a quality of the region that requires safeguarding and land stewardship.

Kunming's Pan Long River stretches 23 km through the city's central business district between the Song Hua Ba Reservoir in the north and the Dianchi Lake in the south. The river is quite narrow (between 10-20 m wide) and over the years has become channelized and embanked with 100-year-flood concrete steep slopes. At the same time, over the most recent decades, urban development has been proceeding at breakneck speed and, as the permeable surface areas of the city decreases, the general risks of flooding in Kunming are increasing (during the summer, as the city has a subtropical highland climate). In addition, pollution in the river is getting worse, due to, on the one hand, the fact that the city has an incomplete sewer network and a great deal of raw sewage that discharges directly into the region's waterways and, on the other hand, the fact that there are a number of inappropriate land uses along the riverfront (including industry and warehouses). Also, the river was once the cultural and social centre of the city, and although there are number of important relics remaining, they are mostly neglected and need re-linking to the 'mother river'. Today there is no convenient access to the riverfront and there are no natural buffers between the cityscape and the water.

The Pan Long River Rejuvenation project, the planning of which was developed in 2008-2009, works across multiple scales (region, city, and district) as well as in a realized stretch of the river-front. In a most general sense it has four major objectives as follows: 1) to reconfigure the river as a channel to mitigate the city's floods (100-year flood) and (purified) storm water, while, at the same time, giving public access to the riverfront in a friendly and landscape/soft-engineered manner (requiring demolition of the hard concrete embankments); 2) to upgrade the river and thereby rejuvenate

the economy of the inner city and to more specifi-cally increase the land values of the properties immediately adjacent to the riverfront itself; 3) to pay particular attention to the upper and lower reaches of the river, where the farmland and rural land use is dominant. It is evident that the territory is one in transformation, but the project seeks to build upon the inherent qualities of the particular landscape features adjacent to the northern reser-voir and the southern lake; 4) to initiate ecological restoration along the river and the region as a larger system to increase biodiversity (including to collect water in the wet season and to release it in the dry season), to strengthen the link between the natural and cultural heritage, and to create new systems for recreational and public space uses for the city and province.

At the scale of the region, 'ecological infra-structure' and 'security patterns' were developed following an analysis of the existing conditions. Ecological infrastructure is intended to secure the integrity and identity of the landscape by identify-ing and working with essential natural, biological, and cultural processes. Ecological infrastructure includes both 'defensive measures' (protecting threatened ecological networks) and 'opportunistic' interventions to restore, complete, and integrate the damaged water network into the urban fabric. 'Security patterns' identify the natural capital of ecology and stresses its non-renewable process-embedded value. The ecological infrastructure for Kunming, as a powerful tool for open public space conservation, focused on three categories of processes: abiotic (mainly water management), biotic (native species/biodiversity conservation), and cultural (heritage protection and recreation).

The strong analytical base for the project was provided by natural, cultural, and socioeconomic data from GIS, and interpretative maps led to projective design cartographies that were used to safeguard the three different processes in the landscape.

The flood-security patterns at the regional scale sought alternative solutions to the usual engineered flood mitigation by capitalizing on the assets of the natural landscape and low-, medium-, and high-security patterns were developed for 20-, 50-, and 100-year floods respectively. Landscape security patterns were set up to provide maximum natural water-retaining capacity. Storm water management and flood protection depend on these intercon-nected networks of wetlands, low-lying grounds, waterways, and lakes – providing a sound substi-tute for concrete dams and riverbanks. The strategy for biodiversity conservation was built on analytical maps of land use and vegetation, combined with an analysis of habitat suitability (based on the spatial relationships between habitats and landscape ecological principles). Strategic points and critical areas were identified as the primary concerns for the management and design of interconnected ecologi-cal corridors. At the intersections of roads and the natural corridors, the proposed design interventions include underpasses for certain wildlife species and for water flows, plus bridges for animals. Security patterns for cultural heritage protection and recrea-tion are also included, and these are based on careful analysis of the existing heritage site and potential linkages to it.

At the scale of the river itself, the 23-km trajec-tory was analysed very carefully and recognized to have a number of very different inherent qualities. The north and south are presently rural, agricul-tural areas and this was considered a quality that could be respected in the new densification and development that would inevitably take place as urbanization continues its unstoppable advance. In a development plan for the area adjacent to the Song Hua Ba Reservoir, new housing clusters were developed together with constructed wetlands and swales (in addition to protecting as many existing rural fish ponds and villages as possible) to create a new urban/rural morphology and housing typolo-gies. In the area just north of Dianchi Lake, existing

villages were also maintained; the rice fields were converted into a wetland park to (re)purify water that was cleaned in a mechanical sewage treatment plant before releasing it into the Pan Long River. New urban development would complement the existing settlement structure, again creating a marriage of tradition and modernity and a host of new mixed-use morphologies and typologies. In the central stretch of the river – particularly through the central business district of Kunming – the river was upgraded and developed as a system of parks and gardens to link cultural amenities and create public promenades and a low-speed traffic system for Kunming. A modification and adjustment of the existing morphologies and typologies along the greatest length of the river's trajectory would significant change the quality of life in the city and shallow slopes along the banks would gives citizens accessibility to the riverfront once again and bring Kunming back to the Pan Long River.

The first phase of the project was constructed between September 2009 and March 2010, and realized 8.3 km of the riverfront restoration of the downstream section of the river, from Guannan Bridge to the mouth of Dianchi Lake. The project included riverbank stabilization using ecological engineering (live-staking and riprap) to strengthen the structure of the soil and provide added resistance to the erosive forces of the water flows; newly placed porous-paving bicycle and pedestrian trails along the river; native hydrology-based planting to restore the riparian system; and the inclusion of wooden platforms and urban furniture to create new social spaces along the riverfront. [fig. 9] The dilapidated riverside has been transformed into a highly used public green space and the river has been returned to the city as its central spine.

Finally, the Pan Long River (as the mother river of Kunming) project is an important step for the recovery of the region's 35 rivers (which are the source of Dianchi Lake's pollution). The Mayor of Kunming has himself taken personal responsibility and supervised projects on the Pan Long River and assigned each of his deputy mayors to be responsible for a similar ecological rebalancing of other rivers in the province. The political will of the local government is recorded in the city's Communist Party record of 18 July 2008.

The last Turenscape river restoration project is perhaps the most radical in terms of renaturalization. Qian'an City is located at the south foot of the Yanshan Mountain, at the right bank of Luan River, northeast of Hebei Province. Although the city developed along the Luan River, one cannot see the water as Qian'an's topography is situated below the riverbed; the river is notorious for its unpredictable flooding, and has thus been kept outside of the city for decades through a high embankment. The life source of Qian'an has been a tributary of the Luan, the Sanlihe River, a more calmly flowing river, which has shouldered the long history of the city and carried the collective memory of the inhabitants. Before 1973, the Sanlihe had crystal-clear water from the groundwater recharge of Luan River. Although frequented by storms and heavy rain, the Sanlihe River was never a source of either drought or flood; on the contrary, it provided rich water resources for nearby industries and agriculture. However, as industrialization and urbanization progressed, the Sanlihe suffered the same fate as rivers throughout China. It became the city's backside – neglected, a sewer, used only for waste disposal.

Sanlihe River Project in Qian'an

In 2007, Turenscape was commissioned to recover the Sanlihe River and a greenway of 13.4 km in length and 100 to 300 m in width now serves as an exemplary project of how a neglected landscape can be recovered as an ecological infrastructure and everyday landscape with restored ecosystem capacity in providing multiple services, mediating flood and drought, providing habitats for native

Fig. 9

Fig. 10

Fig. 9: Pan Long River Rejuvenation Project. Reconfiguration of 8.3 kilometres of the downstream river section created a vibrant new public realm with platforms for locals along a river pathway. Source: Turenscape
Fig. 10: Sanlihe River Project. Restored ecosystems restored a public realm and all was done with relatively inexpensive means and using many of the existing elements, as here with 'tree islands'—created from the desire to keep existing trees that would be inundated with the restoration of the river.

biodiversity, integrating pedestrian and bicycle paths for commuting and recreational uses, creating spiritual and aesthetic benefits, and catalysing urban development. The linear park covers approximately 135 hectares and benefits a population of approximately 700,000. The existing trees on the site were saved and the riverbanks were transformed into a number of tree islands connected by boardwalks. [fig. 10] The project used low-maintenance native vegetation, lush water grasses, and wildflowers. Along the greenbelt, the pedestrian and bicycle routes are fully accessible to communities along the channel; these routes integrate with the urban slow-transportation network and create harmony between man and nature in the city of a new era.

The water management of the project is noteworthy. The design for the greenway took full advantage of the existing natural elevation change between the Luan River bed and the city. A fountain was made through a pipe that goes under the high embankment, so that a constant controlled amount of water will make its way through the city before running back to the Luan River at the lower reach. This strategy turns the Sanlihe into a 'scenic byway' of the larger Luan River and transforms the dangerous natural force into a pleasant amenity. Secondly, the existing concrete channel of the river was removed and a multiple watercourse riparian wetland system was created, including the creation of emerald-like wetland bubble chains at the edge of the main watercourse, which regulates floods and collects and dissipates urban storm-water runoff. When the river's water level drops to its lowest point, pools of water remain in the emeralds as wetlands, creating a 'green river'. Furthermore, the wetlands work as an ecological purification buffer for urban storm-water runoff from both banks and the meandering natural waterways, at various surface levels, become diverse habitats for wildlife.

China's Urban Rivers as Public Space

In China, as elsewhere, 'the struggle to control water is a struggle without end'.[22] Man's apparent mastery over nature and taming of rivers has proven futile. In recent years, water management projects by Turenscape and others have deviated from business as usual and made the necessary shift from hard engineering to soft engineering, where slogans such as 'room for water' and 'space to the river' have taken precedence at the territorial scale and in which terms such as SUDS (sustainable urban drainage systems) and eco-swales have become part of the urban design vocabulary. Reconstructed wetlands, aerated lagoons, flood adaptive landscapes, and rainwater gardens are all concepts that work with natural forces in the development of a resilient water (-based) urbanism – in many instances they are experimental terrains to simultaneously accommodate development pressures and ecological concerns. They are working within a larger paradigm shift that is occurring throughout the world[23] and where to date a number of offices, primarily in Europe and North America are working at such scales and with similar issues (firms such as Georges Hargreaves, Agence Ter, H+N+S Landscape Architects, PROAP, SWA, and so forth).

Clearly, if even marginally, there has been a rediscovery of riverscapes in China. Rivers are, once again, becoming distinguishing attributes of cities and towns. The times and characteristics of Imperial China and the imagery are irrecoverable, as history is an evolutionary flow, however new roles and with them spatial forms of rivers are taking shape. Not only the environmental (compounded by the predictions of climate change), but also the social aspects of rivers are now seen as advantageous as cities are beginning to market themselves in the post-industrial era. There has been an increasing level of scepticism in the universal faith of technology and a return to respecting the river as an entity defined by its natural laws. As seen particularly in the Sanlihe project, floodplains are being (re)seen as spaces

of negotiation between nature and the demands of civilized society. Ecological awareness, coupled with an increase in leisure time, has led to massive investments in new strategies for de-channelling and giving a greater degree of freedom back to rivers. The change from a controlled object to an active subject (that is at least partially beyond control) affords new forms of living, recreation, and land use.

Notes

1. Wang Chengzu, *History of Geography in China* (Beijing: Shangwu Press, 2005) (in Chinese), p. 33.

2. Joseph Needham, *Science and Civilization in China, Vol. 4*. (Cambridge: Cambridge University Press, 1962), p. 241.

3. Karl Wittfogel, 'The Hydraulic Civilizations', in *Man's Role in Changing the Face of the Earth*, ed. by W.L. Thomas (Chicago: University of Chicago Press, 1956), p. 153.

4. Denis Cosgrove, 'An Elemental Division: Water Control and Engineered Landscape', in *Water, Engineering and Landscape*, ed. by Denis Cosgrove and Geoff Petts (New Delhi: CBS Publishers & Distributors, 1990), p. 3.

5. Joseph Needham, 'Geomancy', *Science and Civilization in China, Vol. 2*. (Cambridge: Cambridge University Press, 1956), pp. 359-63.

6. Ma Zhenglin, 'City Localities and Rivers in Ancient China', *Journal of Shaanxi Normal University* (Social Science), 28, 4 (1999), p. 83.

7. Yu Kongjian, Zhang Lei and Li Dihua, 'Live With Water: Flood Adaptive Landscapes in the Yellow River Basin of China', *JoLA (Journal of Landscape Architecture)* (Autumn 2008), p. 8.

8. Xiajin County Records Compiling Committee (XCRCC) in *Xiajin County Records* (Beijing: Fangzhi Press, 2011) (in Chinese), p. 760.

9. *Linyi* Prefecture Records Compiling Committee (LPRCC) in *Linyi Prefecture Records.* (Jinan: Qilu Press, 1999) (in Chinese), p. 160.

10. Alfred Schinz, *The Magic Square: Cities in Ancient China* (Stuggart: Axel Menges, 1996), p. 175.

11. Ibid., p. 206.

12. Ningbo Prefecture Records Compiling Committee (NPRCC), *Ningbo Prefecture Records.* (Beijing: Zhonghua Book Company, 1995) (in Chinese), p. 2401.

13. Ibid., p. 863.

14. *Wu Qingzhou, Flood Control of Ancient Chinese Cities* (Beijing: China Architecture & Building Press, *1995),* (in Chinese), p. 69.

15. Peter Carroll, *Between Heaven and Modernity: Reconstructing Suzhou, 1895-1937* (Palo Alto: Stanford University Press, 2006), p. 3.

16. Zhao Ye (Han dynasty), *Wuyue Chunqiu, Vol. 4, Helü Neizhuan* (Nanjing: Jiangsu Ancient Books Press, 1986), (in Chinese), p. 25.

17. *Wu Qingzhou*, 'Urban Canal Systems in Ancient China', *Journal of South China*, University of Technology (Natural Science Edition), 35, 10, (2007), (in Chinese), p. 64.

18. Bai Juyi (author) and Gu Xuejie (proof-reader), *A Collection of Bai Juyi's Poems*, Vol. 2 (Beijing: Zhonghua Book Company, 1979) (in Chinese), p. 540.

19. Matthew Gandy, 'Rethinking Urban Metabolism: Water, Space and the Modern City', *City*, 8, 3 (December 2004), p. 363.

20. Bruno De Meulder and Kelly Shannon, 'Water and the City: The "Great Stink" and Clean Urbanism', in *Water Urbanisms*, ed. by K. Shannon et al. (Amsterdam: Sun, 2008), pp. 5-9.

21. Bruno De Meulder, '*De onzichtbare HST. De Hogesnelheidstrein in Antwerpen / The invisible HST. The High-speed Train in Antwerp'*, *Archis*, 12 (1997) pp. 48-55.

22. Terje Tvelt and Eva Jakobsson, 'Introduction: Water History is World History,' in *A History of Water, Volume 1: Water Control and River Biographies*, ed. by T. Tveldt and E. Jakobsson (London: I.B. Tauris, 2006), p. ix.

23. Kelly Shannon, 'Eco-Engineering for Water: From Soft to Hard and Back', in *Resilience in Ecology and Urban Design: Linking Theory and Practice for Sustainable Cities*, ed. by S. T. A. Pickett, M. Cadenasso, B.

McGrath, Future City Series, Vol. 3 (Springer: London, 2013), pp. 163-82.

Biographies

Kelly Shannon is a professor at the Institute of Urbanism and Landscape of the Oslo School of Architecture and Design (Norway) and visiting professor at the Department of Architecture, Urbanism and Planning at the University of Leuven (Belgium). She has also taught at GSD, Harvard University (Cambridge), Peking University (Beijing), Aarhus School of Architecture, ESARQ (Barcelona) and the University of Colorado in Denver. Her research is at the intersection of urban analysis, mapping and new cartographies, urban design, and landscape urbanism. She is also an editor of *JoLA* (Journal of Landscape Architecture) and deputy editor of *LA China*.

Chen Yiyong is a PhD student at the College of Architecture and Landscape Architecture, Peking University. His research interest focuses on cultural landscape and cultural heritage. He has published several papers in *Human Geography, Acta Geographica Sinica, Urban Problems,* etcetera. The title of his doctoral dissertation is *Traditional Urban Water Systems in China and Lessons for Water Urbanism*.

The Shanghai Alleyway House: A Threatened Typology

Gregory Bracken

The Shanghai alleyway house was a rich and vibrant generator of street life.[1] Unique to Shanghai, it occupied the ambiguous space between the traditional Chinese courtyard home and the street. The system of 'graduated privacy' within its alleyways ensured a safe and neighbourly place to live.[2] Due to rapid redevelopment in recent decades this once ubiquitous typology is under threat. This paper takes a look at the history of the typology as well as at three recent redevelopments of it in the city: Xintiandi, Jian Ye Li, and Tianzifang, to question what future there can be for a typology that seems to have outlived its usefulness.

At a time when China was reeling from the humiliation of the 'unequal treaties', the city of Shanghai was producing a new and remarkable housing typology: the alleyway house. A nineteenth-century commercial development, most were speculative real-estate ventures and consisted of large blocks, typical of inner-city Shanghai, which were divided into three or four smaller blocks approximating 100 dwelling units each and developed separately. The residences were accessed by alleyways, with the main alleyway being 4 to 5 m wide and running perpendicular to the access street. Larger compounds had smaller alleyways crossing the main one at right angles. [fig. 1]

Commercial activity was confined to the houses facing out onto the boundary streets, although some informal commercial activity also occurred along the main alleyway. Access to the alleyways was via a gate, which was closed at night. There were often more gates, but as these tended to close at different times it meant that the alleyways, which could act as excellent shortcuts, tended to be used only by those who knew them well, because if someone tried to get through a gate at the wrong time of day they could find their handy shortcut turned into an annoying dead-end.

The houses themselves were two to four storeys in height and varied in size and opulence, with the basic unit being anything from 60 to just over 100 m², typically with two rooms per floor. As the typology developed, this basic house type grew larger and more elaborate, with the new-style alleyway house (which resembled a Western townhouse) and the garden-style alleyway house (which had space on either side and sat on a larger plot of land) being the largest. The alleyways were home to a variety of communal activities, from work to play, and the chief factor in their flexibility of use was the hierarchical system of 'graduated privacy' that was obtained as one moved from the public street to the private home.

The alleyway house is known by a variety of names, *lilong* being the most common, while *longtang* is the local Shanghainese name for it. There is also *shikumen*, a particular type of alleyway house which takes its name from its elaborately carved doorway, a throwback to the *paifang* or ritual

gateways that marked the entry to residential wards in Chinese cities.[3]

This application of Western decoration, and the fact that the houses are laid out in terraces, has led some to speculate that the alleyway house was somehow a hybrid of Eastern and Western building traditions, but there is little evidence to support this view. The builders of the typology may have copied some Western detailing but that is as far as this hybridity goes. The alleyway house's genesis is clearly Chinese. The fact that they were built in terraces is more to do with the fact that this is an efficient use of expensive land, while the multi-storey dwelling, which is generally considered quite unusual in Chinese traditional architecture, does have a precedent in the shophouses of Guangzhou. Finally, to dispel any notion of similarity with the Western terrace, nearly all of Shanghai's alleyway houses were built facing the same direction, namely south. This was done to obey the precepts of *feng shui* and meant that the fronts of houses faced the backs of their neighbours, an arrangement unheard of in the West.

Use of Space

The term 'graduated privacy' is an important one for any attempt to understand the use of public space in the alleyway house compound. Developed by Nelson I. Wu in his seminal work *Chinese and Indian Architecture: The City of Man, the Mountain of God, and the Realm of the Immortals*, it is more usually applied to the traditional Chinese courtyard house where it denotes the progressive sequence of spaces that operated within a traditional Chinese home, where the street was public; the entry vestibule semi-public (a place for the reception of casual visitors); friends and family would be allowed into the main courtyard and its adjacent halls, which were semi-private; while the deeper recesses of the house would be reserved for the family's activities and were completely private. [fig. 2] The typical alleyway house compound also followed this

hierarchy to a remarkable degree, with the main street being fully public; the main alleyway semi-public (a place where casual acquaintances could interact or conduct small-scale commercial transactions); the side alleyways being semi-private (a place where inhabitants could interact on a more intimate level, or engage in household chores – their homes being so small); and the house itself, which was fully private. [fig. 3]

The richness and vibrancy of the spaces of the Shanghai alleyway house were due in large part to the subtly graduated yet highly rigid hierarchical system of alleyways that led to the houses. This enabled dwellers to inhabit the alleyways that connected the houses, and, through them, the rest of the city. The alleyways also act as a filter to control and protect the compounds from unwanted contact. The alleyway house policed its streets and alleyways by the simple expedient of enabling neighbours to look out for one another.

The visibility that was possible in such a hierarchical arrangement of streets – where strangers and residents could be monitored by one another – not only reflected the way in which Chinese society makes use of its cities' streets, but, in Shanghai's specific case (with the Western ethos of its foreign concessions), this was further mitigated in pockets of the more traditional Chinese way of life. In fact, it could even be argued that these finely grained alleyways managed to engender their unique street life *because* of their opposition to and contrast with the rest of the Western-style city. They can be seen as similar to Beijing's *hutong*, yet their use of space is subtler. They have more scope for this subtlety for the simple reason that they have more space in which to operate.

It was the healthy and mutually beneficial system of street surveillance (by neighbours, for neighbours concerned with one another's welfare) that made the Shanghai alleyway house such a wonderful
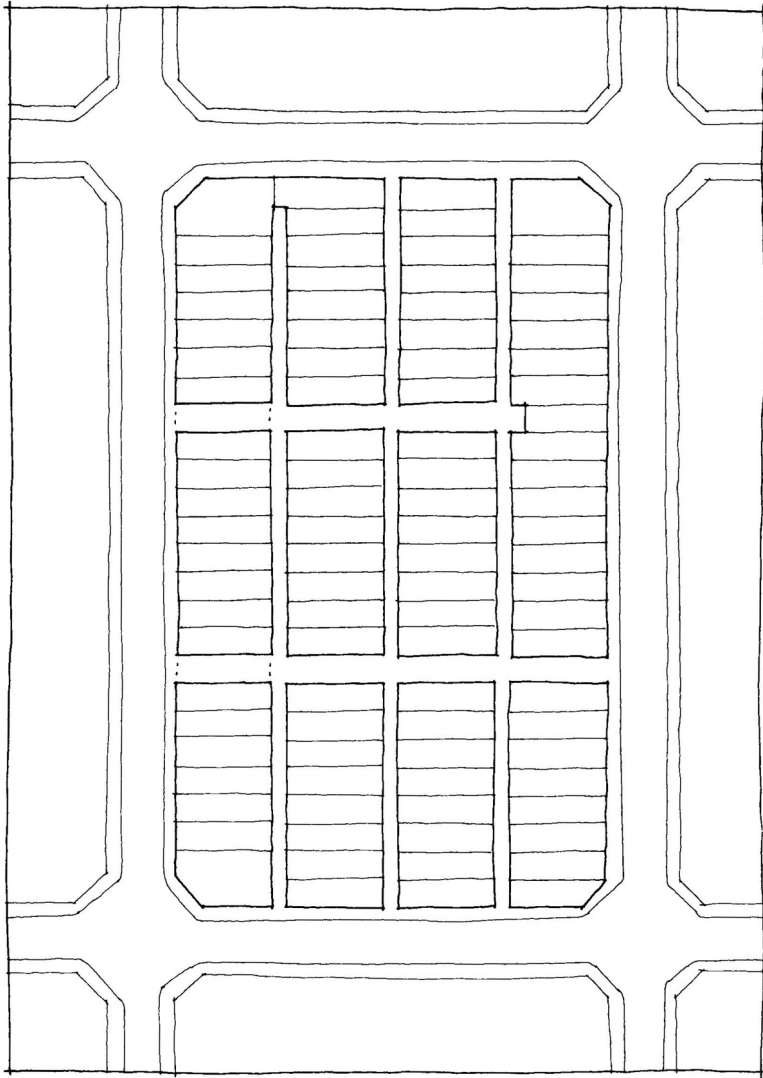
Fig. 1: Plan of a typical alleyway house compound. © Gregory Bracken.

generator of healthy and vibrant social life, and it is this that is being rapidly lost in the double blow of redevelopment (which is seeing the typology all but vanish from the city), and, just as devastating, the One Child Policy, which has been in place for over a generation and is leading to the traditional extended Chinese family becoming a thing of the past.

Street Life

To the average Shanghainese, life in the alleyway house was as remote from Western influence as if the foreign concessions were another world, which indeed they were. Samuel Y. Liang says that the alleyway house should be considered as a distinct space, not merely a traditional type in a linear historical process; it needs to be seen as something that embodied a Shanghainese or a Chinese modernity, one that was full of complexities and hybridities and as such in sharp contrast to the Modern, as marked by purist design and functionalist planning of the sort to be found in the foreign concessions.[4]

What Hanchao Lu refers to as 'small town mentality' was typical of rural towns in North China, especially in Sichuan and Jiangnan provinces, but it also seems to have existed in metropolitan Shanghai.[5] Although many of Shanghai's residents would have considered Nanking Road to be the centre of the city, it was a place they rarely, if ever, visited, for the simple reason that they could get most of their daily needs without having to walk farther than an alleyway or two. Their daily shopping activities took place within the confines of their alleyway house compound, where there would invariably be shops like the traditional sesame-cake seller.[6] In this way Hanchao Lu shows how these shops acted as if they were located in a standard market town, while Nanking Road operated at the level of the provincial metropolis or *xiancheng*.[7]

Chinese society had traditionally patrolled the borderlines between elites and the lower classes in a most vigilant manner. The Confucian ideal of

the social continuum that included everything from the high point of the state down to the basic unit of the family was embodied in similarity of architectural layout for buildings with different social functions, but which had similar physical forms. It did not matter whether the building was a palace, a temple, or a simple home, these different typologies all followed the uniform layout consisting of a walled complex and a series of entrances, courtyards, and halls. The city, as Samuel Y. Liang has pointed out, reversed this because it was where 'the obscure became prominent and the traditional social hierarchy was reversed'.[8] He sees this reversal as being the result of not only the impact of the West on Chinese society in Shanghai, but also from an erosion of the established social order of both the West and China that resulted from their cohabitation in what he calls a 'hybrid colonial environment'.[9]

Courtyard, Skywell, and Street

Located somewhere between the traditional enclosed courtyard house and the open street, the alleyway house occupies an ambiguous space. Samuel Y. Liang suggests that transgressive behaviour was hardly prohibited in the 'fluid space of the *li* neighbourhoods', indeed, it almost seemed as if the alleyway house actively encouraged it.[10] Maybe not quite consciously, but the propinquity that resulted from such constructions seemed to encourage communities to become more close-knit, and to make less distinction between interior and exterior, a thing that had since Confucian times been determined by the system of class relations existing in Chinese society.

The fact that the alleyway house was also amenable to any number of different uses meant that the typology, in its robust flexibility, helped encourage its own dynamic diversity of street life. This is what Samuel Y. Liang sees as 'the true image of the social space of the *li*, where the courtyard adjoined the street', and it is this very diversity that makes for a healthy street life.[11] In many ways
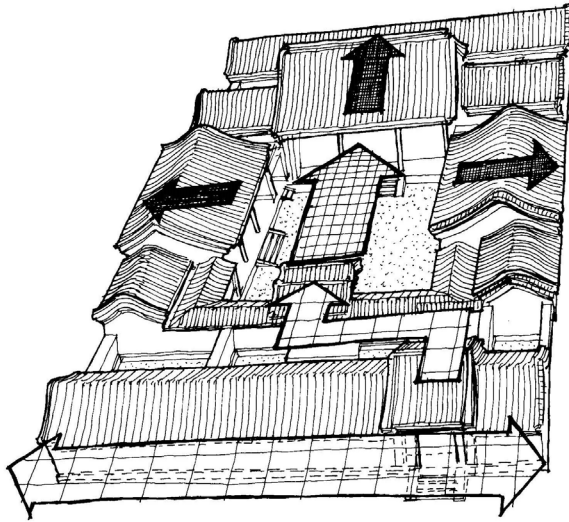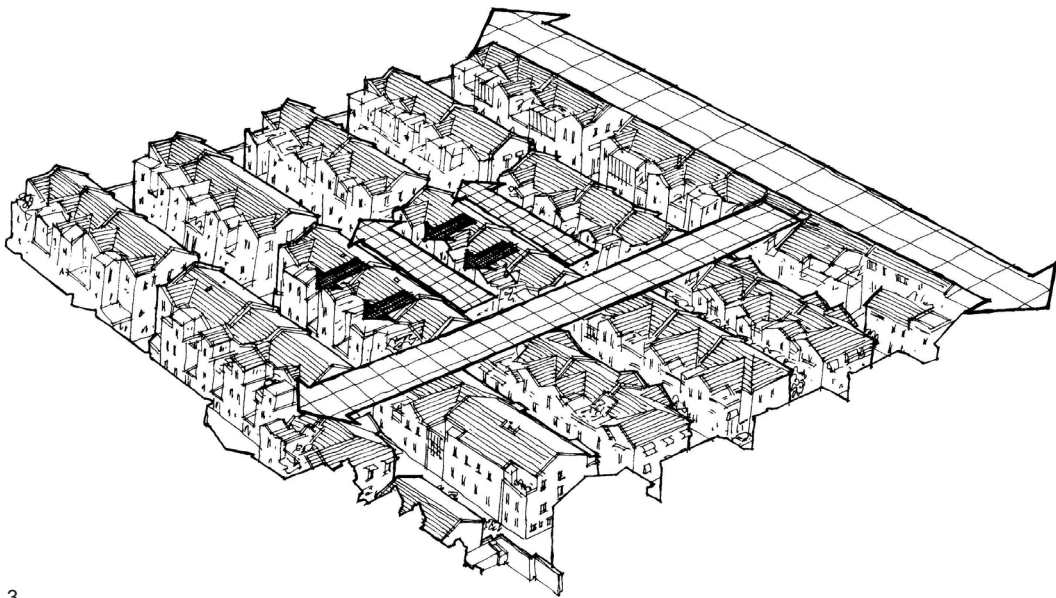
Fig. 2

Fig. 3

Fig. 2: 'Graduated privacy' in a traditional Chinese courtyard house. © Gregory Bracken.
Fig. 3: 'Graduated privacy' in an alleyway house compound. © Gregory Bracken.

the fact that anything could happen is one of the key factors in defining the alleyway house as good public space.

One other factor that altered special hierarchies was height (once the traditional courtyard or skywell had lost its central standing thanks to the innovation of the alleyway).[12] The wide windows and elegant balconies of the alleyway houses' upper floors compensated for the loss of the skywell-hall's importance at the centre of the house. The visual advantage of these more open, yet relatively aloof upper floors tied the alleyway house closer, at least visually, to the street, something the courtyard house could never have done. As Samuel Y. Liang says, 'they could see the street while remaining above and apart from it'.[13]

The increased blurring of interior and exterior that occurred within the alleyway house compound made the houses more open and the street better observed. Samuel Y. Liang notes that the skywell-hall (which he refers to as a courtyard-hall), remained an integral part of the alleyway house yet also functioned, most of the time, as a working space where servants did their various household chores. If the house was kept open to the alleyway to allow for better ventilation, it also meant that the skywell was visible to passers-by and formed a continuum with the street.

The traditional notion of the walled courtyard or skywell as a space of sanctuary was jettisoned, initially for economic reasons, and then, increasingly, for social ones, as the alleyway houses became more closely imbricated with one another. Their spatial connectedness helped knit together the city's street spaces and foster community identity. As Samuel Y. Liang puts it: 'Every one [sic] could see and be seen by others, as if the city were one busy street.'[14]

One key difference between the street and the alleyway, which we have already seen mentioned, is the fact that on the street houses face one another, while in the alleyways they all face the same direction. Daily transactions were usually conducted via the house's back door, and this included things like mail delivery.[15] Another interesting anomaly is the fact that the main alleyway had no houses facing onto it at all. It may have been almost twice as wide as the side alleys but it was less effectively surveyed (or, to use the newer and more effective American verb, 'surveilled'), because it was only the side gables of the ends of the terraces that had any windows overlooking it. This had an effect on the sort of activity that took place there. The side alleyway, with houses facing directly onto it, was a safer place for children to play and more private for doing household chores, whereas the main alley, being larger, busier, and less well observed, would be less ideal for these kinds of activities.

Jia

Alleyway houses, and not just the peripheral shophouse ones, were often a working space, a place where business was conducted and money made. Domestic life and commerce could be combined, something which resonates strongly with the meaning of *jia* in Chinese, which defines the house, home and/or family as a place that generates wealth for a family (terms that cannot be separated as they are in the West). The importance of this understanding of *jia* to the Chinese cannot be stressed enough. In attempting to analyse what goes on in the Shanghai alleyway house it is important to understand the strong ties to family, clan, or *tongxiang* (place of origin) that the Chinese would have felt in inhabiting them. That and the fact that in the alleyway house people from different provinces of China were interacting together for the first time, undoubtedly enriching the city's street life.

Of course many of these houses were not regarded as the inhabitants' permanent homes; sojourners saw them as provisional lodgings to

be used primarily for business activities, leaving the resident with a concept of home that had to be reinvented. To meet the high rents in Shanghai, families had to make the best use of their talents, as well as anything else that came to hand, including the space they called home. Thus the alleyway house was not only seen as a home, it was also, and perhaps more importantly, a space that facilitated the constant flow of capital.

One important result of this shift in thinking, which Samuel Y. Liang has also highlighted, is the fact that the ownership of an alleyway house was no longer something that a family would hand down through the generations; this was in marked contrast to the traditional courtyard house. Of course, the alleyway house typology's lack of flexibility in terms of expansion or contraction, one of the courtyard house's most useful features, was simply not possible in the tighter confines of a city like Shanghai, with its high land values, and it must have been a contributory factor to their being seen as 'transferable "commodities" rather than permanent homes to which generations of residents had a strong sense of belonging'.[16]

This 'one size fits all' mentality also explains how the alleyway house came to be used for such a wide variety of functions, from the most common, the family home, to the shophouse on the periphery, and even to other 'house' types that straddle the commercial and the homely, namely the brothel. This polyvalence might seem to point to a bright future for the typology, but this, sadly, may not be quite so simple, and for a variety of reasons.

A Threatened Typology
Deng Xiaoping's Open Door economic reforms of 1978 did not begin to take effect in Shanghai until 1984, and it was not until the development of Pudong in 1990 that growth and redevelopment in the city really got underway. Up to this time the alleyway house accounted for as much as 80 per

cent of Shanghai's built-up area. The rampant redevelopment that accompanied, and enabled, Shanghai's global reintegration has in fact signed the death warrant of this once almost ubiquitous housing typology. Unique to the city, the Shanghai alleyway house had survived civil war, world wars, internal revolution, and political upheaval only to find itself under threat thanks to the onslaught of capitalist enterprise.

Some developers have begun to see the value (at least in monetary terms) of the alleyway house in recent years and have started to rehabilitate small pockets of them. Places like Xintiandi in the former French Concession is a good example of this. Wood and Zapata's 2001 redevelopment of two city blocks (bordered by Taicang, Zizhong, Madang, and Huangpi South Roads) is part of the larger Taipingqiao redevelopment (which also includes luxury hotels, office towers, and residential facilities). This imaginative redevelopment has allowed people to see the alleyway house in a new (and more lucrative) light.

There can be no doubt that in commercial terms Xintiandi has been a great success. The redevelopment has in fact benefitted from a double misperception that has worked in its favour: locals come here because they feel they're getting to see what it's like to live as a Westerner; whereas foreigners come here to see the 'real' Shanghai. In fact, it's a bit of both, and as such is a perfect hybrid of East and West and resonates strongly with the city's long tradition of cultural hybridity – the very thing that gave Shanghai its signature cosmopolitan sophistication during the colonial era.

It is said, however, that shabbily dressed locals are barred from sauntering down Xintiandi's streets. If this is true then it flies in the face of Shanghai's traditionally vibrant street life, where all are welcome. In fact quite a few of the locals I spoke to in surrounding neighbourhoods never bother going

to Xintiandi, indeed, they seemed surprised that I should want to do so when there were far cheaper (and, according to them, nicer) teashops nearby.

Whether the inhabitant of a city is prevented from going into a place like Xintiandi because a security guard bars the way, or they simply can't afford to, doesn't make much difference, they are both equally effective barriers, and both equally devastating when it comes to engendering really vibrant public space, space of the kind we saw in the Shanghai alleyway house.

Then there is Jian Ye Li, the John Portman and Associates redevelopment of the largest remaining cluster of alleyway houses in the former French Concession. Consisting of 51 houses and 62 serviced apartments, it is aimed at the luxury end of the housing market. Like Xintiandi, most of the original 1920s buildings have been dismantled (the original plan was that only about one third of them were to be restored rather than rebuilt). This was done so that they could be modernized with amenities like plumbing, electricity, and heating – all of which were of course absent from the originals – as well as allow for other modern requirements, such as parking and fire safety. In fact, more houses than planned had to be dismantled and altered as difficulties presented themselves during construction. The plan for a tower, which would have acted as a visual marker for the entire scheme, also had to be scrapped, and issues such as neighbouring houses' sightlines resulted in yet more alterations to the original plan.

As any architect who has practiced in Asia will know, clients can be less than sympathetic to what they see as frills when it comes to making a profit. What had started out as an imaginatively thoughtful scheme has found itself severely compromised thanks to Shanghai's competitive housing market. It remains to be seen what the end result will be, let us hope that it has not become too compromised.

But even if the result does fall somewhat short of Portman and Associates' laudable original goals, they will at least have retained one more precious section of Shanghai's original urban fabric. Indeed, by keeping it residential, they will also have breathed new life into it.

Finally, one interesting development I would like to point out is Tianzifang. Like Xintiandi and Jian Ye Li, this is also in the former French Concession. Known to locals as 'Laotiandi', its nickname is a witty reference to Xintiandi (which is located only a few blocks to the north-east). Xintiandi means 'new world' in Chinese, whereas the '*lao*' in Laotiandi means 'old', hence 'old world'. Tianzifang, or Laotiandi, is a nebulous development whose borders are hard to define. Consisting of a series of interlinked alleyways just north of Taikang Road, it nestles between Sinan and Ruijin No. 2 Roads south of Jianguo Road Central.

The Taikang Road Art Centre seems to have been the catalyst for this spontaneous urban regeneration. Consisting of a number of former warehouses and factories (with the anchor unit located in a former sweet factory), these now serve as studio spaces for a number of interesting and creative outlets, including a variety of galleries, boutiques, and bars that seem to have spread their influence throughout the neighbouring alleyway houses. Tianzifang seems to have retained an authenticity that is lacking in the revamped Xintiandi, and, unlike Xintiandi, which was a designer-led redevelopment and hence with clearly defined borders, Tianzifang is more nebulous and spontaneous, driven from the bottom up. It seems to have spread from the artistic activities that chose this quiet part of the former French Concession for its cheap rents (much like that other arts enclave, Moganshan, on the southern bank of the Suzhou River, which also made use of former industrial buildings to establish itself).

The alleyways of Tianzifang really do form a more

confusing and natural-feeling warren of different scales and sizes, with sudden changes in ground level, twisting passageways and odd turnings all providing the possibility to wander around before ending back where you started – something that is impossible in Xintiandi with its simple crossroads configuration.

Could this be the beginning of a meaningful and more widespread urban regeneration in the city? We can only hope so. Some of the alleyway houses of Tianzifang are even still lived in (something that is not possible in the fully commercialized Xintiandi), and some residents are even engaging in that time-honoured Shanghai tradition of renting spare rooms to students. Jeffrey N. Wasserstrom's comment about how the new proliferation of cafés in Shanghai is less a pure novelty than a return to an interrupted trajectory seems to be borne out by Tianzifang with its lively shopping streets where locals also live, and where newcomers to the city can find inexpensive accommodation.[17] This is a return to a pattern that is both welcome and long overdue.

Important as these redevelopments are, they are only small steps in the safeguarding of this precious housing typology. Those that concentrate on retaining the shells of the houses are missing the point, which is of course the dynamic street life that used to be found in the alleyways. By ripping out interiors to refit them as shops or homes for the city's wealthier citizens, all they are retaining is a shell. A prettily decorated one, but a shell nonetheless; the life that made these houses so interesting is slipping through their fingers.

While this may be what has happened in Xintiandi (and is being continued in Jian Ye Li), it is important to point out that without a redevelopment like Xintiandi in the first place it is unlikely that a place like Tianzifang would have begun to develop. Yes, there would have been galleries and bookshops, but would they have coalesced into

something so recognizably urbane without such an example nearby? Xintiandi has acted as a catalyst; it has opened people's eyes to the potential of the alleyway house. No longer seen as a dirty decrepit reminder of an era most people would prefer to forget, the era of the 'unequal treaties', suddenly it is being seen as interesting and attractive, important even, maybe even glamorous in a nostalgic kind of way.

But let us not lose sight of the fact that it was their function of social visibility that gave Shanghai's streets and alleyways their incredible richness and vibrancy. And it is this that those intervening in the city should be seeking to recapture when attempting to learn from the city's past, not simply redecorating empty alleyway houses so that international coffee-shop chains can have prettier premises in which to do business. Maybe Tianzifang can point the way to a brighter future for the alleyway house, and save it from being such a threatened typology. We can only hope so.

Notes

1. For a fuller discussion of this and other issues relating to the Shanghai alleyway house I refer the reader to my book *The Shanghai Alleyway House: A Vanishing Urban Vernacular* (Abingdon: Routledge, 2013).
2. Nelson I. Wu, *Chinese and Indian Architecture: The City of Man, the Mountain of God, and the Realm of the Immortals* (London: Studio Vista London, 1968).
3. Other names include *lilong fangzi*, *lilongtang*, *linong*, *linongtang*, and *nongtang*.
4. Samuel Y. Liang, 'Where the Courtyard Meets the Street: Spatial Culture of the Li Neighbourhoods, Shanghai, 1870-1900', *Journal of the Society of Architectural Historians*, 67, 4 (2008), p. 501.
5. Hanchao Lu, 'Away from Nanking Road: Small Stores and Neighbourhood Life in Modern Shanghai', *The Journal of Asian Studies*, 54, 1 (1995), p. 99.
6. Ibid., p. 104.
7. Ibid., p. 104.

8. Samuel Y. Liang, 'Where the Courtyard Meets the Street: Spatial Culture of the Li Neighbourhoods, Shanghai, 1870-1900', *Journal of the Society of Architectural Historians*, 67, 4 (2008), p. 486.

9. Ibid., p. 486.

10. Ibid., p. 499.

11. Ibid., p. 501.

12. Traditional Chinese homes were usually built around a courtyard or skywell – courtyards in the cold, dark north; skywells in the sunnier, hotter south.

13. Samuel Y. Liang, 'Where the Courtyard Meets the Street: Spatial Culture of the Li Neighbourhoods, Shanghai, 1870-1900', *Journal of the Society of Architectural Historians*, 67, 4 (2008), pp. 496-7.

14. Ibid., p. 493.

15. Hanchao Lu, 'Away from Nanking Road: Small Stores and Neighbourhood Life in Modern Shanghai', *The Journal of Asian Studies*, 54, 1 (1995), p. 106.

16. Samuel Y. Liang, 'Where the Courtyard Meets the Street: Spatial Culture of the Li Neighbourhoods, Shanghai, 1870-1900', *Journal of the Society of Architectural Historians*, 67, 4 (2008), p. 493.

17. Jeffrey N. Wasserstrom, *Global Shanghai, 1850-2010: A History in Fragments* (Abingdon: Routledge, 2009), p. 112.

Biography

Dr Gregory Bracken is a lecturer and studio master at the Faculty of Architecture, Delft University of Technology, and a founding member of the *Footprint* editorial board. He is also a research fellow at the International Institute for Asian Studies (IIAS), Leiden, where he co-founded (with Dr Manon Osseweijer) the Urban Knowledge Network Asia (UKNA). He has recently set up the Asia Research Cluster (ARC) at the TU Delft with the aim of facilitating the study of Asia's architecture and urban environment.

The Temperament of a City: A Postscript to Post-Olympic Beijing

Xing Ruan

There are two kinds of amazement in art and architecture: one relies on the ingenuity of artifice to arouse a feeling of enchantment, while the other causes an awe-inspiring ecstasy through the shock of the new. Beijing may have won the race in the latter: Who else in the world, in the current uncertain economic circumstance, might even contemplate the kind of spectacles as witnessed by the world at the Beijing Olympic Games? But do all these then prove that a new Beijing has been reinvented, as many critics have claimed? In this essay, I will dwell on the two kinds of amazement to read into two pairs of the showcase Olympic buildings in Beijing – namely the new Terminal 3 of the Beijing International Airport and the Olympic Tennis Centre as one pair, and the Olympic Stadium and the CCTV Tower as the other – to ask what they say about Beijing, and its temperament, if it has one. I shall question whether or not it is at all possible to reinvent a new city once its temperament is formed, and in what way this temperament may be related to the creation of public space, or place.

Amazement

Let me begin by making a generalization, which I will use as a tool in the following exercise, that is, to speculate on the temperament of a city, and in this instance Beijing. I shall then examine the relations between such temperament and the meaning of public space. Here is the generalization: there are two kinds of amazement in art and architecture: one relies on the ingenuity of artifice to arouse a

feeling of enchantment, while the other causes an awe-striking ecstasy through the shock of the new.

The ambience of the churches by Borromini, to take S. Ivo as one example, may well be the outcome of an ingenious manipulation of geometry. Geometry in architecture, among other things, can be seen as an abstraction of our biological make-up: we, for example, stand upright vertically, and we lie down horizontally.[1] This is a point to which I will return later. In S. Carlo (S. Carlino), the complex play of geometry is no longer visible; it is a heavenly synthesis that is no more and no less. The bodily experience, which is spatial and more potent than vision, has enabled us to retain these geometrical meanings, although they occur at the level of our subconsciousness. The amazement of Borromini's churches, we may conclude, is due to the virtuosity of the technique of its architect as well as the efficacy of such technique, which anthropologist Alfred Gell calls the technology of enchantment and the enchantment of technology coming together.[2]

The second kind of amazement, starting from its avant-garde days, has flourished mainly in art throughout the twentieth century. If Duchamp's notorious urinal (or *Fountain*) is not about the ready-made object itself, rather the reason of selecting it, Damien Hirst's diamond skull should not amaze gallery goers due to its technique, which at best is at the level of a commercial jeweller. But it amazes because of the sheer expense of the object.

Duchamp may be witty and ironic in a clever way, but the shock effect has become the only goal to be desired since Manzoni canned his own faeces and sold the numbered cans as *Artist's Shit*, which have labels to ensure the buyer that the 50 grams it contained were 'freshly preserved'.[3]

Pre-modern Beijing was not a city of amazement in the latter sense. Yes, there were magnificent buildings placed on the central axis in the imperial palace, and there were even monumental city walls and drum towers, but they caused no shock effect, for their purpose of existence had little to do with Aristotelian magnificence or the Burkean sublime. Rather, they were part of a legible microcosm that was artfully woven into the larger cosmos, that is, the Chinese Heaven. This Chinese cosmos, as materialized in the Chinese built world from a court-yard house to the cosmic city, remained unchanged for more than three millennia. What was achieved then by the Chinese (during, and a few hundred years after Confucius's lifetime), after a long search for the harmony in the human world, was a golden mean between Heaven and Earth (Earth is perti-nent to family, society and the individual) that was to be applied to the rite of the state, as well as everyday life. The idea of the sublime, the strong-est emotion analogous to terror in the Burkean sense, was to be ironed out by the Chinese in their persistent search for harmony. Over a long period of more than 3000 years' unbroken history, the Chinese have perfected, rather than continuously reinvented, their way of life. Pre-modern Beijing, at the dawn of twentieth century, was the culmination of this perfected artifice without any shock effect of newness.

Cities that Amaze

The relentless pursuit of novelty was, of course, the hallmark of the twentieth century in the West. The escalation of shock amazement has seen an increasing architectural and urban realiza-tion of city centres as gigantic sculptural gardens in a beauty pageant since the turn of the twenty-first century. Cities – old and new, world centres as well as aspiring ones, from London to Moscow, and from Dubai to Beijing – are all in this contest of awe-inspiring amazement.

Beijing, despite its long and static urban history, ironically may have won the race for the time being; who else in the world, in the current circumstance of economic uncertainty, might still contemplate the kind of spectacles as witnessed by the world at the Beijing Olympic Games? Data and statistics, in addition, have surely suggested that the scale of urban transformation in Beijing, and indeed the whole of China, is unprecedented in human history. The transformation of Beijing's urban fabric started earlier, in the mid-twentieth century, against the wise counsel of some of the country's finest archi-tectural historians and urban designers, such as Liang Sicheng, instead of building the new admin-istrative centre outside the imperial city to its west, the new communist government inserted its vast state machine right into the core of the old city. The world's most expansive open field in a city – Tiananmen Square – was created; the magnificent 40-km-long city wall was demolished to give way to traffic. From this point onwards, the future growth of Beijing became a 'pancake', that is, with ever-increasing ring roads radiating from the same core … But do all these then prove that a new Beijing has been reinvented, as many critics have observed? What is public space in the new Beijing?

The Temperament of Beijing

Writers often liken a city to a human person; there seem to be curious and yet persistent genetics once the temperament of a city is formed. What often fascinates me is that, despite the countless forces that make the city, or the numerous 'pulls and pushes' we may say, be they economic, politi-cal or sociocultural, great cities after all develop a character; the process of which, to my mind, is not unlike the constitution of a human character. New

York, Jan Morris observed in the 1970s, may have mellowed – an old 'New World city', so to speak, but its temperament is still neurotic. To take Sydney, the city where I reside, as another example, Morris painted a chilling picture of it in the early 1960s: its steely looking and unsmiling women were singled out! Although it took a full five years before the last letter of complaint reached the author from Down Under, Morris has never had enough of Sydney. In the 1980s Morris announced: 'That's it. There will be more Asians, and there will be a building here and there, but Sydney will remain unchanged.'[4] Yet Morris has returned again and again, calling this strange appeal of Sydney 'Australian distractions', and her earlier essay on Sydney a 'reckless foray', though she does not want to entirely retract her judgments of 30 years before.[5] All of this culminated in a book in 1992 simply titled *Sydney*, in which she says: '[…] not I think the best of the cities the British Empire created, not the most beautiful either, but the most hyperbolic, the youngest in heart, the *shiniest.*'[6] Such is the enduring temperament of Sydney: you loathe it and love it (or *Topophilia and Topophobia*, the title of a book that I published with some colleagues)![7] As for Amsterdam or Hong Kong, I know everyone loves them.

Lin Yutang in the early twentieth century gave both Shanghai and Beijing a diagnosis of their quite different temperaments, which appears still to be eerily true despite almost a century's change and turmoil. I hope the reader does not think this is merely a wayward sally of mine before I talk about Beijing. So please bear with me, and let us first hear what Lin had to say about Shanghai. In an essay titled 'A Hymn to Shanghai', Lin began with these lines:

> Shanghai is terrible, very terrible. Shanghai is terrible in her strange mixture of Eastern and Western vulgarity, in her superficial refinements, in her naked and unmasked worship of Mammon, in her emptiness, commonness, and her bad taste. She is terrible in

her denaturalized women, dehumanized coolies, devitalized newspapers, decapitalized banks, and denationalized creatures. She is terrible in her joys and follies, and in her tears, bitterness, and degradation, terrible in her immutable stone edifices that rear their heads high on the Bund and in the abject huts of creatures subsisting on their discoveries from refuse cans …[8]

Despite the Pudong development, the astronomical number of high-rise buildings that the city has built in recent decades, Xintiandi, the 'One City and Nine Towns' development (where you can find 'Venice' near Shanghai), and the World Expo … has Shanghai really changed its temperament? The irony, however, is that Lin Yutang actually lived in Shanghai.

Now let us return to Beijing. Lin, in another essay written in the same period, described the city as:

> […] a grand old personality […] generous, magnanimous, big-hearted, and cosmopolitan […] Modern young misses in high-heeled shoes brush shoulders with Manchu ladies on wooden soles, and Peking doesn't care. Old painters with white, magnificent long beards live across the yard from young college students in their 'public hostelries', and Peking doesn't care. Packards and Buicks compete with rickshaws and mule carts and caravans, and Peking doesn't care.[9]

Lin singled out three things that make Beijing the ideal city to live in: its architecture, its mode of living, and its common people. It seems to me that that Lin ranked the mode of living as being more important than the architecture, for it makes Beijing so charming. And yet he said:

> The greatest charm of Peking is, however, the common people, not the saints and professors, but the rickshaw coolies. Paying about a dollar for a trip by rickshaw form the West City to the Summer Palace,

a distance of five miles, you might think that you are getting cheap labour; that is correct, but you are not getting disgruntled labour. You are mystified by the good cheer of the coolies as they babble all the way among themselves and crack jokes and laugh at other people's misfortunes.[10]

I have wondered what Lin would say about Beijing's taxi drivers these days, who have been urged by the government to make sure they have brushed their teeth before work, and know how to say 'Welcome to Beijing' in English. Lin would not have said anything different, I bet, for you still hear the taxi drivers tell you their sad stories with what Lin called 'humour, refinement, and fatalistic good cheer' (if the taxi driver happens to be a local, which is becoming increasingly rare). Such is the temperament of Beijing, despite the fact that some of her taxi drivers speak better English than those of Sydney. The amazement of Beijing, I would like to conclude, lies in its artifice of good living and good life. This may explain the puzzle that some of the most hostile leftover urban junctions, the place beneath an elevated freeway for example, are happily occupied by people who gracefully practice their *taiji*, or ballroom dancing. That would be inconceivable in Chicago, for the purposefully designed and provided public space is seen as the precursor of a civic life.

What Do These Buildings Say about Beijing?
Let me now dwell on the two kinds of amazement, as alluded to earlier, to read into a few showcase Olympic buildings in Beijing – namely the Olympic Tennis Centre, the new Terminal 3 of Beijing International Airport, the Olympic Stadium, and the CCTV Tower – to ask what they say about Beijing and its temperament.

Among all the Olympic structures, the Tennis Centre designed by Australian architects Bligh Voller Nield, has not attracted much limelight. Yet there is something strangely robust about it.

Situated on the north of the main stadium site in the so-called Olympic Green parkland, the Tennis Centre is unaffected by the flaunting of its southern neighbours. Whether it is set against the grey smog in my amateur shots, or the dark blue sky as seen in the artistic photos prepared for publications, this structure appears like an alien UFO that has accidentally landed on the site, and yet it has been there forever. [figs. 1,2] There is a sense of permanence in this structure, but it does not come from any site specifics. Let me use this structure as a trigger of my readings of the other three buildings, which will be woven into my musings on the Tennis Centre. Three characteristics may have contributed to this robust sense of permanence: the concrete frame of the stadium, the *parti* of a room, and the image of flower symmetry. Each of them, to my mind, says something about the temperament of Beijing.

The heavy concrete structure – with inclined concrete blades – is firmly rooted into the podium and ground, which forms the 'bowl' of the stadium. The concrete structure itself may not seem extraordinary, but it says something different in the immediate context of the Olympic site. It is like a mysterious Stonehenge, which is neither current nor historical, but aspires to eternity. That the architecture stays the same and transcends time is the very meaning of its existence, which offers consolation to our transient mortality: one day we will die, but we have architecture that has registered our temporary occupation of this world.[11] The lingering voice of your grandfather in the quadrangle court of your family house of three generations is one example. The static nature, we may admit, is the common trait of pre-modern Beijing.

Other showcase Olympic projects in Beijing send out the opposite message: the fluid Bird's Nest and the dynamic 'Möbius strip' of the CCTV tower in Beijing record the ecstasy of glorification: they seem to capture a moment of joyful explosion,

Fig. 1

Fig. 2

Fig. 1: Beijing Olympic Tennis Centre. © John Gollings.
Fig. 2: Beijing Olympic Tennis Centre. © Xing Ruan.

Fig. 3

Fig. 4

Fig. 3:   The Bird's Nest – Beijing Olympic National Stadium – under construction. © John Courtney.
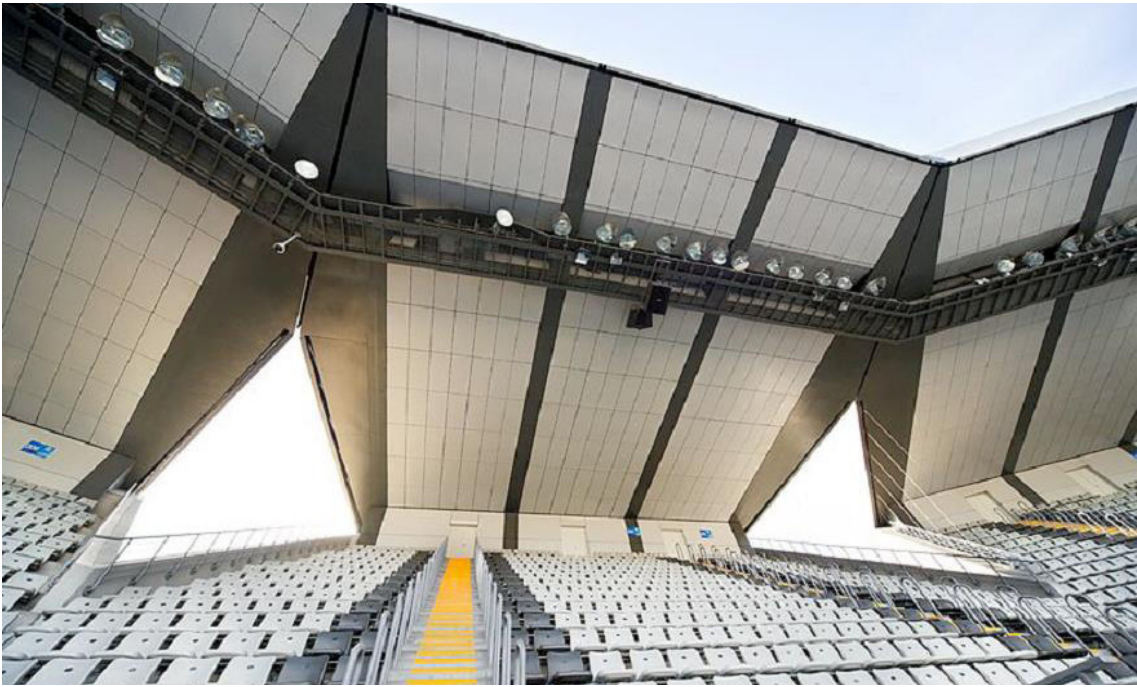Fig. 4:   Beijing Olympic Tennis Centre – the room. © John Gollings.

Fig. 5

Fig. 6

Fig. 5:   The "Windows" in the Beijing Olympic Tennis Centre. © John Gollings.
Fig. 6:   The Windowless Transparency, CCTV Tower under construction. © Xing Ruan.

like that of fireworks. [fig. 3] But instead of being ephemeral, these structures are very expensive static structures that will not change shape and dimensions according to circumstances. Here is the irony: these structures will look old-fashioned when they are outdated by new trends and advances in building technology. For us humans, a state of ecstasy never lasts very long, and there is always a chemical-emotional swing in the opposite direction. The Tennis Centre, which is perhaps the only one among its Olympic neighbours that does not seek to win this beauty contest, may have a chance to survive the verdict of time, for it wants simply to stay the same! It simply does not care, Lin Yutang would have said!

The static nature of the Tennis Centre lies also in its *parti* of a *room.* [fig. 4] It may be far-fetched to suggest all stadiums are large rooms, but the Roman amphitheatre certainly had an interior life drama. It was after all a theatre. Tennis is a game of power, technique, and drama; it demands to be watched in a theatre setting: the curtains are up and the lights are on. This 'black-box' intimacy in the Beijing Olympic Tennis Centre is not achieved by shortening the distance between the spectators and the court (there is only so much the architects can do when the size of the tennis stadium is pre-decided), but by creating a room-like ambience. The steep seating helps, but of more importance is the series of corner openings between each pair of the 12 segments at the junction of seating and roof. They are, experienced from the inside, in effect large windows. [fig. 5] Windows offer demarcation between the interior and the outside world. These large 'windows' frame the sky and enhance cross ventilation in the stadium. A window, more symbolically charged than a door, is to allow the person inside a room to view the outside, and to be viewed from outside. A door is a necessity, it allows you in and out. But a window is a luxury; you don't have to go out because you have a window to bring the world to you when needed. A window, therefore,

defines the room, and you are in the centre of it. Like a Shakespearean theatre, the Beijing Olympic Tennis Centre awaits a charged interior life to unfold.

When the window is dissolved in transparency, as seen in many of our modern and contemporary buildings, as well as in the CCTV Tower, for example, gone with it is the interior life that architecture must confine and enshrine. [fig. 6] This brings me to the architectural problem of engineering prowess. What does the architect actually do while the predominant structure is the work of an engineer? We may have reasons to become excited about the CCTV Tower; the advanced technology of the ingenious Arup engineers has enabled the building to stand up, while it looks like it should fall over. [fig. 7] Yet, the Beijing Olympic Tennis Centre shows that the artifice lies in the craft of an architect to consciously manipulate the felt qualities of a building that are determined by the degree of enclosure as well as its proportion and human scale. I have written elsewhere that architecture should be understood as 'flower architecture';by that I mean, like a flower, good architecture must be universally admired.[12] Kant calls this 'free beauty'. To be precise, both the image and the metaphoric meaning of a flower are legible to everyone. There is, however, no guarantee that the figurative image and the meaning of a building can be deciphered in the same way as originally conceived by the architect. It often is a risky business where architects rely on culturally specific images in the hope of evoking an affinity with the inhabitants. Charles Jenks, who was on the jury panel for the CCTV competition, allegedly convinced the authorities that the Koolhaas loop is a Chinese 'moon gate', but it is now dubbed either as a pair of sloppy short pants, or, even more unfortunately, crutches. Yes, this is a very different building, but the very Chinese ideogram of the word 'difference' (*yi* 异) is a 'self' sitting on a pair of crutches.[13] Needless to say this is a crippled 'self'! The Beijing Olympic Tennis Centre does not yet have a figurative nickname. It was, however, quite naturally, envisaged as a gigantic flower amid the

Fig. 7

Fig. 8

Fig. 9

Fig. 7: CCTV Tower under construction. © Xing Ruan.
Fig. 8: Ceiling Detail, Terminal 3, Beijing International Airport. © Xing Ruan.
Fig. 9: The Interior, Terminal 3, Beijing International Airport. © Xing Ruan.

planted forest of the Olympic Green parkland. My sense is that it will be understood as such, for the 12-segment configuration of the tennis stadium is flower symmetry.

Modern and contemporary architects have often treated geometry and its consequential harmony and symmetry with disdain, which was once held dear by the ancients and by Renaissance architects. Yes, geometry and symmetry no longer hold the validity of a cosmic model for our Moderns, but they are still part of our biological make-up, for our body is essentially symmetrical. As mentioned earlier, a simple geometrical relation, the meaning of front and back, for example, is intrinsically linked to our restricted forward vision. We therefore look forward to the bright future, and turn our back on the dark past. Unlike a rabbit, we don't look sideways.[14] The concentric flower symmetry must recall our primordial urge for centrality. This may explain why the flower is what Kant calls 'free beauty', for it is culturally independent. Such universality, however, does not necessarily erase any particularity, which is the essential ingredient of a temperament. The difference from the universal may be quaint or nuanced, but it is the circumstance that makes it pungent. The special meaning of a red rose on Valentine's Day is one such proof. Yet Beijing's geometry is paramount; even its cosmic meaning has not been entirely lost. Since we must stand upright vertically and lie down horizontally, what will the CCTV Tower do to our body and mind with its turns and twists, and hence to this cosmic city? It rejects the human occupation more so than the shelter created by an elevated freeway.

There was a hint of blue sky after a heavy storm the previous night. I arrived in post-Olympic Beijing at Norman Foster's delightful Terminal 3. To my great and pleasant surprise, I have noticed that Foster too seems to have come to the same realization: a robust *parti* of the clearest routes for departure and arrival. They are two Ys joined together and read in the air as two humans in the Chinese ideograms. The subtle use of *poché*, which separates the external envelope and the ceiling, avoids showcasing the details of the roof truss. [fig. 8] Yet, the brightly coloured roof trusses in yellow, orange, and red are partially revealed where the skylights are bounced back by the slatted ceiling lattice. The result is a massive silvery wave of starry sky. [fig. 9]

Despite all the above-mentioned urban development, despite an entire century of turmoil, to my great gratification Beijing has still managed to let you arrive gloriously in the heart of its 'grand old personality', which offers a 'promise of solace'.[15] Such is the true meaning of public space in a city like Beijing. If there are some oddities, such as the CCTV Tower and the Bird's Nest, in this 'generous, magnanimous, big-hearted, and cosmopolitan' city, that is okay, for Beijing simply does not care!

Notes

1. The author was reminded of this body geometry by Professor Yi-Fu Tuan in an email conversation in 2006.
2. Alfred Gell, 'The Technology of Enchantment and the Enchantment of Technology', in Alfred Gell, *The Art of Anthropology* (London & New Brunswick, NJ: The Athlone Press, 1999), pp. 159-86.
3. Joseph Rykwert, *The Judicious Eye* (London: Reaktion Books, 2008), pp. 10-11.
4. Jan Morris, *Among the Cities* (New York: Oxford University Press, 1985).
5. Jan Morris, 'Australian Distractions', in *Pleasures of A Tangled Life* (London: Barrie & Jenkins, 1989), pp. 143-49.
6. Jan Morris, *Sydney* (London: Viking, 1992), p. 5.
7. Xing Ruan and Paul Hogben, (eds), *Topophilia and Topophobia: Reflections on Twentieth-Century Human Habitat* (London and New York: Routledge, 2007).
8. Lin Yutang, 'A Hymn to Shanghai', in *With Love and Irony* (London and Toronto: William Heinemann Ltd,

1942), p. 53.

9. Ibid., pp. 45-52.

10. Ibid., pp. 45-52.

11. Yi-Fu Tuan, 'Time, Space, and Architecture: Some Philosophical Musings', in *Topophilia and Topophobia: Reflections on Twentieth-Century Human Habitat, ed. by* Xing Ruan and Paul Hogben (London and New York: Routledge, 2007), pp. 22-30.

12. Ruan Xing, 'Flower Architecture', in *Bligh Voller Nield* Monograph (Beijing: China Architecture and Building Press, 2005), pp. 14-21.

13. I was reminded of this reading by Ma Qinyun at a panel discussion of the RAIA National Conference, Sydney, April 2008.

14. I was reminded of this by my conversations with Professor Yi-Fu Tuan (by email) and Ma Qinyun at a panel discussion of the RAIA National Conference, Sydney, April 2008.

15. I have borrowed this phrase from Jonathan Spence, who thinks that even the name of Tiananmen – Gate of Heavenly Peace – has the capacity to 'bring a promise of solace to the Chinese people dreaming of escape from current realities'. See Jonathan Spence, *The Gate of Heavenly Peace: The Chinese and Their Revolution, 1985-1980* (New York: Viking, 1981), p. 18.

Biography

Xing Ruan is Professor of Architecture at the University of New South Wales, Sydney. His recent books include: *Allegorical Architecture* (2006), and *New China Architecture* (2006); *Topophilia and Topophobia* (co-editor, 2007), and *Skyplane* (co-editor, 2009). Xing has published on architecture and anthropology, architectural education, Louis Kahn, and modern and contemporary architecture in China and Australia.

[Re]Forming Public Space: A Critique of Hong Kong's Park Governance through Architectural Intervention

Jason Carlow

This paper's point of departure is a critique of the Hong Kong government's somewhat rigid approach to regulating the public spaces of its parks. As an antidote to a rule-bound and somewhat restrictive set of policies, four groups of architecture students at the University of Hong Kong have designed various interventions for a public park in Hong Kong. The projects, entitled *Pixel Wall*, *Fence Off*, *Border Mender*, and *Rocky* present alternative ways of activating public space through architectural design.

Hong Kong is a city composed of a variety of ethnic and social groups with multiple cultural identities. The various cultures that have developed Hong Kong as a city over time have also had an impact on the creation, design, and use of public spaces within the city. Ranging from the colonial-era Statue Square in Central to the late-twentieth-century parks in Hong Kong's New Territories, near the Chinese border, the political, social, and economic forces acting on public spaces have an effect on their respective use and regulation. Based on a series of architectural-scale projects that reconsider the regulation and control of specific public spaces, this paper reviews the politics and use of public parks in Hong Kong through the design and performance of the installations.

Hong Kong has a highly comprehensive set of land use guidelines and regulations for use and planning of open space within the Territory. Under Hong Kong's rules and guidelines for planning for 'Recreation, Open Space and Greening', the

HKSAR government makes a distinction between different types of public open space. Among the various types of open space dedicated to recreation, the following are listed:

> 1.9.1 (c) Green Space
> The prime function of this type of open space is for conservation of the natural environment and for amenity and visual purposes.
> 1.9.1 (e) Active Open Space
> Recreation open space which contains outdoor recreation facilities, mainly for the core activities including games facilities.
> 1.9.1 (f) Passive Open Space
> Recreation open space which is landscaped as parks, gardens, sitting-out areas, waterfront promenades, paved areas for informal games, children's playgrounds, jogging and fitness circuits etc., where people can enjoy the surroundings in a leisurely manner. Games facilities are normally not provided.[1]

According to population density or level of urbanization in Hong Kong, there are specific guidelines for ratios of Passive Open Space use to Active Open Space use in public parks and open spaces.

> In the provision of land for public open space, a distinction should be made between areas for active and passive recreational uses. As a general guide, a 3:2 active to passive ratio should be applied in District Open Space to provide space for outdoor core activities as well as for passive recreation.[2]

The key aspect of the definition of various types of public space is not the ratio of one type to another, but the distinction of one type from another in planning and in physical form.

With strict regulatory control over the design of public spaces and ratios between types of space, boundaries between different kinds of space are often created. Boundaries may be physical impediments, or subtle changes in material or texture to divide space for public use. Physical boundaries like walls, flooring patterns, fences and barriers are used by design, or through post-planning, as *ad hoc* management devices to define Active Open Space from Passive Open Space or Passive Open Space from Green Space. Over time, layers of adjacent spaces in public parks have built up layers of barriers that have tended to restrict and control public activities.

Park Management offices further restrict movement and activities within public parks to promote easy maintenance of facilities and public safety. Through prescribing exactly what a public space may be used for, overly prescribed or programmed space becomes naturally restrictive. Spaces become over-programmed in terms of what can be done there to the point that anything else done in those spaces becomes forbidden.

Four installations carried out by architecture students and teachers from the University of Hong Kong were conceived to investigate and challenge the use and perception of public spaces in the city. The works also explore the nature of materials and construction, new modes of fabrication, and digital design media as related to architectural design.

The projects were sponsored by the Hong Kong Leisure and Cultural Services Department [LCSD]. The LCSD has a dual role as the government agency responsible for providing cultural and leisure activities for the people of Hong Kong as

well as managing most parks, beaches, and recreational facilities. The use of public open space under the LCSD is governed by the Pleasure Grounds Regulation [PGR] under Chapter 132 of the Hong Kong Public Health and Municipal Services. The PGR provides guidelines and rules pertaining to the use of public open space by the public that may be perceived as overly restrictive. In particular, the PGR provides that in any pleasure ground the following should apply:

(a) No person shall walk, run, stand, sit or lie on any grass, turf or other places where notice to keep off such grass, turf or other places is exhibited (section 9(a));

(b) Flying of kites, model aircraft, balloons or other device may be restricted or prohibited by the Director of Leisure and Cultural Services ('DLCS') by notice conspicuously displayed (section 17);

(c) Melting or burning wax or sprinkling or pouring liquid onto hot wax in such a manner as to cause or be likely to cause a risk of injury to any person or damage to any property is prohibited (section 23A); and

(d) No person shall play any musical instrument, operate any radio or gramophone, or sing to the annoyance of any other person, unless the playing of the instrument, the operation of the radio or gramophone, or the singing of any song is in accordance with a written permission granted by DLCS (section 25).[3]

With a common theme of understanding and transforming boundaries and regulations in public open space, each project team focused specifically on rethinking boundaries, walls, and barriers. Teams considered how boundaries can be reinforced or transgressed in specific ways to deal with topography, to provide or limit visual and physical access, and to create new types of interactions between park visitors. Through their physical and theoretical positioning, the installation works sought to make public space less regulated and more flexible. Students used the projects to form a critique of the

Pleasure Grounds Regulations and therefore the management of the sponsoring agency, the Hong Kong LCSD.

The project teams took different approaches towards designing their interventions within the public open space. Some project teams analysed existing objects in the park that act as spatial dividers and redesigned them to connect, rather than separate the spaces they adjoin. Other teams created new boundaries or walls within the space that encouraged visitors to actively participate in a public space or circulate through it in a different way. As installations, the projects should be considered as temporary works of architecture as well as thoughtful and interactive works of public art. They encouraged park visitors to walk, sit, play, rest, and think. They also challenge our preconceptions about spatial boundaries and the control of public spaces in Hong Kong.

The second theme of the four projects was to formulate a specific set of materials and construction techniques that in some way connects the design of these installations to the appreciation of the tactile and tectonic quality of architecture. The materials used include intricately stacked wooden 'bricks', machine-curved metal pipes, precisely folded sheet metal panels, and CNC-cut, recycled plastic sheets. Each project developed specific methods of connection and all of the projects were designed with advanced digital modelling tools. Though most projects made use of digitally driven processes of manufacture, they also relied on manual labour for assembly and fabrication and installation.

Pixel Wall

The *Pixel Wall* project uses a series of stacked wooden blocks to form an undulating wall in a public plaza of Tuen Mun Park. [fig. 1] The blocks are mirrored on one side so that some surfaces reflect the surrounding context. Some of the mirrored surfaces tilt slightly upward so that the reflected

image is of the sky, instead of the viewer. This effect dematerializes parts of the wall and changes the viewer's perception of the installation as he or she moves around it. Spaces between the blocks vary in width to change the porosity of the wall. This variation is gradual from one section to another and allows the viewer to see through the wall at times. The combination of reflective surfaces, areas of opaque blocks and variable openings in the wall allow for a variety of visual experiences as one moves around and through the work.

When multiple visitors are walking through and around the wall at the same time there is an ambiguity between the reflection of the viewer and the shadow or glimpse of someone moving on the other side of the wall. This ambiguity of public and private spaces within the park is a commentary on the way the park's spaces are places to view others and be viewed by others.

Pixel Wall is similar in visual affect to several public art installations by artists such as Dan Graham and Anish Kapoor. When installed in a public place, the various works of these artists toy with themes of reflection, refraction, opacity, and distortion of space. The glass-and-mirror sculptures of conceptual artist Dan Graham distort and disorient the viewer by creating multilayered, non-parallel planes of reflective or semi-reflective glass.

Cloud Gate, Kapoor's mirrored stainless steel sculpture in Chicago's Millennium Park, reflects and distorts the surroundings and the viewer's self image from every angle. Like the *Pixel Wall*, the piece not only reflects and distorts space, but creates space through form. The *Pixel Wall* creates a series of spaces to walk through, while the *Cloud Gate* allows visitors to walk around and underneath where it lifts to create a gate.

The *Pixel Wall* also uses a technique from Kapoor's *Sky Mirror*, installed in 2001 in Kensington Gardens, London. *Sky Mirror* is a mirrored dish

that reflects and condenses the image of the sky onto a parabolic surface mounted on the ground, at eye level, within the public space of the park. The slight inclination of the mirrors on the *Pixel Wall* play a similar role in offering the visitor a distorted and animated view of the sky, even while looking straight ahead.

The overall geometry of the *Pixel Wall* is site specific by design. The public plaza in which the work is installed is an open paved area with an array of planted trees. The trees are planted on a polar grid, at the axes of straight lines and a series of concentric circles. The plan of the installation uses a new series of circles that inscribe several trees and wind in a serpentine fashion from tree to tree. The geometric organization of the wall creates a series of new circular spaces that wrap the trees.

The wall functions not only to divide space, but to invite passers-by to linger and sit. Sections of the wall dip from its full height at 1.8 m to 0.4 m to transform the wall into a bench. Visitors sitting on the bench can sit on either side and view inward to a confined space, or sit facing outward into the surrounding park. The placement of the benches orients the visitor's view in a new direction and in a sense transforms the plaza into a place to look out of, rather than to look across.

In respect of the categories of Public Open Space as defined by the Hong Kong Planning Standards and Guidelines, *Pixel Wall* transforms Passive Open Space into a public space that is more complex and ambiguous. Instead of providing a space for leisurely enjoyment, *Pixel Wall* disorients the visitor and dematerializes one's context. It creates new relationships between park visitors on either side of the wall and, at its best, asks visitors to play a visual game with their surroundings, thus activating a space officially defined as 'passive'.

Fence Off

Fence Off is a playful installation based on the ubiquitous security fences found throughout the public spaces of Hong Kong. [fig. 2] Security fences are unanticipated objects of the public realm that are not placed or designed by urban planners, architects, or landscape designers. Instead they are unconsidered instruments of municipal management agencies. They are deployed worldwide, throughout cities in the name of public safety or crowd control. They line the edges of construction sites, herd crowds of festival goers, and form ad hoc barriers to keep the public from falling into potholes.

In Hong Kong's Tuen Mun Park, where there is a local tradition of daily public singing performances, security fences are used to identify and contain sites for spontaneous recitals. Instead of allowing performances to take place anywhere in the open space of the park, the fences are put in place by the park management and cordon off areas for the singer and accompanying musicians. Crowds of onlookers are relegated to stand behind the fences creating awkward arrangements of performers and audiences scattered across the park space.

The *Fence Off* designers saw this arrangement of public performance and barricade as a problem for Tuen Mun's public open space and set out to redesign the boundary between the singer and the audience. *Fence Off* took the typical Hong Kong security fence as a starting point and modified it by twisting the metal bars into a bench. The deformation was designed by modelling a typical fence with digital 3D software and twisting the top and bottom rails of the model into a horizontal arrangement. A controlled geometry of arcs and lines was used so that a local metal fabricator, using analogue tools, could measure, cut, and bend the pieces into the new form. The piece uses the same stock material as the typical fence as well as the same connection details. A surface for seating is created between the bars by replicating and multiplying the typical metal
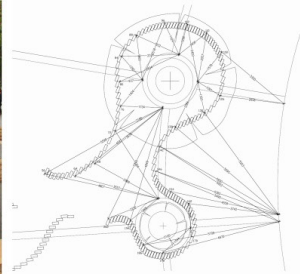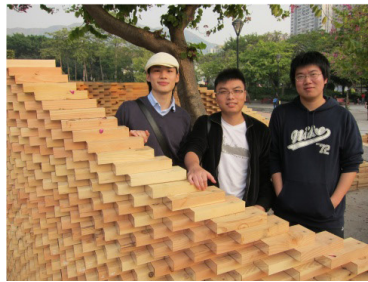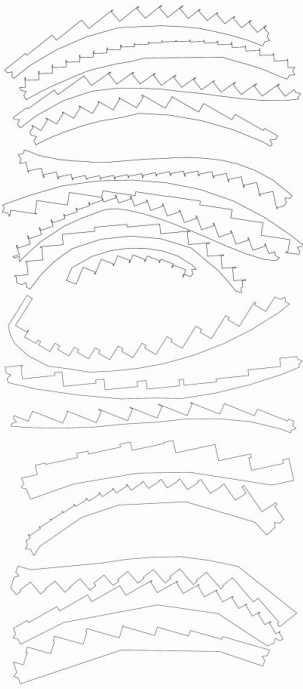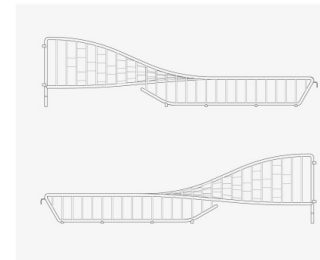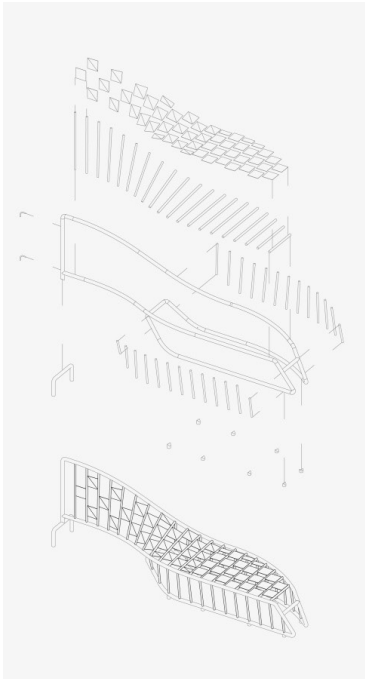
Fig. 1

Fig. 2

Fig. 1: Pixel Wall. Thomas Cheng, Jeff Guo, Tiffany Leung, Tim Mao, Abdul Yeung, 2010, Wood blocks and adhesive mirrored panels, 11 x 5 x 1.7 m.

Fig. 2: Fence Off. Derk To, Stephen Chan, 2010, Welded steel pipes and plates, 8 x 0.8 x 1 m.

signage that usually adorns the fence. The designers mirrored the piece to create two fence/benches.

The result is a twisted bench that connects conventionally to a line of standard security fences. The rails twist elegantly down to form a seating surface and a slight gap is left between the two benches. The gap creates a gateway in the fence to allow people to pass between the benches to transcend the boundary and enter the space of the impromptu stage. The project makes the boundary between two categories of public open space less defined and more ambiguous. By using the formal and material language of the existing security fence, *Fence Off* forms a direct critique of the restrictive practices of park management offices in Hong Kong.

Border Mender

The *Border Mender* project is a linear series of folded metal surfaces that transform a typical park retaining wall into a staircase, a ramp, and a place for sitting. [fig. 3] The project is an attempt to integrate two areas of public open space: the typical park walkway and the grassy area on the other side. As it is forbidden to sit or even walk on many of the grass lawns in Hong Kong parks, this project encourages park visitors to sit on or climb over the wall to reach the other side.

Border Mender is a direct critique of the categorization of public open spaces into less flexible spaces with restricted programmes. The retaining walls in Hong Kong's Tuen Mun Park act as devices that separate Passive Open Space, where visitors may walk, stroll, and 'enjoy the surroundings in a leisurely manner'[4] from the manicured 'Green Space' of the lawn. By providing a new pathway from a type of public space that can be occupied to one that is off limits, creates a linkage and blurring of space where before there was only a division. In addition to using the boundary to bridge the two spaces, the project uses the space of the boundary

itself to create an in-between space with multiple, flexible uses. Visitors who stop to sit on the *Border Mender* face forward into the Passive Open Space of the park walkway. If users of the project can be considered as audience members witnessing an informal parade of passers-by, the Passive Open Space of the walkway is transformed into an Active Open Space for performance.

Architecturally, the project is a study of surface. It explores ways in which the vertical surface of an existing wall can be manipulated into a three-dimensional stepped surface for other activities. By expanding the surface of the wall through folding, *Border Mender* makes it possible to occupy the space of the retaining wall. The project is constructed from thin, folded-metal sheets. The folding creates space to sit and also becomes a structural system, eliminating the requirement of a secondary frame. Through its intervention in Tuen Mun Park, *Border Mender* invites a voyeuristic audience to sit within the space of the retaining wall and transforms the adjacent walkway into an 'active' public performance space.

Rocky

The *Rocky* project is another installation that was created in response to the regulation of occupation of public lawns in Hong Kong parks. [fig. 4] *Rocky* is a series of artificial outcroppings scattered around a grassy area in Tuen Mun Park. The project was conceived as a synthetic extension of the 'natural' landscape that would invite park-goers to actively occupy the otherwise forbidden grass lawn. The forms of the outcroppings are loosely modelled on profiles of the human body in repose. They are designed so that visitors can sit, recline, or lounge on the top or against the sides.

Designers closely surveyed the landscape around the project site and built a precise digital model of the lawn surface. Forms were digitally extruded from the virtual ground-scape with the use of modelling software. Two-dimensional drawings
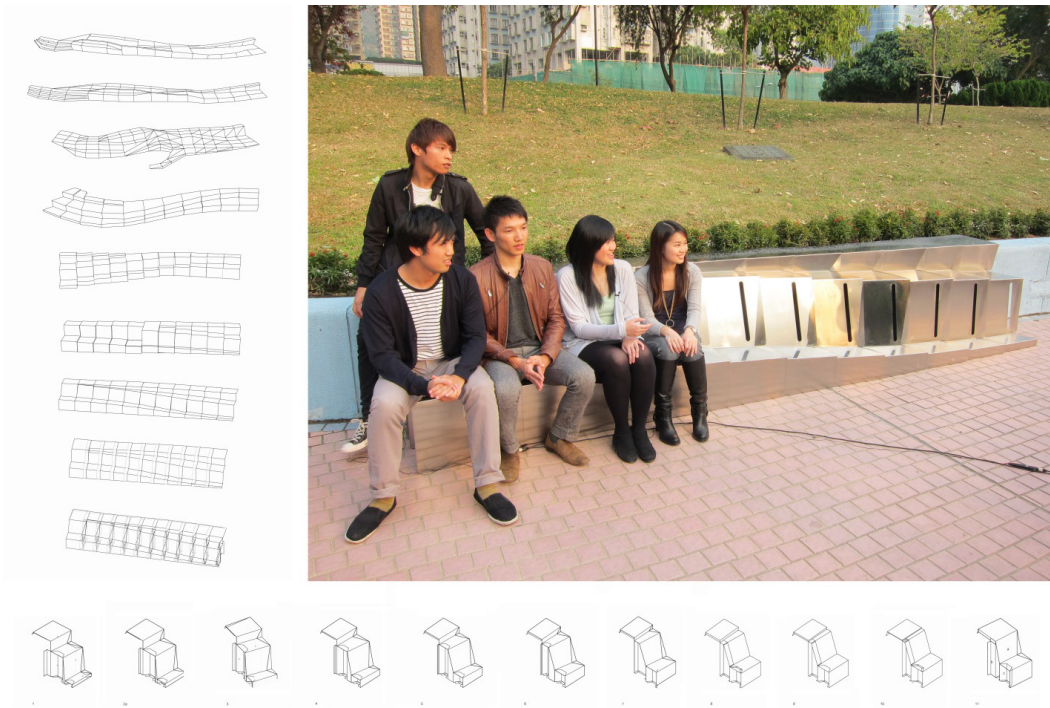
Fig. 3

Fig. 4

Fig. 3: Border Mender. Calvin Chan, Gillson Chan, Eunice Fan, Elsie Tang, Norman Ung, 2010, Folded stainless steel plates, 6 x 0.8 x 1 m.
Fig. 4: Rocky. Gordon Chak, Jacqui Cheung, Toby Cheung, Lawson Lai, 2010, CNC-cut medium-density fibreboard with artificial grass, 2.5 x 1 x 0.5 m (three pieces).

of the forms were created by taking multiple cross sections through the final forms. The works were constructed with the help of a local fabricator with horizontally layered, CNC-cut sections of medium density fibreboard (MDF). The MDF bases are covered in a layer of artificial, plastic grass that conceptually extends the surface of the lawn onto the outcroppings.

Aside from inviting visitors to trespass on the prohibited space of the lawn, the landforms created in the *Rocky* project offer a commentary on the relationship of the artificial and the natural elements of the public realm. Though the pieces imitate natural landforms in their massing, colour, and texture, their precise design, computer-aided construction, and synthetic materiality are overtly man-made. They remind the visitor that the entire urban park in which they are sited is a designed and highly formulated environment, subject to constant maintenance, management, and regulation.

Conclusion

As an academic exercise for architecture students, the [RE]Forming Public Space projects were an opportunity to intervene in a specific public space. The projects are platforms for design experimentation in that they test materials, propose innovative construction systems, and utilize advanced technologies. Through their exhibition and use in Tuen Mun Park, they subtly reveal and critique specific aspects of the design and regulation of Hong Kong's entire park system.

Through the projects' re-forming of public spaces they actively provoke new programmes and perhaps, at their best, encourage 'misuse' of the public environment in a socially constructive manner. The projects should encourage planners and designers of public space to reconsider the categorization of public spaces, the division of one space from another, and specificity of use. By offering spaces with a degree of ambiguity in terms

of their use, planners may afford the public more freedom to use spaces flexibly and interchangeably.

Notes

1. Planning Department, The Government of the Hong Kong Special Administrative Region, *Hong Kong Planning Standards and Guidelines*, *Chapter 4: Recreation, Open Space and Greening*, (Hong Kong SAR, 2007) <http://www.pland.gov.hk/pland_en/tech_doc/hkpsg/full/ch4/ch4_text.htm> [accessed 25 June 2012].

2. Ibid.

3. Hong Kong Legislative Council, Panel on Home Affairs, *Information note prepared by the Legislative Council Secretariat for the meeting on 13 January 2012, Use of public open space by members of the public to conduct leisure and recreational activities*, LC Paper No. CB(2)772/11-12(02) (Hong Kong SAR, 2012) <http://www.legco.gov.hk/yr11-12/english/panels/ha/papers/ha0113cb2-772-2-e.pdf> [accessed 28 June 2012].

4. Planning Department, The Government of the Hong Kong Special Administrative Region, *Hong Kong Planning Standards and Guidelines*, *Chapter 4: Recreation, Open Space and Greening* (Section 1.6.1).

Biography

Jason Carlow is an Assistant Professor in the Department of Architecture at the University of Hong Kong, where he teaches design studio and leads experimental research seminars dealing with digital design, fabrication, and public space. Carlow is also the founding principal of the Hong Kong-based design firm C:A+D, Carlow Architecture and Design. He holds a BA in Visual and Environmental Studies from Harvard University and a Master of Architecture from Yale. His work has been exhibited in the Hong Kong/Shenzhen Bi-City Biennale of Architecture and Urbanism as well as the Venice Biennale of Architecture. He is an Associate Member of the Hong Kong Institute of Architects and a member of the Association for Computer Aided Design in Architecture.

War, Trade and Desire: Urban Design and the Counter Public Spheres of Bangkok

Brian McGrath

This paper analyses an emergent public sphere in Bangkok in order to reveal the gap between ideals of public space as representation of power, nationhood, and modernity, versus its social production in everyday political struggles. The setting for recent political demonstrations in Bangkok dramatically shifted from royalist and nationalist Ratchadamnoen Avenue to Ratchaprasong intersection, the symbolic heart of Thailand's embrace of globalization and the home of Bangkok's spectacular central shopping district.[1] While Ratchadamnoen remains mostly empty except as a traffic corridor and a stage set for royalist and nationalist pomp, it has been continuously occupied as a stage for political uprisings – often with tragic consequences. In contrast, as the political base of protest in Thailand widened, the glittering shopping malls at Ratchaprasong became a new site of protest, fuelled by online social networks and in 2010 dramatically occupied by the urban and rural working poor, who sensed they could not afford to partake in Bangkok's phantasmagorical splendours.[2]

Introduction

The paper argues that in following Bangkok's historical cycles of blood and massacre in the street lies the possibility of finding new forms of urban design and a public sphere not yet imagined in the West. It analyses Bangkok through the lens of political theorist Nancy Fraser's critique of Jürgen Habermas's use of the term 'the public sphere'. Fraser agrees with Habermas's important definition of the public spheres as a space for public discourse separate from state influence and market relations. However, for her, the moral authority of the public sphere depends on 'who participates and on what terms'.[3] She therefore calls for 'multiple publics' and 'insurgent citizenship' – certainly public spheres in the plural as conceived by the editors of this volume. Fraser calls for a public sphere comprising 'actual existing democracy' rather than Habermas's more restricted ideal of the modern European bourgeois liberal public.

Urban theorist Margaret Crawford has employed Fraser's critique to counter the 'narrative of loss' by urbanists such as Richard Sennett, Mike Davis, and Michael Sorkin. For Crawford:

> […] the meaning of concepts such as public, space, democracy, and citizenship are continually being redefined in practice through lived experience. By eliminating the insistence on unity, the desire for fixed categories of time and space, and the rigid concepts of public and private that underlie these narratives, we can begin to recognize a multiplicity of simultaneous public interactions that are restructuring urban space, producing new forms of insurgent citizenship, and revealing new political arenas for democratic action.[4]

Although written in Los Angeles during the 1990s, Crawford's call resonates with both the contemporary trajectory of public space in Bangkok and the political expression of the counter publics that have emerged within these spaces over the past decade.

In my book *Digital Modelling for Urban Design,* I illustrated contrasting studies of civic actors shaping Rome, New York, and Bangkok. The book analysed the successive transformation of the Roman Forum as an urban design model of the triumphal space of empire (War), the emergence of the two central business districts in New York as an urban design model of the modern capitalist city (Trade), and the rapid reconfiguration of the central shopping district of Bangkok as an urban design model for the global city of leisure and consumption (Desire).[5] In this essay 'War, Trade and Desire' I identify three concurrent models of public space in Bangkok: the monumental and triumphal symbols of absolute monarchy, nationhood, military power, and moral authority as symbols of modernity and civilization; the display of capital accumulation in the city's bustling commercial entrepôts; and, finally, the actual existing activities of social life evident in democratic protest, consumerism, leisure, and social media. This essay presents these three models, not as a sequence of historical progression, but as currently present and at play in the public space of the city.

The tripartite structure of this essay aligns with Thongchai Winichakul's three overlapping historical series with which he frames the struggle for democracy in Thailand. He writes: 'An overlapping moment or period means one in which more than one historical process converged and was unfolding, thus one event may impact on those processes at the same time.'[6] Thongchai takes issue with the usual historical narrative of the Kingdom's march from absolute monarchy to democracy as a linear process towards an ideal polity. Instead he outlines the democratic movement in Thailand as a series of popular uprisings, continually set back by military coups, money politics, and most importantly, the interventions of the Thai monarchy as a figure of moral authority 'above and beyond' everyday politics. Thongchai's overlapping historical series intersect with my own three urban design models,

where successive urban design actors inherit the space constructed by the previous polity to occupy, remake, or destroy.

'War' describes the remaking of feudal Bangkok into a European-style capital city by Kings Rama V, VI, and VII, who assumed the bureaucratic power of modern monarchs between 1870 and 1932. Following the People's Party revolution of 1932, many of Bangkok's new public spaces were transformed to represent heroic military nationalism in the years leading up to the Second World War. Thongchai's first historical series (1870-1951) describes this political transition of the Kingdom of Siam into a constitutional monarchy dominated by the military. Other than brief periods of Parliamentary rule, after 1932 Field Marshall Phibun Songkram, a military strongman whose self-chosen last name means 'war', dominated the post-Revolutionary period. Coup d'états in 1947 and 1951 put an end to the People's Party and established the military as the dominant political player. The ruling generals had no democratic agenda and the role of the monarchy was removed to a position above and beyond politics.

'Trade' describes the emergence of speculative developments that began to compete with the monumental urban spaces in Bangkok constructed by the monarchy and military. Both commercial real estate and informal vending are forms of trade that reshaped the city during the post-war industrial and tourist commercial booms. Thongchai's second overlapping series (1938-1992) pivots around the struggle that emerged after 1973 between military and parliament systems due to the rise of popular democracy. Popular uprisings went hand in hand with the rapid economic development following Field Marshall Sarit Thanarat's (1957-1963) 'gift economy', which was a result of Thailand's alliance with America's war with Vietnam. Popular uprisings in 1973 and 1992 bracketed military coups in 1976, 1977, 1981, 1986 and 1991. After each coup, the

generals had to contend with a newly empowered and activist citizenry, and quickly promised a return to parliamentary rule.

'Desire' describes my own experience in Bangkok since 1997, when I witnessed the rise in populism and consumerism in Bangkok that led to the uprising of media-mogul Sondhi Limthongkul's Yellow Shirt supporters in 2005, and telecommunications tycoon Thaksin Shinawatra's Red Shirt supporters in 2010. Thongchai's third series (1973-2006) is marked by the entangled power relationships between money, the people, and the monarchy. The central issue is the 'shaping of electoral politics under the influence of conflicts, contests, negotiations and alliances among these political forces'.[7] The 1973 and 1992 uprisings were followed by new constitutions, but it was the East Asian economic crisis of 1997 that more widely empowered local democratic participation while strengthening the position of the Prime Minister. Thaksin Shinawatra led the country with three unprecedented electoral mandates until the surprising return of the military in the 2006 coup.

In examining the relationship between different urban design models and the emergence of counter publics in Bangkok, this paper benefits from firsthand reports from the city's streets. These reports document popular struggles to create a public sphere within public spaces constructed by powerful political and economic actors. In the section titled 'War', architectural historian Pirasri Povatong's deep archival research provides eyewitness accounts of the 'semi-colonial' hybrid transformations of Bangkok during the reign of King Rama V (1868-1910).[8] In the second section, 'Trade', anthropologist Alan Klima's ethnographic descriptions of the 'Black May' episodes at Ratchadamoen Avenue in 1992 provide mediations on a public sphere that for him took the form of a funeral, a casino, or an informal black marketplace.[9] In the final section, 'Desire', anthropologist Claudio Sporanzetti reads the 2010 'Red Shirt' occupation

of Ratchaprasong Intersection through the lens of mobility and mobilization as the capitalist space of flows was seized by taxi and motorcycle-taxi drivers and mobile vendors, his ethnographic subjects and the new 'owners of the map' of Bangkok.[10]

My own time in Bangkok spans 15 years as a teacher and researcher at Chulalongkorn University's Faculty of Architecture. The campus is a green oasis far from the old sites of popular unrests that circulated around the old campus of Thammasat University. This temporal and spatial vantage point gave me a front-row seat to the transformation of the city following the economic crisis of 1997, as well as the emergence of a new public sphere within the central shopping district that came to surround Chulalongkorn University.[11] This new space that came to symbolize Thaksin's consumerist, globalized Thailand, turned into a political arena starting in 2005. This period also saw the rise of the pervasive use of cell phones, the Internet, and mobile social networking, technologies that have shaped both the design of public space and the virtual realm in which a new public sphere is now emerging. [fig. 1]

War
In his essay 'Toppling Democracy', Thongchai Winichakul displays a distrust of the historiography of Thailand that presents a progressive chronology from absolute monarchy to the 1932 People's Party Revolution, to popular uprisings in 1973 and 1992. Instead, Thongchai suggests a history of three overlapping series within the same chronological frame. This schema effectively disrupts the nationalist narrative of a progressive path towards democracy in Thailand. Thongchai's first overlapping historical series (1870-1951) describes the modernizing kings who remade Bangkok into a bureaucratic capital city, the creation of a constitutional monarchy following the 'palace revolt', and the military generals who seized power from the People's Party. Below, I describe the remaking of

Bangkok as a triumphal modern royal capital by the European-influenced monarchs from 1870 to 1932, and the transformation of those modern spaces by the military dictators up until 1951.

I call this section 'War', following the origins and development of the 'triumphal' urban design model that can be traced to the Roman Forum.[12] Triumphalism as an urban design model has remained present at the heart of modern liberal capitalism. This legacy can be seen, for example, in Edmund Bacon's discursive alignment of his work as Chief Planner in Philadelphia following in the steps of Baron Haussmann in Paris and Sixtus V in Rome, via the historiography of his teacher at Harvard, Sigfried Gideon. In the book *Digital Modelling for Urban Design,* I analyse the 'actual existing' space of the Roman Forum during the Middle Ages through Napoleon III's archaeological project to unearth and measure the Arch of Septimus Servius and Trajan's Column. The subsequent erection of his own victory column in Place Vendome and the Arc de Triumph at l'Etoile in Paris legitimized his authority and substantiated his claim that Paris was the second Rome.

King Rama I, founder of the present Chakri dynasty, moved the Siamese capital to Bangkok and also revived the role of the god-king that Ayutthaya has assumed from the Khmer Kings at Angkor. As a god-like figure, the King resided hidden behind the high walls of the Grand Palace. What might be called public space was in fact sacred ground reserved for royal and religious ceremonies, with only the royal entourage occupying the centre of the city, a symbolic representation of the hierarchical Indic cosmos with common people far removed to the periphery. According to architectural historian Pirasri Povatong: '[s]ince ancient times, architecture and urban design were always a key media through which the Siamese aristocrats projected their self-image, political legitimacy, and consummate control over the hierarchical social structure.'[13] It is only

with modernizing King Rama V (1868-1910) that the self-image of an absolute monarch as a public figure and the authoritative head of a bureaucratic nation state was born.

As Pirasri has demonstrated, Rama V was greatly impressed by the monumental architecture, broad avenues, and scenic views he viewed in Paris and other European capitals during his two tours in 1897 and 1907.[14] In Europe he saw the importance of creating a public promenade for the open display of a modern king.[15] Rama V's main instrument of making himself visible as a public figure was the construction of Ratchadamnoen Avenue – the royal walk connecting the walled enclave of the Grand Palace, crossing the three concentric moats of the old city, to the new garden district and royal palace at Dusit Park. Ratchadamnoen Klang, the middle part of the avenue, was a Hausmannian-like cut crossing east to west across Rama I's old island city. The Palace of the Front was partially demolished, and the royal cremation ground was extended as a broad elliptical lawn to receive the new avenue outside the wall of the Grand Palace. Upper Ratchadamnoen, running south to north, leads to the Royal Plaza, where an equestrian statue of the king was placed in front of a grand new throne hall, the centrepiece of Dusit Park, a new 'green field' development of modern sanitary infrastructure and lit streets. [fig. 2]

According to Pirasri, 'Rama V made it clear that the design precedent of his new avenue was the Mall, the major arterial approach to Buckingham Palace in London. The name Ratchadamnoen, 'King's Walk', however, was inspired by the name of the Queen's Walk, a pedestrian street in Green Park, London, which the king found pleasant during his 1897 journey'.[16] Pirasri details eyewitness accounts of three great events that displayed this new public figure of the king along the royal avenue. The first marked the completion of the construction of the avenue in 1903, the second the foundation of the
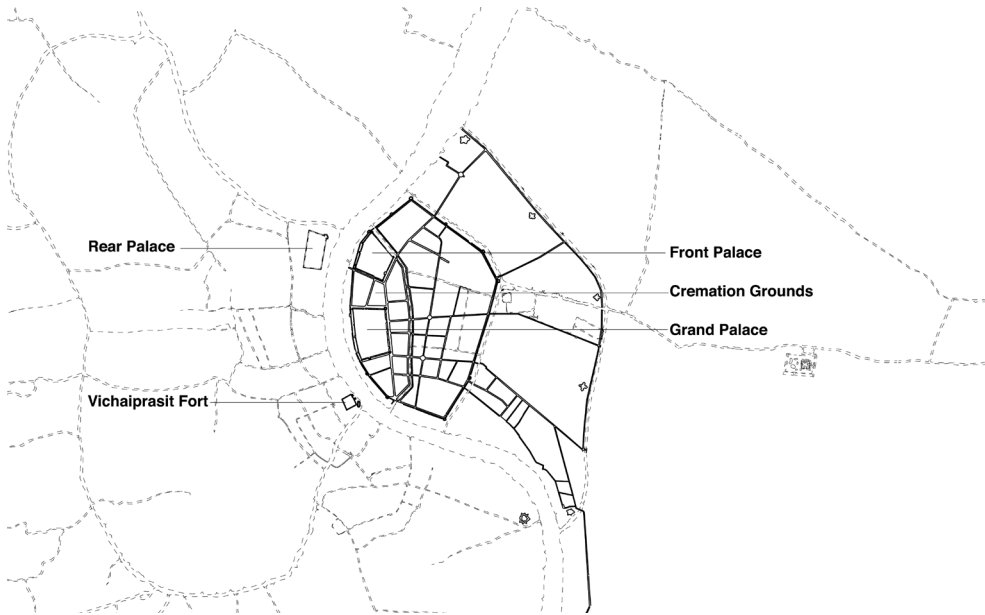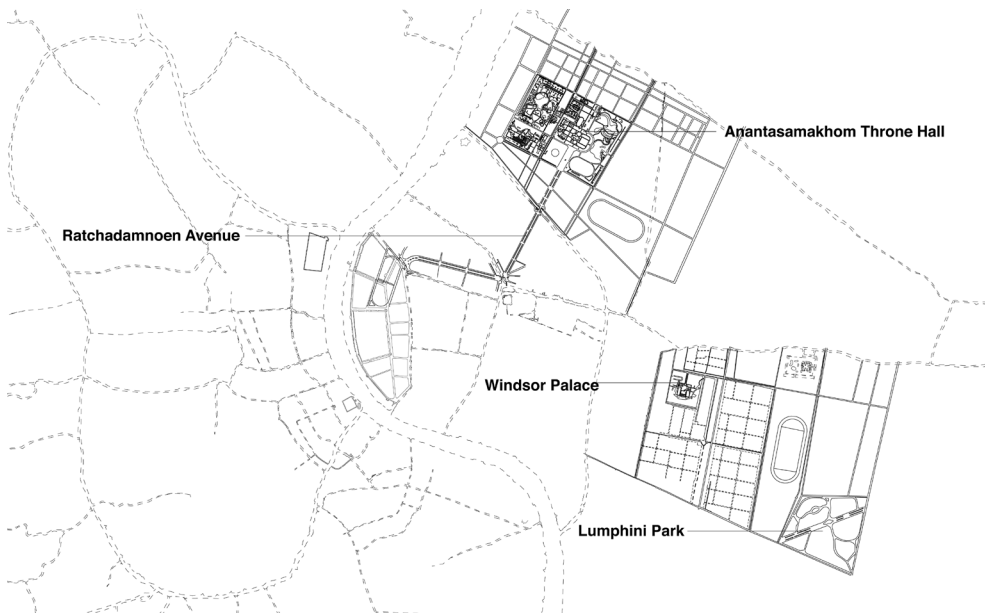
Fig. 1

Fig. 2

Fig. 1: Plan of Bangkok, 1868. The walled enclave of the Grand Palace is the inner sanctum of the triple-moated and walled royal city. The second moat runs outside the defensive city wall, and the third moat is lined with defensive fortresses.

Fig. 2: Modern extensions of Bangkok during the reign of Rama V consisted of two new road-based residential districts extended to the north for the King (Dusit Park) and the east for the Crown Prince (Pathumwan District).

new Anantasamakhom Throne Hall at the northern terminal in 1907, and the third in 1908 the unveiling of the bronze equestrian portrait of the king himself, in European military dress. The avenue's royal events brought city residents momentarily together, including common people and foreigners, as well as the elite, and presented the king as a modern public figure. However, Europeans criticized the incomplete appearance of the avenue, with its lack of commercial and apartment buildings lining its great breadth. Without residents and businesses, the street remained unpopulated outside of the staging of royal pomp, and the avenue failed to catalyse a European-like modern bourgeois public sphere of newsstands, cafés, clubs, bars, and the discussions they engender.

While the triumphal model of Ratchadamoen Avenue has its deepest roots in the imperial spaces of Rome and Paris, Rama V's accomplishment was not in the battlefields like his ancestors. Instead, according to Ka F. Wong, Rama V's triumph was one of politics and state theatre through creating a new form of national enthusiasm for the role of the king as the leader of a modern state, rather than a supernatural god-king of a feudal kingdom.[17] In Pirasri's vivid description, Rama V's funeral procession in 1910 reversed the modernizing narrative from feudal to modern kingdom, as the king's body was ceremonially brought back to the Grand Palace, where it was laid in state in the ancient throne hall built by his great-great-grandfather, King Rama I, while awaiting the erection of the elaborate cremation pavilion in Sanam Luang.[18]

King Rama V's urban design ambitions are also evident east of the old moated city in the Pathumwan district. His father had built a suburban villa a short boat ride along the San Saeb Canal, named Srapathum for the water lotus gardens that surrounded the island villa and the meditation temple Wat Pathumwanaram. Rama V acquired a huge parcel of land south of San Saeb Canal as the

planned residence of the Crown Prince. Windsor Palace, as it became known, was designed and built by Italian architect Joachim Grassi from 1881 to 1884. The great palace was never occupied, as the next in line tragically died as a youth, and his brother, Rama VI, later donated this land as the endowment for the first university in Thailand, named for his father, Chulalongkorn.

The pivotal moment of Thongchai's first historical series is the People's Party revolt of 1932, when a small group of revolutionaries removed King Rama VII from the position of absolute monarch. One of the first acts of the new government was the founding of Thammasat University in 1934 by Pridi Phanomyong, as The University of Moral and Political Sciences. An open enrolment university, the campus was located within the grounds of the old Front Palace. Facing Sanam Luang. The new government gave spatial prominence to the new institution dedicated to political science and to the idea of educating the leaders of the new democracy. However, according to Thongchai, the progress to democracy was diverted as '[…] the rise to power of Phibun Songkhram (1938-44) and the military wing of the 1932 revolutionaries […] (protected) the revolution against the monarchists. The regime became authoritarian, nationalist and pro-Japanese marginalizing the liberal wing'.[19]

As the strongman Phibum Songkhram consolidated power, the new government soon made its mark on the monuments and public spaces most closely tied to the representation of the absolute power of the monarchy. Royal property was transferred to the constitutional government, and the Anantasamakhom Throne Hall became the meeting place of the National Assembly of Thailand. Windsor Palace was demolished to make way for the National Stadium in 1937, an arena that held mass rallies to celebrate new collective expressions of nationalism. In 1939, Phibum Songkhram commissioned the remaking of middle Ratchadamnoen along more

modern lines. The original double row of mahogany trees was cut down, and uniform concrete blocks were built lining the avenue. Democracy Monument, a sculpture in which the constitution sits atop gold offering bowls surrounded by four towering Art Deco concrete wings, was constructed as the centrepiece of the renewed avenue. [fig. 3]

In December 1940, after the French bombed the Northeast province of Nakhon Phanom, the two nations entered into battle. On 3 February 1941, Japan stepped in and an agreement was signed in Tokyo on 9 May 1941. Field Marshall Phibum Songkhram built Victory Monument to honour the Thai casualties as well as the '[…] triumph over the colonial oppressor France'.[20] Also in 1941, the wartime regime commissioned a monument to King Rama VI, to be built in front of the former King's gift of public space to the city – Lumphini Park. The King is represented standing in full European military dress, legitimizing Phibum Songkhram's inheritance of the modernizing military nationalist project.[21]

In summary, Bangkok was remade into a modern crypto-colonial capital city based on European precedents at the beginning of the twentieth century through the construction of the royal walk connecting the historical city to Dusit Park to the north.[22] Following the People's Party Revolution of 1932, military strongmen took control of the government and created monuments of a heroic military nationalism similar to those in Germany, Italy, Japan, and Turkey during the same period. I classify both of these triumphal modernization projects as urban design models of war. In the next section, I will move to the more recent history of struggles for democratic space in the city in Bangkok following the Second World War, as both commercial development and broad popular appropriation of the city come to dominate urban spatial politics.

Trade

In Chapter 4 of *Digital Modelling for Urban Design,* I switch from an archaeological analysis in Rome, to a genealogy of the evolution of urban design guidelines and real estate speculation that shaped Manhattan's two central business districts. The chapter mapped the booms and busts in New York's real estate economy, and how within a consistent grid of blocks, regulations concerning the bulk and shape of skyscrapers evolved in relation to new technologies in construction, business, and finance, as well as civic activism. If the chapter on 'War' focused on the role of authoritarian rulers in constructing monumental urban space, the chapter on 'Trade' focuses on the checks and balances between real estate developers, city planners, and activist citizens in shaping the city through rule-based urban design models within a discursive public sphere. The approach examines the emergence of new urban forms outside of a planning system with a singular authoritative power.

While Thongchai's first historical series depicted a struggle between the monarchy and the military, the struggle between military and parliamentary systems in the face of a rising middle class dominates his second overlapping series (1938-1992). Phibum Songkhram was followed by Field Marshall Sarit Thanarat (1957-1963), who consummated Thailand's alliance with America's war with Vietnam and its 'gift economy'. Popular uprisings in 1973 and 1992 bracketed military coups in 1976, 1977, 1981, 1986, and 1991. But the generals now had to contend with popular democracy and a newly empowered activist citizenry. Every successful coup was soon followed by a promised return to parliamentary rule. By the 1970s a broader democratic public sphere was emerging in Bangkok, fuelled by both educational and economic development. Commercial real estate and informal vending both competed with Bangkok's monumental urban realm constructed by the monarchy and military.

When King Rama IV changed the name of the royal cremation grounds from *Thung Phra Men* to *Thong Sanam Luang*, he was acknowledging the broader use the royal space had assumed. His predecessor, King Rama III, had begun the practice of cultivating rice there as a display of the productivity of the Kingdom. Rama IV ritualized the practice in the Royal Ploughing Ceremony, which still takes places in May, the beginning of the rainy season. During the reign of Rama VI, foreigners played golf and held races along its elliptical exterior path. However, it was the interventions of Pridi and Phibum Songkhram that seeded the future of Sanam Luang as an important space in the history of public protest in Bangkok. In addition to Pridi's creation of Thammasat University on the west front of Sanam Luang, Phibum Songkhram opened up the large ellipse to vendors as part of a national programme of weekend flea markets in every city in Thailand.[23] Public speeches and political debates at Sanam Luang were also briefly encouraged, inspired by what Phibun Songkhram saw at the Speakers' Corner at Hyde Park during his trip to London.[24]

On 13 October 1973, a crowd of over 400,000 demonstrators gathered in Sanam Luang, fed by both students gathering at Thammasat and the huge crowd of vendors and shoppers at the weekend market. The protestors moved from Sanam Luang through the new heroic public space Phibum Songkhram created around the Democracy Monument. By the afternoon, more than 100 students were dead after the army opened fire. The surviving protesters carried the bodies of the slain up the royal walk to appeal to King Rama IX, residing at Chitralada Palace in Dusit Park, reversing the route of Rama V's funeral cortege.

According to Thongchai, himself a participant in the protests:

> The uprising in 1973 is regarded as the beginning of true democracy in Thailand both in terms of popular democracy and the parliamentary system. The period of 1973-76 was the most liberal and radical one in which popular movements and radical ideologies were influential in politics. The general tendency has been the extension of open democracy that allows people to organize and voice their demands through politicians, civic organizations and the media.[25]

Phibum Songkhram's Democracy Monument was sanctified by the blood of the protestors, and became a true symbol of democracy. As anthropologist Alan Klima, notes:

> Finally, in 1973 the public sphere was coming into its own, carried on utterances that vibrated across the marketplace; it was, finally, 'mass politics,' with its battle of images, its displays of bodies, its occupation of public space and of visual spheres in which power is contested, and is linked to the market.[26] [fig. 4]

On 6 October 1976, a rightwing rally in Sanam Luang turned, this time, against the Thammasat students trapped on campus. The day ended with the massacre of hundreds of students, their bodies hung in public display in Sunam Luang. Klima describes the event as 'the dawn of a new public culture, it was at the same time, *inseparably,* the dawn of the new public cadaver […] and a new public sphere – a politics of the corpse'.[27] Shortly following 'Bloody October', a monument to King Rama VII was erected in front of the new National Assembly built north of the Anantasamakhom Throne Hall. In contrast to Phibum Songkhram's modern militaristic figure of Rama VI, Rama VII is presented seated in full traditional Siamese god-king regalia. Wong writes that Thanin's rightwing regime erected the monument because it 'desperately needed positive publicity to clean up its undesirable image after the
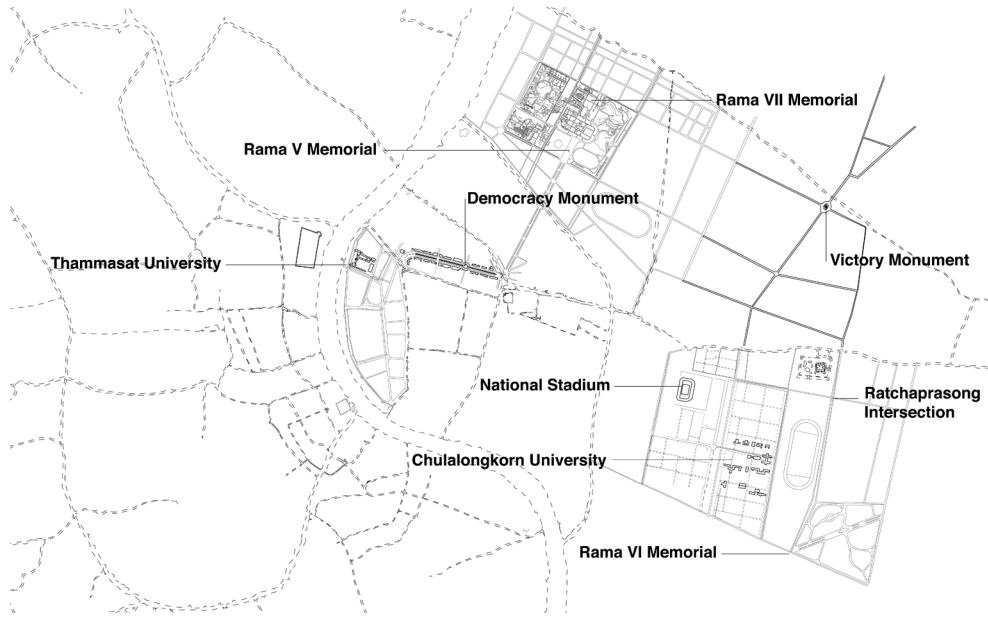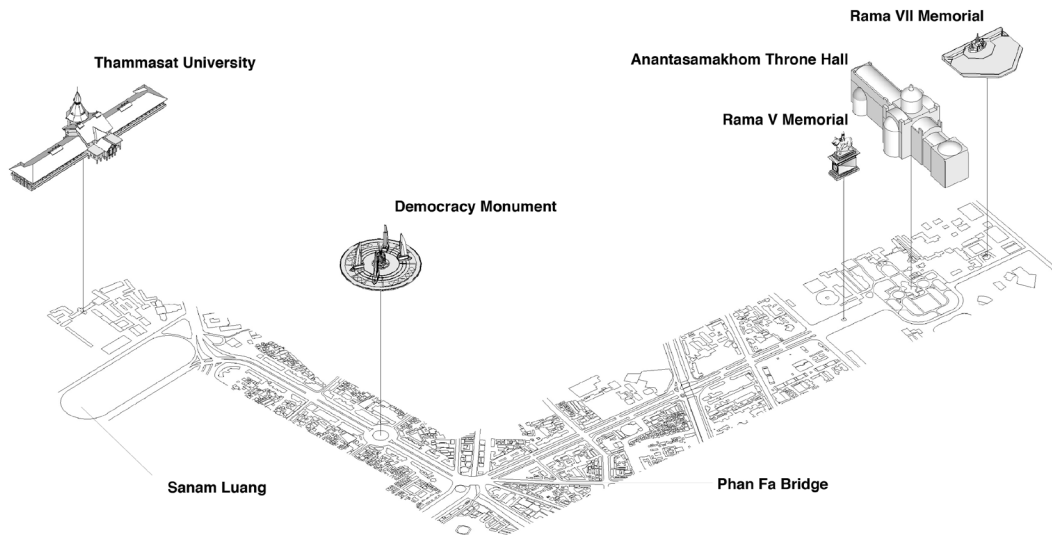
Fig. 3

Rama VII Memorial

Rama V Memorial

Democracy Monument

Thammasat University

Victory Monument

National Stadium

Ratchaprasong Intersection

Chulalongkorn University

Rama VI Memorial

Fig. 4

Rama VII Memorial

Thammasat University

Anantasamakhom Throne Hall

Rama V Memorial

Democracy Monument

Sanam Luang

Phan Fa Bridge

Fig. 3:   Nationalist monuments in the city after the 1932 revolution transformed the royal walk into a rallying spot to celebrate nationalism. Victory Monument is constructed at the pivot between Dusit and Pathumwan Districts.
Fig. 4:   Ratchadamnoen Avenue became the site of public protest following the establishment of Thammasat University, the opening of Sanam Luang to secular public events, a week-end flea market, a speakers corner, and the construction of Democracy Monument.

October 1976 incident'.[28] Not unveiled until 1980, under the royalist government of Prem Tinsulanonda (1980-1988), the monument's intent was to depict Rama VII as giving democracy to the nation. For Thongchai this period also began a new role for the monarchy within democracy as moral and political arbitrators.

Another military coup in 1988 brought a triumvirate of strongmen and a crackdown on democracy that was finally broken in April and May of 1992. Beginning with a hunger strike in front of the National Assembly, the crowd soon took over Royal Plaza. When the numbers grew even larger, hundreds of thousands gathered and marched along Ratchadamnoen Avenue south to Sanam Luang, reversing the trajectory of the 1973 uprising. Klima describes this as a 'movable feast', an army of enterprising street vendors following the mediated spectacle of death by starvation. The events occurred during the summer semester break, so the movement was no longer in student hands. Depicted as a middle-class rebellion equipped with new forms of communication technology, this uprising comprised the formation of a new telecommunicated public sphere comprising the 'actual existing democracy' of Thailand. 'Bypassing censorship, protestors could be seen everywhere calling in information to the home, office, business, and their provincial hometowns, reporting events on a minute-to-minute basis.'[29]

On Sunday, 17 May 1992, the largest crowd since the 1970s gathered in Sanam Luang. When the crowd marched to the Democracy Monument, the police confronted them at Phan Fa Bridge, where the army stepped in and opened fire directly at the protestors. This 'Black May' massacre did not occur in the 'Bloody October' era of newspaper reporting, but included shocking video images broadcast through global media networks. The bad publicity threatened tourism and brought the risk of economic isolation for the booming Thai economy.

Klima describes the need for the financial elite of Thailand to find a quick solution to the political turmoil in light of 'the fluorescence of international media images'.[30]

Klima ends the story of Black May with the conclusion that trade had triumphed over violence. In the future, Thai political struggles could no longer be settled in the streets, but only in the boardrooms. Two scales of markets converged in 1976: the informal black market of video imagery and the movable feast of street vending on the one hand; and the global exchange of capital and media images on the other. In the fallout over the slaughter, the Parliament quickly disbanded, new elections were held, pro-democracy opposition parties finally took control, and the Thai mass media were released from censorship. As Klima concludes: 'The new world replaces the old. The military gift economy of the Cold War is exchanged for the neoliberal market of a new world order […] battlefields are indeed turned into marketplaces.'[31]

Desire

In the final chapter of *Digital Modelling for Urban Design,* I move my analytical focus to the emergence of a Central Shopping District (CSD) in Bangkok following the Asian economic crisis of 1997.[32] While the anticipated bourgeois public sphere never occupied Ratchadamnoen Avenue, at the turn of the twenty-first century, Rama I Road and the Pathumwan District developed into a spectacular new cosmopolitan space for leisure and consumption. In this chapter, I analyse social conflicts not only as the result of historical class struggles, but through the lens of desire.[33] While 'War' uncovered the transfer of triumphal urban design models from Rome to Paris to Bangkok, 'Trade' examined financial fluctuations and power sharing in New York as a determinant of urban space. 'Desire' switches to an examination of the multivalent globalized space of rapid transit, mass consumption, popular culture, media spectacle, social networking, and ultimately

the shifting locus for political protest to Bangkok's CSD.

The third overlapping historical series proposed by Thongchai (1973-2006) is marked by relations among the power of money, people's power, and royal power. The central issue for him is the 'shaping of electoral politics under the influence of conflicts, contests, negotiations and alliances among these political forces'.[34] The 1973 and 1992 uprisings were followed by new constitutions, but it was the East Asian economic crisis of 1997 that resulted in a more widely empowered local participation and strengthened the position of the Prime Minister. Populist Prime Minister Thaksin Shinawatra led the country with unprecedented electoral mandates in 2001 and 2005, until he was toppled in the surprising return of the military in the coup of 2006. The third section of this paper, 'Desire', describes my own experience in Bangkok since 1997, and documentation of the urban design expressions of the rise in populism and consumerism in Bangkok.

Bangkok's CSD, lining Rama 1 Road, just north of the campus of Chulalongkorn University, became a physical manifestation of the nation's economic restructuring to a globalized neoliberal consumer society following the 1997 economic crisis. The properties lining Rama I Road from the National Stadium and Ratchaprasong Intersection comprise large lots owned by the public university, crown property, the Buddhist monastery Wat Phatumwanaram, and the Royal Thai Police. While this public, religious, and royal property benefitted from Rama V's original endowment through rice cultivation, beginning in the 1960s, hotel and shopping complexes were built by private developers with 15 to 30 year leases. Fed by both the growth in tourism and the captive youth population of the nearby university, Rama I Road became a shopping, hotel, and leisure suburban garden district. The completion of the elevated Bangkok Transit System's Skytrain in December 1999 quickly escalated the value and

accessibility of the commercial properties, catalysing the construction of massive new shopping, leisure, hotel, and office complexes, connected by a new system of exterior elevated platforms, creating the first truly cosmopolitan public space in the city.

Pasuk Phongphaichit and Chris Baker have documented Thaksin's rise from the ranks of the Royal Thai Police to an early dalliance in politics just long enough to secure state concessions of satellite and microwave bands, transforming his traditional Sino-Thai family trade business into a global telecommunications giant.[35] Following the 1997 economic crises, Thaksin returned to politics and bankrolled a new populist political party 'Thai Love Thai', which received unprecedented electoral mandates in 2001 and 2005. After several corruption scandals and the sale of his telecommunications empire to a company owned by the Singapore government, the Yellow Shirt People's Alliance for Democracy challenged Thaksin with large organized protests, including the takeover of the CSD and the city's two international airports. In 2006, a military coup, carefully executed not to disturb the new global finance and mediascapes, removed Thaksin from power. In the subsequent reshuffling of the Parliament, the Democratic Party assumed power, with Abhisit Vejjajiva sitting as Prime Minister without election. This avoidance of the electoral process gave rise to the Red Shirt movement, the United Front for Democracy against Dictatorship, led by Thaksin in exile telecommuting to political rallies through video conferencing technologies and Twitter.

Anthropologist Claudio Sporanzetti, like Alan Klima in 1992, was an eyewitness to the culmination of the events that once again unfolded along Ratchadamnoen Avenue. According to his accounts, on 26 March 2009, the Red Shirts set up a protest camp in front of the Government House, demanding Abhisit Vejjajiva's resignation. On 8 April, more than a 100,000 people rallied there, spreading to

the Royal Plaza. This protest was able to expand to new public places in the city as taxi and motor-cycle-taxi drivers took over the traffic circle at Phibum Songkhram's Victory Monument. With his ethnographic focus on mobility and mobilization, Sporanzetti recognized that '[…] urban flows, the quintessential core of modern capitalism, were blocked by the very people who were supposed to facilitate them'.[36] As one motorcycle driver told him, the 200,000 motorcycle-taxi drivers who keep the megacity moving are the 'owners of the map' of the city.[37]

The Red Shirts organization went deep upcoun-try after the army cleared them from the streets, holding protests in big regional cities across the kingdom. Nearly one year after the first protest, the Red Shirts started a 'Million Man March' to Bangkok, staging the largest popular protest in Thai history. The centre stage was erected at Phan Fa Bridge, an elbow along Ratchadamnoen Avenue, taking over the army's position during the 1976 and 1992 uprisings. According to Sporanzetti, they mixed urban design, taste, and protest strategies.[38] In the end it is the mobility and knowledge of the 'map' of Bangkok that led protesters in early April to strategically move the protest to the CSD. [fig. 5]

A self-sufficient urban encampment, complete with food, sanitation, transportation, communica-tion, sleeping, and policing systems was established at the pivotal intersection in front of the enormous palaces of consumption at Ratchaprasong inter-section. The old symbolic political arenas of Sanam Luang and the Democracy Monument were abandoned in favour of the new space of global consumption and desire. According to Sporan-zetti the spaces 'from which many protesters felt excluded, were appropriated and became places of discussion and dwelling'.[39] In other words, the streets in front of the malls became the site for the emergence of a counter-public sphere in Bangkok.

Clearly, with their mobile urban design knowl-edge, the Red Shirts could understand the spatial correspondences between the two armatures: Ratchadamnoen, pivoting at Phan Fa Bridge, and Rama 1 Road and Ratchaprasong intersection, at the critical position of where the Skytrain forks above the shopping district to the business district at Silom Road to the south. Not able to control Ratchaprasong intersection, the army mobilized to prevent protesters from entering the business area at Silom Road. The army faced the occupiers in front of the Rama VI Monument, where the protes-tors erected a bamboo and motor tire barricade, mixing the material tectonics of the farm and motor-cycle. It was only with great difficulty that the army finally was able to storm their barricaded encamp-ment, resulting in scores of deaths. Some from the retreating mob set fire to Central World Plaza, Siam Square, and a string of selected banks and shops in their retreat, while others sought sanctuary in Wat Pathumwanaram.

Conclusion

Retracing the paths of urban design models and democratic public spheres in Bangkok last year, I found Thammasat University still haunted by the gallows of 1976. Commemorative plaques and monuments mark the old campus, but most of the students have been relocated to a new campus far from the city centre. The bodhi tree, where students first gathered in 1973, has a proper commemora-tive plaque, and leads you to the large sports field where students gathered first to protest, and later to be rounded up and killed by the police and militant mobs. The cremation grounds of Sanam Luang are now fenced off as the last traces of the monumen-tal buildings for the cremation ceremonies for King Rama VI's only child, HRH Princess Bejaratana Rajasuda, were being dismantled.

The grand monuments and commemorative memorials to democracy along Ratchadamnoen Avenue are mostly unacknowledged. Outside the

Red-shirt shelter

Red-shirt bus stop toilet

Red-shirt barricade

National Stadium

Rama VI Memorial
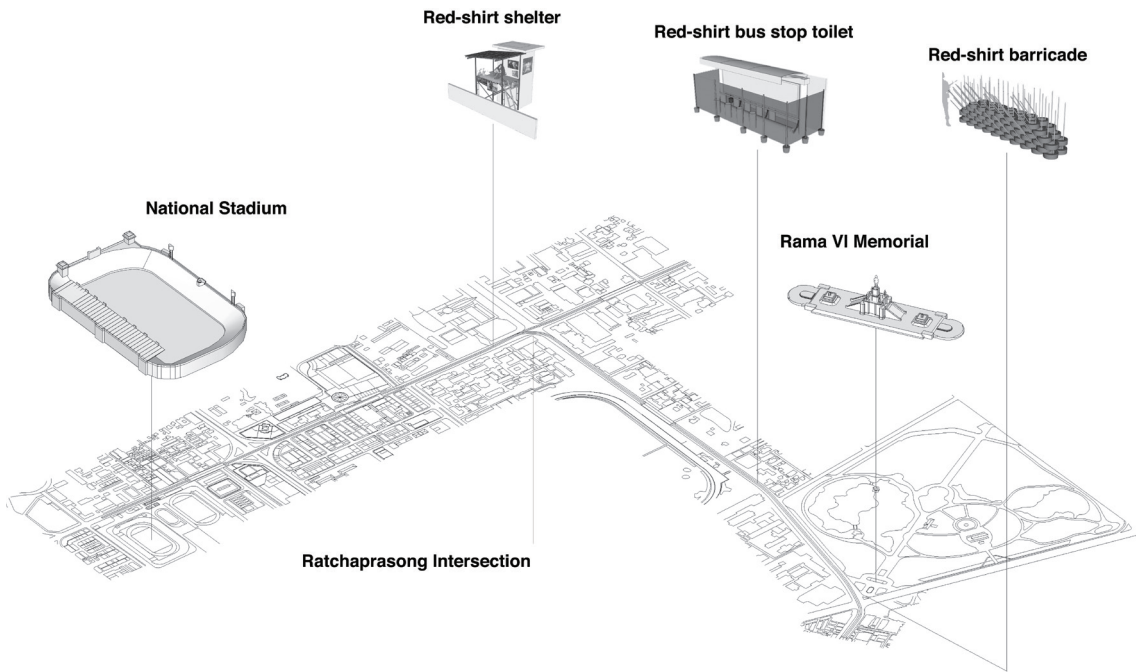
Ratchaprasong Intersection

Fig. 5: Ratchaprasong intersection sits at the heart of Bangkok's Central Shopping District. Drawings of the Red Shirt encampment constructions by students at the Faculty of Architecture, Chulalongkorn University. Pote Laddaphan, Puttikit Suvarnapunya, Nattapat Paiboonvarakit, Purich Leechankul, Instructor Rachaporn Choochuey.

State Lottery Commission offices, lottery vendors prepared their folios of tickets to distribute by hand around the city. Those with legal problems to be heard at the nearby Ministry of Justice queued in line for public advocate offices along the avenue. The grand buildings of Phibum Songkram's era have been mostly emptied for a tourist-led redevelopment plan to finally fulfil the dream of the 'Champs-Élysées of Asia', complete with a massive underground parking structure. The only visitors to the Democracy Monument were freshmen in Thammasat's Bachelors of Business Administration Programme. Wearing logo printed t-shirts, they participated in an orientation game initiating them in Thammasat's radical heritage before starting their business degrees.

Beyond the elbow of Phan Fa Bridge, the double row of trees is struggling with the heat and vehicle exhaust along the empty upper stretch of the royal walk. The equestrian statue of Rama V sits isolated within a giant sea of melting asphalt and speeding traffic, but for a lone couple offering a prayer with incense joss sticks. Unable to walk another step in the unbearable heat, I hail a taxi to MBK centre, the nearest mall on Rama 1 Road. Bangkok's CSD again glitters two years after the fiery end of the Red Shirt occupation. Central World has been fully renovated, and a new, more easily defended shopping complex rises at the old Siam Cinema at Siam Central Station. With the loss of so much commercial space after the arson of 2010, Siam Square has constructed lines of temporary 'emergency shopping shelters' in every available space in the Chulalongkorn University owned complex. The police struggle to keep the sidewalks clear of the growing army of small entrepreneurs. Royal and elite conservation projects, such as the magnificent restoration of Wat Pathumwanaram, are sandwiched between the again busy shopping malls on Rama I Road.

This essay has shown how physical space is Bangkok has been continually reshaped by the political geographies involving an ever-widening range of urban actors. 'War', 'Trade', and 'Desire' reflect the military, market, and populist forces in shaping the city, with the monarchy playing a major role as moral agents remaining 'above politics'. In addition to seeing the Bangkok public sphere as staged in symbolic spaces of the city constructed by others, we can also see insurgent citizenry creating alternate urban publics and even sometimes acting as urban designers. Thongchai's overlapping historical series matches Nancy Fraser's formulation of multiple publics and insurgent citizenry in describing the struggle for social inclusion and the emergence of an actual and existing public sphere in Bangkok, but contained within a highly complex and unique urban form. What can be an expanded role of urban design within the mass consumerist spectacle of Bangkok's new public space now that it contains contrarian politics, counter publics, and resurgent citizenship?

To answer this question we need to go beyond disciplinary blind spots that separate our practices both in time and in space. Thongchai and Pirasri have given us vivid examples of historical scholarship that shed light on the present. Anthropologists Klima and Sporanzetti offer not only thick descriptions of the social present, but have articulated the embeddedness of social actors in urban design contexts and legacies. Political theorist Nancy Fraser also shows us how to be more conscious of the 'actual existing' present, but with a keen eye towards exclusionary tendencies of ideal concepts such as the public sphere. Only with a critical understanding of historical cycles and an inclusive engagement with the multiple publics of the social present can urban designs and public spheres unfold beyond the adversarial models of war, trade and desire.

Notes

Thanks to Agkarat Atiprasertkul for assistance with the drawings.

1. Brian McGrath, 'Bangkok: The Architecture of Three Ecologies', Perspecta, 39 (2007); Brian Mc Grath, 'Bangkok's CSD', 30-60-90 Architectural Journal, 9 (2005).
2. Claudio Sporanzetti, Red Journeys: Inside the Thai Red-Shirt Movement (Chiang Mai: Silkworm Books, 2012).
3. Nancy Fraser, 'Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy', Social Text, 25/26 (1990), pp. 56-80.
4. Margaret Crawford, 'Contesting the Public Realm: Struggles over Public Space in Los Angeles', Journal of Architectural Education, 49 (September 1995), pp. 4-9.
5. Brian McGrath, Digital Modelling for Urban Design (London: John Wiley & Sons, 2008).
6. Thongchai Winichakul, 'Toppling Democracy', Journal of Contemporary Asia, 38, 1 (2008), p. 14.
7. Ibid.
8. Pirasri Povatong, Building Siwilai: Transformation of Architecture and Architectural Practice in Siam during the Reign of Rama V, 1868 – 1910, PhD Dissertation, University of Michigan, 2011; Pirasri Povatong, Ratchadamnoen Avenue: Design And Rituals Of Hybrid Urbanism In Bangkok, 1900 – 1910, 3rd Great Asian Street Symposium: A Public Forum of Asian Urban Design, Department of Architecture, School of Design and Environment, National University of Singapore, 6-7 December 2004.
9. Alan Klima, The Funeral Casino: Mediation, Massacre and Exchange with the Dead in Thailand (Princeton: Princeton University Press, 2002).
10. Claudio Sporanzetti, Red Journeys: Inside the Thai Red-Shirt Movement (Chiang Mai: Silkworm Books 2012); Claudio Sopranzetti, 'Burning red desires: Isaan migrants and the politics of desire in contemporary Thailand', review for Southeast Asia Research.
11. Brian McGrath, 'Bangkok: The Architecture of Three Ecologies', Perspecta, 39 (2007); Brian Mc Grath, 'Bangkok's CSD', 30-60-90 Architectural Journal, 9 (2005).
12. Brian McGrath, Digital Modelling for Urban Design (London: John Wiley & Sons, 2008).
13. Pirasri Povatong, Building Siwilai: Transformation of Architecture and Architectural Practice in Siam during the Reign of Rama V, 1868 – 1910, PhD Dissertation, University of Michigan (2011).
14. Ibid.
15. Ibid.
16. Ibid.
17. Ka F. Wong, Visions of a Nation: Public Monuments in Twentieth Century Thailand, Studies in Contemporary Thailand, 15 (Bangkok: White Lotus Press, 2006).
18. Pirasri Povatong, Building Siwilai: Transformation of Architecture and Architectural Practice in Siam during the Reign of Rama V, 1868 – 1910, PhD Dissertation, University of Michigan (2011).
19. Thongchai Winichakul, 'Toppling Democracy', Journal of Contemporary Asia, 38, 1 (2008).
20. Ka F. Wong, Visions of a Nation: Public Monuments in Twentieth Century Thailand, Studies in Contemporary Thailand, 15 (Bangkok: White Lotus Press, 2006), p. 62.
21. Ka F. Wong, Visions of a Nation: Public Monuments in Twentieth Century Thailand, Studies in Contemporary Thailand, 15 (Bangkok: White Lotus Press, 2006), p. 40.
22. Michael Herzfeld, 'The Absence Presence: Discourses of Crypto-Colonialism', The South Atlantic Quarterly, 101, 4 (Fall 2002), pp. 899-926.
23. http://chatuchak.org/chatuchak-history.html [accessed 2 July 2012].
24. Personal conversation with Pirasri Povatong.
25. Thongchai Winichakul, 'Toppling Democracy', Journal of Contemporary Asia, 38, 1 (2008).
26. Alan Klima, The Funeral Casino: Mediation, Massacre and Exchange with the Dead in Thailand (Princeton: Princeton University Press, 2002), p. 59.
27. Ibid. p. 57.
28. Ka F. Wong, Visions of a Nation: Public Monuments in Twentieth Century Thailand, Studies in Contemporary Thailand, 15 (Bangkok: White Lotus Press, 2006),

p. 45.

29. Alan Klima, The Funeral Casino: Mediation, Massacre and Exchange with the Dead in Thailand (Princeton: Princeton University Press, 2002), p. 59.

30. Ibid. p. 124.

31. Ibid. p. 153.

32. Also see Brian Mc Grath, 'Bangkok's CSD', 30-60-90 Architectural Journal, 9 (2005).

33. Gilles Deleuze and Felix Guattari.

34. Thongchai Winichakul, 'Toppling Democracy', Journal of Contemporary Asia, 38, 1 (2008).

35. Pasuk Phongpaichit and Chris Baker, Thaksin (second edition), (Chiang Mai: Silkworm Books, 2009).

36. Claudio Sporanzetti, Red Journeys: Inside the Thai Red-Shirt Movement (Chiang Mai: Silkworm Books, 2012), p. 24.

37. Ibid. p. 62.

38. Ibid. p. 17.

39. Ibid. p. 28

Biography

Brian McGrath (MArch, Princeton University) is Associate Professor of Urban Design at Parsons The New School for Design and the founder and principal of Urban-Interface, LLC, an urban design practice that fuses architecture, ecology, and media. The firm combines new research in urban ecosystems and digital technologies to provide urban design models that engage local participants in flexible, innovative approaches to urban design. Current projects include partnerships with governmental agencies, private developers, and cultural institutions. McGrath is also a Co-Principal Investigator in the National Science Foundation's Long Term Ecological Research study in Baltimore, Maryland, where he leads the Urban Design Working Group.

A Tentative Approach to Mapping Street Space: A Case Study of Chinese Central Urban Districts

Lian Tang and Wowo Ding

This paper focuses on exploring a quantitative approach to mapping street space; the most common type of urban public space. The characteristics of street space can hardly be described and explained using only a description and analysis of the traditional architectural forms of street space in modern cities. The difficulty arises because of the lack of relevance between these forms and people's activities in them. This phenomenon presents a challenge to mapping methods. Expanding mapping elements is one viable and ongoing path. Which element could be an effective one, and how it should be measured and mapped are vital questions. Considering the characteristics of Chinese cities, interface signs have been selected as the experimental elements in the article. An area of 1.8 x 2 km, within the central district of the city of Nanjing (Xinjiekou district), has been selected as the research sample; the test area where the distribution and physical characters of interface signs and the pedestrian flow are investigated. Database and statistics of interface signs (consisting of 6,613 groups of valid data) and pedestrian flows (approximately 2,500 groups of valid data) have been established and inserted into the GIS (Geographical Information System), where a series of correlation analyses between basic mappings and pedestrian flows are carried out.

Interface Signs – Media for Street Space and People's Activities

As the most common type of urban public space, street space is not only a space with physical forms, but is also a place for daily public activities. In recent decades, researchers have realized that studies on street space should pay attention not only to the formal characters of space, but also to the use of the space, human activities, and people's cognition of the space. Mapping street space should not only make representations of physical forms through plan, elevation, section, axonometric, and perspective drawings, but also through descriptions related to human activities and human perceptions of the street.

Proceeding from people's perceptions of space, *The Image of the City* summarized the image of the city in a certain number of residents' minds based on their answers to a questionnaire, and plotted a cognitive map of the city, thus opening up a new era in the study of urban space, and offering brand new possibilities for urban space mapping.[1] Environment-behaviour scholars tried to summarize the relationship between human activities and the characteristics of urban space by observing, summarizing, and mapping people's activities in urban space.[2] Using mathematical methods to calculate and map topological relationships between streets, Space Syntax demonstrates that space configuration is closely related to human activities.[3] Subsequently, scholars have further advanced this method, achieving related research by comparing the calculated values of street configurations to the survey mapping of human activities.[4]

The methods and experiments mentioned above could certainly be applied while investigating the characteristics of street space in Asia; simultaneously they should be proven to meet the characteristics of Chinese urban space. Since Asian street space has unique characteristics, is it possible to explore a unique method for describing and measuring its street space considering people's intervention? From this perspective, this paper creatively proposes to describe street space through mapping 'Interface Signs'. Here, the concept 'Interface Signs' is proposed as a medium for investigating street space and people's activities in it.

Definition of Interface Signs – 'Signifier' and 'Signified'

The interface signs herein refer to visual displays in the form of text or graphics that are distributed on street interfaces to transfer functional information about the architecture (or the area), thus attracting pedestrians' attention on the street or guiding pedestrians. More specifically, they are signboards, billboards, nameplates of an entity, building name, and so forth (wherein the signboards and billboards account for the largest proportion). Widely distributed on Chinese street interfaces, interface signs are largely used as commercial signs and advertisements, which are distributed through every corner of the city with the spread of businesses along its streets.

The precondition of the study lies in the characteristics of the 'Interface Signs'. In the semiotic theory proposed by Ferdinand de Saussure and Roland Barthes, 'Signifier' and 'Signified' are two important concepts of signs.[5] *Learning from Las Vegas* tried to redraw the map of Las Vegas by mapping its signs:

> […] it is the highway signs, through their sculptural forms or pictorial silhouettes, their particular positions in space, their inflected shapes, and their graphic meanings, that identify and unify the megatexture.

> They make verbal and symbolic connections through space, communicating a complexity of meanings through hundreds of associations in few seconds from far away.[6]

For Las Vegas, the 'Signifier' of the signs refers to the specific information regarding a building or the space that it needs to express: hotels or restaurants. The 'Signified' refers to its architecture's spatial symbol, with more formal meaning than the architecture itself. Following the semiotic theory, it is not difficult to understand that signs in a city follow their own system of logic; the interface signs in this system have the meanings of both the Signifier and the Signified. The 'Signifier' refers to its function of transferring information as a medium between the business and the consumer, while the 'Signified' refers to the deeper potential association of the Interface Signs with society, people, and space. Thus this association is the theoretical basis for the mapping and related studies in this paper.

Mapping Interface Signs – Operational and Technological Paths

Detailed operations relate to the concept and application of mapping methods. James Corner highlighted the creative meaning of mapping in his article 'The Agency of Mapping: Speculation, Critique and Invention', revealing more content by expressing and reproducing the hidden forces existing in reality.[7] 'What already exists' not only refers to the physical properties of the terrain of a given location (topography, rivers, roads, buildings), but also includes many forces that are not visible but still support normal operation. For example wind, sunlight, historical events and local stories, economical and legislative bodies, even political interests, regulatory mechanism and organizational structure and so on. In this sense, the 'Interface Sign' is just such an entity.

From the perspective of operational methods, James Corner proposed that the operational

structure of mapping had three levels: 'fields', 'extracts', and 'plottings'. In the process of interface sign mapping, 'fields' means the representation of the basic conditions of the street space to which the interface signs are attached: the space's geometrical conditions, enclosing degree, opening degree, etcetera. 'Extracts' is the interface signs; the 'selected, isolated and pulled-out' of the 'Extract' is the process of recording, extracting, and digitizing the interface signs. How to accurately, effectively, and conveniently record the interface signs and extract information from them is a very important part of this study. Information recorded using cameras draws on the researches of William Whyte and Gehl.[8] The 'plottings' herein means using the database and graphical system in the GIS (Geographical Information System) to carry out descriptions and spatial analysis of the distribution of the interface signs.[9]

Upon completion of the basic mapping of interface signs, it is possible to carry out a series of correlation analyses within the GIS platform. The setting of the related items and the technical method for correlation analysis have already been involved in some other research.[10] For interface sign mapping, correlation analysis can be carried out for the function of street interface, the formal line-of-sight analysis, spatial syntax analysis values, and so on. Due to the limited length of this article, only the correlation analysis on the interface signs' mapping and pedestrian flows are included. But this primary attempt and its conclusions can illustrate that it is possible, and effective, to describe street space by mapping interface signs.

Establishing a Database: The Physical Properties of Interface Signs – Research and Statistics
Interface signs have physical properties such as shape, size, position, colour, direction, content, material, etcetera. [fig. 1]

Shape: Interface signs are attached to the interface, a very small part of them is presented independently as texts attached onto a building (generally the name of building, etcetera), most of them consist of bodies or faces supported by the interface; the spreading shapes of these bodies or faces are largely rectangular, a few of them are polygons, circles, or irregularly shaped. Following architectural shapes, the planes of the interface signs can appear as an arc, a broken line, etcetera. So, defining the length as L, width as W and plane type as S, the expansion drawing is generally a rectangle, with special shapes otherwise highlighted.

Size: The size of the interface sign has several constraints: a) the store's bay size; b) hanging position; c) general technical conditions; d) laws and regulations; and e) facade design constraints. The length L is determined by the store's (or building's) bay size, and can be as small as one or two metres, or as large as tens of metres; the value of the width W is varied: the width of the general store sign is one to two metres, the width of the large advertising face of a large shopping mall can be as small as three to four metres and as large as tens of metres; it can even be at least three to four metres wide for rooftop advertisements; for the thickness T, except when it varies with specific architectural conditions such as corners – most of which can be ignored.

Since the size of interface signs is related to such conditions as the store's and building's bay size, and the suspended position, it is more convenient to summarize according to bay and storey height than accurately measure the size of every interface sign, especially when recording and summarizing data through photographs of the interface (which will be described in detail later). The specific method of operation is to divide the bay and floors for the building's interface, and record the building's bay size l and storey height h, and then get the relative relationship with l and h through comparing the length of the interface sign and the building's bay

size, for example, 3l stands for the length of the interface sign occupying three bays of the building, while 0.5h stands for the height of the interface sign being half the building's storey height. [fig. 2]

The inconvenience of this method lies in the fact that since the building's bays vary greatly, the values recorded cannot be directly compared, that is, the related values of the attached buildings need to be multiplied while making the comparison; and some buildings' bay size and storey height vary greatly, resulting in statistical errors; additionally, for signs perpendicular to the building's interface there is significant statistical error.

Position: Similar to the size of the interface sign, its position is limited by the conditions of the architectural interface. Generally, interface signs are distributed between the floors of a building; the position above window lintels (door buckets) of the first floor and below the windowsill of the second floor are the most common; corresponding positions on second and third floors are also available; and on the roof of the building we often see large interface signs that are as high as one to two storeys; on the second to fourth floors of a commercial complex we often see large signs crossing several floors.

In order to record their position, it is necessary to number the bays and floors based on the above-mentioned division of the building interface's bays and floors, and then use the number to express its horizontal position X (01, 02, 03, …), vertical position Y (G1, G2, G3, middle floor M and roof floor R). As shown in Figure 3, X=01,02,03 stands for the interface sign being located within bay 01, bay 02 and bay 03 simultaneously, while Y=G1 stands for the interface sign being on the first floor. To limit the expression of vertical position, if the interface sign is between floors, it is recorded as the symbol of the lower floor. In this recording method, since all bays the interface sign crosses are recorded, it is convenient for future summarization of the identifying

numbers within a certain number of bays.

Colour (C): The colours of most interface signs are generally selected by building users whose main purpose is to attract attention. According to the tentative summary of the small street block, the distribution of the colour of interface signs is random, with saturated colours such as red, yellow, and blue being the more common.

Content (T): Generally, the content of an interface sign is mainly text, with the larger area containing both patterns and texts; the text content directly indicates the building's function or use, such as a clothing store, food store and so on. By analysing the structure of the text of the interface sign, research shall record some of the important keywords, such as 'bank', 'hotel', 'supermarket' and so on.

Material (M): The material of interface signs is constrained by the general techniques of the market; the current typical types include colour spray light boxes, neon signs, LED screens, acrylic characters, and so on. Interface signs of different materials have different contents and visibility distance.

Direction (D): The interface sign is generally parallel (P) or vertical (V) to the interface to meet different line-of-sight requirements.

Based on these physical properties, the relevant research tables are set to take pictures of the streets' interface segments, montage and draw reference lines, number and summarize the interface signs in such interface segments one by one, and mark the positions of every interface sign on the overall regional plan. The research covers an area of 1.8 x 2 km within the central district of Nanjing city (Xinjiekou district), with a total of 65 students divided into 11 groups participating in the research. All data is imported into the database afterwards; one set of data for each interface sign, with a total of 6,613 sets of valid data. [fig. 3]
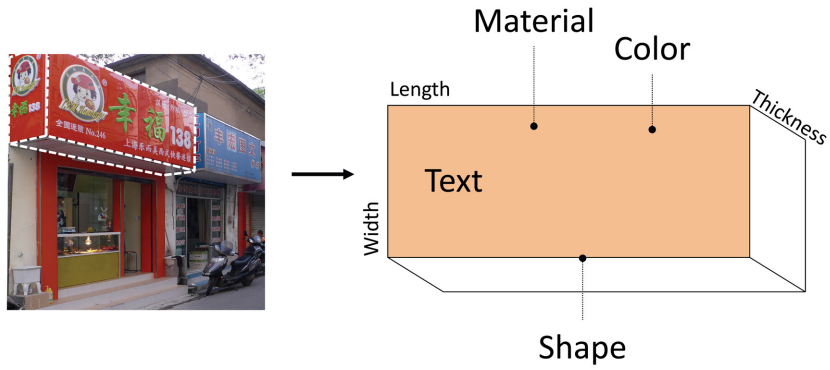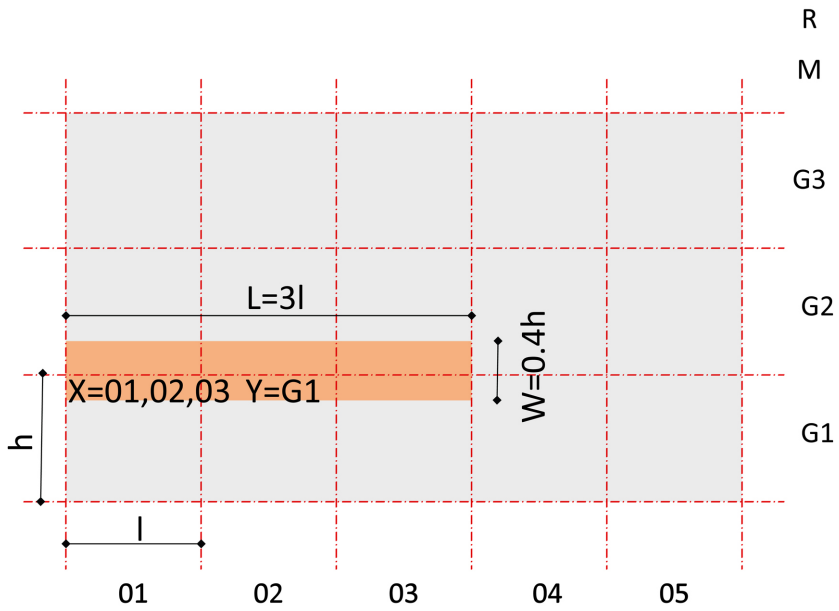
Fig. 1

Fig. 2

Fig. 1: Physical properties of interface signs.
Fig. 2: Summary of the signs' size according to the bay and storey height; summary of the signs' position according to the bay and storey height.

Distribution Type of Interface Signs

Obviously, it is not enough to record and summarize the information of a single interface sign. The basic properties of the individual interface sign reflects its physical properties as a material body of the street space. For this study, a simple description of these basic properties cannot reflect all the characteristics of the interface signs; in particular, it cannot reflect the state shown after the interface signs are covered (nor the relationship between an interface sign and its adjacent interface signs, and the relationship between the interface sign and the interface, especially the interface bay and floors.) In order to more clearly describe, classify, and calculate, a simple coding system has been devised to simplify the expression of the interface signs on the interface.

With street elevations recorded and montaged during the survey of the individual interface signs and the bay lines and floor lines drawn while filling in the form, each interface segment is divided into several smaller units of façade, and encoded according to the distribution of interface signs within each small unit. The encoding rules are as follows:

a. Each interface element corresponds to a value, in the case of there being no interface sign this is marked as 0; in the case of an interface sign divided into two levels according to the coverage of the interface signs these are respectively recorded as 1, 2; if the area of the interface sign is less than or equal to half of the unit, this is recorded as 1; and if the area of the interface sign accounts for half to all the interface unit, this is recorded as 2.

b. For the convenience of recording and classifying, interface signs between floors are recorded as being on the lower floor.

c. If one interface sign is within several cells, horizontal or vertical lines are used to link the values.

d. The interface sign on the rooftop is directly represented as R. Generally, the default area value of the rooftop interface sign is 2, in special cases this is marked as R1 and so on.

e. Provisionally, the interface sign perpendicular to the interface is not represented.

According to these different cases, the interface segment is divided into the following types. [fig. 4]

According to different types, related polylines on the overall regional plan are plotted and imported into the GIS.

Upon completion of the above two steps, the GIS platform shall have two databases with geographic positions based on the overall plan of the region: a) data of the spatial distribution and the related attributes of all the interface signs within the region; b) spatial distribution of the sub-type line segments of the interface segment.

Correlation Research between Basic Mappings and Pedestrian Flows

To prove the effectiveness of the interface sign mappings, carrying out studies correlated with pedestrian flows is the most concise (and necessary). If the characteristics or distribution of the interface signs is related to the pedestrian flow, using the interface signs as the physical elements within the street space to characterize the activity density of the people becomes possible.

The summarizations of the pedestrian flow are also supported by a large number of university students. Within the same region, a total of 98 students divided into 14 groups participated in the research. The specific operation method: set several observation points on each road section (a total of 332 observation points within the region), each team chooses three to four time periods on both work and rest days (a total of six to eight time periods) to observe these observation points (making records using video cameras) and summarize pedestrian flows within five-minute periods and distinguish between walking forwards and walking
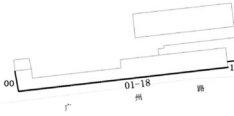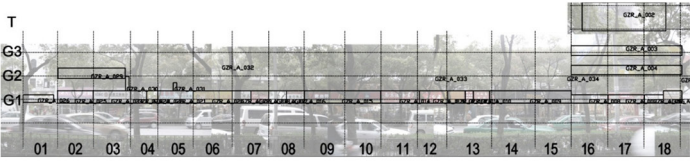
Index	Position in the plan		Position in the facade		Towards_ralative to the building	Towards_type	Material	Content	Shop_type	Others	Notes
	unit_n	unit_ratio	layer_n	layer_ratio							
GZR _A_001	19	1	G1	0.3	A	1	1	A	bank		
GZR_A_002	16-18	3	G3	0.3	P	1	1	SS	restaurant		

Fig. 3: Survey table of individual interface signs.

backwards. Once imported, the positions of the observation points then correspond to the 332 sets of summarized data.

Basic Mapping and Statistics of Individual Interface Signs

The basic statistics of valid data of the interface signs' individual attributes show the occupying proportion of each attribute by which the data partitioned when mapping is determined. Taking the length (L) data statistics and mapping as an example, the statistics of the interface signs' number (by length) show that among the 6,613 groups of valid data, there are 5,002 interface signs with a length of less than or equal to 1 (unit: bay unit), accounting for 76 per cent of the total; there are 990 interface signs with a length of between 1 and 2 (2 is included), accounting for 15 per cent of the total. Based on these statistics, the data is divided into six levels (0-1, 1-2, 2-3, 3-4, 5-13), and displayed separately in GIS. In the same way, other attributes such as width (W), position (X, Y), and colour (C) are counted and mapped in a basic manner. [fig. 5]

These methods of display are simply technical operations. To make such operations meaningful, comparison with other attributes of street space must be made in order to establish their correlation.

Basic Mapping and Statistics of Interface Type Segment

Relevant statistics regarding interface type segments have also been carried out. Among the whole research range, Type-1 has the largest number, approximately 1,192 segments, 27,016 m long, accounting for 75 per cent of the total length of the sign's interface segment; wherein, Type-1_1 has about 580 segments (accounting for 36 per cent of the total), total of 15,513 m long (43 per cent); Type-1_3 has about 214 segments (13 per cent), total of 5,517 m long (15 per cent); Type-1_0 ranks third, about 211 segments (13 per cent), total of 3,356 m long (9 per cent). Type-2 ranks second,

about 194 segments, total of 3,569 m long, accounting for 10 per cent of the total.

Also, in the GIS system, interface segments of different types can be separately mapped, as shown in Figure 8, for example, only the interface segments of Type-1_1 are displayed, that is, the interface signs are only closely distributed at the first floor of the buildings along the street, and presented as continuous interface segments. Or, only interface segments of Type-3_1 are displayed, that is, the interface signs are distributed between the first and third floors of the building, with the area at each floor being no more than 1.

Basic Mapping and Statistics of Pedestrian Flows

By analysing the pedestrian flows on each small block in different time periods, we find that 8 a.m. and 5 p.m. on work days are rush hour for most of the road sections. For example, among the 25 observation points on the Central Block, 16 points' peak values appear at 5 p.m. On rest days, some of the rush hours are the same as on work days, and some appear during other time periods, for example, among the 25 observation points on Block 6, 18 points' peak values appear at 1-2 p.m. Relatively speaking, however, the average value of every observation point can roughly reflect the traffic conditions of the corresponding road sections. To simplify the research, in this paper we take the average value of the data of all observation points by work and rest days, thus obtaining the pedestrian flows of the road sections corresponding to each observation point. Importing 332 sets of valid data into the GIS and corresponding it to the polylines, this displays the pedestrian flows by thickness of line. While displaying, it is classified into five levels: Level 1, 0-50 persons every five minutes; Level 2, 50-100 persons every five minutes; Level 3, 100-150 persons every five minutes; Level 4, 150-250 persons every five minutes; Level 5, 250-500 persons every five minutes. [fig. 6]

Examples of Encoding	
	R R R R R 0 0 0 0 0 0 1 1 0 0 1 1 1 1 1

Type name	Floors where interface signs are distributed	Continuity of distribution state	Number of bays with interface sign B2/Total number of building bays B1	Number of bays for a single interface sign	Expression
Type-1_0	G1	Discontinuous	0.3-0.6	<=2	1 0 1 0 0 0 0 0 1 0 or 1 0 1 0 1 1 0 0 1 1
Type-1_1	G1	Continuous	0.7-1	<=2	1 0 1 1 0 1 1 1 1 0 or 1 1 1 1 1 1 1 1 1 1
Type-1_2	G1	Continuous	0.7-1	<=2	0 2 2 1 0 1 1 1 1 0 or 1 2 1 1 1 2 1 2 1 1
Type-1_3	G1	Continuous	0.7-1	>3	0 1 1 1 0 1 1 1 1 0 or 1 1 1 1 1 1 1 1 1 1
Type-1_4	G1	Single Word	-	-	-
Type-2_0	G2 G1	Discontinuous	0.3-0.6 0.3-0.6	-	1 0 1 0 0 0 0 0 1 0 1 0 1 0 1 1 0 0 1 1
Type-2_1	G2 G1	Continuous	0.7-1 0.7-1	-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Type-2_2	G2 G1	Continuous	0.7-1 0.7-1	-	2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1
Type-2_3	G2 G1	Continuous	0.7-1 0.7-1	-	2 1 2 2 1 1 2 1 2 2 1 1 1 1 1 1 1 1 1 1
Type-2_4	G2 G1	Continuous	0.7-1 0.7-1	-	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Type-2_5	G2 G1	Continuous	0.7-1 0	-	2 2 2 2 2 2 2 2 2 2 0 0 0 0 0 0 0 0 0 0
Type-3_1	G3 G2 G1	Continuous	0.7-1 0.7-1 0.7-1	-	1 1 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1
Type-3_2	G3 G2 G1	Continuous	0.7-1 0.7-1 0.7-1	-	2 2 2 2 2 2 2 1 2 2 2 2 1 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1
Type-3_3	M G3 G2 G1	Continuous	0.7-1 0.7-1 0.7-1 0.7-1	-	1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Type-3_4	M G3 G2 G1	Continuous	0.7-1 0.7-1 0.7-1 0.7-1	-	2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0

Fig. 4: Examples of encoding and classification criteria of interface type.

The mapping plotted in this way can concisely reflect the differences in the pedestrians' activity density within the street space. However, this is only used to verify whether the mapped interface signs are valid references.

Interface Signs – Pedestrian Flow Association Research

Correlation analysis is intended to study whether there is a certain dependence between the phenomena, and discuss correlated direction and degree of the phenomena with dependence; it is a kind of Statistical Method for studying the correlation relationship between Random Variables.

The first step of correlation analysis is to carry out data association in the GIS. This step links the information on the pedestrian flows of the road sections where the interface signs locate to the interface signs, and then export the data for correlation analysis, thus analysing the correlation between various attributes of the interface signs and the pedestrian flows.

a. Interface signs' length L, width and the pedestrian flow. The horizontal axis is the length of the interface sign, the longitudinal axis is the pedestrian flow of the road sections where the interface signs are located, while the points in the chart indicate the distribution of the related pedestrian flows of different length. We can see that the distribution of the peak flows decreases with the length of the interface signs, that is, large flows usually appear in the area where the interface signs are shorter, especially when L<=1, 165 points where the flow is more than 150 appear. Other distribution laws are not obvious, basically all flows for different lengths can be found. The situation regarding width and area is similar to length.

b. Floors where interface signs are distributed and the pedestrian flow. The statistics of the pedestrian flows of the road sections corresponding to the interface signs distributed at different floors show that within

floor 1-3, the higher the floor of the interface signs' distribution, the greater the corresponding flow; above the third floor, pedestrian flow decreases, and the interface signs on the roof floor do not have greater pedestrian flow. [fig. 7]

c. Other cases. The statistics of other attributes, such as material, direction, text, and colour, have little correlation with the pedestrian flows of the corresponding road sections. The average values of the pedestrian flows corresponding to the interface signs at three directions (parallel, vertical, angled) are very close.

Interface Type Segment – Pedestrian Flow Association Research

Also in the GIS, the pedestrian flows of the road sections where the interface type segment is located is linked, and then the data is exported for correlation analysis. Obviously, Type-4 (the interface signs are distributed at floor 3 and above) has the largest pedestrian flow, Type-3 (the interface signs are distributed at all three floors) takes second place, Type-2 (the interface signs distributed at both floors), third place, Type-1 (the interface signs distributed at the first floor), fourth place, and Type-0 (there isn't any interface sign) has the smallest pedestrian flow.

The method of interface segment classification depends on the signs' distribution on the interface. The parameters corresponding to different distributions include: main distributed floors, amount of interface signs in unit interface length, area of interface signs in unit interface length, average length of interface signs in unit interface length, and average width of interface signs in unit interface length. [fig. 8]

If we carry out linear regression analysis on the detailed data of the sub-type of various type segments and pedestrian flows, we get the following conclusions:
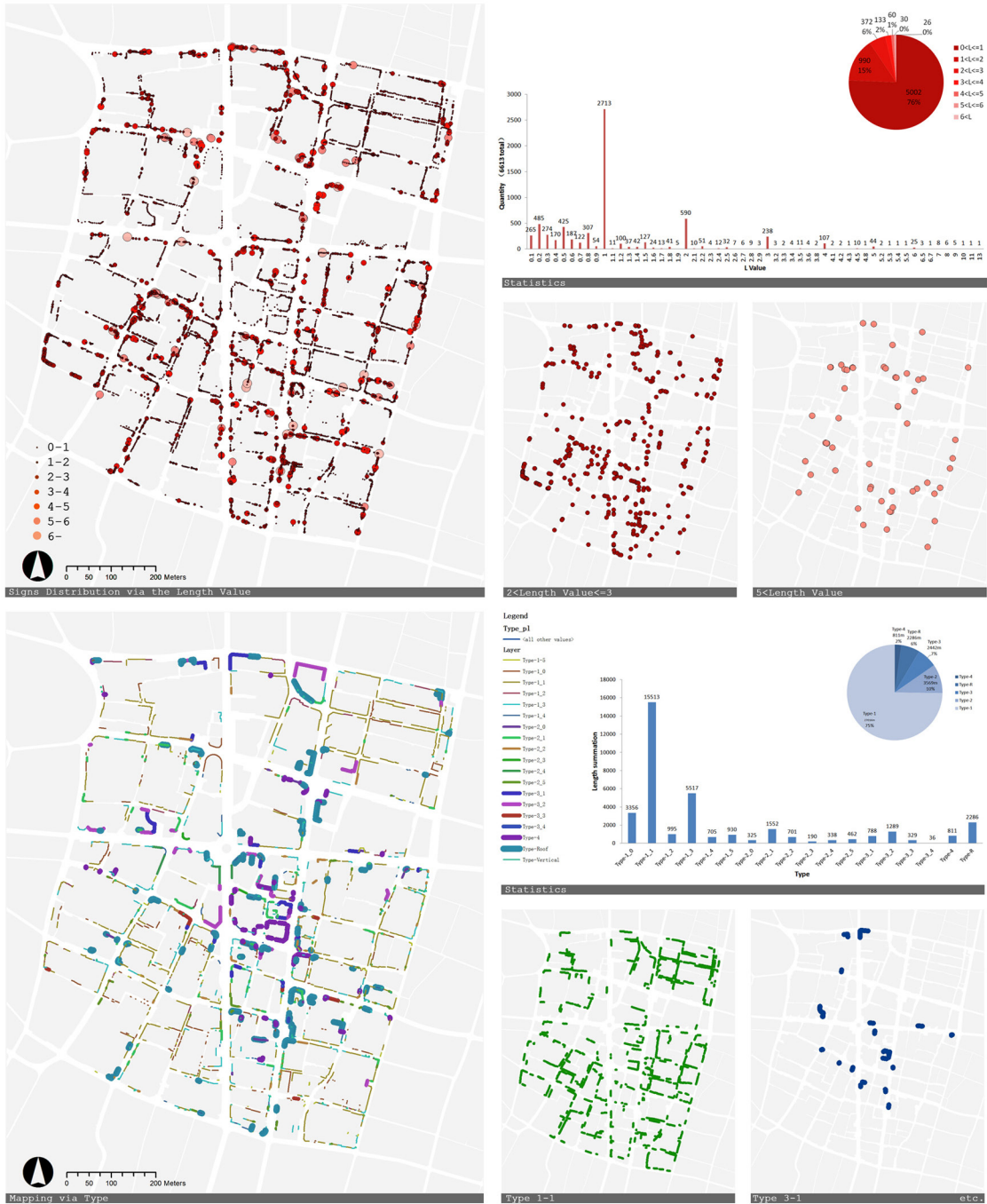
Fig. 5: Statistics and basic mapping via length value; statistics and basic mapping via segments type.
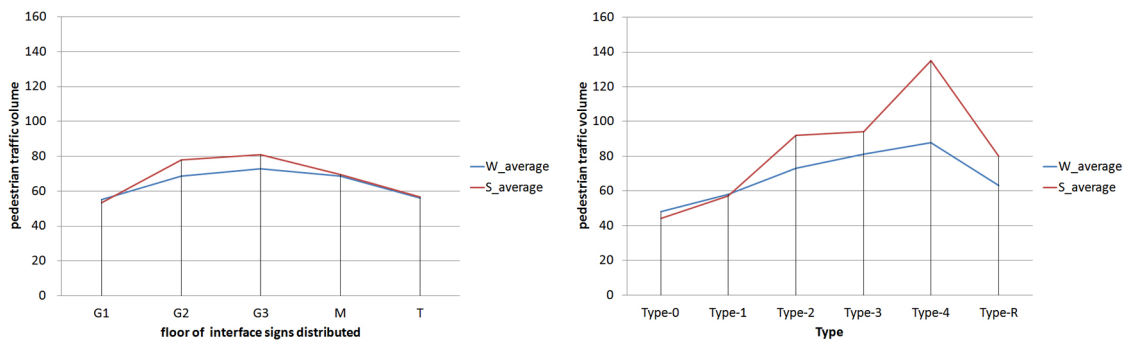
Fig. 6

Fig. 7

Fig. 6: Basic mapping via pedestrian flows in a work day.
Fig. 7: Correlation analysis between position and average pedestrian flow; correlation analysis between interface segments' types and average pedestrian flow.

	Interface signs linked to type				Type Segment	Parameters				Pedestrian traffic volume	
	Count	Length_sum	Width_average	Area	SLength	Count/SLength	Area/SLength	L/SLength	L/Count	W_average	S_average
Type-1_0	569	503	0.88	203	3356	0.17	0.06	0.15	0.88	52	44
Type-1_1	3532	3758	0.43	1562	15513	0.23	0.10	0.24	1.06	55	52
Type-1_2	198	238	0.55	120	995	0.20	0.12	0.24	1.20	58	48
Type-1_3	577	968	0.55	475	5517	0.10	0.09	0.18	1.68	64	66
Type-1_4	63	89	0.74	58	705	0.09	0.08	0.13	1.40	70	86
Type-1_5	64	47	0.70	34	930	0.07	0.04	0.05	0.74	50	47
Type-2_0	23	27	0.52	13	325	0.07	0.04	0.08	1.15	36	42
Type-2_1	322	470	0.62	237	1552	0.21	0.15	0.30	1.46	66	81
Type-2_2	157	226	0.69	156	701	0.22	0.22	0.32	1.44	68	70
Type-2_3	35	33	1.45	44	190	0.18	0.23	0.17	0.94	113	182
Type-2_4	58	48	0.67	29	338	0.17	0.09	0.14	0.83	107	137
Type-2_5	86	93	0.63	62	462	0.19	0.13	0.20	1.08	50	40
Type-3_1	172	201	1.00	188	788	0.22	0.24	0.26	1.17	94	130
Type-3_2	278	308	0.97	291	1289	0.22	0.23	0.24	1.11	90	117
Type-3_3	76	140	0.62	72	329	0.23	0.22	0.43	1.84	86	110
Type-3_4	16	17	0.89	9	36	0.44	0.25	0.46	1.04	55	19
Type-4	134	132	1.42	163	811	0.17	0.20	0.16	0.98	88	135
Type-R	200	337	0.79	273	2286	0.09	0.12	0.15	1.68	63	80
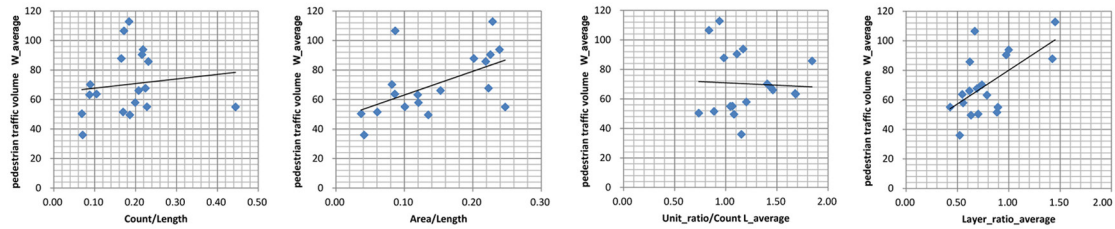
Fig. 8: Statistics of interface signs in type segments; correlation analysis between interface segments' parameters and average pedestrian flow.

a. Within the unit length of street interface, the more the number of the interface signs are distributed on the interface, the greater the pedestrian flows.

b. Within the unit length of street interface, the greater the area of the interface signs, the greater the pedestrian flows.

c. Within the unit length of street interface, the greater the average length of the interface signs, the smaller the pedestrian flows.

d. Within the unit length of street interface, the greater the average width of the interface signs, the greater the pedestrian flows.

Obviously, a series of analyses that shows the correlation between interface signs and pedestrian flows exists, which provides a solid foundation for the future study of mapping in detail. That is to say, it is feasible to represent the street space by defining a series of parameters of interface signs and quantitatively describing them, and by mapping the interface signs.

Conclusion and Extension

This research started with a reflection on the method and content of mapping the existing street space, as well as on the observation and thinking about Chinese street space. The purpose of the research is to find a new physical media that is not traditional architecture's concern, and to try and complement the characteristics of the street space by quantitatively describing this media. The research method is a relatively scientific exploration, and the process of 'research on the interface signs – extracting information – mapping – correlation analysis' shows the feasibility of mapping interface signs. In this paper we realized that the detailed statistics and classification of the interface signs, as well as the predefining of related indicators, proved the effectiveness of this method through the analysis of the correlation with pedestrian flows. Ongoing and further studies will

include:

a. Correlation analysis of the interface signs distribution and street block functions.

b. Correlation analysis of the interface signs distribution and the visibility of the street space interface.

c. Correlation analysis of the interface signs distribution and Space Syntax values of the street space.

Notes

1. Kevin Lynch, *The Image of the City* (Boston: MIT Press, 1960), pp. 14-15.
2. Jan Gehl, *The Life between Buildings: Using Public Space*, trans. by Jo Koch (New York: Van Nostrand Reinhold Company, 1987). See also, William H. Whyte, *City: Rediscovering the Center* (New York: Anchor Books, 1990); and Barbara G. Marušić, 'Analysis of Patterns of Spatial Occupancy in Urban Open Space Using Behaviour Maps', *Urban Design International*, 16, 1 (2011), pp. 36-50.
3. Bill Hillier, *Space is the Machine: A Configurational Theory of Architecture* (Cambridge: Cambridge University Press, 1996); and Bill Hillier and Julienne Hanson, *The Social Logic of Space* (Cambridge: Cambridge University Press, 1984).
4. Akkelies van Nes, Lisette Rueb, 'Spatial Behaviour in Dutch Dwelling Areas: How Housing Layouts Affects the Behaviour of its Users' in *Proceedings of the 7th International Space Syntax Symposium*, ed. by Daniel Koch, Lars Marcus, and Jesper Steen (Stockholm: KTH), pp. 1-16.
5. Roland Barthes, *The Fashion System*, trans. by Matthew Ward and Richard Howard (Berkeley: Universtiy of California Press, 1990).

6. Robert Venturi, Denise Scott Brown, Steven Izenour, *Learning from Las Vegas* (Cambridge: MIT Press, 1972), p. 13.

7. James Corner, 'The Agency of Mapping: Speculation, Critique and Invention' in *Mappings,* ed. by Denis Cosgrove (London: Reaktion, 1999), pp. 213-52.

8. Jan Gehl, *The Life between Buildings: Using Public Space*, trans. by Jo Koch (New York: Van Nostrand Reinhold Company, 1987); and William H. Whyte, *City: Rediscovering the Center* (New York: Anchor Books, 1990).

9. Andy Mitchell, *The ESRI Guide to GIS Analysis Volume 2: Spatial Measurements & Statistics* (New York: ESRI Press, 2005).

10. Ayse Ozbil, John Peponis, and Brian Stone, 'Understanding the link between street connectivity, land use and pedestrian flows', *URBAN DESIGN International*, 16, 1(2011), pp. 36-50; and Bill Hillier, 'Cities as Movement Economies', *URBAN DESIGN International*, 1, 1 (1996), pp. 41-60.

Biographies

Lian Tang is a Doctoral Candidate at the Department of Architecture, School of Architecture and Urban Planning, Nanjing University, China. Her main research area is mapping methodology of urban space.

Wowo Ding (corresponding author) is Professor in the School of Architecture and Urban Planning, Nanjing University, China. She got her Nachdiplom and PhD from ETH-Zurich. She specializes in Urban Design and Theory, Design Methodology, and Architectural Design. She is a council member of ISUF since 2012; a member of the National Supervision Board of Architectural Education and Executive Director of Jiangsu Civil Engineering and Architectural Society; as well as the head of the jury for the Holcim Awards (Region Asia Pacific 2011) and a jury member (Region Asia Pacific 2008).