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Introduction – 'Tropicality-in-motion': Situating tropical architecture

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One of the most fascinating aspects of tropical architecture is its material diversity and semantic density, that is, the different forms of built environment labelled as 'tropical' and the meanings these spaces potentially carry. The current diversity and density of tropical architecture contrasts with what it was during its 'founding moment'. Tropical architecture was institutionalized in the mid-twentieth century with the establishment of educational and research units such as the Department of Tropical Architecture at the Architectural Association in London and the Tropical Building Division at the Building Research Station in Garston, UK, the publication of key texts such as Maxwell Fry and Jane Drew's (1964) *Tropical Architecture in the Dry and Humid Zones*, and the completion of built exemplars in places such as Chandigarh and Ibadan (Wakely, 1983; Le Roux, 2003; Chang, 2010a). At its inception, tropical architecture was conceived as a 'dialect' of the so-called international style modern architecture adapted to the tropical climate, or what Fry (1959: 8) regarded as the 'determining factor of architecture', by incorporating 'passive cooling' strategies of cross-ventilation and sun-shading to ensure comfort and by specifying construction material that would resist fungal growth and corrosion caused by humidity (see also Atkinson, 1950; Koenigsberger *et al*., 1974). In other words, tropical architecture was, in the mid-twentieth century, primarily constructed as a technical discourse by its metropolitan protagonists such as Fry and Drew, Otto Koenigsberger and George Atkinson.

From the late 1970s onwards, the discourse and practice of tropical architecture began to lose its relevance due to the onslaught of various social, cultural and economic factors. Chief amongst these was the widespread availability of cheap energy and the increasing reliance on mechanical air-conditioning to achieve thermal comfort (Cox, 2010). However, as energy profligate cooling displaced low energy modes of 'passive cooling', tropical architecture was reincarnated as various forms of regionalist architecture in the 1980s (Yeang, 1987; Tay, 1989; Powell & Tay, 1997). Its discourse was rearticulated as a sociocultural one that responded to the purported homogenization brought about by globalization on the one hand, and neocolonial western cultural hegemony on the other (Kusno, 2000: 190–204; Tzonis *et al*., 2001; Chang, 2010b). This rearticulation was accompanied by a proliferation in tropical architecture's manifold forms, many of which no longer derived from the international style.

While the climatic responsive passive cooling strategies of tropical architecture have been imbued with sociocultural significance in recent discourse, tropical architecture itself was ultimately reduced to a hotchpotch of formulaic architectural aesthetics. Thus, in the wake of tropical architecture's diverse formats, architects and critics have sought to uncover its essence by debating what tropical architecture ought to be, more specifically, which architectural aesthetics had to be embraced (e.g. Chan, 2001; Tay, 2001). Not unlike the mid-twentieth century technical discourse of tropical architecture that played down the politics of decolonization which shaped its production (Crinson, 2003: 27–156; 2008; Chang, 2010a), recent debates on tropical architecture have similarly

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ignored its history and historiography. This special themed section on 'Tropicality-in-motion': performing tropical spatialities' is crafted along the lines that tropical architecture as currently understood is oversimplified and insufficiently attentive to the diversity of discourses and attendant agendas. Rather than prescribe what tropical architecture ought to be, the papers here explore what tropical architecture has been under different geohistorical contexts, and discuss its entanglement with diverse social, cultural and political constructions.

Entanglements of self–other formations

In most architectural discourse, tropical architecture is presented as 'natural' in that it is determined by the environmental or climatic conditions of the tropics. The underlying assumption is that since the environmental or climatic conditions are arrived through purportedly value-free technoscientific means, tropical architecture should be regarded as an apolitical and asocial enterprise. This assumption, however, fails to explain why environmental or climatic conditions are privileged as the prime determinants of architectural form. Nor does it account for the taxonomic peculiarity in that although tropical architecture presupposes its opposite in 'temperate architecture' such a category does not exist. Furthermore, unlike the tropical region in which the heterogeneous architecture in diverse sociocultural contexts are subsumed under 'tropical architecture', architecture in the temperate zone is differentiated according to nation-states, historical periods and/or design approaches.

In recent years an interdisciplinary scholarship that explores colonial environmental histories, medical theories, pictorial and literary representations, and geographical discourse from the eighteenth century onwards has compellingly argued that the tropics is as much an imaginative and representational space as it is a physically located or 'real' space. This representational dimension of the tropics, also known as tropicality, is understood along the line of Saidian orientalism, as a part of colonial self–other formation that sees the tropics as an environmental 'other' – simultaneously paradisiacal and fertile, pestilential and degenerate – to the normalcy of the temperate self (Arnold, 1996; Driver & Yeoh, 2000; Stepan, 2001). Drawing from the insights of tropicality, one could argue that tropical architecture is also entangled with diverse colonial sociocultural constructions of tropical nature that were obscured by the aforementioned mid and late twentieth century discourses.

Several contributors in this themed section foreground the obscured (post)colonial entanglements of tropical nature with various social, cultural and political alterities, and interrogate the self-evidentiality of tropical architecture. Jiat-Hwee Chang and Anthony King's paper on the genealogy of tropical architecture in the British colonies during the nineteenth and twentieth centuries shows that the tropical climate was elevated as the prime consideration in determining built form because it was inextricably linked to the biopolitics of colonial governance. The relationships between the tropical climate and the built environment varied at different moments of the genealogy – shaped by shifting medical theories about the effects of tropical climate on the health of the British colonists, changing self-constructions of British race in relation to the natives, and varying political rationalities of British colonialism. Some of these points overlap those raised in Andrew Ballantyne and Andrew Law's paper on the Singaporean black-and-white house. Ballantyne and Law argue that the Anglo-Indian bungalow, a precedent of the black-and-white house, was a material cultural manifestation of the British colonists' preoccupation with building a comfortable home in the tropics. However, comfort

was not just a physical notion linked to natural ventilation and sun-shading; it was also a social, racial and medical notion that depended on spatial exclusiveness and command over disproportionate economic resources.

While these two papers attend to entanglements of tropical nature and architecture with colonial constructions of health, race and comfort, those by Anoma Pieris and Abidin Kusno highlight the oft-ignored class politics of tropical landscape and architecture. In her paper on tropical cosmopolitanism, Pieris situates the changes in postcolonial Sri Lankan tropical architectural aesthetics in relation to shifting class politics and labour practices. She contrasts the tropical modernism of postindependence Ceylon with the regionalist 'tropical Asian' style of the 1980s and 1990s. Pieris argues that while the former represents the modernizing impetus of a postcolonial nation and the cosmopolitan aspirations of its emerging middle class, the latter represents a return to the elite culture of colonial feudal society and its labour intensive practices. Kusno's paper on green governmentality in contemporary Jakarta argues that tropical environmentalism, in terms of promoting green building practices and green spaces, has become the new technology of government deployed by the post-authoritarian Indonesian state. Kusno notes that tropical environmentalism, thus, becomes the basis on which claims and counterclaims have been made by different state and non-state actors in conjunction with varied citizen groups, typically divided along the lines of socioeconomic class.

Lilian Chee's paper explores tropicality's gendered notions, discussing this aspect in relation to a historical event occurring in the early part of the last century, when a tiger was reputedly shot under the billiard room of a leading hotel in Singapore. The tropics have been inextricably linked to the wild, the feminine, the native and the degenerate (Livingstone, 2000; Stepan, 2001), with these attributes taken as aspects which weaken the self-governance and integrity of the colonized tropical world. Challenging these stereotypes, as well as conventional perceptions of colonial masculinity and scripted history associated with this building, Chee argues that the tiger anecdote is a subversive tool which overturns such notions and critiques the insular modes of colonial architectural history reliant on specific authorized sets of knowledges. She demonstrates how the tiger story, which falls outside the applied norms of knowledge, opens up a contemporary debate on the epistemological routes into this tropical space.

Heterogeneous temporalities and circuits

The entanglements of tropical architecture with historical colonial contexts created specific concepts and assumptions that lingered on and were continually being reactivated even after the formal end of colonialism, as scholars in postcolonial studies have argued (Jacobs, 1996). What is assumed to be new and liberating could very well be founded on old colonial assumptions. This is especially true for tropical architecture. Although most histories of tropical architecture trace its origin to the mid-twentieth century, after it was named-as-such or institutionalized, the papers by Chang and King, and Ballantyne and Law show that the formations of key underlying assumptions of tropical architecture could be traced to the early nineteenth century, if not earlier. They show that systematic knowledge and practices which privilege climate as the prime determinant of built form first emerged at that time because of the colonists' preoccupation with maintaining comfort and health.

These attempts at tracing the history of tropical architecture back in time should however not be confused with seeing tropical architecture as an immutable entity, part of the timeless tradition of 'climatic design' and vernacular architecture. Rather, the

papers collected here should be seen as moments of a Foucauldian genealogy (Foucault, 1980), which emphasizes discontinuities as much as continuities in order to foreground colonial power-knowledge configurations. Furthermore, they situate tropical architecture in relation to heterogeneous temporalities, combining resurgences with discontinuations, in which different postcolonial actors evoked, reconfigured, repeated but also transformed various forms of temperate selfhood and tropical otherness. By doing so, they expand tropicality in a manner not dissimilar to how Saidian orientalism was extended by scholars who explored practices of orientalism-in-reverse, self-orientalizing and occidentalism (Coronil, 1996; Dirlik, 1996; al-'Azam, 2000). For example, Pieris argues that while the tropical modernist houses of Ceylon/Sri Lanka's postcolonial middle class were influenced by both the tropical modernist architecture designed by European architects and the colonial bungalows introduced by the Public Works Department for the colonists, they represent a form of vernacular cosmopolitanism that differed and departed from these influences in important ways. Likewise, Kusno suggests that urban environmentalism in contemporary Indonesia, especially the ways squatter settlements or kampung were dealt with, draws from Dutch colonial tropical planning practices but reconfigures the original issues of race and class.

Though problematic, the taxonomic category tropical architecture offers opportunities of linking up regions across the tropical belt, connecting and comparing localities in Africa, Asia, America and the Caribbean that are typically segregated by the division of labour in area studies. Furthermore, if we understand the tropics as part of a self–other construct, we would also take into account the temperate zone as an intrinsic part of the mutually constitutive, albeit asymmetrical, relationship. Thus, a study of tropical architecture could also offer opportunities to study the imperial network and to see the metropole and the colony as a single analytical field, moving beyond the parochiality of focusing narrowly on nation-states (Stoler & Cooper, 1997; King, 2004). These opportunities are taken up by the contributors in this themed section, who not only examine tropical architecture across different nation-states in various parts of Asia, but also explore interesting and sometimes surprising interconnections between and within transnational empires. Ballantyne and Law examine the circulation of the Anglo-Indian bungalow and its hybridization as the Tudoresque black-and-white house in the imperial network encompassing Britain, British India and Malaya. Chang and King take a similar multisited approach in their study of British colonial tropical barracks and housing, taking examples from the West Indies, British India and Malaya in their genealogy.

The existing discourse tends to see tropical architecture as epitomizing either the particular or the universal; one school hails it a form of critical regionalism that resists the homogenizing effects of globalization while the other sees it as a fundamental part of a neocolonial international project of modernization and development. By examining tropical architecture in diverse sites and evaluating how its knowledge and practices travel, translate, circulate and transform across different timespaces, the papers in this themed section rework and destabilize the opposing and presumably static categories that accompany the discourses of self–other and temperate–tropics.

Situating tropicality

Collectively, the papers in this themed section argue that the meanings associated with tropicality are not *a priori* but, rather, grow from sets of bodily practices and situational contexts. Tropicality in such terms is a politicized approach as opposed to something natural. Thus, tropical architecture, which seems to connect with and connote the

natural environment, is conversely a complex cultural construction that has been subjected to various networks of power marked by race, gender and class.

Rejecting the essentialization of the tropical built environment, the papers attempt to critique existing discourses of tropical architecture that have defined the field as unproblematically essentialist or nostalgic in relation to local climate and tradition, or alternately objectified its forms as exotic artifacts for passive consumption. Contributors reconsider how tropical spaces in their documented or narrated formats may operate as modes of criticism and/or transform the ways in which we understand tropicality. For example, Chee's paper also proposes that the tiger anecdote transforms one's architectural knowledge by decentring it from architect to user, or storyteller, thus reinforcing the idea that tropicality is a mobile rather than fixed construct since the animal story performs this space anew through the inevitable variations which accompany each narration.

Ultimately, this themed section strives to map out the expanded field of tropical architecture with particular attention to its tenuous conceptual scaffolding. It exposes a multidimensional territory constituted by a complex web of material facts and buildings, discursive ideas and their languages, as well as competing imaginations and ideologies. The work of situating the multiple contexts of tropical architecture needs to be done for it is this work which constructs and defines anew the category we call 'tropical architecture' in its manifold built, drawn, documented and narrated forms.

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Towards a genealogy of tropical architecture: Historical fragments of power-knowledge, built environment and climate in the British colonial territories

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In this paper, we trace the history of tropical architecture beyond its supposed founding moment, that is, its institutionalization and naming-as-such, in the mid-twentieth century. We note that many of the planning principles, spatial configurations and environmental technologies of tropical architecture could be traced to knowledge and practices from the eighteenth century onwards, and we explore three pre-1950s moments of 'tropical architecture' in the British empire through building types such as the bungalow, military barrack and labourers' housing in the tropics. Unlike the depoliticized technical discourse of tropical architecture in the mid-twentieth century, this earlier history shows that so-called tropical architecture was inextricably entangled with medical and racial discourses, biopolitics and the political economy of colonialism. We argue that tropical architecture should not be understood as an entity with a fixed essence that is overdetermined by a timeless and unchanging external tropical nature. Rather, tropical architecture should be understood as a set of shifting discourses that privilege tropical nature, especially climate, in various ways as the prime determinant of built form according to different constellations of sociocultural and technoscientific conditions. We thus see 'tropical architecture' not as a depoliticized entity but as a power-knowledge configuration inextricably linked to asymmetrical colonial power relations.

Keywords: tropical architecture, bungalow, military barrack, labourers' housing, colonial biopolitics, power-knowledge

Introduction

In the past two decades or so, with the global shift towards sustainable development, there has been renewed interest in tropical architecture, now recast as a variant of sustainable architecture. These discourses regard the passive design strategies of tropical architecture (i.e. the nonmechanical means of cooling a building), as fundamental design principles that sustainable architecture in the tropics should incorporate. Typically, these discourses trace the origins of tropical architecture to the mid-twentieth century, when it supposedly first emerged through the confluence of architectural works of protagonists such as Maxwell Fry and Otto Koenigsberger, and related discourses and institutions. Tropical architecture was primarily constructed by its metropolitan protagonists as a technical discourse that dealt with the 'acclimatization' of modern architecture to the tropics (Fry, 1959; Atkinson, 1960). As it was seen strictly as the technoscientific adjustment of design and planning principles of modern architecture to the timeless 'natural' conditions of the tropical climate, it was also rendered ahistorical and apolitical. The recent recasting of tropical architecture through the technocentric discourse of sustainability serves to further entrench the subject as an ahistorical and apolitical technical discourse (Chang, 2011).

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This dehistoricizing tendency of the discourses of tropical architecture has been somewhat rectified by some recent scholarship that attends closely to how tropical architecture was inextricably entangled with the politics of decolonization in the British empire (e.g. Crinson, 2003). Although sophisticated and nuanced, this scholarship has largely been confined to the study of the postwar period, that is, after the institutionalization and naming-as-such of 'tropical architecture'. While the aesthetics of mid-twentieth century tropical architecture might appear to be superficially different from previous architecture in the tropics in that it followed the 'modern' architectural expression of 'international style', many of the planning principles, spatial configurations and environmental technologies it deployed can be traced to knowledge and practices that have longer histories, stemming from the eighteenth century, if not before.

Some of these longer histories are hinted at in the interdisciplinary scholarship that explores the colonial construction of tropical nature and landscape in the eighteenth and nineteenth centuries. Following Edwards Said's work on orientalism, this scholarship argues compellingly that the construction of the tropics can be understood as 'tropicality', an environmental alterity deeply entwined with other sociocultural alterities (Arnold, 1996; Driver & Yeoh, 2000). However, this scholarship analyzes primarily medical and environmental discourses, and pictorial and literary representations, and does not discuss the built environment despite its centrality in the broader histories of the colonial tropics. As such, the connection between notions of colonial tropicality and the built environment, while suggestive, remains unclear and elusive.

Our aims in this paper are twofold. We first seek to continue the work that has already been done to historicize tropical architecture. We then try to address the gaps in the existing scholarship by continuing lines of enquiry first initiated in earlier work by one of us (King, 1976; 1995; 1999), constructing a genealogy of 'tropical architecture' from around the eighteenth century to the early twentieth century, just before its institutionalization and naming. The use of genealogy here refers to the Foucauldian approach, one of its key features being the 'insurrection of subjugated knowledges' (Foucault, 1980: 81). By subjugated knowledges, Foucault was referring to knowledges systematically overlooked or disqualified by unitary discourse. In our case, we look at knowledges excluded from the history of 'tropical architecture', particularly those produced by other 'specialists of space' such as medical experts, sanitarians and military engineers before the mid-twentieth century.

The genealogical approach is also distinguished by at least two key methodological insights. First, the genealogy assumes 'no fixed essences [and] no underlying laws' (Dreyfus & Rabinow, 1983: 106). Second, implicit in the genealogical approach is the understanding that power is indissolubly linked to the production of knowledge. Drawing on these insights, we denaturalize tropical architecture, questioning it as something with a fixed essence, that is, a timeless and unchanging way of responding to the 'natural' conditions of the tropics. Rather, we see tropical architecture as a set of shifting sociocultural and technoscientific discourses that privilege tropical 'nature', especially climate, as the prime determinant of built form. We see tropical architecture not as a depoliticized entity but as a power-knowledge configuration, inextricably linked to asymmetrical colonial power relations. Despite our use of a Foucauldian genealogical approach, we stress, at the risk of some inconsistency, that we do not systematically adhere to a fully fledged Foucauldian interpretation.

In this genealogy, we explore three pre-1950s moments of 'tropical architecture' in the British empire through an analysis of historical fragments – fragments in the sense

that they are necessarily suggestive rather than complete in such a short paper. In the first moment, we examine the emergence of early tropicalized prototypes before the nineteenth century involving the adaptation and transculturation of neoclassical architecture to the tropics. In the second moment, we explore how a technoscientific and abstract body of knowledge, of what at that time was referred to as 'building for tropical climates', emerged along with medical discourses and biopolitics in military barracks and bungalows for Europeans from the mid-eighteenth century to displace the earlier tropicalized prototypes. We then examine how the regime of biopolitics with its medical concerns was extended to 'native' populations in colonial societies during the early twentieth century by studying labourers' housing and sanitary improvements in the British colonies.

Acclimatization and transculturation in the emergence of 'tropicalized' prototypes

The beginnings of British colonization in the tropics can be traced to the early seventeenth century. Although we cannot locate when a distinctive tropicalized British architecture first emerged in the colonies, plentiful evidence suggests that it was fairly ubiquitous, especially in British India, by the late eighteenth century. By 'tropicalized', we refer to the built forms of British architecture, specifically adapted to the climatic and sociopolitical conditions of Britain's tropical colonies. Sten Nilsson (1968: 34), a pioneer in the history of colonial architecture in India, cites William Hodges, writing in 1783:

> When emigrations to foreign climates take place, their prototype will follow the colonist, and, by its own rule, genius will, and may at last stretch and improve it to the highest degree of perfection.

By prototype, Hodges refers to the neoclassical architecture prevalent in Britain and other parts of Europe in the seventeenth and eighteenth centuries. Nilsson notes how India's tropical climate was in fact more congenial to neoclassical architecture, which originated in the warm Mediterranean climate of Greece and Rome, than Britain's northerly clime. Designed to exclude the rain and powerful sun rays, and provide shade in the Mediterranean climate, neoclassical architectural devices such as shaded porticos, loggias and colonnades were easily adapted to the Indian context.

Yet neoclassical architectural devices were not adopted in the early British buildings in India. It was only after a long process of adaptation and improvisation that the prototypes were tropicalized. Writing about late eighteenth century Calcutta, Captain Thomas Williamson (1810: 6–7) criticizes the mode of building adopted when the English first settled in India, which he found 'by no means consistent with common sense . . . and displaying a total ignorance of the most simple of nature's laws'. For example, the windows and doors were very small and prevented proper ventilation such that the inside air became 'very, very warm', and the thick roofs were 'calculated to retain heat to an extreme'. It was perhaps in response to such ill-suited buildings that subsequent British colonists modified their buildings.

The use of various local devices, the Hindi names for which reveal the extent to which indigenous technologies had been assumed by Europeans, greatly improved climatic control. These devices, which are detailed in Yule and Burnell's (1968) glossary of Anglo-Indian words and phrases, range from the *jhillmil* or chick, an indigenous type of screen blind fitted on openings to protect the interior from sun and rain, to tatties, roll-up screens made from fragrant grass and bamboo, and kept wet to humidify incoming air. Other devices include the *jhaump*, a shutter made of bamboo battens and

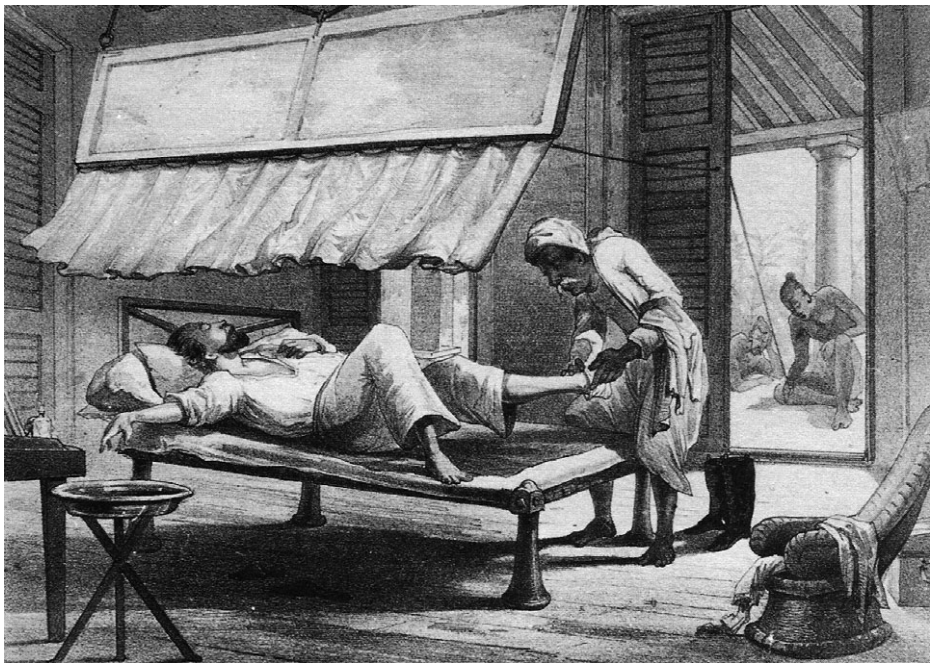

Figure 1. *The European lies on an airy charpoy underneath the punkah. An Indian servant attends to his feet and another sits on the veranda operating the punkah.*
Source: Illustration of 'Our Bedroom' in Atkinson GF (1859, n.p.).

mats, affixed over windows and other openings to provide sun-shading and regulate ventilation; and the punkah, a large manually operated swinging fan made from cloth attached to a wooden beam, fixed to the ceiling (Figure 1).

By far the most widely adopted local feature to transform the shape of European buildings, however, was the veranda, a term and structure particularly symbolic of the colonial tropical lifestyle. This could either be the extension outwards and downwards of the roof of a one-storied house or, alternatively, an open pillared gallery round a house, often also added to nonresidential buildings. Apart from deflecting the sun's heat from the walls of the building, the veranda offered an outdoor comfort zone for a wide range of activities (Williamson, 1810; King, 1976: 148–52). From the later eighteenth century, textual and pictorial evidence suggest that virtually all of these climate-control features had been adopted in appropriating and modifying the indigenous notion of the bungalow for European use, both in India and elsewhere in Southeast Asia (King, 1995: 62).

British interest in indigenous knowledge and practices was not restricted to architecture. Before the turn of the nineteenth century, the British adopted indigenous diets and lifestyles to better cope with the tropical climate and also incorporated certain indigenous medical ideas and practices to form a distinctive Anglo-Indian medical tradition (Harrison, 1999). Such practices complicate the diffusionist narrative implicit in Nilsson's idea on emigration and the improvement of prototypes. Tropicalization before the nineteenth century was not just a unidirectional movement of architectural culture from the metropole to the colony and the imposition of a dominant culture, albeit one climatically modified. Instead, tropicalization was the outcome of complex two-way exchanges in which indigenous people in the colonies were central in shaping

colonial culture. Due to the British colonialists' unfamiliarity with local conditions and their reliance on indigenous builders and materials, tropical architecture in this moment is better understood not as derived from the metropolitan model but as an outcome of what has been conceptualized as transculturation (Pratt, 1992).

Medical historian Mark Harrison (1999) argues that transcultural tropicalization took place in India before the nineteenth century because of a number of factors. For one, the tropics was not yet a region constructed as the pathological 'other', an environment incompatible with Europeans. Before the nineteenth century, the British were optimistic about the prospect of acclimatization and adapting to the tropical climate of India as most of them spent their time in the relatively salubrious coastal regions. It was only in the later part of the eighteenth century that the English East India Company was transformed from a trading to a territorial power and began to control the Indian interior. Once they had become a territorial power, the British began to conduct systematic studies of the 'airs, waters and places' of the subcontinent and their effects on health. They also began to statistically enumerate mortality rates of the British in India. As we elaborate below, it was these studies, together with the emergence of climatology as a precise quantifying science, that contributed significantly to the construction of the tropics as a pathological other in the nineteenth century. At this pre-nineteenth century historical moment, the concern with the tropical climate has more to do with its impinging on the comfort of white men. Climate was still primarily understood through embodied experience.

One of Hodges' main points in his *Travels in India* during the years 1780–1783 that Nilsson cites is the critique of the idea, prevalent in the eighteenth century, that the Greek hut was the only correct prototype upon which all architecture should be based. Hodges (1793: 75–76) argues that there are different architectural prototypes that arise out of the different 'climates, materials and manner of life', and no one single prototype should be privileged; he regards all prototypes as 'actually and essentially the same; the spontaneous produce of genius in different countries; the necessary effects of similar necessity and materials'. Given his wealth of experience as draughtsman to Cook's expedition to the South Sea Islands and elsewhere, as well as his first-hand observations and knowledge of the habitations of the different cultural groups of diverse geographies, Hodges was in a special position to put forth such an argument. The transcultural exchanges in tropicalization discussed earlier would not have been possible without acknowledging the equal validity of different architectural prototypes. Indeed, the increasing sense of superiority that the British began to feel in the nineteenth century and the subsequent 'racial turn' that denigrated the indigenous cultures of India would transform the nature of tropicalization in the nineteenth century, as we discuss below.

Quantification, health and biopolitics in the tropical barracks

In the early nineteenth century, a body of systematic knowledge regarding building in the tropics in the British colonies began to emerge. It needs to be recognized from the start that the development of this architectural and also climatic knowledge is inextricably linked to major questions of health and modes of sanitation developing in the metropole. We see this as the second moment in the genealogy of 'tropical architecture'. Although this body of knowledge was necessarily still concerned with improvization and reliance on local practices, or what James Scott (1998: 309–41) called 'mētis', it was much more about something abstract, codifiable and universalizable, or what Scott termed 'episteme'. One of the key institutions in the production of this episteme was

the Corps of Royal Engineers (RE). Like their European counterparts, the RE was the earliest institution to develop a systematic and technoscientific way of training its cadets in constructional technologies in the country. The RE also developed an 'experimental tradition' that included structured researches into the different aspects of building, from the properties of construction materials to environmental technologies, as part of the overall effort to improve the RE's building and construction capabilities (Weiler, 1987). As many RE were posted to the colonies, the experimental tradition was extended to different colonial conditions.

It was in this context that the earliest purpose-built 'tropical' barracks in the British empire were constructed in the West Indies. In an 1838 article 'On the construction of barracks for tropical climates', Captain Smyth (1844: 232) advocates 'a system of building for barracks, or cantonments, adapted to and varying with the localities in which they may be situated'. Smyth was especially concerned that the prevailing barrack designs were based on metropolitan norms and failed to take account of the particularities of tropical climate, a climate where 'marsh miasma [was] prevalent'. Like other medical experts of his time, Smyth believed that the copious amount of miasma in the tropics, referring to the noxious vapours from putrescent organic matter, had badly affected the soldiers' health.

According to the prevailing miasmic theory of disease transmission, miasma as the basic cause of disease was associated with both the natural and the built environment, such as marshlands and insanitary houses. Miasma was also thought to be produced by people's breath, sweat and other excretions, and was deemed to accumulate in overcrowded and poorly ventilated interiors. Thus, Smyth's recommendations for the design of barracks in the tropics were primarily concerned with diluting the concentration of miasma through ventilation, preventing overcrowding and siting. In his article, Smyth suggests that the barracks should be as spacious as possible, with at least 300–500 cubic feet (8.5–14.16 cubic metres) of space for each person. Louvered ventilators should be installed for roofs and partitions in the rooms should be kept low to facilitate 'through ventilation'. Furthermore, Smyth recommends that verandas of 10–11 feet (3.05–3.35 metres) be provided on all sides of the building to shelter it from the tropical heat and rain. Finally, he emphasized the importance of barracks being located away from, and windward of, miasmic marshes (Smyth, 1844: 233–34).

Smyth's suggestions appeared to be based on a system of barrack design that was proposed by Colonel Charles Smith in 1824 (Brandreth, 1844: 238). This was a system designed not only to address the 'extreme of heat and moisture' and the miasmic marshes in the West Indies, it was a constructional system that consisted of standardized cast iron parts that could be prefabricated in Britain and shipped to the West Indies so that uniform replication in different West Indian localities could be ensured (Weiler, 1987: 422–25). Despite Smith's pioneering innovations and Smyth's later proposal, the British colonial tropical barrack would only be further systematized and become more widespread in the mid-nineteenth century during the British army's major phase of sanitary reform.

Following Florence Nightingale's revelations of medical mismanagement and appalling sanitary conditions at the barrack hospital at Scutari, Turkey during the Crimean War, a royal commission was appointed in 1857 to look into the army's sanitary matters. It published a report that disclosed high mortality rates of the soldiers, attributing these to their dark, damp, overcrowded, ill-ventilated and inadequately heated barracks (Douet, 1998: 127–49). Later, the Indian Rebellion in 1857–1858 and the subsequent transfer of the governance of India to the British Crown, with the stationing of much

greater numbers of British soldiers in India, turned the sanitary reformers' spotlight on India's military stations (Arnold, 1993). In 1863 a Royal Commission on the Sanitary State of the Army in India (RCSSAI) was appointed. It uncovered even greater mortality rates and more appalling living conditions of British soldiers in the Indian stations.

To address the insanitary built environment, a Barrack and Hospital Improvement Commission (BHIC) was appointed in 1861 to examine the sanitary conditions of the barracks and hospitals in the home stations and recommend improvements for their design and planning (BHIC, 1861). Another two BHICs were subsequently established for similar purposes – one for British Mediterranean stations, and the other for Indian stations. The main concern for the BHIC for home stations was that 'no intelligent uniform plan of constructing barracks [had] been arrived at; no fundamental principles [were] recognized as absolutely necessary for health' (BHIC, 1861: C3). Hence, one of the main aims of the BHIC was to arrive at a 'uniform plan' based on the 'fundamental principles' of sanitation. Climate was used as the basis for categorizing the different military stations in the British empire because climatic differences were thought to have defining effects on soldiers' health. Based on miasmic theory, it was reasoned that the hotter and more humid the climate, the faster the rate of putrefaction and, hence, the greater quantity of miasma. Taking England's climate as the norm, that of the Mediterranean stations occupied 'an intermediate position between England and those of the tropics: generally warm, at times depressing and variable, but not necessarily unhealthy to healthy people' (BHIC, 1863: A1). With regard to India, the tropical climate there was assumed to be 'hostile to human life, and to be especially deadly to the English race' (RCSSAI, 1863: xxxi). This basic threefold categorization, to be later summarized into a distinction between 'home', 'subtropical' and 'tropical', becomes a significant marker in the development of the episteme on tropical architecture.

Despite the climatic differences between the various locations, all three BHICs were predicated on a common set of sanitary principles, which is especially evident in the model barracks proposed respectively for the Mediterranean and for India and the tropics as shown in Figure 2. Both shared the basic plan of a free standing barrack block with spaces arranged symmetrically around a staircase in the centre. The openness of this arrangement was intended to facilitate natural ventilation to dilute the concentration of miasma in the rooms. The main differences between these stations and the plan for the home stations were the verandas, the dimensions of the rooms and the types of environmental technologies prescribed for heating, cooling and ventilation. Variations were codified into numerical standards. For home stations, the BHIC stipulated a minimum per person of 60 square feet (5.57 square metres) of superficial or floor area and 600 cubic feet (16.99 cubic metres) of air space. For the Mediterranean stations, a minimum of 70–75 square feet and 750 cubic feet (respectively 6.5–6.97 square metres and 21.24 cubic metres) per person would apply (BHIC, 1863: A3). For Indian and other tropical stations, the prescribed minimums were 80–100 square feet and 1000–1500 cubic feet (respectively 7.43–9.29 square metres and 23.32–42.48 cubic metres) (BHIC, 1864: 20). Thus, tropical architecture here was primarily a matter of different environmental technologies and additional air space.

The BHIC reports formed the basis of a definitive standard for military accommodation throughout the British empire and were codified into the *Barrack Synopsis* in 1865. This first edition and subsequent editions served as the standard reference for the design of any new barrack building till at least the mid-twentieth century, providing a standard list of buildings in the different military units and the space standards for each according to the climate of the station. While different editions of the synopsis prescribe different

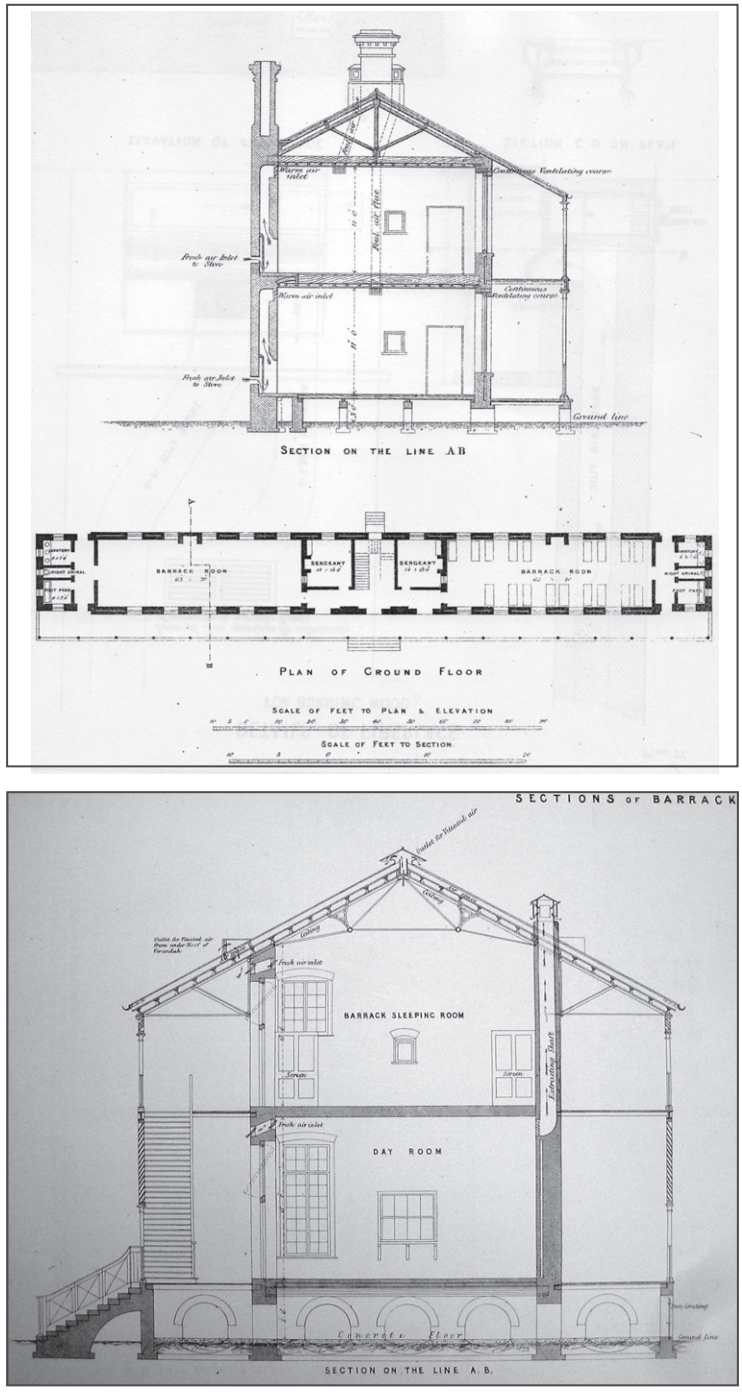

Figure 2. *Section and plan of the model barrack with verandas on one side proposed for Mediterranean stations (top) and section of the model barrack proposed with verandas on both sides for Indian and tropical stations (bottom).*
Sources: BHIC (1863; 1864).

standards, they all adhere to a strict classificatory logic, dividing the stations into the three basic climatic categories of home, subtropical and tropical.

One of the key components of the episteme of this historical moment that differentiated it from the earlier moment's mētis was statistics and the attendant process of quantification. Common to all the reports discussed above was the vast volume of statistics. It has been argued that numbers have the power of 'turning a qualitative world into information and rendering it amenable to control' (Rose, 1999: 203). As quantification is a structured and rule-bound process, the information obtained is widely considered as factual and objective. The various reports relied greatly on statistical tables to represent 'facts' as varied as climatic data, mortality and morbidity rates. Buildings were also represented numerically in terms of air space and superficial area per person, numbers and dimensions of windows, and number of occupants. Furthermore, through quantification and the standardization of measurements, different entities distributed across various timespaces could be made commensurable and, thus, comparable. The creation of these comparable statistical categories enabled the authorities to evaluate whether there was overcrowding and sufficient ventilation in the wards and rooms. Such a statistical rendering of architecture was also used as a tool of control to ensure uniformity and conformity to the BHIC reports and respective *Barrack Synopsis*.

According to Mike Hulme (2009: 9), statistics and quantification also served to 'reify climate'. Through the standardization of instruments and methods for taking meteorological measurements, meteorology became a precise quantifying science in the nineteenth century (Feldman, 1990). With the creation of centralizing networks of measurements, statistically aggregated climate that was stable and predictable, as distinct from seemingly random and chaotic weather, could be created. In the RCSSAI's (1863: 781–932) report, a section on climate and meteorology analyzes the extensive meteorological data of India. The section suggests that, compared to the vague notions of a 'hot and torrid zone' characteristic of an earlier era, the tropical climate was much more knowable in the mid-nineteenth century. Together with the voluminous statistics on mortality and morbidity, these meteorological data helped to establish the causality between (hot) climate and (ill) health, giving further credence to the miasmic theory of disease transmission.

Various medical historians have argued that the colonial construction of the tropics as a pathological site especially unhealthy for Europeans was also linked to the racial turn in the nineteenth century (Harrison, 1999). The rigid conception of race and its assumed biological essentialism brought about widespread anxieties about the degeneration of white bodies in the tropics. In contrast to the previous historical moment, the British were by the late nineteenth century much more pessimistic about their ability to acclimatize to the tropics. Their sense of racial superiority also meant that their previous reverence for indigenous knowledge and the equal validity of various architectural 'prototypes' no longer existed. The various sanitary reports denigrated the environmental technologies adapted from the indigenous practices, such as the punkah and tatties. In their place, the use of appliances manufactured in the metropole was recommended.

The RCSSAI's concerns with heat, air and light also extended to the intimate scale of the soldier's body, particularly the head. Close attention was paid to the most appropriate form of attire for soldiers in the tropics, and the use of double-layered pith helmet (sola topī) with ventilated spaces was explored to prevent 'excessive heat on the brain [which] produces moral depression' (Figure 3). Other bodily concerns included the 'overfeeding' of the British soldiers and their widespread intemperance. Both problems were attributed to their 'idleness'. As a result, reports recommend better

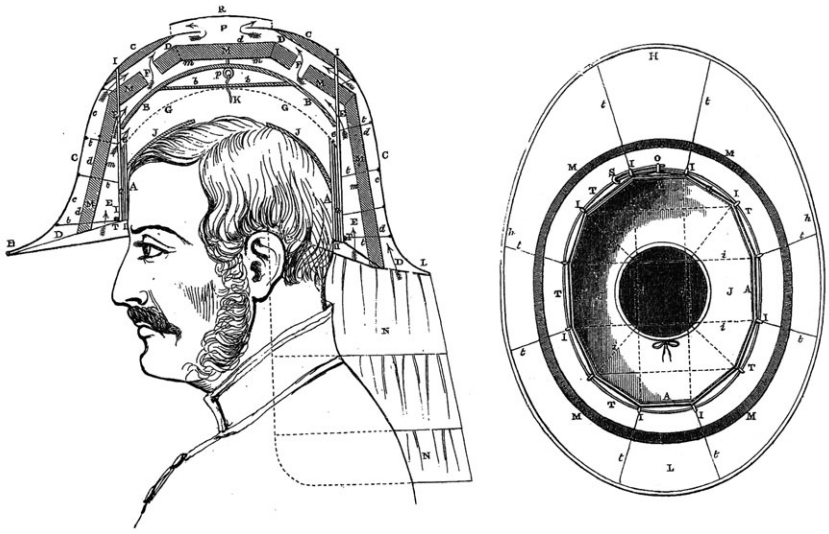

Figure 3. *The double-layered topī proposed by Julius Jeffreys.*
Source: Jeffreys (1858: 60).

recreational facilities to occupy the soldiers' time (RCSSAI, 1863: lvi–lxviii; BHIC, 1864: 26–28). Together with the sanitary improvement of the military built environment, these bodily interventions could be understood as Foucauldian biopolitics, as part of the governmental rationality in which the state sought to optimize the biological lives of its population in order to increase the nation's wealth (Foucault, 1991; 2003: 239–63). In this context, we can argue that the modern military barrack was one of a few specialized building types that emerged in nineteenth century Europe as part of the biopolitics of managing and improving various forms of the population's sociomedical problems (Markus, 1993: 95–156; Chang, 2009).

Tropical architecture in this second moment was also underwritten by sociocultural and politico-economic assumptions, overlaid additionally with questions of style, representation and symbolic power. These questions were especially foregrounded in another significant landmark in the genealogy of tropical architecture the widely circulated paper by architect T. Roger Smith (1868) 'On buildings for European occupation in tropical climates, especially India'. In the paper, Smith provides a series of design recommendations for domestic buildings in the tropics, which he describes as 'very hot', 'very wet' and at times 'violent'. He thus argues that domestic buildings in the tropics should address the extreme climate and be well ventilated, well shaded and protected by a veranda.

Smith, however, makes clear that his comments refer only to 'buildings for European occupation'. What Smith describes is essentially the bungalow, the geographically widespread representative dwelling of members of the colonial class in India located in its own extensive compound, with an array of auxiliary facilities. The bungalow was, however, not just determined by the tropical climate; more significant was Smith's (1868: 202) observation that 'in all tropical [colonial] countries native labour is cheap and plentiful'. That the bungalow and its compound required extensive maintenance and servicing by 15 or more servants was an indication of the European elite's command over economic and political resources (Figure 4) (King, 1995: 46–49). This is 'tropical architecture' structurally constructed on a basis of economic, social and political power.

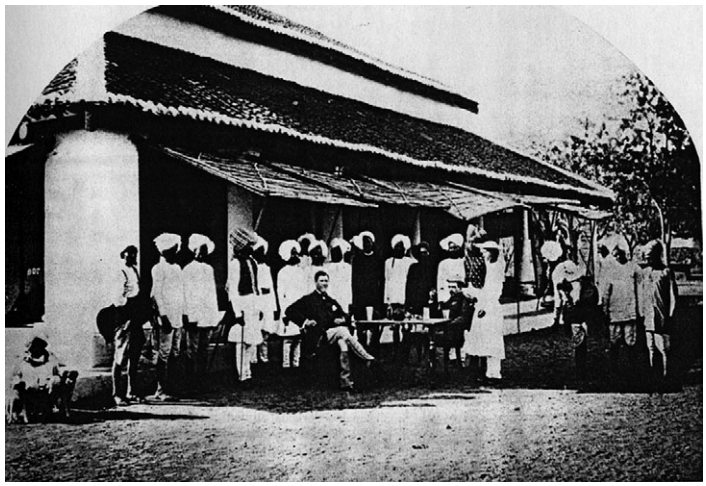

Figure 4. *The retinue of 19 native servants, the 'cheap and plentiful' labour that members of the colonial elite relied upon to service the spaces of the bungalow and various climate-modifying devices.*
Source: **Used with permission from the British Library.**

For Smith (1868: 208), this 'tropical architecture' could also potentially be the distinctive 'modern English style' in the colonies that would serve as 'a rallying point for ourselves, and as raising a distinctive mark of our presence, always to be upheld, by the natives of the country'. In other words, 'tropical architecture' served an important symbolic function. It was both a visible assurance of the colonialists' cultural identity and a commanding display of their cultural and political power to the colonized. These colonial asymmetrical power relations are also what Foucault's discussion of biopolitics did not account for, as he was primarily preoccupied with liberal rule in the metropole. How then can Foucault's biopolitics translate to the illiberal sociopolitical colonial context? We argue that the tropical architecture discussed in this historical moment was one that was only applicable to British (and other European) colonialists. Smith's discussion was only applicable to the European bungalow while the sanitary concerns and biopower in relation to the military barracks presented earlier targeted only European soldiers. Both the bungalows and the barracks represent buildings in the privileged sociospatial enclaves of the colonies, in India primarily represented by the civil station and the cantonment. It was only later, at the next historical moment around the early twentieth century, that the principles and practices of tropical architecture would be applied to the larger native populations in the British colonies as biopolitics was extended to them.

Colonial development and native improvements in tropical housing and town planning

The earliest use of the specific term 'tropical architecture' which we have identified is in Frederick Upham Adams' (1914: 285–87) *Conquest of the Tropics* that describes the operations of the United Fruit Company (UFC) in Central America. The term refers to the houses owned by white employees of the UFC (Figure 5) located in:

> parks cut out from a forest of banana trees . . . surrounded by broad porches carefully screened in copper wire gauze. Connected with these screened porches [were] wide halls . . . looking out in all directions on vistas of tropical perfection (Adams, 1914: 287).

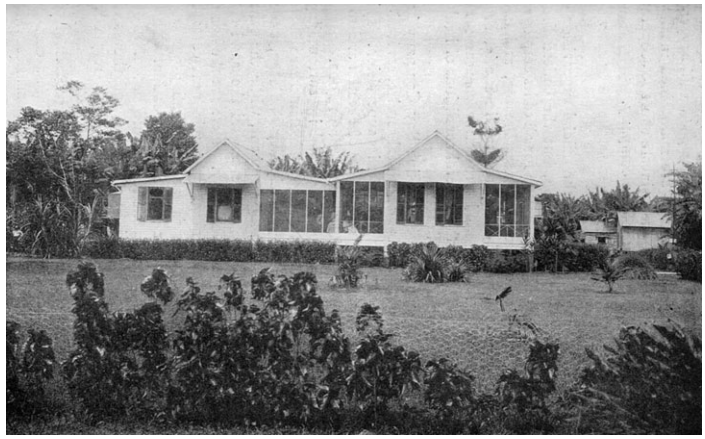

Figure 5. *'Tropical architecture' offering 'vistas of tropical perfection' and 'sanitary perfection'.* *Source*: **Adams (1914: 293).**

Together the system of screened architecture that has proven its 'health efficiency' and the picturesque vistas led Adams (1914: 287) to call these settlements 'a pleasing combination of tropical architecture and sanitary perfection'.

On the other hand, UFC workers – 'negroes' and 'Indians' – lived in camps that were 'clean, neat and sanitary. All of the houses are raised from the ground and rest on concrete pillars' (Adams, 1914: 282). According to Adams (1914: 282–84), these well constructed houses had taken the place of 'bamboo huts with dirt floors' inhabited by the average Central American natives. By 'sanitary perfection' he refers also to the sanitary and medical works 'in all of the proved expedients for eliminating tropical menaces to health' (Adams, 1914: 272) undertaken by the UFC to convert the vast tracts of 'foodless jungles and miasmic swamps' (p. 26) of Central America into productive banana plantations.

Given the nefarious history of the UFC (Wiley, 2008), it is probably necessary to treat Adams' glowing account with caution. Nevertheless, what Adams describes represents a broader trend that at least has a parallel to the sanitary and housing improvements in parts of the British colonial tropics during the early twentieth century, such as those in the British Malayan rubber plantations (Figure 6). Adams (1914: 268) claims that the antimalarial sanitary work undertaken by the UFC preceded the better known work carried out by Colonel Gorgas at the Panama Canal. A similar point was also made by Ronald Ross (1927: 244) with regards to what Malcolm Watson achieved in British Malaya: 'Everybody has heard of the anti-malaria work done by Colonel Gorgas in the Panama Canal . . . but it comes after the similar work started by Sir Malcolm Watson in the FMS [Federated Malay States]'. Various practices that Adams described were based on British colonial precedents. These included the antimalarial measures undertaken by UFC, especially mosquito reduction through the drainage and filling of breeding grounds, as well as the adaptation of the Anglo-Indian bungalow house form for the white plantation managers. Both were based on strategies first advocated by Ross (1908) and later executed on a large scale by Watson (1915) in British Malaya. We regard these developments in the early twentieth century as representing the third moment in the genealogy of tropical architecture, which is different from previous moments in at least two significant ways.

Figure 6. *Model coolie lines in a rubber plantation estate in British Malaya, 1910s.*
Source: Wright A, Cartwright HA (1908: 361).

First, unlike the second moment, these sanitary and housing improvements were not restricted to the Europeans. They were also carried out by private companies for their nonwhite labourers, be they native or immigrant, not out of benevolence but because of economic calculations. As one commentator noted: 'The United Fruit Company realizes that its employees are producers of wealth, and that good health is necessary to enable them to work to the best advantage' (cited in Adams, 1914: 285). The labourers were seen as central to the success of large-scale 'tropical production' – a mode of production, primarily agricultural, that thrived on the abundant natural resources of sunlight, heat and water, in addition to the availability of cheap labour. Colonial enterprise labour were thus the first subjects, other than the Europeans, to receive medical attention and benefit from the investment in biopower to optimize their lives.

Tropical production – and the tropical architecture and planning that was central to it – was an inextricable part of colonialism as much as it was also indissolubly linked to industrial production in the metropole. At the Imperial Economic Conference of 1926, Leo Amery, the British colonial secretary, noted: 'One of the most striking features of modern industrial development is the marriage of tropical production to the industrial production of the temperate zone. They are essentially complementary regions' (cited in Havinden & Meredith, 1993: 169). At the turn of the twentieth century, under colonial secretary Joseph Chamberlain's 'constructive imperialism', the Colonial Office started a series of initiatives aimed at boosting tropical production and promoting tropical development (Havinden & Meredith, 1993: 70–90). Grants and loans were made by the imperial state for the building of infrastructure such as roads, railways and ports in the colonies to help private companies exploit tropical resources more efficiently. Scientific research in tropical diseases and other tropical 'problems' was also funded and systematically developed (Worboys, 1990). Among other things, tropical medicine was institutionalized (the term itself, first used in 1897) and medical experts played critical roles in shaping colonial policies, including those pertaining to colonial housing and planning. Compared to the previous moment, the tropics at the early twentieth century was not only a pathological site, it was also an underdeveloped one needing improvement.

Second, unlike the previous moment, germ theory, as the prevailing paradigm of medical knowledge, had replaced miasmic theory. Malaria was no longer attributed

to bad air, or *mala aria* as its etymological origins in Italian suggest. Along with the discovery of germ theory by medical pioneers such as Robert Koch and Louise Pasteur, Ronald Ross had also discovered in the late nineteenth century that malaria was caused by a parasite transmitted by the anopheles mosquito. However, as medical historians have argued, the entrenched beliefs attributed to miasma theory were not totally abandoned in the early twentieth century (Sutphen, 1997). The same can be said about the built forms and design strategies influenced by miasmic theory. The type of military barracks and bungalows, along with their environmental technologies, formalized in the previous moment continued to be advocated by medical and sanitary experts in the early twentieth century (e.g. King, 1995: 197–203).

Besides labourers' housing discussed above, another strand of tropical architecture emerged in the early twentieth century – low cost sanitary housing in colonial cities. In this case, it was the outbreaks of plague at the turn of the twentieth century in the British empire that led to the imperial state's 'discovery' of and intervention into the colonial urban sanitary problem. During outbreaks, medical and sanitary experts linked to colonial development initiatives were dispatched from the metropole to different colonial cities to investigate the causes and recommend remedies. The improvement of the built environment was typically prescribed as an integral part of the remedies.

An example of the tropical architecture produced in this moment is a model dwelling for coolies proposed by imperial sanitary expert Professor W. J. Simpson for colonial Singapore in 1907. Simpson's proposed design was essentially a modification of the ubiquitous shophouses occupied by most Chinese immigrant labourers in Singapore in the early twentieth century, particularly with regard to his diagnosis of how the shophouses were not just insanitary and overcrowded but deprived of sunlight and fresh air. Simpson (1907: 29) deployed the spatial strategy of 'opening the dark and airless portions of houses' in his proposed design (also see Yeoh, 1996). Other than the model dwelling, Simpson also proposed by-laws that would ensure the admittance of more light and air into buildings to regulate urban development in colonial Singapore.

One could say that Simpson's proposals, especially the use of by-laws, were a continuation of the emphasis on episteme – an abstract, codifiable knowledge – in the previous moment. In a way, this was born out of necessity as Simpson was an imperial sanitary expert who moved from one colonial city to another, applying 'universal' sanitary standards. Simpson's recommendations were, however, also distinct from the tropical architecture of the previous moment. They entailed interventions at the larger urban scale, such as the creation of open spaces as 'lungs' within congested city blocks and the building of back lanes 15–20 feet wide (4.57–6.09 metres) as 'ventilating conduits' to open up the centre of shophouse blocks. To execute these large-scale interventions, which were part of the burgeoning practice of 'tropical town planning' in the early twentieth century, Simpson recommended the formation of an improvement trust in Singapore.

The improvement trust was a widely adopted model in the British empire. Underpinning the establishment of improvement trusts in the colonies was the belief among colonial officials that 'strong executive action unencumbered by accountability . . . was the only way to achieve decisive results in [colonial] civic affairs' (Kidambi, 2001: 59). With such a premise, it is unsurprising that the colonial improvement trusts were known for their coercive 'improvement' practices. For example, buildings found to be insanitary were declared unfit for habitation and demolished, with the inhabitants summarily evicted without being provided with housing alternatives.

Labourers' housing and the sanitary improvements described above could be seen as the extension of biopolitics from the privileged sociopolitical enclaves in the colonies to the other spaces where the larger population lived. 'Tropical architecture' expanded from building types such as barracks and bungalows discussed in the previous moments to include various forms of specifically colonial 'natives' housing such as coolie lines and model tenements and, on a larger scale, town planning. As scholars have noted, compared to the metropole, colonial governmentality was both belated and incomplete (Prakash, 1999). The tropical housing and planning problems 'discovered' in the early twentieth century remained largely unresolved, and in fact got worse, continuing into the postwar years when a later phase of (post)colonial development sought to address them through an institutionalized 'tropical architecture'.

Concluding notes

In this paper, we have constructed a genealogy of 'tropical architecture', historicized in the various British colonial contexts and traced to knowledges and practices from the eighteenth century onwards, long before it was named-as-such in its widely assumed mid-twentieth century 'founding moment'. While we have only focussed on the British colonial contexts because of the space constraints, we do not suggest that 'tropical architecture' was confined to British colonial contexts and there is ample evidence to suggest the intercolonial circulation and translation of such knowledge and practices in the nineteenth and early twentieth centuries.Variants of the power-knowledge configuration discussed here were evident in the French, Dutch, Belgian and American colonial contexts, both formal and informal, in various parts of 'tropical' Asia, Africa and Latin America (e.g. see Burot & Legrand, 1899). Although we could not here include the other colonial spaces, we argue that our extension of the history of 'tropical architecture' far back in time in this genealogy is already significant in a number of important ways.

First, rather than seeing the tropical environment, including its climate, as a timeless and unchanging constant, we have shown that the tropics has been, and continues to be, a shifting constructed entity. The tropical climate has shifted from a phenomenon that was perceived through the culturally embodied experience of colonial European subjects prior to the nineteenth century, to one that was understood quantitatively as systematically constructed by such subjects through meteorology and statistics. The tropical environment was also constructed differently according to various medical theories. The miasmic theory of the nineteenth century helped transform the tropics from a place Europeans could acclimatize, to one that was supposedly pathological and where they would degenerate. The germ theory helped to identify the roots of and remedies for tropical diseases, thus turning the tropics into a pathological site that could be sanitized and 'conquered'. The various constructions of the tropical environment shaped previous conceptions of tropical architecture in important ways, ranging from spatial configurations to environmental technologies.

Second, the various constructions of the tropical environment and tropical architecture discussed above were also entangled with other sociocultural and politico-economic ideas and practices. For example, the belief that the tropics was inimical to the survival of Europeans was linked to the racial turn around the mid-nineteenth century. The same could also be said about the rejection of indigenous knowledge and practices in the construction of a protoscientific tropical architecture. Besides race, constructions of the tropics and tropical architecture were also entwined with the political economy

and biopolitics of colonialism. This is especially evident in how tropical architecture was, until the early twentieth century, primarily designed by and for Europeans. Its design presupposed the colonialists' way of life and it could only be found in those sociospatial enclaves such as the cantonments and civil stations. From the nineteenth century onwards, tropical architecture was an inextricable part of the colonial state's investment of biopolitical power. Its subsequent expansion beyond the enclaves to the sites housing labourers and selective segments of the native population in the early twentieth century was premised on the belated and partial extension of similar biopolitical regimes to these segments of population.

Third, the various knowledges and practices of tropical architecture examined in this genealogy, as part of the broader shift from mētis to episteme, are power-knowledge configurations produced under conditions of asymmetrical colonial power relations. They cannot be depoliticized or naturalized as outcomes primarily shaped by external tropical nature. Indeed, this genealogy shows that the conception of an immutable external nature is flawed. Not only did we show that tropical nature was constructed in different ways, we also argued that tropical nature was coproduced with the built environment. For example, the malarious environment of the sites of tropical production discussed in the third moment was a result of clearing jungles to create plantations, which inadvertently produced the breeding grounds for anopheles mosquitoes. Likewise, the malarious environment was also sanitized and rendered salubrious with the draining of swampy grounds and building of healthy quarters.

Instead of privileging external tropical nature as the prime determinant of tropical architecture, this genealogy urges us to reflect upon the 'nature' that 'tropical architecture' was determined by – what is it, according to whom, under what historical circumstances, and why. By appealing to such a notion of nature, what other knowledges and practices are being concealed? This is especially pertinent today when tropical architecture is associated with a hegemonic discourse of sustainability.

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Genealogy of the Singaporean black-and-white house

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The distinctive black-and-white houses from Singapore's colonial era that survive in enclaves as fine dwellings for the present-day elite have been recognized and documented as a type. In this paper we tell the story of their cultural formation, which is one of remarkable hybridity. Various influences were brought to bear and resolved into the black-and-white house-type, which was not invented 'all at once' in Singapore, but developed over the course of more than two centuries. We begin the story in India, when British settlers learnt from local Bengali practices to make serviceable dwellings for a climate that they found difficult. The overhanging roofs that shaded walls and the tall internal volumes were formalized with reference to European expectations of geometry and finish, and the bungalow was born. In British Malaya the bungalow was further hybridized with the house on stilts that was well known to the indigenous tradition. This produced the spatial configuration that is to be found also in the Singapore houses, with their extensive verandas on an upper floor level. Their distinctive colouring comes from a different tradition: the black-and-white Tudoresque style that was very popular in Britain and sometimes called 'Old English'. This was used by the British colonizers so that they could feel more at home in surroundings that were in a far-off foreign cultural environment.

Keywords: black-and-white houses, Singapore, colonial, hybridity

Introduction

Singapore's black-and-white houses constitute a recognized type, which is well documented in comparison with the generality of colonial-era building (Davidson, 2006). By contrast with the precolonial indigenous architectures of Singapore and the place that is now called Malaysia, these houses have a high value in the property market and offer the prospect of a high level of comfort for the people who live in them (Figure 1). It is easy to recognize that they were not a product of indigenous cultures, but equally there are no dwellings to be found in this form in England. The black-and-white house-type is a hybrid that developed when colonial British culture tried to find a home for itself in the tropics. This study is not an attempt to document individual black-and-white houses, but to examine how the type developed. We cannot track it back to its origins, which ultimately would be too remote and speculative, so we have adopted the method of the 'genealogy', as Friedrich Nietzsche (1967) used the term, and as it was taken up by his disciple Michel Foucault (Visker, 1995), in looking not for a foundational origin, but rather for the states of affairs that pertained before these buildings had developed as a type in order to show how certain elements of earlier types were fused to constitute the black-and-white house.

The British people who worked in the colonies developed an expatriate culture that derived from Britain but necessarily addressed 'problems' that were specific to each place, notably the practical problems of living in a climate very different from that experienced in the homeland. This meant that houses had to be arranged very differently if they were to be at all comfortable. By the time the British had a serious stake in Singapore in the early nineteenth century, they had already learnt to adapt building

Figure 1. *A Singaporean black-and-white house. The upper-floor's glazing has been added for the air-conditioning to work. The rooms here would have been substantial verandas. (Photograph Andrew Ballantyne, 11 December 2007.)*

practices to the climate, drawing especially on their experience in India. If the new configuration of dwelling arrangements specifically catered to the tropical, the black-and-white aimed to evoke a British idea of 'home', one strongly associated with a nineteenth-century idyll of domesticity that continues to flourish even now in Britain and elsewhere.

The bungalow

The origin of the British tropical house was the bungalow, invented in seventeenth-century India. The British presence in India began in the reign of Elizabeth I, who in 1600 granted a royal charter to the 'Governor and Company of Merchants of London Trading into the East Indies', an enterprise that evolved into the British East India Trading Company (Meyer *et al.*, 1909: 454). The company competed with commercial Dutch and Portuguese activity in the East, and increasingly took on military and administrative roles, both to protect its trading activities and as a commercial service that suited the local rajas. Once the company's commercial role was established, its higher officials could make huge fortunes, which they translated into political influence in Britain (but the history of the power relations in eastern Asia need not detain us here, compelling though it is). The tropical climate was always a challenge for north Europeans, and when it was possible to retreat to the relative coolness of the hills, especially during the hot season, that is what the British preferred to do, in hill stations such as Shimla in Himachal Pradesh, India or Cameron Highlands in Pahang, Malaya. Their

commercial interests, however, drew them to places with difficult climates, which had to be mitigated by buildings.

In the seventeenth century the British tried adopting local ways of doing things, and in the spirit of supposing that the locals best knew how to adapt to the climate, started to use regional building methods. The term 'bungalow' – which has its roots in the Hindi or Mahratti adjective *bangla*, meaning Bengali (King, 1984: 14) – referred to Bengali-style buildings built for Europeans. In 1633 some French merchants visited Satganaur, famous for its silks, and 'under the pretence that a building was necessary for their transactions in buying and selling . . . erected several houses in the Bengali style' (Yule & Burnell's *Hobson-Jobson* cited in King, 1984: 17). The earliest mention of 'bunguloues' dates from 1659, when Edmund Foster wrote to one of his company colleagues to say that an invading Indian army had started building both 'bunguloues and some houses' uncomfortably close (Foster, 1921 cited in King, 1984: 17). So, for Foster, the 'bunguloues' were not the same as 'houses'. Another agent of the Crown, Streynsham Master, writes in 1676 of 'bungales' along with 'hovells', which would make them the dwellings of peasants, or – in this context – lowly company employees who did not have household servants. There is an ambiguity here: 'bungales or hovells' might mean that these were more or less the same thing and were interchangeable, or it could mean that there was a choice between 'bungales or hovells', which were significantly different from one another:

> it was thought fitt . . . to set up Bungales (bangld, a one storied thatched house) or Hovells for a habitation for all such English in the company's service as belong to their sloopes and vessels . . . and those that now live out in houses of their owne, by degrees to be brought within that Compound, and all others that shall come hereafter to live within the same, and to be allowed to build such accommodation as they shall desire, if they be marryed (Master, 1680 in Temple, 1911: 209–10).

A person of Master's status would have travelled with a substantial entourage including local servants and labourers, in much the same way as would have the Count of Modave, whose account of travels in 1773–1776 mentions the *bangla* as a:

> pavilion of bamboo covered . . . with thatch or leaves from trees which one constructs for some special occasion like a marriage, a big fête, a meeting place during the hunt or simply a meeting place (Louis Laurent de Féderbe, 1776 cited in King, 1984: 18).

Such a structure would have been in the local style because it was built by local people, and furthermore was seen as a temporary structure that could be put up quickly ('in a few minutes') and gave protection from sun and rain (King, 1984: 18). The lightweight *bangla* had some of the qualities of a tent or a marquee, which might find a similar set of uses as temporary shelter or symbolic placemaker for an event, as illustrated in Colesworthy Grant's (1849) *Anglo-Indian Domestic Life*, where the authentic Bengali structure is contrasted with its Europeanized adaptation. The most important thing about the *bangla* is the large curved thatched roof, keeping out the rain and, if thick enough, insulating against the sun's heat. The roof oversails the walls and is supported by poles at its edges and corners, making a peripteral veranda. This had the effect of casting the walls into shadow, stopping them overheating. The building materials – bamboo and grasses – are perishable and would need to be renewed on a regular basis, maybe by starting again with a new structure. The European adaptation of the pattern uses more durable building materials – bricks for the walls, tiles for the roof – and the veranda space is shown enclosed to make a more compartmentalized plan, better suiting

European expectations of a dwelling, with small rooms at the corners that were usually used for sleeping or bathing (King, 1984: 27).

There were two distinct styles for this 'European' bungalow. The first was aggrandized with the neoclassical elements associated with the houses of the aristocracy, so the dwellings took on a Palladian aspect with the verandas turning into loggias. This type was preferred by the higher-ranking administrators of the company and later by agents of the Crown (which took over from the company as the government). The other principal type developed the 'cottage' aspect, often keeping the *bangla*'s thatched roof and using plastered brick piers rather than classical columns around its verandas (King, 1984: 38). This suggests something unpretentiously homely, but the effect could be dismaying. James Gray arrived in Bombay in 1852 and was disappointed with his first sight of the bungalow that had been provided for him. His idea of 'Oriental pomp and magnificence' had been confirmed by the 'elegant equipage with turbaned attendants' (Gray, 1852: 13) that accompanied him, but he was dismayed as the realization dawned that he was expected to live in a single-storey building with an overhanging thatched roof, which at first he thought looked like a cow-house (Gray, 1852: 14):

> However, we must admit that the similarity to the cow-house extended no further than the exterior; and our drooping spirits began to revive as we stepped direct, without any intervening hall or passage, into a large and elegant drawing room, supported upon pillars of faultless proportions, and furnished with every modern luxury that either taste could suggest or wealth command.

There was a certain want of decorum in the abruptness of the transition from inside to outside, but a fine finish within. Moreover the place was clearly well arranged, to suit the needs of inhabitants with high expectations for comfort. Each person had a suite of rooms (bedroom, dressing room, bathroom), at least one of which opened on to the veranda – the value of which Gray (1852: 15) came to realize:

> [The veranda] is considered indispensable in the construction of even the poorest abode; not only as affording protection from the intolerable glare of the sun during the day, but as presenting an agreeable family resort, when the refreshing evening breeze tempts everyone to exchange the heat and lights of the drawing room for a delightful 'réunion' in the open air.
>
> Here, too, conversation flows on more unrestrainedly than beneath the blaze of the numerous lamps, rendered necessary by the extensive dimensions of a Bombay room.

Even habitually reserved people were known, he says, to become eloquent on the veranda.

Gray (1852: 16) makes the point that his description referred specifically to the bungalow, and not to the generality of English residencies around Bombay, which were lofty and spacious, with *portes cochères* large enough to take to carriages abreast. He also remarks on the lack of privacy felt by a new arrival in a Bombay house, because of everything being as open as possible to promote the movement of air through the building; for example, the bedroom was a less closed place of personal retreat than an Englishman would expect and would leave him with the feeling of being expected to sleep in a 'magnified bird-cage' (Gray, 1852: 18). The comfortable but externally less pretentious style of bungalow like Gray's was built in greater numbers, while those in classical dress would have carried greater prestige and would be seen to be used appropriately when high-ranking officials occupied them. Gray was relieved to find classical columns and a level of social pretension that suited him on the inside of his bungalow, even though the exterior offered nothing. Nevertheless, whether classical or

not, the bungalow was seen as pukka, having reasonable levels of comfort and status, and used on occasion by later governors and viceroys (Morris, 1983: 202).

Enclaves

During the nineteenth century bungalows were built in significant numbers in the fast-developing port cities of Calcutta, Madras and Bombay, where there was a need for accommodation for a range of people involved in commerce and government, from soldiers and merchants to civil servants, company officials, bankers and lawyers (Evenson, 1989: 55). Bungalows were built in enclaves at least 1 km away from existing settlements and with a very different layout as each bungalow sat on a spacious plot of land (King, 1984: 42). These enclaves were seen as socially exclusive and the proprietors were always European, heavily outnumbered by Indian servants (Purser, 2003: 295). There were advantages for the British administration in such a separation, as communications could be diffused rapidly through the expatriate community, and there would be some social comfort in being surrounded by neighbours with a similar outlook. So-called interracial marriage was not socially tolerated within the European enclaves, so there was little blurring of the boundaries. The arrangements, however, were underpinned by interlinked discourses of race and health, as it was supposed that Indian bodies were better adapted to the local climate than were northern European bodies, which seemed prematurely to show the effects of age, perhaps because they were vulnerable to tropical diseases, or maybe because they kept the diseases at bay with so much gin added to their medicinal tonic water. The way Europeans explained this themselves, though, was to suppose that it was because they were 'racially foreign' to the place (Harrison, 1999; Prakash, 1999; Anderson, 2002).

The discourses of comfort, health and race were strongly interconnected and gave settlers reason to depart from local precedents in looking for enhancements that gave more comfortable living conditions. Local precedent did have some influence and bungalows could be found with flat roofs in drier regions, or on raised on stilts in the tropics (Waterson, 1990), but despite bungalows being built by the thousands during the nineteenth century, there was little variety: generally there was a single square living room with a bedroom opening off it, while the servants' quarters, including the kitchen, would be in outbuildings. Roofs may originally have been thatched, but those of nineteenth-century buildings that have survived are now tiled, sometimes tiled on top of thatch as the tiles could be added as a waterproof layer on top of the valuable insulation of the thatch (King, 1984: 34).

The bungalow's modesty was offset by the fact that it would usually be set on a substantial plot of land (typically 15 times the area of the house), giving the idea of grounds, which lent the dwelling an authority beyond its size and apparent simplicity (Morris, 1983: 34). The enclaves of bungalows gave the expatriate settlers the feeling that they had a collective, if not perhaps an urban, frame of reference – a sense of being in the enclave, even though individually set apart from neighbours and still further apart from the town. Ideas about health, comfort and racial difference tended to perpetuate this state of affairs, but one of the things that made the bungalow comfortable was the level of service typically enjoyed. Although the servants' quarters were set apart on the plot, the household's servants were nevertheless often to be found in the bungalow. Where bungalows were more isolated, such as those belonging to owners of plantations in Malaya, the dwelling could appear to be more autonomous but still had its dependencies – usually at a greater distance from the house. Without immediate (European)

neighbours, social contact in the clubs of nearby towns became an important component in this expatriate life, an aspect made readily and accessibly apparent in Somerset Maugham's stories set in British Malaya (Hastings, 2009).

Climate control

Part of the bungalow's appeal lay in its ability to modify the uncomfortable effects of the climate. T. Roger Smith, professor of architecture at King's College, London, visited Bombay in 1864 to supervise some building work. Addressing the Royal Institute of British Architects in London in 1867, he explained that buildings in Bombay 'ought to incorporate such features as walls of ample thickness to fend off heat, an absence of vertical forms such as buttresses that might interrupt the flow of air', and should show a 'constant preference' for horizontal cornices to cast shade, 'frequent and ample' openings, piers and columns 'frequent and numerous', a 'constant use of balconies and corbelled projections' and, above all, 'an ample space around the whole building and its surroundings' (Smith, 1873: 278–87; 286). The key principles were to maximize shading, thermal mass and the circulation of air, and the grounds around the house were a part of this strategy, the air of a planted garden being cooler than the air of a city street. The technical reasoning also had its social consequences, noted above, and in the veranda, which had its origins as a shading device and became the most important space in the house for entertaining and making a carefully mediated contact with the world external to the house (Metcalf, 1989: 6). The internal living space could be made more comfortable by increasing the height of the roof, so that the hot air could rise up out of the way of the occupants, and the roof would be vented at high level to take the hot air away (Morris, 1983: 44). Dormer windows could be shaded by a projection of the roof, with the miniature gable filled in with a slatted screen. This device became fashionable in Bangalore, where it came to be known as the 'monkey top' because monkeys seemed to enjoy sitting on them (Vasihnavi, 2009). Monkey tops could be developed with elaborate ornamentation, were a focus of attention and a means of establishing prestige.

The chick was a type of roller blind made locally from split thin bamboo canes 1–2 m long, loosely strung together and bound at the edges with tape, and often painted on the outside (Yule & Burnell, 1996: 91). Chicks were fixed to lintels, rolled up and tied when not needed, and lowered to reduce the glare. These are still to be found on the verandas of Singapore's black-and-white houses, invariably painted in bold 20–30 cm alternating black and white vertical stripes, which is stylistically important because it so-emphatically declares the 'black-and-white' theme (Figure 1). In India there were also shading devices such as the *jhaump* adopted from the Bengali peasant hut: bamboo screens, secured above windows, doors or the veranda's openings, and tilted up, propped by bamboo poles (Williamson, 1810, vol. 1: 491).

Rooms in bungalows were generally furnished very sparsely, especially by the standards of the time which emphasized elaborate clutter. Larger pieces of furniture would compromise the principle of the flow of air round the building, as would carpets, and it was necessary to be vigilant against insects and small animals that might thrive out of sight beneath heavy furnishings (Evenson, 1989: 56). This lack of furniture could cause anxiety among new arrivals from Britain, where furniture not only gave a crucial impression of one's social standing, but the performance of its maintenance – dusting, polishing, enhancing with cushions, curtains, tablecloths and carefully arranged flowers – was also a time-consuming preoccupation for the middle-class housewife and her servants (King, 1984: 54).

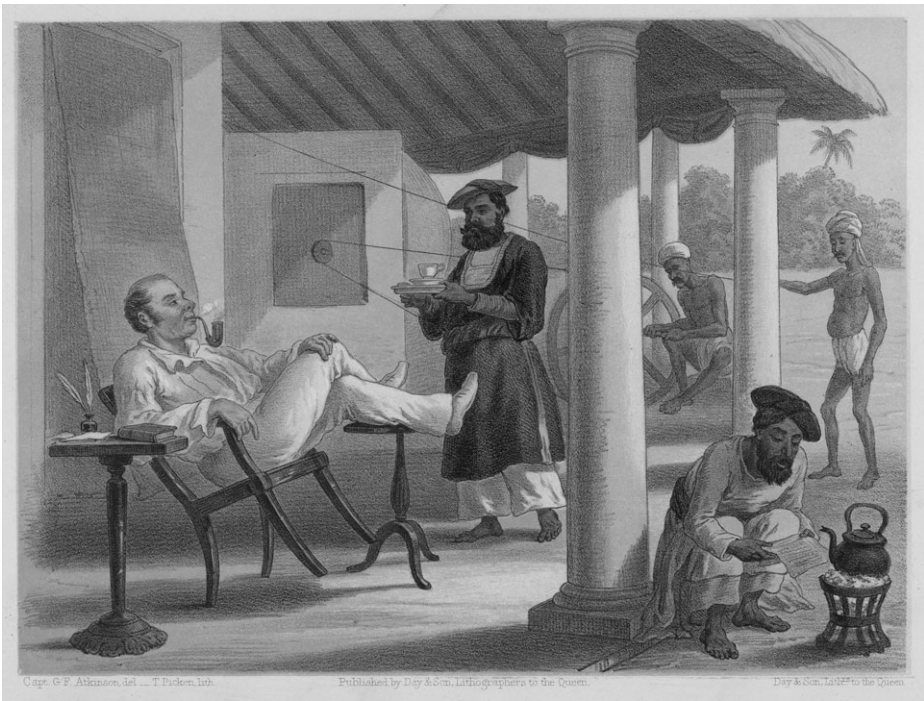

Figure 2. *A veranda in use c. 1859, from a watercolour of 'The Colonel' by Captain George Francklin Atkinson (1859: n.p.).*

If the furniture did less work than might have been expected to establish the dwelling's status, the servants did more. In arid climates, tatties made of the fibrous roots of sweet-smelling cuscus grass (vetiver, *Andropogon muricatus*) were framed and fitted to doors and windows (Yule & Burnell, 1996: 433, 136). During hot periods, these screens were kept wet by servants and the evaporation would cool and fragrance the hot breezes blowing through the house. Alternatively, or in addition, the heavy cloth punkah was hung from the ceiling and pulled to and fro by rope by the 'punkah-wallah' to stir the air and promote cooling evaporation from the skin (Yule & Burnell, 1996: 356–7, 114). Some such arrangement is shown in the illustration reproduced here from George Francklin Atkinson's 1859 book *Curry and Rice* (Figure 2). The punkah-wallah is seen standing outside, while the rope is guided by a series of pulleys to the punkah – an arrangement that would maintain the privacy of those inside. There are other servants in evidence, heating a kettle and bringing tea, while the white man enjoys his pipe on the veranda, adopting a posture expressive of indolence – balanced rather precariously on lightweight portable furniture. There is some satirical exaggeration in this depiction, but the appeal of the colonial way of life is accurately conveyed. Colonel Marmaduke Bowlong (1895: 1), for example, used the veranda – and smoking – as an image of quasi-domestic contentment:

> The long Indian day had blazed itself out. A soft breeze stirred the passion flowers in the trellis work; and the clear tropical moonlight streaming through leaf and tendril made the ends of our cheroots glow red and dull like expiring gas-jets subdued by electric light. It was after mess and we are sitting in the verandah smoking.

The reference to electric light is remarkable for the date. The veranda described here was part of a military clubhouse where Bowlong told his tall tales to younger men, including the narrator, driven along by the spirit of garrulity noted by Gray (1852: 15–6). The setting is informal, comfortable and sociable, and shows the veranda as an appealing place to settle.

The veranda

In 1810 Williamson described the veranda as essential for maintaining a comfortable climate within the building, but it seems then to have been occupied mainly by domestic servants, awake or asleep, waiting to be called for from the interior (Williamson, 1810, vol. I: 135). However it could be arranged for entertaining:

> when a gentleman has company, the side board is usually set out in the verandah, where also the several guests' hookahs are prepared; and in rainy weather, their water cooled (Williamson, 1810, vol. II: 34–38).

T. Roger Smith (1868, cited in King 1984: 46–47) described the veranda as an 'essential' and 'leading feature of buildings in the tropics', remarking that Indian life was 'much *al fresco*, and privacy little studied compared with comfort' (also see Metcalf, 1989: 7). The veranda could be aggrandized with classical columns, and by the mid-nineteenth century it seems to have become dominant as the place for entertaining. It was often the best-furnished space in the bungalow, sometimes with valuable carpets. Jan Morris (1983: 45) evocatively describes its accoutrements:

> funny old chairs lay around about, bamboo couches, rocking chairs sometimes, or sofas with wide arms for the accommodation of glasses. Potted plants were everywhere, and here the little dogs of the household were indulged, lying around on sofas or begging titbits at breakfast time.

In this description the furnishings sound fairly settled, and it is possible to imagine the various chairs and sofas being left on the veranda, awaiting use. The lightweight furniture, however, would have been quite portable, and it was likely to be moved around by the servants. Part of the utility of this space was that business could be conducted in the veranda without visitors crossing the threshold into the dwelling's interior. It was a zone where one could relax, but because it was not quite a private place, the presence of others – the servants – made it acceptable to meet a wide variety of people there. It was a place where women in particular could make contact with the outside world without leaving the chaperoned safety of the home (Morris, 1983: 45).

The combined utility and luxury of the veranda recommended it beyond the places where it originally developed, and it came to be used not only in British colonies in the tropics, but even in Britain, where it could be used to advantage, more for shelter than for shade. Throughout Malaysia today, the colonial-era bungalow is associated with plantations, and typically a two-storey structure with verandas on the upper as well as the lower storeys. The great growth in British Malaya's commercial agriculture was during the twentieth century and many of the black-and-white bungalows date from the 1920s and 30s (Jenkins & Jenkins, 2007). Where found in urban areas such as in Singapore they tended to follow the pattern of being built in enclaves, before the city caught up with and surrounded them. The highly serviced way of life proposed by the Indian bungalows is in evidence, but when electricity arrived, rotary fans replaced the punkahs.

The main variation on the Indian pattern was to lift the dwelling on stilts or piers, following the Malay tradition for timber dwellings. In the colonial houses the timber

stilts become masonry columns or piers and the space so created is a full-storey height that can be used for garaging (Jenkins & Jenkins, 2007: 73). However it is much more usual to find the lower storey substantially enclosed with thick masonry walls and extensive verandas, aggrandized with classical detail here and there and motifs adopted from western architecture, be it Tudoresque or Art Deco.

The climate was a major factor prompting the development of the veranda, which is so characteristic of the bungalow tradition. The veranda sheltered initially from the sun's debilitating heat, and then as it migrated into more humid areas it was just as welcome as shelter from rainfall. Even where buildings have been neglected, or if the glamour of the veranda has been felt, the feature has been retained. In Singapore, however, where urban black-and-white bungalows now have a high market value and owners who seek appropriate levels of modern comfort, the verandas are sometimes glazed-in and air-conditioned, which radically changes their spatial characteristics (Figure 1). The levels of privacy of the occupants are also much higher now because there are far fewer staff on the premises. Nevertheless the veranda shaded by painted bamboo chicks remains absolutely characteristic.

Black and white

If the form of the black-and-white house grew out of a tradition that hybridized the *bangla* with European expectations of a dwelling, and in doing so produced a new way of life premised on a hot climate and cheap servants, the colouring came from the British home country. From a none-too-clearly specified point in the nineteenth century through to the 1930s, and after, when black and white paint was being applied to colonial houses in Southeast Asia, it was seen back in Britain as evocative of the traditional houses of 'Old England' – the pre-industrial timber-framed buildings that could be found in the countryside and in provincial towns, and which had dominated the City of London until the great fire of 1666. The building-type is well represented for example in the centre of Chester in northwest England, where black-and-white buildings predominate (Figure 3). On closer inspection however the tradition is less old than is generally assumed. Actual medieval houses were not black-and-white, and often hid their timber frames under a coat of thick daub, so that the walls appeared more like stuccoed masonry. Sometimes the timber frame was expressed and decorative work was carved in it, but the timber was probably usually left unpainted and weathered to a silvery grey if it was oak, as structural timbers usually were.

Towards the end of the nineteenth century, however, such buildings that survived were usually painted black and white, in conformity with the then-received idea of what they should have looked like. Nowadays this is seen as a barbarism, but it was prompted by good intentions at the time (Louw, 1990; Charles, 1991). So for example, in Chester, mainly nineteenth-century, entirely black-and-white facades give a lively and consistent appearance to rows of buildings that are much older and where much earlier masonry is to be found within (Brown, 1999). John Prizeman (2003: 51) suggests that the black and white colour-combination derived from eighteenth-century naval usage, where the black would have been tar applied to the water-bound timbers of ships, and equally effective in protecting the uncovered frame of a timber building; the less vulnerable infill could then be painted in a contrasting colour (white) to prevent the general effect becoming too sombre. F.W.B. Charles (1991: 34) suggests that the colouring originates in the soot-blackened structures to be found in the industrial northwest,

Figure 3. *St Michael's Row and Arcade, 31–55 Bridge Street, Chester, UK, c. 1911, architect William Lockwood (photograph Andrew Law, 17 July 2007).*

including Chester. The origins of this colouring are still open to speculation, but there is no doubt that it belongs in the nineteenth century, not the sixteenth. Black-and-white came to be the principal way to designate an old English style and was increasingly used in new buildings that aimed to look settled and old-fashioned such as its systematic application in the nineteenth-century philanthropic housing of Port Sunlight in Merseyside, northwest England.

In Southeast Asia, this black-and-white Tudoresque style was used when the British colonists wanted to make themselves feel at home. Its use is most conspicuous at the Royal Selangor Club in Kuala Lumpur, and in the Tudor Court shopping gallery in Singapore. The distinctive black-and-white colouring migrated from its Tudoresque use into other architectural styles, so it is possible to find buildings that have a 'Tudoresque mood' about them, even though they are not identifiably in a style that derives from any kind of Tudor, except in their black-and-whiteness. This tendency finds its clearest expression in the bamboo chicks that shade the verandas of the Singaporean black-and-white houses, making their appearance prominently and with remarkable consistency. The black and white stripes here have no purpose in expressing structure or defining the framing of an opening: their adoption is absolutely in the realm of applied decoration, but evokes the black and white stripes of English Tudoresque gables. They are culturally distinct, because they tend to be found in bungalow enclaves particularly as the colouring may not have positive associations for those without the ideas of architectural Englishness in their background. Among the majority-Chinese population in Singapore for example the colours seem funereal, and they are a world away from the vibrant colour-sense on display in Singapore's 'Little India'.

In conclusion

The Singaporean black-and-white house can be seen as a fusion of a remarkable range of influences. Julian Davidson (2006) has shown that they absorbed stylistic details from a wide range of western styles, from the classical to Tudoresque and Art Deco. Those details are significant within the black-and-white house typology, but it is the history of the shaping of the typology that concerns this paper.

This history begins with European commercial adventures in India, and learning from local traditions something about building dwellings in hot climates. Traditional buildings used perishable materials – timber and thatch – and to European eyes looked unprepossessing, more like farm buildings than respectable dwellings, but they were an effective way to modify the climate. The outside walls were shaded by overhanging roofs, so they heated up less than they otherwise would have done. The interior space was high, so the hot air rose up above the heads of the people inside; but even with forced ventilation from the punkah, the interiors could be hot and stuffy. In the evenings, as the heat of the day subsided, the veranda became the preferred place for social activity.

This basic configuration was adopted from the traditional buildings, but their construction was changed. Instead of buildings with a rustic character, using materials that needed constant renewal, the European bungalows were built in masonry with tiled roofs. Thus the mechanisms that allowed for climatic control were given a character that came to be seen as respectable by the colonial elite.

One issue discussed by British architects was whether colonial buildings should try to adopt the customs of the country where they were being built, or whether they should take a 'superior' European style into the colonies. There were strong views on both sides, but indigenous architects would not be used because the British administration had no confidence in their abilities to manage time and costs (Smith, 1873, especially the summary of the discussion at the end of his lecture). Therefore for public buildings the choice was between a building in an orientalist style or something European, which usually meant classical because the loggias, deep cornices and small windows seen as characteristic of southern European buildings were more compatible with tropical climates than the northern Gothic. For domestic buildings the level of exterior finish might conform to local standards – as James Gray found, to his dismay – but generally the translation into masonry gave dwellings a nonindigenous character, even when the spatial configuration had made use of local knowledge.

When these early bungalows – buildings in the Bengal style – were built in the relatively drier climate of India, they followed the general pattern of surrounding the central block with shady verandas at ground level. The buildings could rise to a second storey, but generally the ground floor was the principal and typically only floor. When the pattern was adopted in Malaya, the bungalow was already an established 'type'. The indigenous building tradition of raised dwellings on stilts, allowing air to circulate under the floor, had a useful cooling effect in the much more humid climate. The Malayan bungalow was and is particularly associated with plantations, typically with its single principal floor raised a full storey above the ground. The lower floor could be left open, following the indigenous tradition, but was usually enclosed by walls and used for subsidiary functions, while the principal rooms for sleeping and entertaining were on the upper floor, where the verandas also were to be found.

It is this version of the bungalow that found its way to the colonial port settlement of Singapore. Both in Singapore and the Malay Peninsula, bungalows that were not on

plantations would usually be grouped together in enclaves. This set them apart from the dwellings of the indigenous population, which allowed their occupants to feel safe among neighbours who were like themselves, and was convenient for the administration, which sometimes needed to send messages through the colonial community. The dwellings' black-and-white colouring, which looked traditional to British eyes, also set them apart. This separateness – spatial as well as stylistic – had the effect of confirming the cultural and racial difference of the enclaves.

In present-day Singapore these houses are well maintained and their gardens are well established, so they look like very comfortably settled abodes established in clearings of a forest. The black-and-white colouring contrasts strongly with the dominant greenery and the dwellings do not look vulnerable to the decay that would so evidently afflict a house built with untreated timber in these conditions. This image is of course illusory, but it is an illusion that can be maintained with the continued application of paint and renewal of timbers.

The Singaporean black-and-white houses thus present an image of resistance to the debilitation that was supposed to overtake European bodies in tropical climes, just as they protected those bodies from contagion by setting them apart from the local population and from one another, and from the climate by spatial arrangements learnt from local architectures. The shading and verandas were developed in India, the raised principal floor in Malaya, and the colouring in England. At each of the places along this trajectory the buildings were unlike the local architectures. Even in Bengal they were already a hybrid in being made of materials of greater solidity than was customary in dwellings. (Masonry would have been more typical in temples and mausolea, where it would have been elaborately and intricately carved.)

Similarly, these dwellings were more solid than the traditional dwellings of the Malay Peninsula, which were usually of very light construction. The bungalow, already a hybrid, was hybridized again in responding to the humid conditions and another building tradition. The version that is to be found on Singapore is the culmination of a process that developed over more than two centuries and should be seen as a sophisticated and cosmopolitan expression of a dwelling-type that is well adjusted to the local climate, while remaining, of course, socially aloof.

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The green governmentality in an Indonesian metropolis

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The current interest in the 'clean and green' that has become part of urban governmentality in Indonesia's metropolis is illustrative of the practice of becoming a citizen of Jakarta today. The ongoing demand to reclaim and produce green space, however, entails the displacement of those who are considered to be blocking the success of urban green initiatives. This paper points to ways in which contemporary forms of power are built on the premise that a green environment requires individuals to reconfigure themselves to gain social legitimacy. It shows how the greening of Jakarta can be understood as part of the evolving technology of governance associated with postauthoritarian Indonesia.

Keywords: green, environment, governmentality, back to the city, community, middle class, urban poor

Going green in Jakarta

'Go green' has become a catch-all for urban development for people living in Jakarta today (Figure 1). This paper looks at the ways in which different actors, institutions and interpretative communities encounter and contest each other through various green environmental discourses. The scale of the analysis is the city, seen here as an arena for the development of both a globalized and localized knowledge and power. Specifically, the paper looks at the increasing interest in a green environment among activists, architects and middle class residents of Jakarta who work in tandem with municipal efforts to provide more open green spaces for the city. It shows how the dynamic integration of society and nature occurs in the context of neoliberal model of governance and the specific sociopolitical crisis of Indonesia following the collapse of the authoritarian New Order regime of President Suharto (1966–1988). The massive exploitation of natural resources under the neoliberal (or neocolonial) order means that it is no longer possible to argue that the state is (or, in the case of Indonesia, ever was) the protector of the environment for all citizens. With an increasing number of people living in deteriorating social and physical environments (beyond the state's capacity to repair), the deployment of green imagery is the end-point of the exhausted regime of mass environmental exploitation. In this context, I show how metropolitan citizens and local authorities have mobilized to produce a so-called green environment. Their efforts to alleviate environmental degradation, however, are inseparable from their attempt to gain sociopolitical legitimacy.

Since the end of Suharto's rule, an increasing body of work has attempted to chart the changes in Indonesian urban regional governance, social movements and the infrastructural space of urbanization (Nas, 2002; Kusumawijaya, 2004; Verdiansyah, 2006; Bakker, 2007; Hudalah & Woltjer, 2007; Lim, 2008; Firman, 2008; Silver, 2008; Douglass, 2010; Padawangi, 2010; Bunnell & Miller, 2011). These authors have shown the complexity of decentralized governance in relation to cities and to democratic development within Indonesia. This paper seeks to contribute to the discussion they

Figure 1. *'Go green' message from the city government of Jakarta, South Jakarta, 2010 (photo Lilawati Kurnia and author).*

have opened up on postauthoritarian Jakarta by considering the actions of individuals and groups in civil society as the locus of authority. Specifically, the paper aims at an analysis of power and knowledge by focusing on the green environment discourses, following the lead of Foucault's (1980) work on governmentality. Thus I highlight the much publicized 'green turn' in urban governance in Jakarta as neither ideological nor truthful (regardless of its merits) but as a pedagogical framework for managing social imagination in resolving the political crisis of postauthoritarian Indonesia. I tease out, discursively, different modes of representations and contexts that constitute this green imagination and consider the various events and practices in Foucauldian terms, as ways of governing the conduct of individuals and groups at a particular historical moment.[1]

I start with a consideration of the current initiatives of the middle class citizen groups, with the encouragement of the Jakarta City Government, to advocate more green spaces for the city. The green environment promoted by the city government from the perspective of branding the city aims to encourage foreign and domestic capital investment, as well as gain support from the middle class for doing so. In effect, private developers and middle class communities (rather than the state) have taken over the protection of the urban environment by linking it to the greening of the city, in accord with their own interests in reconquering urban space. The broader reason for this

movement of returning to the city, however, stems from the failure of new suburb towns in sustaining urbanization and the diminishing availability of profitable land at the outskirts of the city.[2] The concern over greening the environment thus operates in the context of 'back to the city' discourses. The interest in a green urban environment reflects the paradoxical situation where creating green spaces for the upper middle and middle classes to return to Jakarta necessitates the eviction of the poor from livelihoods and residences in urban spaces. Not surprisingly, this has spurred some architects and urban activists to reclaim the green imagery as a language of resistance.

Central to the context examined in this paper is the Foucauldian idea of class politics, whereby both the poor and the middle class are able to gain access to the green discourse and mobilize it as a resource in securing their rights to the city. Consequently, green discourse becomes an accepted form of power, carried out through a system of manipulation and conditioning, that constitutes a productive (rather than a repressive) network for the whole social body. Since the green discourse could be mobilized by different social groups and adapted for their specific struggles, it becomes a mode of governance. This formulation of environmentalism as a mode of governance moves away from the debate of whether the construction of 'tropical architecture' is political. Green discourse is at once ideological and scientific, but following Foucauldian analysis it may be more productive to conceive of it as neither ideological nor scientific. The focus of analysis then shifts to how environmentalism is produced within a variety of discourses that are neither ideological nor truth but which constitute the effects of power.

This approach of seeing environmentalism as a mode of discursive governance no doubt stems from the political opening up created in postauthoritarian Indonesia, but environmentalism as a form and practice of power is by no means new in Indonesian urban history. Environmental discourse played a key role at the beginning of twentieth century when Dutch colonial government centred in Jakarta introduced decentralization by giving the city the power to administer the segmented settlement system (Silver, 2008; Colombijn, 2010). Responding to this new initiative, colonial reformers, planners and architects such as H.F. Tillema and Thomas Karsten desegregated local building cultures by integrating them into a new kind of architecture and settlement pattern that prioritized environmental health and human comfort (on the colonial discourse and postcolonial spatialities, see Kusno, 2000: 130–43). The colonial project of environmental development thus already articulated concepts of hygiene and health in a tropical environment, though in colonial Indonesia, as Freek Colombijn (2010) shows, this project entangled predominantly with class dynamics, rather than racial distinctions. As early as the 1910s, town plans already expressed and enacted 'ethnically hybrid but homogenous class-based neighborhoods' even though the racially differentiated categories of 'indigenous kampung' (as lower) and 'European house' (as higher) were used to facilitate colonial rule (Colombijn, 2010: 139). The climatically sensitive modern settlement proposed by Tillema and Karsten in the 1920s, supposedly available to all ethnic groups, constituted yet another layer of spatial segregation based on social class. Meanwhile, the municipal project of kampung improvement, which also started in the 1920s, ended up benefiting the middle class and displacing the poor through a top–down process of gentrification exemplified by a technique of exclusion in the name of environmental development (Colombijn, 2010: 199).

Environmental discourse in the colonial era already embodied middle class interests but was not then a politically utilizable concept for the poor because 'kampong people lacked power' (Colombijn, 2010: 199). The context of present-day green discourse is surely different, even while it recalls the environmentalism of the Dutch colonial

administration. This is not to suggest that the poor today have power, but rather that power has become more inclusive in its 'mechanism of disciplinary coercion' (Foucault, 1980: 105). Notwithstanding the colonial precedent, the contemporary green politics of Jakarta reflects neither this past environmentalism nor its potential in Indonesia's future. The significance of today's green architecture and urban space lies in the perceived 'newness' or the 'presentness' of its moral and cultural authority to which the subjects of government have come to attach themselves.

This paper shows how the greening of the city today produces a form of governance that is based on the integration of the relatively independent voices of 'communities' into the structure of governmentality. It identifies the green environment discourse as an emerging rationality of governing or self-governing a whole variety of localities. Speaking to this context, the paper first turns to how the discourse of 'greening' Jakarta is practised as a new form of power and knowledge through which the metropolitan society is constituted.

Bourgeois enviromentalism: middle class citizen initiatives and 'expert' rules[3]

> We need more trees, so we will cultivate them. We will plant 30,000 trees in Jakarta . . . It will take consistency and sustainable action to make this city greener (*Jakarta Post*, 2008a).

So proclaimed the present governor of Jakarta, Fauzi Bowo, on the fine Friday morning of 28 November 2008 at the 15-hectare Srengseng city forest in West Jakarta, where he planted a *lobi-lobi* tree and launch the 'Clean and Green Jakarta' campaign. This ambitious project to plant 1000 trees in Jakarta's largest and most most biodiverse green area was powered by 300 volunteers and supported by citizen and business groups such as Jakarta Green Radio and the daily *Bisnis Indonesia*, as well as nongovernmental organizations (NGOs) with international affiliations such as Medco Foundation, Monfori Nusantara and the Jakarta Green Monster Organization.[4] The engagement with the citizen groups – defined loosely here as taxpaying 'middle class' communities – has been the approach promoted by the new city government (*Jakarta Post*, 2009a). Although private–public partnerships have been adopted by the city government in pushing forward urban initiatives and agendas since the 1980s, earlier collaborations had involved big business groups rather than the current emphasis on engaging various middle class communities.

The context for this shift to encouraging an activist citizenry, one could say, is the neoliberal order, which champions initiatives from individuals and social groups to promote more growth conducing living environments. In this setting the role of the government has largely been limited to coordinating, encouraging and rewarding community-based urban initiatives, which have resulted in jobs that the city administration is supposedly in charge of assigning. As was the case with the tree planting project, the government harnesses themes that are popular with the middle class, most notably, that of creating more green spaces in the city. Community-based urban initiatives are a new means for governing the city. 'Greening Jakarta' thus could be seen as an example of neoliberal governmentality in postauthoritarian Indonesia, which implicates the desires of both citizen groups and the state (in the figure of the city governor) for a transformation of Jakarta. There is, however, something more specific to the greening of Jakarta today.

With the vanishing of presidential patronage in the post-Suharto era, the changed social environment in *zaman edan* – as ex-governor Sutiyoso (1997–7 October 2007) termed the chaotic time of the reform era– has forced the city government and governor to work with and adapt to the emergent forces and demands of civil society (Kusno,

2010). The rise of democratic voices made Fauzi Bowo, the first elected governor as of 7 October 2007, perfectly aware of the need to change the strategy of governing the city: any urban project had to be justified in the name of the public and supported by 'the people' (i.e. the middle class) of Jakarta. Yet, the prevailing sense of what I have elsewhere called 'looseness in the centre' (see Kusno, 2010: 25–48) has also prompted middle class inhabitants of Jakarta to affiliate themselves with different communities, each having its own network so as to ensure survival and opportunities to prosper in the city. Under these circumstances, Fauzi Bowo has been determined to form a certain order for Jakarta by bringing together disparate communities to share a common platform, and by so doing ease the tasks of his administration. And he wants to achieve this through community leaders – invariably middle class professionals – who are dubbed 'experts'. Pronouncements such as 'Give Jakarta to the experts. If not, disaster is only a matter of time', or 'Jakarta is messy because it's mismanaged! Where is the expert?', amplify Fauzi Bowo's strategic approach to the governing of Jakarta through the specialist authority of professionals (he himself trained as an urban planner) (Alexey *et al.*, 2007: 166).

This community of experts approach to municipal administration has also reflected a pervading sense that the city government needs to appear sympathetic to city residents, who will then be persuaded (*diajak*) and moved (*digugah*) to take an active part in transforming and (re)building Jakarta. The expectations held of the governor were therefore spelt out plainly from the outset by Pramono Anung Wibowo, the secretary general of the Indonesian Democratic Party of Struggle (PDI-P) which had backed Fauzi Bowo during his election campaign:

> At least, at the beginning of the term, the governor should be able to communicate to the public all of his programs. The reason has been to ask for public approval and support, and to invite public to contribute in any way they can especially for ideas (Wibowo, 2007: 216; my translation).

Public participation and government through 'community' is apparently Fauzi Bowo's affirmative strategy for transforming Jakarta. Urban initiatives thus overlap with the aspirations of the middle class citizenry; all are committed to restoring the green areas of the capital city.

The laboratory of governmentality

Even while serving as vice-governor from 2002, Fauzi Bowo kept alive several ambitions of his own, one of which was to turn Jakarta into a world-class sustainable or service city (*kota jasa*) (*Jakarta Post*, 2009b). To realize this he required a particular type of people living and working together in the city, which would (need to) be refashioned according to their imagination. Having already been in city government for 20 years prior to serving his 5-year term as governor since 2007, Fauzi Bowo was quick to recognize the challenges of the changed times in which he found himself. As vice-governor he had already launched the Programme for Community Empowerment (PPMK or Program Pemberdayaan Masyarakat Kelurahan) to encourage citizen participation in neighbourhoods as part of a circuit of communication between the government and civil society. Soon after he was elected governor, the programme was formalized as the Institute for the Empowerment of Jakarta Society (LPMJ or Lembaga Pemberdayaan Masyarakat Jakarta, see further at http://lpmj.org/?lang=Eng), which was formed by the city government but remains outside the government bureaucracy and is run by experts (such as sociologists, anthropologists and planners, often affiliated with universities). The mission is to

distribute power by maximizing the potentials of people living in Jakarta to lead the project of becoming 'urban citizens'. Led by experts who are appointed, LPMJ seeks to bring together citizen groups who share a similar sense of belonging to a city that has been fractured by entrenched group interests, and regularly holds meetings workshops, seminars and teach-ins for members of various neighbourhoods under a shared theme. In the past few years, the theme of 'green environment' seems to be a force for unifying citizens.

But the mission to unify and empower citizens demands practices of subjectification to gain effect. The practices of subjectification in which individuals are recognized for their capacity to reflect and to strive for identity and identification can be seen as the experiment of sociologist Dr. Paulus Wirutomo, the dedicated director of LPMJ who is also a professor at the University of Indonesia. Wirutomo (2009) conceives the city government of Jakarta as an 'isolated island' in the sea of its uncommitted population. His concern, in the time of 'looseness in the centre' after the collapse of Suharto's New Order regime, is that there is no mutual understanding on rights or responsibilities between the city government and people in Jakarta:

> Everyone seems angry at the city government for problems in the city. Everyone asks for his and her rights to the city, but they don't see their civil responsibility as a requirement for citizenship in the city. The core of the issue here is the sense of 'citizenship' [*sikap kewargaan*] . . . How to be a good citizen and how to bring about the consciousness of citizenship (Wirutomo, 2009; my translation).

Wirutomo therefore believes that, as social subjects, citizens should be assisted in realizing their potential to exercise both their rights and their obligations through their own choice to live in a better environment. He thus proposes the need to make Jakarta an 'educating city', that is, a city of pedagogy to orient its citizens via the communities they have formed for themselves (be they bound by ties of schools, professions, politics, religion, ethnicity, lifestyles, hobbies, sports, arts or shared neighbourhoods). These communities are assets who ought to be encouraged to contribute in their own ways for the betterment of the city – for instance:

> the community of doctors should contribute to a 'healthy city' by providing practices of a family doctor. Architects should contribute to the building of an efficient, clean and healthy kampung. Artist and media groups should educate the public to develop their sense of obligation to become a good citizen. Neighbourhood communities should continue the tradition of community work [*kerja bakti*], and so on, in such a way that they could help solve the city's problem (Wirutomo, 2009; my translation).

For Wirutomo, each individual and every community has a role to play in the city and, once organized by the city government, everyone should be able to share a common platform of action against the potential threats to the city. Wirutomo has put his 'laboratory of governmentality' theory into practice in LPMJ, inviting the participation of various communities. Among the invitees on one occasion was Fachruddin Mangunjaya, a prominent public intellectual in Jakarta and leader of the Islamic Foundation for Ecology and Environment, whose impression and experience of the lab I now discuss.

Workshopping Jakarta's green initiative

In his blog, Fachruddin Mangunjaya (2008) wrote of his participation in Wirutomo's lab in August 2008, addressed to the mission to 'Jakartanize citizens of Jakarta' – a tall order considering the sheer number and heterogeneity of the city's population. First, he was

impressed by the capacity of the organizers (after seven days of deliberations) to bring together a dense diversity of participants, from academics and teachers to environmental activists and secondary school students The workshop method of 'appreciative inquiry' was an approach that reportedly proved to be working for urbanites in Chicago, Bangkok and Mexico in their efforts to create a better citizen for a better city to live in. (What kind of 'appreciative inquiry' was adopted is not specified, but perhaps this is not so important as Mangunjaya reveals how it played out in the lab.)

During the session participants were asked to suppress their thoughts of the negative and problematic aspects of the city and only focus, meditatively, on the positive side of the city. To Mangunjaya's astonishment, when criticism of the city was set aside, the space for appreciation began to emerge – not only in his mind, but also in the minds of other participants. Over two days participants were asked to formulate what they considered the best thing a citizen could do for his or her city. The results of everyone's free choices and apparently unmediated expression was, as he tells it: 'we all came up unvaryingly with notions such as *green* community, *green* school, *green* industry and all the imaginable positive aspects that may come out of them . . . [afterwhich] we drew up the action plan!' (Mangunjaya, 2008; my translation and emphases).

The post-Suharto mode of governing the population is indeed through the civilian's own imagination and voice. The collaboration between the city government, the experts and the community encourages urban residents acting as autonomous individuals to initiate urban programmes which will help them to realize their potential. It is from this perspective of self-reflection and imagining that subjectification and governance have become active practice. Issues of power are certainly at stake here for the city government, via its community of experts, as it seeks to engage the public in greening the city, with a shared sense of responsibility. Economically, this effort contributes to attracting capital investments in order to allow Jakarta to be a world-class service city, the centre of economic growth, one ideally sustained by environmental sensitivity. The commitment to create a green Jakarta represents a restoration of Jakarta to its 'rightful' place in the nation (and in the world) by halting the environmental exploitations that have characterized the previous city governments. The issue of political interests is important, but what is also crucial is to discern the practices that produce ways of governing the conducts of individuals and groups.

'Let's save Jakarta' has become the mantra of the current city government and the middle class who seek a 'return to the city' that will work for them. With the shared interest in greening and with green movements mushrooming in Jakarta, Fauzi Bowo has no difficulty in declaring his commitment to regain Jakarta's green space – some 30 per cent of the city area that over the past 30 years had been reduced to less than 10 per cent due to the constructions of new homes, condominiums, malls and office buildings. Many people believe that returning the balance in Jakarta to 30 per cent green space would alleviate environmental problems, such as air pollution, water scarcity and annual floods (Rukmana, 2009; see also Douglass, 2010). 'Green areas', as urban planning expert Deden Rukmana (2009) points out, 'are an important urban element that can help make cities self-sustainable and more livable', an aspiration that, as Rukmana is also well aware, has also caused a series of evictions in different parts of Jakarta. To achieve the target of 30 per cent green space, the city government has already made plans to destroy the dwellings of over 15 000 squatters around different 'public spaces' such as those near railway tracks and riverbanks (*Jakarta Post*, 2008b). In 2008 alone, an urban activist recorded: 'we counted four [mass] evictions: flower and fish vendors in Barito (South Jakarta), ceramics vendors in Rawasari (East Jakarta),

residents in BMW Park (North Jakarta) and again residents in Pulo Mas (East Jakarta)' (*Jakarta Post*, 2008c).

Such measures have stirred debate among residents of Jakarta. The middle class, largely in favour of the restoration of more green spaces in Jakarta and, for instance, had welcomed the restoration of the newly revamped Ayodya Park in South Jakarta: 'I never once saw the lake [in the park] because it was blocked by dozens of street vendors' kiosks' (urban resident quoted in *Jakarta Post*, 2009c). The pro eviction group feels that 'there are times that the government has no choice but to remove people from their homes and places of work for the greater interest of the public' (*Jakarta Post*, 2008d). To their critics, the commitment for a greener city is just a façade for acquiring lands in the city centre for profit-oriented projects: 'Officials forced people from their homes on the pretext the land would be used for public purposes, only to see the land developed into commercial property at the benefit of some well connected person' (*Jakarta Post*, 2008d). One such case cited by critics was where the city government used the idea of restoring BMW Park in North Jakarta to justify evicting some 4000 squatters, but then decided to build an international sports stadium on the site (*Jakarta Post*, 2008e).

The city's attempt to reclaim Jakarta's green space stumbles on the question of who have been or are the violators of the green space. According to a report of the reputable NGO Urban Poor Consortium (UPC), the encroachment of green zones by poor people in Jakarta only amounts to 218.2 ha, much less than the 1960 ha occupied by malls, apartments, luxury housing, golf courses and gas stations (*Jakarta Post*, 2008f). But because malls and luxury condominiums are not considered targets for eviction, the reclamation of green space has always fallen on the lands occupied by the urban poor. Yet, once the space is reclaimed by eviction, it is taken over by 'private' properties that can at best be turned into public-oriented private spaces such as multifunction 'superblocks' combining facilities for residences, public services, offices, shopping and entertainment centres. And this public-oriented private space has come to be considered as the embodiment of green living. The acquisition of green space, in an ironic turn, allows developers to realize 'green properties'. In this scenario, with the city government and the middle class reaching out to each other for a green city of the future, the real estate developers have had no trouble in promoting their 'green properties'.

Urban crisis, back to the city and green entrepreneurship

Despite the contradictions in the production of so-called green space in Jakarta, the notion of the 'green' has truly entered the lexicon of property market in Jakarta today. A survey by property magazine *Bisnis Properti* (2009: 14), found that almost all respondents strongly felt that 'the concept of green will live on forever' and that the 'green turn' was not just a passing fad, but a permanent addition to Indonesia's landscape, especially to the cityscape of Jakarta. Many respondents also felt that the material and ideological presence of green was 'a requirement in life without which there will be environmental disaster' (*Bisnis Properti*, 2009: 14; my translation). The property business has seized the moment of going green, which sees developers signifying and branding their real estate in the city, as well as in periurban locations, as 'The Green', 'The Forest', 'Eco City', 'Eco Living', 'Green Landscape', 'Green Environment', 'Green Tranquility', 'Green Property', and so on (Figure 2). Unlike past promotional strategies that spotlighted the architectural style or design of new buildings, today's brochures are dominated by images of trees, green lawns and the 'natural' environment as a whole, recalling the picturesque images of the once-upon-a-time 'tropical Indies'.

Figure 2. *The Forest – an exclusive and 'green' beach community in North Jakarta, 2009 (author's photo).*

Ciputra, the developer notorious for mega projects that have contributed significantly to the ecological degradation of Jakarta, has famously appropriated the green scene as the paradigm for the urban future. His IDR 3 trillion (roughly USD 297 million) Ciputra World superblock, which stands on a 5.5 ha plot of land in the central business district and is scheduled for completion in 2012, will boast '130 000 sq m mall, an auditorium enough to sit 1200 people, 170 apartment units, 136 condominiums, 64 000 sq m of office space, 170 Raffles Hotel rooms, and 88 units of Raffles Residence luxury apartments' (*Tempo Interaktif*, 2010). For Ciputra (2009: 84), Ciputra World qualifies as a green property, conceptually integrating the concepts of 'back to the city' and 'go to nature' to produce 'environmental balance' (*kesimbangan lingkungan*). Indeed, such environmental solutions, or green washing, do not contradict the business as usual sought through entrepreneurship, technological innovation and market mechanisms.

Ciputra is just one among many other developers pushing idea of roposing the 'green' superblocks to ameliorate the chronic crisis of the city. Marudi Suharman, executive director of a superblock of PT Bakrieland Development, the largest superblock developer in Jakarta, dismissed the 'suburb town' paradigm that had been central to the real estate development of the New Order as outmoded, because people (the upper middle class) 'would prefer to stay close to the working area where they do not waste too much time commuting. Efficiency will be an important issue in the future. People would now think twice about living on the outskirts of Jakarta' (quoted in *Bisnis Properti*, 2006: 52; my translation). The promise of the city superblock as 'the most realistic and logical solution' to the problems of Jakarta has also been endorsed by landscape architect and environmentalist Nirwono Joga:

> Living in a superblock in a city centre obviously saves much time, cost and energy caused by traffic jams. Superblock also saves lots of land as they are integrated buildings with easy access . . . Function-wise the residents do not have to go far or leave the area for various purposes, such as to go to work, school, the mall or to the cinema . . . This means that there is not much traffic within the superblock compound, creating less pollution as many residents prefer to go by foot or bicycle . . . Residents feel comfortable walking in the shade of lush, green

> trees through the scenic parks that have ponds. The development of green superblocks in the heart of highly populated cities will become a popular trend in the next 10 to 20 years (*Jakarta Post*, 2010).

The green and healthy environment is close to the hearts of the middle class who are fed up with the periurban suburb and interested in exploring the possibility of going 'back to the city'.

The green turn in real estate and urban living is related to the exhaustion of the city itself. Residents of Jakarta have been exhausted by the recurrence of serious floods, paralyzing traffic jams and lack of safety, among other things (Kusno, 2010: 25–70) Furthermore, the slow recovery of the post-Suharto Indonesian economy has produced waves of migrants to Jakarta, adding to the numbers of workers laid-off by the scaling down of periurban manufacturing who have taken up informal sector trades and jobs on the streets of Jakarta. All this has contributed to the expansion of squatter settlements in the city. The city government's responses to this phenomenon swing between large-scale forced evictions and tolerance, while at the same time fencing up public parks and installing barbed wire on sidewalks to keep out unauthorized vendors.

The public spaces of post-Suharto Jakarta thus have become a visible arena of conflict between the city government and the diverse communities comprising Jakarta's civil society. This situation calls for a new urban knowledge and spatial solutions that demand major land acquisitions and the remaking of the city in the image of the green superblock. Yet the size of superblocks can be anywhere from 1–100 thousand sq m, each in competition for not only upper middle class consumers, but also for land that the city could use. Going back to the city and green living would first require efforts to rid the city of squatters and reclaim open public spaces for the use of this class of 'green' citizens.

'Clean-up' operations have met with critical responses from pro-poor urban activists. The contestation has been posed in the language of resistance to eviction and rights to the city. The emergence of the green discourse has shaped a new style of resistance cast in the language of participation in the 'green environment'. This can be seen in the concerted attempts by one NGO to produce an environmental subject as a basis to fight evictions and struggle for the right of the urban poor to live in the city.

Pro-poor environmentalism: governing the margins

As already clear, the green development objective that has emerged as key to the health of the city is to be realized not just by politicians, reformers and planners, but also by a multitude of willing participants, mostly from taxpaying middle class communities. Such continuous societal cultivation has been accompanied by coercive intervention, often with violence, to discipline, evict and transform the squatter settlements of the poor. If the notion of going green is defined as civility, it equally suggests the uncivil or incivility, the underclass and the marginal which must be excluded or victimized through reformatory attention. The practice of discrimination is part and parcel of the green discourse, which as part of urban governance means the governing of the margins (Miller & Rose, 2008).

In 2008, as 16 evictions were planned to clear 55 540 sq m to reclaim green space, UPC, which has been at the forefront of the struggle to defend the rights of the poor, proposed preserving poor housing areas that met the requirements of a 'green environment' (*Jakarta Post*, 2008f). A battle over green concepts and assumptions thus ensued.

As Dian Tri Irawati, a coordinating member of UPC put it: 'We want to redefine what a green area is. If a poor housing area can absorb rainwater and carbon dioxide, it means the green area doesn't have to be a building-free area' (quoted in *Jakarta Post*, 2008f).

This idea of green is deployed as part of the language of opposition directed against the threat of evictions as community activists seek to reverse the thinking that has pathologized the poor and represent them as citizens with subjective capacity and as co-participants in making the green environment. In this scenario, members of the urban poor can be and have been taught ways of greening their homes and their environment through waste management and landscaping. In some cases, such greening efforts have been successful in changing the image of a shanty town as a first step to prevent the poor from eviction. Although urban poor communities have utilized green practices to claim their right to a place in the metropolis, the city government does not always acknowledge or support their efforts. One case highlighted by Imam Prosojo, a University of Indonesia sociologist and member of LPMJ, is that of a neighbourhood in a shanty town in Muara Kapuk, North Jakarta, whose offer to supply the fertilizer they processed from waste to the city's park agency was rebuffed. Though the neighbourhood had worked to change the image of their settlement via green language, and succeeded, they continue to live under the threat of eviction (*Jakarta Post*, 2008g).

What is seen here are community-coordinated responses to official threats of eviction that play into the language of governance to advocate for poor communities as active participants in the discourse of green housing and urban management. UPC activists have harnessed the greening ideal to be realized and thereby reversed the very terms the city government used to gain authority over poor housing areas. By employing the language of the greens, UPC activists could justify their stance and even suggest that the city government translate its aspirations to the advantage of the poor: 'instead of using the budget to evict poor people, we can use it to improve poor housing, by teaching people to manage waste and green their houses' (quoted in *Jakarta Post*, 2008f).

What this shows is that despite the different approaches to educating poor communities, the pragmatism of UPC activism, the middle class and the city government do work together. The city government and the urban poor meet on 'green' ground, producing an alliance between macropolitical aspirations and the desire of poor communities to live in the city. The green discourse, though shaped by the city government and middle class aspirations, is providing a new terrain of resistance for the urban poor, who are able to acquire knowledge of the discourse through intermediaries such as experts and activists. So although intermediaries may provide the 'proper' terrain of resistance, they too become part of the discourse of resistance that the urban poor have begun to strategically carve out.

UPC's effort to upgrade the urban kampung highlights the limitations of government policy in guiding urbanization, especially following the monetary crisis of that ushered in the 'democratic' era of reform. As a prominent activist of Jakarta stated: 'It is time for poor communities to seek solutions favourable to their own interests instead of expecting government policy to help them' (quoted in *Jakarta Post*, 2002). The post-Suharto era has created a space for the articulation of kampung interests even though such possibilities also create new competition among citizen groups for political goods associated with the green environment. In the following section, I offer another story illustrating how the rules of middle class communities and experts (outside the government) in reconfiguring the idea of green space for the kampung forces them to compete and act as an apparatus of education.

Urban education, civilian rules and responsibility

Partly in response to the profound lack of affordable housing following the political-economic crisis in 1998, the urban poor were permitted to use the space beneath the elevated highways in Jakarta, leading to thousands setting up their living places there. In the years since, the occupants of these dwellings have set up lively social and (informal) economic networks in the vicinity, along with often militant 'private' community organizations which have thwarted municipal control of these spaces. Consequently, as a North Jakarta community organizer Sofyan Jaya pointed out, 'several problems plague the space beneath elevated toll roads, including their being used as garbage dumps and becoming crime-prone areas' (*Jakarta Post*, 2009d). Regardless of the diverse outcomes and different motivations in claiming rights to the city via the occupation of these spaces, the urban poor have changed the meaning of the elevated toll road from one of a relatively exclusive space for upper middle class motorists to that of the space providing homes for the underclass living beneath.

The city government, however, has never failed to keep up with the slippage. Following the damage caused to concrete pylons in a big fire on a North Jakarta toll road on 7 August 2007, an order was issued on 17 August, Independence Day, to evict some 10 000 families living under elevated roads (*Jakarta Post*, 2007). To prevent their return, the outgoing governor Sutiyoso announced his plan to use the spaces under elevated roads for greenery and parks, badminton courts and soccer fields. By mid-2008, squatters from several subdistricts beneath toll roads had been evicted, and some 2000 trees were planted in those sites (*Jakarta Post*, 2008h). Expressing the determination of the city administration and tollroad companies to continue with the evictions, the minister for Public Works iterated that 'cleared tracts would be converted to green zones' that posed no danger to tollroad users (*Jakarta Post*, 2008h). This proposal to 'beautify' the city with open green space and popular sports amenities sparked debates the definition and the use of public space.

In the wake of the North Jakarta toll road fire, several architects became engaged in the greening debate by designing houses, common green areas and playgrounds for the urban poor in these spaces (*Jakarta Post*, 2007). UPC also commissioned a team of urban planners and architects to come up with a housing development concept at 10 locations under elevated toll roads in Jakarta. In keeping with the concept of 'a city for all', the NGO demanded government acknowledgement for the rights of the urban poor to live under flyovers. This initiative to win recognition through the building of homes, the UPC team believed, could 'create a greater sense of belonging. The residents would subsequently maintain the aesthetics, cleanliness and security of their own neighbourhoods' (*Jakarta Post*, 2007).

Besides the UPC team, architect Andra Matin, working independently, was among the first to take up the role of an expert in fending off eviction by creating an environmentally friendly living space for the squatter communities under an elevated toll road and an intersection in North Jakarta (*Jakarta Post*, 2005). Matin's design sought to change the image of the informal settlements as spaces of cultures of 'poverty' by recovering the living and working environment of the urban poor as civilized and worthy: 'People there keep pets like cats, and livestock like ducks and chickens. I have designed elevated houses so they could keep the animals under their houses' (quoted in *Jakarta Post*, 2005). Matin's buildings accommodated different individual and collective living needs: 'The first level of the building would be more suitable for families while the rooms on the second level would be for singles' (quoted in *Jakarta Post*, 2005). He also

designed a 'common area' and 'playground for children'. The ordering of space sought to capitalize on the capacities of the urban poor for civility and responsibility. Projecting expressions of 'family', 'community' and green spaces', Matin's buildings challenged the conception of such informal settlements that justified the city government's eviction programme.

Matin is one of several architects who find in their professional vocation a need to think about places for the urban poor in the city. Architects and planners operate as experts of ethics, environment and lifestyles whose spatial ordering would provide a guarantee for the proper conduct of the communities. Empowered by the experts, the urban poor communities then expect to be accepted as 'proper citizens' by the city government.

This approach to cultivating kampung dignity via environmentally friendly design for the urban poor came to national attention in the 1980s through Yusuf Mangunwijaya's work to counter the eviction of informal settlements along the Kali Code River in Yogyakarta (Purwestri & Widyarta, 2007). Mangunwijaya upgraded the appearance of some 35 houses, which saved the community (where he too lived) from eviction and in 1992 garnered an Aga Khan award. The houses he upgraded were considered environmentally acceptable and dislodged stereotypes of slums or squatter settlements. Today, the efforts to cultivate a green environment as the basis for the right to the city are supported by middle class architects, activists, and the like, and partially acknowledged by the city government. Characteristic of the democratic mood of the post-Suharto era, they encounter competing proposals from other members of civil society who feel responsible for the use of the space beneath the flyovers.

As the UPC team worked on their proposal, middle class residents near the toll road in North Jakarta reacted to the city government's attempt to reclaim the space beneath. In 2007, Sofyan Jaya led the formation of the Development of Community Under Elevated Road Group (KMPKT or Kelompok Masyarakat Peduli Kolong Tol) in the mission to use the spaces under elevated highways for 'sport activities, interactive parks or multifunction halls, complete with a green space. . . . It is the people's initiative because their area is close to an overpass where many illegal settlers used to be, causing problems like waste and crime' (quoted in *Jakarta Globe*, 2009). In December 2008, with the help of US -based NGO Mercy Corps, the local partner of the Focus Cities Research Initiative of the Canadian IDRC (2009: 2), over 600 members of the North Jakarta group participated in drawing up 65 design scenarios of how the space beneath the toll road could be used, including 'a reading area because the kids in our neighbourhood are getting involved in things that could lead to gambling' (urban resident quoted in *Jakarta Post*, 2009d). The official IDRC (2009: 2) update indicated that 'each of the plans includes a mix of land used, with particular emphasis on community space and green space'. Noting the lack of public space in the densely populated vicinity, a member of the group said, 'this is a solution we are proposing to avoid further illegal use of the space. We hope all stakeholders will support our plan' (cited in *Jakarta Globe*, 2009). At the presentation of their plan to the Public Works Ministry, the city's spatial planning agency and the city's toll road operator, Bambang Sugiyono, the North Jakarta mayor, welcomed the community initiative for greening the space, as did the spatial planning agency head, M. Suhardyoko, who said, 'If approved [by the governor], the proposal and the funds will be discussed at meetings about construction projects' (quoted in *Jakarta Post*, 2009d).

The case above indicates how the elevated highway has come to embody a diversity of claims for greening the environment as the structure itself is recomposed to

accommodate the varied demands mobilized by social actors such as the urban poor, NGOs, architects, planners and middle class citizen groups. While the motivations of these social actors are diverse, their involvements in 'revitalizing' urban space have centred on articulations of a green environment – whatever this could mean to them and to others. In large measure, the insurgent practices of the various social groups reveal both the power and the limit of the state's technology of governance. In its place, a new mode of governance, one that is discursively assembled by middle class citizen groups, professionals, academics and activists around the idea of the green environment, has begun to gain relative power in relation to the government.

When the outgoing governor of Jakarta in 2007 issued a proposal to reclaim the public space beneath elevated highways for parks, he was thinking not only of evicting the poor but also of greening the city to upgrade the image of national progress as Jakarta and the nation continue their struggle for a place on the map as an environmentally sustainable world city. However, the interest in a green environment also stems from a shift of governmentality in which the city government offers approval and reward for the initiatives of a community of experts, who are now playing the key role of organizing perception, action and evaluation. In this context, the green environment offers a discourse of unity, one that is resonant with the macro aspiration of the city government.

Conclusion

In 2007, the leaders of the Muslim National Awakening Party (PKB or Partai Kebangkitan Bangsa), assumed a new identity for the organization by adopting the green environment as the intellectual principle of the party (Figure 3). During their twelfth anniversary in 2010, the party initiated a program of planting 10 000 'trees of life' in Bogor, West Java to consolidate their position as *the* green party of Indonesia (*DetikNews*, 2010a). The chairman, Muhaimin Iskandar acknowledged that attention to green environment stems from the fact that the Indonesian public has become more committed to conserving environment due in part to the global campaign on the dangers of climate change. As a 'green party' committed to safeguarding existing laws and regulations that

Figure 3. *'Care about natural environment, save the future of our nation': greening party politics, 2010 (photo Lilawati Kurnia and author).*

are pro-environment, it has launched a website called Green House (*DetikNews*, 2010b) to promote the design of green high-rise buildings and established a council to oversee the preservation of existing environmental regulations. It will also be proactive by working out a regulation that will require provincial governments to construct urban parks for their cities. All these, according to Iskandar, are to show to the public that 'we are serious about environmental issues' (quoted in *DetikNews*, 2010b; my translation).

As politicians become the vanguard of environmentalism and private developers are marketing nature to customers, the city government, the community of architects and urban advocates are also engaging with the urban population via discourses of green environment. They have all helped popularize the significance of 'go green'. The green political party and municipal government, in their attempts to gain support from an increasingly green-conscious middle class, seek to redefine their authority in the image of the sustainable green city. The real estate industry in its quest for new ideas to appeal to trendy customers tries to market the notion of green properties. The pro-poor activists' struggles against evictions and for the rights of the poor to live in the city also appropriate the theory and practices of greening the environment. These diverse actors and institutions might not be aware of each other's culturemaking activities, but they are taking part in producing what is there to be governed. Their loosely connected interaction – via green environment discourses – constitutes a shared form of knowledge and the regulation of public life. In this rhizomic process of power formation, bourgeois environmentalists intersect with (rather than contradict) pro-poor activists and, together, both help constitute the biopower of the state. The idea of reintegrating nature and society thus is central to the reconfiguration of governance in contemporary Jakarta.

In this paper, I conceive the green discourse as a 'technology of thought' that constitutes what Foucault would call a political rationality of governance (Miller & Rose, 2008). I tease out the governmentality side of the aspiration for a green environment in the context of post-Suharto Jakarta. I delineate the reworking of 'green environment' (often associated with the 'tropical') in Indonesia as a domain of both political and ethical discourses that operate at the level of subject formation. I argue that a new configuration of power, based on collaboration between experts, clusters of communities and the city government, is taking shape to govern the urban population. This is definitely not to think past the environment and the impending hazards of global warming and efforts to make Jakarta and Indonesia a better place to live. It is rather to offer a different context for an understanding of the ways in which the political cultures of the government and those of the citizen groups intersect in transforming the city.

Endnotes

1 This paper heeds Stephanie Rutherford's (2007: 305) call, in her analysis of the interaction between nature and governmentality, to pay attention to 'unintended consequences, acts of resistance, processes of occlusion, and multiple locations in the exercise of green governmentality'.

2 The failure of the new town concept was widely acknowledged even before the collapse of the New Order regime. Just before the end of his tenure, then governor of Jakarta, Surjadi Soedirdja (1992–1997) commented that 'the expansive development of new towns in Botabek (Bogor-Tangerang-Bekasi) has only increased the volume of traffic in Jakarta' (quoted in *Media Indonesia*, 1997).

3 The idea of 'bourgeois environmentalism' has been explored by various scholars, especially in the context of problematizing the Eurocentrism of environmentalist knowledge and movements in the global north. Bourgeois environmentalism, however, can also be used to illustrate

the urban discourses of the global south. In the major cities of Asia, for instance, in the name of championing a green environment, urban spaces have been reserved for the production and consumption activities of upper middle class residents. The pertinent question then is how the urban poor think about issues of the environment and how they are subjected to the values of bourgeois environmentalism. I thank Chang Jiat Hwee for pointing out to me the range of scholarship that deals with this issue (see also Gandy, 2008; Guha & Martinez-Alier, 1997; McFarlane, 2008).

4 The website of the Jakarta Green Monster Organization, for example, informs that the volunteer community is supported by a range of international governmental and nongovernmental organizations, such as the Flora Fauna International, the UNDP, the National Communities of the Netherlands and the Nippon Keidanren, as well as the Ministry of Forestry and the City Government of Jakarta (see further at http://jgm.or.id/v2/about-us/).

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'Tropical' cosmopolitanism? The untoward legacy of the American style in postindependence Ceylon/Sri Lanka

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Using Homi Bhabha's discussion of vernacular cosmopolitanism as a starting point this paper attempts to reinterpret its thesis through an architectural reading of postindependence social transformations in Ceylon that coincided with the emergence of a new middle class. Inspired by American examples, suburban domestic architecture that was modest and repetitive and employed systematized construction methods made a break from a long history of labour intensive processes. This created channels through which American influences entered the local industry and were disseminated within it as an alternative 'tropical' modernism. This paper studies the location and marginalization of these influences within architectural discourse.

Keywords: tropical, modernism, Ceylon, suburban, middle class

Introduction

During the 50 years following independence, which for many British colonies in Asia spanned most of the twentieth century, the meaning ascribed to the term and practice of 'tropical' architecture shifted quite radically across the dialectic of modernity and tradition. Whereas during the 1950s–70s tropical modernist architecture fashioned modern institutions as distinct from their colonial precursors, the 1980s applied the same descriptors to the revival of traditional institutions linked to postcolonial identity construction. The utopian and innovative modernist aesthetics of the postindependence period were by the 1980s displaced by picturesque alternatives derived from a simple rural vernacular. Both these orientations originated in different stages of the colonial encounter and the picturesque climatic responses of early twentieth century bungalows were precursors to the tropical modernism of the mid-twentieth century. South America, Africa, India and Southeast Asia were all sites for functionalist and climatic experiments, conceived and disseminated by foreign experts.

In Ceylon – the name the island was known by from its colonization in 1505 until its independence in 1948 – these architectural changes reflected an ideological shift toward indigenization ratified through a name change to Sri Lanka and republican status in 1972. Processes of indigenization were initially linked to socialist policies of import substitution, but with economic liberalization in 1977 turned to a new industry focused on tourist dollars. The regionalist 'tropical Asian' styles of the 1980s and 1990s were typically applied to elite residences and resorts, and less so to institutional programmes, and produced a pervasive stylistic synthesis of tropical modernist and vernacular aesthetics. The vocabulary for this new vernacular borrowed from precolonial architectures for elite houses and rural vernacular buildings and was adapted to the identity discourses of the postcolonial period, yet maintained the structural rationalism of concrete superstructures. Unlike the critical regionalist positions described by Kenneth Frampton (1983) as resistant to globalization, this new approach evolved in tandem with – and enabled – the

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penetration of the global tourist industry. Tropical-styled resorts were the new institutional monoliths in the rural landscape and the factories for rural labour.

In Ceylon/Sri Lanka, often invoked as a generative site for the vernacular approach with reference to the sustained influence of Geoffrey Bawa, the combination of modernist and indigenous aesthetics have predominated and shaped the architecture of two generations of practitioners (Robson, 2003; 2007). The salience of Bawa's approach – a modernist free-plan enveloped in a familiar vernacular form of pitched roofs, verandas and courtyards – was in its retrieval of an indigenous vocabulary, which has proved useful for the identity politics of the 1980s and the cultural themes appropriated by the tourist industry. The buildings of the national parliament and the University of Ruhuna, and numerous hotels along the southern coastline, conveyed this indigenized aesthetic as the most appropriate 'Sri Lankan' style. Bawa's various elite commissions for private residences reproduced this iconic image as did the work of architects influenced by him. Their work suggested that global forces of modernization had not imprinted the island's built environment and that local architecture had resisted such influences, although of course the tourist industry was the most fertile vein for cultural globalization.

The social impetus of the shift towards modernism in Sri Lanka should not be read in these elite commissions but in a different architectural orientation that emerged incongruously between modernist and vernacular tropical styles, following American (US) influences. Variously termed American style, ranch style and California modernism, this architecture, which emerged in the late 1960s–70s, was symptomatic of the numerically small postwar multiethnic middle class who defined themselves against elite/colonial architectural styles. They were a population without agricultural properties, aspirants to educational opportunities created by free tertiary education for whom home ownership would be the single most important lifetime investment. They populated new suburban developments to the south and southeast of the then capital city, Colombo. These areas, which fell under the Dehiwala-Mt Lavinia and Kotte municipal councils, would account for 29 per cent (341 993) of the city's population by 1998 (cited in UN-Habitat, 2003). Their houses, which replicated popular American trends, were designed by draftsmen rather than architects, built by local labour contractors and, aesthetically, bore no resemblance to the colonial bungalows of the early twentieth century or to the vernacular style that would soon replace them. Their solutions, although innovative, were often aesthetically unresolved, a pastiche of functional spaces and cultural responses, symptomatic of the uneven forces of social change. Their aesthetics were treated by elite commentators, disdainful of American trends, as examples of poor taste, which well-known landscape artist Bevis Bawa (1985: 62–63) makes patently clear here:

> The houses of today springing up faster than mushrooms in one's back yard (which is all one has for anything to spring up in) – it makes one wonder whether architecture is overtaking modern art . . . but our people after independence want to be independent; so prefer to buy dozens of magazines, cut out dozens of pictures of buildings that take their fancy take bits and pieces out of each, stick them together–and there's a house.

The circumstance of the emergence of suburban housing, which falls outside the elite-focussed scrutiny of regional architectural publications, is increasingly useful for a critique of the profession's discursive representations of so-called tropical architecture.

Tropical architecture

The term 'tropical', which is attractive to affluent Asian consumers and tourists from postindustrial and former colonial metropolitan centres, is problematic at many levels. First, its orientalist basis and colonial associations form the historic roots of the term and the biases associated with it. Colonial health and medicine, penal policy, plantation industries and anthropological studies of both people and their habitat were shaped by racialized distinctions made on the basis of climatic difference (e.g. Arnold, 1993; Duncan, 2007; Philip, 2004). More importantly, colonial discourses frequently naturalized the relationship between climate and architecture as the overwhelming criteria for architectural approaches in the South/Southeast Asian region. This tendency has grown rather than diminished after independence and, coupled with an anthropological interest in vernacular architecture, has provided a formula for the analysis of the indigenous architectural past. Throughout the 1970s–80s, climate was used both to enable and excuse the uneven process of decolonization whereby architectural development and motivations were often contradictory. Climate was reiterated continually through nationalistic environmental or geographical concerns.

Second, 'climate' as a trope, while facilitating regional identities, silenced other often more pressing issues of culture, gender, labour, technology and socially sustainable practices in determining building choices. Moreover, the deteriorating physical environments in many Asian cities suggest that environmental concerns have not been foremost in guiding both public and private decision making in the twentieth century. But more simply, at the level of architectural discourse produced by and disseminated within the profession of architecture, the potential of the approach was limited. A narrow avenue of investigation – climate – was expanded beyond all other possibilities, triggered by changes in the market place, and most recently, the urgency of green imperatives and post-disaster reconstruction. The limits of this approach are easily seen when compared with Euro-American discourses on architecture, where extreme climatic conditions necessitate the insulation of buildings and reliance on artificial heating and cooling systems. While a discourse on temperate region architecture is unlikely to express the diverse entry points into architectural expression in Europe and America, the terminology conceived and proposed by western experts reduces architectural culture in the East to its climatic response.

A consistent problem in representations of tropical architecture is related to transformations of meaning during more than a century of usage. These transformations are rooted in a familiar dialectic of modernity and tradition that has had multiple interpretations, particularly across class. Labour processes naturally figure in this dialectic, but other discourses regarding societal development, cultural production and identity politics, which originate in colonial period economic histories, inform its trajectory. J.S. Furnivall (1956: 304), prominent scholar/critic of colonialism during the 1950s, described 'tropical dependencies' as dual economies comprised of two distinct economic systems, capitalist and precapitalist, with a 'western superstructure of business and administration rising above the native world'. Marx's (1906: 184) writings on slavery and early writings on colonialism associated the term tropical with systems of coercion. Similarly, in literature on colonial Ceylon, a feudal system of deploying corvée services to the king is characterized as 'a tropical system of compulsion' (de Silva 2003: 247–48), in juxtaposition with the mercantilist restrictions and laissez-faire practices of successive colonizers. Such pejorative associations identified tropical societies as resistant to a more cosmopolitan and market driven colonial/bourgeois capitalism.

The redemption of the terms 'tropical' and 'vernacular' in discussions of the climate-dependent architecture of precolonial South and Southeast Asia has occurred due to ignorance of this labour historiography. Unsurprisingly, labour reform continues to be the weakest area of the contemporary construction industry in Asia in terms of wages, living conditions and skilled training offered to construction workers, whereas other sectors of the construction industry such as design show radical advances that are receptive to postindustrial aesthetics. This lacuna reveals the colonial class politics lingering within the profession that has shaped the meanings and associations of tropical architecture as in the case of Sri Lanka.

The term 'tropical modernism' of the 1950s and 1960s identified the modernist aesthetic outside Europe and recorded its adaptation to climate by foreign experts and the first generation of local architects trained in the tropical programme of the Architectural Association (AA) in London. It provided an alternative to the Victorian eclecticism of the early twentieth century and stripped public buildings of cultural embellishments denoting colonial government. The legacy of tropical modernism was explicitly communicated through secular national projects in India, which involved three proponents of the AA's tropical programme: Maxwell Fry and Jane Drew in Chandigarh, and Otto Koenigsberger in Bhubaneswar. Conferences and architectural programmes in London and Melbourne, and publications on tropical architecture suggest transcolonial cultural exchange throughout the 1950s and 1960s with experts and their students moving between climatic regions. The first experiments with tropical modernism in Ceylon by local practitioners who studied at the AA such as Visva Selvaratnam and Leon Monk, Minnette de Silva, Geoffrey Bawa and Valentine Gunasekara can be attributed to the influences of these individuals (Figure 1).

Bawa and de Silva would abandon tropical modernism in favour of a designed vernacular in later years, but others would persist. Moreover, the reach of tropical

Figure 1. *Apartments in Colombo by architects Selvaratnam and Monk (author's photo, 1992).*

modernism was substantial and varied in scale as evident in the two buildings designed in Colombo by Fry and Drew: the Lionel Wendt Theatre (1953–1959) and a house for Ranjith Fernando. Popular examples were disseminated through local newspapers and periodicals (Zahir, 1961). Government architect Justin Samarasekera, who trained at the Sir J. J. School of Art in Bombay, would explore this aesthetic in his private practice.

Experiments in the tropical modernist approach in Ceylon spanned several changes from political alliances within the postcolonial British Commonwealth to the non-aligned movement and increasingly socialist economic orientation. During the 1960s, the State Engineering Corporation was quick to adapt its functionalist aesthetic for institutional buildings, so that pavilions in the Ceylon Industrial Exhibition of 1965 followed the key tenets of the tropical modernist approach. Concrete technologies, a brutalist aesthetic, prefabrication and structural innovation marked a radical departure from the first Buddhist-style institutions designed by the colonial Public Works Department. American modernism was as yet remote in the Ceylonese world view, and there is no evidence that the regionalism of American architects such as Lyndon, Moore and Turnbull or Paul Rudolph ever influenced their Ceylonese contemporaries. Certainly the aesthetic sensibilities of these American architects were not evident in local designs, perhaps because few, if any, Ceylonese were educated in the US. Instead, prefabrication techniques used for military facilities in preparation for the Vietnam War were introduced through the American pavilion at the 1965 Ceylon Industrial Exhibition. By then the term 'tropical' no longer invoked a feudal cultural system based on compulsion but had acquired liberal and global associations.

Vernacular cosmopolitanism

The proximity of American interests in the Asian region during the 1950s–60s brought with it a cosmopolitan postwar spirit of individualism, which was quite distinct from its colonial counterpart. The populist modernism of postwar American design was very different from late colonial architecture and its influence, although little researched, was pervasive at the margins of the capital city Colombo. Two concerns were evident from the outset. The emerging postindependence middle class, the main clients for American-inspired populism, were disconnected from the colonial elite by their lack of wealth and social status, and by their education in local institutions, including new universities such as the University of Peradeniya (established in 1952), rather than British (Oxbridge) colleges. They were not the products of social privilege and, although resident in urban areas, maintained connections with rural communities as professionals, planters or government servants. Indeed, their distinction from the landed gentry who had built grand mansions in Colombo during the early twentieth century is an important one. The relocation of many of these individuals and their families in new industrial suburbs at the outskirts of Colombo identified them as migrants from rural areas or small towns throughout the country and suggested their spatial as well as social distance from colonial and elite norms. The negative associations of 'tropical' and 'vernacular', once used to differentiate between a 'westernized' colonial comprador class and the rest of the colonized subjects in Ceylon, were effectively bridged through the emergence of this group of 'vernacular' cosmopolitans.

'Vernacular cosmopolitanism', as theorized in postcolonial cultural studies by Homi Bhabha (1996: 191–207) and Breckenridge *et al*. (2002), describes a specific postcolonial conjunction of a politics of attachment and a transnational sensibility specific to immigrant experience (Pieris, 2007a: 11–12; Pieris, 2007b). The vernacular origins of

this cosmopolitan spirit, argues Robbins (1998: 1), which is disassociated from elite/colonial cosmopolitanism and particularly evident in the nationalist elite of the postindependence era, suggests a form of cosmopolitanism from below, reminiscent of postcolonial theories of subaltern consciousness. Robbins refers to particular forms of 'postcolonial cosmopolitanism', discussed by Parry (1991: 41), which are frequently theorized to describe the immigrant condition where postcolonial subjects inhabit the margins of the metropolitan culture of a former empire. The usefulness of the term 'vernacular cosmopolitanism' for understanding the postcolonial middle class in Ceylon is twofold. Migration between country and city in the Ceylonese case suggested travel across rural and metropolitan cultures. These cultures, moreover, due to the imprint of colonialism, were divided between East and West, and located outside both mainstream modernity and coloniality. They offered opportunities for forms of border thinking or 'critical cosmopolitanism' (Mignolo, 2002: 160), a foil, perhaps, to the critical regionalism that was to follow.

Both Bhabha (1996) and Clifford (1998: 362–70) emphasize the hybridity of this vernacular cosmopolitan space, which rejects the relativist cultural agendas of postnational politics or the essentialist search for an authentic alterity (see Cheah, 1998: 22) characteristic of the suburban residences of the 1970s. Hybridity in this context suggested the accommodation of the otherwise dialectical traits of tradition and modernity. However, the processes by which vernacular cosmopolitanism manifests itself are linked to capitalism rather than ranged against it, a connection that differentiates it within labour historiography as symptomatic of the emergent middle class. Vernacular cosmopolitans participate in the capitalist economy and are intent therefore on achieving social mobility, but their vernacular roots inform and modify received social and spatial practices.

If we are to put aside the more inflexible interpretation of the vernacular as a timeless aesthetic and embrace a more creative understanding of the term as self-made and unsophisticated, we would find an apt description for the middle class aesthetics of the postcolonial era. The vernacular cosmopolitans of Ceylon were uncontaminated by colonial values and aspired to modernity on their own terms; they had no claims to feudal ancestry or colonial status and were ethnically diverse. They were migrants between a local rural culture and an urban centre shaped by the colonial encounter and had remained at its physical and cultural periphery throughout the colonial period. Their emergence after independence was consequently coloured by the anticolonial sentiment of the 1950s and firmly rooted in the politics of place. Indeed, their combined aspirations as an emergent social class were not dissimilar to those expressed in the postwar American vernacular.

American style homes

The increasing interest in the single family home in America in the 1920s–30s was a product of a discourse on individuality and citizenship that was framed by the suburban housing market. According to Wright (1981: 193–95) it produced 'a combination of small-town virtues and urban amenities in a carefully planned environment'. Problems in the American housing system were redressed by bringing together the two 'conflicting characteristics' of 'personalized design and uniform planning'. Increasing regulation, electrification and car ownership contributed to the idealized model home that was widely circulated by popular magazines such as *Better Homes and Gardens* (founded in 1922 by Edwin Meredith). Many of the styles were period revivals from European or Spanish colonial architecture.

In a discussion of new suburban expansion and the American dream in the 1940s, Wright (1981) describes how the housing crisis in the postwar years intensified efforts at facilitating home ownership through the introduction of loan and mortgage schemes, experimental technologies and an increasing involvement of housing developers. The model home became a place that enabled a healthy family life centred on the role of the mother and the children. The orientation of the living room to the rear of the site, the open plan, and the large glass doors leading to a patio augmented this vision of a more private domestic life while new materials and appliances in the service areas facilitated living without domestic servants.

Housing in California was particularly influenced by the 'western ranch house' where orientation to the rear, exposed natural materials, *corredor*/family room and patio were said to be derived from the Spanish colonial tradition (May & Johnson, 1997: 8–23). Both the craftsman style and prairie modernism influenced this form while the introduction of international modernism in the 1950s gave it a more streamlined aesthetic. The carport, the split-level and experimentation with roof shapes were seen as more contemporary traditions. The rapid dissemination of this style was enabled by a profusion of literature and plan types in magazines targeting the domestic reader that presented both the suburb and the suburban dwelling as profound statements of American individualism.

Virginia and Lee McAlester's (1984) *Field Guide to American Housing* identifies five architectural styles under the category 'American modern', including the 'minimal traditional style' (1935–50), the 'ranch style' (1935–75) the 'split level' (1955–75) and 'contemporary style' (1950–1980). They describe the common qualities through which American suburban architecture of this period was recognized and made available for appropriation in parts of Asia and Europe throughout the 1950s and 1960s. The most influential, however, was the contemporary style of the 1950s that continued the characteristics of the ranch style in a modernist aesthetic that was attributed to the growing influence of architect-designed spaces. Various combinations of materials such as wood, brick and stone wall cladding with tiled flooring are a typical feature of this style as was the more open plan concept of combined living spaces. The shed with its multidirectional roof (1960–present) was another contemporary variation. These 'styles' appealed to middle class consumers desirous of identities beyond the nameless vernacular.

Following their popularity, well-known American architects began producing variants of this style. The Case Study House Program, launched by the California-based *Arts and Architecture Magazine* (1945–1966) and aimed at designing low-cost experimental modern prototypes for postwar housing in southern California, featured 38 models produced by architects including Richard Neutra, Charles and Ray Eames, Craig Ellwood, Eero Saarinen and Pierre Koenig (Smith, 2002). Paul Rudolph and Ralph Twitchell's Florida houses (Domin & King, 2002) expressed similar values in a tropical climate, but their streamlined industrial aesthetics, flat roofs and seamless blending of interior and exterior through large expanses of glass were not adopted in Ceylon.

Modern eastern bungalows

The predecessor the American style home in Ceylon was the 'modern eastern bungalow' (Figure 2), a model of colonial residential architecture built in the 1940s. Designed to house the growing number of British colonial service families, this building type replaced the Palladian style, elite English manorial influenced mansions of an earlier era

Figure 2. *Government bungalow, Colombo (author's photo, 1992).*

and reflected the pragmatism of the war years. The bungalow house plan was circulated through pattern books and introduced by architects of the colonial government's Public Works Department – hence colloquially known as 'PWD bungalows'. S. Douglas Meadows (1931), in his colonial pattern book *Modern Eastern Bungalows and How to Build Them*, observes that the need for efficient building during the postwar period increased the importance of the architect and resulted in the relative displacement of the engineer and contractor/builder. According to Meadows, whereas colonial mansions previously were identified through their owners, the bungalow residence would hitherto be seen as an architect's creation. Herbert Gonsal (1951: 83), a local architect rationalized the style under three distinct units respectively for accommodating rest and privacy, entertainment and recreation, and work and storage.

The PWD bungalow stripped colonial mansions of their finery and redefined the house through a functionalist brief. Racial and class differences further divided this programme into spaces for British residents and their Asian servants. 'Front' rooms (*issaraha kamaraya*) were modelled on the Victorian parlour, while 'front food' (*issaraha kèma*) comprised English dishes typically eaten at dinnertime. A 'pantry' equipped with modern appliances was usually reserved for English ladies to make desserts. These adaptations coincided with increases in the migration of British wives and children during the late colonial period.

Since the PWD bungalow did not offer any protection along the building's edges, concrete sunshades or timber awnings were introduced to protect windows. Concrete grills located above them facilitated cross ventilation. The veranda was a room with window openings but no sashes. The placement of the bungalow on the site at the end of driveway replicated a villa in a garden, stripped of the verandas and stables of old. This was an introverted box in keeping with Victorian ideas of privacy and propriety and colonial demarcations of racial distance.

The impact of modernism on this conservative landscape was radical and not necessarily well-received. The first generation of architects, many of whom studied at the AA's tropical programme, brought new forms derived from the European avant garde and experimented with them on bungalow architecture. They conveyed modernism from the metropole to former colonies, first as fenestrations and then as radical new designs. The clientele for their designs were typically urban, upper middle class or professional families who were well-established in the capital city with enough social distinction to experiment with modernism. Racial difference was no longer an issue although class distinctions (between householders and servants) were maintained through interior divisions.

In contrast with the tropical modernist bungalows springing up in Colombo, the 'American style' negotiated an ideal social space for middle class Ceylonese families in the new suburbs. The novel lifestyles projected in magazines such as the particularly popular *Better Homes and Gardens* articulated a new sensibility that was free from the colonial rhetoric of politics, privilege and anglophile values that had inhibited a previous generation. The channels for their circulation had been created by a dearth of British publications during the war years.

Few, if any, of their consumers actually travelled to America. Neither were they aware of the American modernist discourse (the first generation of Ceylonese architects were trained in India and England). The dream that was borrowed or appropriated from America, of modernity and democracy framed in Ceylonese political independence, was appropriated from afar. The style marked the emergence of a new social class.

The new suburbs

The American style brought with it a suburban morphology, a particular way of occupying tracts of land that were opened up to developers and military servicemen's loans in America during the 1950s. In the new industrial suburbs of Sri Lanka, on former plantation lands at the outskirts of Colombo, the American style suburban home offered a nuclear definition of the Ceylonese family. The suburban housing estates of Ratmalana, Nawala, Rajagiriya and Nugegoda in the Kotte and Dehiwala-Mt Lavinia municipalities saw an epidemic of model homes championed by Ceylonese- or Indian-trained architects, draughtsmen and locally trained apprentices who cobbled their aesthetics from numerous American magazines (Figure 3). For example, locally trained practitioners such as Arambawela, Devapriya and Alfred Kalubowila added their expertise in this particular aesthetic to the general coterie of individual builders and homeowners. Whereas the spacious suburban house in America, exemplified in such publications as *The California Plan Book*, responded to congestion in downtown areas, the Ceylonese suburban model was a result of site restrictions and used an L-shaped plan to maximize a plot of land that had been downsized to be made affordable. During the 1960s the need to regulate this space limitation provoked the Urban Development Authority to rule that plot sizes could not shrink below 15 perches or about 379 sq m (pers. comm., letter and telephone conversation with Lankeswara Pieris, homeowner, 3 April 2003).

Many of the clients for these suburban homes were migrants from provincial towns who had no family stake in city property and were delighted at the opportunity to retain a piece of countryside in their urban location. They borrowed money through housing loan schemes from local banks and built their own houses in keeping with a cultural priority that sees buying or renting as undesirable (pers. comm., Lankeswara Pieris, 2003). What differentiated this group from the urban elites was their lack of familiarity with colonial society owing to their previous exclusion from elite and anglocentric

Figure 3. *Middle class housing in Ratmalana (author's photo, 2003).*

colonial institutions. In contrast, the American dream was novel and accessible. The distinction between the architecture of the past and the present was further accentuated by anglicized elites who treated the American style as an eyesore, a symbol of new rich, poor taste against which they could construct social distance (Bawa, 1985). More importantly, suburban residents were middle class by virtue of not possessing agricultural lands, a factor that differentiated them from wealthy Colombo elites and rural villagers. The American style signalled forms of suburban social and spatial individuation, which were new to the country.

A case study for this house type is the Weerasooriya House (Figure 4) built in 1965 at First Lane in Ratmalana, a suburb outside Colombo planned on a former coconut plantation (pers. comm., Sirima Weerasooriya, homeowner, 2004). The suburban estate was designed as lanes one to six, in a grid attached to the main commercial route southward from Colombo, a busy dual carriageway unrelated to the neighbourhoods that fed it. The shops, bank and post office were located facing this thoroughfare.

Life in the two-storey, four-bedroomed, Weerasooriya household was determined by its seven inhabitants – including a widow and her sister, her niece, a female cook, a maid, two young male boarders – and two dogs and a cat. Frequent neighbourly interactions occurred with a daughter's family who lived across the adjacent park. Cattle grazed in the park until late afternoon when the neighbourhood boys claimed it for cricket. Lacking a motor vehicle, the two older ladies remained dependent on door to door vendors for their groceries, and on beggars and neighbours for information. From the most popular space in the house, a large balcony, which overlooked the garden, they would monitor the activities of the neighbourhood, make their purchases from vendors below or shout instructions to day labourers. (Based on one years' residence at and interviews with the occupants of the Weerasooriya House, 1984–1985.)

Figure 4. *Weerasooriya House, Ratmalana (author's photo, 2003).*

Evidently occupational patterns in the Ceylonese house varied considerably from the nuclear family model of the American suburb or the affluent urban households in Colombo. Frequent interaction within the neighbourhood and minimal vehicular dependence suggest that a pattern of socialization particular to the suburban environment had evolved through the use of formal design elements. In single-storey houses the vacant car port served a similar function to the balcony. The new micro economy of door-to-door vendors, unlike in America, were independent micro entrepreneurs, informants and helpers. The lack of designed public amenities within the suburban grid encouraged socialization.

Modernity and technology

Discussions by modernist architects often attribute the model homes both in America and Ceylon to functionalism, arising from the introduction and mass production of specific new materials and industrial methods. In America, modular housing and the mass production of building components and new materials were the legacy of industrial expansion during the postwar years. Ceylon too benefited from these experiments. Although timber- or steel-frame construction was preferred in America while masonry construction was used exclusively in Ceylon, comparable prefabricated materials and finishes were introduced. Asbestos and cement imported into Ceylon during the postwar period allowed for a considerable reduction in both roof work and expenditure. Although the postwar colonial style – the modern eastern bungalow – designed by the Public Works Department had already benefited from these new materials, it had been used conservatively for awnings, porch roofs or ceiling panels.

The American style liberated roof design from the structural envelope by using asbestos or tin roofing sheets on a simple frame that could be set at any desirable roof angle. Roof eaves, which had always been a necessity in a monsoon climate, were

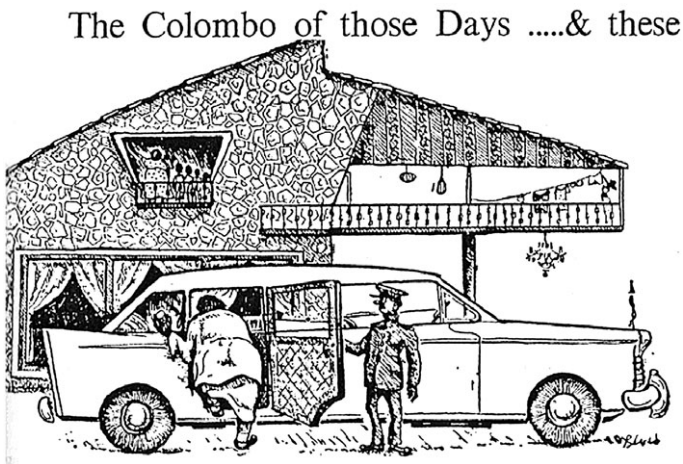

Figure 5. *Caricature of the American style house.*
Source: **Bawa (1985: 62) reproduced with permission of Dooland de Silva, owner and manager of Brief, the Bevis Bawa estate in Bentota.**

increasingly replaced by continuous concrete slabs that acted as awnings or sheltered carports. Concrete grills and sunshades were substituted for transoms and timber awnings. The roof was thus released from its dual function of providing peripheral shelter along the envelope while roofing interior spaces. The hip roof and its material and points of support, which had dominated colonial architecture, was replaced with the daring slope of asbestos roofing sheets at hitherto unexplored angles. The butterfly roof, copied from Marcel Breuer's MOMA exhibit in New York in 1949 (Walker, 1998: 188), became immensely popular during the 1950s and 1960s (Figure 5). Bevis Bawa (1985: 62–63) writing on the 'unseemliness' of this aesthetic observed:

> a vast section of the common herd have fallen for their [American] roofs. The infection is rapidly spreading to the remotest corners of our Pearl of the East. I have seen village houses, wayside garages and even a cattle shed and poultry houses with the two way flap.

This roof grew to distinguish the American style, and was embraced for its novelty by Ceylonese suburbanites. The Ceylon Industrial Exhibition of 1965 likewise inspired technological versatility through numerous new projects that explored simple prefabricated houses as indicated in advertisements in the 1965–1966 edition of the *Journal of the Ceylon Institute of Architects*.

The suburban model home differed from its predecessor the modern eastern bungalow at several levels. First, the bungalows were designed as introverted buildings with specific room assignments and opposed both the idea of an open plan and an outward orientation. Second, the building envelope of the PWD house had to be rectangular to best accommodate a pitched roof. In comparison, the open plan of the model home created an irregular envelope that was roofed independently at any convenient angle. The placement of the house to one side of the site created a semiprivate garden. Whereas the formal arrangement of rooms in the bungalow provided increased privacy, the model home adopted a more flexible interior arrangement. Apart from the bedrooms and kitchen, the remaining spaces flowed into one another.

Apart from the formal and spatial considerations, the construction methods used in the two types of residences were considerably different. With the mass production

of new materials, both inside and outside, architecture became a venue for creative experimentation. Local spatial needs were generously clothed in global aspirations ignoring any relationship between the new architecture and its colonial antecedents. The model home was an enthusiastic exploration of the limits of these innovative technologies and the new aesthetics they enabled. The novel images produced were simultaneously an expression of increasing economic and social aspirations.

The distinction between tropical modernism and the American style was less pronounced although evident at the level of design and aesthetic resolution: the more significant aesthetic strains of modernism in the former mingled with populist variations of American modernism, the ranch style and California style in the latter. However, key features such as stepped levels, a centralized kitchen and the familiar L-shaped plan made this architecture distinct from European modernist equivalents.

The American style model home was defiantly propagated for nearly two decades in Colombo's new residential suburbs. It translated a particular brand of modernism into a local vernacular. It also incorporated environmental devices such as concrete grills, glass louvers and awnings initially developed by tropical modernism. Stone, pebble or granolithic finishes for feature walls or terraces lent rusticity to the building surfaces.

The model home and the dream it represented faded into disrepute in the 1970s with the architectural search for appropriate regional models. Yet, it had affected a revolutionary break from its predecessor, the Victorian box, and introduced continuous spaces and intersecting volumes into domestic architecture. The adaptation of the style to tropical living occurred at the levels of free plan, cross-ventilation and relationship to the garden that imitated many of the attributes of vernacular buildings. Although never acknowledged as instrumental in this process, it was the suburban home that introduced modernism to ordinary Ceylonese and underwrote the ease with which the vernacular was combined with the free plan in subsequent years.

Ceylonese middle class architectural sensibilities of the 1960s and 1970s were dynamic and appeared unrefined yet fundamentally adapted to locality, a modern vernacular in the making. They reflected the aspirations of a narrow social group that was forming between the colonial elite and the rural populations. As a social class poised between East and West they shared many of the characteristics of their equivalents in Asia, a stable and educated polity that would become the bedrock of nations such as India, Malaysia, Singapore or Japan. In fact, their aesthetic choices and translation of modernity were comparable across the region. However, they had little to offer the growing forces of indigenization.

The cosmopolitan vernacular

The reasons for the demise of an emerging middle class need to be framed in the context of the cold war politics of the 1970s, the momentum of corporatization that centralized the economy and suppressed entrepreneurship, and the gradual confinement of economic opportunities to political elites and their cronies. From thereon, government economic agendas, whether socialist or capitalist, were grafted onto a feudal social hierarchy which had been prepared by the colonial class structure. In architecture, as in every other part of the economy, those who could maintain alliances with the postcolonial power base were privileged, and alternative forms of cosmopolitan experimentation were scorned.

Republican status in 1972 carried Sri Lanka into a different era punctuated by a global economic crisis in 1973. The rising price of petroleum effectively brought a

halt to imported technologies and forced an inward economic orientation. Import substitution policies, nonalignment and a socialist economic orientation would determine the focus of architecture along local and vernacular lines. There are two ways of looking at this period. Politically, as the nationalist state grew more confident in its domination of its citizenry and nationalist pedagogy became instilled in its youth it was able to limit external influences and impose systems of indigenization. Economically, the welfare system was a tremendous burden on the state, demanding a return to frugal policies and sustainable practices. The rural vernacular architecture of the past responded to the pragmatism and scarcity of the period but was also ripe for nationalist symbolisms. In Europe and America, the utopian schemes of the 1970s and their brutalist legacy caused disillusionment with the modernist project in architecture. These sentiments were iterated in Asia, conflated with antiwestern cold war politics. Meanwhile the rapid globalization of the Middle East, the beneficiaries of the oil crisis, provoked an alternative, nonwestern discourse in architecture.

The environment in which the vernacular grew and thrived, and was later subsumed by a discourse on regionalism, was largely shaped by the Geneva-based Aga Khan Development Network (see http://www.akdn.org/) and its academic programmes at Harvard University and the Massachusetts Institute of Technology in Cambridge, Massachusetts. Working closely with the Aga Khan Trust for Culture (AKTC), the Aga Khan Program (AKP) broadened the interest in Islamic building practices by reinterpreting these as representing nonwestern architecture. In addition to its more obvious constituencies in the Middle East, the umbrella of Islamic traditions encompassed India, Pakistan and Bangladesh in South Asia, Malaysia and Indonesia in Southeast Asia and other communities elsewhere in the Asian region. Despite its religiocultural frame, the AKTC's grants, programmes, awards and publications were generously extended to include any examples of architecture with a vernacular basis and a communal focus. The international journal *MIMAR: Architecture in Development* and a series of design monographs on architects located outside the West were the first of its kind. The first book on Geoffrey Bawa was published under its auspices. The AKP's explicit rejection of international style globalization (rampant in the Middle East) was well-suited to both the political and economic ideologies of South Asia during the 1980s. A building had to be sustainable culturally, communally and technologically, and local building practices had to be taken into account.

There is an important difference between the *MIMAR* approach and the regionalist discourse that displaced it in the 1990s. Very little attention was paid to the forces of cosmopolitanism in the projects featured in *MIMAR*, largely because of its keen interest in rural communities. In fact, many of the architects lauded by the AKP were celebrated for revivalist practices. In examples published by *MIMAR*, modernist plans were frequently clothed in vernacular envelopes and modern programmes were adapted to fit vernacular spatial types. In contrast, these kinds of transformations under a regionalist label contributed to a new hospitality industry, which found it economically viable to imitate local cultural forms. In fact, the global tourist market's demand for a localized experience fitted well with the prerogatives of revivalist regionalist architecture. Yet, regionalism's failure to respond to modern programmes for urban institutions, multistorey commercial complexes, social housing or high-rise apartments created a sharp division between the architecture of the city and the country, and the location of regionalism within the geography of the nation.

The consumers for Sri Lankan regionalism of the 1980s and 1990s were not the vernacular cosmopolitans of an earlier era. A revival of feudal villa or *walavva* architec-

ture derived from rural headmen's residences sparked a new interest in vernacular architecture in which the middle class could not partake. The new vernacular was likewise limited in its programme. Designed for wealthy families with servants and dependents, the houses of the 1980s and 1990s replicated the internal class divisions of the colonial period. The construction methods that were revitalized in their effort to bring back craftsmanship replaced the prefabricated technologies of the postwar era with labour intensive alternatives.

The 'tropical Asian house' of the 1990s emerged from out of this mix of feudal or colonial values grafted onto the tropical modernism of the postindependence era. Its vernacular-derived forms were reminiscent of bungalow architecture, with its deep verandas and pitched roofs, whereas the introduction of the courtyard signalled its links with a precolonial past. The plan of the tropical house was comparatively innovative, although maintaining the internal class divisions desired by elite and expatriate clients. The spaces inhabited by the family were designed following the modernist free plan. The most important attributes of the tropical Asian house, however, was its revival of the western gaze and the picturesque composition of spaces and views inherited from the colonial view to the tropics. Indigenous tools and utensils appeared as *objets d'art* on coffee tables and sideboards. True to the identity discourse of the period, the terminology was used interchangeably with modern tropical, equating modern Asian, tropical vernacular, new Asian and tropical Asian. The clientele for the elaborate residences featured in vanity publications bearing such titles were expatriates and elites whose separation from the everyday life of the ordinary citizenry was apparent in the luxury that surrounded them.

The idealization of the tropical house was in sharp contrast with the realities of urban Asia: the dirty realist city, its informal settlements and its high-rise social housing blocks. Couched as a strategy of resistance it effectively suppressed other resistant discourses that were emanating from the region, relegating them to the periphery of cultural production. The elites and expatriates who commissioned them were cosmopolitans schooled in western taste, who avoided ethnic politics but romanticized the geographic belonging that appealed to postcolonial nationalist sentiment. The liberal cosmopolitanism of these national elites was successfully disguised in a vernacular rhetoric regarding their unbroken links with a precolonial past. Theirs was a 'cosmopolitan vernacular'.

In Sri Lanka, the most important examples of the cosmopolitan vernacular of this period was found in the work of Geoffrey Bawa (Figure 6), and subsequently in the work of architects influenced by him. Culturally eclectic and western in taste, Bawa's aesthetic, inspired by indigenous forms and spaces, proved appealing to westerners. His work consequently invoked associations already familiar to orientalist discourse – such as the tropical, regional and vernacular – reinterpreted for a new audience and politics. Meanwhile, nationalist sentiment embraced him as a revivalist architect instrumental in healing a tradition severed by the colonial encounter. Bawa brought back vernacular methods and materials such as timber, brick and tiled roofs, and construction processes that were a synthesis of both feudal and colonial pasts. His clients were elite families, largely resident in Colombo, and with plantations in rural areas. Their interpretation of the vernacular was as an aesthetic that was timeless, and therefore fixed culturally and politically, and useful for disguising generations of westernization.

Conclusion

By the end of the twentieth century, the term 'tropical' stood for a cachet of liberal cosmopolitan architectural values that upheld a form of indigeneity, seemingly unmarked by cultural pressures. As observed by Wilson and Dirlik (1994: 6):

Figure 6. *Entrance of (former) ERe³B (Edward, Reid and Begg) practice office at Alfred House Road, Colombo, Sri Lanka – by architect Geoffrey Bawa (author's photo, 2010).*

> Uncanny knowledges of culture, politics and economics are kept segregated and isolated across the Asia/Pacific region even as a complex new micropolitics of location and memory begins to flourish and interact.

The American style, in contrast, clearly was a position determined by and for a class of persons without the confidence or social capital to occupy this new discursive space. 'Tropical' now supported and reproduced a global culture in heritage, local tourism and regional expression that was directly linked with neoliberal agendas. The resultant discussions on tropicality, the neotropical and tropical agendas had also entered the academy, provoking a moderate critique of the reinvention and dissemination of the term (Low, 2001). In architectural practice, the misappropriated term suggested an incongruous symbiosis of traditional values and global economies.

Tropical exceptionalism, a liberal appropriation of an indigenizing discourse, has today penetrated the market place in developer utopias and tourist resorts conceived around climatic themes. Similarly, reinterpretations of the work of Bawa and his followers identify specific practitioners from the 'tropical' region, in turn identified as 'monsoon Asia' continuing this trend (de Silva, 1953; Nakamura, 1982; Robson, 2007). As highlighted by Wilson and Dirlik (1994: 6) we need to 'undo' these conceptual categories configured by western perceptions of Asia so that other counterhegemonic discourses might emerge. The continued complicity of local architects in the representation of their work as 'tropical' is vulnerable to this critique.

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Under the billiard table: Animality, anecdote and the tiger's subversive significance at the Raffles Hotel

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At the turn of the twentieth century, when tigers were already becoming extinct in Singapore, a living specimen was discovered under the Billiard Room of the Raffles Hotel. This paper attempts to discuss the significance of the tiger in relation to an architectural space – the Billiard Room of a Southeast Asian colonial hotel – by examining how its anecdotal forms – as propaganda, fact, myth and satire – have influenced perceptions of this space across different milieu. It argues that the tiger anecdote, while ontologically remote from the physical materiality of that building, has inevitably become inseparable from its architectural epistemology. Under these terms, it is impossible to talk about the architecture of the Billiard Room without incurring discussion about the factual, fictional and propagandistic aspects of the animal anecdote. As a subtext to these narratives, the location of the hotel in a tropical clime is key. Amidst the civil calm of the genteel Billiard Room, it is the tiger, which ably performs, or re-enacts, the risk of the tropics. Yet, what is unusual about this tiger is that a reading of its anecdotal forms ultimately transgresses the stereotypes associated with colonialism, indigenous culture, tropical living and wildlife, and subsequently, these too affect interpretations of the architectural space. Drawing on original archival and historical material, the paper contributes to a theoretical and historical understanding of why the tiger under the Billiard Room at the Raffles' continues to be a spatially compelling idea.

Keywords: anecdote, animality, billiard room, Raffles Hotel, storytelling, tiger

Was there really a tiger under the billiard table?

> The visitor to Malaya in search of sport, whose time is limited, has very little chance of obtaining a tiger except by some lucky accident (Banks, 1924: 29).

There are two billiard tables in the middle of a room (Figure 1). Though rarely used, the tables are scrupulously maintained and occupy a significant position within a building which today functions as a restaurant and bar known as the 'Bar and Billiard Room' – or simply the Billiard Room – at the famed Raffles Hotel, fronting Beach Road in Singapore. Architecturally, the Billiard Room is an unassuming, low-lying, single-storey building with a deeply pitched roof, large windows, and an airy veranda that is further defined by a row of white pilasters encircling its entire perimeter. Slightly raised off the ground, its typology is consistent with the Anglo-Indian architectural tradition, popularized during British colonial rule in late nineteenth-century Singapore. Yet, more beguiling than its architectural lineage is how this space is persistently introduced to the public, for it is alleged that a tiger was once found, and shot, under one of its billiard tables.

In the present-day hotel's private museum, a series of framed archival newspaper articles together with historical as well as more recent cartoons recount in some detail how wild animals besieged the esteemed premises. The most famous incident allegedly took place in August 1902 when a tiger, escaping from a native circus act stationed near the Beach Road reclamation site, took refuge in the undercroft space of the Billiard

Figure 1. *The famed billiard table at the Raffles Hotel, Singapore (author's photograph, December 2009).*

Room. The beast was spotted by one of the hotel's 'bar boys', 'staring through the low veranda railing on the hotel side of the Billiard Room' (*The Straits Times*, 1902a). In no time, Mr C.M. Phillips, the head teacher from the Raffles Institution, one of Singapore's leading boys' school located near the hotel, was summoned to the scene from his slumber. He had been to a fancy dress ball the night before at Government House and was still nursing his hangover when he was called to the emergency. Dressed in his pyjamas, the head teacher proved to be a poor marksman as he aimed, fired and missed

the tiger several times, hitting the brick pillars of the building instead. After he finally managed to kill the beast, the tiger's body was dragged out from under the Billiard Room by nervous bystanders.

There were photographs of neither the ill-fated tiger nor of the uncoordinated head teacher. There was also no taxidermic specimen of the prize trophy. All that remains of this historical incident is a newspaper report featured in a local leading broadsheet, *The Straits Times (1902a)*, which offers a blow-by-blow account of this 'hunt'. The ambivalent report, titled 'Shot at Raffles Hotel – under the Billiard Room', gives the impression that the reporter and the hotel crowd were not impressed by Philips's forlorn performance. Instead, sympathies resided with the majestic beast, fondly nicknamed 'Stripes', which was admired for his enviable length of 'tip to tip 7 feet 8 inches, and 5 feet 4 inches in height', and rather than being a menace was reportedly terrified of the crowd before being rudely shot.

Despite Mr Philips's dismal performance at the hotel, game hunting was generally fashionable in Singapore at the turn of the twentieth century. For instance, in Charles Burton Buckley's *Anecdotal History of Old Times in Singapore* (1984: 566, 622, 709–10), a key historical chronicle recording Singapore's early social and cultural history, tiger stories are liberally sprinkled throughout the book. Yet, even as the animal was seen as lucrative bounty (large rewards were offered to those who successfully slew a tiger), and persisted as a threat in the expanding business of plantations, the tiger was also a potent figure in Southeast Asian mythical cultures, believed to be a creature which straddled the dual boundaries of the human and animal worlds.

Today, tiger lore still thrives in the hotel. In its shop, there are cuddly tigers, tiger print t-shirts and tiger posters on sale. The Billiard Room continues to honour the game by keeping two tables, one marked as an 'original' dating back to the time of Stripes' visit. A tiger-themed billiard exhibition match was hosted here in the 1980s. At the bar, guests drink out of mugs emblazoned with a tiger motif and are given keepsake matchboxes which feature an image of a tiger and a question that begs curiosity: 'Was there really a tiger under the billiard table?' (Figure 2) The tiger story has also inspired a series of contemporary cartoons and two illustrated children's stories – Kathy Creamer's (1996) *The Tiger Who Came to Tea* and Kelly Choppard's (1996) *Terry's Raffles*

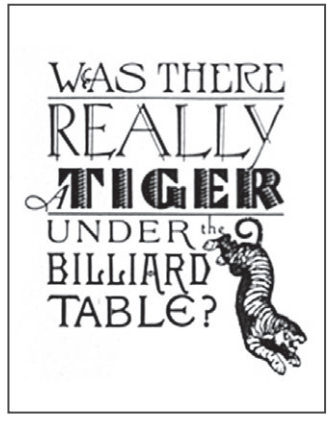

Figure 2. *Souvenir matchbox issued to guests at the Raffles' Hotel Bar and Billiard Room: the persistent use of the tiger episode as a conversation piece and its significance as popular history associated with the Billiard Room competes with the 'official' architectural history of the space (author's photograph).*

Adventures. During the hotel's centenary celebrations in 1986, a white female Bengal tiger from a visiting circus act was roped in by the hotel's manager Roberto Pregarz, who dressed himself up as a colonial hunter to re-enact the primal scene from a hundred years before (*The Straits Times*, 1986). Stories about the tiger getting shot became so widespread that the whereabouts of the beast shifted from under the Billiard Room to under the billiard *table*, a point which I shall elaborate in some detail later on. Given that the Billiard Room was operational between 1896 and 1917, then only reinstalled in 1989, the circulation of these and other remarkable stories in the intervening 70 years when this space was physically nonexistent means that during this interim period the Billiard Room effectively existed as an accessory to its tiger stories.

While these episodes may be read as part of the hotel's aggressive commercial propaganda, their effectiveness is fuelled by the continued existence of the Billiard Room and its table, which act as physical anchors for the controversial bodies – the tiger's and the white colonial male's – that are no longer there. Indeed, the aura behind such a space implies a masculine presence, not inconsistent with the influence of colonial patriarchal power during the Billiard Room's heyday in the early 1900s. Billiards was a popular game in the Victorian and Edwardian eras, which coincided with the period when the Billiard Room was fully operational (1890–1917). When Tigran Sarkies, the founder of Raffles Hotel, took over the property formerly called Beach House in 1887, the popularity of this gentleman's game must have made an urgent impression on the hotelier as he commissioned Regent Alfred Bidwell, the hotel's architect, to design and construct a purpose-built billiard room.[1]

Bidwell's original building was ready in 1896 and featured a raised structure on brick pillars to ensure a level floor for the game (Figure 3). By 1906, the popularity of this first

Figure 3. *An advertisement, c. 1902 for the Raffles Hotel on Beach Road, Singapore showing the Billiard Room at extreme left, after the 1896 renovations (Liu, 1992: frontispiece; image used courtesy of the Raffles Hotel Collection).*

Billiard Room necessitated a larger accommodation, not only because of the increasing interest in the game but also because it became known as the place where one of the last tiger shootings in Singapore was witnessed (*The Straits Times*, 1906). The new addition, by architects Tomlinson and Lermit, was modelled after the Anglo-Indian detached bungalow, and the undercroft space where the escaped tiger hid in 1902 was eventually sealed off. By 1917, demand for rooms overwhelmed even the popularity of the game and the Billiard Room was converted into guest suites. It was only during the major restoration of 1989 that a decision was taken to reinstate the Billiard Room as a key space in the newly appointed national monument.

The billiard room as a male domain in mid-nineteenth-century expatriate life in Singapore is chronicled by John Cameron (1965: 303), the editor for *The Straits Times*, who noted that billiard rooms were frequently attached to respectable residences and served as 'sanctuaries' for the host and his male friends to relax after dinner, over a cigar and a glass of sherry. Billiard rooms were also points where the expatriate male community would congregate while overseas, typically in clubs, an institution where 'the consolidation of bonds between public men [was accomplished] through the physical and ideological exclusion of women' (Rendell, 2002: 63). It is likely that the Raffles Hotel doubled up as a club of sorts to the expatriate British community (Sharp, 1981: 38–41, 96–115), given that in 1911 male residents in Singapore outnumbered women residents by eight to one, and the majority of those staying at the hotel were bachelors (Liu, 2006: 46). Its Billiard Room served as the social centre, bringing together a community of British colonial servants, army officers, tin miners, planters, businessmen, hunters and explorers, who came from different social, political, economic and cultural background interests, but with a usually shared ideological perception of the white male's dominance in instilling order in outposts often deemed impoverished until the onset of colonial rule (Sharp, 1981: 38–44; Liu, 2006: 46–50).

In his novel *Burmese Days*, George Orwell (1986: 17) describes a club in a colonial outpost:

> Inside, The Club was a teak-walled place smelling of earth-oil, and consisting of only four or five rooms, one of which contained a forlorn 'library' of five hundred mildewed novels, and another an old and mangy billiard table – this, however, seldom used, for during most of the year hordes of flying beetles came buzzing around the lamps and littered themselves all over the cloth.

Orwell's account highlights a less flattering image of the billiard room, which far from being a stable masculine sanctuary was conversely threatened by the animality of the tropical world. The depiction here is striking in that although the billiard room was fundamental to club life, it was also a decrepit space, furnished with a 'mangy' table covered by 'flying beetles' and 'seldom used'. This desperate atmosphere easily correlates with the situation of British colonial men in Singapore who congregated at the billiard rooms without their wives (since wives were often left at home in England) not to reinforce a self-image of privilege and leisure (the stereotyped English country gentleman) but simply because they had nowhere else to go. In this sense, billiard rooms in the colonies held a very different meaning from those located in the metropole, the former desiring but failing to replicate the stability and status enjoyed by the latter. The billiard room in Orwell's colonial club and the one at the Raffles Hotel are ultimately liminal spaces, ostensibly representing a male domain but simultaneously undermined by tropical animality. Hence, it is not coincidental that the tiger story's anti-heroic, topsy-turvy and unpredictable nature subverts, displaces and destabilizes the masculine foundations of its Billiard Room.

Natural history and local myth

> It is not surprising that in the presence of animals in general (metaphorical, mythical, or otherwise), we are forced to consider the mechanisms of control, and simultaneously, waywardness, and thus to consider morality, rationality, order, civilization, cities, and architecture (Ingraham, 1998: 80).

Panthera tigris has haunted the Singapore psyche long before the 1902 incident at the Raffles' Billiard Room. In fact, the persistent return of the tiger, a species that has existed in the Riau-Lingga archipelago, which includes this island since its geological beginnings a million years ago, indicates traces of unresolved conflict between humans and beast, colonial and native, culture and nature, the natural and the supernatural, fact and myth. The tiger has accumulated a contradictory reputation. It is simultaneously seen as 'treacherous and the source of death and fear' (Rudyard Kipling's *The Jungle Book* cited in Wessing, 1986: 7) as much as it is lauded for its stunning beauty, 'with his velvety step and undulating movements, the firm muscles working beneath his loose glossy skin, and the cruel yellow eyes blinking under the sun over a row of ivory teeth' (Armand Denis's *Cats of the World* cited in Wessing, 1986: 8). The tiger in the Billiard Room marks the repetition of a primal repressed scene, one which needs to be taken apart in the local context in order to understand its political significance.

In the colonial tropics, the perceived threat of the beast was strategically symbolic since it was commonplace for colonial governments to assert their supremacy over territory that was deemed 'dangerously animal, wild and unfree' (Chua, 2007: 138). According to historical accounts, the tiger menace in Singapore (and contiguous southern Johor) escalated in the 1840s after large tracts of forests were cleared to make way for lucrative black pepper and gambier (used in tanning) plantations, which formed almost 75 per cent of Singapore's cultivated area in 1851. Buckley (1984: 389) records that the majority of bourgeois colonial occupants supported a more liberalized land leasing system under the hand of Chinese planters as this would simultaneously modernize 'the jungle and marsh' as well as encourage the island to grow as 'a highly productive settlement' in economic terms. However, enthusiastic efforts to clear the interior reaches inevitably destroyed the tiger's natural habitat. The rise in importance of such economic crops coincided uncannily with the increased threat of tigers on the island. Taming the 'tiger-infested' jungle, a description synonymous with sparsely occupied and risky areas outside the city limits, was one way of keeping the beast at bay and expanding the island's productive boundaries. One could speculate that the tiger's appearance in the city was a calculated attempt by the colonial government to justify impending land clearances.

Subsequent to the colonizing of arable land, livestock and plantation workers became prey to tigers. The exact number of casualties remained unverified, being often recklessly over-inflated to illustrate the risk of the oriental natural world through western perception, or guardedly underreported by plantation owners cautious about scaring off the local Chinese workforce (Boomgaard, 2001: 5). For example, mid-nineteenth century colonial accounts reported that '365 men per annum have their lives dashed out by the crushing stroke of the tiger's paw' (Cameron, 1965: 91), and further in support of this estimate, that 'five men in eight days, as early as 1840 . . . was not improbable' (Buckley, 1984: 220–21). Indeed, apart from India, 'there are no historic records of any country suffering a mortality from man-eaters comparable to that experienced for so long and so widely' in Singapore (Perry, 1964: 190). At the same time, rewards to trap and kill tigers were sponsored by the colonial government. These handsome bounties, which fluctuated in value between 100 Straits dollars (in the 1840s and 1860s, the price being

for a tiger either captured dead or alive) and 50 Straits dollars (in the 1850s), successfully lured both local and European game hunters (Boomgaard, 2001: 103).[2]

Beyond historical statistics, the wild beast and the threat or promise posed by such animality is an especially enigmatic part of Singapore's (still contentious) founding story. In the popularized version of the *Malay Annals*, a compilation of oral narratives of archipelago Malay history, a Sumatran prince, Sang Nila Utama (also titled Sri Tri Buana), arrived at an island called Temasek (the ancient name for Singapore) in the thirteenth century and spotted an ungainly beast:

> And they all beheld a strange animal. It seemed to move with great speed; it had a red body and a black head; its breast was white; it was strong and active in build, and in size was rather bigger than a he-goat. When it saw the party, it moved away and then it disappeared. And Sri Tri Buana inquired of all those who were with him, 'What beast is that?' But no one knew. Then said Demang Lebar Daun, 'Your Highness, I have heard it said that in ancient times it was a lion that had that appearance. I think that what we saw must have been a lion (Ho, 2007: 150, citing C.C. Brown's translation).

Sang Nila Utama thus established his kingdom *Singa Pura* (Sanskrit for 'Lion City') possibly based on what he had witnessed. But as the Asian lion has not been known to exist east of India, it would be more likely for the Sumatran prince and his entourage to have encountered a tiger. Here, faced with the wild beast for the first time and 'working on the flimsiest of heresay' (Ho, 2007: 151), Sang Nila Utama's aide Demang Lebar Daun declares it as the revered lion or *singa*, henceforth putting the unknown animal in 'allegorical disguise for the establishment of Singgahasana or "lion throne"' symbolizing Malay royalty (Ho, 2007: 151). Following this popular myth, it is significant that this city was established not only on the uncertain sighting of a beast, but also that its foundations may have been laid based on a fictional identification of this animal, two points which lend comparisons with the founding moment of the billiard room at the Raffles in the wake of its own animal encounter and the early stories.

In the Southeast Asian context, the tiger is believed to be an animal endowed with supernatural powers:

> To the inhabitants of the Malay world, tigers were not merely animals to be trapped and hunted. Tigers are protagonists in many myths, legends, fairy tales, and fables. They can be found in the *wayang*, the Javanese and Balinese shadow theatre, as well as in other popular performances. They are encountered in paintings, carvings and sculptures (Boomgaard, 2001: 6).

Hence, prior to the nineteenth century, Southeast Asian cultures, particularly those of Java, Sumatra and the Malay Peninsula, loathed slaying tigers. These cultures understood that the tiger held in check crop-damaging and foraging animals such as the wild boar but, more significantly, they had superstitious beliefs about the tiger's relationship to humans. Tigers were believed to be an embodiment of one's ancestors and could provide protection to humans; they were said to be 'receptacles for the souls of departed human beings' (Thomas John Newbold, 1839 cited in Chua 2007: 135), and thus, stood at the boundary 'between human and animal, and between the living and the dead' (Chua, 2007: 135). It was also believed that the tiger had shamanic powers and – through a process of *jadi jadian* (the changing of form) – morph into human by day, and back into beast by night (Boomgaard, 2001: 187). These shape-shifting creatures were known as 'weretigers'.[3] Thus, tigers 'as a mythic reality, played a powerful role in boundary maintenance. They were transitional creatures, spiritual in-betweens who

variously cautioned, cajoled and assisted humans in relating to the life-world' (Chua, 2007: 138). And significantly, as historians Peter Boomgaard, Robert Wessing and Kevin Chua all argue, the tiger did not come into existence apart from, or outside of, human civilization but more as a consequence of humanity, 'not [a] distant beast of nature, [it is] instead [a] permanent spectral embodiment of urban civilization, conjured up by and for us' (Chua, 2007: 136). This point reinforces the tiger's risky cultural and political roles, and its need to be 'tamed' in deference to colonial territorialization.

Thus, it is unsurprising that there is an enduring relationship between the animal narrative and the founding of space in this regional context. However, the animal narrative also establishes spatial and political boundaries (an empire, or an urbane city) through a 'logic of ambiguity', that is, through both sanctioned storylines as well as versions which misrepresent the story's content. In this way, the tiger stories create what Michel de Certeau (1988: 124–29) calls 'a frontier'. Referring to a third element or a space in-between, this frontier bridges what constitutes status quo spatial knowledge (e.g. learnt through architectural history determined by planners and architects, or legislated according to construction and planning laws) with what we viscerally experience, see and understand. The latter category usually exists as fragmented, particularized and polyvalent sets of knowledge which are not easily co-opted into 'authorizing references'.

At the Billiard Room, the tiger story sets up a similar frontier. Knowledge of the Billiard Room is not only assimilated through its architectural history, the intentions of its architect, or the colonial significance of this space as a male domain. Instead, the Billiard Room is also popularly known through and embodied by the tiger and variant stories encircling this animal. In this sense, the tiger stories set up different frontiers of knowledge that filter, mediate and transform the predetermined history of this room. I suggest that these stories potentially challenge conventional wisdom about this space, altering its contours from that of austere masculinity to a critical frontier marked by tropical excess and ambiguity.

Telling the tale from under the table

> Heaven help the writer, who seeking tiger tales, depends on what these gossips tell him . . . What actually happens in the tiger world is strange enough without the embellishments of imaginative natives (Buck, 1932: 203).

In one of his many memoirs recalling past adventures in Singapore, wild life expert, hunter, actor, circus performer, world traveller and wild animal purveyor Frank Buck – an American who maintained a Singapore compound with the largest private collection of live animals in one place, and a frequent patron of the Raffles Hotel during the interwar years – tells how the hotel's tiger story was so popular that different variations kept cropping up.

Grounding his own reports on the factual solidity of the architectural space, Buck (1932: 203) reiterates, 'There is no questioning that a tiger was found in the old billiard room at the Raffles Hotel', and adds that, 'it would have been a simple matter for a tiger . . . to stray into the Raffles billiard room, which was then a big open space, with no doors or windows, on the ground floor'. Buck (1932: 203) then cites three different accounts of this story, which I reproduce here in verbatim:

> One of the stories they tell you with a straight face is that the Chinese boy who came to clean up the room at six in the morning had found the tiger asleep on a billiard table and had

> prodded it with a cue. I thought that the native waiter who told me this story was joshing, and my response to it was a hearty laugh. I soon saw I had offended him and pretended to believe the story. [C]an you imagine anyone crazy enough to jab a tiger with a billiard cue? [A]nother version (the story of one of those eye-witnesses, who, it later developed, wasn't even in Singapore at the time) is to the effect that the tiger, in his rush to get out of the room, knocked over the Chinese boy and made a dash for the kitchen. There, so the yarn goes, the animal helped himself to half of the beef which he dragged out on the porch, where he parked himself and ate his meal . . .
>
> Mr Aratoon, the manager of the hotel, with whom I discussed this Singapore legend, offers the only sensible explanation. Unquestionably, he tells me, a tiger had entered the billiard room. Three reliable people had seen the animal make its escape. The big cat, he believes, reached the island shortly before dawn. Bewildered by its surroundings, it had dashed from street to street in an effort to find a way out. Seeing the open space on the ground floor of the hotel, it had entered, hoping that perhaps this would lead to open country. [W]hen the boy entered to clean the room, the animal was probably pacing up and down wondering what to do next. Seeing the boy, the beast's first though would be to escape doubtless then it made its dash to safety.

In his account, Buck begins with what he takes to be the immutable facts of the Billiard Room – a simple open space on the ground floor, which momentarily housed the tiger. But in the first story which Buck tells us, the tiger is no longer 'factually' placed under the Billiard Room as documented in the 1902 newspaper report, but found *inside* the room itself, on the billiard table. In the second story, the tiger is relocated to the kitchen, before landing up on the hotel porch. The structure of the old Billiard Room is confirmed in architectural drawings and in the first newspaper report, as a standalone pavilion-type building, raised on brick pillars. Thus, it is difficult to imagine how the tiger could have rushed into what is essentially a space raised off the ground, mistaking a roofed structure for 'open country'.

Even as he admonishes the fabrication of stories, Buck is himself indulgent. He anticipates the 'beast's first thought', tells his readers what the tiger would have experienced and projects how it would have acted. Strikingly in Buck's versions, the tiger appears not to have been shot, nor is there mention of Mr Philips' involvement.

In these accounts, the tiger stories ground the experiential foundation of the Billiard Room. Yet, these stories tend to be embellished. They tend to change according to the time of telling, and fluctuate in relation to the audience and the storyteller. The story is always anecdotal, which makes it immediately problematic to structures that require certainty and fixity, such as scripted history. The anecdote, as architectural historian Barbara Penner (2005) points out, is regarded with suspicion and often alienated in academic discourse. Dictionary definitions link the anecdote to 'a tendency to tell too many stories', and oppose it to 'corroborated evidence or proof' (Allen, 2001: 48). Nevertheless, the founding moment of the Billiard Room as a space in the public's imagination is implacably structured on the anecdotal, as the *The Straits Times* (1902a) report awkwardly prefaces, 'A tiger was shot under the Billiard Room of the Raffles Hotel early this morning. Lest any one be inclined *to doubt the veracity* of this foregoing statement' (emphases added). But even more importantly, the power of the story is its degree of emancipation. The storyteller internalizes the story, either from first-hand experience or through another's telling, and in retelling it anew, explores and constructs 'the rhythm of the work (that) has seized her' (Benjamin, 1999: 91). The audience also becomes instrumental to the construction of the story as the teller surrenders the narrative to them, 'It is left up to him to interpret the way he understands them, and thus the narrative achieves an amplitude that information lacks' (Benjamin, 1999: 87).

At the Billiard Room, the animal story transforms how one perceives this space. The tiger was originally reported to have hid in the underbelly of this space, but later mistakenly believed to have strayed under one of its billiard tables. While conventional architectural meanings linked to billiard rooms are based on enforced patriarchal hierarchies, in the Raffles' Billiard Room, the anecdote exposes the space to factual irregularities, excessive speculation and subjective claims. It is significantly entered from the 'lower' edges – from under the floorboards, between an animal's hind legs, framed by a pair of pyjamas, and surrounded by a cowering group of male hotel boarders, who reputedly lacked the courage to pull out the dead tiger's body from under the building after it was shot.

Also, rampant word-of-mouth fuelled by intense public curiosity about the incident coupled with the physical porosity of the Billiard Room were reasons enough for the tiger's whereabouts to be severely distorted. Like the stories told by Buck, erroneous reports began to circulate about the tiger being spotted under the billiard table. Notably, a later newspaper account from the *The Straits Times* (1902b) published a while after the first and only tiger sighting at the hotel similarly misreported that in 'the recent tiger incident . . . one of these "terrors of the jungle" was shot beneath one of the billiard tables at the Raffles Hotel'. These reports were all the more confusing given that some of them emanated from the hotel itself. For example, the hotel's cultural historian Raymond Flower (1986: 20) wrote in its 1986 centenary commemorative volume that the head teacher Philips saw the tiger under the billiard table, 'and fired three rapid shots, only to demolish one of the legs, and to bring down the table with a crash'. On another occasion, also in 1986, Pregarz (1990: 42–47), the hotel's manager, placed a rented circus tiger (brought in to celebrate the lunar 'year of the tiger') on top of the billiard table, thus embellishing the mistake made by Flower and further confounding the puzzle of where the tiger hid. The aim of reiterating these different anecdotes is not to locate an 'authentic' version of events but rather to explore how the event was amplified and repeatedly misrepresented.

Today, in the absence of the undercroft space where the tiger was shot, the billiard *table* itself restructures the architectural experience of the Billiard Room. With the disappearance of the building's undercroft space following renovations undertaken in the first quarter of the twentieth century, the billiard table began to assume the status of the imaginative object onto which the animal anecdote hinges. Significantly, the technical specifications for a billiard table reiterate the importance of its uprightness, solidity, firmness, elegant design and the smoothness of its surface to ensure the precision, speed and accuracy of the game (Captain Crawley, 1866: 12; Gillett, 1996: 5–6). It is striking that there is a resemblance between the qualities of a reputable billiard table and the Vitruvian principles of architecture, the latter similarly exalting beauty, commodity, uprightness, firmness and strength as architectural virtues. Another important meaning of the word 'table' is 'tabula', that is, a ground, or a foundation. Thus, the awkward perspective produced from under the table requires a conceptual recasting of the 'table' as an alternative 'foundation' for reconfiguring the architectural space of the Billiard Room.

To look under the table, in other words, is to look in the 'wrong' place. Yet, the view from under the table may offer a different understanding as opposed to knowledge gleaned from a legitimized architectural style, history or meanings associated with this building type. Metaphorically, a perspective of the room from 'under the table' implies an upside down view. It reflects a child's perspective, which may explain why the animal story survives most vividly today as part of a collection of

children's stories. It challenges what is upright, normal and orderly. Something that is 'under the table' can also be something that is ultimately hidden or repressed, and to turn the tables on someone or something suggests a subversive reversal of positions. This conceptual recasting is manifested in the grotesque presence of the animal.

Animality and grotesque architecture

In the humid tropics buildings are susceptible to the forces of nature, corrupted eventually by damp and wood rot, for example. As architecture, matter and time are evanescent, so too is history especially in its oral forms – it becomes more fluid, more story-like, and more susceptible to hearsay and erratic narration. Anchored by stories woven around, and under, the billiard table, the formation of its architectural knowledge shifts from the customary emphasis on immutable and controlled facts, be they about architectural style, history or masculine meanings associated with the Billiard Room, towards the unregulated potentials of the animal anecdote which is transmitted and received by different groups of people who encounter this space.

The ill-fated tiger in the Billiard Room is manifested as a sensual, feminine and grotesque body overlaid on a heterosexual, masculine, colonial stomping ground. The grotesque body, according to Peter Stallybrass and Allon White (1986: 23), is marked by:

> impurity (both in the sense of dirt and mixed categories), heterogeneity, masking, protuberant distension, disproportion, exorbitancy, clamour, decentred or eccentric arrangements, a focus on gaps, orifices or symbolic filth (what Mary Douglas calls 'matter out of place'), physical needs and pleasures of the 'lower bodily stratum', materiality and parody.

This body operates by inversion, that is, by turning something inside out, or upside down. Thus, the tiger anecdote effectively produces the Billiard Room's 'new' architectural body from bottom up as it were: The hunter could not see into the dark of the undercroft and so was forced to go down on all fours. This unusual posture robbed him of accuracy given by upright vision, and thus, he surrendered to his gut instinct. In his 'overturned' condition, he shot wildly and erratically. The space drawn out from this encounter is not one commandeered from an authoritative one-point perspective, a vantage point customary for a standard architectural account. Instead, we are given a fragmented, animalistic, out of control and lowly view – a simulation of a quadriped's perspective, or an unknowing child's perception of the world. This concept aligns with the distorted tiger lore, which displaces the animal from the undercroft of the building to under one of its tables. It articulates a similar inversion, by shifting the experiential construction of this space from architect-centred to storyteller-invented.

What I find compelling is how the tiger story destabilizes the Billiard Room as an eccentric space by punctuating the account with 'orifices' – irregularities, misinterpretation and individual embellishment – all of which work hard to disrupt its scripted role in normative architectural history accounts. The tiger, a trope that represents the untamed jungle, is also a tropical symbol par excellence. Overlaid onto the Billiard Room, this tiger presses forward the incommensurable differences between the monumentality of empire and the unruliness of the tropical world and its denizens. 'Architecture', as architectural theorist Catherine Ingraham (1998: 54) argues, is conversely the instrument of empire since it acts to control that which it confines:

> Architecture is, in some sense that which acts in opposition to the animate. It is the embodied principle of the inert. It would be interesting to say that architecture negotiates the divide

> between the animate and inanimate, but I think a more accurate description is that architecture controls or attempts to control this divide in order to maintain the propriety, the seemliness, of the body in space.

Thus, just as architecture may be associated with progress and empire, the question of animality is linked to empire's 'other'. Drawing on Levi-Strauss's observation in *Tristes Tropiques* that '"architecture" seems to arrive in cultural history at the same time as the idea of "empire"' and empires are significantly 'created through a massive infusion of political and hegemonic force into the material world' (cited in Ingraham, 2006: 237), Ingraham emphasizes that 'architecture is routinely used as one of the symbolic markers of this empirical dominance, since it can concentrate material wealth, natural energy, and political process into one act, one site'.

The 'uprightness' of architecture is key to such symbolism, alluding not only to 'structural and morphological analogy but also architectural associations with civic appropriateness and human propriety' (Ingraham, 2006: 238). In other words, colonial architecture's uprightness is both structural and metaphorical – its claims to be evidentiary and empirical, thus also serving as 'the model for and about reality', is predicated on a clear separation between the colonizer (who is here credited with the active production of 'architecture') and the colonized (who is assumed to have passively inhabited this space). Animality is conceptually regarded as 'atavistic' and 'primitive', the 'other' to civilization, and thus completely opposed to the empirical ideals of architecture, which in this case is equated with the colonial era hotel's Billiard Room.[4] David Quammen (2003: 253) further reminds us that colonization is not just the conquest of land and the disciplining of its subjects but entails a weeding out of its archaic superstitions and their accompanying 'monsters', 'You haven't conquered a people, and their place until you've exterminated their monsters'. As such, there is more at stake in the Billiard Room's tiger than its amusing tale.

Encountering the Billiard Room through its tiger anecdote

The tiger anecdote is a subversive instrument, antithetical to the aspirations of colonization and its monument, even when it appears in its most benign form, as a children's story. In the late 1990s, following major restoration work at Raffles, the Billiard Room featured as an architectural centrepiece for two works of children's fiction – Creamer's *The Tiger Who Came to Tea*, and Choppard's *Terry's Raffles Adventures*. In these accounts, the notion of the grotesque body is replayed through the recurrence and recasting of the animal story whose 'invitation to pleasure is invariably an invitation to subversive pleasure' (Baker, 1993: 159). They perform the historical scenes within the Billiard Room using humour and caricature to parody the overblown sense of self-importance and power invested in particular colonial identities. As cultural theorist Steve Baker (1993: 123–24) and feminist writer Ursula Le Guin (1990: 10) underscore, to identify with the animal is ultimately to consort with an inexplicable 'other' – specifically with 'women, children and animals'.[5] The Billiard Room cannot be divorced from its animal, and thus, is ultimately also implicated in the feminized foundations of this other. As these new 'animal stories' are circulated to another generation of readers, it is equally important to consider how a conventionally masculine hunting tale is transformed, and how the Billiard Room is inevitably encountered in gendered terms, bearing in mind that these stories were written for and read by an other – that is, they were written to be read to children by their mothers.

The question of 'where', according to Mark Cousins, is surprisingly repressed in architectural discourse which is instead dominated by questions relating to ontology ('what is the object?') and temporality ('when is the object dated?'). Cousins (1996: 109) argues that this question is key because it does not merely describe the object's location but crucially delineates a '*scene* which inscribes the places of what is installed', that is to say, the scene places the object of architecture and its observer in relation to each other – it speaks of how the architectural object is given cognition through this relationship. By extension, one may suggest that the architectural object does not render itself as legible subject matter before it is encountered from a particular 'point of view' (Cousins, 1996: 109).

An emphasis on the scene of this architectural encounter seeks to relate a space to its possible producers, in this case the Billiard Room in relation not only to Bidwell who contributed significantly to the Raffles and its Billiard Room's designs but also to its consumers (both animal and human) who have vibrantly reproduced this space through their physical occupation and anecdotal iterations. Instead of repressing the 'view' from which the second set of (anecdotal) knowledge is derived, what are the epistemological implications of an architectural object which is experienced in the midst of events, stories and evidence linked to the tiger under the Billiard Room/table?

Needless to say, modes of access into the Billiard Room are not the same for everyone. These routes are distinctly marked by gendered, racial and class boundaries, which also need to be scrutinized. In this sense, the Billiard Room is constantly being formed and re-formed through each telling of the tiger story, and this story remains compelling precisely because of its mix of natural history, myth and fiction, revolving around the tiger in a tropical context. Indeed, the tiger story shifts from a passive mode of 'knowing about' a space to actively 'knowing how' a space was used, 'knowing who' appropriated it, and 'knowing who' was subjugated. The stories overturn the Billiard Room: from masculine to feminine space, from independent architectural structure into anecdotal accessory, from fact to fiction, from architect-centred to storyteller-invented.

Conclusion

What I have tried to argue in this paper is that the animal story related within the tropical contexts of the Billiard Room produces its own heterodox forms of knowledge, which often challenges established knowledge conventions associated with such a context. And while there are no female figures in the tiger tale, the practice of story-telling is engendered as feminine, connected as it were to an imaginary domestic space, where the oral genre remains strong. It also raises important questions as to how the architectural knowledge of a masculine space such as the Billiard Room is ultimately sustained by a fundamentally feminine practice. De Certeau (1988: 123) argues that storytelling is the 'delinquent' double of history while Jane Rendell (2003: 291) sees it as a political activity that enables a reclamation of a history dominated by 'men's anecdotes'.

Today the tiger story has taken yet another turn in that it has been commodified by the hotel as cuddly toys and various touristic paraphernalia. While this paper is unable to adequately flesh out the recent transformation of this lore as a benign marketing tool, it acknowledges the double-sided nature of this rhetoric, which is, on the one hand subversive, but on the other hand emasculated, cute or even silly. If the tiger is emblematic of tropicality and its attendant constructions, then this problematic trans-formation also reveals something about how the tropics is contextualized today – as

a construct that may be safely manipulated and passively consumed. Such a 'tamed' worldview of tropicality is similarly reflected in recent discourse on tropical architecture, which tends to emphasize the tropics apolitically, and subsequently translating the forces of this region into a set of malleable architectural shapes and forms.

When the Billiard Room is encountered through the tiger story – through the embodied acts of looking from the underside, of hunting down uncertain facts, and the oral traditions of small talk and storytelling – it ceases to become a passive space. Instead it abets with, and is reproduced through, these actions. If the tropics has been linked to the feminine, the wild, and the degenerate, then the Billiard Room at the Raffles Hotel is evidence of a distinct tropical spatiality which destabilizes its conventional masculine foundations. Indeed, encountering the Billiard Room through its tiger lore is just a prelude to the tropics' 'subversive pleasure'.

Endnotes

1 An early newspaper report announcing the opening of the new Raffles Hotel also promises a 'large and commodious billiard room containing four tables' (*The Straits Times*, 1887). Other rival hotels in Singapore also advertised their billiard rooms as a major feature including L'Europe and Adephi, as well as the lesser-priced Sea View Hotel and Hotel van Wijk.
2 The reward was halved in 1850 because the results were minimal, but increased again around 1860 when the additional 50 dollars was put up by the merchants' fund (Boomgaard, 2001: 103).
3 The first reference to weretigers in the Malay world is from an early fifteenth century Chinese source which recounts the story, told to visitors to Melaka at that time, of 'tigers which turned into men' (J.V.G. Mills' *Ma Huan*, 1970, cited in Boomgaard, 2001: 187).
4 For the conservative role of the 'primitive' in architectural discourse, see Forty (2006).
5 For a philosophical discussion on the unthinkability of animals in Western philosophy, sexual difference and voice, see Derrida (2004).

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Post-tropical/post-tsunami: Climate and architectural discourse in South and Southeast Asia

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Following the Indian Ocean tsunami on 26 December 2004, scenes of destruction overwrote representations of a benign tropical landscape on the eastern periphery of the Indian Ocean. The incongruous coupling of luxury resort hotels with devastated indigent fisher settlements in international media coverage had exposed the global inequities embedded in a tropical tourism industry subscribed to and abetted by states, institutions, developers and architects. As post-tsunami reconstruction commenced, it became evident that the climatic trope through which regionalist aesthetics had been filtered thus far was incapable of providing expedient solutions to real social problems. In academia and in the profession, the complex discourse of so-called tropical architecture shaping the debates has yet to be untangled and problematized. Implicating and haunted by colonial, nationalist, developmental and political renderings, and more recently by issues of globalization, such representations continue to undergird architectural debates and production. In the wake of recent reconstruction projects and provoked by related architectural student designs in Sri Lanka, this paper reviews the politics of the tropical agenda in architecture and some considerations for its demise.

Keywords: tropical architecture, Asia, tsunami, tourism, architectural discourse, regionalism in architecture

A return to tropical agendas

The boom years of the 1990s saw a revival of an earlier focus on so-called tropical architecture in both academia and publications replacing the identity politics of independence era design. In fact, we could argue that 'tropical' was treated as equivalent to 'Asian' identity in various discourses. The building types featured, and the programmes investigated in design studios in Singapore, Malaysia, Sri Lanka and elsewhere, were elite homes and resort hotels. A burgeoning tourist industry across Southeast Asia created the desire to market a new national image for tourism and fostered this shift. Markedly absent in this discourse, which was sandwiched between passive responses to climate and new technologies of sustainability, was an interest in social housing. Social housing was confined to state-led experiments while architectural practices flourished by provisioning the new tourist economy.

The 2004 Boxing Day Indian Ocean tsunami impacted architectural thinking in multiple ways. As an immediate consequence, in a field closely linked to academic practice and because of the involvement of practitioners in studio teaching, 'post-tsunami housing and reconstruction' entered the curriculum. Regional collaboration on relief efforts involved many architects and architectural schools. And postcolonial networks of a previous discourse on tropical architecture, in London, Melbourne and Singapore, were rejuvenated.

In March 2005, as part of a first semester course on 'Post-tsunami reconstruction', a group of fourth-year undergraduate programme design students at the University of

Melbourne, Australia focussed on Galle, the largest city in Sri Lanka to be affected by the December 2004 tsunami, to investigate the replanning of the city, the relocation of fishing communities and an exploratory template for sustainable reconstruction in other parts of the island and the region (*Daily News*, 2005).[1] Supervised by two Sri Lankan tutors (Milinda Pathiraja and Rajith Senanayake), the teams struggled to reconcile two approaches: pragmatic socially-oriented humanitarian solutions and an aesthetic resolution to the projects along tourism agendas. This dichotomy was reflected in the physical location – not unlike many other tourism-oriented coastal locations in Asia – where a UNESCO world heritage site, the historic Galle fort, was inserted into a poverty-stricken urban precinct. As land prices soared beyond the reach of local residents, the former colonial citadel had been developed into a gated haven for tourists and western expatriates, along with boutique hotels and restaurants. Isolated from the everyday realities of urban poverty, the fort held little significance for the lives of the local population outside its walls, and its tourist economy had not invigorated its marginalized surroundings. Scenes of destruction aired in the media after the tsunami emphasized these cultural and social differences by coupling these two incongruous scenarios in images of the reinforced concrete structures for a tourism-based dollar economy surrounded by the debris of thatched *cadjan* (woven coconut palm fronds) huts.

The students' first resort was to consult architectural publications on tropical Asia, in order to re-examine the current discourse on tropical architecture from the colonial period through modernism to vernacular-derived regionalism. They discovered, however, that few Asian publications offered critical information on construction practices with requisite discussion of real social and economic constraints. Instead, these published sources featured the architecture of politically advantaged urban elites whose consumption of the tropical agenda reinscribed colonial sensibilities. The orientalist tenor of scenographic views with their picturesque framing of the tropical landscape seemed a recurring and disturbing politic in this mode of representation. The tsunami, in the lens of the international media, brought the city into this private utopia, revealing the surroundings that had been coerced out of the picture frame. Its blatant exposure of social inequities, gross neglect and professional and political incompetence was underwritten by the inadequacy of housing and other social provisions. The objective of building for transience and contingency with recycled materials, without appearing patronizing or promoting the gentrification of the site, proved to be a tremendous challenge.

One team's response to the paradoxes and omissions that confronted them was an introverted urban wall along the Galle coastline (Figure 1), deliberately facing away from the ocean's picturesque expanse. The habitable wall emphasized the division between two perceptions of the tropical environment as benign and as dangerous, both tropes which had been inherited from colonial literature. It also discounted postcolonial attempts at colonizing, domesticating or consuming the climatic trope as integral to the contemporary practice of architecture. 'As it deploys its forces, nature is violent, generous, niggardly, bountiful and above all open', observes Henri Lefebvre (1991: 70): 'Nature's space is not staged'. The notion of taming untameable elements is inherent in the staging of nature in architecture. How had this relationship altered, following the tsunami? Provoked initially by the students' refusal to engage the climatic imperative, this paper traces the genealogy of the tropical agenda, interrogating its discursive constructions, publications, and teaching and building practices, and attempts to critique its postcolonial transformations. It contextualizes contemporary design responses within wider historical and discursive forces.

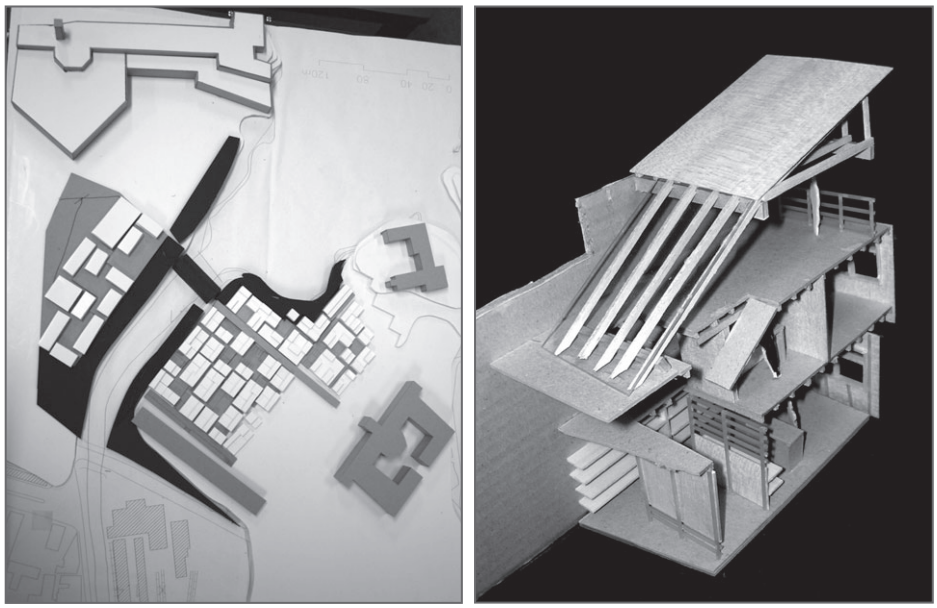

Figure 1. *(left) University of Melbourne undergraduate design students' group proposal for an introverted urban wall along the Galle coastline and (right) model of student Mark Greenwood's proposal for a low-rise extended family house within its environs (photographs by Anoma Pieris March 2005 and Mark Greenwood, June 2005 respectively).*

Colonial discipline and knowledge: the discourse of modern tropical architecture

The inclusion of the tropics in western geographical mapping, beginning from the sixteenth century, was concomitant with expansions in European travel and imperial enterprise that traded and exploited spices, food, raw materials, natural resources and labour. Together with geographical inscription, other disciplines such as medicine and anthropology in particular developed implements and methods to map out, rationalize and calculate the tropics and its constituents for western instrumentation in the economic service of the imperial project.

To western publics, the perception and consumption of the tropics was historically formulated as opposing tropes of danger and paradise (Figure 2). The very conditions of high temperatures and humidity, with the presence of nontemperate pathogens posed biological dangers to westerners (in this case, northern Europeans). As imperial armies and colonial and settler populations were incapacitated or decimated by illnesses, the branch of tropical medicine was developed to prevent deaths from so-called tropical diseases and to alleviate habitation (Crosby, 1986: 134–44; Stepan, 2001: 149–79). Beginning with James Lind's 1768 'Essay on diseases incidental to Europeans in hot climates', medical treatises mapped and characterized the tropics as zones of (dis)ease and low human energy levels. With colonial expansion and empire building the term 'tropical' became associated with and embraced by disciplines such as planning, architecture, landscape design and even social and cultural life. Such research and disciplinary concerns, however, were not universally applied during the imperial periods in most colonies in the tropics. Medical and other research to ameliorate and prolong life in these regions for imperial and colonial administrators was not extended to native populations – unless and until deemed beneficial to colonial economic gain. In *Colonial*

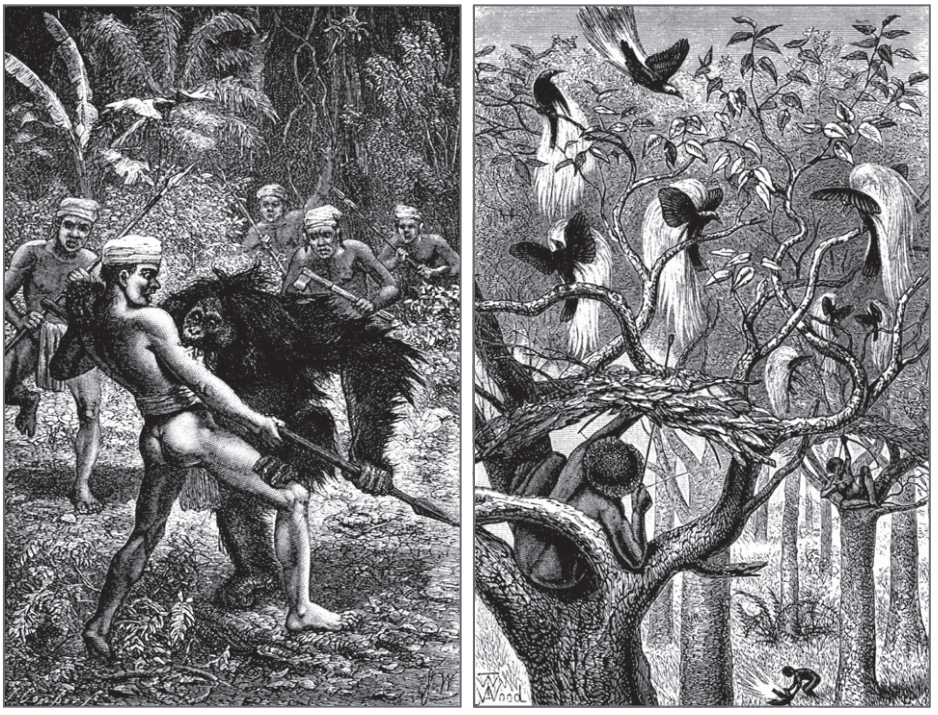

Figure 2. *The tropics as danger and paradise as depicted in Alfred Russel Wallace's* **The Malay Archipelago** *– showing (right) 'Orang-Utan attacked by Dyaks' and (left) 'Natives shooting the Great Bird of Paradise' – being illustrations by Wolf and by TW Wood respectively (Wallace, 1869: plates 1 and 2).*

Policy and Practice, J.S. Furnivall (1956: 408–17) argued, for example, that tropical dependencies increased economic activity and revenue without requisite and comparable advances in promoting welfare for the populations: hence the need for welfare provision was not implemented even when sufficient governance revenue was amassed in those countries.

Besides being the source of biologically diverse foods and products that the world had come to rely on, the immediate image of the tropics as one of lush and unspoilt verdant land/waterscapes easily coalesced as Edenic reconstructions and rural fantasy. The idea of a perennially abundant nonwestern nature has thus been encrypted with symbolic, material and political constructs and persisted in popular perceptions, even among building 'experts' who have, in time, codified and 'mastered' various practices for living in the tropics. An example of this might be seen in the article 'First Impressions of Kuala Lumpur' by Maxwell Fry (1962: 26–27), the modernist architect who later co-authored a major text on building in the tropics (Fry & Drew, 1956) based on experiences in Africa and India:

> Never was the tropical scene [in Kuala Lumpur] more magical, the mingling of races more harmonious, the temperament and courtesy of my mixture of hosts more seductive and heartwarming. You must accept my simple enjoyment for what it is worth. But for the present, and unless you can find [the snake] for me, I remain your Adam still walking about your garden without Sin.

The first articulation of climate in modern architecture discourse may be traced to the architectural historian Henry Russell Hitchcock Jr., who with Philip Johnson organized

the 1932 exhibition at the Museum of Modern Art in New York that proliferated modernist architecture and the coinage 'international style' in the title of the book accompanying the event (Hitchcock & Johnson, 1997). In a 1946 paper read at the Architectural Association (AA) in London titled 'The acclimatization of modern architecture in different countries', Hitchcock cited works of Frank Lloyd Wright, Alvar Aalto and Oscar Niemeyer, and acknowledged that the different climatic and regional interventions made by these architects produced a new language of 'international modern architecture', not merely 'a vehicle for common international platitudes, but a vehicle of expression for regional and national particularities' (Hitchcock, 1946). He was thus the first opportunist proponent of what was later termed 'regionalism' applied in this instance to a discussion of mass housing and new cities after the Second World War.

The postwar period saw expatriate architects and engineers in private practice and colonial service shoulder the construction of buildings in climatically appropriate ways. Their experience and attempts at a modernist architecture outside the West were later expressed formally in journals, conferences and books. The first conjoining of the descriptor 'tropical' with modern architecture was proposed in a paper by Fello Atkinson (1969) on 'The genesis of modern tropical architecture'. Illustrating his extensive travels in the tropics with architectural images conceived through an orientalist lens, Atkinson (1969: 552–7) explained what he meant by 'modern' by emphasising the aesthetic and functional attributes of structures in tropical countries, where many existing buildings showed 'attenuated elegance' but 'could hardly be expected to answer the more complicated conditions of to-day'. He then attributed the new ways of defining tropical architecture to the work of foreign architects engaged by new nation states for major national projects – referring to Le Corbusier for Chandigarh, India, Louis Kahn for Islamabad, Pakistan and Walter Gropius for Baghdad, Iraq – as there was 'no tropical architecture before the dawn of independence' (Atkinson, 1969: 548).

The arguments of both Hitchcock (1946) and Atkinson (1969) were characterized by the staging of difference outside prior arenas of modernist architecture and how that could be alleviated by positivist intentions and continued propagation by western practitioners. The underlying issue was not just of physical distance and colonial intent, but a clash of emergent architectural styles and practices of the West and what was deemed 'traditional', vernacular or regional.

Postwar conferences on tropical architecture

From 1950 to 1952, the UN published several expert mission reports on South and Southeast Asia and the Caribbean that emphasized low cost tropical housing as well as town and country planning (Vance, 1982: 13). Conferences on tropical architecture were held in Rotterdam (September 1951), Lisbon (1952), Washington, DC (November 1952) and London (March 1953). The Lisbon and Washington, DC conferences, respectively organized by the International Congress for Housing and Town Planning and the American Building and Research Advisory Board, focused on housing in the developing countries and the technical and practical aspects of building and living in the tropics. In each case, the presentations were made by 'experts' who had been following the development of housing in the various countries, or who were leading the fields of technical, material or climatic research.

More pertinent, these conferences were convened in western cities at a time of postwar recovery, when Europe was looking to re-engage the global economic market and to regain a steering role in developing and building in former colonies, or what

became dubbed the 'third world'. Many such countries had recently attained or were about to attain statehood, and were reshaping their sociopolitical and economic landscapes. Aid and expertise from former colonial powers were perceived to be urgent and propitious as the economic potential and value of such overseas building programmes was large. As an indication, the UK government-funded laboratory, the Building Research Station, had reported in 1968 that the substantial worth of building in the tropics by Britain alone was GBP 170 million (BRS, 1968) and had estimated the housing shortage in the whole of Asia for 1960 to be 145 million units (BRS, 1953: 8).

The 1953 London 'Conference on Tropical Architecture' was initiated by Adedokun Adeyemi, then a fourth-year student at the Manchester School of Architecture, who formed an organizing committee of representatives from the Royal Institute of British Architects and the Colonial Office, and arranged for 15 papers to be read (Foyle, 1954: 1–4). It was reported that 200 students, practicing architects, engineers, and government advisers attended the conference, and that 'over one-half came from tropical or sub-tropical lands' (*The Builder*, 1953: 558). A resolution was carried on the last day of the conference to continue with work and to foster educational facilities, research centres, conferences and publications focusing on tropical architecture and planning and to encourage the application of local building crafts in contemporary buildings (Foyle, 1954: 123–28; see also Wakeley, 1983: 337).

Forty-five years later in November 1998, a symposium titled 'Tropical encounter' was convened at the Institute of Tropical Architecture in San José, Costa Rica by Bruno Stagno, the Costa Rican architect and founder of the institute, who invited eight architects, academics and critics from India, Malaysia, Singapore, Australia, Brazil, Panama and Cuba. Alexander Tzonis and Liane Lefaivre from the Technical University of Delft were also invited, based on their work on the concept of 'critical regionalism' (Tzonis & Lefaivre, 1981; 1991). The collective camaraderie and excitement engendered at the symposium prompted the decision to compile a book on contemporary tropicalism: as Stagno (2001: viii) put it, 'we became aware of the importance of our regional voices and the planetary significance of tropicality as a way of life and cultural expression as valid as the ones in other latitudes'.

The 1998 symposium in Costa Rica re-enacted the circumstances prompting the tropical architectural conferences of the 1950s but also marked a break with all those prior to it. For the first time, tropical architecture and its attendant issues were discussed by architects and academics from countries in tropical zones, and in a tropical location. The contexts of their discussion also had moved from the prospects of postwar tropical building enterprises and experiences to broader political, economic, social and cultural issues of the twenty-first century:

> it was a south–south dialogue. It was really refreshing that you were not self-conscious: you were talking in shorthand with people and everyone understood the issues (pers. comm., Rahul Mehrotra, symposium participant from India, telephone conversation with Lai Chee Kien, 26 November 2002).

Tropical architecture: postwar publications and dissemination

Besides seminal conferences, the 1950s also witnessed a significant increase in discussions of tropical architecture in western publications issued from some 50 building research facilities set up around the world. The overseas projects of private practices such as the husband and wife collaboration Fry and Drew, The Architects Co-Partnership and Fello Atkinson were regularly reported in architectural journals, as

were topical papers on the subject by experts and advisers. The tone that many of these were written with, however, recalled colonial period commentaries, as in Jane Drew's (1960: 5) observation that: 'It is also necessary for buildings in the humid tropics to be fairly near together when they are ranged in groups because man has far less energy in the tropics than elsewhere'.

Although local discourses did develop within journals and professional practices in Asia, Africa and Latin America, western discourses in architecture predominated, circulated by local elites who followed Euro-American trends, albeit through delayed assimilation. Further, the local professions' and academia's formulations of identity, tradition, development and modernity attracted far less prominence, given the hegemony of the western-based international architectural print media which marginalized such localized (third world) discourses unless they involved or were led by western architects or critics.

In 1956, Maxwell Fry and Jane Drew's *Tropical Architecture in the Humid Zones*, was among the first of many international textbooks on building in the tropics. Opening with a recanting of climate and climatic data, and ending with a 60-page appendix section of technical data on such diverse topics as air-conditioning, fungus and termite protection and plant selection, the central bulk of the book was profusely illustrated with diagrams and photographs of projects, including their own work in Africa and India (Fry & Drew, 1956). Subsequent textbooks such as Georg Lippsmeier's (1969) *Tropenbau: Building in the Tropics* concentrated on providing data and illustrations of 'building mistakes'. This and many other later texts shifted the focus of tropical architecture to the realm of building science, and a faith in the possibility of technically rationalizing climatic and micro climate conditions in built forms, components and techniques.

The academia: tropical architecture as building science and technical codification

The decision to teach programmes on tropical architecture during the 1950s and 1960s could be understood as an effort to engage professionally with extremely diverse regional contexts whose obvious common denominator was climate. The Department of Tropical Architecture at the AA was set up as a direct result of the 1953 London conference. Noting that his own British training had not addressed the needs and circumstances of his home Nigeria or other countries in tropical regions, Adeyemi approached Otto Koenigsberger, then a research fellow at the London School of Hygiene and Tropical Medicine, to start a short course on designing and building in the (so-called) developing or third world. The department received its first batch of (mainly English) students in September 1954 for a six-month course taught on a part-time basis by Fry and Drew, who had just returned from India. With Koenigsberger's personal involvement with the department from 1957 onwards, the enrolment increased to comprise students from the developing world.

South of the equator, in 1962 a group of interdisciplinary faculty at the Department of Architecture of the University of Melbourne started a one-year full-time Master of Architecture course in tropical architecture. The objectives were to train Australian architects, engineers and town planners working in the Asia Pacific region, and African and Asian professionals who would return to practice in their home countries. The first group of 13 students came from Hong Kong, Singapore and Melbourne, as well as cities in Africa, and the course was led by Balwant Singh Saini (1963). They were funded by Colombo Plan bursaries which facilitated this exchange with the broader objective of their training subsequent generations of practitioners.

In both the London and Melbourne departments, 'climate studies' was a major component and formed the first contact for students. These first lectures, seminars, assignments and projects were intended to provide a good grounding in the climatology of different regions of the tropical and subtropical world, and the physical aspects and actions of climate on building form. The second part of the curriculum in both departments was formulated as individual or group design projects, the focus of which differed according to the affinities, interests and idiosyncrasies of the instructors and the availability of 'live' or hypothetical projects. As Koenigsberger worked as a developmental expert for the UN, his studies and student design projects reflected his involvements in UN-led projects in Africa and Asia. The Melbourne group investigated local house design in the Australian tropics and worked with local authorities to propose design solutions for housing.

The pedagogy of technical understanding preceding design experimentation in both the schools set the tenor of the design projects. As disciplinary dictates, students were made to measure and formalize climatic conditions and particularities into diagrams, graphs, charts and data to determine the range of possible design outcomes.[2] In the case of the AA, students remained in London throughout the course, although a large number of students had travelled from tropical regions for this education and thus were relearning their knowledge of the tropics, this time codified as technical data. Sonny Chan, an architect from Singapore who was at the AA in the 1960s, recalled that the climatic studies modules were nothing new to most of his fellow students from other developing countries, and that the socializing outside of the curriculum yielded deeper understandings. The physical estrangement of the department from its area of investigation was noted by Dennis Vosper, the UK Secretary for Technical Co-operation, who thought it 'surprising to find a course in tropical architecture going on in such temperate surroundings as those of the Architectural Association' (quoted in *AA Journal*, 1963: 312).

The returning architectural elites would play important roles in their respective countries in the 1960s and 70s. Many of the students who had arrived in London or Melbourne on scholarships returned to fill vital governmental positions and work on developmental policies and strategies on a national scale. Large-scale urban interventions such as Chandigarh and Brasília in Brazil provided opportunities to work closely with transatlantic 'master architects'. Most were also involved in the processes of building up or starting the architectural and planning professions, and setting up local architecture schools. Up until that time, the profession and its education resided within the colonial realm. The discourse of tropical architecture was thus subsumed once again into the work of the elites and localized in those country contexts.

From the 1970s onwards, the discussion of tropical architecture faded from importance in architectural discourses that emanated from western epicentres of production as perspectives of postmodernism and deconstruction edged into prominence. By this time, debates on tropical architecture had firmly transferred to the (peripheral) non-West, with individual regions reacting to different particularities in their nascent, anxious and unruly forms. Anticolonial sentiments, nationalist rhetoric and religious and communal expressions that had been suppressed under colonial rule surfaced in identity politics which demanded definition through a geographically-bound architecture.

By the 1980s, however, as the universal values of Eurocentric humanism also came under attack in a new wave of identity politics, references to modernism – interpreted as westernization – were regarded as unpatriotic, of foreign import and extensions of colonial values. The secular agendas of tropical modernism with its projection of a seemingly neutral politics had no role to play in the period's social constructions. To

remain valid, attention had to shift from the pursuit of climatic responses to issues of sustainability as well as economic, social and environmental development. The education of architects was likewise adapted to fashion new streams of expertise, most notably in the Development and Planning Unit at the Bartlett School of Architecture of University College London, and across the Atlantic in Cambridge, Massachusetts in the Aga Khan Program at the Massachusetts Institute of Technology (MIT) and Harvard University.

Although the climatic agenda was no longer a central tenet in defining the direction of architectural experiments in postcolonies, the channels it had carved out for expatriate academics and professionals to enter local practices would continue. There was also a proliferation of architecture schools following the British model such as were established in Sri Lanka and Singapore and which are till today maintained under the scrutiny of the Royal Institute of British Architects, with visiting panels from London assessing students, conducting examinations and reviewing the standards for periodic accreditation. The desire for recognition and validation by former colonial authorities underscored postcolonial insecurities, colonial origins and the failure to decolonize teaching institutions. By the 1990s, critical understanding of the tropical agenda had shifted to various localized sites including the Department of Architecture at the National University of Singapore, where the primary task was to reframe various debates to suit the postcolonial subjectivities emerging in the region.

Tropical architecture, critical regionalism and globalization: changing agendas and preoccupations

Initially, the demand for 'an architecture of identity' during the 1980s diverted the course of the tropical agenda away from secular climatic imperatives to seek local, cultural associations. Wary of the chauvinistic religious or ethnic politics of emergent nationalist states, various architects chose to draw redefinitions from the vernacular of regional architectures. Couched as a designed vernacular and articulated through the use of local materials and construction methods, a climate-based architectural identity was further reinforced by Charles Correa's (1980) dictum that 'form follows climate'.

The rise of the designed vernacular was supported by an architectural approach which in the period following the OPEC oil crisis invoked sustainability as one of its chief attributes. It benefited from a western interest in nonwestern, and particularly Islamic, architectures under the auspices of the Aga Khan Program at Harvard and MIT, which promoted identifiably local and pre-industrial technologies practiced by developing world communities. The journal *MIMAR, Architecture in Development*, which was launched in 1981 and had a run of 43 issues, and monographs on individual architects provided an alternative discourse on vernacular architecture that countered the rapid globalization of the Middle-East. The transnational scope of the Islamic world discourse soon spread via India to Southeast Asia, inviting new interpretations of sustainability and climatic concerns. Its confinement to Islamic contexts, however, excluded vast areas of Asia (particularly East Asia) that were developing apace. The recuperation of the tropical discourse and its dissemination in the West would instead occur via ongoing architectural debates on postmodernism and regionalism.

The term 'critical regionalism', first coined by Alexander Tzonis and Liane Lefaivre (1981) in 'The grid and the pathway' in reference to the projects of Greek architects Dimitris and Susana Antonakakis, was later expanded to encompass a wider geographic range and applied to the Sea Ranch in California by Lyndon, Moore and Turnbull.[3] Kenneth Frampton, in a since well-referenced 1983 essay, framed this approach within

a larger discourse on postmodern culture. For Frampton (1983), 'critical regionalism' constituted a contextual modernism which improved on the tenets of the European avant garde by resisting its universalizing tendencies. He described it as a rearguard position against postmodernism and used projects by Alvar Aalto, Jorn Utzon and others to elaborate his argument, advocating an architecture that was responsive to the site, climate and tectonic culture of a specific region. His view was that material defamiliarization intrinsic to this approach maintained its independence from the less desirable nationalist trope of nineteenth century sentimental regionalism. Subsequent discussions have challenged this thesis, for example, Alan Colquhoun (1997: 14) exposed its closer connections to the Mediterraneanism of the European avant-garde, Mike Austin (2002) questioned its relevance for mobile or nomadic communities, and Eric Höweler (2002) argued that Asian skyscrapers have regional attributes.

In Asia, where the political advantages of regionalism were being realized through mobilizations such as the Association of Southeast Asian Nations (ASEAN), the tropical modernist debate was displaced by that of the hybrid modernist vernacular. Among its proponents were many first generation Asian architects, who had contributed to national developmental agendas and were trained in tropical architecture at the AA or other temperate contexts. In 1996, the AA Asia alumni group reinvigorated these ties in a symposium on the 'Contemporary vernacular', the outcome of which was *The New Asian Architecture: Vernacular Traditions and Contemporary Style* (Lim & Tan, 1998).

The substantiation of the tropical label through a reinforcing discourse would be delayed until the publication in 2001 of a new all-encompassing classification that brought all of these earlier positions together. Couched as *Tropical Architecture: Critical Regionalism in the Age of Globalization,* the compiled proceedings of the 1998 Costa Rica symposium co-opted the scopes of 'tropical architecture' under the umbrella of theoretical and historical frameworks of 'critical regionalism' and a contemporary interconnected global network (Tzonis & Lefaivre, 2001a: 1–2).

By recreating a metanarrative of tropical architecture and providing its history, the contributors had realigned an initiative from and by the global south towards the global north. The 'age of globalization' referenced in the title excluded earlier ages of imperial globalization as well as those of precolonial periods. Ironically, Tzonis and Lefaivre (2001b), in their chapter 'The suppression and rethinking of regionalism and tropicalism after 1945', discuss the regionalism of architectural and urban historian Lewis Mumford and his trysts with the promoters of the international style (see also Tzonis & Lefaivre, 1991). A 'new' participant listing included Minnette de Silva, Fry and Drew, Le Corbusier, Richard Neutra and several other African, South American and Southeast Asian architects. However, the purported new architecture from the non-West that benefited from this discourse took on many existing attributes of globalization.

Unlike the textured and tactile softness of the new vernacular in South Asia, Singapore's 'tropical houses' have been reproduced through estrangement from the land and climate. Their juxtaposition to the landscape as formal geometry and pristine interior has been argued as a minimalist position by Chan Soo Khian and Rene Tan, who delineated the approach as 'neo-tropicality' (Low, 2001: 174) at a 'Tropical architecture workshop series' of the Department of Architecture of the National University of Singapore in February 2001. Underlying this neotropical approach was the tacit understanding that an apolitical climatic ideology could be safely developed without disrupting or disturbing the ideologies of governance and social dissonance within the city state's public housing types. Moreover, the 'tropical' position was being usefully conflated with 'Asian' as a secular interpretation of a cosmopolitan regional identity. In the

writings and practice of Singapore architect Tan Hock Beng (1994; 1996; 2000), the relationship between the house, the resort and visions of paradise became clearly articulated. A second AA Asia symposium in Singapore in February 2004 saw a further shift in this discourse to an ecological agenda, reflected in the edited output *Tropical Sustainable Architecture: Social and Environmental Dimensions* (Bay & Ong, 2006).

Sustainable tropical architecture?

In South Asia, the import substitution policies of postindependence socialist economies had produced an architecture of frugality heavily reliant on local materials, technologies and labour-intensive processes. It gave postcolonial nationalism a familiar vocabulary through which to recuperate identity discourses that were suppressed by modernist secularism. In contrast, Southeast Asia moved rapidly from pragmatic modernization to capitalist economic models, based on a grander vision of regional identities linked to the emergence of ASEAN. Regionalist architecture was used to signify specific Southeast Asian national identities sharing a common tropical climate. While the issue of regional identities has been debated extensively in successive academic and professional forums in ASEAN member countries, the invocation of sustainability remained incidental to a more complex, identity-driven discourse that would be opportunistically taken up by the global market.

The transformation of the climatic approach via postcolonial identity politics into a global commodity needs to be contextualized in the shift towards tourism-led development. A recession during the mid-1980s halted the triumphant march of modernization in Southeast Asia and caused a reflective re-engagement with urban heritage and its conservation for adaptive reuse. The tourism industry, invigorated by the proliferation of local airlines offering cheap fares, was at the helm of an effort to make Asia a desirable destination for world travellers. Inspired by a bid to shift from manufacturing to service industries, the methods of the tourist industry were profit-driven and tactical, and exploited an eclectic range of historical and other signifiers: orientalist, colonial, nationalist, bourgeois and cosmopolitan in a truly postmodern interpretation of regionalism. The tourist resorts of the 1990s invoked sustainability by their derivation from vernacular rural dwellings, low-rise picturesque planning and extensive use of landscaping. These were celebrated as alternatives to the prototypical international style architecture of urban high-rise hotel chains in capital cities. Resort-style architecture, promoted as sensual and exotic environments, offered a wild and picturesque tropical landscape that was domesticated for richer westerners (Figure 3).

The opposition of benign and dangerous environments entered the Asian imaginary at an even more intimate scale through a Singapore-based publisher's focus on versions of the 'Asian house' for elite clients (see Powell, 1993; 1996; 1998; 2001). The loose alignment of climate and identity with their easy attachment to modernism suggested not the inherent fluidity of the type but the non-reflexive consumption of localizing tropes. While benefiting from its allusions to nature, culture and region as naturalized forms of sustainability, there was no real engagement with ecologically-sensitive solutions. The neotropical house was conceived as a mini hotel for a private homeowner, constructed against the economic disparities across the Asian region. The low value placed on craft-based manufacturing and labour, and its high value for niche western consumers constituted its primary appeal. The end product, a hybrid of industrial aesthetic and vernacular processes, exhibited the visceral qualities that have been lost with industrialization in the West.

Figure 3. *The Triton Hotel, Ahungalle in southern Sri Lanka designed by Geoffrey Bawa (built 1979–1981), seen here after it was refurbished following the 2004 tsunami; it was recently renamed Heritance, Ahungalle (photograph Anoma Pieris, 2010).*

With such applications in exclusive tourist resorts, the tropical discourse became detached from its original agenda of sustainability and coalesced with a large range of modern programmes including factories and corporations that consumed local resources indiscriminately. The displacement of the ecological critique into a utopian site had diverted attention from a far more critical discourse on sustainability that needed to address Asia's rapid urbanization. In the 1980s, several architects in Southeast Asia separately commenced the re-examination of such issues as relevant to architectural design and the impact on built environment. Two architects, Tay Kheng Soon and Ken Yeang, derived conceptual ideas at the urban level for various local and academic publics. Yeang (1987) proposed the idea of the 'tropical verandah city', in which individual or grouped buildings might develop elevational treatments and other devices to attenuate climatic locations, to the extent that cultural symbols could also be altered. Tay has pressed vigorously for the development of environmentally sustainable urban models, focusing on both the modulation of physical structure and a concern for discussion of issues across cityscapes and rural environments (see further at http://www.akitektenggara.com/). Despite these efforts, the link between sustainability and tropicality has remained at the peripheries of architectural discourse, state agenda and global capital. This disjunction would prove to be a significant obstacle in the post-tsunami reconstruction, largely because the sources on tropical Asian architecture were so devoid of any real engagement with industry and processes. More seriously, it suggested that Asian architects had not developed or disseminated a critical and reflective practice that might resist the forces of globalization.

Post-tsunami reflections and reservations

In the first five years following the December 2004 Indian Ocean tsunami, the terrain covered by reconstruction efforts continued to reflect the uneven political economy of the

South and Southeast Asian region, in both the economic extremes represented by its relief organizations and often unwelcome political intervention at numerous stages in the process. In Sri Lanka, for example, 70 per cent of donor-built housing was reportedly underway by September 2005 (Jayasuriya *et al*., 2006: 34). The tsunami carved its own economy of political corruption, fresh channels for foreign investment, numerous tsunami-related nongovernmental organizations (NGOs), international workshops, conferences and competitions and hybrid holiday packages to recovering tsunami-hit areas, and perhaps predictably inspiring a miniseries – *Tsunami: The Aftermath* (BBC-HBO 2006, directed by Bharat Nalluri). Material responses varied considerably from symbolic structures such as the Tsunami Memorial by Disc-O and Naga Concepts in Khao Lak, Thailand (USD 13 million), and Banda Aceh's Tsunami Museum (USD 7.4 million) (Reuters, 2007) to the small-scale projects of NGOs such as those of Architecture for Humanity (http://architectureforhumanity.org/) in Pottuvil, Eastern Province, Sri Lanka and Architecture & Développement in Kanyakumari in India (http://www.archidev.org/index.php).

Similarly, architects who eagerly and magnanimously embraced reconstruction as an opportunity for experimenting with social housing claim to have played significant roles, with feted international firms such as Studio Daniel Libeskind and architects Tadao Ando and Shigeru Ban building experimental post-tsunami housing in Sri Lanka (*Architectural Record*, 2005a; 2005b; *INTERNI*, 2011). Their work and that of collaborating local architects have apparently created a resurgence in the use of vernacular materials and methods. Ban's solution for Kirinda village in southern Sri Lanka, a Colliers International project, was described as 'radical', a design that 'ensures that the houses can breathe in the heat and that air can circulate freely inside' (Colliers Foundation, 2007), gaining recognition from MIPIM real estate awards 2007 in Cannes and the 2008 Urban Land Institute Asia Pacific Award in Tokyo, for its 'green vision'. An MIT/Harvard team (Tsunami Design Initiative) has similarly applied 'high-tech engineering principles to develop low-tech solutions' for tsunami prone areas with a computer generated simulation of a house that allows an ocean wave to pass through it (*MIT News*, 2005). Although typically far more expensive than post-tsunami housing solutions of local architects, they offer a vernacular aesthetic and a global technology as a response to climate.

These architectural responses and the attendant rhetoric are hardly radical or novel in a broader Asian region that has been practising varied scales of climatic regionalism for over 50 years. The novelty perhaps is that prominent architects generally preoccupied with tropical bungalows and resort hotels have paid attention to social housing. The prescribed solutions predictably ignore the aspirations of the incumbent villagers, creating a 'new' vernacular prototype derived from traditional forms. As argued by Jim Kennedy (2007/2008: 1–3) in his scathing critique of the solutions publicized in Architecture for Humanity's (2006) *Design Like You Give A Damn*, many of these fail in terms of replicability, cost and even pragmatics, and further offer prototypes for one-off pilot projects that do little beyond indulging the whims of the designer.

The familiar juxtaposition of tourism and poverty was reinforced in the consumerist spin of the 'Tsunami recovery update' cover feature of the Japanese publication *Casa Brutus* (2005), which reported that 'the opening of new resorts throughout the region including the Maldives, Phuket and Sri Lanka' collectively declared 'the hope of renewal that will allow people to regain what was lost' – followed by the addendum: 'If you want to do something to help, plan your next vacation here' (Google translation; no longer available).

The period following the 2004 tsunami continues to see the coupling of humanitarian relief efforts and resort tourism, the cohabitation and interdependence of extreme

economic conditions and the ultimate cooption of both these paradigms into a discourse on tropical architecture. In short, seemingly disparate paradigms have been made proximate and appear to be derived from the same cultural sources and resources in the language of post-tsunami reconstruction and economic growth. Their conflation is troubling because the real issues of social inequity and environmental degradation arising from the overuse of local building materials in reconstructing houses and hotels after the tsunami are not addressed. The hastily refurbished tropical resorts along the tsunami-ravaged coastline were first populated by western relief workers, as a global system of patronage appropriated the tropical agenda. One year later the consensus seemed to be that the industry had refurbished and even expanded their facilities in the wake of the tsunami (*Guardian Observer*, 2006), their revival juxtaposed with tent villages lingering outside their walls.

Some conclusions

A succession of tsunami studios, in Melbourne and elsewhere (including Sydney, Vancouver, Singapore and Cambridge, Mass.), while relying on the groundwork of a previous climatic agenda, have exposed the limitations of the profession in furnishing the need for social responsibility (D'Urzo, 2011). They remind us of other interpretations of sustainability and undermine the technological determinism of high-end 'green architecture' lauded by the profession. For the current environmentally savvy generation of students, superficial interpretations of sustainability or aesthetic responses to social catastrophes are insufficient. Studios focusing on reconstruction have since diverged from mainstream practice.

The politics of modern tropical architecture as a discussion of regional particulars occurring within the global are eagerly pulled into centre–periphery discourses by scholars and practitioners, and through them, an alignment to their ancillary theories, politics and histories. At the interregional level, this climatic discourse is staged at the schematic of developmental politics and a contest for the share of the rich and the middle class, who continue to dictate the priorities of the tourism and real estate industries. Its genealogy reveals a process by which the threat of the tropical climate envisioned in a colonial discourse was pacified and aestheticized. It was this carefully crafted image of a benign paradise commodified for the global market and domesticated in coffee table publications that collapsed in the wake of the 2004 Indian Ocean tsunami. Meanwhile, the issues of social, cultural and political sustainability that shape post-tsunami reconstruction in South and Southeast Asia have forced architectural solutions to shift from the justification of tropical aesthetics to the provision of critical services. During this process, it became evident that the industry's nostalgic attachment to labour intensive techniques over prefabrication would delay the rehabilitation process and cause undue stress to large numbers of displaced persons. Following the tsunami, it was inevitably necessary to assess and rectify the ecological damage to local environments.

From such larger perspectives, more questions emerge if pedagogical and practice frameworks are mapped onto imperial and developmental histories leading up to the disaster wreaked by the Indian Ocean tsunami in December 2004 (Figure 4). Can architecture in Asia maintain its current detachment from the industry and the urban context? Can buildings in developing countries continue to be viewed as *objets d'art* or do architects have to concede to the complex urban and rural systems within which they are to be situated? After 50 years of discourse, debate and dissemination, the tropical agenda seemed to have retreated into isolated individualistic building practice,

Figure 4. *Debris-strewn beach south of Colombo, post-tsunami, 2005 (photograph courtesy of MEDIA SERVICES/Lanka Monthly Digest, Sri Lanka).*

localized only by an apparent engagement with climate. Picture-book tropical houses and resort hotels photographed within their high boundary walls replicated a colonial history of economic divisions. With rapid urbanization and the growing awareness of political inequities, such utopian positions and the continued sustenance of the descriptor 'tropical' may now seem unconscionable.

Endnotes

1 702–403 Architectural design 4A, 'Post-tsunami reconstruction', Semester 1, 2005. Students in the group discussed here included Mark Greenwood, Rajat Sharma, Ewa Malewski and Liam Radich.
2 Australia had a 'keen interest in the economy and welfare of the people of the Pacific Islands' with respect to planning and development (Saini, 1963: 3).
3 They combined 'critical', reflexive, rational techniques, following Kant or the Frankfurt School, with ideas of defamiliarization proposed by Victor Schklovsky (Tzonis & Lefaivre, 1981: 178; 1991: 20; 2001a: 8). The term 'critical regionalism' was used by Tzonis *et al*. (1995: 1) to refer to Lewis Mumford's discussions of a humane regional architecture in their critical exploration North American architecture since 1960.

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Resource management and agriculture in the periurban interface of Kumasi, Ghana: Problems and prospects

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This paper outlines pressures on agricultural land in periurban Kumasi, Ghana. A survey of agricultural practices underlines the recent and rapid transition from agricultural to urban land use in the periurban interface, and shows how farmers are reacting by reducing fallow periods. Farmers are also intensifying agriculture near streams and rivers through increased use of irrigation, in response to growing urban markets for a wider range of vegetables. We identify specific problems of water resource pollution and waste management, with particular reference to farmland irrigation. We report results of composting interventions as a community-based waste management strategy. We consider integrated organic waste recycling as a generic strategy to help protect periurban natural resources, to enhance food production through nutrient recycling, and to improve community sanitation.

Keywords: agriculture, Kumasi, periurban interface, resource management, waste management

Introduction

The periurban interface of cities in developing country contexts has received growing attention in recent years (e.g. Simon *et al*., 2004; Lynch, 2005; McGregor *et al*., 2006; Tacoli, 2006; DST, 2008), and was the focus of significant research effort by the UK Department for International Development's (DFID) Natural Resources Systems Programme from 1995 to 2006. Principal among effects of rapid urbanization has been conflict over land use in the periurban interface, between traditional forms of agriculture and the ever growing demand for housing and commercial premises. Loss of land for building has frequently marginalized periurban farmers, whose livelihoods are often prejudiced by insecure tenure. Short-term planning in this pressurized environment typically leads to agricultural intensification on remaining accessible land and insufficient attention to declining soil status. Significant challenges have emerged in terms of access to land, soil ameliorants, water and water quality (increasingly polluted by periurban waste, urban waste disposal and industrial activities) (Douglas, 2006). Yet urban and periurban agriculture is often claimed to be a key livelihood opportunity for many citizens (van Veenhuizen, 2006).

The challenges to agriculture in the periurban interface include adapting farming systems sustainably, managing water resources for agriculture in the face of rising nonagricultural demand, and exploring opportunities for waste recycling in order to protect soil fertility. This paper considers these issues in relation to the periurban interface of Kumasi, Ghana's second city.

The increasing pollution and waste disposal problems found in many sub-Saharan African cities, resulting from rapid growth and urbanization, widespread poverty, inad-

equate and weak local governance and limited financial resources (Onibokun, 1999; Adam, 2001a; Adarkwa & Post, 2001; Drechsel & Kunze, 2001; Simon *et al.*, 2001; 2003), have become distinctive features of Kumasi and its immediate periurban interface that pose major challenges to environmental protection, waste management, food security and urban and periurban agriculture (Brook & Dávila, 2000; Mensah *et al.*, 2001). The pollution and waste disposal problems are most acute in periurban areas, where waste management services are seldom adequate or provided despite rapidly increasing settlement densities (Adam, 2001a). Hence, substantial opportunities exist for community-based waste management strategies that promote nutrient recycling. These strategies turn organic waste into compost at community and household levels for use as agricultural fertilizer in urban and periurban agriculture. While not problem-free, such approaches have the potential to create a positive outcome overall by increasing urban and periurban agricultural production through appropriate soil fertility management; by protecting the environment through the recycling of organic waste; and by generating income and livelihoods, which in turn enhance urban and periurban food security (Allison *et al.*, 1998; Drechsel & Kunze, 2001; Leitzinger, 2001; Adam-Bradford *et al.*, 2006).

Periurban Kumasi

As in many rapidly developing urban regions, the Kumasi periurban interface is characterized by high rates of conversion of agricultural land to private housing and increasing pressure on natural resources through waste dumping, wood collection and sand winning/mining (Brook & Dávila, 2000; McGregor *et al.*, 2006). Land tenure is a complex issue in periurban Kumasi as land may be held by the government for public facilities, by families ('family land'), by the community ('stool land', controlled by the community chief) and by individuals. The debates around pressures of development have focused to an extent on community land (Brook & Dávila, 2000; Adam, 2001a; Kasanga, 2001; McGregor *et al.*, 2006). The role of the chiefs in controlling and selling land for development is critical. Customarily, the proceeds of stool land sales should revert to the community, and those farming these community lands should be compensated by access to appropriate parcels of alternative farming land. This has not always been the case, especially with progressive monetization of transactions and as the extent of suitable land not covered by buildings declines. Numerous conflicts have arisen, leading some farmers to abandon agriculture, and generating insecurity and short-term planning strategies among remaining farmers, often resulting in exploitative soil 'nutrient mining' approaches.

The city and its suburbs lie across a major drainage divide (Figure 1). The main watersheds in the area flow from more rural catchments across the periurban zone and into the city. Having passed through the built-up area, the main streams then flow through periurban Kumasi and then further out into more rural areas. As a result, a range of water quality and supply problems affects the periurban interface. Further, budgetary pressures have resulted in the inability of public services to meet waste collection demands in the periurban interface adequately, despite the construction of two new waste collection facilities since 2000. This has been partially due to a process of 'peripheral neglect', in which municipal and district authorities focus their resources in core rather than peripheral areas such as the periurban interface.

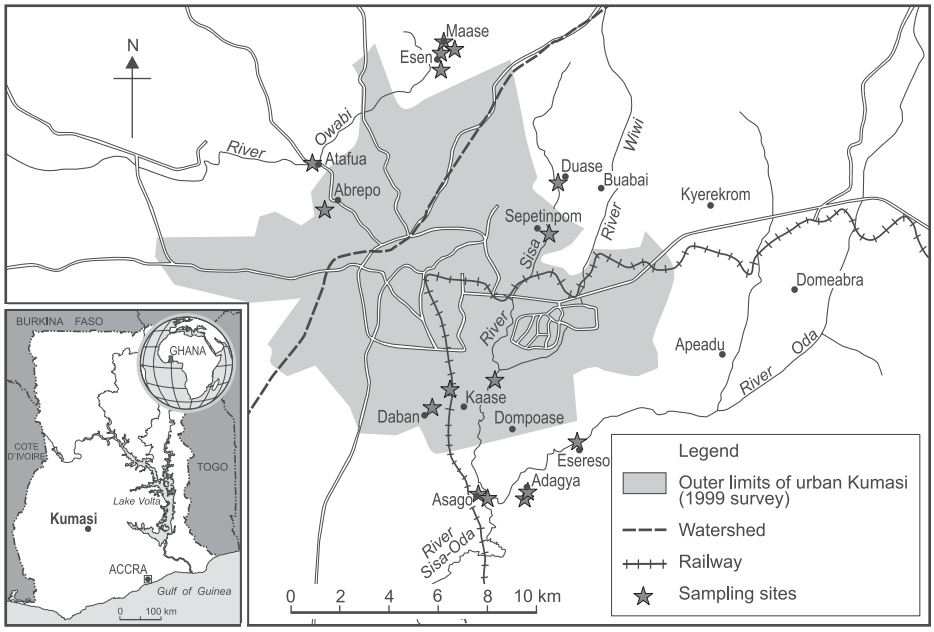

Figure 1. *Sampling sites and other locations mentioned in periurban Kumasi, Ashanti region, Ghana.*

This is set against a pattern of declining rainfalls in the Kumasi area, from the 1960s average of 1600 mm to that of about 1250 mm in the decade 1989–1998 (data obtained from Ghana Meteorological Service, Kumasi Airport station), a trend mirrored elsewhere in Ghana (Owusu & Waylen, 2009). However, rainfall totals have risen marginally since about 2000, if characterized by relatively high variability, with a fitted trend line rising from 1380 mm in 2000 to 1470 mm in 2009 (Ghana Meteorological Service, Kumasi Airport station). With significant population increase, from perhaps 200 000 (1960) to substantially over 1 million, and increasing periurban house building and groundwater abstraction, the necessity to protect agricultural land and to better manage water resources for agriculture becomes apparent.

Soils of Kumasi's periurban interface are developed over highly weathered phyllites, greywackes, schists and gneiss, and are predominantly reddish silty clays and silty clay loams, generally well drained but with low chemical fertility below a thin organic topsoil (Adu, 1992: 32). Adu (1992: 121–22) reports that these soils are deficient in phosphorus and that where cultivation has been carried out continuously for long periods soil nitrogen levels are 'very low'. Heavy leaching has depleted the soil of elements such as calcium and magnesium, resulting in relative concentrations of iron and aluminium compounds. Low organic matter content renders these soils susceptible to erosion and careful agricultural management is required.

The terrain is generally moderately dissected, with slopes of 5° to 15° and local amplitude of relief of up to 30 m. Summits are often relatively flat-topped, and underlain by laterized concretionary gravels (as noted, for example, near Adagya, where gravels were being quarried for road making materials). Adu (1992) asserts that improper cultivation practices, particularly on steep upper and middle slopes, have led to widespread accelerated erosion, in turn leading to the exposure of subsoil gravel and to shallow soil depths.

Research methodology

A range of scientific and social scientific research techniques was applied in studies carried out between 2001 and 2005 as part of a wider DFID programme (see McGregor *et al.*, 2002) and as part of Andrew Adam-Bradford's doctoral research. In order to determine the nature of the agricultural system, in-depth semistructured interviews, backed up where possible by systematic on-site observation, were held with a sample of 35 farmers (26 male, 9 female) in Adagya, Esereso and Maase. Following local custom, the village chiefs were approached to gain community access so that, inevitably, initial interviews were with their associates. But a cross-section of farmers was accessed subsequently via the snowballing method. Questions focused on identifying basic farming practices, including soil and water management, and investigating indigenous technical knowledge. Wherever possible, farmers were invited to conduct interview discussions in their fields, thus providing independent corroboration or otherwise of their statements via more participatory methods derived from participatory rural appraisal. All our interviews were conducted in English (while accompanied by a local interpreter).

Monthly water quality data were obtained for the period September 1999–September 2001 (McGregor *et al.*, 2002). Samples were analyzed at the Kumasi-based laboratories of the Ghana Water Company and Ghana Environmental Protection Agency, both using standard procedures associated with the portable laboratory 'Paqualab' systems. Heavy metal determinations were carried out at the Chemistry Department laboratories of Kwame Nkrumah University of Science and Technology in Kumasi.

In order to conduct composting experiments, household surveys in 6 periurban villages (Adagya n=52; Apeadu n=50; Asago n=58; Domeabra n=54; Esereso n=56; and Kyerekrom n=53) were undertaken to identify behavioural patterns, with respect to disposal of household refuse (Bradford, 2006). Villages were selected to ensure that a range of different periurban characteristics (environmental, geographical, social, economical and political) was represented. The single universal characteristic that applied to all selected villages was that open refuse dumps were used; that is, no waste collection services existed.

Focus group discussions were also held in study villages, including discussions with separate subgroups comprising of chiefs and elders, farmers, women, and village youth. A total of 18 (3 in each community) focus group sessions/workshops were held specifically related to the composting initiatives. Following action planning discussions, specific designs and types of household level composting micro projects were chosen. Sketches and diagrams were used to illustrate the principles of container composting, then suitable compost container designs were drafted for local construction. These consisted of simple and easily replicable demonstrations, distributed at prominent points in each village. Once the various containers had been constructed, their use was implemented, as noted above, through training workshops conducted by community-level facilitators and community-chosen representatives working with a Ghanaian non-governmental organization (CEDEP, 2005) on a DFID-funded livelihoods project, thereby also contributing to local empowerment through enhancement of the community facilitators' capacity to produce and analyze knowledge.

Agriculture in periurban Kumasi

The dominant farming system in periurban Kumasi is sedentary agriculture with mixed cropping and some rotation of cassava, maize, exotic vegetables, plantain and sugarcane,

and relatively little monocropping. The most common rainfed strategy is intercropped maize and cassava. Cassava, maize and plantain are the main crops and urban and periurban backyard gardening features extensively. Many farmers around Kumasi have turned recently to irrigation (Danso *et al.*, 2006), particularly in bottom lands with access to water, and to year-round intensive cultivation of lettuce, tomatoes, spring onions, carrots, cabbage and other vegetables for the growing urban market.

Despite the important role of urban and periurban agriculture in contributing to food security and income generation, the sector faces many constraints. Inadequate water for dry season farming, low income levels, high costs of farm inputs and inadequate storage and processing facilities all hinder agricultural production. However, the loss of agricultural land for construction activities is a major constraint around Kumasi, destroying livelihoods and resulting in agricultural intensification on remaining farmland. Consequently, unsustainable nutrient depletion of soils and inappropriate use of chemical fertilizers occur. This poses particular problems as many female-headed and poor periurban households remain dependent on agriculture as their main livelihood (McGregor *et al.*, 2006).

As more farmland is lost, it might be assumed that the bulk demands of farming systems on water flows and availability should reduce. However, this has not happened because of the recent trend of declining rainfall, the current relatively high rainfall variability, and the increasing pressure on groundwater resources due to river pollution and increasing abstraction for domestic use. Also, the potential intensification of agriculture on land protected from urban sprawl, either by chiefs with a social conscience or by the marginal or sacred status of particular areas, needs taking into account.

Our interviews indicated that periurban Kumasi farmers have sound indigenous knowledge of soil assessment, both for estimating soil fertility and for judging when soil fertility is declining. Farmers were asked, unprompted, which indicators they recognized for these, and their responses were then elaborated in discussion. The indicators used by farmers, such as soil colour, soil texture (particularly changes towards more sandy textures), declining yields, and pest and weed invasion (Table 1), are very similar to those reported by Chokor and Odemerho (1994) in a Nigerian investigation.

Table 1. Indigenous indicators of soil fertility sampled among 35 periurban farmers in Kumasi, 2001.

Indicator	No.	Per cent
What shows that a soil is fertile?		
Soil colour	24	67
Soil texture	16	44
Fallow trees	10	28
Crop growth quality	9	25
Crop growth yields	9	25
Established fallow	5	14
What shows that a soil is declining in fertility?		
Declining yields	21	58
Pest invasion	16	44
Weed invasion	15	42
Sandy or coarse topsoil texture	7	19
Changes in soil colour	5	14
Changes in greenness of fallow vegetation	3	8

In our interviews, limited use of organic fertilizers (2 farmers – both male – using mostly chicken manure) was reported, but there was relatively common use of chemical fertilizers (11 farmers – 9 male, 2 female), almost exclusively on relatively high value crops such as tomatoes, okra, 'garden eggs' (aubergines) and peppers. Inadequate finance was most often quoted as a constraint on chemical fertilizer use. Three farmers were using herbicides incorrectly as pesticides, while 9 farmers admitted to using (banned) DDT. It is clear that farmers here use low amounts of fertilizer overall, the main reasons being continued reliance on fallows to restore fertility and inadequate resources to purchase fertilizer. This low application estimate conceals possible hot spots such as intensive tomato production near Maase, where excess fertilizers may well be applied and result in leaching into streams and groundwater (Adam, 2001b).

Use of fallow continues except in the most urbanized villages, although fallow periods are being reduced (see also Drechsel & Zimmerman, 2005). The average fallow period claimed by farmers was four–five years, though many said that this had reduced recently. On the other hand, one farmer had cultivated two plots alternately (one year fallow) for six years and three farmers admitted to a two-year fallow; the maximum fallow period claimed was six years. Permanent intercropping is more common in the relatively urbanized communities. Monocropping is uncommon, although many farmers perceive the market advantages of concentrating effort on cash crops such as lettuce and tomatoes.

Also notable from interviews is the imperfect perception of soil erosion problems. Only a third of farmers surveyed agreed that soil erosion is problematic, despite visual evidence of topsoil (and hence nutrient) loss during rains and developing gully systems, especially on slopes. Most farmers who recognized the problem declared that there was nothing they could do about it. Again, these figures closely parallel attitudes in Chokor and Odemehro's (1994) investigations (cf. McGregor & Barker, 1991, on Jamaican hillside farmers). It is clear that attempts at soil and water conservation among Kumasi's periurban farmers will require carefully planned awareness-raising and improved linkages to extension services.

Overall, our interviews suggested that the principal response to the progressive reduction in amount of farm land available has been reduction in, and even elimination of, fallow periods (see also Sarfo-Mensah & Adam, 1998). Maconachie (2007) has observed similar periurban patterns in Kano, northern Nigeria, where farmers have ceased using fallow. In periurban Kumasi this may well prove to be a more critical variable in the future of agricultural systems than declining water availability. Nevertheless, relatively low and currently variable total amounts of rainfall and increasing use of fertilizers are both factors which will require monitoring to ensure sustainable periurban agriculture.

Water use and agriculture in periurban Kumasi

Although the secular trend in rainfall since about 1960 is downward, despite a slight rise and relatively high variability in the last decade, there is still sufficient precipitation for traditional forms of rainfed agriculture in Kumasi's periurban interface. The trend towards irrigation to diversify and intensify cropping relies on use of Kumasi's streams and rivers, which is problematic.

Several short-term studies (e.g. Cornish *et al.*, 1999; Mensah *et al.*, 2001; Keraita *et al.*, 2003; Cornish & Kielen, 2004) and our longer-term study reported elsewhere (McGregor *et al.*, 2000; 2001; 2002) show a clear pattern of stream pollution, with

chemical and human waste contamination present within very short distances (as little as 1 km) of source. Not only is river water heavily polluted, but significant levels of pollutants in hand-dug wells (as at Asago, about 150 m from the river) also indicate ongoing contamination of the floodplain aquifer. Although the limits for safe drinking water are not consistently exceeded, individual readings do exceed these limits (McGregor *et al.*, 2002). This is supported by Obiri-Danso *et al.* (2009) in a survey of water quality in wells and boreholes largely to the east of the present study area.

In terms of chemical pollutants, farmers surveyed generally believe that river water provides detectable fertilizer benefit to irrigated crops, and it would be expected that the polluted waters downstream of Kumasi would make a significant contribution to the nitrogen requirements of irrigated crops there. However, the use of nitrogenous fertilizers leads to both the export of nitrogen in crops and the build-up of nitrate in groundwater. The maximum accumulation of nitrogen is likely to occur in water-saturated landscapes, such as those valley bottoms in and around Kumasi, and downstream at Asago, where sugarcane and water cocoyam are grown (Adam, 2001b). The role of these areas in nitrogen cycling deserves further investigation.

Use of stream and wastewater for irrigation is growing in Kumasi's periurban interface. Where available, farmers utilize land where there is a high water table or close proximity to a stream. One farmer interviewed used irrigation extensively. He had rehabilitated a floodplain site close to Maase, which had had its topsoil permanently removed by sand winning, and was utilizing the high water table by digging a shallow well. He had incorporated sawdust and soil from adjacent river banks and anthills in an attempt to improve soil texture and encourage water retention, and was producing market vegetables (reportedly for both Kumasi and Accra) which needed constant water supplies for optimum growth and freshness.

Wider use of irrigation for fresh vegetables, a distinct possibility in view of increasing markets in Kumasi and Accra, is a potential source of increased agricultural demand on water in the periurban interface, which also may present a significant threat to human health.

Current health concerns

Current health concerns with respect to periurban water use for agriculture focus on problematic concentrations of faecal coliforms and helminth eggs, and potential build-up of heavy metals. Recent research (Keraita *et al.*, 2008) showed that farmers were aware of the health risks from irrigating with urban wastewater but that they perceived bad odour and skin infections to pose the greatest risks, rather than nematode infections and bacterial diseases which are usually associated with wastewater irrigation.

Obuobie *et al.* (2006) record that vegetable samples collected from Kumasi's markets show faecal coliform contamination well above the level (1×10^3 100 g^{-1}) recommended by the International Commission on Microbiological Specification for Food (ICMSF). Mensah *et al.* (2001) and Keraita *et al.* (2003) also express concern over use of urban wastewater in farming and vegetable handling in and around Kumasi. They also report high levels of faecal coliform contamination of vegetables sold in Kumasi's markets, though contamination could occur from a range of sources.

As Westcot (1997) points out, the presence in river water of faecal coliform concentrations above 1000 per 100 ml does not necessarily preclude the use of such water for irrigation, but concentrations such as those found in the rivers of Kumasi's periurban interface (averaging up to over 12 000 faecal coliform per 100 ml) suggest a potential risk (McGregor *et al.*, 2002). Cornish *et al.* (1999), McGregor *et al.* (2000; 2001; 2002)

and Cornish and Keilen (2004) show that faecal coliform levels in some local hand-dug wells but throughout the Kumasi river system are already at or higher than WHO guidelines for unrestricted irrigation.

Cornish *et al*. (1999) also report that water upstream and downstream of Kumasi contains levels of helminth eggs above WHO (1989) guidelines. Further, Obuobie *et al*. (2006) note the consistent presence of helminth eggs in vegetables sold in Kumasi's markets. Although coliform bacteria are reduced by exposure to light, helminth eggs are more persistent and may represent a greater health hazard. In a study of survival of helminth eggs in compost comprising mixtures of faecal sludge with other organic materials at the sewage treatment plants at Buobai (Kumasi) and Teshie (Accra), Galizzi (2004) records that viable helminth eggs persisted under some composting conditions for up to four months.

The reality is that untreated wastewater remains a significant source of water for agriculture in Kumasi's periurban interface, and in Ghana in general (Keraita & Drechsel, 2004).

Heavy metal contamination

An investigation of heavy metals in the River Sisa at Asago, about 4 km downstream of the city edge, indicates that safe drinking water standards (WHO 1989; 2006) are exceeded by a range of heavy metals, and that there is a significant build-up of heavy metals in floodplain sediments (Table 2). Many heavy metals such as arsenic, cadmium, lead and mercury are not plant nutrients and if taken up by vegetation would tend to accumulate therein. The question of uptake rates is, however, not straightforward. For example, Drescher (1994) found that in some circumstances high heavy metal (cadmium, copper, zinc) concentrations in soil do not enter the food chain via vegetable cultivation. The standards used for crop production (Table 2) are, however, exceeded by

Table 2. Heavy metal analysis of samples taken from River Sisa at Asago village, January 2001.

Water Samples	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$	$mg.l^{-1}$
	As	**Cd**	**Co**	**Cu**	**Fe**	**Hg**	**Mn**	**Ni**	**Pb**	**Zn**
W1b	2.400	0.420	0.000	0.000	5.946	0.773	0.386	0.000	0.218	0.202
W2b	1.238	0.840	0.000	0.066	16.520	0.781	0.546	0.000	0.368	0.530
W4b	0.986	0.006	0.000	0.000	9.480	0.851	0.064	0.004	0.112	0.276
Limits for drinking water*	0.01	0.003	–	2.0	0.3	0.001	0.5	0.02	0.01	3.0
Limits for cropping†	0.10	0.01	0.05	0.2	5.0	–	0.2	0.2	5.0	2.0
Soil and sediment samples	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$	$mg.kg^{-1}$
	As	**Cd**	**Co**	**Cu**	**Fe**	**Hg**	**Mn**	**Ni**	**Pb**	**Zn**
S1b	11.903	0.000	0.000	0.000	2701.685	0.448	9.217	0.000	6.739	29.435
S2b	13.965	0.000	0.000	6.544	3327.714	0.253	24.888	0.000	5.354	44.621
S8b	11.469	0.000	4.837	6.022	5081.935	0.252	42.843	4.640	14.018	65.350
S10b	13.048	0.000	0.000	0.395	654.563	0.522	10.010	2.748	1.766	9.323
S11b	16.150	0.000	0.000	2.572	2888.229	0.207	34.125	0.000	18.497	32.416

*WHO (1993); †WHO (2006).

river water at Asago for arsenic, cadmium and manganese; and for soil and sediment samples by arsenic, copper, manganese, nickel, lead and zinc. Although such levels of heavy metal accumulation here are not currently regarded as significant for human health (Keraita & Drechsel, 2004), the build-up in river/bank/floodplain sediments at Asago indicates that residence levels are high and may become toxic. For example, arsenic (which lowers human immune response to viruses), cadmium (a carcinogen), lead (a neurotoxin in high concentrations) and mercury (which causes sensory impairment and kidney damage) are all present in potentially undesirable concentrations. Increasing use of irrigation is a likely future contributor to these, particularly in the drier parts of the year when relative evaporation levels are higher and when there is the greatest need for irrigation.

Domestic solid waste and agriculture

Due to inadequacy of municipal refuse collection services in Kumasi's periurban interface, domestic solid waste accumulates in dumps in and around communities. Daily domestic waste is largely organic, consisting mainly of food scraps (cassava, yam and cocoyam peels, and plantain skins) and wood ash, and represents a potential source of nutrients for agricultural soils. Composting and reuse of organic waste is a means of recycling nutrients and restoring soil fertility (Drechsel & Kunze, 2001), particularly here with the high engagement (90 per cent) in local (less than 4 km from the household) agricultural activities and the need for soil ameliorants in these same areas (Nsiah-Gyabaah & Adam, 2001). Our household survey indicated high potential for a household-level waste separation and composting programme, reinforced by communities' willingness to participate and by their eagerness to improve village sanitation while also contributing to their agricultural livelihoods.

It should be noted that significant cultural barriers exist to the use of human excrement, however well-treated, as soil fertilizer. Experiments in Tamale, northern Ghana (Cofie *et al.*, 2005; Asare *et al.*, 2006), of the application of faecal sludge directly to fields or after composting in pits with crop residues, indicate that these barriers are currently significant throughout Ghana.

The main container composting method demonstrated was block-built compost bins, chosen because of the wide availability of building blocks, standard bricks or the traditional sun-baked blocks (Figure 2). Each double chamber compost bin is sufficient for a household with an extended family. Larger versions consisting of three high capacity chambers were also demonstrated, suitable for up to five households.

Other container composting methods demonstrated included the use of barrels constructed from locally sourced recycled materials. Aeration holes were made around disused 250-litre drums and a cover provided. Drainage holes made in the base allowed seepage to be collected and added to the decomposing organic matter, minimizing nutrient loss (Agromisa, 1999).

Anaerobic composting, where compost is produced in sealed plastic bags or in small piles covered with plastic sheeting (see Martin & Gershuny, 1992), was implemented in Kyerekrom. Rather than using small piles, a windrow roughly 1.5 m wide and 1 m high was formed, with organic waste added daily to the end. The windrow was covered with two (recycled) tarpaulins to protect the pile from livestock, rodents, flies and mosquitoes, and waterlogging during heavy rains, and also from drying out.

The most cost-effective containers were those constructed from recycled materials, requiring no financial inputs. These included barrel composting and unmortared

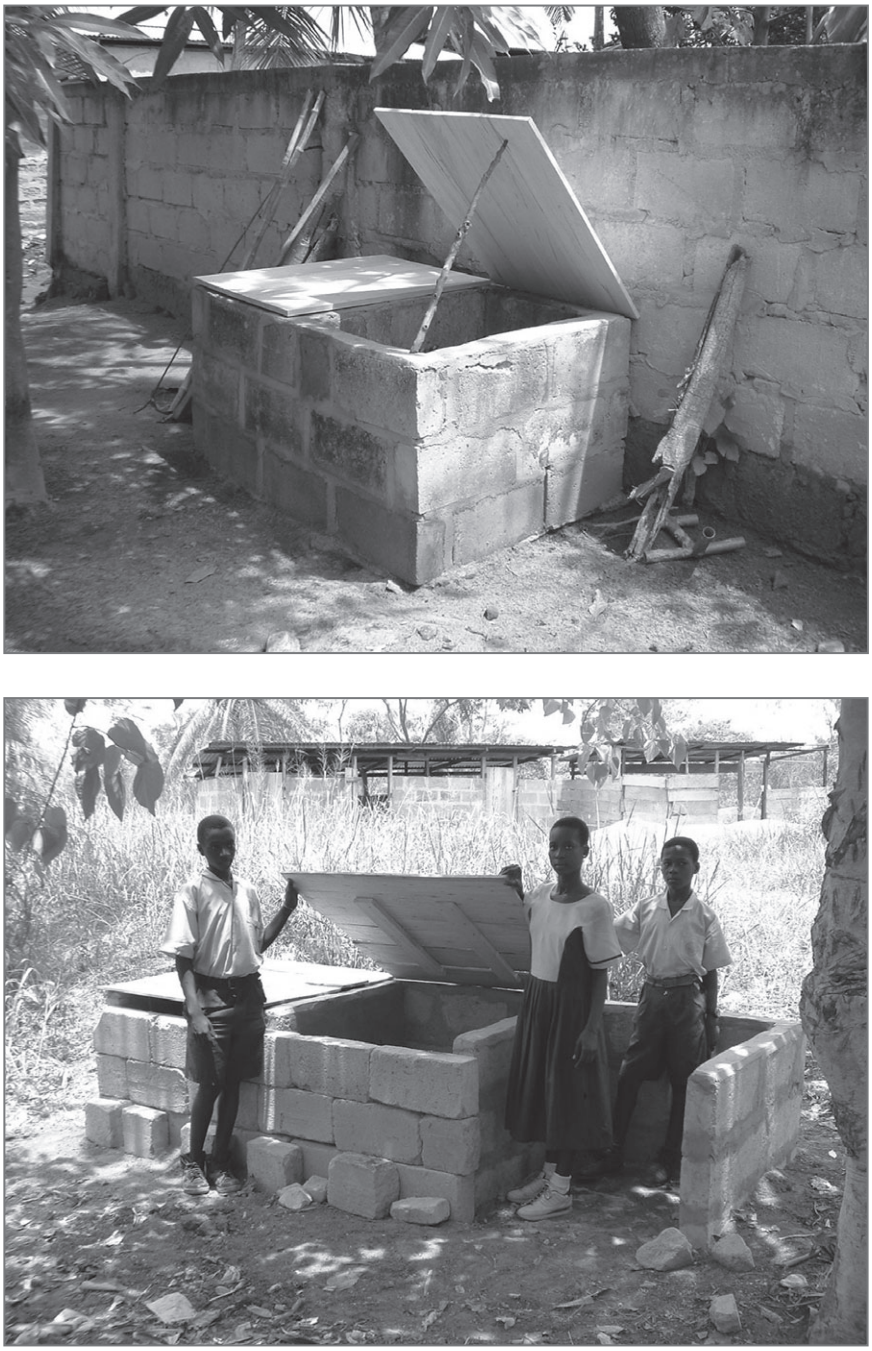

Figure 2. *Double chamber (top) and triple chamber (bottom) block-built compost containers.*

compost bins constructed from recycled blocks. The average construction cost of each double chamber block-built compost bin was approximately EUR 13 (USD 17 in late 2003 prices). The wide availability of building blocks (both modern and traditional sun-baked) increases the viability of block-built compost bins. However, if wider uptake

Table 3. Micro projects installed in survey communities (n=20) and number spontaneously taken-up after 3 months, and still in use after 12 months.

	Demonstrations	Take-up after 3 months	Total after 3 months	Total in use after 12 months
Adagya	3	2	5	4*
Apeadu	3	1	4	3†
Asago	4	4	8	5*‡§
Domeabra	3	1	4	4
Esereso	3	4	7	7
Kyerekrom	4	5	9	5†ℓ
Total	20	17	37	28

*lost interest as farm was too far; †lost to land use change; ‡never used; §person died; ℓnow community compost project at the *bola* site.

Table 4. Annual revenues (USD) generated in different farming systems in Kumasi, 2002

Farming system	Typical farmholding	Net annual revenue	
		Per ha	Per farmholding
Rainfed maize or maize/cassava	0.5–0.9 ha	350–550	200–450
Dry season irrigated vegetables only (garden eggs, pepper, okra, cabbage)	0.4–0.6 ha	300–350	140–170
Dry season irrigated vegetables and rainfed maize (or other vegetables)	0.7–1.3 ha	500–700	300–500
All-year-round irrigated vegetables (lettuce, cabbage, spring onions)	0.1–0.2 ha	2000–8000	400–800

Source: Danso *et al.* (2002).

of such techniques is to be promoted, assistance, either with finance or with materials, would be required, particularly for poorer households.

Early spontaneous uptake of the technology was encouraging, with the number of installations almost doubling within three months of project initiation (Table 3). However, the main obstacle to further uptake was cited as financial constraints. Furthermore, in the case of block-built compost containers, in the space of 12 months from micro project initiation the price of cement had doubled, thus placing these materials beyond the financial means of many periurban residents (Table 4). Despite this, an element of longer-term sustainability was demonstrated and using locally resourced materials such as cane or bamboo for container construction could reduce costs.

Aimed initially at the backyard gardening level, the potential of these methods to both reduce waste flows and enhance soil status has been demonstrated. The wider development potential of this strategy, based on concepts of integrated organic waste recycling, is now outlined.

Integrated organic waste recycling

Integrated organic waste recycling is essentially a holistic approach to organic waste recycling that uses a combination of methods at appropriate scales of intervention to manage organic waste sustainably. The holistic approach is aimed at closing the nutrient recycling loop by reversing the negative impact of periurban nutrient sinks, accom-

plished through maximizing nutrient exploitation of urban and periurban organic wastes (Drechsel & Kunze, 2001; see also Bradford, 2006; Cofie *et al*., 2006).

Farmer responses to declining soil fertility have incorporated what are locally viewed as 'modern' farming methods including the adoption of monocropping techniques that are accompanied by the use of chemical fertilizers and pesticides. Furthermore, rapid land use changes have encouraged adoption of these so-called modern farming methods as farmers with insecure land tenure attempt to achieve short-term gains through nutrient mining rather than investing in alternative and longer-term soil fertility measures. Land tenure insecurity reduces the incentives for farmers to adopt organic-based soil amelioration measures. This then raises an important longer term sustainability issue that must be addressed when planning and developing integrated organic waste recycling strategies, particularly if there are no alternative markets to retail and distribute compost products.

In Kumasi, and indeed much of sub-Saharan Africa, closing the rural–urban nutrient cycle remains a largely theoretical concept, as municipal authorities have yet to exploit such options systematically. This situation contrasts with the outcomes achieved in the very different geopolitical and social conditions of Havana, Cuba, where nutrient recycling principles have been implemented and have proven very successful in practice (Cruz & Medina, 2003; Díaz & Harris, 2005; Viljoen & Howe, 2005; Wright, 2009).

Besides increased capture and storage of carbon, nutrients and water, other potential advantages from closing the nutrient recycling loop include reduction in the volumes of foodstuffs that are imported, reduced need for commercial/inorganic fertilizers (and pesticides) and increased environmental protection.

Three factors – scale, flexibility and agriculture – ensure that integrated organic waste recycling remains a highly practical and applicable option for the periurban interface. The combination of methods at appropriate scales of intervention means that a range of strategies designed for local geographical contexts can be implemented. In locations such as Asago and Adagya, the poor quality feeder roads reduce any potential for conventional waste collection services. In this context, community-based options (household and decentralized) become the only feasible option to manage domestic waste sustainably. Even where feeder roads are of good quality, many periurban villages still do not benefit from such services as their distant location from prioritized areas result in them being left in 'peripheral neglect'.

Livelihood generation

Community-based nutrient recycling interventions can also engender sustainable local agricultural- and horticultural-based livelihoods by decentralizing organic waste recycling interventions and using the organic waste as close to source as possible. From this, we can assert that the preferred level of entry is on-site (for either commercial or domestic organic waste). Only once this option has been exhausted, should municipal and district authorities consider the next scale of intervention, that of decentralized (community-based) approaches. These options remain relatively localized and thus also contribute to livelihood generation, unlike the centralized organic waste recycling interventions that are capital rather than labour intensive such as the Teshie compost plant in Accra, which never reached its full potential for compost production for various reasons (it broke down in the early 1990s and has produced compost only fitfully since) (Etuah-Jackson *et al*., 2001; Hofny-Collins, 2006).

During our experiment, locally produced container compost from the micro projects was used for backyard gardening, maize and vegetable production, for planting teak

and shade trees by a local plant nursery, and was even bagged and sold to a Kumasi guesthouse for use in their flower beds. Other than backyard gardening and vegetable production, the alternative uses were isolated cases but provide an indicator of the potential for compost products. While the market for compost has not been developed in Kumasi, it represents a significant livelihood opportunity in Accra where compost markets are well established (field observations, 2002–2004; Hofny-Collins, 2006).

Conclusion

This paper investigated problems of agricultural resource management in Kumasi's periurban interface and, on the basis of empirical research, proposed potential solutions. There can be no doubt that rapid land use change – from agricultural to urban/built-up – is having a profound effect on agriculture. In periurban areas where rainfed agriculture still predominates, the loss of agricultural land has resulted in reduced fallow periods and consequently lower overall soil fertility levels.

Ongoing pollution of the river system has significant implications for irrigation agriculture. The field surveys showed that more farmers are accessing river water for irrigation in response to increasing opportunities for selling a range of vegetables to urban markets, although results reported here and elsewhere indicate that both river water and groundwater are being polluted from a wide variety of sources. Chemical pollution may be broadly neutral in that it provides a source of nutrients for plants, but the undesirable levels of coliform bacteria and heavy metals are a concern. However, the build-up of heavy metals in floodplain sediments is potentially problematic in the longer term.

In summary, the prospects for periurban agriculture in Kumasi's periurban interface are not encouraging. This perhaps surprising conclusion stands in contrast to the oft-heralded potential of periurban agricultural development for promoting livelihoods and urban food security. Increasing pressures on agricultural land for building, variable and relatively low rainfall and decreasing water quality impose constraints on the agricultural system. The opportunities for marketing produce provided by Kumasi's increasing urban population being realized through a growing use of irrigation may prove to be an increasingly risky option. The problems here are not of people willing to cultivate the reducing pool of agricultural land, but of pollutants, toxicities and cultural constraints. This leads us to conclude that a more holistic, yet nuanced, analysis of the vulnerabilities and risks associated with periurban interface agriculture than has often hitherto been the case is indicated.

However, on the positive side, although there remains a problem to be addressed with respect to the persistence of helminths in compost, we demonstrated that separating and composting domestic waste at the household and community levels can lead to substantial decreases in waste outputs and thus contribute to a cleaner environment. Furthermore, composting domestic organic waste is a means of recycling nutrients and restoring soil fertility, contributing to humus and soil structure, increasing soil organic matter and improving the water-holding capacity of soils. It is also far cheaper and more environmentally appropriate than commercial fertilizer. However, such environmentally sustainable soil fertility management may require longer-term incentives for farmers such as secure land tenure for agricultural plots. This poses a particular problem in the periurban interface where land change from agricultural to urban use remains rapid, yet offers a significant, generic opportunity in situations where periurban waste collection services are inefficient or absent.

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Book reviews

Southeast Asia in World History *Craig A. Lockard*. Oxford University Press, New York, 2009, 256 pages (ISBN 978-0-19-53381-9) (pbk).

If I were to recommend one general history of Southeast Asia to an interested nonspecialist, it would be Craig Lockard's *Southeast Asia in World History*. Lockard has capped a long career as a Southeast Asian and World historian with a magnificently accessible, superbly written and remarkably concise regional history. He ably manages to cover more than 2000 years of history in the space of just over 200 pages. Lockard's attention to the varied, historical popular cultures of the region is particularly evident, making for a lively engaging read which is about as far from dry history as one can get.

Lockard's first four chapters cover overlapping periods of historical development: from earliest times, before the second century BCE in Chapter 1, developing trade connections around 200 BCE to 800 CE in Chapter 2, the 'golden age' of early classical kingdoms from around 800 to 1400 in Chapter 3, and new cultural influences, particularly the spread of Islam and Theravada Buddhism from 1300 to 1750 in Chapter 4. Lockard makes the wise choice of overlapping periods rather than trying to definitively mark extensive changes in a broad region. Chapters 5 (1500–1750), 6 (1750–1914) and 7 (1800–1941) focus on successive waves of European colonialism across the region. The last three chapters cover the twentieth century, anticolonial struggles, nation building and, since 1970, the region's fast developing economies and generally authoritarian politics.

Lockard does not make any novel arguments about historical interpretation. Nevertheless, several themes stand out. First, Lockard manages to present a strong regional history rather than cobbling together multiple national histories. More than any other general account of Southeast Asian regional history to date, Lockard manages to eschew the powerful, even stifling modern national frames of historiography that dominate most attempts to write about Southeast Asia. Only in his penultimate chapter, covering 'Changing Politics since the 1970s', does Lockard's regional focus largely break down into a country-by-country account of political and economic histories.

Another theme running throughout Lockard's *Southeast Asia* is the emphasis on the role of women in Southeast Asian society, culture and history. Overall, the book is more of an economic and political history than a social history or a history of ideas and cultural development, though social and cultural themes are by no means absent. In part through his emphasis on women – individually and in general – as well as references to the lives of commoners, Lockard manages to avoid a historical account consisting of nothing more than warfare, states and the political manoeuvres of men of renown.

Lockard also spices up the narrative with a wide assortment of proverbs, lyrics, poetry, prose and other materials drawn from popular and courtly traditions from around the region and across the centuries. Previously, Lockard (1998) has written an important and expansive volume on contemporary popular music in Southeast Asia, *Dance of Life*. In the present book, he draws on his encyclopaedic knowledge of the region's expressive arts to add a great deal of flavour for the reader, though the substance of the text remains the historical narrative rather than the cultural and literary references.

Experts, including myself, will undoubtedly nitpick some of the details. Lockard has also left aside most of the debates over historical facts and interpretation in favour of a

clean narrative with relatively few qualifications and even fewer engagements with scholarly debates – of which Lockard is no doubt aware, having been a researcher and teacher of Southeast Asia for many decades. I could compile and recount a reasonably long list of these. But such debates are beside the point of a work like this, which aims to give nonspecialist readers an introduction to the region. Lockard has provided a superb text that any serious student of Southeast Asia should have in their shelves and a strong contender to be placed at the top the reading list for any introductory course on Southeast Asian history and culture.

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Tourism and the Branded City: Film and Identity on the Pacific Rim *Stephanie Hemelryk Donald and John G. Gammack.* Ashgate, Aldershot, Hants, Burlington, 2007, 216 pages (ISBN 978-0-7546-4829-1) (hbk).

Tourism and the Branded City is a rare and much needed attempt to inject a critical edge into tourism studies through an innovative examination of urban identities as they manifest in filmic, imaginative and physical spaces. From the early works of film theorists and critical theorists such as Giuliana Bruno (1997) and Henri Lefebvre (1991), the vital links between architecture, urban spaces, identities and travel were made explicit. However, a book-length engagement of how such issues play out across contemporary world cities in the Pacific Rim has been lacking. In addition to filling this void by providing up-to-date empirical insights regarding city branding and tourism marketing of Hong Kong, Shanghai and Sydney, and their intricate connections with film and resident identities, *Tourism and the Branded City* makes conceptual and methodological contributions.

The book's strongest theoretical contribution is situated in co-authors Donald and Gammack's use of 'structure of attention'. In remaking cultural theorist Raymond William's (1977: 132) 'structure of feeling', *Tourism and the Branded City* has given scholars and professionals an elegant but rigorous conceptual framework to engage with the production and consumption (or non-consumption) of urban aspirations, ideals and images as generated via city branding, cinematic projections and tourism marketing. The structure of attention approach seeks to provide an analytical tool for examining cultural and commercial objects and responses as 'images and ideas that provoke, demand and inspire attention' (p. 64). In doing so, Donald and Gammack are able to incorporate the emotional and affective elements into city branding and tourism research. To my mind, structure of attention is a useful concept that does away with the often implied and assumed (but artificial) division between production and consumption of urban images as provoking, demanding and inspiring attention in the city can be simultaneously acts of production and consumption. Using the SARS epidemic in 2003 as a backdrop (Chap. 3), the authors demonstrate the utility of this concept by weaving a skilful discussion of Hong Kong's city and film identities and the current and seemingly

irreconcilable contradictions of their structures of attention with the types of patriotism its central government demands.

Demonstrating how geography and urban studies can be innovatively aligned and researched, Donald and Grammack utilize freely sketched mind maps to understand the perceptions of Sydney sojourners regarding city icons (Chap. 4). While this exercise did not uncover groundbreaking insights, the chapter's nuanced discussion shows how sojourners' geographical imaginations can be usefully understood using Kevin Lynch's (1960) ideas of city use and clarity, and how sensing the city is a socially realized endeavour. This spatial analytical exercise is augmented by analyzing across diverse datasets such as notable working class films and changing city plans. The findings in this chapter shed light on issues of liminality, gentrification and fast-fading working class memories and spaces, and their entanglements with the branding of Sydney for tourism and investment.

Chapter 5 adds a chromatic twist to urban and city branding studies by focusing discussion on the cultural, affective and urban implications of colour in the filmic and lived-in spaces of the city. From the more subtle and exquisite contours and colours of Maggie Cheung's *qipao* in director Wong Kar-Wai's *In The Mood for Love* (Cantonese title: *Fa Yeung Nin Wa*; 2000) to the bold saturated technicolours of co-directors Zhang Yimou and Yang Fengliang's *Judou* (1990), the authors discuss the diverse uses of colour in such iconic films and their potential to shape the urban imagination of residents, tourists, investors and city planners. Questionnaire surveys among Sydney, Shanghai and Hong Kong city users complement their film analysis and yield interesting insights: Sydney was 'blue' (clean, harbour coast; p. 137) and Hong Kong and Shanghai were less conclusively 'red-orange' (*fengshui*, vibrancy; p. 136). While statistically too small for generalizations, such explorations point at possible ways of furthering our understanding of the complex production-consumption processes characterizing urban spaces.

The final findings chapter looks at the city of Shanghai (Chap. 6) and considers its many branding icons and propositions from the era of the opium trade through to the preparations for Shanghai Expo in 2010 (if a second edition is in the works, an analysis of the actual Expo experience and its aftermath for Shanghai would be pertinent). The discussion on the likely loss of structures of attention as a consequence of futuristic retina-based virtual reality devices (p. 84) anticipates the potential of new cinematic technologies (3-D and 'scented' films and TV) in remaking the spatial engagements and filmic identities of city users (which may also be another issue to consider in a second edition).

Methodologically, Donald and Gammack should be applauded for being reflexive and open in their discussion of methods and for persisting with a chapter-length discussion of methods (Chap. 1). It is helpful to learn about the theoretical models they draw upon (pp. 30–33), how they go about defining their constructs (pp. 40–44) and how they allow constructs to emerge freely from respondents and informants (pp. 34–37). Written in an accessible academic prose, the book should appeal to the academics and graduate students in architecture, cultural studies, geography, sociology, tourism management and urban studies. It should also be of use to the thinking and reflexive city brand manager and tourism marketer.

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Avian Influenza: Science, Policy and Politics *Ian Scoones (ed)*. Earthscan, United Kingdom, 2010, 288 pages (ISBN 9781849710961) (pbk).

The avian influenza outbreak in Hong Kong in 1997 marked it as the site of the first reported human deaths from the H5N1 virus. Since then, more countries, and many in Asia, have reported human cases of the virus. As of 19 November 2010, the number of confirmed human cases of the virus reported to the World Health Organization (WHO) since 2003 stood at 508, of which only 206 survived. This represents a mortality of 60 per cent, making avian influenza one of the most deadly influenza viruses. Yet, our attention on the avian influenza situation seems to have been overshadowed by more recent outbreaks such as the H1N1 (which, in comparison, is much less deadly), and the gloomy global economic situation. Have we let our guard down in containing the avian influenza? Are we prepared for the next outbreak when it arrives?

Avian Influenza is a recently published timely reminder that the more familiar and chilling biological effects of the virus are also driven by social and political economic forces. As part of the UK Economic and Social Research Council/Social, Technological and Environmental Pathways to Sustainability (STEPS) Centre's epidemic project, *Avian Influenza* presents the challenges that international organizations such as the WHO and Food and Agriculture Organization (FAO) have had to deal with, and how the proposed management measures unfolded in the selected countries to result in some unexpected social consequences.

Through *Avian Influenza*, Ian Scoones, the book's editor and also co-director of the STEPS Centre, challenges the ambitious goal presented by the 'One World, One Health' framework which aims to integrate surveillance, treatment and management of both animal and human health. To Scoones the answers to the questions 'whose world' and 'whose health' remains unclear – hence the issues regarding equity and power arise. While agreeing with the intentions of 'One World, One Health', Scoones argues that there remain many reforms to be made to global governance of health before surveillance and management of global health can be truly harmonized and coordinated. As the book's subtitle *Science, Policy and Politics* makes clear, a deeper understanding of political economy at various scales is required before the ambitions of the global framework can be realized.

The book begins appropriately with an overview of 'The international response to avian influenza'. Here, Scoones makes reference to the handling of the recent H1N1 pandemic, pointing out the irony that not much in global health governance has changed since the 'One World, One Health' framework was set up. In Chapter 2, 'Unpacking the international response to avian influenza', Scoones and Paul Foster provide a rare glimpse into the complicated relations among international institutions and various national governments that have shaped responses to avian influenza.

The chapters following pull together four different empirical cases of divergent political, social and economic country contexts – Cambodia, Vietnam, Indonesia and Thailand. These chapters are similarly framed – an introductory section on the socio-

political background of the country, a timeline tracking the avian influenza epidemic, and finally a series of narratives on specific concerns and debates.

In Chapter 3 on Cambodia, Sophal Ear argues that the large inflow of aid has in fact overwhelmed the weak and corrupted state. In the case of Vietnam, in Chapter 4, Tuong Vu investigates why a country that adopted a comprehensive strategy in managing the virus still failed to perform better than neighbouring countries. In Chapter 6 on Thailand, Rachel Safman acknowledges the government's systematic approach in keeping the virus at bay, but draws attention to the unhappiness resulting from the neglect of voices of the duck farmers and, interestingly, cock-fighters, in contrast to the consideration given to the interests of large poultry producers.

Chapter 5 on Indonesia is perhaps the most tightly argued and interesting empirical chapter. Readers are presented the diverse challenges existing in the management of the avian influenza virus in the archipelago. The implications of the ongoing decentralization for the control of any diseases are also well explained by Forster. The section on Indonesia's refusal to supply free virus samples to the WHO for the production of vaccines during a challenging time for affected countries is a gripping read.

Despite the empirical chapters suggesting that there is a long way to go before the 'One World, One Health' framework can truly live up to its vision, the book concludes with a chapter that looks forward 'Towards a one world, one health approach'. Here, Scoones elaborates at great length on 10 challenges that should be overcome if the framework is to be successful, seemingly optimistic that its intentions are still worth pursuing.

Taking into account that many of the interviews for the respective chapters were conducted only in 2009, the publishing of *Avian Influenza* in 2010 must itself be seen as an accomplishment. The use of readable prose with very little jargon (and when used, clearly explained) makes this book accessible by anyone interested in epidemics and pandemics in general. The emphasis on issues that jump scales in interactions between science and society make this an appealing read for geographers, particularly those concerned with the geographies of disease and development, and public health. Although certain chapters are unduly lengthy or repetitive in parts (such as the concluding one and the Cambodia chapter respectively), by and large, *Avian Influenza* enriches and challenges readers' imagination and understanding of the politics and policies that are entangled in the science of this virus.

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Conquest and Pestilence in the Early Spanish Philippines *Linda A. Newson*. University of Hawaii Press, Honolulu, 2009, 420 pages (ISBN: 978-0-8248-3272-8) (hbk)

In *Conquest and Pestilence in the Early Spanish Philippines* Linda A. Newson, a Latin America specialist, turns her attention to the Philippines. After what was initially expected to be a short foray, what results is a book that provides a demographic and pathological profile of the sixteenth century Philippines in ways that reflect comparatively with the Latin American context. Why, for example, did 'old world' diseases not decimate Philippine populations as they did those in the Americas? How did Philippine settlement patterns and trade relations with other Southeast Asian societies lead to colonial policies that were distinct from those employed in the 'new world'? Newson's analysis is made in a spirit of lateral, dialogical contemplation of Spain's colonial possessions. If only for this

reason alone, the book is a valuable contribution to our understanding of Philippine human geography at the time of early colonial contact.

Newson scrutinizes the same official administrative and missionary records that would be familiar to generations of Filipino historians. These sources were problematic because they were restricted to communities 'under the bells', or only to those who were registered as 'units' of the colonial government's administrative and ecclesiastical jurisdiction. Newson devotes an entire chapter to the pitfalls of the archival research, commenting specifically on the problems of reliability and availability when dealing with particular Spanish sources. More than a caveat to her own population estimates (which, she admits, must be regarded as prone to a margin of error), this chapter is a valuable exemplar of the necessary methodological convergence between human geography and historiography, demonstrating the level of meticulousness that is required to confront formidable epistemological challenges.

Newson emphasizes how the distinctive features of Philippine climate, geography and settlement patterns impacted the success or failure of the colonial enterprise in different regions of the archipelago. The central Visayas region, where the Spanish had first settled, is treated as analytically distinct from the northern region of Luzon, where they established the capital. Newson uses identical heuristic frameworks for each region, which may make the book appear rigid and prosaic on this score, until one considers that the deficiencies of previous works on the same topic lie precisely in not taking such regional variations into consideration. The relative proximity of Cebu to Mindanao, for example, would render Spanish settlements more susceptible to Moro raids and as such determined their prioritization of defence. The environmental conditions and natural resources of Luzon, meanwhile, encouraged certain types of agriculture and production and enabled the Spanish administration to enhance their shipbuilding capabilities for transpacific mercantile connections with Acapulco.

Two insights offered in the book are particularly noteworthy. The first relates to the well-known fact that the introduction of old world diseases by Spanish conquistadors devastated native civilizations in North and South America. That this did not occur in the Philippines has encouraged the belief that indigenous populations there were generally healthier or simply had immunity from such ailments. Newson argues that it was low population densities and specific climatic conditions that prevented the diseases from reaching catastrophic proportions. To corroborate this, Newson consults vernacular dictionaries to identify local terms for familiar diseases, thus extrapolating the microbial profile of the time. She also considers Chinese and Japanese sources to determine how patterns of trade had conditioned reactions to particular kinds of pestilence and medical conditions.

The second insight is her refinement of the contact population estimate from a commonly cited figure of about 1.43 million to 1.57 million, which she arrives at by considering many factors beyond the statistical. By meticulously describing the climatic, cultural and political conditions under which the colonial encounter occurred in the Philippines, Newson's analysis highlights the volatile terrain in which cultures and agendas clashed. She examines how configurations of political power, including the pernicious threat of Muslim raids, interpolity conflict and the Dutch-Spanish theatre of war, heavily influenced Spanish allocation and distribution of resources and manpower. In the same vein, she probes into how the tenacity of pre-existing indigenous cultural practices, particularly in terms of sexual relations, clashed with missionary policies and subsequently contributed to low fertility. Theportrait that she paints is of a colonial encounter that was far more complex and violent than what has been imagined.

What these observations suggest is that although the Spanish sought a 'totalizing' reformation of the native geobody, early European colonial missions were forced to adapt to vicissitudes that they did not face in the new world. The attempts to mould native bodies were often undermined by the fact that missions to the islands were often severely understaffed and underfunded, in contrast to the sheer magnitude involved in the early period of conquest and settlement of the Americas. While historical accounts tend to highlight the many cases of native capitulation to Spanish dominion, Newson's analysis brings out the ways in which Spanish colonialists were themselves placed on the back foot amidst tumultuous climatic, political and social challenges.

It is perhaps a legacy of nineteenth-century independence movements that Filipino analyses of their own colonial history have focused on retracing connections to South-east Asia at the expense of Latin America. John Leddy Phelan's (1959) *The Hispanization of the Philippines: Spanish Aims and Filipino Responses* is one of the early works that inspired conversation between Latin Americanists and Filipinists. Yet it is only in recent years that Latin American studies have begun to be fostered in earnest in the Philippines, and Newson's contribution is certainly a welcome voice in this regard. This is a work that is cogently written and structured. The demographic and pathological profiles that Newson present seem more credible than previous ones because she utilizes a wider and more creative interpretive field in scrutinizing often unreliable and sketchy data. In taking local culture and politics seriously in the analysis of Philippine human geography, Newson presents novel, often insightful, and very plausible scenarios that contribute greatly towards advancing our knowledge about the Philippines at the point of colonial contact.

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The Appearances of Memory. Mnemonic Practices of Architecture and Urban Form in Indonesia *Abidin Kusno*. Duke University Press, Durham and London, 2010, xv + 332 pages (ISBN 978-0-8223-4647-0) (pbk).

In *The Appearances of Memory* Abidin Kusno analyzes how the fears, anxieties, expectations and other thoughts of Indonesian urbanites have been embodied in architecture and urban space. In Kusno's view, the built environment is not merely the product of these various thoughts, but is as much a constitutive element in the making of history of the Indonesian cities. In his own words: 'This book focuses on the visual environment and the ways in which it helps to articulate a general anxiety over the sense of change in everyday life' (p. 3).

Kusno focuses on periods of critical social transformation (modernization in the early twentieth century, the Indonesian revolution, the fall of President Suharto, and the years of reform thereafter). The unmanaged anxieties of these periods cast long shadows backwards and forwards in time:

> buildings serve as a reminder of the practices of the past and the starting point for both the performance of unfinished fantasies and the desire to overcome troubling memories and remake oneself within, as well as beyond, one's particular time and place (p. 3). [. . .] Architecture and the urban environment help to shape memories of political crises in the past. A self-critical consciousness, 'working through both managed and unmanaged memories of hopes and anxieties [. . .] is formed in and through the changing realm of the visual and spatial environment (p. 14).

The book consists of nine chapters, grouped in four sections, preceded by an introduction to the book as a whole. The chapters cover a wide range of topics and six of the nine chapters have been published before. Nevertheless, the book forms a remarkably coherent whole, partly because, as far as I could see, the earlier published materials have been rewritten for this book. Most chapters begin by recapitulating the main conclusions of the previous chapter and pointing out the link with the current one.

The book opens with a discussion of the 'looseness' of the centre of the state since the fall of Suharto in May 1998, which encourages citizens in Jakarta to act on their own, 'creating a condition in which everyone safeguards his or her own space' (p. 37). Many middle class people wish to forget the violence and insecurity during the May 1998 riots, when there was heavy loss of property, people were killed, and Chinese women were gang-raped. Both the state and many citizens long for and work towards a certain order and 'normalcy'. The crucial point is that in striving for normalcy (for instance, by rebuilding destroyed shops) the memories of the 1998 terror are silenced, 'thereby enacting still further violence through the suppression of the stories [of the Chinese women and shopkeepers]' (p. 103).

It is impossible to summarize all of the contents, but Kusno also delves into shopping malls and 'superblocks', mosques and guardhouses, the reuse of colonial architectural styles, and the dissonance between feudal power in the older Javanese centres and modernization (explaining why political radicalism emerged in Solo and Yogyakarta, rather than in the more 'modern' cities of Jakarta/Batavia and Surabaya). These are important topics, usually overlooked by other scholars.

To a large degree the book is Kusno's own reading of Indonesian society, and he reveals daring connections between phenomena that at first seem unrelated. The book is quite interpretative, often startling and fascinatingly so. For instance, the exclusive bus lanes in Jakarta, Kusno writes, 'can be seen as an "apparatus" of power that, through the experience of riding the bus across the city, seeks to reintegrate "Indonesians" [into the state] through imageries of progress, authority, and discipline' (p. 50). Perhaps. But how can Kusno tell that, and to what degree does this interpretation correspond with an empirical reality? It does not appear that Kusno has interviewed city planners, or bus company directors, bus drivers or passengers on the matter. The empirical underpinning of much of the argument throughout the book is relatively thin, remains unclear, or is based on just a few sources. For instance, the first chapters rely heavily on newspaper clippings. Kusno also makes use of and discusses in detail the ideas of a few novelists and architects, but I wonder how widely their ideas are known, let alone shared, by a wider public. These sources give the book a middle class outlook. A regrettable flaw, in my view, is the neglect of Dutch texts from colonial times, which reduces the relevance of Kusno's historical analysis. Interpretation of contemporary pictures, although worthwhile in itself, cannot replace reading of texts.

For instance, Kusno argues that the 1930s were defined as '*zaman normal*' (normal times), following from the revolutionary enthusiasm of Indonesian nationalists which was quelled after the failed communist uprising of 1926/1927. Unruliness was sup-

pressed and, as an illustration of this intensified state control, Kusno mentions the building of new market halls and the fact that vendors were 'no longer allowed to move freely on the streets' (p. 189) – a picture of the new market in Malang plays a prominent role in making this point. However, to the best of my knowledge, the term *zaman normal* was not in vogue until the 1940s, and marked contrast to the uncertainty of the Japanese occupation and Indonesian revolution. State action against hawkers in the 1930s was not a change of attitude towards an old predicament, but a response to a new problem, the mushrooming in the number of hawkers as a consequence of the global depression.

More than in his previous work, Kusno has attempted to draw in examples from other Indonesian cities aside from Jakarta, but also contends that the capital city is the exemplary centre of the state and therefore warrants most attention. He definitely has a point, but I wished he had paid more attention to other cities too. Urban life looks very different in, say, Surabaya (where urban leaders are proud of having preserved kampungs in the inner city and of having avoided the worst traffic congestion, consciously comparing their city with Jakarta), Padang (where people are deeply pessimistic about their city, located away from the centre of political power and under imminent threat of a devastating tsunami), and Medan (where Chinese form more than a tiny minority of the population).

A very positive point, which partly undoes the lack of substantial empirical evidence, is his extensive use and discussion of other authors like Rudolf Mrázek and Takashi Shiraishi. Whereas many scholars strew references merely to impress the reader, Kusno discusses the work of others extensively. The biggest strength of the book lies in its fascinating views, often presented in a fine, personal style of writing. Although I was often not convinced by his argument, Abidin Kusno has definitely given me plenty to think about.

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City of Strangers: Gulf Migration and the Indian Community in Bahrain *Andrew M. Gardner*. Cornell University Press, Ithaca and London, 2010, 216 pages (ISBN 978-0-7602-0) (pbk)

Andrew Gardner brings an anthropological lens to the study of Bahrain. This is part of a burgeoning field of scholarship bringing critical attention to the Persian Gulf and the distinctive character of urban modernities in the region.

The title of this study highlights the focus on migrant labour, which as with the other Gulf states comprises 80 per cent of Bahrain's population, making them a numerical majority. Drawing on rich ethnographic data, Gardner locates the everyday lived experiences of Indian migrant workers within a transnational, historically framed, political, economic, social and cultural matrix.

Gardner takes a political economy approach that foregrounds difference, division and profound inequality. While the Indian migrants themselves are socially divided the most significant division structuring their lives is the ethnopolitical mark of citizenship. Indian migrants to Bahrain are excluded from citizenship irrespective of the length of time spent in Bahrain. Their exclusion from membership in the national community underlines their inequality vis à vis citizens, making them highly vulnerable to exploitation and violence.

The book traces the systematic violence that pervades 'the minute texture of [the] everyday life' (Gupta, 2006: 211) of Indian migrants in Bahrain that is channelled through the 'kafala [system which] has emerged as a fulcrum of abuse' (p. 69). The 'kafala' system refers to the cultural practices and legal framework for governing, organizing and managing migrant labour inflows to Bahrain. The system, common to all Gulf states, evolved out of the practices used to organize labour in the pearling industry.

Gardner undertakes a critical analysis of the different dimensions of this system which articulate with recruitment strategies to enable the control, domination and exploitation of migrant labour, with those at the bottom of this sharp hierarchy of labour most subjugated. The system ensures that proletariat Indian migrants arrive in Bahrain through the legal channels yet keeps them on the verge of illegality, further increasing their vulnerability and hyperexploitation.

The workers enter Bahrain through the kafala system which binds them to particular sponsor or 'kafeel' (corporation or individual) and a particular job creating the conditions for extreme exploitation and abuse. The system confers on the kafeel such a degree of control over proletariat migrant workers which leads Gardner to suggest that this is a new, modern form of slavery. The degree of control is exemplified in the retention of workers' passports, which allows the kafeel to get away with not honouring the contract and withholding pay from employees. The level of the workers' disempowerment and lack of political rights is further underlined by the difficulty of successfully prosecuting the kafeel and recovering owed wages, and the problem of finding alternative employment without a passport (still held by the kafeel) thereby forcing workers into illegality and greater vulnerability. Thus, in addition to the hyperexploitation of labour, passport retention can be a source of additional profit. It can be a bargaining tool to use to persuade workers to drop court cases for payment of wages owed so that workers can move on to another job legally and avoid the even greater vulnerability of illegality. At other times the kafeel can charge for the return of a passport if it is required prior to the end of a term of contract, for example in the cases where a worker needs to return home in case of a sickness or a family emergency.

The conditions that guarantee labour's complicity in maintaining this master/slave relationship derive from the growing social polarization in India feeding populations into the Gulf. This then articulates with the escalating costs of a work visa (USD 3000 at the time of the study) to purchase the opportunity to slave in the Gulf, attracted by the prospect of improving their standard of living. Raising money to purchase this opportunity frequently locks labour into debt, which with declining wages can take proletariat workers virtually the whole term of the contract (two years) to pay off. Thus, Indian migrant workers enter Bahrain on a highly unequal basis which is then reinforced spatially throughout their sojourn.

The sociospatial segregation between citizens and noncitizens in Bahrain as with other Gulf states is acute, reflecting a sense amongst Bahrainis that Indian workers are a polluting presence. Few Indian workers whether elite or proletariat, even those who have been 'moored' in Bahrain for decades, have ever been inside a Bahraini home. Most proletariat workers are already fragmented by nationality, language and/or ethnicity, are unable to communicate in Arabic and unfamiliar with their (lack of) rights. When housed in peripheral locations, they are limited in their possibilities to access support from compatriots and other agencies to contend with the injustices of the system. Both elite and proletariat workers aim to live in the shadows of the public sphere to avoid the gaze of citizens which brings with it potential for violence. Proletariat workers narrate how they are routinely pelted with stones by Bahrainis as they

make their way to and from their residential camps, and how Bahraini teenagers inflict on them meaningless violence, attacking person and property. Elite workers also confront daily racism on the streets. Elite or proletariat, for Indian migrants encounters with citizens always carry the potential of violence without recourse to legal justice for the noncitizen because courts always rule on the side of citizens.

The book makes visible the myriads of pitfalls, difficulties and ever present threats of racist abuse and physical violence with little recourse to social or legal justice that characterize the lives of Indian migrant workers, both elite and proletariat. Gardner's study provides a valuable contribution to studies of migrant lives. It draws a sharp contrast for example with Walsh's (2007) ethnographic study of young, white British expats in Dubai who view their time in the city as a combination of work and leisure. For these expats Dubai is experienced as a playground for the pursuit of a hedonistic lifestyle to stretch out the time of youth prior to settling down. The contrast between the lives of Indians and Europeans working in the Gulf is a reminder to avoid generalizing migrant experiences.

The scholarly work on Indians in the Gulf foregrounds the importance of the regulatory framework for channelling migrant flows and of the socioeconomic and political structures of the host societies within which they become imbedded in shaping migrant lives. In this way it compliments scholarly studies of South Asians in the West which, post-September 11th, now tend to refer to them as migrants irrespective of place of birth, citizenship status or length of time of settlement, highlighting their outsider status in the West. In the Gulf, the control and exploitation of Indian migrants proceeds through sociospatial segregation, the so-called 'parallel lives' producing the urban as 'a stage of segregated multicultural lifeways and identities' (Khalaf, 2006: 259) while in the liberal democracies of Europe 'parallel lives' are a viewed as a source of threat to be contained through state social cohesion initiatives in order to govern those constructed as 'unruly' minorities. In Europe, for many scholars, the term 'minority' is frequently taken for granted to stand in for marginality and exclusion (see Werbner, 2004), yet in the Gulf it is the minority that is powerful while the majority population is highly fragmented, hierarchically organized and thoroughly disempowered.

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