Colin Fournier

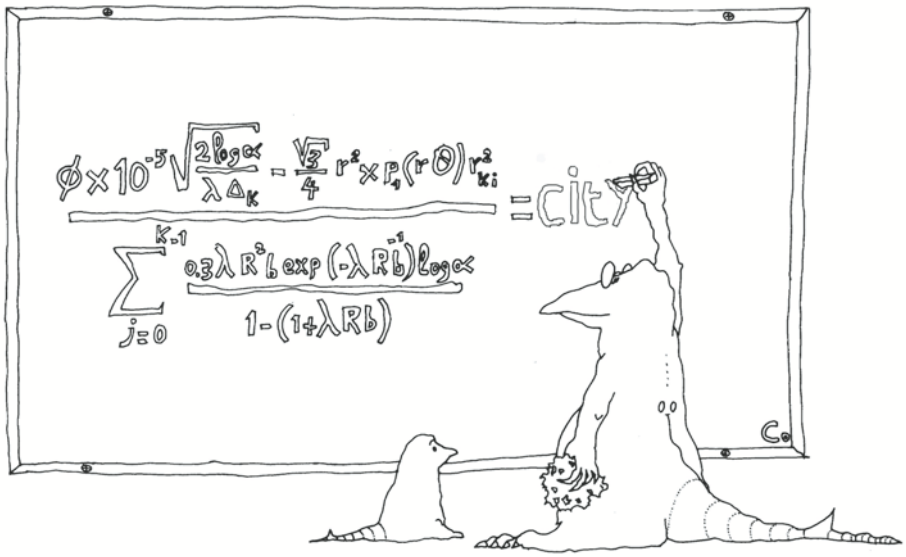
THE CITY BEYOND ANALOGY

Is the city really all that complex? Can urban social behaviour be explained in the evolutionary drama of cross-species competition? Is urban self-organisation in fact the urban norm? Is the emphasis on systems that the 'system city' tag conjures up unduly restrictive? **Colin Fournier**, Emeritus Professor of Architecture and Urbanism at the Bartlett School of Architecture, University College London (UCL), prods and probes the precepts behind the *System City* issue, while being simultaneously fascinated and enthralled by it.

The thread that holds together the various articles in this issue is the commonly held view that cities are complex systems and that, as they grow larger in size, change faster and become increasingly sentient, the conceptual models and analytical tools we use to understand them – and to intervene within them – need to become more sophisticated, to learn from analogies with natural ecosystems and perhaps to adopt some analytical and modelling methods borrowed from other fields dealing with complexity.

The essays do not attempt to define a model for 'system city', but to open up the question as to what the elaboration of such a model may require, which is a particularly difficult question, since the 'law of requisite variety' states, in essence, that the models used to describe and control a system have to exhibit at least the same 'degree of variety' as the system under observation. The implication of this fundamental law of cybernetics – which is also an integral part of complexity theory – is that the universe of discourse that a comprehensive urban model has to embrace must be extremely broad, perhaps broader than the one that has so far been suggested by the authors.

Colin Fournier, *The city equation*, 2013
Both in academe and in professional practice, the presentation of an elegantly concise algorithm to account for the dynamics of complex urban systems at times begs for a suspension of disbelief.



For a start, it has to include, geographically and conceptually, not only the city itself, but also its antithesis. The implicit assumption in the texts is that urbanisation will continue to increase exponentially, and that the problems that come with it will therefore have to be solved within the realm of the city alone. However, since urbanisation is a relatively recent historical phenomenon, and since most of the ecological and social disfunctions of the planet have resulted from the massive rural migrations first triggered by the Industrial Revolution and now further exacerbated in the post-industrial world, it would be wise, if the model is to be able to test alternatives, to consider the whole surface of the planet as our universe and to allow urban models to explore equally scenarios of decentralisation as well as those of further urbanisation.

The authors declare their intention to depart from the 'machine metaphors' of Modernism, but adopt in their stead two familiar biological metaphors that are equally reductionist: that of the termite hill and that the forest. Analogies between cities and the edifices of social insects are misleading in that, both in terms of social organisation and physical structure, the hills of ants and termites present levels of complexity that are trivial in relation to those of even the simplest of human habitats. As for forests, the analysis carried out by Evan Greenberg and George Jeronimidis (pp 24–31) and their exposé of design implications applied, by analogy, to hyperdense 3-D urbanism, are highly pertinent. But again, urban social behaviour is far more complex than the co-evolutionary drama of cross-species competition even within the densest recesses of the Amazonian forest. So why bother with biological metaphors?

One of the persuasive reasons put forward in the text is that they help to understand the transformative power of 'self-organisation' in the evolution of complex systems and, by extension, the principles of 'emergence', both architecturally fashionable terms borrowed from other disciplines, and presented here as the next 'paradigm shift' that cities – and the models that describe them – might soon adopt. But cities have always been self-organised. They are the result of myriads of micro-economic decisions made by individual agents who are every bit as blind with respect to the overall implications of their actions as termites are. The major part of the exponential urban growth that is taking place globally is

Street in Central District, Hong Kong, from the Mid-Levels escalator
When all digitised systems become virtual and the 'city of bits' shifts to cyberspace, where will fruit, vegetables and flowers be offered and exchanged? Will there still be streets? Will red cabs still drop off their cargo of illicit couples in the middle of the night? Will there still be nights?

Escalator (the longest in the world?) at Langham Place shopping mall, Mong Kok, Hong Kong
opposite: In contemporary urban systems, the distinction between 'residence' and 'infrastructure' is becoming blurred. In Hong Kong they are merging: items of infrastructure become places, and buildings become part of the ubiquitous movement system, no less so than Mass Transit Railway (MTR) trains, cargo ships, ferries, buses, minibuses, trams, taxis, lifts and upper-level pedestrian walkways.

in so-called 'informal' settlements. Top-down planning is the exception and, throughout history, always has been. Self-organisation is the norm. It does not have to be invented; it is not the next conceptual and methodological horizon that the system city and its urban design models might have to aspire to reach: it is with us already. Self-organised urbanisation processes have to be observed and, if possible, tweaked to yield results that are more efficient, more environmentally sustainable and more socially equitable than they are now.

Given this prevalence of self-organised processes, it is clear that, in order to be robust, an urban model has to incorporate a multiplicity of perspectives and viewpoints. The title *System City* seems, in this context, with its emphasis on a coherent systemic view, to be unduly restrictive. It has led several of the authors to adopt, perhaps unintentionally, a discourse that belongs to the systems engineer rather than to any other discipline, let alone to the non-professional user. The language adopts by default the positivistic tone of Modernism, with remnants of top-down determinism that are at odds with the overall philosophical argument. It recalls the agenda and dominant discourse of institutionalised decision makers, those called upon to make comprehensive masterplans, to develop 'all-knowing', quasi-Orwellian operational models that will observe the city and the flows through its interconnected infrastructure systems in order to facilitate their control, rather than a more pluralistic discourse addressing topics other than the systemic and allowing different voices to be expressed.

There are few references to broader cultural values beyond instrumental ones: the word 'aesthetics' is mentioned only twice (once in a pejorative way), and the words 'art', 'poetry' and 'emotion' never come up at all, which suggests that the more subjective or deviant readings of the city, even mildly marginal interpretations such as the psycho-geographic sensitivity of the Situationists, might not find a place in this rather pragmatic formulation of the model in gestation. However, thanks to the diversity of authors, the publication nevertheless contains its own radical counterpoints. The beautifully written text by Liam Young and Kate Davies (pp 38–45), exploring with forensic precision the outermost tentacular extensions of global capital's relentless supply chains, is a

Chungking Mansions, Nathan Road, Hong Kong
The infamous epicentre of drug dealing, prostitution and crime, hub of the dodgy computer and mobile phone trade with Africa, immortalised by Wong Kar-Wai's restless film *Chungking Express* (1994). If, as Jean Baudrillard suggested, Disneyland exists only in order to make Los Angeles look real, does the seedy Chungking Mansions exist only to make Hong Kong and HSBC look clean?

piece of pure surreal poetry transporting us magically to the edges of the known world. And the 'Third Natures' text by Cristina Díaz Moreno and Efrén García Grinda (pp 46–55, encouraging us to 'abandon the languages associated with the architecture of the city', to adopt an 'afterpop' language that would celebrate 'pleasure, creativity and political resistance in an explosion of collective cultural impatience' is a refreshingly subversive piece of writing. Therefore, there cannot be just one urban model, based on a perception of the city as 'system', but many competing models, to account for diverse socioeconomic, cultural and political backgrounds, including the renegade ones. The design model needs to be a collage of models, just as Colin Rowe and Fred Koetter, in their seminal book *Collage City* (1978)[1] stressed the importance of architectural diversity within the city as an antidote to generic reductionism.

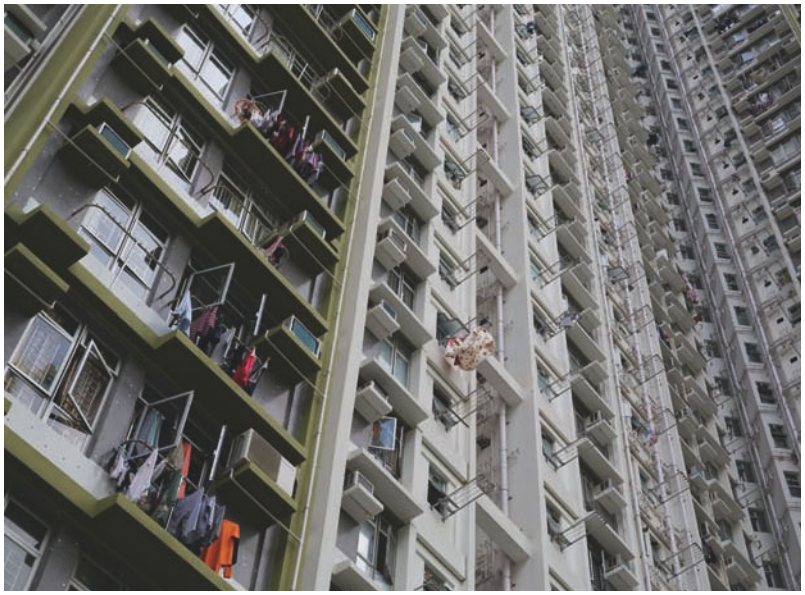
The industrial-age machines that fascinated us in the 19th and 20th centuries with their steam engines, cogs and pistons have now been replaced by the massive server farms of multinationals such as Google, so that the machines have changed: giant supercomputers and the artificial intelligence protocols necessary to navigate immensely large amounts of data have become our new metaphors, those that are now beginning to haunt us.

We have not yet transcended the machine metaphors of Modernism. The industrial-age machines that fascinated us in the 19th and 20th centuries with their steam engines, cogs and pistons have now been replaced by the massive server farms of multinationals such as Google, so that the machines have changed: giant supercomputers and the artificial intelligence protocols necessary to navigate immensely large amounts of data have become our new metaphors, those that are now beginning to haunt us. The biological analogies we still refer to, nostalgic anecdotes of termite hills and rainforests, are just accompanying epiphenomena.

Daniel Segraves (pp 120–23) is right in assuming, by analogy with parallel computing, that the intelligence of the system city will be a distributed one. Above all, it will be large, as Jorge Luis Borges anticipated poetically in his parable of 'The Map and the Territory',[2] so large that the model might paradoxically end up merging with reality itself. Indeed, if it takes thousands of lines of code to even approximately simulate the parameters and variables coming into play in a very simple event, such as 'dog catches ball', think about the amount of coding that would be required to do justice to the life of the city. We will also have to accept that the model will be somewhat messy: as Stuart Kauffman has demonstrated, it is in the nature of complex systems to survive by maintaining themselves 'on the edge of Chaos',[3] exhibiting only just enough structure to ensure their continued existence, but enough blurred edges to allow for change.

Not only will the model be large, distributed and messy, but, more importantly from a philosophical point of view, we will have to accept that its internal logic will gradually escape our understanding. As Karl Sims found out when he developed relatively simple evolutionary algorithms to simulate movement in artificial creatures, there is a point when the internal chains of cause and effect that have led to a desired outcome will totally escape

Public housing in the New Territories, Hong Kong
How to address exponentially large numbers without the impoverishment of endless repetition? Modernism failed, Postmodernism just toyed with the question. Would Colin Rowe's and Fred Koetter's *Collage City* model satisfy cybernetics' 'law of requisite variety', or are more radical forms of self-organisation required, to the point of giving up control?



Hong Kong Island and Kowloon, from The Peak
The 'bottom-up' self-organisation principles of 'pure' laissez-faire capitalism are the forces that shaped the great cities of the world, both formal and informal, giving complexity and variety to their urban cores and central business districts. The shift to monopoly capital and now to globalisation is reducing the 'quantity of variety' of the urban system.

The city is more than any definition one may attempt to offer, because of the vast unknown that still lies beyond the reach of its predatory infrastructure systems.

Land and sea, Causeway Bay Pier, Hong Kong Island
Safe anchorage, a place for ships to moor: the economic liquidity of Hong Kong originated from sea trade. Without the firepower of the British fleet, the dirty opium wars would not have secured the empire's fortunes. But the sea remains untamed: it is the constant presence of the unknown lapping at the city's edge.

us.[4] Even if the system city does what we want it to do – assuming, that is, that we do know what we want it to do – we will have to come to terms with the fact that we no longer understand how it does it and that it has, in effect, become a 'black box', vanishing beneath our level of consciousness. We will have to accept that we are 'out of control', to paraphrase Kevin Kelly,[5] whoever 'we' may be. Once the system city and its model become fully sentient, we will enter the narratives that mythology and fiction have anticipated a long time ago: the Greek myth of Prometheus stealing fire from the Gods, the fatal stories of the Golem, of Frankenstein, of Jean-Luc Godard's intelligent but desolate *Alphaville* (1965), leading to the pathetic and prophetic revolt of Stanley Kubrick's HAL (Heuristically programmed ALgorithmic computer) in *2001: A Space Odyssey* (1968).

To read the city involves a journey beyond its comforts and into uncharted territories, both within and without. This issue's guest-editor informs us, in his biography, that, after reading Joseph Conrad, he went off to sea, and it seems that there are also explicit echoes of *Heart of Darkness* (1899)[6] in the turbulent voyages of the Unknown Fields Division (pp 38–45). The question is how far to follow Conrad, and which character to identify with: to take Francis Ford Coppola's cinematic version (1991), do we follow Martin Sheen, the obedient agent from System City, dispatched as a hired assassin to make sure that its rational and ethical rules are respected and to terminate the deviant general, or do we follow Marlon Brando, its original extraordinary agent, prepared, at the cost of his life, to explore the city's dark edges? Few 'models' of understanding are prepared to go that far into the 'theatre of cruelty', even if it may mean not coming back, with the exception, perhaps, of Arthur Rimbaud and Antonin Artaud.[7]

Our search to understand the city is driven by an idealised desire to improve it, to make it less cruel. Despite the lessons of history, we are not prepared to perceive the city as nothing but the process and product of the exploitation of man by man, and of nature by man. Neither are we prepared to see it as a system, because systems, unlike humans, have a fixed programmatic purpose. The city is more than any definition one may attempt to offer, because of the vast unknown that still lies beyond the reach of its predatory infrastructure systems. AD

Notes
1. Colin Rowe and Fred Koetter, *Collage City*, MIT Press (Cambridge, MA), 1978.
2. Jorge Luis Borges, 'On Exactitude in Science' (original title 'Del rigor en la ciencia'), in *A Universal History of Infamy*, trans Norman Thomas de Giovanni, Penguin Books (London), 1975.
3. Stuart A Kauffman, *The Origins of Order: Self-Organization and Selection in Evolution*, Oxford University Press (New York), 1993.
4. Karl Sims, 'Evolving Virtual Creatures', 1994: see http://www.karlsims.com/papers/siggraph94.pdf.
5. Kevin Kelly, *Out of Control: The New Biology of Machines, Social Systems, and the Economic World*, Basic Books (New York), 1995.
6. Joseph Conrad, *Heart of Darkness*, Penguin Classics (London), 2012.
7. Arthur Rimbaud, *Illuminations*, WW Norton & Company (New York), 2012 (first published in 1886), and Antonin Artaud, *The Theatre of Cruelty*, Grove Press/Atlantic Monthly Press (New York), 1994 (first published in 1938).