

The Question of Metropolitan Form: An Introduction

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Posing the concept of 'metropolitan form' as a question, as in the call for papers for this issue of *Footprint*, is an absolute necessity at this stage of development of urbanized areas. Many of the papers in this issue begin with the straw-man notion of a formless agglomeration of activities and spaces, the - for lack of a better phrase - postmodern urban experience.¹ There is a persistent theme in the related literatures of architecture, urban design and urban and regional planning that the physical form of the contemporary metropolis is un-describable. Soja's six metaphors (post-Fordist industrial, cosmopolis, expolis, fractal city, carceral archipelago, simcities) are being indicative of the wide range of possible images.² The eight papers in this issue of *Footprint* take an opposite approach. They begin to trace the contours of the debate around how the noun 'metropolitan form' might be understood, how it might be studied, and how it might be possible to move from an empirical understanding of its structure to more intuitive design solutions.

What metropolitan form is depends of how we see! Asking the question of 'metropolitan form' requires almost the opposite set of lens that is required to ask questions of microbiology and/or nano-technology. We certainly cannot see with the naked eye the 'over-expressing of cyclooxygenase-2 into MCF-7 tissues' that causes a certain form of breast cancer or the wavelets that we may design to create desired effects in electromagnetic force fields. Yet they exist, have definable processes, perform vital functions, and yield structures or form. The same is

true for the urban region. Thierstein and Forster's *The Image and the Region* is a call to arms to make the urbanized region visible to academics, politicians, citizens, and administrators.³ It might be true that the only way we can see the urban region is from a map (maybe) or from space using technologies like aerial photography or Google or Microsoft mapping techniques.

The World Bank examined the dynamics of global urban expansion by focusing on a sample of 120 urban regions.⁴ The heart and soul of these representations are what could be called 'big red blobs'. The study group created a number of measures of the 'form' of these regions including: the buildable perimeter expressed as a percentage; a contiguity index; and a compactness index. In a similar manner, Simmonds and Hack used a measure of compactness (defined as the ratio of the actual perimeter of built-up areas divided by the theoretical minimum perimeter, represented by the perimeter of a circle containing the equivalent developed area) in their landmark study of emerging forms in eleven global city regions.⁵ These are clearly aggregate measures of some sort of 'form'.

Measures of gross area form are not enough. The World Bank study poses a number of interesting questions. Using the Mumbai example, what is the Mumbai 'big red blob'? What it is not is the City of Mumbai nor the Mumbai Metropolitan Region. It is, for the lack of a better term, the urbanized region [of Mumbai]. Further analysis using administrative

or census data would reveal that this 'big red blob' is actually five municipal districts that over-bound the metropolitan region. Second, the World Bank map differentiates only between 'urban' and 'rural' land uses. While useful to relate to the land cover and general urbanization literatures, it only marginally speaks to those interested in the internal [territorial] organization of such places. For example, Figure 1 would not reveal that Mumbai has three 'downtowns', clearly differentiated by function and purpose.⁶ The global city regions examined by Simmonds and Hack are analyzed in terms of economic, social, geographic, infrastructure, and governance attributes.

One might argue that to know 'metropolitan form' is to be able to measure 'metropolitan form'. Unfortunately, with the exceptions noted above, there is not a lot of literature or examples to draw from, that study form at the metropolitan scale rather than at some other scale (the most common being the 'urban' scale). For example, Clifton et al. provide an extensive literature review on the measurement of 'urban form'.⁷ Clear from that review is that approaches - and scale of analysis - to knowing are disciplined-based: landscape ecologists and economists tend to begin their quest at the metropolitan scale, urban designers and community development researchers begin their quest at the more micro scale. On the other hand this, otherwise thorough, review ignores questions of internal regional economic spatial structures and political organization and administrative structures. In some quarters, the debate is not whether an urban region is monocentric or sprawled, but precisely how polycentric it is.⁸ Thus, even if we equate 'metropolitan form' with 'urban form', which we should not do, the current status of our knowledge is, indeed, limited.

A final pre-amble thought is the related question of whether urbanized regions can be designed. Clearly, metropolitan regions have been the subject of a plethora of work in a multitude of disciplines,

ranging for example from the Simmonds and Hack study of global city regions (from the perspective of the urban designer) to Salet, Thornley & Kreukel's study of metropolitan governance (from the perspective of the institutional planner).⁹ What is especially interesting is that in both cases the quest for overall understanding is abandoned when questions of design come up. Simmonds and Hack answer the question of what to do by stating the need to focus on the micro-scale; Salet and his colleagues reach the conclusion that there are no universal design principles for the governance of metropolitan action spaces. Despite these heroic and thoughtful studies, it appears that the state-of-the-art of and the hope for understanding seem to be a return to the local and the specific.

Thus, the quest continues. It seems that a general theoretical model is needed: one that merges the disciplinary biased approaches of landscape ecology, intra-regional economic structure as expressed in the built environment, and governance structures. Prosperi, Moudon & Claessens have previously suggested that a new epistemology and a new language are needed for the question of metropolitan form.¹⁰ Perhaps what is needed most is a re-write of Moudon's 'catholic' paper; but this time written with the urbanized region as object.¹¹ The quest for description, designing, evaluating, and/or understanding the urbanized region is an exercise in abstraction. Like the scientists studying the human brain, we know the object exists but do not yet know how it works. The task is to discover its functioning, in terms of both processes and resultant structures. Set diametrically opposed to the post-modern haze of what the contemporary metropolis looks and feels like is the work of the 'scientists' - those invoking the need for an object to study,¹² complexity,¹³ design as science,¹⁴ or even the planners with an emphasis on infrastructure and technology.¹⁵

The papers in this issue of *Footprint* represent meaningful steps in the development of an empiri-

cal basis for the study of metropolitan form. The eight papers cover the gamut from descriptions of the physical manifestation of metropolitan areas in China, Latin America, and Europe through the quest for meaningful projects that 'fit' within the metropolitan context, to the development of ideas about what 'metropolitan form' might mean from the perspective of the thinker/practitioner.

Six of the eight papers are directly focused at the scale of the urbanized region. The approaches, however, are wonderfully and provocatively different, yielding a host of new potentially (in the eventual sense of design) insights. Yet, there are at least four themes that re-occur throughout these papers. *First*, it is possible to conceptualize urbanization at the scale of the metropolitan region. Furthermore, it is possible to do so from several different perspectives – landscape ecology (DeWit, van der Velde & Steenbergen), regional economic polycentricity (Fernandez-Maldonado, Romein & Verkoren), and politically/administratively (Çalkiskan). *Second*, the idea that metropolitan form is in a constant state of emergence, with influences coming from both government policy and infrastructure. The study of Ankara (Çalkiskan) demonstrates how national planning priorities influenced the core-periphery relationship since the 1930s through the mechanism of formal plans. Similarly, the papers on thinking about Amsterdam (Read) and the role of movement technologies in Beijing (Sheng and Han) demonstrate how the dominant mode of transport changes and changes the legibility to the urban region. *Third*, the theme of decentralization of both economy and housing is evident in the papers about Beijing (Zhou and Lei), Ankara (Çalkiskan) and Latin America (Fernandez-Maldonado, Romein, and Verkoren). The Latin America paper poses a particularly interesting question: is this polycentric structure of metropolitan regions truly universal? *Fourth*, the papers demonstrate a willingness to assess contemporary theory of urbanization at the scale of the urbanized region. Fernandez-Maldonado, Romein, and Verkoren

examine how polycentric development in terms of employment might be a universal phenomenon. Sheng and Han evaluate how 'central flow theory' (based on Castell's space of flows) might improve Christaller's central place theory (based on more traditional transport models). Perhaps the most interesting point here is Read's assertion that these 'spaces of flows' have actual physical manifestations within urbanized regions. The 'creative computer flow modeler' will, in the end, know *where the server actually is*. Thus, that elusive (and not very described from a physical sense) 'knowledge economy' may indeed have a physical manifestation.

Two papers explore the relation of individual projects to the question of metropolitan form (Furtado, Stoppani). How is the practice of the designer related to the overall spatial structure of the region? Simmonds and Hack come to the interesting conclusion that since regions cannot be designed (even by strong governments, with lots of infrastructure money), the best that we can do is to work at the local level.¹⁶ This supports the usefulness of the recent literature on megaprojects and/or strategic urban projects.¹⁷

These two papers also examine attributes of 'form' as the basis for individual projects. Faced with the inevitable presupposition that there is neither an object to be designed¹⁸ nor a 'form of form' against which to judge,¹⁹ the papers look at design concepts with which to approach the question of metropolitan form. These papers belong to the intellectual infrastructure of the urban design canon - the collection of ideas and concepts that give rise to the project. Furtado makes clear the relation of the work of Sola-Morales to the postmodern school of Soja and colleagues. Stoppani reviews the city of Piranesi.

In conclusion the question of 'metropolitan form' remains a question, amenable to inquiry from approaches of both science and intuition. Intuition

remains critical, but science will eventually lead to firmer (and better?) understandings of the dynamics of metropolitan growth, function, and form. As Lehrer reminded us in 2007, Proust was, after all, a neuroscientist! And, as Batty warned us in 2005, it has taken us almost 50 years to come to grips with Jane Jacobs' 'complexity' and it may take another 50 years before we get close to understanding those magnificent things we call urbanized regions.

Notes

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4. S. Angel, S.C. Sheppard and D. Civvo, (with others), *The Dynamics of Global Urban Expansion* (Washington, D.C.: Transport and Urban Development Department, The World Bank, 2005).
5. R. Simmonds and G. Hack, *Global City Regions (Their Emerging Forms)* (London, UK: Spon Press, 2000), p. 186.
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7. K. Clifton, R. Ewing, G-J Knaap and Y. Song, Quantitative Analysis of Urban Form: A Multidisciplinary Review, *Journal of Urbanism*, 1, (2008), pp. 17-45.
8. A. Anas, R. Arnott, & K.A. Small, 'Urban Spatial Structure', *Journal of Economic Literature*, 36 (September 1998), pp. 1426-64.
9. R. Simmonds and G. Hack, *Global City Regions (Their Emerging Forms)* (London, UK: Spon Press, 2000), p. 186; W. Salet, A. Thornley and A. Kreukels (eds.) *Metropolitan Governance and Spatial Planning* (London, UK: Spon Press, 2003).
10. D.C. Prospero, A.V. Moudon, and F. Claessens, 'Metropolitan Form Research: Basic Concepts and Directions', in *The European Tradition in Urbanism and its Future*, ed. by F. Gruyns et al. (Delft: IfoU, 2007), pp. 345-47.
11. A.V. Moudon, 'A Catholic Approach to Organizing What Urban Designers Should Know', *Journal of Planning Literature*, 6 (4, 1992), pp. 331-49.
12. D.C. Prospero, 'Metropolitan Form: An Emerging Concept' (in preparation), *Journal of Planning Literature* (Fall 2009, to be submitted); A.R. Cuthbert, Urban Design: Requiem for an Era - Review and Critique of the last 50 Years, *Urban Design International*, 12 (2007), pp. 177-223.
13. M. Batty, *Cities and Complexity* (Cambridge, MA: MIT Press, 2005).
14. I.T. Klaasen, *Knowledge-Based Design: Developing Urban & Regional Design into a Science* (Delft: DUP Science, 2004).
15. R. Simmonds and G. Hack, *Global City Regions (Their Emerging Forms)* (London, UK: Spon Press, 2000).
16. Ibid., p. 186.
17. See for example: F.D. Orueta, and S.S. Fainstein, 'The New Mega-Projects: Genesis and Impacts', *International Journal of Urban and Regional Research*, 32 (4, 2009), pp. 759-66 and W. Salet and E. Gualini, *Framing Strategic Urban Projects (Learning from Current Experiences in European City Regions)* (Milton Park, UK: Routledge, 2007).
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