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Urban design needs urban morphology: a practitioner's viewpoint

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Since its first publication in 1997, *Urban Morphology* has clearly defined its mission as the study of the city as human habitat, focusing not only on the tangible results of social and economic forces, but also on bringing together researchers from a variety of disciplines, including architecture, geography, history and planning (Moudon, 1997). Since then urban morphology has played a significant role as an interdisciplinary research platform underpinning the dialogue between those disciplines. However, the weak communication between disciplines has remained conspicuously evident in the case of the relationship between architecture and geography. More than a decade after Whitehand (2001) drew attention to the problem, the situation has not changed much at the world scale, notwithstanding the growing links between architects of the Muratorian school and Conzenian geographers. At the same time attention has been drawn to the need for wider practical application of urban morphology and in particular the need to bridge the gap between urban morphology and urban planning and design (Hall, 2008; Whitehand, 2007). A number of researchers and practitioners have commented on this problem (Kropf, 2001, 2011; McGlynn and Samuels, 2000; Samuels, 2008) and the recent issue of the journal has highlighted it once again (Hall, 2013; McCormack, 2013; Nasser, 2013; O'Connell, 2013; Scheer, 2013). As McCormack (2013, p. 45) argued, 'although urban morphology is fundamentally concerned with the what, how and why of the constitution of the urban fabric, there is little or no knowledge of this essential reality among practitioners of urbanism'. Taking the perspective of an urban designer, my question is how can we expect to build better cities if we have little or no knowledge of built environments? I suggest that urban design needs urban morphology as a platform on which to renew its theoretical foundations. To this end we need to look again at the meaning of urban design and its theories.

Understanding urban design

What is urban design? Looking back in history we see striking exemplifications from the nineteenth century: Haussmann's grand project for Paris (Panerai, 2004) and Cerda's extension project for Barcelona (Aibar and Bijker, 1997) are cases in point. Both cities can be seen as instances of so-called 'civic design'. The former is usually regarded as a model of aesthetically-oriented three-dimensional city design; while the latter is the practical application of Cerdà's theory of urbanization. In both cases 'civic design' considered not only the urban fabric but also the spatial form of the city. The term 'urban design' came into currency in North America in the late 1950s, replacing the more traditional and somewhat outmoded term 'civic design' (Carmona and

Tiesdell, 2007). It was developed as a tool to improve the quality of the public realm and to produce meaningful 'places' for people to enjoy and use (Cuthbert, 2007). Urban design can be defined as a multi-disciplinary activity of shaping and managing urban environments. It is concerned with shaping both urban fabric and urban space at all scales of the urban socio-spatial continuum (Madanipour, 1997).

The ideas and methods of traditional 'civic design' were introduced to China in the 1980s and have been gradually superseded by the conception of urban design in the last decade. Under the forces of unprecedented urbanization, urban design is used as a tool for controlling the general spatial arrangement of activities and objects over an extended area. In some provinces such as Jiangsu, urban design is incorporated into various levels of planning, ranging from the strategic proposals of master plans to the construction and implementation of building codes. Since urban planning tends to deal mainly with functional and economic matters, urban design is supposed to play a role as strategy provider for improving urban quality.

Both European and Chinese urban history and most strikingly China's unprecedented current urbanization process illustrate the key role that urban design needs to play. But it must confront the normative nature of design and practice (Biddulph, 2012), and its outputs must be judged by the residents of the city. If it is to be convincing it needs to be clear about its theoretical basis.

Understanding the theory of urban design

Marshall (2012) points out that urban design rests on a foundation of untested hypotheses, or individual scientific findings that are not scientifically incorporated into urban design's corpus of knowledge. The implication is that there is a need not just for 'more and better science' but for more critical assimilation of scientific knowledge into urban design theory. Cuthbert (2007) suggests that improvements must come from the outside. Urban design should be viewed as the outcome of the social production of urban form. It should share knowledge from the social sciences, the life sciences, and from history as well as geography. Theories from these fields help urban designers to understand the nature of urban space, including the inhabitants, and the urban generative processes – these form the basic foundations for an epistemological theory of urban design.

How does urban design take place in reality? In the context of the processes of urban development, we have to see urban design from the perspectives of the regulators (the government planners), the producers (the developers) and the users (the public) of urban space: the design professionals sit at the nexus of these three main interest groups (Kropf, 2011; Madanipour, 2006). There is not only artistry in the design work, but also a social, economic and political context.

Urban morphology as a platform

As an interdisciplinary platform, urban morphology is able to integrate thinking from geography, architecture and sociology. It not only produces new knowledge and insight for understanding urban form but also provides an apposite methodology. In China most urban design projects are conducted by architects and, unfortunately, very few of them use an urban morphological platform. Meanwhile huge swathes of countryside are being urbanized at an unprecedented pace. Traditional form-oriented architectural concerns and limited working methods are a major problem. This has to be changed.

Three major matters that need attention have particular pertinence to the Chinese case:

(1) Decision-making needs to be within a city-wide context; for example embracing not only transportation networks and urban block patterns, but also the micro-scale of plot patterns. Although contemporary cities are different from the traditional closed city, urban morphological study of both the 'typological process' of Caniggia and the 'plan elements' of Conzen (Levy, 1999) are needed. Such approaches need further development; for instance, by developing the relationships between building types and regularities of setting and plot pattern, whereby the understanding of fundamentals can be transformed into design knowledge (Zhang and Ding, 2012).

(2) Research on the relationship between urban form and human perception and experience of cities, such as the works initiated by Kevin Lynch (1960), needs to be pursued further. For the purposes of urban design it is urgent to bridge between urban fabric and its spatial configuration, both qualitatively and quantitatively (Ding, 2011; Ding and Tong 2011).

(3) Urban microclimatic factors should be given greater weight in urban design research and practice. There have been many contributions to urban morphology from the viewpoint of climatology (Adolphe, 2001; Giridharan *et al*., 2007; Oke, 1988; Ratti *et al*., 2003). Urban health

is becoming an especially important topic in China, but has yet to be fully taken into account in either urban design practice or research.

Conclusion

Urban design is an inherently interdisciplinary activity. Looking into the successes and failures of the past can assist designers in shaping future built environments. Urban designers need to be keenly aware of urban morphology and indeed urban theory in other disciplines. They need to come out of their traditional professional circle and expand the scope of their knowledge. Urban design needs to learn from urban morphology how to generate new theoretical frameworks and new methodologies that provide support for its practice. The lessons of history underline the importance of active urban design in the generation and transformation of urban forms in China and Europe alike. The application of urban morphological principles can in turn contribute to the development of urban morphology.

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Sustainability and the study of urban form

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Echenique *et al*. (2012) have concluded that there is not a clearly superior spatial urban form in terms of sustainability. They argue that changes in 'white collar' lifestyles and associated population growth have a far greater impact on the natural environment and resources than is attributable to spatial urban form. This prompts me to raise again the subject of sustainability and urban form within urban morphology.

The relationship between urban form and lifestyles is central to both the field of knowledge of urban morphology and the topic of sustainability. If one accepts that changes of lifestyles are crucial to the achievement of sustainability, and that sustainability is as germane to the control of environmental disorders as is suggested in various European and other international directives (UN-HABITAT, 2012; WCED, 1987), it is important that urban morphologists reflect on and pursue their role in the search for sustainability.

Stanilov (2003) and Kärrholm (2011) point out how little attention urban morphologists have given to sustainability. Examination of contributions to *Urban Morphology* reveals that the word 'sustainability' occurs in the title of only two Viewpoints (out of a total of 113 Viewpoints and 102 full-length papers) that appeared in this journal up to the end of 2012 – those by Stanilov (2003) and Marat-Mendes and Scoffham (2005). It also appears in just a few references listed by Stanilov (2003), Marat-Mendes and Scoffham (2005), Satoh (2008), Hall (2008) and Gil *et al*. (2012).

In contrast, a large number of publications address the issue of the sustainable city more generally (see, for example, Frey 1999; Jenks, Burton and Williams, 1996; Urban Task Force, 1999; Williams, Burton and Jenks, 2000). However, the compact city model (Urban Task Force, 1999) seems to prevail, finding strong support, for example, within the European Union (Marat-Mendes and Scoffham, 2000).

Kärrholm (2011) has recognized urban form as an essential tool to bring together issues and problems that have hitherto largely been treated in a specialized manner. He, Marat-Mendes (2002) and Jabareen (2006), though differing in their approaches, have confirmed that certain urban forms do contribute more than others to sustainability. Sustainability is related in important part to the processes of change to which urban forms are susceptible (Marat-Mendes and Scoffham, 2000). The focus needs to be on assessment of urban form in relation to different environmental and social constraints, including changes of use and lifestyles (Scoffham and Marat-Mendes, 2000). As suggested by Frey (2000), the question of how to undertake such assessment is central.

If one revisits the studies that contributed to the foundations of the field of study of urban morphology, as acknowledged by Whitehand (2012), one can identify perspectives similar to those advocated by the United Nations report (UN-HABITAT, 2012). As emphasized by Stone (1965) and Heineberg (2007), such studies were grounded on a substantial international and multidisciplinary approach. Research conducted by early urban morphologists was characterized by its holistic approach. Indeed it had a good deal in common with the approach needed today towards sustainability. An example is the work by the French geographer Albert Demangeon (1872-1940), who played an important role in the