Towards consonance in urban form

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The city … does not tell its past, but contains it like the lines of a hand, written in the corners of the streets, the gratings of the windows, the banisters of the steps, the antennae of the lighting rods, the poles of the flags, every segment marked in turn with scratches, indentations, scrolls (Calvino, 1997, p. 9).

By presenting the past as a repository of the characteristics of urban formation, urban morphology utilizes a knowledge platform as the basis for interpretation of accordant architectural responses (Levy, 1999). Operating within this framework at the scale of architectural features of individual buildings, and imbued with reference to the intrinsic architectural elements of both preceding and existing building forms, micro-morphology (Larkham, 2006, p. 126) provides the efficacy for new architecture that emerges from such a manner of composition.

Research and practice nexus

The primary contribution of urban morphology towards consolidating the link with design is in the analytical processes that deliver an understanding of evolving urban forms; it is, however, a contribution that design practice has yet to widely embrace (Moudon, 1997; Whitehand, 2005).

Research approaches to urban morphology are well established and extensively published, and include concerted efforts to demonstrate the application of theory in practice through both new tools for evaluation, and new methods of design praxis (Hall and Doe, 2000; Hall and Sanders, 2011; McGlynn and Samuels, 2000; Oliveira, 2013).

The gap between research and practice and recommendations as to how it can be narrowed, has been the subject of consistent concern and increasing focus (Hall, 2008, 2013; Kropf, 2011; Marshall and Çalışkan, 2011; Whitehand, 1992, 2007, 2013). A recent issue of Urban Morphology contained various opinions on the prevailing stasis. Is it perhaps a problem of differing orientation (Nasser, 2013)? Is it the lack of a common language or developed dialogue (McCormack, 2013; O’Connell, 2013)? Or could it be a result of insufficient emphasis in the pedagogy in planning and design curricula (Whitehand, 2005, 2013)?

It has also been reported that thorough urban morphological investigations are resource intensive and the associated costs can often seem prohibitive (McGlynn and Samuels, 2000); and there are also concerns that detailed morphological research may be unduly time-consuming (Larkham, 2006). This suggests that research of this nature is likely to be impractical for design consultancy unless an abbreviated research process can be deployed with simplified analytical and prescriptive elements (McGlynn and Samuels, 2000). It further suggests a level of responsibility for local authorities and government agencies to raise their own awareness of the relationship between research and policy (Hall, 2000; Samuels, 1990; Whitehand, 2007). Furthermore, as universities have consistently demonstrated the capacity to undertake resource intensive traditional morphological techniques, the outputs of the research should be acquired by local administrations and made available as a resource to assist urban design.
However, it is in the arena of city development that the deficiencies of the nexus between research and practice are most apparent. Through not engaging with data from broad fields of research (Hamilton and Watkins, 2008), architects and urban designers continue to lack an evidence-based approach to underpin reasoning in their design proposals (Samuels, 1990). Hence a design project advocating urban quality is susceptible to a contrary infrastructure proposal that is supported by qualitative data, and speaks more readily to an audience of policy makers. Typically the argument for urban spatial quality is not well substantiated, and the city suffers as a result.

Design proposals that can emphatically demonstrate how the ‘new’ builds upon measured and evaluated characteristics of the specific place of development can present a compelling and justifiable case.

**Process versus prescription: interpretation versus design control**

Cities are never still; they resist efforts to make sense of them. We need to respect their rhythms and to recognize that the life of city form must be loosely somewhere between total control and total freedom of actions. Between conservation and process, process must have the final word. In the end, urban truth is in the flow (Kostof, 1992, p. 305).

While well-intentioned urban-design guidelines can contribute to coherence and continuity in the development of urban form, a balance needs to be found between the prescriptive desire to control every move of development (Talen and Ellis, 2002) and the latitude required to enable the natural ebb and flow of development cycles that underpin urban growth (Kostof, 1992). This apparent dichotomy is one that requires careful attention: on the one hand, design-based codes can avert problems of incongruity in unfettered development, but on the other a building environment stifled by over-prescriptive design controls may impede innovation and opportunities for new ideas.

Caniggia maintained ‘that design must be carried out by a continuous comparison of what already exists with what we are doing, therefore by continuous ‘interpretation’ if we wish to produce buildings without being vague and individualistic’ (Caniggia and Maffei, 2001, p. 27).

Thus within the emergent consensus for the principle of ‘morphology before design’ (Çalıșkan and Marshall, 2011, p. 389) that seeks to place urban morphology at the core of urbanism and urban design (Kropf, 2005), there is a need for increased emphasis on the act of interpretation of urban morphology in advancing consonance in urban form. This emphasis may prove to be more appealing than prescriptive tools, and draw practice closer to research.

**References**


What is Urban Morphology made of?

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What are the main approaches, theories, concepts and methods being debated in Urban Morphology? Which countries are participating in the debates? Which ones are poorly represented? Which disciplines are prominent? To what extent are authors referring to one another’s work? Are the debates attracting the participation of professional practitioners? How widely recognized is urban morphology as a coherent field of knowledge?

In search of the answers to these questions, we analyse 229 contributions to the journal over almost 2 decades – 80 full-length articles, 14 national reviews (the series on the study of urban form in various countries), 11 review articles and 124 ‘viewpoints’. The findings complement a recent article that reflects on the series of reviews of the study of urban form (Oliveira, 2013).

The analysis is based on four aspects: the contents of the contributions; the geography of their authorship; the disciplinary backgrounds of the authors; and finally, the impact of the contributions. Analysis of the keywords provided in the full-length articles and national reviews reveals that 316 different keywords are used, each keyword being repeated on average only 1.5 times. Does this suggest that the different authors publishing in Urban Morphology are not using a common language? Perhaps efforts should be made in future to choose keywords that are shared by wider audiences. The most used keywords are ‘urban morphology’, ‘urban design’ and ‘urban form’, together accounting for over 10 per cent of the keywords used. The use of ‘urban design’ as a recurrent keyword may be taken as an encouragement to those seeking to explore the borderland between urban morphology and design (Marshall and Çalışkan, 2011). The other most cited words are ‘architecture’, ‘planning’, ‘history’ and ‘geography’, comprising 7 per cent of the keywords used. Individually these four disciplines have similar weights. Two concepts are among the most used keywords. The first is ‘fringe belt’. The significance of this concept to the journal readership is well expressed in a set of papers exploring international comparisons, the national and local dimensions of the concept and particular types of fringe belt within a city (such as the Edwardian fringe belt). The second concept is that of the ‘morphological region’. Some variations on the original formulation of the concept are included, such as ‘urban landscape region’, ‘landscape unit’ and ‘urban structural unit’. Space syntax is another highly cited keyword. Half of the papers using this keyword aim at exploring the occasion of his 80th birthday (Leicester University Press, Leicester).


design of frameworks and methods that combine space syntax with other morphological approaches. Finally, Italy also emerges as a highly cited word. The use of the last four keywords (fringe belt, morphological region, space syntax and Italy) tends to reinforce the argument of Oliveira (2013) that there are four prominent approaches within Urban Morphology: the German morphogenetic approach, the Conzenian school, space syntax and the Muratorian school.

Turning to the provenance of authors (limiting attention to the first author of each contribution), the analysis reveals that 66 per cent of the contributions are written by authors based in Europe, 18 per cent in North America, 10 per cent in Asia, 4 per cent in Oceania, and 2 percent in South America. No contributions emanated from Africa. This continent is also poorly represented in ISUF conferences. The most represented countries are the United Kingdom, Italy, Germany, France and The Netherlands, in Europe (these five countries provide more than half of the contributions to the journal); and the United States and Canada, in North America. Portugal, Australia and China complete the list of the ten most represented countries. Finally, at the city level, Birmingham, UK has the highest number of authors (14 per cent) which is indicative of the invaluable contribution of the Urban Morphology Research Group. It is followed, in Europe, by Florence (4 per cent), London, Porto and Paris (all with 3 per cent), and in, North America, by Chicago (3 per cent).

The third aspect of this analysis is the disciplinary backgrounds of the authors, again limiting attention to the first author of each contribution. We were not able to trace the backgrounds of all authors (10 per cent of the whole set were not considered). One half of the authors hold an architectural degree. Geographers account for one-quarter of the whole set, followed by history (8 per cent), planning (6 per cent), landscape architecture (6 per cent) and engineering (2 per cent). The other disciplines represented were archaeology, biology, economics, physics, political science and sociology. Despite the dominance of the practice-oriented discipline of architecture, 93 per cent of authors have an academic affiliation, and only 7 per cent are engaged in professional practice.

Finally, what has been the impact so far of these various contributions? Scopus, accessed in April 2013, was the main source for this analysis. Cited by 49 publications, ‘Urban morphology as an emerging interdisciplinary field’ (Moudon, 1997) is so far the most cited article published in Urban Morphology. The article by Whitehand (2001) on the Conzenian school is cited by 36 publications, reflecting again the importance of this school of thought internationally. The importance of the concepts of the morphological region and the fringe belt is suggested by the number of citations received by Whitehand (2009) and Conzen (2009) – 16 and 15. Levy (1999) discusses the implications of the modern urban fabric for urban morphological research, and Lilley et al. (2005) focus on the methodological aspects of GIS and GPS. These are the fifth and sixth most cited contributions to the journal. The seventh is the exploration by Whitehand and Gu (2007) of a particular method, town-plan analysis, in China. The other contributions completing the list of the ten most cited articles in the journal (with 13 citations each) are a comparative study on different morphological approaches (Kropf, 2009), an analysis of a particular element of urban form, the urban block (Siksna, 1997), and a national review of the study of urban form in the United States (Conzen, 2001). Overall, one-half of the citing articles were published in Urban Morphology, the other half being published in such journals as Environment and Planning B: Planning and Design, Urban Design International and Built Environment, to name but a few.

The first issue of Urban Morphology was published in 1997. Over recent years, different approaches to the study of urban form have been proposed and applied in a growing number of countries. While Europe and North America are still dominant, new countries have been emerging. The journal has been able to attract not only academics from different backgrounds (including from practice-oriented disciplines), but also professional practitioners. Much remains to be done, but urban morphology is steadily becoming a widely recognized discipline. In a remarkable paper, Whitehand (2012) has established the fundamental challenges that urban morphology should address in the coming years.

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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 Cerda’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
Tieddell, 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; Girisharan 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.

Acknowledgement

This Viewpoint draws on recent research supported jointly by the National Natural Science Foundation of China (Program No. 51078177) and the Doctoral Fund of the Chinese Ministry of Education (Program No. 2012009110055).

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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
formation of the First International Geographical Commission on ‘L’Habitat Rural’, at the International Geographical Congress in Cairo in 1925. Demangeon (1920, 1927a, 1927b, 1932, 1936, 1938) encouraged the study of settlements from a morphological perspective. He reported on processes of change occurring within urban, rural and natural environments, including the relationships between lifestyles and settlement forms. It is apparent from such studies that urban morphologists have long ago recognized and articulated the relationships between lifestyles, population growth and urban form and explored the impact of these factors on the natural environment, albeit not necessarily employing the term ‘sustainability’ in quite the ways in which it has been utilized since the Brundtland Report (WCDE, 1987).

If one accepts that changes of lifestyles are crucial to the achievement of sustainability, and that sustainability is the important social goal suggested in various European and other international directives on the control of environmental disorders (UN-HABITAT, 2012; WCED, 1987), the case for urban morphologists to build on the foundations they laid long ago is a strong one. We need to build a platform of common interest to promote synergies between the study of urban form and research on sustainability.

References

Thinking about Alnwick’s origins

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In his analysis of Alnwick’s town plan, M. R. G. Conzen does not consider the morphological phases of the prehistoric and Roman ages, maintaining that ‘Alnwick began its existence relatively late in the Anglian period of Northumberland, possibly some time in the seventh century’ (Conzen, 1960, pp. 7-8). We have endeavoured to bridge this gap with some hypotheses that stem from Muratorian thinking. These concern the formative processes of towns and territories and are predicated on the fact that the processes relating to the initial plans of settlements generally condition their subsequent transformation, remaining ‘inscribed’ as a sort of DNA of their urban form. The initial plans can be conjecturally reconstructed. In the absence of archaeological evidence the accuracy of the reconstruction naturally depends on the degree of congruence between the initial plan and subsequent transformations.

The ridge-path theory (Muratori, 1967) maintains that the first groups of human beings, in their continual search for food, usually followed the watersheds. These paths offered walkers numerous advantages: they did not sink in the mud, they did not require bridges and they enabled bearings to be obtained from a height. Applied to Great Britain and, more specifically in this case to Northumbria and the Aln valley, the delineation of ridges on Ordnance Survey maps highlights the importance of the ford across the River Aln on which two important ridge paths converge. The strategic control of this convergence seems to be the basis for the choice of Alnwick’s site, reflected in both its place name and its enduring territorial

Figure 1. Hypothetical reconstruction based on Forma quadrata Britanniae. Geodetically (and topographically) orientated squares with 12-mile sides. The diagonal Roman road runs between the vertices of Dover (Portus Dubris) and Canterbury (Cantuarium). Topographical source: Ordnance Survey 1: 650 000, Roman Britain, 5th edn).

Figure 2. Hypothetical reconstruction based on Forma quadrata Britanniae. Basic oriented grid of squares with 60-mile sides with superimposed Roman road network and geometrical ratios. Topographical source: Ordnance Survey 1: 650 000, Roman Britain, 5th edn).
As for Roman planning, metrological checks of the *Forma quadrata* hypotheses (Cataldi, 1993, 2004, 2007; Cataldi, Iacono and Merlo, 2000; Cataldi and Lavagnino, 1987), conducted on the Ordnance Survey’s excellent map of Roman Britain, could open up a new avenue of research within territorial studies. The composite basis of Great Britain’s measured cartography (*Forma Britanniae*) can be reconstructed using much the same sort of topographical evidence of Roman traces that has been used in Italy (Cataldi, Maffei and Marzot, 2004). The relative positions of these traces may have been conditioned by reference to a composite network of co-ordinates, orientated towards cardinal points, with a square modular grid of side 12 miles re-subdivided into five by five parts. This system of co-ordinates seems to have originated in the first Roman landing-place of Dover (*Portus Dubris*) which, on the present maps, is to be found in the south-eastern vertex of a large 12-mile square (*ager*), delimited by rectilinear roads orientated *secundum caelum* and diagonally crossed by the road to London between the Dover and Canterbury vertices (*cantuaria*) (Peterson 1992, esp. Fig. 6) (Figure 1). Through this basic virtual grid, it is possible to reproduce accurately (using the ‘squaring’ technique) both existing territorial elements (such as mountains, rivers and settlements) and planning elements (for example, borders, roads and settlements) for which, in particular, planners had to fix the most convenient hydrographic direction of the squared planned modules, geometrically conceived as the tiles of a large, continuously updated mosaic. To ensure that each module adhered to the nature of places (in particular to the direction of the rivers and coastline), its rotation angle (*ratio*) determined the
main intersection of orthogonal roads on the basic grid. This had numerous advantages, both military and civic: primarily the possibility to legally record on a system of maps, called *formae*, various public and private structures, such as road networks, administrative districts, land divisions and settlement locations. Hadrian’s and Antonine Pius’s large walls seem to have been designed on this basic orientated grid, which they tend to follow in an east-west direction: in particular, Antonine Pius’s wall seems to follow one of the geographical parallels of the 60-mile super-grid (Figure 2). Evidence of the Roman presence is considerable in this region: in particular, using present maps, it is possible to reconstruct the lines of most of the major longitudinal roads, which in the Middle Ages were often given the anti-pagan name ‘Devil’s Causeway’. In planning, these rectilinear roads must have acted as the carrying axes of the square modular systems. In the valley of the Aln (Alaunus Flumen?) and in the adjoining valley of the Coquet, the stretch of broken-line of the Roman road follows the coastline, from which it is 12 miles distant on average (Figure 3).

In its name, Alnwick (Figure 4) reveals its Roman origin, at least if it is correct that the Anglian wick suffix derives from the Latin *vicus*, which in the Roman world indicated a compact settlement that differed legally from the settlements scattered throughout the countryside which were called *pagi*. In this case *Vicus Alauni* would be Alnwick’s Roman name: a place-name clue that raises questions about Conzen’s hypothesis about the town’s Anglian origins. Other names in Alnwick’s urban area could be added, such as Agger flats and Augur flats (Conzen, 1960, pp. 86-7), which bring to mind the sacred-technical foundation practices of Roman towns (Dilke, 1979; Rykwert, 1981). In this light it would not be strange if, in the present urban peripheral zones, the metrological analysis of the rural area were to highlight the remaining signs of Roman land square divisions (*centuriae*) (Figure 5).

Hence we offer the hypothesis of the existence of an older Roman nucleus, presumably a square garrison, orientated *secundum caelum*, controlling the river ford from high up. This hypothesis does not shed doubt on Conzen’s medieval chronology but proposes an earlier starting point, lengthening the sequence of development by postulating a

![Figure 5. Hypothesized territorial planning in Roman Alnwick: the hypothetical nucleus of Roman Alnwick is at the geometrical intersection of the centuriated *secundum caelum* (according to the sky) and the centuriated *secundum naturam* (according to nature).](image-url)
possible pre-Anglian stage. It is suggested that the burgage pattern of the medieval period around what is now the central market triangle may have formed along the bypassing routes of the central nucleus, which was later to become a market. The military control function would have become assigned to the Norman castle, significantly situated midway between the bridge and the Anglian village. The central triangle’s three routes would thus have formed lineaments of Alnwick’s oldest inner fringe belt. This interpretation accords with one of the fundamentals of Conzenian theory: the explication of present forms in terms of their sequential development from initial human imprints in the landscape. In combination with the shared principles of the Muratorian school, this hypothesized revision of the origins of Alnwick could provide a spur to working towards a more unified theory of urban morphology.

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What is urban morphology supposed to be about? Specialization and the growth of a discipline

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Michael Conzen’s keynote address at last year's ISUF conference in Delft triggered a vibrant discussion on what urban morphology is about. The trigger was the definition of urban morphology that Conzen gave in his address: ‘urban morphology is the study of the built form of cities, and it seeks to explain the layout and spatial composition of urban structures and open spaces, their material character and symbolic meaning, in light of the forces that have created, expanded, diversified, and transformed them’ (Conzen, 2012). That urban morphology deals with the built form
of cities is probably an acceptable starting point for most purposes within the discipline, but such a statement should not be misunderstood as circumscribing the proper scientific object of urban morphology. What urban morphology strives to disclose is not the built form of cities as such, but the ‘genesis’ or ‘engendering process’ of this form. Yet there is a puzzle in the claim that urban morphology is concerned with ‘morphogenetic processes’ when the built form of cities is generally considered to be the result of human agency. This is the crux of the matter. Does the shaping process of cities include both human agency and a kind of causal (or structural) determinism, which remains to be explained? If so, urban design could no longer be considered as an expression of ‘free will’ but should be explored as a transaction with a range of ‘natural laws’ of which at present we fail to be fully aware. If it is the business of some more general study such as urban history or urban geography to understand the whole interaction of human agency and morphogenetic processes, we suggest that it is the task of urban morphology to specialize in the analysis of morphogenetic processes. In so doing, urban morphology would assume the role of an auxiliary discipline to urban history or geography. It would not tell us the whole story about the ways in which cities became what they are, but it would shed very specific light on some structural conditions for the creation and transformation of built forms.

Some difficulties arise in Conzen’s definition when he speaks of ‘explanation’. It is not clear whether ‘explanation’ here has the strict meaning of ‘disclosing the causes’ or is a synonym for ‘understanding’. One needs to distinguish between (1) the explanation of a fact or an event in relation to its causes or certain regularities or ‘laws’ and (2) the understanding of it in relation to the purposes of individual or collective agents (Stegmüller, 1983). The definition proposed by Conzen becomes ambiguous, when summarizing, on the one hand, the explanandum as being ‘the layout and spatial composition of urban structures and open spaces, their material character and symbolic meaning’ and, on the other, the explanans as being ‘the forces that have created, expanded, diversified, and transformed them’. The ‘forces’ may include non-human agents, constraints on human agents or unconscious acts of human agents, but ‘the symbolic meaning’ necessarily requires human agency or, to be more exact, human intentionality. Thus, Conzen’s definition compels urban morphologists to mix explicative and exegetical methods with the result that they turn back to the general historical approach and fail to deepen the specific concern to which they first wanted to commit themselves. The question at issue here is not whether symbolic meaning plays any role in the shaping of the built form of cities, but whether urban morphology as a specialized discipline should include meaning within the aspects of urban form on which it focuses. It is not the core business of urban morphology to analyse the relationship between built forms and the symbolic purposes of builders, but precisely to disclose those aspects of urban form that escape the awareness of the agents that influence such form. For instance, ‘burgage cycles’ (M. R. G. Conzen, 1960) or ‘insulization processes’ (Caniggia and Maffei, 2001) are not consciously shaped. Such processes cannot be taken as having been sought intentionally. Despite this, it remains a great achievement of urban morphology to have identified the various stages of the morphogenetic process of such configurations. The issue of meaning in the shaping of built forms belongs rather to urban semiology, semiotics or urban iconography, because the only category of signs with which urban morphology should operate are ‘indices’ as opposed to ‘icons’ or ‘symbols’, to use Peirce’s terminology (Atkin, 2010). To be clear, indices are signs with a causal relation with their objects, such as physical traces or animal tracks. In this respect the built environment is an enormous set of indices of the human activity that created them. One of the tasks of urban morphology is to aid us in our attempt to read those indices.

Our attempt to focus narrowly on the specific topic of urban morphology should not be misinterpreted as a lack of sensitivity toward the complexity of the ‘forces that have created, expanded, diversified, and transformed’ built forms. It is an attempt to neutralize the current vagueness of the topic of urban morphology. We feel it is important to make the leading hypothesis of urban morphology as explicit as possible in order to allow a constructive debate. To exclude meaning and symbolism from urban morphology is categorically not a refusal to acknowledge their importance as aspects of urban form. It is more a kind of ‘division of labour’ for the advancement of knowledge. We fear that a definition of urban morphology as wide as Conzen’s seems to impede the emergence of a constructive exchange of ideas more than it serves to integrate the variety of points of view.

In responding to Conzen’s view that meaning is integral to understanding urban form it is helpful to refer to morphology in linguistics. In linguistics,
morphology excludes meaning. It is concerned not with the content of language but with the formal characteristics of the system of sounds and/or symbols, the elements of the system and how they combine to provide the means for expressing content.

By implication, if linguistics offers a useful parallel, urban morphology should not be concerned with meaning but with the formal characteristics of the elements of urban form. It should establish what the elements are and to which categories they belong, as well as to identify the patterns of relationships between the elements, considered both as individual entities and instances of general kinds. What are the common, underlying regularities in the construction of urban form that provide a means for accommodating human needs? Are there different regularities in different cultures at different times?

It remains open to discussion whether urban morphology can maintain this kind of abstract analytical approach and still incorporate meaning. A possible solution may be to look at it in terms of the processes of formation and transformation. In principle, perception, intention and interpretation are fundamental elements in the socio-cultural processes that lead to the creation and growth of the built environment. To understand the generation of urban form it is crucial to understand the underlying ideas that inform it. The study by Joseph Rykwert (1988) of The idea of a town shows how the physical form of Roman towns and the process of their formation are deeply rooted in specific cultural content – conceptions of cosmic order. In a slightly different way, for Caniggia and Maffei (2001) the organic conception of a building as an intuitive idea is essential to the typological process and the evolution of urban form.

As another example, the diversity and local persistence of building types as explored by Scheer (2010) also illustrates the central role of ideas and perceptions in the process of development and the resulting character of urban form. The choice of particular types (for example, the Boston triple decker, the suburban office building, the English terraced house or the suburban villa) is driven in large part by the cultural content of the types – what they mean to people. So, anecdotally, in rural England it is often difficult to get planning permission for ‘flats’ if they are labelled as such (irrespective of the physical form they take) because ‘they’ are considered to be urban and so inappropriate in rural locations. It is almost enough to use the word ‘flat’ to set communities and planning officers against a proposal. The word conjures up images in people's mind that affect their judgement.

However, from the perspective of linguistic morphology, this is to drift into the realms of narrative and meaning and so beyond the scope of morphology. It is the equivalent of talking about connotation and cultural bias in the composition of a particular story. Those issues are not central to the underlying structure of the language.

To be more precise, the fact of meaning – signification – is central to morphology in linguistics but at a generic level. For example, the specific cultural content of the words ‘cat’, ‘dog’, ‘pig’ and ‘politician’ is not relevant to morphology. We only need to know enough about meaning to determine that they are all substantives or nouns. From there we can begin to work out their role within the system, for example their typical relationships with verbs and adjectives. We can also work out various regularities of construction. For instance, the morpheme ‘s’ is used to form plurals: cat, cats; dog, dogs; and ‘politician’ is composed of two morphemes, ‘politic’ and ‘ician’, as in magician. The fact that it might be possible to communicate meaning about dogs, pigs or politicians by juxtaposition is irrelevant to morphology.

Another point in the comparison of urban morphology and linguistics is the distinction between meaning and use. The primary role of words (and morphemes) in language is to convey meaning. As Wittgenstein (1967) would say, for language, meaning is use. By contrast, the primary purpose of built form is to provide physical shelter and otherwise physically accommodate human activities. That puts meaning a further step away as a consideration for morphology. To test this point, one might ask, is it the job of urban morphology to explain the meaning of the Forbidden City in Beijing, the Alhambra in Granada or Washington DC? Or is it rather to explain how those forms have been generated in terms of the elements of which they are made, the internal relations between the elements, the relation of the whole to the larger structures of which they are a part and the generic processes involved in their formation? We might then go on to ask the equivalent of how the plural is formed in each case. How are elements put together to accommodate some particular generic function or other, for example separation of public and private space?

Is this issue then more about our expectation of what urban morphology is supposed to be about? Is it that we have assumed urban morphology should cover a much wider remit than linguistic
morphology? Should urban morphology be equally limited in its scope? Alternatively, it might be said that we need to identify more clearly sub-disciplines within the field of urban morphology, as argued, for example, in Kropf (2011). One way or another it is worthwhile testing how ‘true’ the analogy is between linguistics and urban morphology. It seems clear that what is lumped together under the term urban morphology includes a much wider range of ‘subjects’ than linguistic morphology. The main field of linguistics is traditionally divided into three sub-fields: syntax, semantics and pragmatics, though these have broadened over the years into more general areas of structure (including syntax and morphology) and meaning (including semantics and pragmatics), as well as extended to include the evolution of language and its relation to socio-cultural context. This subdivision is, of course, the basis of our initial point. Meaning is dealt with in one sub-field of linguistics and morphology in another.

So if linguistic morphology is a sub-field within linguistics in the same way that biological morphology is a sub-field within biology, the comparison begins to beg the question of which larger field urban morphology is supposed to be a part. There seems to be no equivalent to the general fields of linguistics or biology for the built environment. Geography is far too broad, while architecture, archaeology and urban history are too limited. Efforts at neologisms in this direction have not fared well. It might be said that the lack of an obvious ‘home’ for urban morphology explains why pioneers such as M. R. G. Conzen, Muratori and Caniggia sought to cover so much under one umbrella.

From whichever direction it is viewed, however, the common feature is that broad subjects such as biology, linguistics and the built environment benefit from specialist investigation and the formation of specialist sub-fields (Toulmin, 1972). If urban morphology is to grow and thrive it is our view that we must foster and promote the formation of those sub-fields. The first step in that direction is to identify what the sub-fields should be and consolidate current understanding around them. An initial suggestion based on the focus of existing research and comparisons with both linguistics and biology is that the sub-disciplines might be:

- The generic aspects and elements of form and their specific properties
- Generic and specific structure and relationships
- Regularities of development
- Evolution and diversification of form
- Socio-physical performance
- Meaning

In the same way that even linguistics does not say all there is to say about language, it should be obvious that this list in no way encompasses all there is to say about the built environment. To reinforce the point, our aim is not to narrow down the subject but to recognize that specialization is a sign of maturity. We are at a point where we face the growing pains of separating out the specialisms. The challenge is to do so without losing track of the connections between them so that we can always reintegrate their findings around the unifying aspect of form.

References


My immediate purpose in offering a specific definition of urban morphology at the Delft ISUF conference1 was to attempt to place discussion of the problems of comparative study in the field on a reasonably sound footing, or at least one that itself could be open to scrutiny (Conzen, 2013). There was an underlying curiosity, of course, to see if anyone would take issue with it as a definition per se, and perhaps even offer radical alternatives. The Viewpoint by Karl Kropf and Sylvain Malfroy (2013, pp. 128-31) is therefore welcome for expressing some reservations about parts of it and raising matters fundamental to the way the field is viewed and practised.

All knowledge is ultimately indivisible. We specialize (and compartmentalize) its acquisition simply for the gains in understanding that systematic and technical analysis of parts of it can yield, holding all other parts not directly connected to them constant. This is the basis of scientific ‘disciplines’. Yet analysis must lead to synthesis to have value, and synthesis eventually requires transgressing disciplines. Their boundaries are fluid (if not sometimes chimerical), and their locus lies in the eye of the beholder, or, in the interest of collective understanding, in agreement among beholders. And agreed-upon boundaries too are notoriously fluid. In this context, Kropf and Malfroy argue for a minimalist, if not an outright ‘puritan’, view of urban morphology.

The conceptual definition of the field – discipline, if you will – offered at Delft aims at implicit inclusiveness and explicit succinctness. Clearly, that is asking for trouble. Kropf and Malfroy find lurking ambiguity in the definition. In part, the disagreement seems to be over a definition sensu lato (mine) versus one sensu stricto (theirs). Yet possible ambiguity in the former is not an automatic quality, nor necessarily a disqualification of it. Most succinct statements run the risk of having thorny ambiguities laid bare.

It is hard to argue with Kropf and Malfroy’s assertion that urban morphology should approach the built environment as ‘an enormous set of indices of the human activity that created it’, and that it should highlight ‘those aspects of urban form that escape the awareness of the agents that influence such form’. But to advocate excluding the cultural meaning of such indices, intentional or otherwise, from the thoughtful practice of the field is nothing short of remarkable. Certainly semiology is particularly well equipped to probe symbolism, but surely in pursuing ‘the relationship between built forms and the symbolic purposes of builders’ there is fertile ground on which the two, for example, and even some other fields, can meet, overlap, and assimilate relevant insights?

The key complaint about including symbolic meaning in the definition of urban morphology seems to be that it appears to mix explicative and exegetical methods. Without question, such a methodological distinction is important to make, but which sciences embody only one to the rigid exclusion of the other? Would Kropf and Malfroy have urban morphologists limit their work simply to measuring – in the language of statistics – the ‘dependent’ variable, while leaving the identification and interpretation of the ‘independent’ variables to other disciplines? Is urban morphology to be reduced to mere pattern-recognition as a self-imposed end in itself? They justify this on grounds of a ‘division of labour’, but should not the field aspire to as holistic an interpretive synthesis as the immediate topic at hand requires? Not for a minute does the Delft definition imply that all studies in urban morphology must, for example, necessarily include semiotic or quasi-semiotic analysis; simply, that a rounded approach to explaining, and, yes, understanding the morphogenesis of the built environment might well on occasion profit from doing so. Thus, in practical terms a divorce between measurement and meaning seems untenable, and limits interest and applicability.

Citing the role of morphology in linguistics as a parallel for the entire scope of urban morphology itself seems of questionable value. Language forms exist almost entirely within a social system, except for their physical expression in loose, engraved, stamped and digital materials, and are materially far less dependent on environmental circumstances than are the multitude of built structures in cities and their spatially-rooted arrangement within them. The analogy is no more helpful than the flawed idea that cities can be equated with ‘organisms’, since the latter reflect no endogenic choices made in their behaviours, however produced, whereas cities represent an almost infinite and cumulative plethora of such choices on the part of their
participant creators.

In proceeding to consider whether an ‘abstract analytical approach’ such as Kropf and Malfroy seem to propose can indeed incorporate meaning, they appear to undercut their earlier argument. The ideas of Rykwert (1988), Muratori (Cataldi, 1991), and Caniggia and Maffei (2001) provide sterling examples of measurement freighted with meanings, meanings that centrally shape the direction and structure of investigation, and serve as stimuli to confirm, disprove, or reformulate them. It is hardly necessary, then, to detour to the English countryside in search of pigs and politicians, although contests there over the meaning and significance of residential ‘flats’ for morphological change on the urban fringe do seem grist for our mill.

By invoking Beijing’s Forbidden City, Granada’s Alhambra, and the whole city of Washington, DC, as too big to be explained in their totality by urban morphology, Kropf and Malfroy introduce a needless dichotomy. The Delft definition of the field makes no such claims to omnipotence. The field exists because no other discipline or specialized sub-field places the elucidation of urban built environments as physical facts in all their temporal and geographical complexity at the centre of its conceptual and empirical agenda. It is in no sense whatsoever an ‘auxiliary’ field, handmaiden to big disciplines such as history, geography, architecture, planning or public policy. Urban morphology is an organized body of knowledge (although we can certainly argue about how organized it is at present), with an attractive set of proven analytical methods, that offers crucial insights about the relationship of urban societies to the transformed physical-cultural habitats they have created and occupy in the long process of their variegated evolution. It also highlights implications this restless relationship may hold for the future balance of people and resources, the utopian goals of so-called ‘best practice’ in design and regulation, and the general well-being of ‘urbankind’. This seems agenda aplenty.

So much so, that Kropf and Malfroy’s almost incidental closing thoughts about identifying sub-fields within urban morphology do help bring back into circulation an issue needing development. This has only occasionally been the subject of sustained thought, perhaps because it smacks of potentially over-zealous bureaucratic fussing about classification. Yet seeing this study or that in urban morphology as concerned with one major cluster of interconnected ‘big ideas’ or another, or one substantial methodological approach or another, does lend coherence to the field as a whole and the intellectual ‘place’ or contribution of any given study within it. Such a structure of sub-fields can occasionally be glimpsed in the wider-ranging surveys of urban morphology that exist (see, for example, Allain, 2004), and the national surveys of substantive research in urban morphology that have run periodically in Urban Morphology. Mostly, however, these have been concerned either with grouping the detailed morphological phenomena examined into suitable groups for review, or with the rise of disciplinary and national schools of thought with, occasionally, ideological overtones. More recently, thinking on this issue has been pitched to a more basic level, seeking fundamental conceptual commonalities among different approaches as an organizing principle, to which Kropf himself has made a signal contribution (Conzen, 2010; Kropf, 2009).

Yet there are gaps and tensions inherent in any attempt to categorize – some would say pigeon-hole – specialisms. Most obviously, there is the issue of time-scale: is urban morphology to be the morphogenetic study of the built environment, as Kropf and Malfroy advocate? Where does this leave researchers intensely focused on the current functioning (or shall we say ‘performance’) of present-day urban form? What role for practitioners in the fields of urban design and planning regulation, not to mention proponents of public advocacy? Whatever the answers, the value of identifying a number of recognizable sub-fields or specialties in urban morphology can only help give the field greater clarity and coherence.

But at the core of all these considerations lies the question of essential definition. Any respectable field should be definable in a single well-constructed sentence. To my knowledge there exists no substantial, easily accessible compilation of competing and conflicting definitions of the discipline of urban morphology – far less a critical assessment of their relative strengths and weaknesses. It might be salutary to draw up such a list, from the published literature and from new efforts at formulation, and to examine their content and internal consistency. If the Delft definition is challenged by further thoughtful analysis, and, if failing to survive scrutiny, is replaced by a more compelling one, then it will have served its purpose.

Note

1. For those reading this commentary as a discrete document, the Delft definition referred to by Kropf...
and Malfroy is repeated here: ‘urban morphology is the study of the built form of cities, and it seeks to explain the layout and spatial composition of urban structures and open spaces, their material character and symbolic meaning, in light of the forces that have created, expanded, diversified, and transformed them’ (Conzen, 2013).

References


Some thoughts on the first output of the ISUF Task Force on Research and Practice in Urban Morphology

Michael Barke

In 2011, ISUF launched a task force under the chairmanship of Ivor Samuels to investigate ways of creating better linkages between researchers in urban morphology and practitioners. A key recommendation of this task force was that a ‘good practice catalogue’ of where and why urban morphology was being used successfully should be compiled (Samuels, 2013). The first investigation – undertaken by Mafalda Silva, supervised by Vítor Oliveira – is an assessment of the application of morphological principles adopted in the 2006 Plan for Porto. A significant feature of this Plan is its adoption of a typological approach to urban zoning based on the identification of ten types of urban tissue (Oliveira, 2006). The presentation of this assessment at the recent ISUF Conference in Brisbane stimulated the following thoughts in relation to its wider relevance.

The apparent acceptance of the importance of morphological principles by the Portuguese planning authorities is greatly to be welcomed and the potential and benefits of wider application are clear, but inevitable questions arise over the likely obstacles arising in adopting such an approach elsewhere. My first thought as a UK-based academic is how difficult it would be for this typological approach to be practiced in a UK city of similar size to Porto. Notwithstanding some isolated examples (Hall, 2008; Hall and Doe, 2000), and recent changes in the planning system with the objective of introducing more flexibility, it is arguable that the structure and culture of the UK planning system relegates such issues to the periphery of planning matters. For example, the official Planning Advisory Service website of the Department of Communities and Local Government contains a series of ‘good practice’ case studies but, within these, issues relating to urban morphology are conspicuous by their absence. Despite quite genuine efforts to bring about change, the silo mentality of architects, urban designers, planners and, indeed, academics remains a powerful constraint.

A fascinating issue raised by the Porto case and the Portuguese planning system generally is the practice of dividing responsibility for plan preparation and plan implementation. The body drawing up the development plan is not subse-
frequently responsible for putting it into practice. Whilst one reaction to this system is that it appears to be a potentially disastrous division of responsibilities, there is no logical reason why this should not work. Indeed, it could be argued that there is advantage in an ‘outside’ body taking a fresh look at a locality in the interests of preparing an original and less constrained plan. It could well be, for example, that such arrangements could facilitate the incorporation of urban morphological considerations and their elevation to a higher priority, whereas an ‘internal’ perspective may be more concerned with functional and routine issues. However, an important conclusion of the Porto study was that the incorporation of urban morphological approaches appears to be easier in historical areas than new ones. But, again, there is no logical reason why this should be the case. Whilst many aspects of urban morphology relate directly to heritage, distinctiveness and place identity, and therefore engage strongly with communities and their livelihoods and well-being, the same principles apply to all localities. Urban morphological principles have as fundamental a role to play in place making in new areas as in historical ones.

The Porto assessment also raised an old but still largely unresolved issue concerning façadism. In a number of cases in the historical core, façades had been retained but the interiors demolished with no respect for traditional housing types. This illustrates the complexity of a full adoption of urban morphological principles into the planning and development process. Should urban morphologists be content with the recognition of the importance of conserving the traditional frontage alone and hence a part of the townscape of a particular locality or should they reject such a compromise on the grounds that the entirety of a building is inseparable from its history and its setting? Yet, if the latter, possibly extreme, stance is taken could this not be argued to be a reactionary preservationist stance resistant to a ‘natural’ process of typological transformation?

One final consideration that again illustrates the extreme complexity of inserting urban morphology in its entirety into the planning process is that the ‘morphological’ input into the Porto plan appears to have been interpreted mainly in relation to buildings. Urban tissue is interpreted largely as typological zones in so far as these relate to buildings. But in addition to architectural, typological and building/plot relationships there are other aspects of urban morphology that have significant claims to be relevant to the planning process (Gu, 2010; Whitehand and Morton, 2004). A fully comprehensive approach to incorporating urban morphological principles and concepts into planning requires a sensitive appraisal of the entirety of the urban tissue.

References

Annual Meeting of the Urban Affairs Association
This conference will take place in San Antonio, Texas, USA, 19 to 22 March 2014. It will include sessions on cities and urban regions in the Americas. Among the topics on which papers are invited are:
• Changing urban morphology
• Historic city centres
• Urban historical geography
• City planning in the Americas
Participants must register and pay fees by 1 February 2014. Further information is available from Joel Outtes (e-mail: Outtes@uol.com.br) and Betty Smith (e-mail: besmith@eiu.edu).