

charged settings if we hope to communicate effectively their relevance to future practitioners.

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Urban morphology: inside and outside the discipline

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Urban morphology deals with some of the largest and most complex human artifacts – cities – in which now live more than half of humanity, ever increasing in population, extent and influence on everyday life. Within ISUF, we all regard the city as important. But judging by the size of the membership of ISUF, the academic field is small. Why should this be the case? Other important phenomena – molecular biology, climate science, child development – have disciplines with tens of thousands of members and conferences that attract the attention of the popular media. Why do urban morphology, and ISUF, dealing with what are arguably phenomena of equivalent importance, not have similar status?

Of course, many academic and professional organizations, not just ISUF, are concerned with urban form. These include organizations of planners, the Society for American City and Regional Planning History, the European Association for Urban History, the space syntax group, special sessions on the city at architectural history

conferences, groups of urban geographers who are not members of ISUF, and others. Can it be argued that although ISUF is small, the study of urban form is large, and that the diversity expressed in this multitude of groups is actually a healthy phenomenon?

Michael Conzen's definition of the field is broad enough to encompass this diversity, and seeks to make necessary connections between form and the reasons form comes about: '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).

But does the field, as represented by ISUF, fully embrace the implications of this definition? I argue that ISUF can do more to fully embrace them, and that there are three related areas that need to be addressed for it to do so: theoretical coherence (and intradisciplinary connections), interdisciplinary

connections, and relevance to contemporary practice.

Theoretical coherence and intradisciplinary connections

In the history of science, parallel theoretical formulations have sometimes existed simultaneously: a prime example is quantum mechanics in the twentieth century. But with quantum mechanics, 'the various formulations differ dramatically in mathematical and conceptual overview, yet each one makes identical predictions for all experimental results' (Styer *et al.*, 2002). These different formulations, in other words, deal with the same phenomena and offer explanations that are, in the end, equivalent.

Should the same be true for urban morphology? Perhaps not: we might argue that the typological approach of 'the Caniggians', the historical-geographical approach of 'the Conzenians', and the configurational approach of the space syntax group ('the Hillierites'?), for example, together offer coherent insights that none of them do individually – and that it is up to the individual reader and researcher to interpret them together.

But the aim of science is not personal insight, but understanding that is shared within a community. Such shared insight might be better gained with stronger relationships between our different approaches. To what extent can the typological approach be specific about the properties of large urban configurations, as the space-syntax approach can; to what extent can the space-syntax approach deal with the size and clustering of individual lots, as the historical-geographical approach can? Can we look at an urban neighbourhood, apply different methodologies to its understanding, and come up with equivalent results? Or, even better, might it be possible to combine the various approaches into a single formulation that answers the questions that each is asking?

Interdisciplinary connections

With notable exceptions, such as fringe-belt theory advanced by Jeremy Whitehand and others, urban morphology, as evidenced largely in the pages of this journal, does not deal strongly enough with land economics as a force that shapes urban form. This omission belies some of the earlier history of the field – ranging from Christaller to Burgess to Alonso – when urban form and economics were

linked, in attempts to establish correlations between overall patterns of urban form, transport costs, and land rent. Many of the articles in this journal are highly descriptive in their establishment of morphological taxonomies for particular cities, but stop short of describing the forces of transformation – including economic forces – in a detailed enough way to give useful insights into the interactions between economics and urban form. Certainly historical explanations are offered – but these are often too general to lead to concrete theory.

Relevance to contemporary issues and practice

Finally, the connection to practice might itself help shape scholarship. Contemporary urban practice is innovative in many ways – in its multi-disciplinary nature, including connections to social sciences; in its use of advanced digital technology for cartography, data analysis, visualization and simulation; in its obligation to deal with emerging urban forms. These emerging forms – layered, polycentric, highly influenced by global economic forces – may seem to challenge the methodologies that have traditionally characterized ISUF and *Urban Morphology*.

At the same time, those emerging forms are accompanied by a new embrace of 'traditional' urban form. This requires practice based on a thorough understanding of historical cities, to give depth and subtlety to zoning ordinances, planning regulations and urban design.

With both of these 'new' kinds of cities, a strong need exists to translate research on urban form and its origins into a language that is compatible with that of practitioners. Fortunately, efforts are now being made within ISUF to do just that.

My comments should not be construed as a proposal for an unfocused or overly broad research programme. What ISUF needs to maintain at its core, in the middle of multidisciplinary and a stronger recognition of contemporary urban practice, is an unambiguous focus on urban form itself. For Christopher Alexander 'the ultimate object of design is form' (Alexander, 1964, p.15). For ISUF, the ultimate object of research is an understanding of urban form. This means that ISUF might have a special role in the larger world of urban scholarship, helping to synthesize multiple efforts in urban research as they concern just what makes ISUF unique.

If this focus is maintained, then an acceptance of multiple approaches and a reaching out to different disciplines will strengthen our enterprise, not

weaken it, as the complexities of urban form's origins will be more accurately revealed.

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Roman Alnwick: to be or not to be?

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Slater (2014) stands up as a public defender of alleged revealed truth, declaring my hypotheses about Alnwick's Roman origins (Cataldi, 2013b) to be 'false'. While the hypothesizing of a particular period for a town's foundation would in most contexts seem to be a fairly innocuous matter, Slater goes so far as to link it to more sensitive and general issues concerned with working towards a more unified theory of urban morphology (Slater, 2014, p. 80). This prompts me to return to my hypotheses.

Let me start by saying that the hypotheses are neither true nor false but, if anything, must be checked. Popper (1962) maintains that to be scientifically sound a theory has to be 'falsifiable': from its conjectures, one can deduce as consequences those elements capable of refuting it. Slater hastily dismissed our hypotheses about Alnwick's Roman origins when he first heard them (Cataldi *et al.*, 2004), as he candidly states at the beginning of his Viewpoint. He might at least have first taken into account the outcomes of research conducted on Italian territory (Cataldi, 1993, 2004, 2007; Cataldi *et al.*, 2000; Cataldi and Lavagnino, 1987).

As Slater correctly affirms, Britain is not Italy. However, it underwent a Romanization process that lasted almost 4 centuries: a rather long time span. After the appearance of the first urban forms and military settlements, it spread progressively, with material evidence of settlements generally decreasing from south to north, from Dover as far as the southern edges of the Scottish Highlands, to Gask Ridge, where recent excavations and research documented an impressive number of Roman look-out towers and fortresses (Woolliscroft and Hoffmann, 2006). It is an established fact that

Northumberland lies between Hadrian's and Antonine Pius's major Roman walls, and that Alnwick is located, as the crow flies, only 7-8 km from an important Roman road, which is still used today as a path, and is indicated on Ordnance Survey maps as the Devil's Causeway: a medieval name, that arouses mixed feelings of admiration and religious prejudice about Roman works.

Slater has evidently not fully understood the contents of Saverio Muratori's theory about ridgeways (Muratori, 1967), which postulates the utilization of these paths by early populations with minimal technology. These nomadic groups, not knowing how to make bridges, had to bypass waterways by following ridge paths. The mummified remains of a Copper Age hunter (Taraboi, 1998) were found at over 3000 m in Alto Adige, on the Alpine ridge. Subsequently, with the advent of permanent settlements, the ridges (especially those at high altitudes) ceased serving as migratory paths and became borders. In particular, the Romans tended to build roads, later famous as engineering works, at more accessible heights and in the plains.

The numerous, consistent Roman traces in Northumberland do not testify to Alnwick's Roman origin, but they dispose us to be cautious about precluding it. The metrics in Figure 5 in my Viewpoint are not 'proof' but converging 'clues'. It is plausible that the Alnwick area was geometrically divided in parallel and orthogonal lines, at distances of 2400 feet, like Roman *centuriae* (square land divisions) oriented *secundum caelum* (towards the cardinal points) and *secundum naturam* (to follow the arrangement of the place), as canonically envisaged by ancient land surveyors (Dilke, 1979).

The hereditary transmission of estates may have