Guest Editorial

In March/April 1999 Brasilia hosted the Space Syntax Second International Symposium. Space syntax is a set of theory-based techniques usually, but not always, involving computers for the analysis of spatial configurations of all kinds, especially where spatial configuration seems to be a significant aspect of human affairs, as it is in buildings and cities. This research was originally conceived by Professor Bill Hillier and his colleagues in the 1970s at the then Bartlett School of Architecture and Planning, now the Unit for Architectural Studies, at University College London. It has since grown to become a tool used around the world in a variety of research fields and applications. It has been extensively applied in architecture and urban design, and more recently has been used in studies in planning, transportation and interior design.

The papers included in this special issue of *URBAN DESIGN International* report much of the main theoretical and methodological advances in space syntax studies over the last 20 years, in continuation of the papers published in the previous issue. The articles show the important role of computer techniques in widening the field of investigation and knowledge of the built environment. Faster, reliable and integrated softwares allow researchers to deal with large and diverse empirical data, as well as representing and describing more precisely the complexity of spatial phenomena. Advances in computer techniques have had a fundamental effect on the way researchers are able to unveil important properties of the built environment and on generating interesting new questions. In this sense, computer technology has been crucial to the generation of new theories.

The interaction between computer techniques, methodological development and theoretical advances in the field of space syntax is seen in the papers included in this special issue, presented at the Space Syntax Second International Symposium. In the last issue of *URBAN DESIGN International* the paper by Hanson put together a series of ideas developed in the early days of syntactic studies, using simple techniques for describing the urban environment before computer technology had taken over the research field.

These ideas have been extremely influential amongst researchers and practitioners. Hanson developed a detailed analysis of the changing ideals in twentieth century design paradigms, by looking at the progressive transformation of a particular site in London – Somers Town – from a street-oriented urban layout to a collection of experimental housing estate proposals. The author argued that behind the apparent diversity of the design proposals lies a consistent genotypical morphology which is profoundly based on certain ideas about social engineering, developed during the past hundred years or so. Perhaps the main contribution of Hanson's study is to reveal how this relationship between design ideals and social knowledge is constituted.

If Hanson proves that it is possible to theorise on the complexity of the built environment without the aid and efficiency of computers, the paper by Hillier, Greene and Desyllas (also the last issue) demonstrated how this technology can be used to generate new and exciting ideas. The authors use the latest and more sophisticated GIS and space syntax softwares, allowing the manipulation of large and complex social, land use and urban configurational indices, to unveil the complexity of the consolidation process of 17 informal settlements in Santiago. To the authors, the key factor for the consolidation of such communities is the integration of local economic activities with the large scale economy of the city, made possible when this local commerce is oriented outwards and the settlement itself is well integrated with the surrounding area, particularly the edge streets. Therefore, social indices are not enough to explain consolidation processes, but urban configuration and land use play a fundamental role in the development of informal settlements. These findings will certainly be of interest to policy makers and city planners.

Hanson's influential ideas are also perceived in two papers in this issue which look at twentieth century housing design. Rigatti discusses an interesting urban phenomena found in most Brazilian housing estates, generated by the spontaneous process of occupation of its public open spaces. The author is interested in revealing the spatial codes embodied in the spontaneous urban layout, in order to provide the

necessary knowledge to support government housing policy and future design proposals. He is also interested in understanding the morphological laws which restricted the occupation of the public open spaces and, in generic terms, gave shape to the housing estates as seen at the time of his study. Rigatti's particular contribution highlights the intrinsic relationship between urban morphology and social knowledge.

Urban violence and vulnerability to crime is a theme of great interest amongst scholars, particularly the relationship between urban layout and the probability of crime. The paper by Shu discusses the space-crime issue by comparing the spatial configuration of housing neighbourhoods of three (morphologically and socially) distinct English towns with the occurrence of property crimes. His study is based on large and detailed empirical data from reported crime records, which indicate the exact location of the crimes committed in these areas. The access to this spatial crime data permitted Shu to correlate crime occurrence and morphological properties of the respective housing areas. The results of the study show that regardless of the individuality of each case study, important consistencies in the space-crime relation were found, suggesting that spatial configuration may generate positive and negative features with regard to crime vulnerability. Linearity, constitutedness, global accessibility and through lines of movement constitute positive properties, whereas unconstitutedness, global segregation, broken up and local lines constitute negative properties of urban layouts. These findings introduce significant preconditions for the way we can design better and safer housing complexes in the future.

In the remaining papers, syntax is brought to bear on historical issues, in attempts to understand either the logic of contemporary configurations, in relation to time and space, or the implications of urban transformations in a particular period of the past. Holanda's *Class Footprints in the Landscape* attempts to explain Brazil's modern capital, Brasilia, in the light of a wide historical reference. It is a comparative study among very diverse social formations, ranging from pre-states societies, through primitive states of Africa and feudal states of Europe, to a contemporary capital setting. Syntactic analytic categories help to reveal that there are clear recurrences among the ways that very diverse

societies establish relations between the system of barriers and permeabilities on the ground, and the organisation of the relations between structurally dissimilar social groups, be they defined economically or otherwise. The paper suggests that discontinuities, "blind" spaces (i.e. settlement open spaces purely defined by walls, without any sort of transitions between exteriors and interior), and hierarchies on the ground equal greater inequalities among social layers, and that these are precisely the spatial traits which are praised by the dominant social layers. The paper also argues that, without a wider overview of historical issues, it is difficult to understand contemporary realities, and we may more easily be trapped into ideological discourses.

Heitor et al's *Breaking the Medieval Space – The Emergence of a New City of Enlightenment* offers an analysis of the changes in the city of Lisbon after the 1755 earthquake. Through syntactic methodology it was possible to reveal the greater differentiation of the grid of the medieval city, and its greater potential to convey symbolic values. The myth of a medieval "chaotic" Lisbon is thus unmasked, and the drastic physical restructuring proves to be no more than a pious rectification of the previous urban structure. More than the new city which emerged after the earthquake, medieval Lisbon was well organised in terms of the fit of functions and purposes of its spaces to its morphology – and vice-versa.

In Stephen Read's paper, *The Grain of Space in Time*, we are also faced with an historical approach in which the different modes of life obtained over a long time are related to the spatial structures one finds in Amsterdam. It is pointed out how the expansion of the city may be actually understood as an interplay of inherited spatial circumstances and contemporary urban demands. Moreover, it is discussed how the spatial patterning creates potential opportunities to use existing structures in new and creative ways. Read's contribution pinpoints the intrinsic contents of the morphic type of the city without having to appeal to a mistaken "deterministic" reasoning, by which certain patterns of space would imply a certain set of practices precisely dated in time.

In his paper Karimi focuses on the issues of conservation arising from the large-scale transformations of historic cities during the industrial

and post-industrial periods. Using a spatio-analytical methodology based on 'space syntax' theories and techniques, he investigates the concept of urban conservation by means of a comparison between the spatial organisation of the traditional city and the way in which this may become the historic core of today's modern city. The paper develops a new approach to conservation which is more about preserving the 'spatial spirit' of the place, and less about the fruitless effort to rescue redundant individual buildings.

The papers selected to be part of this special issue demonstrate the fundamental importance of relating the physical properties of the 'real world', whether geometrical or topological, with social phenomena. Space syntax is one strand in this field of study, and these papers demonstrate its pertinence and power to comprehend urban phenomena.

This issue concludes with a paper in a related area (but not part of the Space Syntax Symposium). In this paper, Jenks describes some results of national research on urban intensification in the UK and on an Intensification Assessment Method. He outlines the development of this method into a computer-based decision support system, to help assess the more intensive use of brownfield sites. The method is intended to be used by different decision makers in cities in order for them to make more effective judgements about sustainable development.

Guest Editors

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