

The study of urban form in Great Britain

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Abstract. *This paper examines the history of the study of urban form in Great Britain, tracing its origins, the development of an 'indigenous' strand of work, and the introduction of M.R.G. Conzen's ideas. 'Urban form' is defined unusually widely, as many disparate strands of work have an influence upon that definition as currently conceived, including the consideration of agents and agency in urban change. Methods and techniques are discussed, from Conzenian plan analysis to computers and fractals. The main disciplinary focus is geographical, but studies from a broad range of other disciplines are also considered.*

Key Words: urban morphology, urban form, urban design, history, Great Britain

This review surveys the key literature and concepts in the study of urban form in Great Britain. It includes literature on British towns by non-British scholars (but not by British scholars on non-British locations). Ireland as a whole is excluded. Relevant material irrespective of discipline is reviewed, including material by scholars who would not have considered their work in the perspective of urban morphology. However, it is noticeable that studies of urban form *per se* in Britain have most often been undertaken by geographers, and this is plain in the balance of citations. Although much British geographical urban morphology has been heavily influenced by M.R.G. Conzen and central European traditions, a number of other strands can be identified.¹ However, one of the main traditions largely absent here, certainly in comparison with Europe, is typo-morphology.

The study of urban form has developed in several directions over the past three decades, amongst which the historical one is particularly strong. But interest in the historical development of urban landscapes has not been limited to scholars concerned

primarily with the past. Much of the recent work by geographers and others with professional interests in 'contextual' architecture and the planning, or management, of urban landscapes attaches considerable importance to the survival, and contemporary treatment, of urban and architectural forms created by previous generations. Furthermore, urban morphologists have not limited their attention to a narrow conception of urban form, but have come to examine the individuals, organizations and processes shaping that form. Therefore, the definition of 'urban morphology' adopted here is broad (cf. Larkham and Jones, 1991, p. 55). This differs from the conceptions of urban morphology in, for example, urban design (Gebauer and Samuels, 1981). Urban designers also often use other terms, including 'urban history', to denote urban form and its development over time (Butina, 1987).

The decline and resurgence of urban morphology

It is significant that, reviewing research on urban change in Britain as recently as the late

1980s, Fielding and Halford (1990, p. 10) should draw attention to the relative lack of research on the physical form of cities. This seems to have been unduly pessimistic in the light of more recent developments, but did accurately reflect a decline in the amount of work, and in perceptions of the relevance of that work, in the 1960s and 1970s.

The history of geographical urban morphology during the first half of the twentieth century, and its diverse research traditions, have been the subject of substantial inquiry (Slater, 1990a; Whitehand, 1981a, 1987a,b, 2001a), although much of this work has been concerned with the urban morphogenetic tradition and the central role played in it by M.R.G. Conzen. There is, however, what could be termed an 'indigenous British geographical tradition' dealing with the concepts of 'urban morphology', 'urban form' and 'townscape'. Noteworthy amongst those working in this tradition is R.E. Dickinson, although his comparative surveys are largely morphographic (e.g. of East Anglian towns: Dickinson, 1934).

During the Second World War and immediate post-war years a new approach to the urban landscape became evident in British architectural and planning thought, with the coining and promotion of the term 'townscape' (cf. Bandini, 1992). The term 'urban landscape' was used in the prominent journal *Architectural Review* in 1944, and its editors were using 'townscape' in 1949 (Erten, 2004). Gordon Cullen developed 'townscape' as a visual analytical tool, using sketches and informative captions, first in a series of illustrated reports in the *Architectural Review* (of which he was Assistant Editor, Art) and then a book which has remained a classic text in urban design (Cullen, 1949, 1961). The town planner Thomas Sharp used a different conception of 'townscape': it was 'a way of looking', a broader interconnected approach to urban landscape than Cullen's snapshots (Sharp, 1968, chapter 3).

The 'indigenous' geographical urban morphologists were quick to adopt these terms. However, they were less interested in conceptualizations of process than in description and

classification, exemplified by Smailes's characterizations of present townscapes in broad terms, based on rapid reconnaissance surveys (Smailes, 1955) or Stedman's descriptive approach to Birmingham's urban landscape (Stedman, 1958). Thurston undertook a wide-ranging morphological study of St Albans, but his published paper gave little weight to his data on the building fabric (Thurston, 1953; compare with Slater's plan-analysis, 1998). Urban landscapes were often seen almost solely in terms of the land uses that they contained (e.g. House and Fullerton, 1955). This led to contemporary criticism of this approach as neglecting the inherent dynamism and producing 'merely a synoptic study of a town at a particular time with little or no reference to the forces at work within and without the town which may cause its condition to change' (this from an Australian: King, 1962, p. 280). Townscape was used virtually as a synonym for 'urban landscape' (see Johns, 1965: a geographical study but with artistic influence); it was generally a subject for objective measurement and analysis rather than, as for the urban designer, an analytical approach involving value judgements. The indigenous non-Conzenian tradition still persists, although more recent papers are clearly informed by theoretical development (Carter, 1990; Gordon, 1990).

During these years, however, serious scholars – from any discipline or profession – were few, and they produced few publications – whether merely descriptive or more analytical. Conzen's own work, particularly the landmark monograph on the town-plan analysis of Alnwick (Conzen, 1960), were rich in concepts. Some of these have been further developed in terms of detailed plan analysis (see below). His papers on city-centre form (1962), historical townscapes and historicity (1966, 1975) also spurred many developments. Even so, the number of 'Conzenian' morphologists has, strictly speaking, been small. The key characteristics of what has become known as the 'Conzenian school' have been described by Whitehand (2001a).

In the later 1960s and early 1970s, research on urban form was less susceptible than many

branches of geography to the 'quantitative revolution'. Nevertheless, this was a period when various quantitative methods were developed (although some, despite their titles, appear peripheral in their application to urban form: e.g. Grimshaw *et al.*, 1970). Studies employing them were largely morphographic, describing physical forms rather than analysing their origins and development. They were largely ahistorical, even when they considered the survival and distribution of historical buildings (Davies, 1968). At this period concepts based on economics and the study of land-use patterns were developed in the United States and widely diffused. Davies's 1968 paper used Welsh examples to link form with changing land use. However, the perspective of the urban geographers who adopted these concepts was 'morphological only in its concern with land-use patterns: town plan and building form were generally treated only as land-use containers, if considered at all' (Whitehand, 1987a, p. 255). The number of researchers with a historical perspective on urban form grew only very slowly. Yet some relevant work was being done in other disciplines, including urban history and archaeology (Barley, 1976). Aston and Bond (1976), though now better-known in archaeology, were originally Birmingham historical geographers in the tradition of Harry Thorpe. By 1970 urban morphology was characterized by Carter as having long been a 'barren outpost of urban geography' requiring rescue (Carter, 1970, p. 76). Fourteen years later, his view had apparently not changed greatly, for he regarded the subject as having been

largely unaffected by those changing or shifting paradigms which supposedly have dominated geographical methodology. Quantitative analysis merely brushed ineffectually the periphery of morphological studies, while the present destruction of buildings is seen not in terms of its welfare consequences but rather in its impact on the cultural inheritance. More recent considerations of the structure of socio-political systems and their determinant organisation of space have again had little impact other than

on the most general of scales (Carter, 1984, p. 145).

Although publications dealing with the physical form of urban areas became more evident during the 1980s, they formed only 12 per cent of geographical papers on the internal structure of cities in the middle of the decade (Whitehand, 1986). In Britain, the major focus of geographical exploration of urban landscapes had, by then, become the Urban Morphology Research Group in the School of Geography at the University of Birmingham, with its focus on the Conzenian morphological tradition. This has since been referred to as the 'British school' (Moudon, 1997); although this under-emphasizes the contributions of those working outside this tradition. British urban designers and 'contextual' architects, occasionally spurred on by the interventions of Prince Charles (HRH the Prince of Wales, 1989), became increasingly aware of the significance of urban history and urban form in designing future urban landscapes (Lowndes and Murray, 1988: Murray was later President of the Royal Town Planning Institute). The founding of a range of urban design journals in the 1990s (including *Urban Design International* and the *Journal of Urban Design*) has, however, meant that work with a morphological element has often been given a design focus to achieve publication in such journals (e.g. Larkham, 2004a; O'Brien, 1997). Likewise, there has been an increase in the applications of information technology to morphological concerns, again developed by scholars from different traditions and published in different journals (prominent amongst which is *Environment and Planning B: Planning and Design*). Geographical urban morphologists remain a small interest group, and publications by its members are increasingly being found in urban history, cultural geography, urban planning and related subject areas.

Directions of research

A number of current lines of research on urban

form by geographers stem directly or indirectly from Conzen's ideas. Three of the most important are concerned with the nature and amounts of urban landscape change, especially viewed over long time spans, and thus generally focused on historic towns; the agents involved in the process of change; and the management of that change. The second and third are significant extensions of the German morphological tradition. In all cases there is a concern with features in the urban landscape that have been created by previous generations.

The origin, form and change of historical towns

The first of these lines of research is building directly upon the concern for history, through the analysis of historical, usually medieval, towns. There is a long tradition of study of British medieval towns, which has included descriptions of regular street patterns; some of this work has detailed archaeological and historical origins (eg Hope, 1909, on Ludlow; most recently Creighton and Higham, 2005, on urban walls); others are more general and comparative (Hughes and Lamborn, 1923, especially chapter 2; Tout, 1917; more recently in this tradition, Aston and Bond, 1976). There are few true comparative studies of medieval town plans (for a rare exception see Whitehand and Alauddin, 1969). Baker and Holt (2004) give a detailed comparative study of medieval Gloucester and Worcester, focusing on the impact of the church in shaping these growing centres. Theirs is a multi-disciplinary perspective, well informed by morphological studies. Further, some large-scale regional reviews (Lilley, 1995, 1999a) and contributions to the *Cambridge urban history of Britain* (Dyer and Slater, 2000; Palliser *et al.*, 2000; Slater, 2000) have allowed useful comparisons of processes of morphogenesis.

A combination of historical documentation and plan analysis is leading to a more thorough understanding of the development of current urban landscapes (Conzen, 1988).² In

particular, the practices of medieval town planning have been examined in detail by using, for example, the relative sizes and shapes of individual plots (or burgages) as clues to successive phases of planning (Slater, 1981), and by studying the differences between apparent ideal and reality in the layout of towns (see below). A key finding from such detailed analysis is that a much larger number of English towns than may previously have been realized have complex, 'composite', town plans. These are composed of plan units reflecting separate periods or origins of development. Comparative study may also be able to determine similarities in form and process between towns, thus allowing informed extrapolation about process (Slater, 1990b).

Some of the towns that have been studied in this way are not commonly perceived as being of historical interest. Their medieval features may have been largely destroyed by industrial-era growth, as was the case with Wolverhampton and Doncaster (Slater 1986a, 1989). Some of this work allows re-interpretation of problematic historical and archaeological issues, such as Lilley's study of medieval Coventry (1994) and its missing castle, and of the relatively recent concept of urban design as applied to medieval towns (Lilley, 1998c, 1999c). Ludlow has long been seen as an exemplar of medieval planning (from Hope, 1909, onwards), and its successive re-analyses have done much to elucidate the details of planning, form and process (Conzen, 1975, 1988, 2004; Slater, 1988, 1990b) (although this body of work is rarely featured in publications on urban landscapes by urban historians: cf. Rowley, 2001; Waller, 2000). There has also been a significant recent debate on the issue of orthogonality in medieval planning (Lilley, 1998a, 1999b; Slater, 1999).

Plan analysis, including metrological analysis of plot patterns, has been used for villages (Lockhart, 1980; Sheppard, 1974) and for broader comparative surveys of rural settlement form (Roberts, 1987). However, its use in this context has generally been less sophisticated, and less use has been made of the range of morphological concepts

developed in urban contexts.

This form of analysis has been (more or less) adopted by non-geographers (Bassett, 1980-1; Brookes and Whittington, 1977; Scrase, 1989). However, on close examination the historico-geographical details of some of these analyses have been questioned (Slater, 1986b). In fact the series of studies of Lichfield (Bassett, 1980-1; Thorpe, 1954; Slater, 1986b) clearly demonstrates increasing sophistication of approaches and interpretations. Once more, as with Ludlow, such debate usefully explores issues of technique and interpretation, to the benefit of both the detailed understanding of individual places and methodology.

Agents and agency in urban landscape change

In the second major line of research, the study of urban landscapes has been linked more explicitly to the types of agents and the specific organizations and individuals responsible for their creation. 'Each pursues particular goals, the nature of which can result in conflict over the form of the built environment. It is important therefore to understand the motives underlying the behaviour of these key agents' (Pacione, 1991, p. 162). This focus on process is a significant development in morphology. Much of this research has focused on the industrial-era city. A significant amount of relevant work has also been undertaken by urban historians.

The developing research on medieval towns has built on documentary research (for example Beresford's classic documentary study of the creation of new towns, 1967) to explore the impacts on urban form of landowners including the Church (Slater, 1987, on medieval episcopal planning; 1996, 1998, on the Benedictines) and aristocratic families (Lilley, 1998b, 2001). Lilley (2002) has also set British medieval urban form in a wider European historical and cultural context.

Some significant work by historians on the development of towns during the industrial period has shown the impacts of landownership, especially on the conversion of

agricultural land to urban use (Hooper, 1985), the detail of particularly suburban development, and its usually small-scale nature – for example proceeding on a field-by-field basis – leading to considerable variation in form and character over space (for example Beresford, 1988; Cannadine, 1980, 1982; Dyos, 1961; Trowell, 1985). Landownership and speculation are enduring themes (Dyos, 1968; Hooper, 1985; Kellett, 1961; Mortimore, 1969; Springett, 1982). The rise of industrial capitalism and the consequent changes in plan, architecture and use in the small Welsh town of Newtown have been examined (Higgins, 1996). Some important studies of particular cities by urban historians have dealt with morphological issues and linked them to a wider economic, social and political history (Rodger, 2001; Youngson, 1966).

More researchers have paid attention to the period since the mid-nineteenth century, when sources permitting detailed building-by-building analyses became available in the form of building plans submitted to local authorities (Aspinall and Whitehand, 1980; Rodger, 1981). For the post-1947 period, similar data have been recovered from the records of local authority planning departments (Larkham, 1988b). Using such data sources, reconstructions of urban development of unparalleled detail and completeness have been pieced together, sometimes for quite lengthy periods. However, both the advantages and disadvantages of such data in exploring the production and control of urban form need to be recognized (McNamara and Healey, 1984; Sellgren, 1990). The most recent development, the use of GIS by local planning authorities, has remained little explored in this research context.

Significant work has been carried out using such data in exploring decision-making processes, although Whitehand (1977, p. 402) points out the need for circumspection in assessing the results of these explorations because of the illusive nature of the process of decision-making (this problem can, arguably, be minimized given the detailed data sources just discussed, and the more flexible humanist approach examined below). An early contri-

bution to this strand was Carter's work on Llandudno (1970). He distinguished between 'primary' decision-making, such as the creation of new planned units, and 'secondary' decision-making, largely concerned with issues of detail.

The range of agents active for commercial development has been explored (Freeman, 1990; Whitehand and Whitehand, 1984), leading to examination of the effects of their characteristics on the urban landscape – for example whether they are based local to, or distant from, a development; or whether speculators are building for their own occupation. Such studies have introduced the concepts of innovation diffusion and distance decay into urban morphology, hitherto found particularly in architectural history, and have also suggested that there is often a geographical link between agents, places, and the nature of physical changes planned and implemented. Other studies have reviewed the place of specific types of agent in the development process, including that of estate agents in residential development (McNamara, 1984) and councillors in the planning decision-making process (Witt and Fleming, 1984). Again, in this period, speculative development is a significant theme (Bather, 1976). This identification and examination of agents of change in relation to the development process led to the classification of agents as 'direct' (e.g. owners, architects, developers) and 'indirect' (e.g. local planning authorities, interested third parties) (Larkham, 1988a, p. 150). Many of the indirect agents are considered further under the heading of landscape management. Some have been shown to have significant influence on the urban landscape, as in McDonald's study of the Scottish Development Agency (1984) or Bentley's comments on 'bureaucratic patronage' (1983).

Particularly for residential development, the importance of the stage in the family life cycle has been identified. This is significant in the development of the ornamental villa in the nineteenth-century urban fringe (Slater, 1978) and in decisions to sell all, or parts, of such sites in the late-twentieth century for more

intensive development (a case study is detailed in Whitehand, 1989a). Family influence has also been explored in decisions to alter, or indeed retain in original form, smaller speculative suburban properties (Whitehand and Carr, 2001a). Broader trends in the 'consumers' of residential urban form have also been related to the details of layouts, building types and architecture (Lewis and Wheatley, 1999-2000; Slater, 1978).

Work on residential development has shed more light on the involvement of architects in speculative development. This is true for both mid-nineteenth century terraced housing (Trowell, 1985) and for inter-war suburbia (Whitehand and Carr, 2001a). This detailed work overturns established preconceptions and, indeed, questions the many adverse comments about suburban architecture published by architects.

Architecture and style

Considerable attention has been paid to the architecture of individual buildings and urban areas. This is not only because buildings form one of Conzen's 'form complexes', but also because building style is perhaps the most visible manifestation of the urban landscape. However, the majority of these studies are not of architectural style *per se*, but explore style as a manifestation of the processes of creating form, i.e. the interaction of agents and processes of change – a cultural phenomenon (Larkham and Freeman, 1988; Whitehand, 1984a, b). This can reveal much about the detailed operation of the development control planning system (Punter, 1990, on Bristol offices), particularly in conserved areas (see below).

There have also been some significant publications in architectural history that have explicitly had regard to the broader urban consequences of the architectural forms examined. Amongst these are Muthesius's study of terraced housing (1982) and the exploration of the building processes (of development, construction and decoration) of the Georgian city by Ayers (1998). A concern

for 'paper cities' has led to studies of unrealized urban building projects (Barker and Hyde, 1982; Colvin, 1983) and these shed additional light on agents and processes from (in Colvin's Oxford study) the late-fourteenth century.

Ideal and reality

Explorations of 'paper cities', and the realization from the detailed study of late-twentieth century planning records in particular of the extensive effort that has gone into unbuilt proposals, has led to an interest in the contrast between the 'ideals' of plans and the 'realities' on the ground. This has been explored in relation to towns of medieval origin (Slater, 1987, 1988) where either the plan is known from cartographical or documentary records, or where the ideal (often geometrical or orthogonal) can readily be recognized and reconstructed. In twentieth-century suburban landscapes, the extent of unrealized proposals is significant, and moreover even approved proposals can take decades to reach fruition, often undergoing significant change in the course of that period (Whitehand, 1990b). In those numerous towns and cities which produced reconstruction plans in the 1940s and 1950s, the gap between planned ideal and reality is almost always great; the lag between vision and construction could again be decades, as with Worcester's City Walls Road (Vilagrassa and Larkham, 1995). The ideal *tabula rasa* plan often required adaptation to elements of a morphological frame (P. Jones, 2004). Many such plans sank virtually without trace (Larkham, 2002). Some of the reasons for these delays, and the differences between ideal and reality, especially with the introduction of modernist ideas, have been explored by planning historians (Bullock, 2002) – and may relate to the processes of transition between one morphological period and the next.

Conservation and physical form

Conservation has been prominent in British

urban morphology not least because of Conzen's own studies of smaller historic towns (including Ludlow, Frodsham and Conway) and his own publications on the 'problem' of conservation (Conzen, 1966, 1975). Recognition of the development of urban landscapes over lengthy periods, and awareness of the unique cultural, social, economic and political influences of distinct periods are fundamental principles of morphology. This allows the urban landscape at any point to be recognized as a palimpsest of the achievements and investments of successive generations (Cherry, 1981; Conzen, 1958, p. 78; Martin, 1968). The survival of relict features in the landscape (Watson, 1959) reflects the changing values of societies, and is an important contribution to character and sense of place. The 'accumulation of relict forms through time becomes one of the fundamental morphological processes of the landscape and in that general sense renders most townscapes historical' (Conzen, 1975, p. 80).

Despite this interest, there have been relatively few studies detailing the changes to physical form resulting from conservation (Larkham, 1988a, b); morphologists have instead largely turned to explore issues of conservation policy and management. This lack of attention is mirrored by the Labour Government's redirection of interest and resources away from conservation *per se*.

Urban landscape management

The types of detailed data from local authorities have aided greatly a third strand of current geographical research in urban morphology. This is the concern for the planning, or management, of the urban landscape. Processes of decision-making are reconstructed, the agents (where surviving) are interviewed, and management procedures and policies are examined. This type of research merges with work in other disciplines, notably urban planning and design.

Such research has been successfully carried out on commercial cores and residential areas (Freeman, 1988; Larkham, 1988a, b; Vila-

grasa, 1990; Whitehand, 1989b, 1990a) and with particular emphasis on conservation (A.N. Jones 1991; Larkham, 1992, 1996). M.R.G. Conzen's pioneering papers dealing with historicism and conservation (1958, 1966, 1975) have been re-appraised (Larkham, 1990b). Recent work has focused on suburbs, particularly those developed in the inter-war period, and has followed their use and adaptation through to the present day (much of this work is summarized in Whitehand and Carr, 2001b) and their conservation (Larkham, 2004b). Less academic and more applied have been a small number of detailed morphological (but largely descriptive) studies which are used to underpin a range of planning policies (for example, Rock Townsend, 1990). Likewise, there are detailed case studies focusing more on policy than on form *per se* (of which an example is Gordon, 1982).

An issue that has become of increasingly critical significance to any such management in recent years is the relationship between new development and existing urban landscapes. Research on urban landscape conservation is one aspect of a heightened concern for buildings inherited from past periods. A significant part of this concern stems from dissatisfaction with the physical forms, especially the buildings, that have been produced in the twentieth century (cf. Esher, 1981). A common policy reaction is for planning authorities to carry out 'character assessments' of their conservation areas, and these are often heavily morphological (cf. Larkham and Jones, 1993a, pp. 133-4); but few have been widely available until the recent advent of web-based publication.

In terms of production and management, the urban environment has increasingly become controlled by large-scale developers and public bodies. The large areas and large complexes that they create both privatize space (sometimes formerly public space) and make people feel irrelevant. People have less sense of control over their homes, neighbourhoods and cities than when they lived in slower-growing, locally-focused communities. The realization of this led a team of urban designers to produce a heavily-illustrated manual for

designers, strongly rooted in an awareness of urban form (Bentley *et al.*, 1985).

The processes of production are shaped by legal control and administrative systems, including the current UK town and country planning system. These control the activities of all agents of change (assuming, of course, that all development is legal). Yet the nature and impact of legislation and control have rarely been directly studied (Gaskell, 1983; Rodger, 1979a) and have formed the focus of a recent ISUF Working Party (Larkham, 2001). While it may be a truism to assert that 'planning does make a difference to urban form', a recent study of this title based particularly on Scottish evidence reveals some interesting findings. Planning maintains tight control over new housing, yet there is an over-reliance on 'windfall' (i.e. unplanned) sites. There is an over-supply of business land. The most significant developments were not contained in statutory development plans. The centralized planning system had a strong influence on major urban form decisions (Bramley and Kirk, 2005).

Other criticisms have been directed at development control systems, for example in Chelmsford (Hall, 1990). Hall contends that a major problem in Great Britain is the failure of planning authorities to formulate explicit objectives for the design of different parts of urban areas. He also feels that the process of making local development plans allows insufficient consideration of urban form and design issues (Hall, 2000). In similar vein, Whitehand (1992a) concludes that, at the scale of the British streetscape, governmental influence is often less today than that of major nineteenth-century estate owners exercising control over the development of their land. Planning authorities are largely reacting to proposals whose formulation and initiation are outside their control. Unlike major nineteenth-century landowners, local planning authorities in Great Britain plan specific landscapes only rarely. In response to specific proposals they seldom suggest, except in the most general terms, the type of landscape that they regard as appropriate. They state what is unacceptable according to their rules and procedures, but

their creative role is in general very limited. And this role became even smaller under the Conservative administration of the 1980s (Punter, 1986). Subtle qualities of a landscape, such as the *genius loci*, pale into insignificance as influences upon development control decisions in comparison with measurements of building density and the dimensions and geometry of highways.

This view is to some extent consistent with the conclusion of Punter's (1985) study of office building in the commercial core of Reading. He points out that aesthetic considerations are the first to be sacrificed in the cause of 'speed and efficiency' in decision-making by clients, developers, architects and planners. Developers have had a large measure of freedom and have felt compelled by the requirements of letting and funding, more than by planning control, to keep within the mainstream of architectural fashion. The major pressures on development control planning officers are for speed and efficiency in making decisions, measured crudely in terms of weeks elapsed from the submission of an application (Larkham, 1990a).

Punter's studies (1985, 1990) are exceptional in the detail of their exposition of how aesthetic control operates, or fails to operate. More common are studies of planning legislation and plans, as distinct from actual developments in the landscape (Cherry, 1988). Much of the literature on conservation as a management activity has been of this type. But conservation policies frequently lack effective means of implementation. Even more important, as Conzen (1975) pointed out, they lack a theoretical basis – a theory of urban landscape management that can give direction and coherence to the way in which conservation problems are tackled.

The few approaches to conservation in Great Britain that have theoretical content (Briggs 1975; Faulkner 1978) have still not found their way into the mainstream planning literature. In an attempt to fill this theoretical vacuum, Kropf (1993) has re-examined the approaches of Conzen and the Italian architect and theorist Caniggia to the management of urban landscapes. The positions reached by

these two scholars have much in common. For Kropf they afford a means of discovering a theoretical structure that underlies the relationship between the historico-geographical explanation of the development of urban forms and the prescription of urban design.

An essential part of the thinking of both Conzen and Caniggia is the view that the intelligibility of the city depends upon its history. In formulating a basis upon which urban landscapes can be managed it is a short step from this fundamental belief to regarding urban forms as a source of accumulated experience, and from there to utilizing this experience as the basis for prescribing change. Possible solutions may be 'read' from the existing landscape, but they must be assessed to ensure that they are appropriate to new problems. It is particularly important that the significance, including the historical significance, of urban landscapes for those experiencing them is understood. This includes the emotions, sometimes disagreeable emotions, evoked by the experience of urban landscapes. For example, 'it is argued that those features apparently valued as 'symbols of the past' are actually testament to discontinuities' (O'Brien, 1997, p. 163).

However, this line of thinking is not evident in some key contemporary debates. This is most particularly seen in the rise of 'sustainable development'. This ill-defined concept has become widespread – perhaps overly so – in professional debate and national policy. Some morphologists have incidentally chronicled phenomena that are sometimes associated with this notion, such as increased residential density (Larkham and Jones, 1993b; Whitehand and Larkham, 1991). However, the more radical suggestions, particularly the 'compact city' with its implication of the removal of suburban sprawl, have largely been reviewed only in abstract terms (Breheny, 1997). A more promising approach has attempted to develop measures of urban compactness, although relatively few attributes of physical form are included (Burton, 2002).

Developing concepts and methods

There have long been suggestions that urban morphology should proceed to the development of general theory (cf. Conzen, 1975; Whitehand, 1977) and thence to a greater use of deductive procedures. Gordon (1981) explored Whitehand's historico-geographical framework using some Scottish evidence. However, 'there seems little prospect of urban morphology progressing as an organized field of knowledge unless the various parts of which it is composed are set within a framework in which the logical connections between them may be developed' (Whitehand, 1977, p. 401). Little was done in this regard during the 1980s, but the development of ISUF from the mid-1990s is contributing to the development of such a framework (if not yet explicitly in the development of theory). The body of detailed empirical research reported here has allowed the development and refinement of a range of concepts and methods.

One issue has been the scale of research. Some, but relatively little, work has been done at the regional scale, with general comparisons of regional distributions of settlement plan types (Conzen, 1949; Roberts, 1987) and of morphogenesis (Lilley, 1995, 1999a). Most work has been at the scale of the individual town or quarter. Most recently, the term 'micromorphology' has been used to describe studies of form at the level of elements of individual houses (Whitehand, 2001b; Whitehand, Morton and Carr, 1999;). Incidentally, Levy (2005) wonders whether this scale of investigation is typology rather than *urban* morphology: if so it would be a very rare example of a typological approach in British urban morphology.

Geographical concepts of areas and their differentiation were central to Conzen's work, seen most particularly in his precise delimitation of hierarchies of five 'orders' of plan-type areas, building-type areas, land-utilization areas, and their combination to form morphological regions in Ludlow (Conzen, 1975, Figure 1). Conzen also developed the concept of 'plan units', areas distinguishable

through characteristics of street and (particularly) plot patterns and dimensions (Conzen, 1960). Larkham (1990b, Figure 16.3) contrasts the morphologically subtle differentiation of regions with the broad-brush delineation of conservation policy areas in the same town. Indeed, many conservation area boundaries, despite character appraisals, do not appear to have much morphological basis. In some decision-making processes, there seems little awareness of spatial concepts such as areas, and even mere spatial propinquity is arbitrarily used (e.g. Whitehand, 1989a). Hall (1990) has proposed a much more profound use of areas in planning decision-making, and (1997, pp. 228-36) explicitly refers to Conzenian morphological concepts in differentiating such 'design areas'.

The development of the technique of town-plan analysis, using regularities and similarities in street and particularly plot patterns, has been a significant methodological advance. It has moved from metrological analyses of plots (Slater, 1981; see also Sheppard, 1974) to a wider plan-analysis. Identification of plan-units has allowed more precise theories about the timing and nature of the development of specific towns to be advanced, which can be tested against historical and archaeological data (where these survive) (Baker and Slater, 1992). It has, however, proven difficult to convince academics in other disciplines that significant amounts of valuable and accurate data lie embedded in urban landscapes, and that such data can usefully supplement more traditional work in documentation and archaeology. This has been a noteworthy debate at conferences, if not in print.

The Conzenian concept of the fringe belt has undergone considerable development over recent decades. In simple terms, a fringe belt is a zone of largely extensive land uses that is formed at the edge of an urban area during a pause in outward residential growth. Each fringe belt (and a town may have several) has distinctive features in terms of plan, building form, and land and building uses. Typical uses, requiring extensive sites, include public utilities, parks, sports facilities, and allotment

gardens. Fringe belts were first identified as being associated with limitations on urban growth, such as fortification zones: examples of what Conzen termed 'fixation lines'. Later work has placed more emphasis on their association with housebuilding slumps. The history of the fringe-belt concept is discussed in Whitehand (1988). It was applied to Alnwick by Conzen (1960), its theory later being elaborated by Whitehand (1967) and applied to Falkirk by Barke (1974). Barke twice returned to the issue of fringe-belt development in smaller towns (1976, 1990), exploring the theoretical and practical distinctions between processes in the expansion of small towns and large cities. Whitehand (1975) and Rodger (1979b) have both reviewed empirical evidence for housebuilding fluctuations on the Victorian urban fringe in London and Scotland. Pacione (1991) has examined development at the contemporary urban fringe using town-planning concepts rather than that of the fringe belt; this forms an interesting comparison in conceptualization and approach. Most recently, Whitehand and Morton (2003, 2004) have examined how this morphological concept relates to planning and decision-making, by landowners and local authorities. Neither perceive these large-scale patterns in any meaningful way, although they form a significant aspect of urban form directly reflecting historical development processes. Whitehand and Morton (2004, p. 275) argue that 'the piecemeal, poorly co-ordinated pattern of decision making underlines the need for planning to take greater account of the historico-geographical structure of cities.

The consideration of economic models and urban form has been explored by Whitehand, in part (in earlier work) reviewing potential causes of fringe belts in the relationship between land use and bid rent (Whitehand, 1972, 1975). Comparative work was undertaken on the significance of established economic constructs for the urban building fabric (Davies, 1968; Luffrum, 1981; Whitehand, 1979). On a broader scale this can be linked to cyclic, largely economic, fluctuations in urban development (Parry

Lewis, 1965). Such fluctuations can be shown to have implications for most types of development (both construction and land use) from housebuilding (Weber, 1955) to London offices (Barras, 1979, 1983). The cyclic concept has also been applied to the life cycle of individual buildings – their origin, growth, change, ageing and obsolescence (Cowan, 1963) – and it can be extended to conservation (Larkham, 1996, pp. 77-82). Whitehand has sought to integrate these aspects (1981b, 1987c), producing a broadly-based view of morphological development. This approach has been summarized with a simple model taking into account the influence of factors such as the economy, innovations, and fashions in architectural styles (Whitehand, 1994).

The Conzenian concept of the morphological frame is implicit in many studies – fringe-belt fixation lines are examples. Larkham (1995) examined the concept in the light of the increasing scale of changes during the industrial period, the gradual cumulative impact of individually small-scale changes, and the 'catastrophic' change of natural or man-made disaster. Again, the nature of response to the frame can be related to the characteristics of the agents involved: 'if the developer is a large organisation, with a national or international sphere of operations and easy access to large financial resources, British experience suggests that the development is less likely to respect the morphological frame than changes initiated by a small, local developer' (Larkham, 1995, p. 122).

The Conzenian concept of the morphological period has been re-assessed as part of the recent work on suburbia. Whitehand and Carr (1999) relate this to processes of innovation, diffusion and distance decay. But period boundaries are likely to be ill-defined both temporally and spatially: residential developments associated in style and form with the Edwardian and Victorian periods were still being built well into the inter-war period, especially away from the main concentrations of housebuilding activity in the south-east of England. Of the agents involved, architects

and builders, much more than clients, were important. The process whereby a new period emerges is complex, confused and likely to be lengthy: it 'must be linked in some way to the innumerable 'experiments', both on paper and on the ground, made by those who contribute to the creation of built forms' (Whitehand and Carr, 1999, p. 248).

Meanwhile, another type of investigation of urban form is attracting researchers of a quite different inclination. The use of computers to model and simulate urban physical structures is grounded in an intellectual milieu distinct from any so far mentioned (see below). Most of this research has been undertaken by architects and geographers, the two groups working independently of one another. There is a need to relate this work to research of the types already described. Such developments are likely to overcome a perennial problem in morphology: the issue of how to represent in two dimensions the complex multivariate patterns of urban form as they change over time. It is worth recording that Conzen's large-format, large-scale colour plans in his contribution to the *Survey of Whitby* (1958) have hardly been bettered, but were only made possible by the generous financial support of the volume's sponsor, the Marquis of Normanby.

Computers and urban morphology

This is a major area of methodological advance, actual and potential, deserving separate and substantial consideration. The problems of establishing standard definitions in urban morphology and the perception that much of the information on urban form is not readily converted into 'data' has hindered the large-scale use of computers in storing and processing information. Early attempts were limited by the available software and hardware to the application of standard statistical approaches such as cluster analysis to aspects of urban form (Openshaw, 1973).

Advanced software such as GIS and CAD, high-capacity hardware, and careful preparation can now provide the basis for

remarkable computer-aided investigations. There would seem to be wide scope for computer-aided research of this type. Much of the necessary technical capability is now regularly used in architectural and urban design. A study of parts of London was facilitated by digital mapping and CAD software, although it uncovered significant practical problems including the transfer of data between programs and copyright issues of access to existing data sets (Larkham, 2003).

However, it is in this field that the contact between research perspectives is weakest. The Conzenian tradition has developed largely in isolation from computer-aided analyses of urban form and vice versa. However, recent research is using GPS and GIS in a review of Edwardian planned towns informed by Conzenian concepts (Lilley *et al.*, 2005).

The dividing line between urban morphogenetics and essentially descriptive, computerized analyses of urban form is probably the least crossed of the numerous boundaries that are characteristic of urban morphology. That several of the types of investigations described here could benefit from the breaking down of this boundary is suggested even by a cursory review of recent computer-aided research on urban form.

This research falls into three principal categories. The first has to do with the three-dimensional form of urban areas, and is particularly concerned with aiding geometrical composition so that proposals for new forms, or the adaptation of existing forms, can be evaluated both visually and in terms of functional efficiency. The second is primarily concerned with the analysis of physical structures, especially individual structures such as dwelling houses, viewed in two dimensions. In the third, the accent is upon urban areas, or land-use parcels, as physical configurations, especially as represented cartographically.

Developments in both the software and the hardware for computer graphics have now reached the stage where realistic simulations of urban landscapes are possible. One of the most striking applications is in the reconstruction of former and potential urban landscapes. Such software is now increasingly

used to visualize the impact on existing urban landscapes of proposed new buildings or modifications to existing buildings (Grant, 1991; Hall, 1995), with obvious value in urban landscape management. Yet such approaches have found use more in professional practice than in academic research.

Much of the quantitative, or more precisely geometrical, analysis of buildings viewed two-dimensionally relates to attempts to develop a science of architectural form. Steadman *et al.* (1991) argue that it is only by developing theories that explain why certain plans and built forms rather than others occur in practice that scientific generalizations can be made about the relationships of built forms to the functions they fulfil. Since the large majority of rooms in domestic buildings are essentially rectangular in plan, the plans of most dwellings can be modelled mathematically as 'packings' of rectangles within rectangular boundaries. The enumeration of all possible packings by computer methods provides a complete 'map' of the theoretical space of geometrical possibilities within which floor plans can occur. 'The boundaries and topography of this space are fixed and immutable for all time, and all architects, past, present and future, have no choice but to work within them' (Steadman *et al.* 1991, p. 88). Within the boundaries there are, of course, further effective constraints on 'geometrical possibility' imposed by, for example, technological factors and legal requirements, and the need for daylighting and access. These constraints change historically and account for major reductions in practice in the numbers of plans that considerations of geometrical close-packing alone would permit. Comparison of theoretical possibilities with dwelling plans existing in reality serves to highlight how even in the case of simple plans social needs may override material ones.

Brown and Steadman (1987) believe that the process that they illustrate, namely one of exhaustive plan generation under constraints, offers a tool that is useful in both architectural design and in helping to fill gaps in the historical and archaeological record. As they recognize, however, their procedure involves

a certain circularity of explanation: a set of constraints is inferred by reference to the physical characteristics of actual building plans, which is then used to account for those physical characteristics (Brown and Steadman, 1987, p. 436). Such problems notwithstanding, applications of the generation of building plans by computer are now being widely explored. One such has been the representation of building floor plans as polygons, to which data (for example floor numbers, storey heights) can be attached, and measurements made; this research has suggested a number of applications for energy analysis and planning (Holtier *et al.*, 2000).

The application of computers to the analysis of the shapes of urban areas has proceeded for the most part separately from analyses of both floor plans and three-dimensional urban form. Much of the concern with the shapes of urban areas has focused on their degree of irregularity. It has become evident in recent years that fractal geometry provides an appropriate means of measuring many types of irregular form that had previously resisted scientific classification. Batty and Longley (1987, 1988, 1994) have been at the forefront of its application to urban areas. They conclude from their analysis of the urban boundary of Cardiff between 1886 and 1922 that the traditional image of urban growth becoming more irregular as tentacles of development occur along railway lines is not borne out. They point out, however, that the temptation to explain this as an effect of increasing controls over the environment should be resisted because there is considerable variation in the results produced by different methods (Batty and Longley, 1987). They also conclude that there is tentative evidence that parcels of land used for residential purposes and open space are more irregular than parcels of land used for commercial/industrial purposes, education and transportation. Again, however, there remains considerable uncertainty about the processes in operation (Batty and Longley, 1988). More recently, fractals have been applied to urban design and form, attempting to measure and compare features important in understanding

the complexity and character of places (Cooper, 2003, 2005; Robertson, 1992). It is confidently asserted that the everyday environment is fractal (Crompton, 2001). Batty (2001) is also using other computer analyses to explore and represent shape in architectural and urban form. Although Batty (1991) emphasizes the need for better measurements of urban development and density, there is an even greater need to bring together this research and studies of the activities responsible for the form of urban development.

Space syntax

Space syntax is an approach to urban form wholly different from the Conzenian tradition. It is considered here because it generally relies upon large-scale multivariate computer analysis and graphics. This intellectual tradition revolves around Hillier's research group at the Bartlett School, University College, London. With a large output of overseas graduate students this school can demonstrate a considerable volume of output (much, however, not focused on Britain).

The theoretical and methodological approaches were codified by Hillier and Hanson (1984) in terms of a quantifying approach to spatial representation. The approach has been refined, particularly in terms of 'spatial configuration' – the arrangement of spaces and possibilities and patterns of movement through them – by Hillier (1996). This technique is very revealing of the characteristics of spaces in terms of movement and potential use, but perhaps not to the extent of the 'laws of the field' that he attempts to articulate. The applications of space syntax have largely focused on studies of axes of movement and, more recently, visibility; 'what is original to space syntax is the important insight that the pattern of movement in a city or urban area is likely to be shaped to an extent by the topology of its route network *alone*, irrespective of all other factors' (Steadman, 2004, p. 484).

British studies in this tradition have explored the structures of London's street network, particularly following the 1666 Fire (Hanson, 1989) and the changing structures in the London district of Somers Town (Hanson, 2000). Hillier (1989) and Hillier *et al.* (1983) have attempted to explore this approach in terms of architectural and urban design relevance, exciting considerable professional interest.

The techniques and analyses are not always easy for the uninitiated to comprehend. Hillier himself (1999) attempts to explain why the approach works 'when it looks as though it shouldn't'. Indeed there has been recent debate on the fundamental 'reliability' of aspects of the approach: paradoxes arise under certain geometric configurations (Hillier and Penn, 2004; Ratti, 2004). Notwithstanding such details, a great opportunity clearly exists for exploring the potential complementarity of the different traditions of space syntax and Conzenian morphology.

Humanism and the urban landscape

Despite this need to link the various types of research in urban morphology, there are certain investigative styles that, because of their intrinsic character, seem more likely to follow essentially distinct scholarly paths. They are largely humanistic in character, concerned with interpretation rather than analysis. But it is important to reflect on the contents of such work against a wider spectrum of work of a humanistic disposition. In particular, there is the problem that 'when examining these less tangible aspects of the built environment there is little cohesion between the work of different researchers' (Talbot, 1984, p. 1.17).

Particularly noteworthy among such work is a growing concern with the social significance of urban forms. In particular, the symbolic qualities of urban landscapes have attracted interest (Jacobs, 1992). Gold and Gold (1990), for example, have reviewed the imagery of place-promotion as applied to suburbia, and Hubbard (1996) has reviewed the imagery of

Birmingham's changing urban landscape. But seeking to uncover the meanings that human beings ascribe to urban landscapes is a delicate and difficult task. Some have used concepts from behavioural psychology to test reactions to places, for example through studying respondents' reactions to images of urban areas or buildings (Hubbard, 1994; Morris, 1980). Although there have been some commentaries on the changing nature of agents, these have not treated the new urban forms being produced and consumed in any detailed morphological way (Short, 1989).

One related field of work has been the examination of the post-war reconstruction planning of British towns and cities. The processes of plan production, the employment of eminent consultants versus extant local authority staff, the means of communicating plans to the public and other professionals, the imagery selected, and the use to which plans were put in place-promotion, have all come under scrutiny (Larkham, 1997, 2002; Larkham and Lilley, 2001, 2003). Comparative studies of the physical forms proposed in these plans form a future stage of the research programme.

A notable development, though its utility remains questionable, has been the recourse that scholars have had to the methods of linguistics and semiology. This has led to urban landscapes being viewed as 'texts' to be interpreted. Such interpretations are far removed from the idea of landscape as a mathematical or statistical construct. Instead the focus of interest is often the ideological basis of creations in the landscape.

Despite the amount of discussion that has appeared on landscapes as ideological constructions, the amount of empirical work in Britain is, as yet, small.

Humanism and the post-modern urban landscape

Among scholars adopting a humanistic approach to the urban landscape, considerable interest has surrounded the nature and manifestations of post-modernism. The notion

of post-modernism has been regarded by some researchers, including some of a primarily social science disposition, as sufficiently fundamental to justify speculation about links between post-modernism and economic changes. These suggested economic changes, associated with reduced emphasis on mass production, have prompted questions about the validity of existing urban theories and their application to urban form.

However, examining a long span of the history of British urban form does not provide grounds for regarding the onset of post-modernism as providing changes to the urban landscape that are notably more fundamental than those that were characteristic of the onset of previous morphological periods. Within Western countries in general and Britain in particular, the years following the First World War brought new urban landscapes, particularly new residential landscapes, that arguably differed more fundamentally from their predecessors than post-modern landscapes have differed from the landscapes created in the three decades following the Second World War. Indeed, one of the key features of many post-modern landscapes is that they differ from landscapes created in the 1950s and 1960s in ways that are essentially only cosmetic. It is true that residential high-rise building became unfashionable in the 1970s in most Western countries, but the principal change in the appearance of low-rise residential building has been in the greater use of external decoration and the greater variety of house type contained within individual streets. The historicist elements characteristic of much of architectural post-modernism are, in many cases, merely applied to building elevations. These are superficial changes compared with those that heralded some earlier morphological periods.

It is still far from clear how fruitful this part of the heightened interest in the urban landscape will prove to be. That a number of major, sometimes spectacular, urban landscape features have been associated with post-modernism, for example high-tech corridors, festival settings and pedestrian shopping malls, is clear, though there have been few British

investigations of these phenomena. The need for a theory of late-twentieth century urban landscapes, distinct from earlier theories, has yet to be demonstrated. Causal links between post-modern landscapes and economic restructuring have still to be convincingly shown. Although it is evident that in the course of the 1970s British towns and cities – like most Western cities – entered an architectural-style period distinct from that of the quarter-century following the Second World War, it remains to be seen how far the connection between this fact and broadly contemporaneous social and economic changes involves relationships different from those associated with previous morphological periods.

Conclusion

The resurgence in urban morphology, broadly defined, occurred at much the same time as a renewed interest in the study of ‘place’ in geography (Johnston, 1984, 1991) and the rise of ‘urban design’ in professional practice and as an academic discipline. The types of features that have traditionally interested urban morphologists are to be found closer to the mainstreams of academic debate – in Britain and elsewhere – than has been the case for many years. Understanding issues such as the physical qualities of place, and the processes and agents involved in the production of place, are now fundamental to British government policy (UK Government, 2000; Urban Task Force, 1999) and to the widespread current debates on urban quality and the quality of life (Parfect and Power, 1997).

However, work in the Britain has been characterized since the late 1970s principally by a concentration on individual themes and case studies. There has been little engagement with ‘research users’ or policy, except perhaps for work on conservation. Even here, morphologically-informed studies (e.g. Larkham and Jones, 1993a) seem to have had little measurable direct impact. The rather different perspective taken in urban design has been mentioned; and there have been warnings that

detailed morphological research may be unduly time-consuming and expensive (Samuels, 1985).

Whitehand’s early call for theory (1977) was followed by his own overviews (1987a, 1992b), themselves drawing on a broad basis of research. Yet, apart from these, the larger picture is mostly absent. The comment made nearly four decades ago that ‘however useful a general theory of the city may be, only the detailed tracing of an immense range of variables, in context, will illuminate the dynamics of the processes’ (Handlin and Burchard, 1963, p. 26) remains valid. Much of that groundwork has been done, although significant gaps remain; the step to integration and theory-building has found little support as yet.

Further, the undoubted utility of GIS and other computer techniques for recording, analysing and presenting morphological material – much of it visual – has, as yet, been little exploited in British urban morphology. There remain related, but quite separate, research traditions that are heavy users of information technology for a range of urban analyses. The development of much stronger links between geographical urban morphology and Hillier and Hanson’s space syntax and Batty’s computer simulations and visualizations would be beneficial. This is an aspect that would merit considerable further development, paralleling developments in morphology seen in other countries, and in practice-related disciplines such as architecture and urban design.

However, while GPS, GIS and other computer-aided approaches could be of great significance in correlating different forms of data, and storing and representing it, the dissemination of such work will be neither substantial nor influential until electronic publication becomes widely accepted for research assessment exercises.

Neither have there been significant morphologically-based examinations of British urban landscapes as ideological constructs, regarding the urban landscape as a ‘text’ to be read. Although there has been some concern for ‘cities of spectacle’, particularly following

initiatives such as the Garden Festivals, the spectacular urban landscapes of post-modernism have also remained little explored. The related literature on 'flagship' regeneration projects has explored the socio-economic and policy impacts far more than the spectacular and large-scale urban forms being produced (Bianchini *et al.*, 1992; Loftman and Nevin, 1996).

A further fruitful avenue for exploration may be the perspectives of the most under-researched of agents, the consumers. What have been the views of those who have lived in or worked in the city centres and suburbs whose forms and means of production have been subject to such detailed study? The extent to which such experiences, values and attitudes are fed into procedures for the design and management of current and future urban forms is limited, as Larkham (2000) showed for the conservation system. At a time when the focus on agents and agency in urban morphology is growing, the importance of the occupiers of urban buildings, plots, streets and spaces should be reviewed.

There is also the major contemporary issue of involvement in value judgements, particularly in the problematic area of 'sustainable development'. Morphologists, particularly in their developing of broad-scale comparative knowledge, should be in a position to comment on the implications of various urban forms, both existing and proposed. What, for example, are the desirable and undesirable, intended and unintended, consequences of suburban sprawl? How can new residential forms be designed to minimize the problems? Exploring such questions, and therefore strengthening links with planners and urban designers, could result in urban morphology becoming more firmly embedded in contemporary policy formation.

This raises the issue identified by Levy (2005, p. 50), and confirmed by this overview, that morphological activity has been dominated by historical approaches and forms. Urban Britain has, indeed, been subject to huge transformations in recent years; although studies mentioned here have looked at the relatively recent past (the post-war period),

contemporary complex urban forms do require more attention. The Conzenian conception of urban form, so clear in historic towns half a century ago, requires re-examination in the light of new forms such as campus developments, logistics parks, retail malls and so on. However, this is not a uniquely British problem.

In a review of this nature it seems appropriate to conclude with a reflection of whether there is an identifiable, distinctive, British approach to urban morphology. The range of authors, disciplines, approaches and topics cited here suggests that there is not. There is one coherent morphological 'school', that influenced by M.R.G. Conzen – either directly from the University of Newcastle upon Tyne or indirectly, through the work of the Urban Morphology Research Group at the University of Birmingham. Space syntax forms an equally distinctive 'school', but with such a burgeoning international following that it is hardly distinctively 'British'. It is regrettable that these two traditions have not yet systematically explored their similarities and differences. The 'indigenous' group of British-based researchers identified here is hardly sufficiently sizeable or cohesive to merit the term 'school'.

Yet 'Conzenian' cannot be thought of as solely British; indeed M.R.G. Conzen's background in the German geographical tradition has been charted. Neither is there much particularly unique about British urban form or urbanism, and many researchers have reviewed the links between Britain and the rest of Europe and the former British colonies.

To a large extent, therefore, this is an artificially constrained survey. It does not explore the rich interchange of international scholars nor the 'export' of British-trained morphologists (including, for example, M.P. Conzen, Deryck Holdsworth, and Aidan McQuillan). Although these nationally-bound overviews do have pedagogic use, the nature and extent of international intellectual exchanges require further detailed investigation.

Notes

1. Some critics have remarked on the 'Conzenian' focus of commentaries on British urban morphology, and mentioned alternative disciplinary approaches (e.g. Gauthiez, 2004, p. 78). This paper deliberately seeks to represent such alternatives in presenting a broad-brush historical and multi-disciplinary overview.
2. M.R.G. Conzen's 1988 paper on Ludlow has been reprinted, as 'the accurate version he wished readers to have, with its proper nuances', as Conzen (2004).

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