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# Editorial

**Thinking about cities as spatial events**

Our understanding of cities in anything more than casual terms usually starts with observations of their spatial form and structure at some point or cross-section in time. This is the easiest way to begin, for it is hard to assemble data on how cities change through time, and, in any case, our perceptions often betray us into thinking of spatial structures as being resilient and long lasting. Even where physical change is very rapid, this only has an impact on us when we visit such places infrequently, after years away. Most of our urban theory, whether it emanates from the social sciences or engineering, is structured around the notion that spatial and social structures change slowly, and are sufficiently inert for us to infer reasonable explanations from cross-sectional studies. In recent years, these assumptions have come to be challenged, and in previous editorials I have argued the need for a more temporal emphasis to our theories and models, where the emphasis is no longer on equilibrium but on the intrinsic dynamics of urban change (see, for example, Batty, 1996). Even these views, however, imply a conventional wisdom where the real focus of urban studies is on processes that lead to comparatively slow changes in urban organization, where the functions determining such change are very largely routine, accomplished over months or years, rather than any lesser cycle of time. There is a tacit assumption that longer term change subsumes routine change on a day-to-day or hour-by-hour basis, which is seen as simply supporting the fixed spatial infrastructures that we perceive cities to be built around. Transportation modeling, for example, is fashioned from this standpoint in that routine trip-making behavior is the focus of study, its explanation being central to the notion that spatial structures are inert and long lasting.

Yet there is another way of looking at cities which has not been fashionable at least in the wider field of urban studies. It is possible to conceive of cities as being clusters of 'spatial events', events that take place in time and space, where the event is characterized by its *duration*, *intensity*, *volatility*, and *location*. There may be interactions in time and space between events, leading to clusters and other aggregations, but the dominant way in which these descriptions are characterized is clearly temporal. The duration of an event marks how long it lasts, so 'trip making' is usually measured in terms of minutes and hours, whereas 'living at a residential location' is usually structured around months and years. The intensity of an event measures the impact it has at any time and place; this in turn might be indexed by the numbers of persons involved in comparison with others existing at that time and place as well as the degree to which they are solely focused on a single activity. Work in an office environment, for example, is probably less intense than attending a rock concert, although work may have a longer duration. Volatility is a measure of variation in intensity, yet events characterized in this way may be of very different durations. Trip making is rarely volatile, whereas attending a carnival might be. Location, of course, is our stock in trade with scale, size, and density its defining characteristics. Every action that we partake in exists in time and space, and can be so classified, and it is entirely possible to represent all the spatial structures which make up the city in this way. Moreover, this kind of thinking may well provide more tangible ways of linking the spatial to the social, as, for example, in the growth in interest in thinking of cities as schedules of events in the framework of time-budgets.

The reason that we need to change the focus is because there are many sequences of events that take place in cities over much shorter time periods than we are used to dealing with but which have important spatial effects. These spatial effects in fact may be long lasting even though the events which initiated them are short in duration. Local movement studies, which involve how pedestrians behave in small urban spaces, are increasingly significant in figuring out the relative importance of fine-scale locational dynamics and, in the last year, we have published a theme issue on approaches to these kinds of events, using new varieties of agent-based modeling (Batty, 2001). Models and theories of events such as carnivals, parades, concerts, and other kinds of entertainment which take place in small spaces and have enormous local impacts, are urgently required. For example, a recent project for the Greater London Authority involving the analysis and design of a new route for the Notting Hill Carnival is employing methods related to pedestrian modeling (Desyllas, 2001) where the emphasis is on how the route involves safety considerations and the cost of policing. The impact of this carnival over the last twenty years on the Notting Hill district has clearly been substantial but none of this is very obvious, for we do not have tools to unravel the impact of events of short duration and high intensity on longer term locational decisions.

A more graphic illustration of these kinds of events involves the recent tragedy in downtown Manhattan on 11 September where both short-term and long-term locational patterns with all the consequent impacts on safety, policing, and the economy are almost impossible to predict, yet likely to be dramatic. Urban warfare of the kind seen in Northern Ireland during the last thirty years has changed the face of Belfast, while fixed events associated with particular times—celebrations for the millennium, through new building projects such as the Dome, and the building of new infrastructure for events such as Football's World Cup—have an equally dramatic impact on the long-term structuring of the city. In a more routine sense, the slow but inexorable development of geographic information systems for use in policing and crime detection, with a move to develop such technology in real time, is again evidence of the fact that urban analysis has an important part to play.

What is required is a detailed analysis of cities in terms of spatial events, perhaps along the lines of the duration – intensity – volatility – location nexus proposed above. Some of this matrix would reveal events that are already well researched and understood. Others would reveal more problematic events, some of which may not even be significant. But what this change in perspective would reveal is the extent to which we need to refocus our analytical models of cities and the extent to which existing theory is adequate or otherwise. It would begin to tie together a wide range of disparate ideas, which range from discussions of spatial representation in terms of objects and their ontologies, to the collection of fine-scale data on events and the processes that generate them. As ever, I would welcome discussion of these ideas in the pages of this journal.

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