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## The study of urban form in the United States

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**Abstract.** This paper examines urban morphological research in the United States from a geographical perspective. Attention is given to the historiographical development of the field and the underlying cultural values of American society which make American forms distinctive, but the main emphasis is on the evolution of town planning ideas in practice and the systematic morphological structure and character of American cities. Some discussion is offered of the recent perceptual dimension in American urban morphology.

*Key Words:* urban morphology, geography, architecture, town planning, United States

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Many disciplines contribute to the study of American urban form. These include architectural history, geography, urban history, archaeology, landscape architecture, planning, and 'American studies'. It is impossible to review the literature of all these fields in the scope of an article of this length. A choice has to be made, and this review will therefore be concerned with research that explores the geographical dimensions of urban form. Such research includes especially the study of collectivities, ensembles, and groupings of material forms, and their layout within, and in relation to, the larger spatial framework of the city.

Geographical analysis is particularly sensitive to variations of phenomena at both local and regional scales, that is, the variable distribution of form types and form complexes across the space of the city as well as across the span of national and

continental regions. Special emphasis will be placed on cadastral elements and land-use contexts in the American setting, while studies focusing exclusively on form types as individual cases will not be directly examined.

'Urban form' in American usage is notoriously vague and ambiguous, as is the predilection for 'urban landscape' as a purely metaphorical term. This review will look at those studies that treat urban forms as facts on the ground, to be studied for their direct contributions to the built environment, and meanings as such for society. So defined, there is much relevant literature by geographers and non-geographers, though it by no means fills the potential scope of enquiry. The main comparisons, where attempted, will be with Europe as the progenitor of Euro-American urban development.

### **Synthetic interpretations of American urban form**

The scholarly treatment of American urban form was slow to develop an explicitly morphological approach. Early interest centred either on aesthetic character (or lack thereof), in order to inform urban planning and landscape architectural theory (Sutton, 1971), or on the economic determinants of spatial structure and distribution of forms, with a view to understanding the urban development process and its business applications. In this latter mode the land economist Richard Hurd (1903, pp. 33–55) was one of the first to offer a close analysis of the ground plans of cities. In the former mode, one of the earliest grand synthesizers was Lewis Mumford (1938), whose *The culture of cities* placed American urbanism squarely in an international context, but discussed urban form very generally indeed. For many decades, in the hands of architects and social commentators, American urban form was grist for broad societal criticism rather than direct and detailed scientific study.

This changed as geographers turned their attention to the city (Leighly, 1928), although the specific morphological character and dynamics of the American city came after the 1930s to represent a subordinate interest to that of functional structure (Conzen, 1978), with the functional treatment of land-use patterns enjoying a remarkably long-lived popularity. It was left to Europeans to contribute the most penetrating analyses of American urban form seen from the broadest geographical perspective. Dietrich (1930), Gottmann (1961), Wissink (1962) and Hofmeister (1971) all stressed how, by the twentieth century, ingrained American cultural values rendered American physical forms so distinct from those of Europe. James Vance (1977/1990) was the first American geographer to integrate morphology in his 'big-picture' interpretation of American urbanism, itself presented as an outgrowth of, but also in his view a decided advance on, European precedent. Several

significant studies of individual cities made the evolution of the built environment the key to understanding their development and helped advance the field (Whitehill, 1968; Mayer and Wade, 1969; Lewis, 1976; Olson, 1980; Cardia, 1987). Recent attempts at synthesis have all focused on buildings at the expense of land-use patterns and have all but ignored cadastral history (Relph, 1987; Knox, 1993; Ford, 1994). One grand overview by architectural historian Spiro Kostof (1991, 1992), tracing urbanism from a 'western world' perspective, avoids this limitation when discussing American cities by drawing on the work of both American and European geographers.

### **Cultural values affecting urban form**

Among the wide variety of cultural values that have been identified as typically American, a number have particular relevance for urban form. According to Wissink and Zelinsky, heightened individualism, esteem for mobility and change, a mechanistic world-view, messianic perfectionism, and readiness to substitute time for space and space for time, go a long way in accounting for the peculiarities of American places (discussed at length in Conzen, 1996). Such attributes can be further refined and related to specific historic urban morphological preferences.

Perhaps the most pervasive condition is the ubiquity and dominance of commercialism operating in the context of *laissez-faire* capitalism. This means that American cities have been regarded first and foremost as economic machines – growth mechanisms to produce material abundance. As a result, utilitarianism mostly triumphs over beautification, unless the latter can be commodified. Secondly, individualism, expressed most often in urban settings under the notion of privatism, has favoured private over public space, and accounts, for example, for the decided American preference for detached over multifamily housing. Thirdly, in reaction to industrialism, a deep anti-urban streak permeates American views of urban

governance, and hence control over the production of morphological attributes is politically fragmented, the better to thwart imposition. And fourthly, the social fluidity of American society has engendered an aesthetic eclecticism in the urban landscape amenable to almost infinite status manipulation.

Given the force with which Americans long ago cast off distant colonial rule, certain absences in American urban morphology are easy to recognize. There is a distinct lack of monarchical and religious urban complexes on the scale of those in European and Asian countries. American cities contain no royal palaces, and few centralized church and monastic districts (except in Salt Lake City), historic urban fortifications, and large-scale government-maintained cultural institutions (except, of course, in the nation's capital, Washington, D.C.). This means that most American cities also lack visible 'pre-urban nuclei' because they are all new creations from the era of merchant capitalism, and commerce has at all times powered most urban growth. Fee-simple property ownership can so easily erase former constructions in the interest of maintaining 'highest and best' use of urban land (Vance, 1971).

### **Evolution of American town planning practice**

Since American cities in a world context are relatively young, it is not surprising that much emphasis in their study is placed on initial plan characteristics and their underlying socio-physical principles, in order to identify distinctive origin types. The earliest towns were spatially miniscule, and those early plans have been dwarfed by later additions and transformations. It is a striking feature that most morphological studies have treated these categories in relative isolation – following either fashions in initial plan designs, or those of subsequent additions, with little analysis of their interrelationships within cities, particularly the reconfigurations of established zones. The discussion here

will review the literature on initial urban plans, and in later sections examine the much more fragmented research that exists on the changing morphology of already laid-out areas within cities.

It is no longer tenable to begin discussion of urban origins in the United States with the European colonial plantations of the late-sixteenth century. The size, complexity, frequency, and general significance of urban places in pre-Columbian America is being radically revised through archaeology. Both the Puebloan Southwest and the Mississippi Basin are now recognized to have contained settlements with complicated and impressive residential and ceremonial morphologies by the twelfth century, such as the urban conurbation of Chaco Canyon in New Mexico and the temple towns of the confluence region of the Ohio, Mississippi, and Missouri rivers. Note, for example, the reassessments of Cahokia, Illinois, which at its peak housed perhaps 25 000 inhabitants (Young and Fowler, 2000). Indisputably, however, these cities did not rival those of South and Central America in pre-modern times, and were vastly more oriented to ceremonial than commercial purposes. Considering the total collapse of native American towns by the fourteenth century, and their complete lack of site continuity with later European towns, it is still appropriate to speak of new beginnings with the arrival of European colonists.

Towns were essential to colonial penetration and control of American regions. The overwhelming majority of towns on the continent, of all vintages, were laid out on grid-iron principles, and this fact, with its misleading hint of uniformity, has often blunted interest in what is nevertheless nationally and regionally a complex pattern. It has been standard to relate the specific early morphology of Spanish, French, Dutch, and English colonial towns to their respective antecedents in the mother countries. Spanish town foundations in the territory that became the United States first followed the instructions given by King Philip II in the Laws of the Indies (1573), in which *pueblos*

were designed in grids with a central plaza, around which public buildings and wealthy residents would locate (Garr, 1991, pp. 3–33), as in St Augustine and San Antonio, although such order soon dissipated (Kostof, 1991, p. 115). The French planted towns following essentially the *bastide* principle, such as Québec, New Orleans, St Louis, and Detroit (Louder, 1979). The Dutch favoured less regimented town layouts, as in New Amsterdam (New York), although their houses sported classic crow-step-gabled street façades with their decorative but repetitive appearance.

The English, as they absorbed territory and towns initiated by the other colonial powers, followed a wide variety of planning principles: informal ‘organic’ plans (for example, Boston), grid-iron layouts (Philadelphia), and simplified renaissance plans (Annapolis, Williamsburg) (Reps, 1965; Fries, 1977; Miller, 1988). There may have been organic political structures associated with some of these schemes, such as that of Savannah (Anderson, 1993; Reinberger, 1997), but fairly quickly English practice melted into a pretty *laissez-faire* commercial preference for more or less standard city grids as simple and rapid means to differential wealth creation. Early need for fortifications collapsed in the wide open spaces of America, and town defences, unlike in so many European cities, vanished without creating ‘fixation lines’ in the urban plan (Nelson, 1961).

The catholicity of planning ideas declined after American independence, as the grid triumphed for its self-evident initial democratic form – except that location within the grid is never democratic! Only the national capital was permitted a complex Baroque scheme, for grandeur’s sake (Stephenson, 1993). John W. Reps has written the most on American initial town foundations, and documented their particularity with dogged zeal (Reps, 1965, and later regional treatments). Nevertheless, remarkably, we still lack a systematic study of the regional distribution of American town planning types by period and region, detailing

the geographical diffusion of plan ideas, dimensions, geometries, and decision-making. There is only James Vance’s (1982) morphogenetic typology of town-founding traditions (Laws of the Indies, bastidal, medieval organic, English Renaissance, and ‘London rebuilt’ types), which remains controversial, and Price’s fine (1968) study of the national dispersion of four types of central courthouse square in American county seats as a single ‘trace’ element in inter-regional urban morphology. A few states have received close attention, such as Pennsylvania and Georgia, but state boundaries are poor limits for studying the regionalization of American urban forms (Pillsbury, 1970; Sears, 1979; Arreola, 1992; Schmiedeler, 1998; Veselka, 2000).

Alternative visions of urban planning reside embedded in selected ethno-religious and corporate environments, most very small and ultimately not widely influential – if intriguing for their exoticism. There are studies of the Puritan townscape (Stilgoe, 1976), Mormon townscapes (Rosenvall, 1972), and town planning ideas of religious groups, particularly from central Europe (Murtagh, 1967; Hayden, 1976; Vollmar, 1995). Industrial company towns represent another source of planning practice (Alanen, 1979), as does the federal government (for example, Alanen and Eden, 1987). Lacking, however, is a theoretical framework for understanding why some planning ideas diffused spontaneously and far afield while others remained highly localized (for some isolated case studies see Reps, 1955, 1965).

### **General urban morphological structure and character**

In that branch of the study of American form which seeks to interpret the geographical structure of whole urban areas in terms of the spatially specific morphological processes operating within them simultaneously over time, there is a serious dearth of general statements to guide research, just as there is a lack of detailed and sustained inquiry into the localized and interacting forces and

patterns contributing to the overall patterns of structure and change. While there are numerous small studies of individual and localized patterns and agencies, they are rarely, if ever, related conceptually to any general interpretative framework. On the one hand, functional analysis of urban space by urban geographers rarely looks at the actual morphological dimension of the built environment in anything but the most cursory fashion. On the other hand, work examining people as producers of the features of the built environment (such as that by urban historians) understandably focuses on events and decisions that led to them (Johnson-McGrath, 1997) and stops short of any sustained and systematic analysis of the morphological consequences that ensued, especially the interrelations between the ostensible features created and other physical elements of the urban areas affected.

One approach to alleviating this mismatch has been work stemming from cross-cultural thinking, in which knowledge of European research traditions is brought to bear on American conditions. Some attempts have been made to apply concepts developed in British urban morphology to American city morphology, such as the morphological frame, plot cycles and building repletion (redefined as densification/renewal cycles), fixation lines, breakthrough streets, and urban fringe belts (Conzen 1980, 1990). By far the most intensive and successful fusion of continental European thinking with traditional American form analysis has been Anne Vernez Moudon's study of neighbourhood architecture in San Francisco (1982, 1986a). While a small-area case study, it relates in great depth residential building types, set within an evolutionary building typology, to the underlying and intertwined cadastral history of the district under study.

In turning to particular components of the complex and historically stratified urban morphology of American cities, attention necessarily attaches to both features to be found in all modern urban environments as well as features peculiar to American conditions. The dynamism of urban growth

in the United States since the Industrial Revolution, and the value orientation towards speed and utility embedded in the culture, have meant that many urban morphological features and interactions there contrast with those elsewhere, notwithstanding strong modern tendencies towards convergences in the structure and appearance of built environments with accelerated globalization. Hence, some topics have attracted quite specialized study.

### **Urban sites and physical modifications**

Since commerce has always been more important than defence in urban North America, most cities in the United States have evolved on generally flat sites, many of the oldest and largest on the margins of significant water bodies such as coastal inlets, estuaries, and river banks. With the exception of Pittsburgh, which has spread far beyond its constricted original river confluence site (Pillsbury, 1970), and mountain mining towns, accommodations to site have mostly concerned battling marshes, bridging waters, and filling in tidal flats rather than overcoming choppy terrain (Whitehill, 1968; Domosh, 1996). Morphological study of urban sites has long been out of vogue, perhaps because the complacencies of technology have rendered them unchallenging.

Given the vast number of towns established in the last two centuries and the lack of social barriers to town founding, town site 'locating' has been anything but unimportant. As topography has offered few impediments, and frontier conditions have fuelled widespread competition among property-owners for urban creations, the multiplicity and frequent ephemerality of early town sites, and the land speculation they engendered, have become standard themes in American urban annals (Reps, 1965; Walters, 1983-84, 1991). The design of original plats has usually been an exercise in mundane replication of simple grid-iron layouts, with a seeming infinity of minor variations in dimensions and orientations of

streets and lots. Despite extensive general discussion of individual cases (see, for example, Reps, 1965, 1979), virtually no systematic studies exist of these characteristics and what patterns of regional occurrence, diffusion, and meaning they have (for a splendid exception in the case of planned railroad towns, see Hudson, 1984). The conceptual understanding of regional origins, agency, and form typologies of American towns and cities across the nation as a whole constitutes a major research frontier as yet barely explored.

A key corollary of the democracy of urban platting in America – countless landowners free to plat their holdings in any patterns at any time, and with minimal if any regard for the activity of their neighbours – is the phenomenon of ‘premature subdivision’, particularly in its relation to the character of the urban fringe. Because large-scale speculative (and therefore quantity) house building has been confined until modern times to large, dense urban places such as New York and Chicago, the potential lag between lot sale and the independent step of house construction has resulted in many urban fringe developments laid out in streets and lots but filled with only a few, if any, structures. Eagerness to be on the leading edge of development in any particular locality has often resulted in vast areas of ‘suspended’ or chronically delayed urban land conversion, with obvious consequences for later morphological character. While the general phenomenon has been studied in the past (Hoyt, 1933; Fellman, 1957), the implications for ultimate neighbourhood character have not been well studied.

### **Growth cycles and perturbations**

Homer Hoyt’s study of land platting and land values around Chicago derived in part from economists’ interest in economic cycles. The way in which building cycles, as specialized components of more general business cycles, affect the geographical structure of cities has been more studied in Britain than the United States (summarized recently in Whitehand,

1994). However, the spatial structuring of American cities at a broad scale, with housing age forming predictable rings within the built-up zones of metropolitan areas, has been well demonstrated for the Twin Cities between 1890 and 1960 by Adams (1970), perhaps so much so that it discouraged further work in that direction. This is regrettable, because Adams paid little attention to the morphological character of the housing stock he studied, and the systematic distribution of building types within the broad-gauge growth bands, not to mention their possible relation to elements of the urban morphological frame, are but poorly understood (Ford, 1974).

Perturbations in urban growth patterns occur when disasters such as fires, floods, and earthquakes happen on a significant scale. While historians and others have investigated the social and institutional responses to these events, they have rarely reconstructed the actual character of the rebuilding and replanning of the affected areas afterwards (a partial exception is Rosen, 1986). By far the best work along these lines is that of Bowden (1970, 1982), who charted the physical transformations of San Francisco at the turn of the twentieth century, showing how little replanning actually took place, and how remarkable morphological inertia resulted from the mutual rigidities of highly-fragmented property ownership and weak government. Although some attention has been given to the impacts of floods (Driever and Vaughan, 1988), there is much more to be learned of the short- and long-term effects of such disasters on the dynamic morphology of the built environment.

### **Morphological frame, fixation lines, and urban cadaster**

There are a number of terms in urban morphology which have gained substantial currency in the European literature, but which are largely unknown or unused in American study of urban form. This results partly from different traditions and emphases of research and partly from applicability to local

conditions. There are, for example, very few vestiges of the Middle Ages to be found in American urban places. The heritage of 'organic' street and lot patterns in such urban cores as Boston's being, perhaps, one of the few conceivable instances, although the institutional contrasts in property law and social custom there make that an attenuated case at best. Notwithstanding these differences, some European concepts seem to have broad applicability to American cities: morphological frames, fixation lines, and the urban cadaster are examples.

A morphological frame is a pre-existing ground plan feature of an urban area that to some extent outwardly shapes a succeeding plan development on the same site, expressed often as an inherited outline. Examples would be waters' edges in urban areas, or former field or property boundaries. Nelson's (1964) study of old rancho limits frozen around, and influential 'frames' for containing, later street and block development in Los Angeles is a prime case in point. More generally, the U.S. Land Survey System of township and range division 'frames' countless towns and urban subdivisions across America (Johnson, 1990). Indeed, the metes-and-bounds survey areas of the eastern United States serve similarly to 'frame' and influence urban additions to towns and cities (Conzen, 1990; Price, 1995).

Fixation lines are strongly linear features marking some stationary phase of the urban fringe which subsequently 'fix' the geometry of later development along their edge, often as defining segments of an urban fringe belt. Original waterfront lines become embedded in subsequent port development which they nevertheless sharply influence by their adjacency and resilience (Krausse, 1990; Conzen, 1990). Railroad lines and superhighways, because of their barrier effects, create similar morphological influences.

The urban cadaster contains both the collective features of the ground plan of a city and represents the property ownership mosaic, and is intimately related to building patterns. Why the urban cadaster should

have been so neglected among American urban geographers, particularly those interested in historical evolution, is hard to explain. The answer may lie in the presumed ability of a free-wheeling property market simply to erase or 'overwrite' old geometries with new. But the shaping power of the antecedent urban cadaster on later change has been shown again and again (Conzen, 1980, 1990; Burns and Kay, 1981).

Concepts such as morphological frames and fixation lines are of general value, and could advance understanding of the physical shaping of American cities if applied more widely. The American terms that approximate the urban cadaster are 'plats' or 'grid-iron' plans, though their meaning is more restricted (Groth, 1981; Moudon, 1986b; Schein, 1991). Even here, the geographical analysis of the plat structure of American cities, beyond the descriptive work of John Reps, is surprisingly sparse and capable of substantial extension. Plats have afterlives, but their history, once embedded in the urban mass and subject to replatting and sometimes vigorous further change, is a research frontier pursued mostly by local historians and archaeologists and begging for systematic attention.

### **Building type distributions**

Urban building types as such have spawned a huge literature, but studies of the spatial patterning of these types in the urban landscape are relatively few. Here, we are concerned only with the latter corpus. Four distinctive general features of American building history stand out: the high frequency of wooden structures in the American city (see Noble, 1984), the comparatively short life of buildings (Price, 1955–56), the rapid succession of building technologies and fashions – but the general lack of architectural modernism in residential districts – and the historical looseness of internal building densities, except in the core areas of the very largest cities.

Buildings create skylines, and some geographical interpretation of them in the

United States exists (Ford, 1976; Holleran, 1996). Mostly, American urban skylines are striking for the prominence in them of skyscrapers at the business core. Remarkably, while the literature on skyscraper appearance is voluminous, the bulking and spatial pattern of skyscrapers in the urban fabric has been relatively little studied (Holdsworth, 1992; Bastian, 1993; Domosh, 1996, pp. 65–98). At the scale of the small town, Francaviglia (1996) has published an engaging interpretation of small-town ‘main street’ morphology (see also Bailey, 1982).

Residential building types also command a vast literature, but their contribution to characteristic streetscapes and district-wide patterns is far less developed, probably because that requires onerous field mapping. A cardinal feature of American cities is the speed with which districts can lose prestige, with consequences for their morphological development. Bastian (1975) is one of the few to consider the relation of architectural types to neighbourhood cachet (but see also Ford, 1994). Dense environments reflect the emergence of multifamily housing (Ford, 1986), alley housing (Borchert, 1979), and the formation of row housing (terrace housing) (Smith and Moorhouse, 1993). Little has been done with the geography of apartment buildings, although a fine study of single-room-occupancy hotels adjacent to downtowns has been written by Groth (1994). No-one has yet published a detailed interpretative typology of a whole city’s housing stock, not to mention a city’s full building stock, despite the numerous architectural surveys of urban places, some claiming to include all structures.

### **Morphology of land use**

Most American students of urban form, especially geographers, think of urban land-use structure as a concept at the macro-scale, applicable to metropolitan areas as a whole. The classic Burgess, Hoyt, and Ullman/Harris diagrams of city spatial structure have, at last, become too simplistic to match reality (see

Vance’s concept of ‘urban realms’, 1977, p. 409). Morphological conceptualizations have not advanced much further, except to incorporate, at this large scale, suburbs, ‘edge city’ components, and exurbia (Muller, 1977). Within built-up areas, land-use patterns are rarely studied from a morphological point of view by geographers (but see Jakle and Wilson, 1992), and particularly not in systematic relation to the urban cadaster and building typologies. Exceptions to this broad generalization include such studies as Krim’s (1977) documentation of the built environment of north-west Cambridge, Massachusetts as a fringe-belt component of metropolitan Boston, and Longstreth’s (1997) of inter-war commercial strips (see also Jakle and Mattson, 1981).

### **The perceptual dimension**

Contemporary interest in American urban form among geographers in the last two decades has added a decidedly perceptual and instrumentalist dimension. While study continues of the ‘objective’ urban landscape and its components in its mainly structuralist modes, increasing attention has been given, as in British and other European urban morphology, to a countervailing approach: the explicit and detailed role of human agency in cityscape creation. Since urban landscapes are ‘authored’, their authors can be studied for their perceptions and actions regarding morphological stability and change. Perceptions are framed by experience and motives, and therefore images and symbols play an important role in shaping thought and action. It would be foolish to claim that all studies of ‘objective’ morphology ignore human agency, but such studies certainly have tended to leave human action implicit in the results being studied on the ground.

The new instrumentalist and deconstructionist literature runs the gamut from building form symbolism to social movements and *Zeitgeist* as highly indirect determinants of urban form in general. This range is substantial, and often connotes types of evidence quite remote from the supposed



object of their elucidation. For many writers in this mode, actual city morphology recedes into virtual insignificance, because social commentary on ideas and perceptions about urban form – for example, architects' musings about urban form, or the authors' own – assume precedence. This moves discussion effectively beyond a focus on the city's morphology itself to that of pure discourse.

Representative of some of the instrumentalist work among geographers is that concerned with the symbolism of office buildings and skyscrapers, in which the architectural and architectonic forms given to building exteriors and interiors carry messages of commercial power and assertion (Gad and Holdsworth, 1987; Holdsworth and Fenske, 1992; Domosh, 1987, 1996). Occasionally, projected images become self-fulfilling prophecies, as with the suburban feel of early twentieth-century Los Angeles (Krim, 1992). Sometimes, memory combines with image to underwrite redevelopment strategies, as with the tourist reconfiguration of the built factory environment of Moline, Illinois (Crump, 1999).

### Concluding remarks

The vastness, material richness, and space-conquering technical prowess of America have encouraged a looser city form than in Europe, and made the suburb of single-family homes the national utopia. In this postmodern age, the historical depth and character of older urban environments are acquiring marketability, and where they are thin on the ground will be substituted for with ersatz environments. Fairly rapid change is a near-constant, and American cities have passed through at least three major phases of morphological concentration and decentralization in only two and a half centuries. The study of American urban morphology is consequently looser, less organized and ordered than perhaps in Europe, but no less imaginative. Numerous research topics await systematic investigation, and detailed studies in the future should

benefit from the advances in geographic information systems technology and data base development.

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