

## Institutions and urban form: the example of universities

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**Abstract.** *Urban morphologists have made much of the role of institutions in shaping urban form. Universities in particular are sizeable landholders, with common aims, but which have resulted in very different outcomes in the urban landscape. Morphological concepts are applied to the timing, location and form of foundations. Three models of university development are suggested: the campus, colonization, and dispersed. Campus universities in particular present problems for traditional urban morphological analysis.*

*Key Words:* universities, campuses, colonization, planning, design, urban landscapes

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The contribution of large institutions to the shaping of the urban landscape has long been recognized. This is particularly so in locations – especially urban fringes – and at times in economic cycles – often slumps – in which the large financial resources available to institutions allow the purchase of large sites for their extensive land uses (Whitehand, 1992, pp. 86-124). This paper explores some of the urban impacts of university sites. In particular, the stage in the economic/building cycle, which may determine the availability and cost of sites, the physical location of sites relative to urban centres, and the appearance of sites and buildings in terms of planning and architecture, are introduced as context for three models of university growth and development.

Universities have been selected because, in the United Kingdom at least, statistical returns are readily available on such

institutions with a Royal Charter. Many are sufficiently long-established that commemorative histories are available. Steadman (1997, pp. 56-7) usefully suggests the scale of their contribution to the non-domestic building stock of England and Wales, occupying some 14 km<sup>2</sup> of floor area. There is also a long tradition of scholarly study of universities, ranging from their social and economic history (Bender, 1988) to architectural and urban design (Dober, 1996; Brentano, 1994), and estate management and planning (Stroud, 1995). Remarks on their morphological impact are readily generalizable to other educational institutions such as colleges of further and higher education and, perhaps, to schools. More recent urban forms, such as business parks, also demonstrate some similar characteristics. The potential for international comparisons is also high.

In the categorizations of urban form and

function that were popular in the 1950s and earlier, the category of the 'university town' is sometimes found. Such towns have been the subject of study (Gilbert, 1961). Yet the question of what constituted a university town remained thorny. Evidently it was not simply a town that possessed a university. Indeed, some have held that Cambridge is the only such town (Cambridgeshire County Council, 1952, p. 1). The reason why there are so few specific 'university towns' is because the university, as we now know it, is a relatively recent phenomenon: the majority arose in the late-nineteenth century. Instead of towns growing up to serve the university, the university was merely an adjunct – and, originally, often a very small one – to large industrial cities. So the university town *per se*, as explored by Gilbert (1961), has now largely been replaced by towns in which higher educational institutions play a part – even a large part, and possibly played by multiple institutions – but not a dominant one. In these cases, the interplay between the university and the city is likely to become even more complex.

### The university and economic cycles

A key element relating university developments to wider economic and social trends affecting urban form has been their place in the building cycle. Morphologically, universities and other institutions have been seen as requiring extensive sites. It is hypothesized that these have generally been acquired more readily during slumps in economic and building cycles, when land costs are relatively low – particularly at the urban fringe (Whitehand, 1987a, 1992). Bristol University, for example, was advised to 'build during a recession', but was reluctant to use capital and thus missed the opportunity (Carleton, 1984, p. 138). In some cases sites have been donated by municipalities (as with the University of East Anglia) or individuals (Birmingham), but even these donations are not wholly removed from impacts of the building cycle on the valuation and potential other uses of such

sites.

A full building cycle for the United Kingdom has not been formulated, either in terms of chronological completeness from the start of the industrial period or of the various types of building – including housebuilding, institutions, public buildings and so on that are all subject to building cycles. Whitehand (1987a, Figure 2.5) does show non-residential building for the United Kingdom between 1875 and 1939, of some relevance to the activities of universities since the formation of the 'red-brick' civic universities. In comparison, the dates of university foundation (by date of their Royal Charter) are during the downward portions of cycles in 1900-08 and 1926 (Reading, the only inter-war Charter).

There is some relationship between university foundation and interest rate (a variable used in examining building cycles) in the post-war period in the United Kingdom. The 1948-1958 foundations came after a decade when interest was capped at 4 per cent (partly owing to the war), during a rise to a 6 per cent peak in 1958. The 1960s foundations were at a time of fluctuation between 6 and 8 per cent, but ceased just before the oil crisis rise to 12 per cent. The creations of 1991-93 were the 'promotions' of former polytechnics, part of the expansion of mass higher education during a recession (cf. Ainley, 1994, pp. 11-17).

Thus, although morphologically a number of universities have classic fringe-belt sites (for example Birmingham, Glasgow, Newcastle upon Tyne and Reading; and, further afield, Stockholm and Münster), the relationship with the building cycle shows a time-lag. At least in part this is a result of the lengthy process by which a university proposal is developed and finds acceptance, government funding is sought and agreed, a site is identified, and a Charter is granted.

At the level of individual projects, rather than whole universities, the influences of building and economic cycles are very significant. For example, even when a university makes a substantial investment in development proposals, they may not be

implemented for financial, political or wider economic reasons. King's College London, for example, gradually acquired several house leases in the 1950s for a projected biological science development; nevertheless a range of factors, including cost and 'the unfavourable economic climate and its effect on the University building programme' delayed development until the mid 1960s. Even then, lack of money curtailed the development: 'evidence of the original intention can be seen in the unfinished ending to the present building' (Huelin, 1978, p. 205).

Leeds, in contrast, gradually acquired properties in the inter-war period in the context of

an economic depression, falling rents, many empty houses ... and therefore a fair chance of obtaining vacant possession of any purchase at least as soon as funds could be gathered for rebuilding ... In the occasional brush with a speculator the University could call his bluff since it was rarely in a hurry (Beresford, 1975, p. 135).

Thus position in the economic cycle has a significant effect upon the foundation of universities and their subsequent abilities to develop their estates and expand the range of their activities and their size.

### Location of the university in the city

The location of any university within any city is important not only for symbolic reasons (the perception and marketing of the city, as well as landmarks in the urban landscape) but also for practical reasons such as activity patterns (Joint Unit for Planning Research, 1974). Clearly, not all universities have the same spatial or developmental relationships with the towns in which they lie. Some, clearly, have moved as their city has developed – as did New York University on Manhattan Island (Frusciano and Pettit, 1997). In other cases, for example in the Netherlands, combinations of national, local and internal university politics and complex funding regimes have determined locations,

especially during periods of urban and campus expansion (Groenendijk, 1998). Some universities have been developed *ab initio* with a substantial degree of physical separation, taking advantage of particularly cheap and extensive sites (e.g. Keele). Some such institutions have tended to suffer in terms of accessibility, particularly by public transport; and in terms of students' perceptions of access to urban (largely recreational) facilities. Although, clearly, they do have impacts on neighbouring towns, these tend to be indirect.

The spatial relationship of university and city has long been a focus of debate. Communities have not always welcomed large numbers of students, nor their colonization of residential property (a form of 'reverse gentrification'). However, in many cases the residential community has grown up around a university site, as at Hull and Birmingham. But cities in aggregate have welcomed the concept of the university. So where is the university located? Central or peripheral? Isolated or an integral part of the city?

Leeds was established on its inner urban site from the 1870s but, as this small site was becoming cramped despite piecemeal additional purchases, the suggestion arose several times in the 1920s of moving the entire University out of the city, and selling the old site for commercial or residential development. Even the first Secretary of the United Kingdom's University Grants Committee (UGC) had inquired whether the University had thought of using the great stately house of Temple Newsham. However, the University management decided that a central site was vital because

a University site must be near the railway stations; it must be 'accessible from the working class quarters of Leeds and therefore suitable for evening instruction'; it must be accessible to business men 'who help us with Committees at mid-day', and it must be close to the medical school (Beresford, 1975, pp. 136-137).

The example of Warwick does show

conflict in the minds of the promoters within the City of Coventry. Its main promoter and publicist, Henry Rees, advocated a site on the west of the City at its boundary. A key local politician, on the other hand, preferred a site on the Leicester road. The City's Director of Education felt that the site proposed by Rees was possible, but 'I would prefer one a little farther west and closer to the Training College – this would be more level'. The City Architect felt that 'ideally a university should be in the city centre. But your site has potential'; although he did later support the acquisition of a much more expensive, and smaller, 7-acre city centre site (all quoted in Rees, 1989, pp. 10-11).

When the city fringe site was approved, and UGC support and funding was forthcoming, one of the fledgling university's first actions was to colonize other sites: purchasing additional residential properties on the adjoining Kenilworth Road (noted for its sizeable houses in extensive plots behind thick tree belts) for the Vice-Chancellor's 'temporary' residence (used as such for 23 years) and for a Mathematics Institute (Rees, 1989, pp. 83-4, 93).

### Appearance and style: planning and architecture

Incontestably, universities are unique open-air museums of ideas expressing wider trends in planning (Lang, 1994); it has even been said that 'a university campus is a laboratory for urban design' (José Luis Sert, quoted in Turner, 1984, p. 271). In their layout, universities often used ideas derived from the *beaux-arts* or 'city beautiful' concepts in planning and landscape (Freestone, 2000). New campuses and universities were being designed in the nineteenth century, at the time when such theories of planning and design were becoming widely used. In the United States at least, the appeal of this formality has been characterized as orderliness, urbanity and dependence on the new philanthropy (Turner, 1985, p. 167). Again in America, the classical architectural style was common, seeming 'to embody the

highest ideals of education and beckon to would-be donors' (Brentano, 1994, p. 7). American models, particularly Jefferson's 'academical village' at Virginia (1817), so different from the monastic quadrangles of European universities, were influential elsewhere, Witwatersrand University (1919) being an example (Muller, 1989).

Formal layouts are seen in the United Kingdom, particularly in the early stages of campus universities such as Birmingham and Nottingham. Yet there is little here of the formal grandeur of many planned campuses, for example at Western Australia (Figure 1A), despite its changes over time to a crowded axial layout (Figure 1B, C) (Stephenson and Stephenson, 1966). On non-campus sites, as gradual land acquisition and finance permitted, there were many grandiose plans to create formality; as with the architectural competition at Leeds in 1926, where the winning entry proposed the replacement of an assortment of buildings and hoardings on a prominent street corner by a formal classical building, portico and tower (Figure 2). Generally in the United Kingdom, however, a classical style was not so closely associated with learning. Many imposing university buildings of the mid- to late-nineteenth century were in robust Gothic (those by Alfred Waterhouse at Manchester and Leeds, for example): universities, their fund-raisers and donors were by no means unaffected by the 'battle of the styles' at that time (Mordaunt Crook, 1989).

In the post-war period, universities still required symbolic landmarks; although architectural fashion had turned to the Modern style, and new materials, including reinforced concrete, plate glass and structural steel, were common. This gave new buildings and campuses, particularly for new universities, a very different character and appearance. In terms of layout, new planning paradigms had overtaken the *beaux-arts* ideals (see Figure 1C), and a form of utopian idealism was reflected in much campus design (Muthesius, 2000). Qualities of open space have increasingly been given prominence, as at Melbourne: where 'we



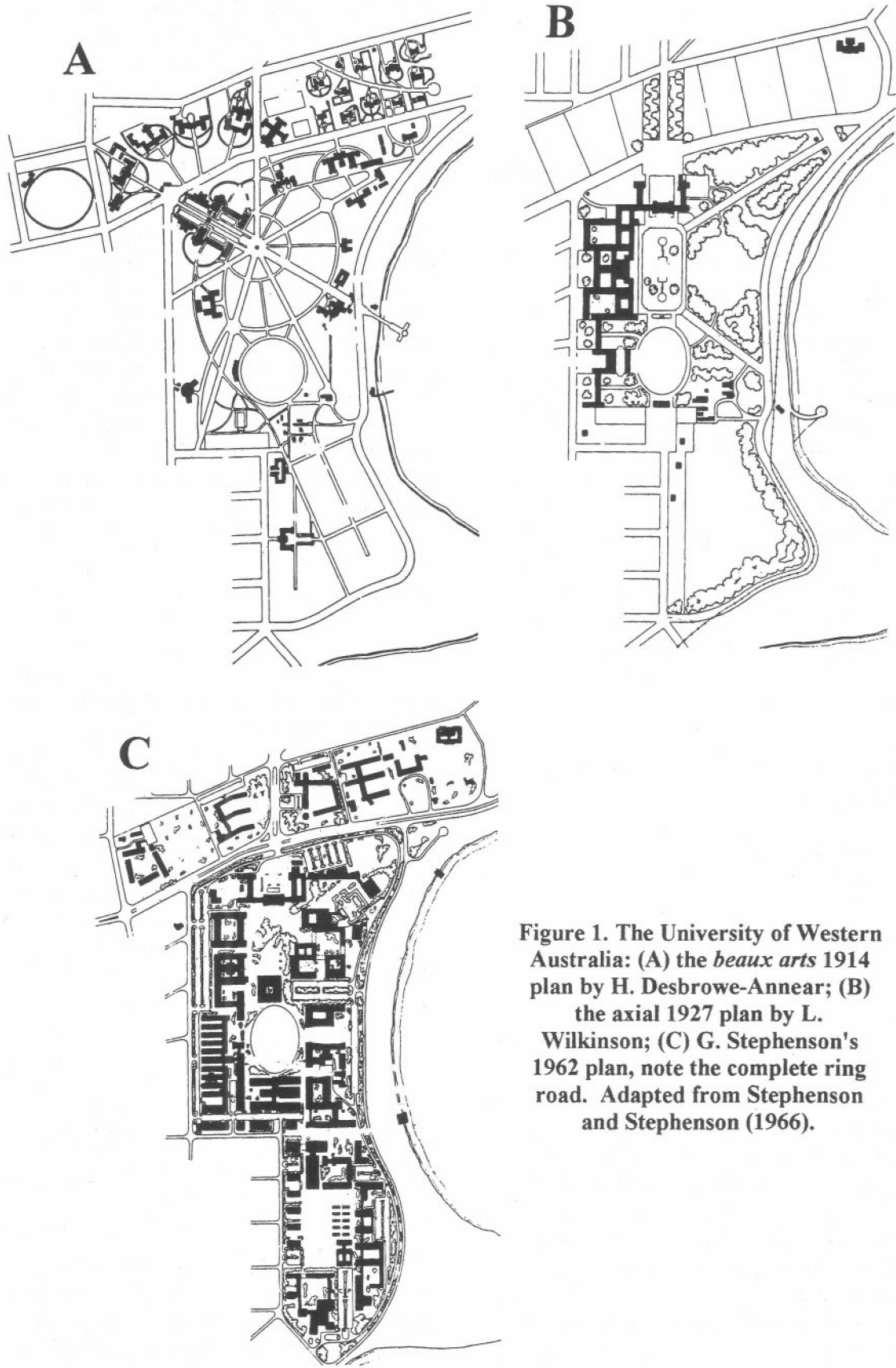
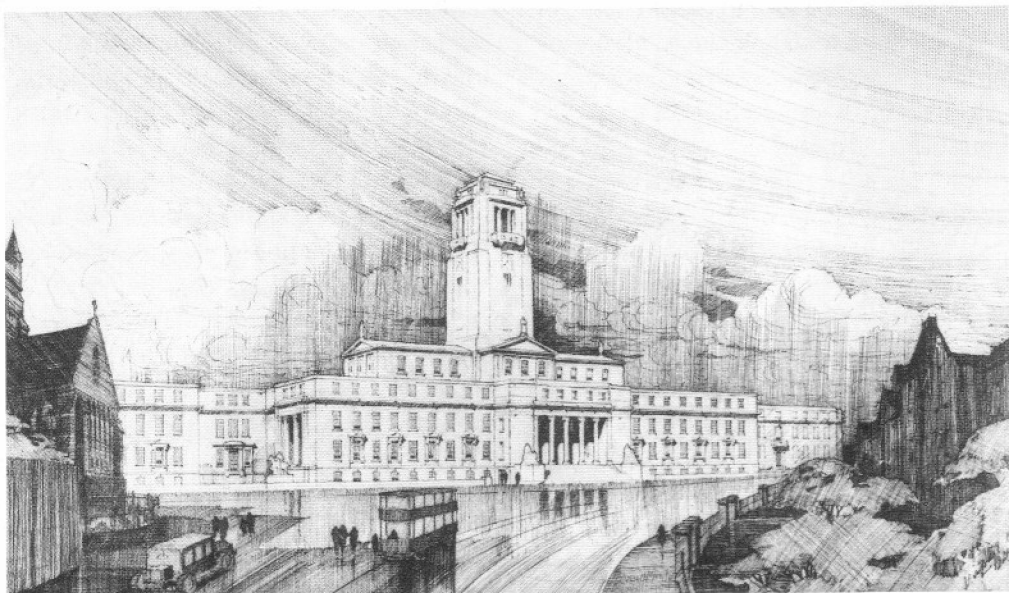


Figure 1. The University of Western Australia: (A) the *beaux arts* 1914 plan by H. Desbrowe-Anneer; (B) the axial 1927 plan by L. Wilkinson; (C) G. Stephenson's 1962 plan, note the complete ring road. Adapted from Stephenson and Stephenson (1966).



**Figure 2.** The competition-winning scheme for Leeds by T.A. Lodge, 1926.

consider the spaces between buildings to be as important as the buildings themselves, possessing their own qualities of scale, proportion and character as well as providing settings for architecture' (Ancher Mortlock *et al.*, 1970, p. 29). 'Prima donna architectural statements' have been given less prominence in many new developments, such as on Witwatersrand's West Campus, where the university 'places emphasis on the intrinsic and traditional nature of the university rather than the changing character of popular transient movements in contemporary architecture' (Muller, 1985, p. 13).

### Models of growth and form

The simplest models of university growth and form identified symmetrical, formal schemes on level sites, and irregular schemes on rugged sites (Klauder and Wise, 1929). Freestone, reviewing the Australian experience, lists no less than 10 forms: Oxbridge, academic village, romantic, campus beautiful, university in-town, utilitarian campus, Modernist master plan, university community, green campus, and post-modern campus (Freestone, 2000). All such models have strengths and weaknesses, but most seem more descriptive of form at a

particular point in time than able to cope with university growth.

The 100 or so universities now existing in the United Kingdom have very different histories but, in addition to the arguable 'university town' model consisting of at most Cambridge, Oxford and St Andrews, three other main models usefully explore the 'town-gown' relationship in terms of urban form. These models are based on responses from a stratified sample of some 20 universities, to which requests were sent for information on their landholdings and histories. The models are not wholly exclusive. There are occasions when an institution initially conforming to one model then moves towards another.

### The campus model

Educational institutions have often been separate in many ways from their towns: some for ideological reasons, prominent amongst which is Jefferson's academical village, but mostly for managerial and financial reasons – although as Groenendijk (1998) suggests the 'balance of power' can change over time. Some such universities have occupied existing low-density development, such as the extensive grounds

of a large mansion (for example at Reading). Others have sought undeveloped land at the (then) urban fringe (Birmingham), confirming the morphological behaviour of large institutions already discussed.

The physical development of both types of site was at first facilitated by the extensive land available, and made visually attractive by existing mature landscaping (as at Nottingham, perhaps a Repton landscape: Fawcett and Jackson, 1998). However, these physically distinct and separate sites inevitably become too constrained, and at some point the universities are forced to expand into the surrounding urban structure and to seek new sites to meet their various requirements. This is particularly true of more central urban sites, which are often very small (owing to high land values) and originally assembled by piecemeal purchase of plots that came on to the open property market (cf Leeds: Beresford, 1975). The campus model is morphologically interesting not solely for its location and development within a restricted site, but for its later development, when it may take on the form of the colonization model.

#### *The University of Birmingham, Edgbaston*

The University of Birmingham has, as a case study, the benefit of existing research into its form, planning and architectural history (Fellows, 1995, pp. 121-6; Whitehand, 1987b, 1992, pp. 113-23). Developing from Mason College, which was on a city-centre site, the University received its Charter in 1900 and began a move out to Edgbaston, then on the urban fringe. An extensive site had been made available by the aristocratic Calthorpe family. The initial buildings, originally planned in a tight semi-circle, included teaching blocks, a Great Hall, clock tower and library. They were set back from the public road, guarded by walls and gate-houses, giving an air of almost monastic seclusion but in a sub-Byzantine style and with a 300-foot clock tower, modelled on that of Siena. This design was by the prominent London-based architects Sir Aston Webb and

E. Ingress Bell: on returning to his office after presenting the design, Webb is alleged to have triumphantly cried 'they've swallowed the lot!' (Fellows, 1995, p. 121).

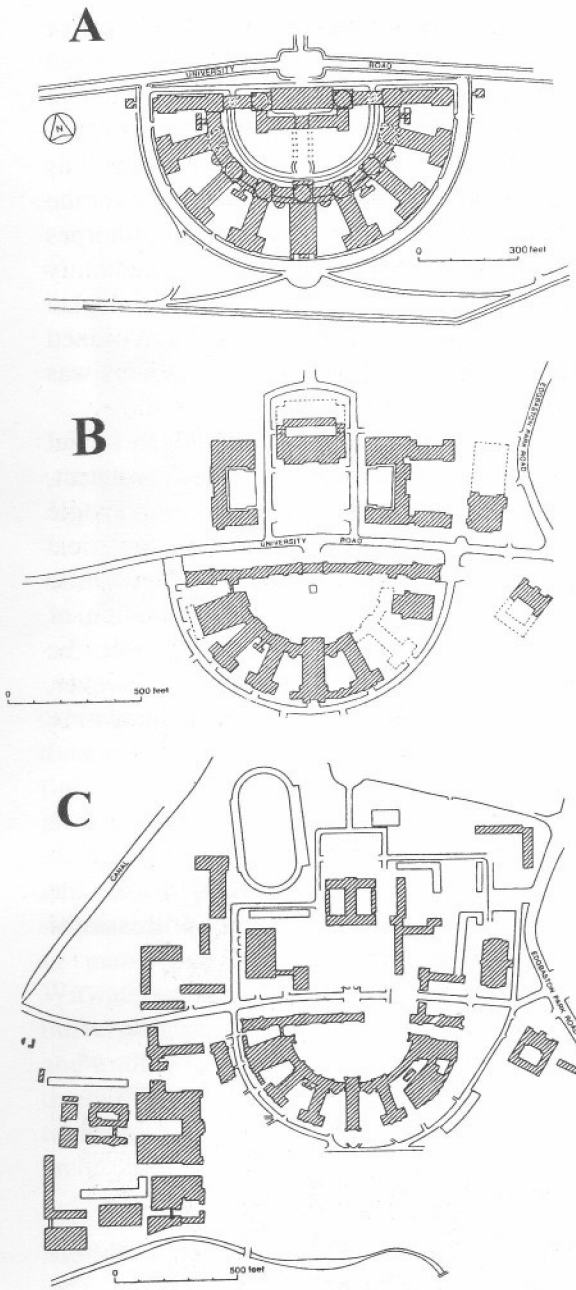
What they did not swallow was his proposed doubling of the semi-circle after the First World War. However, the Calthorpes had donated additional land, and apparently had suggested the concept of an axial plan (Whitehand, 1987b, p. 30). Only a tree-lined processional route with more gatehouses was built from this scheme.

After the Second World War, the axial route was swept away by a new architect, Verner Rees, who proposed a quadrangle faced by a new library and symmetrical teaching blocks. This was accepted with little debate despite the Calthorpes' condition of their land donation that the avenue be maintained. The Calthorpes, however, acquiesced in the revision. These plans were not implemented, but the quadrangle and library were retained in a new 'master-plan' by Casson and Conder. This resulted in a new university ring road, the closing (to vehicles at least) of University Road, the final severing of the tree-lined processional avenue (Figure 3), and

what has resulted ... is a menagerie of cubist buildings using a vast variety of materials. Beside them, Webb's scheme looks humane, controlled and unified, and not the least bit anarchic or pompous (Fellows, 1995, p. 126).

The main University site has thus always been kept as private as possible. The University has resisted proposals for encroaching upon its control of its campus: including compulsory purchase of some of the sports field for a much-needed local by-pass, and extension of conservation control through the 'listing' of buildings and the extension of the Edgbaston conservation area.

Off the main campus, the University has developed additional significant sites, ranging from extensive playing fields on the current urban fringe to several large residential campuses on the sites of former large houses.



**Figure 3. The University of Birmingham:** (A) early layout by Aston Webb and Ingress Bell; (B) proposal by V.O. Rees, 1945; (C) proposal by H. Casson and N. Conder, 1957. Reproduced from Whitehand (1992, pp. 114, 119, 122).

Individual architect-designed houses in some streets adjoining the main campus have been purchased as they have come on to the market, and have been used for small research centres or residences, including the

Vice-Chancellor's official residence. Most recently, with the expansion in student numbers (doubled since 1988) additional sites have been found and existing sites extended.

The early stages of the campus demonstrate gradual intensification of use. The original site, and the later additional donation, were sufficiently large to cope with even unforeseen expansions for over six decades, whilst still retaining a degree of open space for sports use, car parking and landscaping. Later, processes of intensification and colonization occurred. These were *ad hoc*, being incremental changes made possible by the fortuitous appearance of suitable sites on the open market, and the availability of funding to purchase and develop these in addition to developing on previously open sites within the existing landholding. Changing fashions in planning and architecture are clearly represented in the re-planning of the campus (as ring roads and vehicular circulation replaced symmetry and vistas: see Figure 3C), the current pedestrianisation of a major entrance, and in award-winning (and now 'listable') buildings.

### The colonization model

Other universities were not so fortunate as to acquire – or to be given – such extensive fringe landholdings. They may have had cores which were developed on the then urban fringe, as did Birmingham, but their limited sites led them to adopt a colonization model from a comparatively early date. Only when incremental purchases eventually amassed substantial landholdings were large-scale purpose-built developments possible: and, in these cases, there was a need for close co-operation with the local planning authority as facilitator (in providing the requisite permissions) and, possibly, as enabler (in compulsory purchases and site consolidation). Here, too, the morphological frame of the existing street network has become far more of an issue than it was in Birmingham's case. Surrounding road networks may need modification to cope with university-related traffic and parking; while



streets within what emerges as a *de facto* campus may be closed to public vehicular – or even, as far as possible, pedestrian – access. Such extreme colonization involves a considerable degree of privatization of formerly public spaces. Such spaces are often simply earmarked for future development, and are poorly landscaped or maintained.

The colonization model has the added implication that buildings are acquired and converted for educational use, often persisting for many years before their sites are redeveloped. As already discussed, the availability of finance determines both ‘land-banking’ and the timing of redevelopment. In Leeds, Beresford notes that

complaints frequently made of the unsuitability of converted houses may have been justified in the case of science departments with specialised equipment, but for many arts purposes a converted house lacks little (except perhaps prestige and economical communication with its neighbours) ... In material terms, which Leeds could not ignore, converted houses provided the opportunity for piecemeal expansion at the pace of funds that were growing only slowly: first by renting and then by purchase (Beresford, 1975, pp. 140–141).

However, the size and quality of the buildings surrounding a university might be a determining factor: north of Leeds, it was felt that the back-to-back houses ‘could not be used as a temporary home for departments in the period (taught by experience to be a long one) before redevelopment’ (Beresford, 1975, p. 144) even if their slum condition allowed cheaper purchase.

#### *The University of Manchester and the Manchester Educational Precinct*

Manchester traces its history to 1851 and Owens College, in a Georgian house in Quay Street in the city centre. New premises, in robust Gothic style and designed by Waterhouse, were opened in Oxford Road, on

the south side of the city, in 1873 (Charlton, 1951).

The original building, set back from Oxford Road, was fronted by a museum in 1888 and a formal hall in 1902, thus forming an enclosed quadrangle. Extensions in this largely residential area continued, with the 1894 Medical School replacing a street block of 21 houses. By 1900 neighbouring blocks were being colonized, and the first street – Eagle Street – had been closed by the extension to the Engineering building in 1909. Coupland Street was bridged by the Museum extension of 1912 and, with the construction of the Dental School (which opened in 1940) ceased to have any non-university property frontages and became, *de facto* if not in law, private. Lime Grove, where the imposing classical Arts Building had replaced 10 substantial houses in 1919, was similarly wholly university-developed by 1937 (Figure 4).



**Figure 4. The University of Manchester: the colonization of residential areas and street closures to 1950. Redrawn from Charlton (1951).**

The large-scale land purchases and redevelopments were a result of the 1960s expansion of student numbers. Existing university buildings were redeveloped and considerably extended – including vertically – and a range of converted residential property, which had housed teaching departments since the early 1920s, were replaced with purpose-built education buildings. Several streets of terrace houses were swept away, including Leamington Street, Blossom Street and Wright Street; virtually the only remainder being the relict feature of a former chapel on Wright Street, purchased as a library extension in 1949, now marooned between a general teaching building and John Rylands University Library.

The Manchester Education Precinct was a creation of the 1960s which lingered into the 1970s (Figure 5), and elements of the vision, although never completed, survive in physical form to the present day. Significant transport improvements were envisaged, allowing the closure of smaller roads and thus contributing significantly to the creation of a major educational campus and allowing construction of many substantial new buildings. Also important was the separation of pedestrians and vehicles, as far as possible, by a first floor-level walkway. This was

fundamental to the integration of the separate buildings within a comprehensive whole, the clearest example of this [comprising] the sequence of continuous buildings in the University area extending from Maths, through Computer, Church and Chaplaincy, Precinct Centre to the Business School (Joint Committee, 1974, p. 43).

These walkways were to be open to public use, although they were not public rights of way.

Various smaller streets, relics of the original early-nineteenth century layout of this area for residential use, were to be closed 'to reduce extraneous east/west through traffic' (Joint Committee, 1974, p. 13). Creeping purchase had removed all non-educational uses, and these newly-privatized

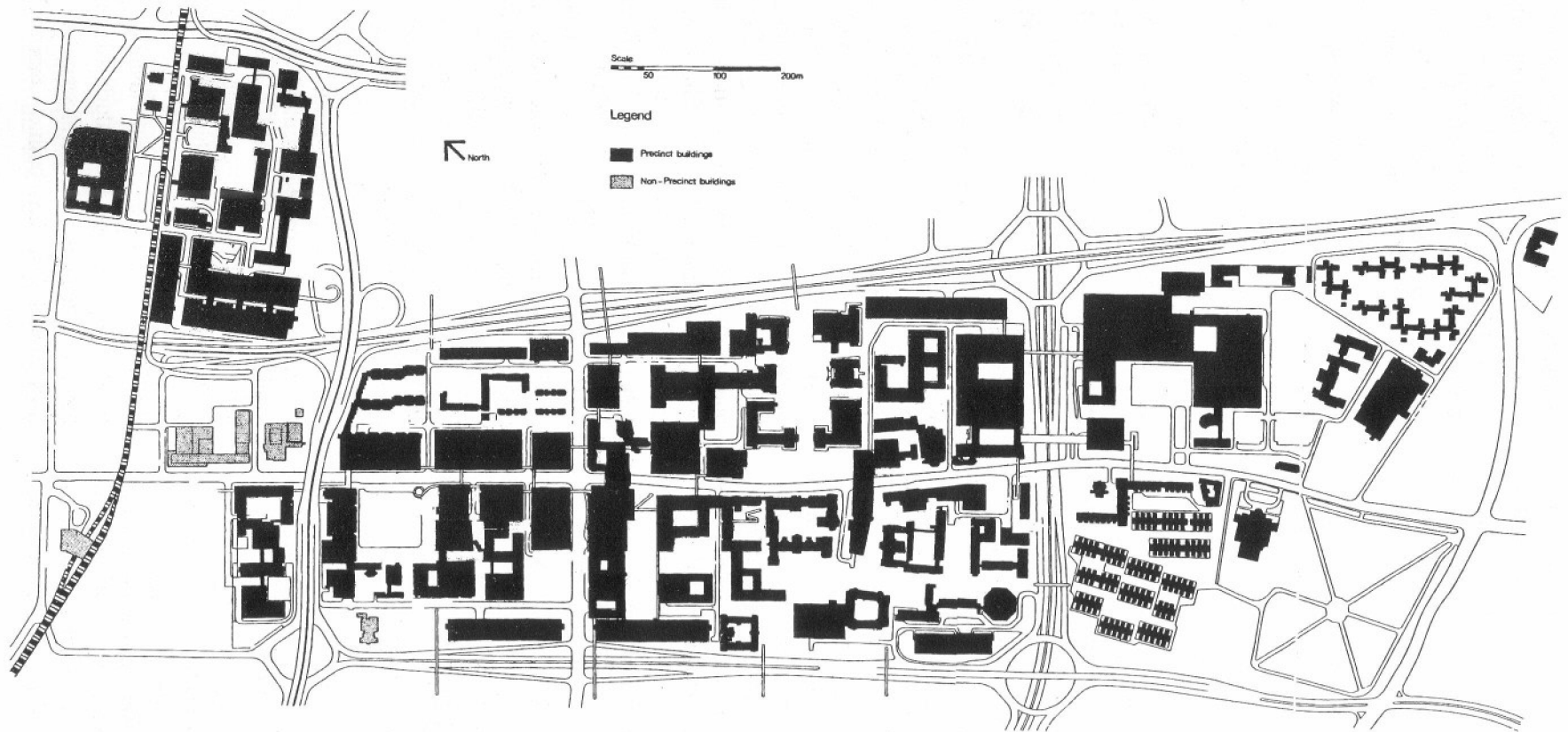
(formerly very public) streets were to be landscaped or, in several cases, built over.

The final scheme, originally due for completion in the mid-1980s, was to encompass six major street blocks and be some 2.2km in length. All minor roads were to be closed and virtually all traffic relegated to peripheral car parks. Oxford Road was to remain as a road through the heart of the 'campus', which would be bounded by two major radial routes and crossed by two major annular routes.

This grandiose scheme was never fully completed, although numerous individual buildings and part of the pedestrian link were. Some sites remain vacant to this day; others are still occupied by the rare remaining nineteenth-century houses (all in university-related use).

However, whilst funding constraints might have killed this scheme, a new version has arisen in the Manchester Higher Education Project, covering 300 acres (about one-third of the area of the City Centre Local Plan area). With the inclusion of Manchester Metropolitan University, the precinct's student population is some 64,000. The new plan addresses key shortcomings of the previously-proposed 'precinct', including 'the minimum contribution that most buildings made to animating the street-level environment' which 'resulted in an increasingly unattractive and unfriendly precinct character'. Improved landscaping, pedestrian routes, traffic management and associated developments would create a new unified image. This will deliberately be 'a new place marketing strategy' (Cannings, 1998).

The University has also been active since the early 1880s in colonizing a formerly private walled suburb, Victoria Park, 1.5km south of the University, immediately adjoining the failed precinct scheme (Spiers, 1976; Charlton, 1951, pp. 50-51); this is now a conservation area. Senior academics, including at least one Vice-Chancellor, have lived here. The period 1900-1914 marked the major incursion of university and other institutional buildings into this suburb



**Figure 5. The Manchester Education Precinct (incorporating the University of Manchester, UMIST [University of Manchester Institute of Science and Technology], Manchester Polytechnic, Royal Northern College of Music, and Manchester Royal Infirmary). Adapted from Joint Committee (1974).**

(Spiers, 1976, pp. 57-58). Halls of residence have been constructed in the extensive grounds of nineteenth-century villas, some of which remain.

### The dispersed model

A new type of institution arose in the United Kingdom during the late-twentieth century with the promotion of the polytechnics to university status. An early example was the elevation of Battersea Polytechnic and its physical relocation – in part since its site was wanted for comprehensive clearance and redevelopment – to Guildford, as the University of Surrey (Douglas, 1991). This trend was intensified in 1992 with the elevation of all other polytechnics. For much of their history, the polytechnics had been managed by local education authorities: this close relationship with the city expedited the finding of sites, facilitated planning approvals, and gave technical and professional architectural and planning support. But, since many polytechnics were created from former colleges, they often acquired a portfolio of scattered teaching sites, and buildings of very different ages and conditions. They also experienced a severe shortage of student residences, since the great majority of former college students had been local.

The task before these new universities was the building of an institution and identity from fragmented precursor organizations, often with fragmented landholdings. This task coincided with the pressures of increasing student numbers of both full-time and part-time students, increased stringency in central government funding, an economic slump that made local donations unlikely, and pressure from the funding body to make more efficient use of property and to develop estate management strategies.

#### *The University of Central England*

In these respects, the University of Central England (UCE), formerly Birmingham

Polytechnic, is typical. It traces its history to the Polytechnic Institute (1843). In 1971 the Polytechnic was created as an amalgamation of institutions, with sites at Gosta Green (adjoining Aston University), Margaret Street in Birmingham's city centre, Perry Barr north of the city centre, and Vittoria Street in the Jewellery Quarter. In 1975 three further colleges were merged with the Polytechnic, bringing to its land holding a large site in Edgbaston, west of the city centre, and two other sites no longer used. In 1988 Bournville College of Art, occupying two buildings in Bournville, south-west of the city centre, merged with the Faculty of Art and Design (UCE, undated).

This complex history has resulted in a diverse spread of buildings and sites. Many are fringe-belt sites. The Bournville buildings are held on short leases, are 'listed', and are in need of major refurbishment. The Edgbaston buildings are largely of the 1960s and 1970s and in need of attention, to the extent that it would be more economical to demolish and rebuild one of the halls of residence on this site. The buildings in Margaret Street, Vittoria Street and Gosta Green have undergone refurbishments, in the two former cases costing in excess of £1m each. Considerable work has also been undertaken to some of the purpose-built 1970s buildings on the Perry Barr site.

The Perry Barr campus holds the major central facilities, in buildings designed by the City Architect in the 1970s around a landscaped quadrangle, and the 1966 buildings of the former North Birmingham Technical College. The area is predominantly industrial, and is next to major roads and a railway line. Former industrial buildings on the site were gradually cleared, and the resulting car park finally landscaped in the early 1990s: the local pub, however, remains isolated in this car park, on a spur road that now forms the main campus entrance.

An active policy of site acquisition is being followed, most particularly for student accommodation – two sites of some 800 flats have recently been built – and sports



facilities. Again, the new acquisitions are fringe-belt sites.

A substantial review of the University's estate resulted in an estate management strategy (UCE, 1997), including a 10-year plan for development, refurbishment and acquisitions. This plan is complicated by the dispersal of sites, the projections of student numbers requiring teaching and accommodation, and the poor state and short leases of some of the buildings. There is a particular focus on the Perry Barr site and its environs and, although substantial new teaching or administrative buildings are not planned, thought has been given to forming or considerably improving the main entrance to the campus. Architectural and urban design ideas to draw students, visitors and members of the public into the campus have been discussed. These envisage much smaller-scale changes than the major university constructions early in this century, but are equally products of contemporary ideas in the built environment professions.

In contrast, other new UCE buildings are equally deliberately using contemporary postmodern vernacular styles and traditional materials in an attempt to blend with their surroundings – admittedly rather difficult in Perry Barr, with its mixture of late-nineteenth century terraces and industrial buildings.

Thus UCE typifies the dispersed university, with sites scattered across the city, and is developing a property management system to rationalize space use, to bring property up to contemporary standards, and to develop new sites and buildings. Even so, the physical identity of the main Perry Barr campus, and its 'landmarking', are seen as important (UCE, 1997).

### Universities and urban form

Those aspects of university development and planning that have been discussed here, and the crude (but seemingly widely applicable) grouping into three 'models', have clear implications for the study of urban form.

First, universities have very significant impacts upon the towns of which they form

a part. This is so in terms of population, with the recent increase in higher education attendance in many countries; in economic terms, with student spending and the place of the university as a major employer; and in purely morphological terms, with the extensive land-holdings of universities, either as discrete campuses often located in fringe belts, or individual properties scattered through the urban fabric. Universities may not be trend-setters in design, but they are conscious of image; and they tend to apply high design values to some (if not all) of their purpose-built structures, forming local and regional landmarks – Birmingham's 300-foot campanile, or Bristol's Wills Building, for example.

Secondly, universities are long-lived institutions. The institution is a single, coherent entity, with purposeful estate management and planning strategies (even if these change over time, and have been relatively recently formalized in the United Kingdom). The persistence of the urban forms thus created may be greater than, for example, that of business parks and retail malls, the longevity of which remains to be proven.

Thirdly, almost invariably, universities grow over time. Not only does this have consequences for built form in the intensification of building coverage on previously open campuses, or in the colonization for university functions of previously residential or commercial property, but the timing of the growth – itself heavily influenced by the economic cycle – heavily influences the adoption of particular fashions in architectural style, materials or indeed of planning and layout. In the colonization model, growth results in the occupation of property, the closure of streets and the increasing privatization of urban space.

Fourthly, this growth may result in a university developing from one model into another. Many campus universities may develop colonization trends, as did Birmingham, while some dispersed new universities may seek to rationalize their land-holding and build new campuses. Under-

standing the complexities of development requires that account is taken of this 'switching' between the simple models.

These points highlight the importance of universities as contributors to the changing urban landscape of many towns, and their relevance as an urban 'type' for morphological study. Even if the 'university town' hardly exists at the start of the twenty-first century, the university in the town is of increasing social and economic importance, and physical presence.

Lastly, there are particular problems posed by the very scale and layout of universities – particularly campuses – for the morphologist. Although a campus, such as that at Nottingham, may be a plan unit, it is much more difficult to conceptualize the creeping opportunism of a colonizing model. The common division of an urban fabric into streets, plots and buildings often breaks down. There are 'streets' in the sense of linear places predominantly for vehicular movement. But most movement is pedestrian, and most pedestrian movement is separated, on a network of formal (and informal) paths more akin to post-war New Town planning in the United Kingdom than to traditional urban forms. The streets do not define urban blocks or plot series, particularly as there is hardly a street network or hierarchy. Commonly, there is a 'ring road', either in the original campus design or superimposed upon an earlier form, as at Birmingham. In the colonization model, the character, appearance and use of previously urban streets may be radically changed as they are subsumed into the university area, as at Manchester. There are no 'plots' in the sense of legally-separate land-ownerships or physically-separate demarcated land parcels. Where these may have existed prior to colonization, they are often removed even if an original building is retained by the university. Clearly there are individual and identifiable buildings, readily subject to architectural and design analysis; but little study has occurred of the changing uses to which university buildings are put, particularly following changing funding

regimes and pressures to use space more flexibly and intensively (Pearce, 1992).

This issue of how institutions might be studied, and indeed of the applicability of common concepts and terms for description and study, is not confined to universities. Other institutions – educational, health service, municipal and others – raise similar issues relating to urban form and growth. Many recent elements of built form are of a scale or type very different to those typical of the European historic town in which concepts of urban morphology were developed in the mid-twentieth century. The proliferation of office, business, industrial and retail sites – often called 'parks' or 'campuses' – illustrates this. In these areas, too, there is a 'disengagement of the street, lot and building' forms (Scheer and Petkov, 1998, p. 308). 'Constructed space no longer corresponds to the plot. There is no longer a clear relation between one building and another, and between buildings and streets or open spaces' (Levy, 1999, p. 81). Following Levy's concluding comments, we are likely to need new morphological approaches or tools in order to deal with these new, large-scale urban places.

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