Occasional Papers in the Historic Built Environment

New Town Heritage

Edited by Noël M. James

Historic Towns & Villages Forum

Kellogg College
University of Oxford

CITY DISCOVERY CENTRE
Milton Keynes

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As partners we would like to acknowledge and thank the authors for their contributions to a collection that spans 5 years of debate and discussion on the topic of Historic Cities and New Town Heritage.

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Introduction

Noël M. James

This collection of occasional papers began life as an annual series of seminars in the Historic Built Environment. While the initial collaboration between the Historic Towns and Villages Forum,[1] the Herbert Lane Trust[2] and Kellogg College in 2014 focused on urban development in historic towns, it took as its main theme the topic of New Town Heritage as explored at the HTF annual conference in 2013 – (New Towns, Garden Cities and Utopian Masterplanning – Cities of the Past, Cities of the Future) – and has grown through a series of set-topic seminars and annual events that include collaboration with several universities, agencies, practitioners, civic societies and interested individuals, even as the topic of New Town Heritage itself has taken on more significance during a time in which issues to do with urban planning, growth, the green belt and historic core areas, have deepened.

The collection itself is representative of the conversation around this perennial issue and includes traditional academic research, anecdotal pieces, think pieces and explorations of what form future research and thinking around the topic might take. In that sense it is not a formal collection of academic papers, rather perhaps instead an opener into how we think about built heritage, the significance we give to its background and how we consider architecture and urban planning as a forerunner to placemaking as well as a benchmark for successful design within an historic core, and of course, what we actually consider to be heritage, and where New Towns, a heritage genre of their own, fit into this argument.

The first paper in this collection, Post-war New Town Heritage – Debates, Tensions and Prospects,'[3] provides the context within which New Town Heritage sits, and is, as well as a succinct background to the history of the post-war New Town ideal, a call to action for future debate around the topic. Authors Bob Colenutt and Sabine Coady Schaebitz write their paper from the perspective of the collaborative Arts & Humanities Research Council (AHRC) project that they lead on the burgeoning New Town Heritage Network, and raise the questions we all must ask about the place of the New Town within the academic and practical heritage and historical sphere. The second paper launches straight into the issue of New Town Heritage and indeed, its faded glory – the hopes and ideals of aspirational New

1 The Historic Towns Forum, or HTF, as was.

2 The Association of Small Historic Towns and Villages, as was.

3 This paper came out of an AHRC funded project on the New Town Heritage Network which has seen a series of events this year (2017) in New Towns celebrating anniversaries (Milton Keynes – 50); Harlow (70) and Peterborough (50) held jointly with Oxford Brookes University, Coventry University, Milton Keynes Council, Milton Keynes Development Corporation, Harlow Council, Harlow Civic Society, and Vivacity Peterborough.

Town planning and how that has been captured both through anecdote and image. 'Every House on Langland Road,'[4] by Darren Umney and Simon Phipps, a design academic and a photographer, respectively, takes as its case study Netherfield – that much maligned Derek Walker-designed early 70s housing estate in the New Town of Milton Keynes. It is a piece as carefully crafted as the initial vision of Netherfield itself and considers the conceit of a modern version of new Georgian architecture set within a halcyon, once agricultural landscape as perhaps more of an artistic statement of visual placemaking than as a place made for people to live. Which is no slight on Netherfield, for although earmarked for long-overdue regeneration its popularity with current and original residents does not wane and is testament perhaps to incorporation of earlier principles of space and social belonging in the masterplan as opposed to the questionable desirability of pastiche 'historical' housing estates that place the need for social interaction below the desire for faux aesthetics.

This takes us neatly into Roger Kitchen's conversational piece which follows the tenet of social planning being an integral part of successful urban and New Town masterplanning. 'Milton Keynes: the Social Blueprint – Banning the New Town Blues?'[5] takes us back to Roger's time as a Community Worker in the early days of Milton Keynes. The time when the New Town was literally a building site – a vision of a utopian wild west with all the potential of a new life for its pioneering inhabitants. Roger stresses how vital an understanding of the inclusion of the human element is to sustain successful planning - the life of a new development does not begin until the people move and actually live there – and in this Roger leads us into the following paper through his mention of the (at the time) forthcoming Wolfson Prize, which challenged entrants to design a visionary, popular and viable Garden City as a hefty nod towards finding solutions for the growth crisis. David Rudlin's think piece on 'The Historic Town and the Garden City'[6] details URBED's winning submission for the Wolfson Prize in that year (2014) and posits that New Towns/Garden Cities should maximise existing infrastructure rather than starting from scratch.

In this, David takes us through the thinking behind the design of Uxcester, a sort of urban extension take on Oxford that considers how judicious and confident use of the green belt might alleviate some of our adversarial planning issues and how we might look to some our more successful continental cousins, such as Freiburg, as exemplars. Tying in with this ethos is Jon Rowland's 2015 paper, 'A 21st Century Historic City – Historic Towns and

4 This paper comes out of the Arts Council England funded project, 'Every House on Langland Road' (2017).

5 This paper came from the HTF/MKCDC joint event, 'New Towns, Garden Cities and Utopian Masterplanning – Cities of the Past, Cities of the Future' (Milton Keynes, 2013).

6 This paper came from the joint Chester Civic Trust/ ASHTAV/HTF event 'Urban Expansion and Growth in Historic Towns – accommodating the inevitable? Models for positive change' (Chester, 2014).

Green Belt Issues,'[7] which explores more fully the Wolfson Prize concept and how growth in the green belt could be seen as a viable and positive solution and not something to rail against with our Village Green Preservation Society hats on. Jon Rowland's paper came from our second seminar series – 'Historic Towns and the Green Belt Issue' in 2015, and is a think piece that encourages collaboration between Local Authorities, practitioners and residents – something of a no-brainer one might think but nevertheless something that requires constant encouragement and effort.

With these thoughts in mind, we move from here back into New Town Heritage proper, with Peter Larkham's invigorating academic piece on 'Conserving the Post-Second World War Reconstruction: a Contentious Idea,'[8] which explores firstly how the issues of heritage and conservation were dealt with between c. 1941 and 1973 (the post-Second World War reconstruction era) and secondly, how the heritage of that era is dealt with today, in terms of what is kept, redeveloped, altered or destroyed. He uses the city of Birmingham as his main example and his main question, 'how does the reconstruction become heritage?' is absolutely central to how we determine what is authentic, what is new, what is worthy and worth saving and what is actually heritage in New Town Heritage conservation now – and how we draw those subjective lines.

Finally then, we come to 'Heritage versus Innovation: the Grenoble Experience.'[9] Gilles Novarina and Stéphane Sadoux first explore the context of historic conservation in Europe, and then consider how this has become the preserve of the urban planner and architect, and what this means in terms of innovation and growth within successful historic cities, and more particularly in the university town of Grenoble. Specifically they explore the relationship between the town in the mountains, the industrial town and how the link between town, science and higher education provides both a narrative and a platform to understand the historicity of its development as well as its success. It provides a timely and useful juxtaposition with the actual development happening on that basis in Cambridge, and more latterly Oxford, which Rowland touches upon in his paper. Indeed, Novarina and Sadoux presented a version of this paper at the 2016 HTF Symposium, 'Growing Historic Cities,' held at Kellogg College in September of that year. The Symposium explored how developments in Cambridge, Freiburg and Grenoble might inform the future of Oxford's own growth.

7 This paper came from the HTF/ASHTAV/Kellogg Historic Built Environment Seminars, 'Planning for the Historic Environment (Oxford, 2015).

8 This paper came from the HTF/ASHTAV/Kellogg Historic Built Environment Seminars, 'The New Towns agenda – masterplanning for New Towns, Garden Cities and urban extensions in the historic environment – theory, practise and examples' (Oxford, 2014).

9 This paper came from the joint HTF/URBED conference, 'Growing Historic Cities' (Oxford, 2016).

And so, to conclude, we have here presented a sample of 5 years of events and research and thinking about the issue of what exactly is New Town Heritage and what it means, not only to those who plan it, design, it, build it, codify it, list it, study it, and legislate it, but also to those who live in it and remember it as something that is evidence of real lives lived – something that is a continuation of what we, as humans, have always done – that is, make places.

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1 Post-war New Town Heritage – Debates, Tensions and Prospects

Bob Colenutt and
Sabine Coady Schaebitz

The heritage of Post War New Towns is of increasing interest to planners, policy makers, historians and heritage and conservation experts. This paper introduces the exploration of what is meant by New Town Heritage and why it has become an important topic for discussion and research at this time.

The New Towns in the UK are a centre-piece of UK post-war planning producing an exceptional architectural and town planning inheritance. They were a direct creation of the post-war welfare state with its focus on housing, health and renewal, but were supported by Governments of all persuasions until the 1980s. They were models of urban living, with a distinctive British take on modernist urban planning and design.

There are two contextual issues that have driven the research agenda outlined below in this paper. First, there is the uncertainty (some would say a crisis) about the role of town planning in a mixed economy society.[1] The second context is the value of modernist town planning, urban design and architecture represented in many of the New Towns. [2] Although Britain was at the forefront in listing post-war modernist heritage – as in the case of designation of Stevenage Town Square Conservation Area in 1988 - it remains an uneasy and contested heritage, which is still seeking acceptance in wider society. It can be argued that post-war New Towns from several points of view belong to underrepresented heritages as discussed by English Heritage (as was) in 2012.[3] The New Towns therefore constitute a town planning heritage which needs further careful analysis in order to establish its comprehensive value beyond the listing of individual buildings and even specific conservation areas.

The 27 New Towns in the UK created in three waves from 1947 until the late 1960s are an extraordinary urban phenomenon, conceived at a scale almost unimaginable in the present political climate.[4] They set out a spatial vision of healthy communities initially for many thousands decanted from poor housing in inner London, Birmingham and other large cities. They experimented with a range of modernist ideas about urban design, architecture and public art. The New Town idea combined a paternalistic view of how planned environments can offer people a healthy physical, social and economic life, with active encouragement of community spirit in neighbourhoods, clubs and societies from the bottom up.[5]

Post-war modernist heritage has its advocates in national organisations like the 20th Century Society and international organisations, such as the International Committee for Documentation and Conservation of Buildings, Sites and Neighbourhoods of the Modern Movement. At local level, new town heritage is recognised by present day New Town civic societies, by university planning departments, and by local authorities, for example the University of Hertfordshire Heritage Hub; Harlow Civic Society; MK New Town Heritage Register.

The interest in post-war New Town heritage

is not confined to the UK. Research has been undertaken for the International New Towns Institute by Jaap Jan Berg from the Cultural Heritage Agency of the Netherlands on the heritage of the Dutch New Towns.[6] Post-war New Towns of the Soviet bloc have received much attention as have inter-war New Towns from Mussolini Italy – many share the search for identity and sustainability under much changed social conditions.

There is renewed interest in the UK New Towns as they reach their 50th or 70th anniversaries, for example, Milton Keynes's 50th;[7] Harlow's 70th;[8] and Peterborough's 50th.[9] The New Towns, no longer governed by New Town corporations but by elected local authorities, are commemorating their anniversaries for a variety of reasons. They include seeking to establish and confirm their identity and get in touch with their roots using the anniversaries as place-making measures to make their towns more competitive and cohesive. At the same time, these celebrations are a response to commercial and public pressure, to regenerate parts of the New Town physical inheritance and replace them with more contemporary buildings, housing and public spaces. Nevertheless, first generation New Town local authorities such as Harlow and Stevenage, and even third generation New Towns such as Milton Keynes and Peterborough, are debating how they should adapt or conserve, or, in the case of Bracknell, demolish the original New Town architectural and design legacy in order to be commercially competitive. [10]

This is not a new dilemma for New Town authorities. For example, in Milton Keynes, in 1990 a new shopping centre was approved truncating the iconic Midsummer Boulevard. To this day, it is controversial because it is seen to disrupt the original grid pattern and boulevard design principles of the town. The recent Central Milton Keynes Business Neighbourhood Plan seeks to retain the original grid pattern elsewhere in the face of continued commercial pressures for a flexible approach to preserving the grid.[11]

There is a further reason for the recent interest in New Towns and Garden Cities. The shortage of homes in many parts of the country has encouraged Government to look at Garden Cities and New Towns as potential mechanisms to deliver large numbers of new homes. Organisations such as the TCPA have been actively lobbying for Garden Cities for many years and are now getting a hearing in Government.[12] New settlements like New Towns are also regarded by many planners as an alternative to the perceived design and place-making failure of speculative house-builder-led development of urban extensions in of the last 20 years.[13]

The two contextual issues - the crisis of the UK planning system and ambivalence over the post war modernist legacy - are seen increasingly through the prism of rapid economic and demographic changes that are becoming the defining subject of commentary on the post-war New Towns.

There has always been a turnover of population in towns and cities, but it has been noted that some of the New Towns in the South East and Midlands and in Northern Europe in recent times have experienced a rise in social discord as new populations move in and 'original' residents move out.[14] Places originally created for one class and social grouping are now much more mixed.

In the Netherlands, the leader of the far right party launched his election campaign in a Dutch New Town in 2016. In Harlow, after the European Referendum, hate crimes in the town soared and in August a Polish man was murdered.[15]

The authors of this paper received a grant from the AHRC to establish a New Town Heritage Research Network which explores the New Town Heritage further. The main focus of the network is the town planning and physical inheritance of the post-war New Towns. The built environment and infrastructure with its road patterns, settlement layouts, open spaces, town centres, public and private buildings, and public art reflects the over-arching master plans and architectural design of the original New Town corporations. The master plans aimed at an integrated layout, meeting the needs of residents and workers for housing, employment, social and cultural provision in the town. They introduced important strategic principles, notably green corridors, parkways and neighbourhoods (clusters of housing around shops, schools and community facilities). There were detailed design guides for housing estates and individual buildings, and very extensive tree planting and landscaping beside the roads and paths.[16]

All of this amounts to a distinctive physical inheritance but with wide local differences in design and concept among the 27 UK New Towns.[17] Each town had different architects and designers. Some like Harlow attracted renowned architects (Sir Frederick Gibberd) who brought their own distinctive thinking to New Town design principles. Others like Milton Keynes contracted with large architecture firms and planning consultants. Many like Peterborough had their own large in-house architecture departments as well.

Some of the differences reflect the economic and political context for the first and later generations of New Towns. For example, Harlow and Stevenage were planned for a much more limited use of the motor car compared with Milton Keynes, Peterborough or Northampton whose design principles embraced car travel from the outset. Stevenage built a 23-mile Dutch-style cycle network but in the event it was rarely used as people seem to have found it too easy to drive.[18]

The New Towns have altered and adapted their physical environment in order to respond to commercial pressures and changes in local demands and social trends. Often this adaptation has been difficult and controversial as suggested above. The Town Square in Harlow or the Stevenage shopping precinct, for example, are underused, suffer from some disrepair and are struggling to find a

role as successful public spaces or retail centres. The difficulties of local authorities without the funds to regenerate or refresh are evident.

It is only rarely that towns have managed to restore and re-launch their 1950s or 1960s shopping centres and made them commercially successful in the 21st century, as the city of Rotterdam has done for their 1960s Lijnbaan centre.

In contrast, house-builders and commercial developers have introduced their own their own house styles and shopping centres that are not usually compatible with the founding New Town design principles.

Change in the governance (ownership, planning and maintenance) of the New Towns has made a very significant impact on local consciousness of the towns as 'New Towns.' In the UK, resourcing and control over the New Towns was transferred from Development Corporations to central Government and local authorities in the 1980s.[19] Local authorities responsible for the former New Towns are no longer receiving income from the land and buildings in their towns. Compared with the Development Corporations, they have more limited resources for upkeep and maintenance of the public realm.

The aim of the network is to explore how New Towns are already seeking to retain some of their original character and design principles and how this can be aided by the conceptualisation and conduction of further research. Is it possible for local planning authorities to reinstate original master plan principles on layout, landscaping and public facilities? There is scope as in any town for adaptive reuse of buildings or environmental features.[20] Individual buildings such as the distinctive Harlow Railway station or groups of buildings elsewhere or landscapes could be granted listed or conservation area status. It might be possible for local authorities or trusts to reassemble land particularly in the town centres so that it gradually comes under single public or trust ownership, guaranteeing some unified view of design and planning.

Is such a heritage strategy desirable? This question can only be answered on the basis of a careful evaluation of the built environment. Evaluation includes on one hand the application of clear criteria from the instruments of heritage conservation and the expertise of heritage and conservation specialists on form, space and history. On the other hand, it must be based on the discourse with multiple stakeholders and community groups who may or may not identify with the New Town heritage. One of the heritage values in the UK is the communal value. Questions which arise here are: How does a heritage place contribute to the local community? Who is interested in a specific heritage, who benefits from it and why? And who is not and why? Asking these questions and finding answers to them is a step towards trying to develop heritage concepts which foster social integration.[21]

New Town local authorities and civic societies have been active in identifying key

buildings, open spaces or neighbourhoods that they want to protect in some way. The Milton Keynes shopping centre is listed, and the Stevenage shopping centre has been granted Conservation Area status. Doing this leads to further challenges of ensuring productive use of this heritage but it is a statement of intent to value New Town heritage.

The intention of the New Town Heritage Research Network is to build a register of conservation and heritage initiatives for four case study towns (Milton Keynes, Harlow and Peterborough in the UK and Rotterdam's New Towns in the Netherlands) and to create opportunities for comparative national and international analysis and collaborative problem-solving. Each case study will generate a local heritage profile, assessing the approach to heritage, and examining the implications for the future planning and development of the towns. Collectively they are becoming part of a wider network which enables them to not only exchange ideas and approaches, but also develop a shared identity which might emerge. Given the timescale of the AHRC project we hope this to be a fitting contribution to European Year of Cultural Heritage 2018.

Conclusion

New Towns, especially in the UK, are high on the political agenda at the moment because of the celebration of significant anniversaries and the national focus on new settlements to address the housing crisis. There is also a strong historical awareness in the planning and architecture professions – even a sense of loss – of post-war utopian planning with its comprehensive design and public interest values. In the New Towns, it has left a very distinctive physical inheritance. The task is to evaluate this inheritance using conservation criteria and heritage narratives, using the results to build a foundation for revitalisation and future growth. The challenge is to engage a wide range of stakeholders in the process, to encourage discourse and to try building a broad basis of consensus, from which a distinct identity can emerge. The AHRC New Towns Heritage Network will provide one building block in this process.

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Investigator for the AHRC New Town Heritage Research Network project. Her career spans many years in academe in the UK and Germany, as architectural and urban design educator, researcher and networker, developing strategic pioneering partnerships and working with multidisciplinary stakeholders, including higher education, industry and public bodies. Sabine studied architecture, art history and architectural conservation in Germany and Italy and is a trained architect. Her research publications and interests focus on cultural heritage, architectural and urban history, and built environment education. She is particularly interested in the public understanding of built environment heritage and its potential for the public good.

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19 Ward, 2016.

20 Bullen, 2007.

21 Coady Schaebitz, 2014.

2 Every House on Langland Road

Darren Umney and Simon Phipps

Figure 1: *Milton Keynes Development Corporation General Manager Fred Roche traces the lines of his new city. Film still courtesy of British Film Institute.*

A man in a blue suit, wearing dark heavy rimmed glasses stands in front of a De Stijl image of black vertical and horizontal lines picking out a series of yellow, red and blue shapes. Fred Roche, General Manager of the Milton Keynes Development Corporation, traces with a pencil the lines and the future of his new city for the audience of a short promotional film from 1973. Milton Keynes will, Roche explains (Fig.1), 'be a very mixed city. From the start there'll be houses to suit workers, managers, vicars and doctors. Half will be owner-occupied. Many will be designed to be expanded as young families grow.'[1]

These predictions echo the aspirations for equal opportunity and social justice which characterised post-war consensus Britain but the original plan for Milton Keynes, published in 1968, acknowledged some limitations. An unknown proportion of the new city's population, 'perhaps very few, perhaps not so few,'[2] were expected to be prevented from achieving what others around them had, due to financial or other disability. The report concluded that society must be concerned with the closing of this gap between different sectors of society but the distinction between them would continue to impact on the development of the new city

and the houses that would be built to accommodate them.

When Milton Keynes was designated as a New Town in 1967 the idea of a New Town in North Buckinghamshire was not new. Abercrombie's plans for post-war London and Reith's proposals for a series of New Towns across the country recognised the need for modernisation both of housing stock and housing policy. Following their attendance at a TCPA conference in 1943, members of the Wolverton Urban District Council, one of the existing districts in the area, commissioned a 'town and country plan' from Geoffrey Jellicoe, then president of the Institute of Landscape Architects. Jellicoe proposed a radical restructuring with a collection of tower blocks spreading across the Ouse Valley towards Northamptonshire. Jellicoe's Corbusian redevelopment, or rather replacement, of a Victorian railway town with a collection of 'tall buildings separated by gay and spacious gardens' [3] was an ambitious project for a small town council and was eventually abandoned in favour of a more modest and manageable collection of pebble dash suburban semi-detached and single storey prefabs.

Buckinghamshire County Council's Chief Architect Fred Pooley offered a different version of modernism in his 1960s vision. Pooley's North Bucks New City proposed a network of densely populated townships connected by monorail.[4] It was however a different kind of highway, informed by Melvin Webber's American West Coast faith in private car ownership, that would eventually become the backbone of the Milton Keynes townscape. In the four years since the city's 1967 designation its Corporation had produced an interim report,[5] a draft master plan[6] and a corporate identity[7] but very few of the houses needed to accommodate its target population. These were the houses Fred Roche described in his 1973 publicity film and which he would commission with the assistance of his Chief Architect Derek Walker. A number of 1km grid squares were to be transformed into housing estates quickly under a single contract and as cheaply as the requisite Parker Morris DB6 standard would allow. These grid squares were allocated across a range of internal MKDC architects and external commissions.

Chris Cross, Jeremy Dixon, Mike Gold and Edward Jones had all studied at the Architectural Association and were by the late 1960s working together at Frederick MacManus & Partners on housing schemes across London.[8] Between 1966 and 1971 the four architects had a portfolio of work which included Mike Gold's Clipstone Street project, one of London's first low rise high density schemes housing 800 people around a classically proportioned central courtyard and garden (1966-1971). Jeremy Dixon's Plough Way at Rotherhithe (1966-1971) also used multiple level gardens to bring together internal and external spaces for residents in a way that Neave Brown would develop more successfully at Fleet Road.

The four architects had become known as the 'Grunt Group' which expressed their collective eschewal of what they saw as a

'false picturesqueness' in favour of a more austere but somewhat nostalgic version of modernism. This was a 'cool, cosmopolitan' vision that sought to adhere to rationalism rather than sentimentalism through an ethos Mike Gold ambitiously described as one of 'culture-free architecture.'[9] In 1968 Gold & Jones and Cross & Dixon paired up for a competition in Runcorn where both Roche and Walker had worked before their appointment at Milton Keynes.

Cross & Dixon's 'ruthlessly geometrical' [10] Runcorn entry was an exercise in repetition through a series of long flat roofed terraces set into the existing contours of the site. The scheme presented an 'interplay between informal landscape and geometrical buildings' and with its recognition of the car as an integral part of the household unit was described as a modernist exploration of the English landscape tradition.[11]

The relationship between the buildings and the contours of the site reflect a wider trend, described by Kate Macintosh when interviewed about her design for Dawson Heights, as the romantic need to express 'the unique quality of the site.'[12] This notion that architects should be led by the topography and character of the site in question defines a relationship between the building's residents and the open space that is designed around them. How this relationship develops is partly determined by the rigidity of architects' philosophical and aesthetic principles but also by whether and how such principles are shared by those who will maintain and live in the houses when built. Cross & Dixon's determined and large scale statement of their modernist principles was commended for the Runcorn competition and would have appealed to Walker's and Roche's vision for their New Town. All four members of the Grunt Group were invited to propose a scheme for one of the Milton Keynes grid squares.

The 100-mile daily commute from North London to the Corporation offices in North Buckinghamshire provided the architects with empirical research for their proposals. Driving on motorways was considered by Reyner Banham[13] to necessitate a new 'style of seeing' and the M1 corridor was 'styled as a linear landscape of actual and potential development sites.'[14] This 'new way north' out of London with its straight lines, stylised bridges and newly installed crash barriers echoes Webber's modernist vision of transport for Milton Keynes.

The route to Milton Keynes would pass the Vauxhall car factory in Luton which, while not a major influence on the design of Netherfield project, is remembered by Chris Cross as a contributory factor. When seen from the distant and disjointed view of the northbound carriageway of the M1 the most striking feature of the factory was its long, continuous and level roofline and clean metallic façade. These 'fast industrial looking cool kind of elevations'[15] represented what Ed Jones refers to as the spirit of the period - a partly nostalgic reference back to the modernity of Corbusier's Villa du Lac but also acknowledging the developing high-tech work of Farrell and Grimshaw at Regent's Park. Corrugated metal cladding was a

signature element of what would become the Netherfield grid square.

The group's arrival at the Milton Keynes Development Corporation offices in Wavendon Tower has become a source of legendary recollections both by the architects and the more permanent members of staff who they worked alongside. Mike Gold recalls altercations with senior management in response to him parking in Fred Roche's parking space outside the main office. Ed Jones describes a more public display of disdain for corporate authority by parking on the lawns in front of their office window to avoid the 'tedium of the long walk from the official car park.'[16] The newly built MKDC architect department offices were a testbed for Derek Walker's modernist vision of the commercial development of the new city. Below the bright red steel 12m roof trusses of his prototype Advanced Factory Unit he installed the yellow swivel chairs, yellow partitions, yellow plan chests and yellow drawing boards around which the city was to take shape. The choice of colour scheme resonates through the documentary record. Ed Jones suspects there were 'many cases of genuine illness resulting from the *riductio ad absurdum* of life in the yellow box' for those architects who 'voluntarily exchanged the pleasantness of conventional working conditions, for life in this curious diagram.'[17] Another early immigrant from Runcorn to Wavendon found that the yellow had religious undertones: 'the carpet was yellow and the staff were expected to slip off their shoes and put on yellow slippers in order to utilise this hallowed space. The yellow slippers were ordered … but I remember Fred telling them that he'd torn up the order and chucked it in the bin.'[18]

The Grunt Group refused to work in the yellow box, with or without the slippers, and negotiated instead a remote working arrangement at the Architectural Association courtesy of Alvyn Boyars who generously provided his alumni with studio space in the Percy Street annex. Here the group set out their vision for the 1,068 houses of Netherfield.

An intense and productive period of drawing explored a range of typologies and layouts before finally settling on the unbuilt Cross & Dixon Runcorn project as a precedent which engaged with the landscape of the site while also expressing their purist, rationalist vision of modernism. A series of long terrace blocks would be built into the contours of the site with a rigorous and repetitive use of design elements along the length of the elevation. This firmly resisted contemporary preoccupations with individualised and expressionistic housing development.

Netherfield would be a neo-Georgian form which referenced classicist eighteenth-century work in Highbury, Bath and Bloomsbury. The terraces would be set within a wider landscape of open grassland, trees and hedgerow through which the buildings would flow from end to end. The privacy of the rear gardens was balanced against the open access to the landscaped parkland and retained

hedgerows to the front. Rather than invoking the picturesque tradition of a formal garden where individual elements would lead the eye towards set pieces, here the dominant view would always be a straight line, reinforced by the flat roofs and their constant height across the whole site. A porthole window punctuated the front door of every house to contribute to the distinctively modernist visual impact of the scheme. Full width windows and repeated rectangular forms defined the elevation which resonated more closely with Oud's Kiefhoek than Nash's London.

The architects explored and developed their proposal for Netherfield through the production of a 1m x 6m long tracing paper scroll (Fig. 2), part of what Derek Walker regarded as their contribution towards the MKDC's 'rich heritage of montage and animation.'[19] This long form drawing tells the story of the project's development from an initial indication of the scale of the project, through detailed representations of the proposed setting, plan and elevation, and concluding with impressionistic views of how the estate would be lived in by its new city residents. The draftsmanship of these drawings, the attention to detail and quality of line work, is a striking demonstration of a now rarely seen pre-CAD aspect of architectural practice. The accumulative effect of this unique document describes a personality of the street, stark and pure in its rationalist rebuttal of Radburn through its formal engagement with the landscape. As an archival object, surprisingly well preserved for over 40 years in Chris Cross' personal collection, it also provides a compelling record of an historic project and the design process through which the Netherfield project was realised.

Approval for the project was sought from the Corporation in 1971. During these meetings, several directors raised concerns about the proposal. The Executive Management Committee questioned both the social and financial implications of the project: the cost of landscaping would be 'higher than normal';[20] 'the selling prices proposed were high'[21] and the 'terrace form would inhibit sale'[22] and the 'flat roofs for a whole grid square were not an acceptable solution.'[23] Fears about the technology to be used were expressed in

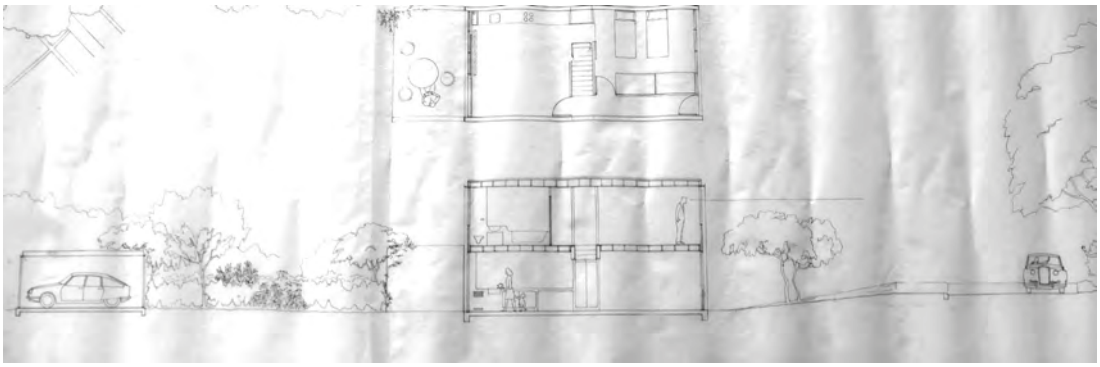

Figure 2: *The architects' impression of Netherfield from their original 6m long drawing. Image courtesy of Chris Cross*

the directive that 'the house roofs must not be constructed in felt.'[24] Whether the scheme would be acceptable to residents was also questioned: the proposed four-storey houses at the end of the terraces would not support a 'satisfactory lifestyle for a new town'; and a more fundamental question of 'Was it human?' was accompanied by a further suggestion that the proposed design may not 'provide what people wanted.'[25]

These concerns were allayed, and eventually overturned, by Derek Walker's responses which defended the use of terraces as being necessary to meet the stipulations of the Government's Housing Cost Yardstick. From a design perspective Walker also asserted that the 'uniform roofline gave unity to the scheme'; that 'the variation along terraces in house size would give a strong sense of place'[26] and that the 'kaleidoscopic variation in house size, type, and treatment of garden would provide a most attractive lifestyle.'[27] Contrary to the view of the directors that the use of terraces was a destructive force in the landscape Walker contended that 'it was important for environmental reasons to retain the original design concept for this grid square.'[28]

Although the proposal for Netherfield was clearly contentious it is apparent from the record that even in these early stages the Corporation was nevertheless

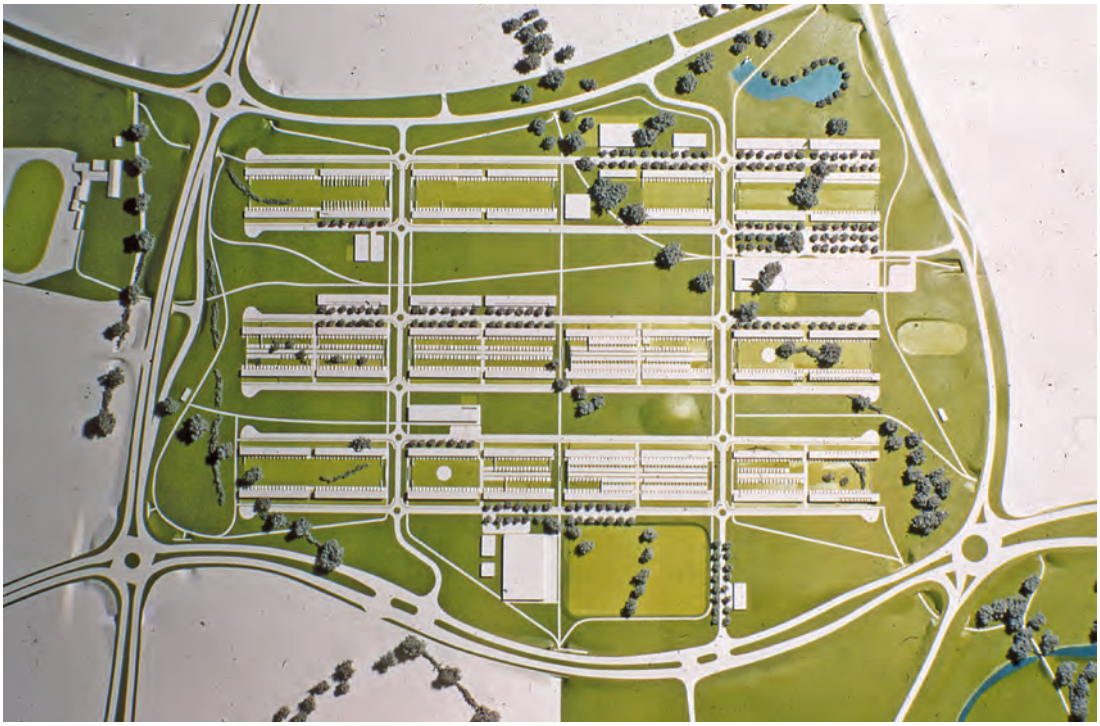

Figure 3: *The Milton Keynes Development Corporation architectural model of Netherfield, as photographed by John Donat. Image courtesy of Milton Keynes City Discovery Centre under Government Open Licence v3.0. (MKCDC Ref: Ca-0878)*

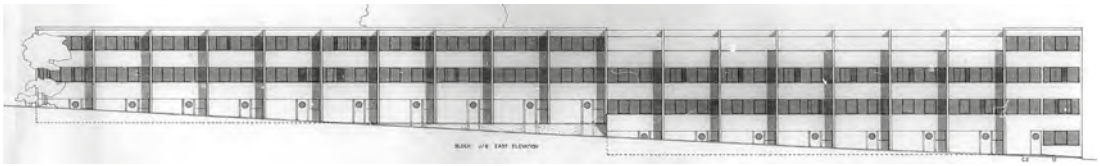

Figure 4: *Netherfield, Block J/8 East elevation. Image courtesy of Centre for Buckinghamshire Studies.*

won over by Walker's design ethos and his unwavering support for his architects. It was agreed that Netherfield provided a rich environmental setting for residents and it did so while still meeting both the exacting limitations of the Government's housing yardstick and the Corporation's own housing goals. The terraces, with their variety of layouts and plot sizes which could also accommodate cars and the proximity to play areas and open spaces, would be one of the most interesting features of the city. Netherfield would provide a welcome and attractive alternative to semi-detached houses. In early 1972, the board concluded that the concept was brilliant and that the planning team should be congratulated on an attractive and exciting scheme.[29] At the same meeting it was agreed that the houses' exterior colour and texture would be carefully chosen to be sympathetic to the environment. The modelling department were commissioned to produce what has become one of the emblematic visual renditions of the site (Fig. 3).

The Corporation's minute books show Netherfield as a site of contestation where controversial issues were rehearsed and intractable positions maintained between the non-executive directors of the board and the chief officers of the management committee. These disparate perspectives have become homogenised through the administrative and archival process: carefully minuted on heavyweight cartridge paper, held together by treasury tags and bearing the original double axe head logo of the MKDC. These formal records are now held at the Study for Buckinghamshire Studies along with a collection of microfilm copies of the MKDC Architects' Department's drawings of the estate.

A set of elevation drawings have survived the numerous migrations of the archive through the various public bodies to which it has been entrusted since the Corporation was wound up in 1992. One of these (Fig. 4) shows how the clean lines of the technician's pen expose the gradient of the site through the progressive rise and fall of storeys as the terraces are drawn along the length of the streetscape. They also provide a vision of the wider scope of typology originally envisaged for the estate with four storey townhouses providing bookends to the street and incorporating roof terraces.

Such embellishments to the basic terrace propose various lifestyle options for the estate's eventual residents. When Robert Maxwell, critic and tutor at the AA, reviewed Netherfield[30] he anticipated that incoming residents would forge a bourgeois community made up of a

modernist middle class. Maxwell's article describes Furey kit boats in garages and chickens in gardens that exist in a purist utopian vision where Ozenfant and Corbusier regularly meet up to admire the view and soak up the atmosphere. It was not long, however, before this bourgeois neighbourhood was to be seen as a much less salubrious corner of Milton Keynes.

A month after Maxwell's glowing review of Netherfield was published, another article, 'Housing Failures,[31] describes the structural issues found in the first phase of houses after they were completed and released for occupation. Problems with the flat roofs had led to water ingress, 'springy' floors were deemed to exceed tolerable limits for deflection and the external metal cladding was prone to be pulled away from the walls in high winds. Fred Roche's family recall that about this time, in the early 1970s, if the weather was inclement Fred would be up and out in his car to visit the estate to 'check it was still standing.'[32]

In order to get the house building programme for Milton Keynes up to speed Netherfield had been built quickly. The use of Llewellyn's timber frame system usefully sidestepped the problems of a shortage of materials and of the skilled labour needed to build with them but doing so meant that the houses were not all fit for purpose. Similar to conclusions which have been drawn about the shortcomings of high-rise system built public housing,[33] this problem with build quality, combined with the decision to allocate the whole of the estate to rental only, would lead to Netherfield being considered an unpopular choice for incoming tenants to the new city and a symbolic reminder of the ongoing denigration in the UK of social housing as a policy objective.

This denigration was formally embodied in the 1979 UK Conservative Government's right to buy legislation which, over 30 years, resulted in a reduction of council tenants across the country from 42% to 8%. In Netherfield, as elsewhere, this phenomenon is visually represented by the customisations that owner-occupiers have made to their houses. Stone and timber cladding and the removal of fins being the most commonly encountered and boldest statement of ownership and individuality. Structural changes are largely internal and mostly comprise of conversions of the spacious interiors into houses of multiple occupation whereby the generosities of Parker Morris have been translated into financial realities of the capitalist life. These kinds of structural changes contradict the expectation of both architect and Corporation that residents would expand the houses as their needs changed. They also reduce any possibility that the houses might benefit from the kind of engagement seen, for example, at Pessac where Le Corbusier's ostensibly unpopular modernist typology was creatively subverted by owner occupiers seeking to improve properties through their own intervention of a vernacular aesthetic.[34]

The early design aesthetics of Milton Keynes are preserved in the photography of John Donat. Retained by the

Figure 5: *Netherfield houses, each dwelling divided by a fin with primary colour highlights, as photographed by John Donat in 1973. Image courtesy of Milton Keynes City Discovery Centre under Government Open Licence v3.0 (MKCDC Ref: Ca-4991)*

Corporation from 1971 onwards, Donat's work, and especially his Kodachrome slides, characterise the colourscape of the era and the pioneering nature of the new city project. Copies of his slides are a mainstay of public talks and private conversations about the architectural vision and vistas of Milton Keynes. Donat's 35mm black and white images illustrate Maxwell's 1975 article on Netherfield but it is his colour transparencies, taken in 1973, which more evocatively capture the colour and texture of the houses and their immediate environment. The landscape setting is seen from a distance, framed in the foreground by the branches of a standard tree from one of the site's retained hedgerows or the houses, caught in a perspectival and repetitive rhythm.

Many of Donat's images however are close up and many of them include residents: children playing; people talking; pushchairs and prams walking, cars passing. Behind this consciously captured community, the houses are caught in the sunlight of the mid-1970s. The party wall between each house is marked externally by a white fin which runs up the full height of the building, suspended above and extending forward into the front gardens. The front edge of every fin was painted in a gloss colour which encoded the height of the building it prescribes: yellow for three storeys, blue for two and red for one. This use of primary colours provides bright and playful punctuation marks along the terraces and confirms a 1970s nostalgia for De Stijl and in particular for Oud whose 1920s worker housing in Rotterdam provides a clear precedent.

This use of colour also invites an unexpected parallel with other solutions for accommodating large numbers of people with a constrained budget. There is in both the layout and the detailing a sense of the holiday camp. This is partly a function of grid formation of long terraces: Billy Butlin and others were quick to capitalise on the availability of system built army camps as they strove to produce affordable holidays for large numbers of campers on a single site.[35] The potentially austere visual impact of the holiday camp was softened by an eclectic baroque of clowns, South Seas' bars and ocean liner kitsch which would be inappropriate in a 1970s housing estate. However, the bright coloured lines, the curvilinear fins and the porthole windows in the front doors of every house are nevertheless suggestive of a clean break from the kind of dense and prosaic urban spaces from which many of the estate's eventual residents would be drawn.

Despite the sense of community that these holiday camp references allude to, the fins also offer a symbolic implication of privacy between each house which otherwise looked out onto the communal gardens and play areas of the estate. Each fin provided a break against the potential accumulation of wind along the length of each 0.8km terrace[36] and their composition down the length of the façade reflects a distinctly twentieth century concern for abstraction through repetition. They help to define the visual impact of each 100m block as it recedes into the next and vanishes into the landscape beyond. This perspective view of the houses, a modern version of the columned terraces of Bath and Highbury Fields, was intended to provide a compelling sense of space: an abstracted white geometry of 1000 houses set against the sun, the sky and the land. According to Mike Gold, when seen from particular angles creates a 'wall of abstract whiteness' against which 'light visibly fluctuated with the weather against the rolling residually historic, sparse landscape.'[37] This romantic vision of the modern unfolds into the distance, one fin at a time.

The scheme was envisaged by a group of young architects who had, in the somewhat febrile environment of Derek Walker's tenure as Chief Architect for Milton Keynes, been given unusual freedom to explore the design of 1000 dwellings in a 1km grid square. In hindsight, Jeremy Dixon notes that the idea demonstrates the ambitious, but inappropriate, architectural attitude they had to public housing at the time. This ambition might have worked but 'as part of Milton Keynes social housing and built in a manner that lacked proper substance, in retrospect it was never going to be a success.'[38] It was, as Dixon concludes, a grand vision which in an appropriate context might have paid off. However, as shown in the Corporation minutes, Netherfield's social housing context was not fixed until after the concept had been developed and approved by the Board. It is plausible to speculate on what the estate would have become if the residents had included the kind of people imagined by Maxwell and portrayed in the impressionistic drawings of the architect and envisaged by Fred Roche.

The various tensions, implicit and explicit, within the archival history and architectural legacy of Netherfield inspired the authors of this article to plan and execute an Arts Council England funded project, 'Every House on Langland Road.' The plan was predicated on two complementary notions: to attempt to capture the essential grandeur and scale of the housing estate though an innovative photographic rendering of one of its streets; and to compare this documentary record with the idealised vision that the architects had originally envisaged. The project resulted in a number of outputs including an exhibition at Milton Keynes Gallery in June 2017 and at the Architectural Association in January 2018. An academic treatment of the project has been published in Cultural Geographies[39] and an earlier version of the current article was originally prepared for inclusion within the exhibition.

Documenting with a camera what Netherfield has become provokes varied responses from residents. Some are curious to know why anybody would want to photograph these houses. Others, sensing that the camera imbues the carrier with authority or knowledge are keen to question: seeking confirmation of rumours about regeneration and demolition and keen to assert their affinity with the place and their reticence to move or to be moved. Other residents aggressively reject the glare of what might be an official lens probing into their privacy and privations.

Alongside these demographies, the topography of the site demanded a strategy to deal with the shifting foreground created as a by-product of the architects' constant roofline. As each terrace follows the contour of the ground each front garden changes its declination with the front door. This shifting foreground is a feature which accentuates and individualises each house along the terrace. It is also a feature that must be removed if the individual is to adhere with and contribute to a final coherent whole. Each house is constructed from the three images taken of it and centred on the fin between neighbouring properties. That process results in unavoidable collateral damage to whatever may be found in the foreground (Fig. 6). Cars are cleaved in two, bushes are radically pruned, and lamp posts can dominate as the terrace is reconstructed from fin to fin along the length of the street.

The camera, with its shift lens, has done some of what Reynolds describes as the 'shifts up and down,' the 'moves between the horizontal and the vertical.'[40] There is

Figure 6: *Every House on Langland Road, Block 8 © Simon Phipps*

here an inevitable and intentional reference to Ed Ruscha, the American painter and photographer and his *Every Building on The Sunset Strip.*[41] Ruscha's continuous photographic panorama of the Hollywood Boulevard streetscape was generated by multiple automatic exposures from the back of a pickup truck, reconstructed in the studio, and then published as a 25-foot long leporello book. The handling of his book requires more shifting and moving as the reader decides how to handle the folded and unfolded page to navigate their way along the street. According to Ruscha, 'you see the city from a lot of different angles on that street. I was trying to get a sense of the complete personality of the street when I made the book about the Sunset Strip.'[42]

There is a sense in the leporello version of Netherfield produced as *Every House on Langland Road (*Fig. 7*)* of different angles and personalities. This photographic record of the street invites a unique exploration and portrayal of the conceptual, geographical, topographical and social nature of the architectural proposition and what remains of the social ideals they represent. The modernist styling and rationalist layout recall a late twentieth century lifestyle, underlined by Maxwell and his neighbours, through their conflation of urban terrace and suburban parkland. The generous layout of dwellings can be surmised from the size and scale of each individual elevation and plot. Glimpses of the generous scope of the setting can be caught in the spaces between each block where the rear mews, trees and hedgerows recede into the distance. This paternalistic vision of social housing encapsulates the motivation behind the new city expressed by Roche and his master planners. But it is a vision which is hard to maintain through the numerous examples along the terrace where lack of maintenance and stewardship are clearly on view.

Figure 7: *Every House on Langland Road. © Darren Umney and Simon Phipps.*

What is especially striking about this photographic representation of Langland Road, much like Ruscha's Sunset Strip, is the clarity with which these various elements are captured. The montage of multiple exposures into a simple elevation produces a kind of archetypal view of each house. The process has removed the clutter of foreground elements and the distraction of contrasting perspectives, both of which are unavoidable when walking the street or viewing conventional architectural portraits. Moreover, their concatenation into a single coherent image presents the characteristics, or personality, of the whole street in a form which is easy to access and assimilate. This form replicates, and thereby is readily comparable to, the drawings created and used to express the original architectural vision of the estate.

Every House on Langland Road would not have been possible without the ongoing assistance of architects Chris Cross, Jeremy Dixon, Mike Gold and Ed Jones along with the support of Milton Keynes Gallery, Milton Keynes City Discovery Centre, the Centre for Buckinghamshire Studies and the Architectural Association. The project was funded by Arts Council England, award number GFTA-00000747.

Every House on Langland Road is the latest collaboration between Simon Phipps and Darren Umney who both spent their formative years in the New Town of Milton Keynes. Darren Umney is a writer and researcher with a doctorate in design. Simon Phipps is a renowned photographer of British post-war architecture.

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3

Conversation Piece:

Milton Keynes: the Social Blueprint - Banishing the New Town Blues?

Roger Kitchen

At the first Board meeting of Milton Keynes Development Corporation on 15th June 1967, Lord Campbell, the Chairman, declared that

> The new city must be made a place for people. We must try to offer them an environment as conducive as possible to good health, happiness, stimulation and satisfaction during their youth and working lives and contentment and care in their old age.[1]

The Board employed consultants to work with them to develop a detailed plan for the development of the city and the result was *The Plan for Milton Keynes*, published in 1970. What is remarkable about it is the emphasis it has on Social Development as an integral part of the planning process. In fact it states as much:

> At the earliest stage of its task to prepare the proposals of the new city, the Corporation established its intentions to consider the social aspects of the Plan as fully as the physical.[2]

This emphasis was due in no small part to the character and interests of Lord Campbell, but in 1967 a report entitled *The Needs of New Communities*[3] had been published for the Ministry of Housing and Local Government, drawing on the experience of the early New Towns, and advising that social needs should be recognised and met if the New Towns were to be successful. The report highlighted the 'New Town blues' suffered by young families leaving their family and kinship networks behind to start life in a completely alien environment.

The Social Development Programme outlined in the *Plan* consisted of 5 main elements:

- Arrivals Work
- Community Development
- Promotion of social facilities
- Recreation and leisure provision
- Identification and provision for special needs

I will concentrate in this paper on the first two.

If we go back to the *Plan*, it clearly states its commitment to assist newcomers to settle in and create communities:

> In the early years particularly, many of the social and economic problems which the experience of other New Towns has demonstrated, will be apparent in Milton Keynes … Many of these problems and difficulties can now be anticipated and met before their effects become intractable, but they will require as detailed and as positive an approach as the more tangible issues of, for example, health and education.[4]

People were moving to Milton Keynes in the early 70s because it offered decent

housing accommodation - 51% of early residents came from conditions of housing need. Most of those who came to MK from London under the New and Expanded Towns scheme in the 70s, had no idea where Milton Keynes was - it was just a place that offered a house.

I was no different. In 1971, as a callow youth of 25, I had a very pregnant wife, a mad dog, and hardly any savings. I had applied for and been offered two jobs - one in Tower Hamlets where there were 12,000 on the housing waiting list and the only place we could afford was a first floor maisonette in Hornsey, a long public transport journey away - and a job with Milton Keynes Development Corporation where I qualified for a rental house because I had got a job in the area.

Everybody who moved into a new house on a Development Corporation estate - be it rental or for sale - was visited by one of MKDC's Social Development Department's Arrivals Visitors. They visited every new resident within a few days of them moving in, and brought a pack with basic information – the location of the doctors, local facilities and so on, and a listening ear for people trying to find their bearings in what was often a fairly barren and muddy environment and something very far removed from the hustle and bustle of London.

The other person to be based locally on the new estates was the community worker, of which I was one - in fact I worked on the first MKDC estate at Galley Hill from May 1972 when the first new resident moved in. My job, the Plan outlined, will be directed towards encouraging residents of the city to create their own community life and it requires that opportunities to do so are brought to the notice of the residents.[5]

It did not take a great deal of effort on my part to give this encouragement, as the new 'pioneers' (as they were known) were anxious to find opportunities to meet up with their new neighbours and make new friendships. Very soon there was a residents' association, playgroup, football club and OAP's group, all things that help build a spirit of community and offer opportunities to meet and get to know one another. It was important to foster a sense of leadership in the community and to recognise the efforts of everyone who took part.

In order to meet up though one needs a place to meet. There can also be a natural reluctance to meet, and socialise with, strangers, particularly in an alien, or new, environment. From day one of a new development the Development Corporation provided new residents with an indoor neutral meeting ground away from their own houses where they could meet people without any pressure.

These were not however, community centres in a formal sense, as we might think of them now. When I was a community worker back in 1972 on that first new estate we had a facility that served that purpose and was replicated on future estates – a Community House. In fact at Galley Hill it was a pair of three-bedroomed houses that were used in

those early days not only as an office for me and the Arrivals Worker and a Housing Officer but also as a venue for newcomers to meet one another. We quickly recruited local residents as volunteers to staff an information/help desk and make teas and coffees for visitors - this proved to be an invaluable help to nervous newcomers. Besides the activity groups we also had a community newspaper that was compiled with our help but written and put together by residents - in those days it was produced on a Gestetner machine, and stapled together and distributed to every household.

After a year or so as new facilities developed the houses reverted to their primary purpose.

The final and very important element in the help given to new arrivals was the availability of small grants of money. The Development Corporation had two funds that people could apply for - the Major Amenity Fund for larger capital projects and the Minor Amenity Fund for small grants. It was the latter that was most relevant to newcomers as it could provide the money to buy toys for a playgroup, kit for a football team and so on - necessary oil to lubricate and ease the making of community.

It is likely that this attention to the need of new residents and the encouragement and support given to the development of community had a great deal to do with the high level of satisfaction that residents expressed in the annual Household Surveys that the Corporation conducted.

This was 40 years ago. One would hope that the lessons learnt then would be informing today's practice. To some extent in Milton Keynes it has, although perhaps far less than would have been desirable. Nevertheless, in line with continuing growth and the recognition of the need to welcome and stabilise new communities, there are key examples of this legacy still visible.

When the Labour Government established the Children's Fund in 2001 and gave money to local authorities to improve services to prevent the negative effects of child poverty and reduce the risk of social exclusion, Milton Keynes Council was one of very few, if not the only, authority in the country to use some of that money to employ Community Development Workers – who they called Community Mobilisers – to work in areas of deprivation in the new city.[6]

In addition there has been a Community Mobiliser employed in the newly developing Eastern and Western Flank areas. This is thanks to funding from the 'roof tariff,' the modern alternative to Section 106 which imposes a levy of about £18,500 on every newly built dwelling that helps support the creation of new infrastructure - both physical and social - in the developing areas of Milton Keynes.

The role of the voluntary sector in that infrastructure has been recognised and besides the salary of the Community Mobiliser there is funding for voluntary sector organisations to develop new services in the new areas, as well as the

equivalent of the old Minor Amenity Fund, a pot of money for small grants to pay for equipment, materials and other associated costs in setting up and running community groups.

I have been working over the last couple of years with Community Action: MK, making filmed reports of the work of their Community Mobiliser in the Eastern and Western Flank areas.[7] In the Broughton area there has been one glaring omission in provision. For more than 3 years since the first resident moved in, there was not a neutral place to meet. The private developers have provided show houses, but no Community Houses. I believe that it made the job of the Community Mobiliser much more difficult and it slowed the development of a cohesive community. It should be possible to allocate a couple of houses or put in a large portakabin from day one, until a more permanent local meeting facility is in place.

So, to sum up very simply, the lessons from the Milton Keynes experience for those involved in the creation of new communities today is to ensure that 3 things are in place for new residents:

- **Information** - about local facilities, services and activities that enable newcomers to quickly find their feet and connect.

- **A neutral meeting ground** where newcomers who are strangers to each other can meet and have contact initially without committing themselves. This facility needs to be in from day one and may only be a temporary arrangement before a more permanent purpose-built meeting facility is provided.

- **Encouragement** in at least two forms: firstly a community development presence to encourage and support people who might not be experienced in setting up and running activities. It need not be a dedicated Community Worker, it might be for example a church minister or a head teacher. Secondly, access to small grants to help pay the costs of starting up community activities.

What seems to be lacking in the development of many new communities today is that clear overall vision, such as Milton Keynes Development Corporation had. It cannot just be left to the developer, because the reality is that they normally have no particular commitment to an area beyond selling the houses they have erected as quickly and as profitably as they can. But why cannot social planning be as important a part of new masterplans as it was for one created more than 40 years ago?

For example, let's look at the prospectus for the Wolfson Economics Prize for 2014. It was challenging entrants to 'deliver a new Garden City which is visionary, economically viable, and popular....' [8]

Under 'Vision' it said:

> entrants should provide ideas for improving the quality of urban

> life through the architecture, civic design, public spaces, transport networks, and infrastructure of a new city. Entrants should inspire readers with the possibilities that a modern city could offer in terms of quality of life and cost of living. For example: the ability to lay down transport infrastructure before building allows built-in space for cycle lanes; services can be placed in easily accessible and expandable service corridors to dramatically reduce maintenance costs; and transport connectivity to other urban hubs can be hard wired into the design of the city, allowing the city to draw on and relieve pressure on other urban areas. Entrants should think radically and inspire the Judges.[9]

URBED,[10] the winners of the prize, were radical, and considered a social infrastructure, as well as a transport infrastructure in creating a new Garden City that would not just be popular with the planners, architects, and economists but also with those who live there, which is absolutely integral to the survival of a cohesive community – as well as to its physical and mental health.

In whose interest is it that a new area develops as a successful community? The people who are going to be its residents obviously – but we can see that developing a supportive society has positive impacts on budgets for health, social services and so on.

In the short term people will want to live in a place because they like the design and setting of a house, the local amenities, the park and the quality of the school and so on, but in the longer term the crucial reasons in deciding how much you want to live in a place are more influenced by your relationships with other people.

I mentioned earlier the visit from the Arrivals Visitor within days of someone moving in. During that first visit we used to ask them what they thought of their new houses - in this case in Galley Hill. While delighted with the interior accommodation they were less convinced by the exterior design and layout. In those days they were seen as very unusual – mono-pitched roofs, a light rather than a red brick and grouped rounded a courtyard rather than in a street formation. We went back to revisit them about 6 months later to see how they were settling in. Asked the same question about their houses you could guarantee that it would only be those who hadn't settled in, who for whatever reason had not made friends, or were still homesick – it was only they who still passed adverse comment on the design of the houses. For the others who had settled in, made new friends and got involved in community activities they'd either say they'd got used to the design and didn't really mind it now, or else they say, 'I don't really notice it.'

This illustrates the point that what is most valuable to people in the longer term is not what they have in their life, but who they have in their life. If people want to live in any new area because of who they have in

their life you will have a new community, not just a new estate.

Roger Kitchen joined the Development Corporation's Social Development Department in 1971 as a community worker on the first new housing estates. In 1975 he came 'inside' the Social Development Department, specialising in Education and Youth Liaison helping in the establishment of Inter-Action, the Youth Information Service and the Urban Studies Centre (now the City Discovery Centre). In 1978 he became the co-Director and later Director of Inter-Action Milton Keynes. In 1992 he left to become General Manager of Living Archive Milton Keynes, an organisation he co-founded with Roy Nevitt in 1984.

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4

Think Piece:

The Historic Town and the Garden City

David Rudlin

The debate over Garden Cities can become a little polarised at times. On the one hand there are the Garden City advocates, suburban in outlook, suspicious of cities and nervous about town cramming. On the other hand there are the urbanists; focused on cities, suspicious of suburbs and nervous about sprawl. Most of the time we are clear to which of these camps we belong, but since winning the 2014 Wolfson Prize URBED has found itself in unfamiliar company.

The towns and cities of the British Isles are however more complicated than this simplistic debate would suggest. In addition to the big cities where much of the debate has focused there are hundreds of smaller towns and cities where the issues are very different. In these places the traditional debates about inner cities and suburban sprawl do not really apply. Many are popular places to live with intense pressures for housing development and a growing economy. Others are more isolated and have seen the decline of traditional industries. These twin concerns of growth or decline characterise much of the work of the Historic Towns & Villages Forum.

In URBED's submission for the Wolfson Prize we chose to explore these issues by focusing on the fictional city of Uxcester. With a population of around 200,000 this is perhaps a small city rather than a market town. As its name suggests it was founded by the Romans and as a fortified river crossing. We imagined that it had later become a Saxon burh when its walls were rebuilt and its Cathedral consecrated while the associated abbey operated a busy inland port, trading in the local produce of the surrounding church lands. Later the Normans built a castle on what was then the edge of the town to ensure the loyalty of its inhabitants. Much later the monastery was dissolved by Henry VIII but its ecclesiastical college developed into a university making it one of the oldest learning institutions in the country. By the 1960s the university had relocated to a peripheral landscaped campus specialising in science and technology. Meanwhile the nineteenth century had seen the town bypassed by the worst excesses of the industrial revolution although it did develop specialities in leather-making, shoe manufacture and food processing. The nineteenth century also gave it a slightly overblown railway station and a fine legacy of factory buildings and grain mills which are now obsolete. Sound familiar? We counted around 40 places like Uxcester in England from Durham, Carlisle and York in the north to Exeter Taunton and Salisbury in the south, places that represent a very particular form of English urbanism. Since winning the prize we have had conversations with many of the places that we listed as well as many others both larger and smaller interested in the arguments that we put forward.

These arguments were essentially that to build the 250,000 homes that we need as a nation every year we must, of course, be building far more homes within our large cities. For many years we had a policy that 60% of new homes should go within existing urban areas and this is probably about right. However when this target

was in place, prior to the NPPF, much of the focus was on the brownfield 60% with very little thought given to the 40% that would go on greenfield land. In our essay we therefore asked where we should be building the 100,000 homes a year that we should be building outside urban areas? Suburban sprawl is obviously not a good idea, but then again neither is a freestanding Garden City.

Building a new settlement in a distant field is unlikely to be sustainable no matter how beautifully it is designed. Sustainable places need a range of shops, workplaces and facilities to provide for the needs of their residents. They need schools, colleges and preferably a university, a mainline railway station at the heart of an efficient public transport system, together with a decent town centre with a good range of leisure and cultural facilities. Milton Keynes, the largest of our New Towns, cannot quite tick off this list after forty years so what chance would we have with a modern Garden City? Rather than try and establish such a vulnerable sapling, we suggested that we should grow our Garden City from the strong rootstock of an existing place - somewhere like Uxcester that has had all of these facilities, and more, for centuries.

This, you might imagine, would horrify the good people of Uxcester and the forty places that we suggested were a bit like it. Some people it is true have been horrified, but this has not been the general response. There is a debate about whether historic towns and cities really need to grow. There are some who would put up a sign saying that the town is full and argue that growth should be directed elsewhere. This however has consequences, it pushes up house prices and employers find that they cannot recruit, while people are forced to live further away, commuting in and adding to congestion. Those that accept the need for growth have generally agreed with our suggestion that, rather than allow towns and cities to sprawl, or to export their new housing to all their surrounding villages, they should build properly planned Garden City extensions in the spirit of Edinburgh New Town, Bath, or indeed Bloomsbury all of which were built on green fields. We showed that Uxcester could double its population by using just 6-8% of its green belt.

This is something that they manage to achieve on the continent in historic cities like Freiburg but we have completely lost the ability to do in the UK. Instead we have an adversarial planning system run by embattled planning authorities faced with well-funded planning consultants, land agents, barristers and developers all focused on unlocking the huge land values generated when planning permission for housing is granted. It is a process in which there is very little discussion about where and what we should be building. It is no wonder that the citizens of places like Uxcester are wary of new housing development because much of it is so poor. However if we could create a plan-led system in which we can have an informed discussion about the merits of different types and locations for development, and if we could capture part of the land value generated by this development so that we

can invest in new infrastructure and public transport, then maybe we could achieve something very different. This would allow historic towns like Uxcester to expand in a way that reinforced the existing city centre, invested in much needed public transport and provided new schools and facilities.

When we talk about this, the overwhelming response is that it makes perfect sense but is of course completely impossible. The reality is that at the moment this is probably true, however it wouldn't take much to change this reality through legislation. All of the indications at the time of writing are that this could happen in the next parliament, whoever is elected. The citizens of Uxcester and other places like it should be getting themselves ready.

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David was a member of the CABE design review committee from 2002 to 2005 and a trustee of CUBE (the Centre for the Understanding of the Built Environment) in Manchester from 1999 to 2005. He is Chair of Beam in Wakefield, joint Chair of the Sheffield Design Panel and a founder Academician of the Academy for Urbanism, of which he is the current Chair.

David won the 2014 Wolfson Economic Prize, answering the question 'How would you deliver a new Garden City which is visionary, economically viable, and popular?'

5

A 21st Century Historic City:

Historic Towns and Green Belt Issues

Jon Rowland

Introduction

The issue of how historic cities, especially those bound by tight political and other boundaries, can extend their economic base and maintain themselves for future generations is the subject of this paper. One of the starting points is the Wolfson Economics Prize which showed Government how to build a Garden City with minimal public sector investment. In essence the prize winning submission said:[1]

- It is not viable to start from scratch to build a Garden City in the middle of the countryside as the investment in infrastructure is huge;

- It makes sense economically, socially, educationally and infrastructurally to link development to an existing city or market town;

- The report set out an imaginary scenario to establish the main principles and used Oxford as an example to see how these principles could work. It drew on the conceptual spatial strategy for Oxford in Oxford Futures.[2] There are now moves by the Local Enterprise Partnership (LEP) and others to explore some of the conclusions, in spite of the general political antipathy between the various stakeholders. I will also refer to Cambridge. Like the 2015 seminar held by the Historic Towns Forum,[3] from which this paper is drawn, the current discussion is polemic rather than academic, and reflects on the institutional context, the loss of regional strategy and the current abrogation of government responsibility, which seems to have resulted in stasis if not paralysis – especially on topics such as housing or green belt;

- Consider the general doom and gloom constrained by the myths we seem to live and a future, which reflects Local Plan periods, but not a 30-50 year perspective. Only by looking past the exigencies of Local Plan politics and the reactive nature of its formulation, can the real needs for infrastructure and direction of growth be considered;

- Consider ways forward, particularly for historic cities like Oxford to respond to technical and cultural changes in the twenty-first century. Are there things that can be learnt from elsewhere?

Institutional mechanisms

Institutional mechanisms are critical to any strategy. Investors look for certainty in a city's growth strategy – a certainty that demonstrates a long term vision and reflects an 'open system' or expandability that, for instance, Milton Keynes' grid provides.

The devolution of power has led to fragmentation. There seems to be a climate of risk aversion with no-one taking responsibility, or if they want to take responsibility, the centrality of the

UK government does not quite allow it, in spite of Localism. The government talks about facilitating and enabling, but resourcing is not adequate. The result would appear to be:

- The lack of any strategic planning to work alongside NPPF at regional and sub-regional levels;
- A dysfunctional system which does not connect the neighbourhood and the region together;
- Little in the way of joined-up thinking from local to central government and a plethora of organisations ploughing their own furrows.

Recessionary cuts and demands to expedite decision-making on planning applications have exacerbated Councils' difficulties to focus on future spatial strategies.

Many years ago a City Engineer would look at infrastructure like road, rail, and water and lay down the structure and direction of growth for the city. Since then Urban Development Corporations have shown what they can do (from New Towns to Olympic Villages), and regional administrations have managed to set broad strategies for their areas. All were concerned with how and where a city would grow.

Since then the rise of what Janet Morphet terms 'institutional indeterminancy,'[4] the existence of a number of organisations that all seem to have similar objectives, has taken place. Whatever the philosophical reason for such fragmentation, LEPs, Combined Authorities, City Deals, Economic Prosperity Boards and Growth Boards, let alone Local and County Authorities, all end up dealing with bits of strategy – though not necessarily spatial strategy. Is it any wonder that it is so difficult to get agreement on strategic issues? The result:

- Uncertainty about the relationship between location of work and where people want to live;
- Uncertainty over energy, transport investment and levels of sustainability;
- Uncertainty caused by the mixed messages regarding accountability, the emasculation of local authorities and a sense of powerlessness of much of the population where there appears to be democratisation without resources to achieve aspirations;
- Uncertainty over the policy and nature of sustainable development, with the move away from carbon neutrality, energy resource and housing standards, and so forth;
- Uncertainty due to the rise of single issue organisations that are focused on their particular concerns without acknowledging or reflecting on a 'bigger picture.'

Myths and implications

In a recent book on human culture, Yuval Harari posits the concept of the cognitive revolution being the first step in human kind creating an understanding of our world and our position in it.[5] The cognitive revolution enabled the telling of stories to explain why things are the way they are and thus create myths to ensure these ideas are embedded in our psyche. To do this requires cultural institutions and rules, and these have to be established. In the field of planning and urban design these myths still exist and are in frequent use. How many times have we seen plans of urban extensions that include words like 'Village Green' or 'Market Place' where neither really exists? Most of our housing today is built around the myths of village life, coloured by nostalgia for a non-existent past. Images of these myths are being used as design benchmarks against which new development is judged. The result is often poor quality sprawl, with the smallest houses with the most rooms in Europe, developed by a house-building industry controlled by 10 companies. In addition, many bureaucracies have institutionalised some of these concepts in publications such as the Essex Design Guide. These images continue to shape our built environment. In some cases developers try to replicate these myths, but are thwarted by bureaucratic regulations set up to ensure the continuity of the myth. There are also invisible boundaries created for political or economic reasons, but no lines in the ground that can be seen. Yet some of these concepts have become protected and take on a pseudo sanctified status – immutable and inflexible like the green belt. Organisations set themselves up to jealously guard them. Oxford's green belt (one of the largest in the country) which is there to protect, among other things the setting of the city, is being considered by some to be one of the barriers to change. According to Clive Aslet:

> Wales and Scotland look at their landmass as a whole and develop strategies. England, by contrast, has what ministers describe as a bottom-up approach – with the proviso that the bottom will be caned should it fail to deliver enough houses. Localism rules – but alas only in theory....[6]

So myths related to the green belt, institutional indeterminancy caused by the arrangement of Council boundaries, and the plethora of sub-regional organisations (and the impact of privatisation of much of our infrastructure should not be ruled out) have, in central Oxfordshire for instance, created a condition where there is:

- No real long-term vision for central Oxfordshire – what one might call the city region of historic Oxford;
- A lack of connectivity between the various elements that constrains this area as a potential powerhouse;
- A lack of socio-economic balance and a disparity between demand for appropriate housing and its supply. Oxford is the least affordable city in the country;

- Corporate changes in house-builders: in 2007 Taylor Woodrow and Wimpey between them produced 21,000 units and in 2014 Taylor Wimpey 10,000;

- 1,400 Council completions over the whole of England in 2014-2015. Brandon Lewis MP suggests this is a 23 year high.

Perhaps this is one of the reasons why some investors might perceive the status of Oxford University to be diminishing as a premier academic and knowledge global brand.

Within this 'institutional indeterminancy' we see that there are some historic cities that have been able to respond to the challenges of pressure of growth. If Cambridge can do it, why not Oxford? Is there a general model or at least a common approach that could help? Nearly all historic cities are experiencing development pressure to a greater or lesser extent. Each city has its own attributes and constraints, character, and economic base. Different social and economic development has taken place; segregated neighbourhoods have sprung up. One can see this clearly in Oxford if comparing the development of North Oxford and that, say of Jericho, Cowley or Blackbird Leys. Houses for the less well-off were still located in the central areas. These are now very expensive. New industry and employment with its attendant housing often grew at the edges, and one can see that in Oxford as the city subsumed Headington and Iffley, among other places. New economic development brought new opportunities and challenges. Many cities promoted policies of zoning, keeping industry together in large blocks at the edge of town, away from housing that accommodated their workers rather than scattered as previously. Policies to encourage polycentricity became popular with the change in the type of industry and with greater compatibility between clean employment and housing. This model has become more attractive. The increasing recognition of synergy as an economic benefit – and of a more relaxed approach to working from home – has led to creative industries 'colonising' and embedding themselves in local neighbourhoods. One can see this in places like 'Silicon Roundabout' in London or Palo Alto in California. They rely on adjacent centres of excellence (learning or making) and good connectivity – not just through the web but face to face.

For many historic cities this presents difficulties. It may be back to the future. New forms of employment that can be accommodated flexibly within housing areas may need to be considered. A more flexible approach to housing may also need to be considered. For instance there are major R&D centres not far from Oxford but with little housing nearby. The main connections are by car. The current proposal for the Northern Gateway in Oxford has the potential to mix academia, research, synergetic businesses and associated housing for those who come from around the world to work in hi-tech employment. Historic cities like Boston have recognised that if you want to have the best brains, and attract investment, you

also need to consider appropriate housing – best designs, best locations, best social environment as well as affordability. Local authorities and significant landowners need to invest in their city, its public realm, its transport – all elements that attract global investment, and create a new legacy.

Governments of historic cities in Europe have dealt with their renewal to attract this investment. In Montpellier, Grenoble, Leiden, and Nîmes, for example, civic leadership, civic partnerships accessible funding, and an understanding of the importance of placing the city in a national, European and even global context, has led to a re-assessment of a city's public face and its 'presence' in an economic environment where footloose companies are as interested in environmental and cultural values as they are in productivity and profit. This also requires a depth in new employment opportunities. So Montpellier, Nimes, Avignon, and Ales have a linked regional polycentric academic, and R&D networks. Airports and city centres are linked. Collaboration is the key. Here, increasingly, the need is for Councils to work together for the wider good; infrastructure and transport companies to work with other stakeholders not just for their shareholders; CPRE to work with a city to resolve its growth appropriately, not to deny it; volume builders to cater for their users and not their shareholders to create harmony and beauty; County Highways to invest in appropriate infrastructure; Government to reinforce the institutional structures and, if appropriate, funds to make such an integrated approach possible.

In the UK's fragmented institutional environment, where we have moved from an integrated view of the future that reflects the interdependencies that make up our historic cities, to a greater focus on satisfying the concerns of single issue groups, we find that to safeguard the interests of all – nothing much happens.

Not all is doom and gloom - The Local Enterprise Partnership

Local authorities, and other organisations, are facing these challenges in different ways; in central Oxfordshire the so-called 'arc of opportunity' might presage a bright future ahead. The LEP comprises local authorities, local businesses and has links to Central Government. Although its role is to promote local growth plans it has no strategic planning role. That still depends on the duty to collaborate between the various Councils and the LEP (as outlined in the NPPF). This 'horizontal integration' has led to City Deals, part funded by Government. It has yet to lead to active leadership – but may eventually get there. Oxford's LEP's vision is that in the next 15 years, Oxfordshire will be recognised as a 'vibrant, sustainable, inclusive world-leading economy, driven by innovation, enterprise and research excellence.'[7] To achieve this investment, the City Deal includes:

- Major investment in a network of new innovation, biotech/biomedical facilities and incubation centres to weld the

- Centres of excellence into a 'knowledge spine'. This includes 7,500 homes, and ultimately 100,000 to support these and other growth hubs in the County. This would lever in investment to help fund housing, infrastructure, and help create 18,600 new jobs, rising to 85,000 in 15 years.

- The 15 year Strategic Plan also includes significant road and rail improvements, estimated at £1.3 billion.

What is interesting is that although the thrust is growth-positive, issues such as reviewing green belt boundaries are only pointed to as a consideration, in spite of the fact that without such a review some of the proposed growth will be constrained, if not impossible, and much of Oxford's housing demand unmet. This sequence of events and players is typical of the process with which such historic towns find themselves involved. It relies heavily on collaboration between local Councils. In Oxfordshire this is a challenge. The other challenge is that the boundaries of the city are very tightly drawn and this has meant Oxford City is basically at capacity. It has very little space within its lines to provide anything like the 28,000 homes required over the next 15 years. It relies on other Councils to collaborate. This is not an unusual situation. The challenge is the same for Cambridge. However, Cambridge has managed to come to an accommodation with its adjacent Councils, the university and its colleges, and has thus overcome the boundary and green belt constraints.

Oxford Futures

In tandem with the publication of the LEP's Oxfordshire economic strategy, the Oxford Civic Society (OCS) published Oxford Futures,[8] which looked at the necessity for smart growth to ensure economic, social and environmental well-being. The OCS needs to be congratulated for being so pro-active, and putting forward some thoughts on spatial plans and strategic principles for the future of Oxford's city region. It takes a pragmatic stance:

- It deliberately demotes cognitive myths and the boundaries that have been created and posits a new, integrated approach to resolving the challenges in this region. This sub-region has the potential to become one of the key drivers of local, regional and even national economies in a twenty-first century based on its knowledge/science based industries. The constraints on the city to grow due to boundaries, flood plain and green belt have led to a shortage of housing related to employment areas for highly qualified employees and alone key workers;

- Capacity problems of major routes due to large scale commuting have resulted in congestion and pollution and led to dysfunctional roles and relationships between the city and its satellite towns;

- This has been exacerbated by limited collaboration, few common Council agendas, and only recently a clearer

view of what the universities and colleges want.

Oxford Futures promotes a possible strategy for growth that recognises a N-S development and amenity spine, and integrated mixed-use growth along enhanced links in 'big bites' to reduce radically the pressure on some of the sensitive villages around. It explores different spatial scenarios, suggesting the advantages of a polycentric linear arrangement of settlements with enhanced connectivity and new rapid transit linking major employment centres with existing residential areas, a more active use of the flood plain, and a commensurate adjustment to the green belt.

Oxford Futures had a far-sighted strategic and spatial approach to ensure sustainable development over time. It recognised that 'Brand Oxford' is critical to the marketing of this area. Oxford University has significant assets, and recently has been loaned £200 million by the European Investment Bank (the largest loan it has ever issued to a University) to invest in teaching and research facilities. But where does the university house those coming to work in these facilities? Maybe the new devolution of business rates will enable Councils actively to invest in local infrastructural improvements.

For those historic towns that have a solid base of high tech and science-based industries, the economic potential and associated housing demand is very important. Matching them is difficult. Matching them with high quality is harder and historic cities need to ensure that the mechanisms are in place to procure and review plans to ensure excellence. After all it would seem that the historic environment that is a great attractor.

Exemplar historic cities

It is important to learn from other historic cities. In the UK the focus has been on the success of South Cambridge, which, together with other Councils and the University, looked at the need for housing, R&D and high quality employment and also recognised the need to adjust the green belt, provide new transport infrastructure and an integrated approach to development. The Cambridge Quality Charter provided a design benchmark.[9] Cambridge University and its colleges have also developed and implemented a consistent and co-ordinated strategy focused on the long-term success of the University, rather than just thinking about short term financial gain. The result is the creation of a vision, a business plan, and launching a bond issue to raise a £350M development fund. In Cambridge the driver was the University. It provided leadership, influenced planning and established mechanisms to collaborate with other parties. The collective commitment over time by the local authorities has also been crucial. Oxford has now to walk a similar route.

It is useful for historic towns and cities in the UK to look at what has been achieved in similar cities in Europe. The Dutch model is to build neighbourhoods located on good public transport routes. Local

authorities there often lead the strategic planning process and help assemble sites. In Central Oxfordshire there are some brave experiments such as Bicester's Eco-town and its Graven Hill self-build scheme, but these are not yet linked to major employment areas. Transport is key and any new investment, whether new stations, services or modes needs to be geared toward reducing car usage. This is particularly clear in Freiburg – another historic knowledge city – which has taken 25 years to mature into one of Europe's exemplars of sustainable cities. Based on the extension of an existing tramline, housing has been built by a combination of development companies, co-operatives and individuals through self-build/self-managed development. It has achieved this by taking the lead, providing builders with serviced sites, through a masterplan and design codes - a process that Cherwell District Council is following at Graven Hill.

These exemplars were based on five key principles:

- Develop in the right place and reduce car use, bringing housing and employment closer together – in the case of Oxford this might be along the main rail/road corridors;

- Create balanced and healthier communities – addressing not just affordable needs but those of new industries and R&D;

- Build distinctive places – one only has to look at how Barton Park is emerging or Graven Hill;

- Minimise environmental impact – ensuring higher densities, greener buildings, and garden suburbs.

The Public Sector can lead the way. Reading has put forward a long-term 2050 Vision geared to smart and sustainable growth. Here the stress is on leadership and how to make a visionary city. Historic cities are not always very good at articulating ambitions to be a learning city, a 'green city', or a connected city and so on, or then setting out policies and actions to underpin these goals, with a spatial masterplan to achieve them. Lack of vision and spatial strategy, perhaps because of political boundaries, lack of leadership or partnership with key stakeholders and landowners has an impact on a city and its surrounds.

Where does this leave the green belt in Oxford? One reason for the green belt was to avoid agglomeration and to prevent sprawl. What we have seen is that sprawl has just relocated itself to the outskirts of the green belt. We have also seen the rise of anxiety of local residents about the quality of development adjacent to their villages or as an extension to their town. Too little in the way of good design quality permeates the volume builders' products, and this has reinforced the fears of supporters of the green belt. We might need to separate the issue of whether the green belt flexes to respond to development pressure, or whether it should require design excellence to build in the green belt. In other words it becomes an Area of Outstanding Architectural Beauty. Until a more positive role can

be achieved for the green belt we will continue to see congestion and pollution on the poor road network that connect Oxford with its residential hinterland.

The Civic Trust recently put forward its view of the lessons learned from the commuting maps of central Oxfordshire:

> When green belts were first introduced just one in seven households had access to a car; today it is 80%. By constraining housing growth immediately around Oxford and Cambridge in particular, green belts explain the large travel-to-work areas for these cities, as thousands of commuters drive across each city's green belt to get to work. This somewhat defeats the original rationale: green belts simply displace, rather than prevent sprawl.[10]

Could it be time then to rethink the role and the efficacy of the green belt?

A way forward - conclusion

Many cities have used their heritage assets as part of their economic strategy. Some of these assets are part of their narrative and myth. One could consider the green belt as part of that narrative and as a 'place' not a barrier; something that has a positive function, part of the interface between city and countryside. There is even talk about it in terms of 'place-making,' though 'place-making' has traditionally focused on ' urban space.' As Susan Silberberg in her article 'The Common Thread' suggests, it may be time that 'making' got a look in.[11] Giving the green belt a role, 'making' it into a 'place' could be a bridge between heritage and future identity.

In his essay 'Razed to Life,' the philosopher Julian Baggini points out that for a strong future a historic city has to have a healthy sense of identity. Oxford presents an ambiguous face. Maybe the issue here is:

> to strike the right balance between acceptance of change, whilst not having so much of it that the narrative and myth becomes broken, as it has in much of the ad-hoc expansion plans of historic cities in this country. This is what should be informing decisions about what we preserve and what we should let go. We neither want to pickle our inheritance nor cast it carelessly away. Either way we kill it.[12]

Perhaps there is a need to look at where the balance in this area lies. If one looks at the green belt without prejudice one might think not about its immutability, but the creation of an equitable and positive legacy for the future.

The team that won the Wolfson Economic Prize described a plan to create an imaginary Garden City called Uxcester, with the view to use Oxford to illustrate a series of broad principles. The view of the authors is that it is better to graft development onto the strong root-stock of an existing city, and to add new 'garden suburbs,' each comprising 15 - 20,000 dwellings, housing up to some 50,000 people within 10km of the city centre and

then to establish appropriate mechanisms to redirect the rise in the value of development land into the provision of infrastructure and development of quality homes – as in Europe.

Without going into the details of the Uxcester proposals, opportunities are present to answer some of this historic city's challenges. They build on the outcomes of the Oxford Futures exercise and promote the concept of what David Rudlin has called taking a 'confident bite' out of the green belt.

The setting of Oxford, mostly formed by the flood plain, would not be compromised. Poor quality or constrained land could be used, so too, if necessary, could land in the green belt. Better and rapid public transport would ease commuting. The 'Knowledge Spine' would be reinforced. The green belt would flex and new country parks and other positive functions for the green belt would be created. New homes would be built where there are sufficient primary and secondary schools, hospitals, workplaces and retail areas to help rebalance the city and answer its housing needs. Oxford itself becomes a Garden City. That is the vision, but it requires continuity and leadership.

Growth per se is not a bad thing. It can provide jobs for existing residents; it can provide funds for better connectivity – both virtual and real. It can provide a healthy environment, social facilities and levels of sustainability with a higher quality of life. Historic cities will lose those talented people who would otherwise contribute to the city's future. If Oxford is the powerhouse of this region, then this should be recognised. If the population of Oxford and its satellites is some 400,000, there is a critical mass to provide opportunities. In a global economy, the future of this area as a 'polycentre' for knowledge will rely on industries holding on to staff and extending the markets for its services. This is where smarter growth needs to be considered, to enable Oxford to match its European and American rivals and set new standards for appropriate development in the UK. How could it do this?

1. *Establish appropriate mechanisms* - a mechanism to create and articulate a long-term vision and strategy. In the past Urban Development Corporations, LEPs, Enterprise Zones and joint venture partnerships or similar have been considered. Following Uxcester principles, another type of vehicle might be the answer. Whatever it is, it needs to have the confidence of major landowners, communities and other partners with whom it will engage and collaborate, be vested with appropriate powers such as acquiring land, masterplanning and planning, and have a procurement process to ensure high quality design and environment. None of this is new but in some locations – such as Oxford – such a vehicle may be suitable and could be an evolution of the LEP.

2. *Create a long-term vision*. A vision linked to wider economic, social

and environmental goals for the area is necessary to identify where development should be located based on existing infrastructure availability - not the rather reactive situation we have today.

3. *Link land use and transport planning*. Historic cities need to address current congestion and capacity issues and significantly re-focus movement towards pedestrian, cycling and public transport.

4. *Expand the city in the right direction* – in larger 'bites' and not in ad-hoc estates – so that wider sustainable aspects are taken into account, even if that means flexing the green belt.

5. *Rethink the relationship between where people work and where they live*, and the appropriate mix of housing facilities and work.

6. *Create a spatial masterplan*. Most sustainable developments use rapid public transport as a spine. To this can be added walkability, healthy living, and compactness. The spatial masterplan will show how and where development is appropriate, and the costs of improvement in connectivity and economic and social well-being, commensurate with those locations.

7. *Delivery. How the developme*nts will be financed (land, transport, facilities etc.) whether it be public, private or partnership investment and / or capturing the increase in value.

There are enormous challenges to our historic cities. In a global economy, the future of knowledge cities – and particularly historic knowledge cities like Cambridge, Oxford or York – is of more than local importance. The contention is that it is time to look at the future. What does the historic city want to be in 25 or 50 years? How can that be achieved? Do the constructs that have been created, whether it be political boundaries, designated boundaries such as green belt, or economic boundaries (between rich and poor) need to change to achieve that vision? The situation cannot go on as it is through fragmented and haphazard reactions, and single issue fixations. If it does, the current state of stasis, and the increasing imbalance in our society, will continue.

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Jon Rowland Urban Design is a small practice set up in 1996. The practice carries out a wide range of urban design projects. We work with a network of similar practices to promote a cross-professional attitude to urban development and regeneration.

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6

Conserving the Post-Second World War Reconstruction: a Contentious Idea

Peter J Larkham

Introduction

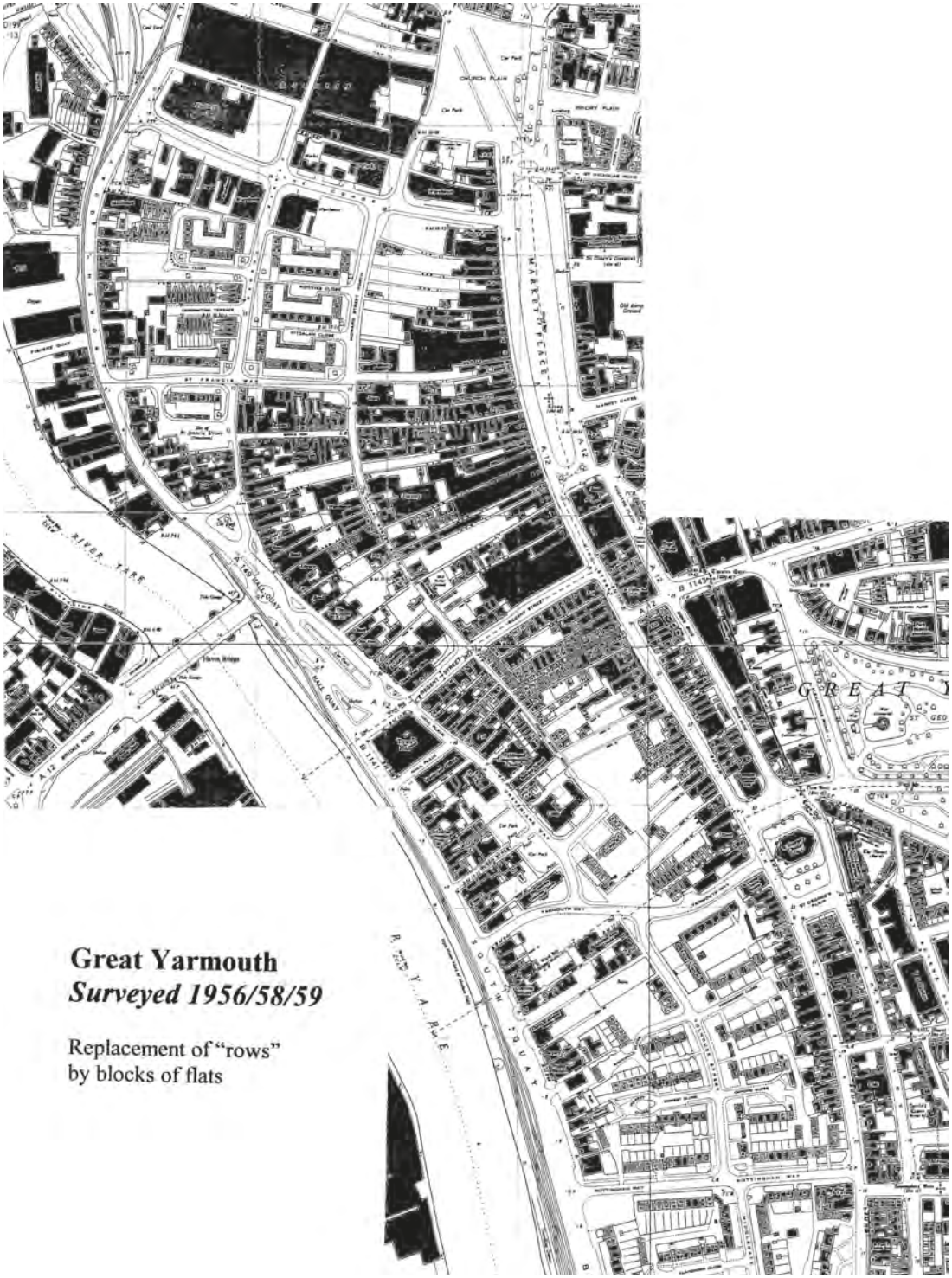
This paper explores two main issues: first, how issues of conservation and heritage were dealt with in the post-Second World War reconstruction era (c. 1941 – 1973); and, secondly, how the heritage of the reconstruction era is being dealt with today, as buildings and areas age and become obsolescent, and face demolition for redevelopment, alteration or, perhaps, retention and conservation.[1] These issues are explored through considering the experience of Birmingham which, as a major historic industrial city, demonstrates many of the problems of historic towns more widely but on a larger scale and involving larger-scale buildings and projects.

The extent of damage caused by bombing and, later in the south-east, V1 and V2 weapons) is significant and immensely variable. Some places escaped unscathed. Many had a few, or light, raids. Only a few suffered major damage. A small number of historic towns were particularly targeted in a series of raids in 1942, called the 'Baedeker raids.'[2] The extent of damage in hectares, as recorded by contemporary Government files, ranged from 530 for the 18 London County Council boroughs, 84 for Liverpool, 24 for Manchester and only 2 for Deal.[3] In some places, detailed mapping on Ordnance Survey basemaps shows not only the precise extent of damage, but also an indication of its severity – although the exact definitions of 'completely damaged', 'severe damage' and so on can be questioned.[4] But the damage was wide-ranging, and many historic properties and sites were affected.

The conventional planning history suggests that it was the damage to such properties, some of which indeed had hardly been recognised as historic, that spurred the survey and identification of heritage buildings including the formation of the National Buildings Record and the system of Listing buildings allowed in the 1944 and 1947 Town and Country Planning Acts.[5] But there were important precursors, including lists produced on a local basis by various local authorities, societies and interest groups, and an emergency survey by the Ancient Monuments Branch of the Ministry of Works following the first serious air raids of 1940.[6] This scheme was not solely an identification but was 'designed to provide First Aid repairs to Buildings of Historic Interest damaged by enemy action.' Valuable and characteristic *groups* were to be identified, while earthworks were excluded. By the end of 1942 basic lists for the whole of England had been compiled.[7]

Despite the magnitude of damage, the loss of life and the physical and psychological impact on the survivors, it was common at the time, even during the bombing, to speak of the 'opportunity' afforded by damage.[8] Yet this is part of a continuum; although planning histories often start abruptly at the end of the war (or with the radical 1947 Act[9]) a range of urban problems were recognised before the war. These concerned principally slum housing conditions and traffic congestion; and there was also increasing concern in the inter-war period about the vulnerability to aerial warfare of close-packed urban populations and production facilities.[10]

Figure 1: *Great Yarmouth before and after wartime damage (based on ordnance Survey Sheets: Crown copyright reserved).*



Great Yarmouth
Surveyed 1956/58/59

Replacement of "rows"
by blocks of flats

The damage, and its precursors especially in terms of recognising the need for slum clearance, led to a short period of intense planning activity between 1940 and *c.* 1952. Approximately 240 plans of various types, formal and informal, are known.[11] They are usually termed "outline reconstruction plans". But this intensive burst of plan-making activity was abruptly ended when the 1947 Act came into force, replacing these plans with a new type of plan – the Development Plan.

The case of Great Yarmouth is relevant to exemplify these issues; it proved something of a *cause célèbre* in early post-war conservation thinking (Figure 1).[12] A well-preserved medieval port town, with a sizeable and unique area of tight-packed alleyways leading to the river and harbour, it was bombed several times in 1943 destroying 1,636 houses.[13] The damaged area was then further damaged by its use in training Allied troops before the D-Day invasion. Ministry papers refer to this area simply as one of 'old and sub-standard housing'[14] and a report on conservation issues by the architect Hugh Casson, including a National Trust property, was not positive.[15] Yet the Minister himself felt that the Corporation was too anxious for wholesale demolition of an 'insanitary and utterly unsatisfactory form of development which could not possibly be retained in any redevelopment plan', and took steps to hear the opposing point of view.[16] Objections to their demolition were raised at a public inquiry into proposals for redevelopment in 1948[17] but the compulsory purchase of 14.4 ha was agreed in January 1949. Demolition followed quickly, with little being retained of this rare medieval mercantile quarter. The replacements were undistinguished brick low-rise apartment blocks.

In this case a substantial area of considerable interest was virtually destroyed despite attention from conservationists. However the area had been neglected and the surviving buildings, although numerous, were in poor condition by the 1930s. They *could* then have been saved, albeit very expensively. Bombing and wartime training had inflicted considerable additional damage. The limited official interest tended to be focused on the South Quay, where the National Trust property was threatened by proposals for a new river crossing as part of the wider redevelopment. It is clear that some of these properties *could* have been conserved and restored, but neither the will nor the funding were evident, and new housing was clearly the priority. Values have very clearly changed in the decades since this decision, as Pevsner and Wilson show; their comment that 'it is a pity though that so many buildings, damaged or not, had to be subsequently demolished' is a masterpiece of dry understatement,[18] but one which could be applied to so many British towns and cities.

Heritage *in* reconstruction?

Planning histories have tended to ignore any conservation content in the numerous plans produced during and immediately after the war, for both bombed and unbombed places.[19]

Yet even a brief overview of a small number of known plans demonstrates that there is much conservation content, about the places as a whole, about individual buildings and even, perhaps surprisingly, about potential area-based conservation.[20] Drawing from some of the surveys of historic buildings, some of the plans – particularly the slightly later ones – showed maps of individual buildings identified as being of historic significance, and this explicit delineation was a new departure.[21]

A minority of plans for towns then recognised as being primarily of historic interest go so far as to mention preservation in their title: those for Warwick and York are examples.[22] The experienced consultant Adshead said of York that it was 'a town of Museums and archaeological and ecclesiastical remains, and there is little more wanted than *restoration*.'[23] Many plans make early and specific mention of preservation/conservation (but the distinction between these two terms is problematic and not necessarily that used today). As might be expected for such a quintessentially historic city, the Edinburgh plan has preservation as a core consideration:

> of the human handiworks which have overlaid these natural features, there are many that have acquired an historic interest and possess an architectural value … Nothing is so likely to arouse controversy and opposition as change or destruction of any of the ancient human landmarks of the city. This cherishing of the heritage of the past is laudable but it makes the work of the planner more perilous.[24]

Unusually, the 1945 plan for Richmond (Surrey) had a dedicated section entitled 'preservation', although it contained only 11 text lines.[25] Norwich, suffering from a severe 'Baedeker blitz', likewise had a specific section, but rather longer at two-thirds of a page. Despite this, the conservation-related detail is largely found in the plan's street-by-street treatment, which was very thorough in its coverage of conservation.[26]

In Bath it is clear that road lines determined which areas and buildings could be retained. Yet Abercrombie *et al.* gave, as their first 'primary determinant' in selecting new road lines, 'the fundamental necessity of preserving the maximum number of buildings selected for preservation.'[27] Once more, radical restructuring was proposed, although this lay outside the Roman/medieval core, and focused primarily on an area between the core and the river, which had suffered industrial change, neglect and bomb damage.

The consultants' plan for York noted that 'the conflicting claims of clearance and preservation must be carefully weighed', although 'in preparing this plan every effort has been made to satisfy the practical needs of this hurrying mechanised age.'[28] In contrast, a local resident's published proposals were strongly biased towards retention of historic structures, opening up views of the Walls, and recommending

that architecture of `the modern styles should be allowed outside the Walls' (and, by implication, presumably not within).[29]

Despite its title, Warwick's plan contained relatively little explicitly on preservation. A key early justification for preservation was given in the town's attractiveness as a tourist destination. It possessed many buildings, by implication pre-dating the destructive fire of 1694, 'of historical interest but often of unsound structure', some of which could be preserved. Here, the preservation focus appeared to be more through the diversion of development and traffic to locations and routes outside the historic core.[30] The plan for the neighbouring Georgian/ Regency spa town of Leamington Spa also contained relatively little about its preservation, although the spa quarter was clearly defined in both architectural and plan form. 'Much of the town has great charm for the architect and the historian but the preservation of its best and most characteristic features presents certain difficulties which must be overcome.' The buildings of 'architectural and historic interest' were mapped, and 'much would be lost if this urbane Regency character is allowed greatly to change.' The manner of overcoming the problem of neglected large buildings in multiple occupation was given as 'compulsory purchase and *proper reconstruction* as flats.'[31] Neither, perhaps rather surprisingly, did the Tunbridge Wells Civic Association's plan discuss preservation, although their concern for proper planning of the Pantiles area was evident (although this involved new buildings, an underground car park and other development).[32]

There is much less – sometimes no – mention of conservation for those towns, or parts of towns, that were seen as being of primarily industrial character. Nationally, the conservation of industrial and Victorian heritage gathered little impetus before the late 1950s. Wolverhampton's plan did not mention preservation at all, concentrating on 'rebuilding and regrouping' the central area within the proposed tightly-drawn ring road.[33] That for Macclesfield mentioned only the 'reconstruction' of remains of the old castle; but the striking cover illustration juxstaposing old and new shows the consultant author's line of thinking.[34] Newcastle upon Tyne's plan mentioned preservation, particularly for the city's important historic medieval and Georgian core, in the second key point in its preface: 'It is proposed not only to preserve the interesting and picturesque features that remain but to improve the sites so that the historic buildings may appear in a proper setting and be readily accessible.'[35] However, as with Norwich, its detailed proposals were buried within the text, under particular streets or areas; and the amount of change proposed, including a radical restructuring of the entire city centre street network, was substantial.

The plan for Birkenhead proudly listed the 11 structures identified by the Ministry of Works for protection under the 1944 Act. None were industrial; one being a 6-acre Georgian square for which specific proposals were developed, including

sand-blasting to remove painted signs, and uniform and regular repainting in prescribed colours, and a rate rebate was suggested for participation in this scheme.[36] For Accrington, however, there was a substantial section on its architectural heritage; despite this, there was little or no sense of purposeful preservation during the envisaged 50-year scope of the plan's reconstruction of the central area.[37] Manchester had very little on preservation: 'the city's buildings, with few exceptions, are undistinguished. Moreover, our few noteworthy buildings are obscured by the dense development surrounding them.' The noteworthy buildings were, once more, not industrial. The detailed proposals made provision for improving the setting of such buildings, for example the Cathedral and Cheetham's School, but little else. However, despite some radical proposals, the plan again mentioned a 50-year period, recognising that 'since reconstruction is a gradual and spasmodic process ... the shape of things present must to some extent persist.'[38]

Within many of these plans, and in schemes implemented into the 1960s, buildings and structures of historic merit often became isolated, sometimes physically separated from their original urban

Figure 2: *Coventry: re-erected medieval buildings and section of town wall at town-centre end of Spon Street (photograph: author).*

contexts: 'monuments', museumised and sanitised. Later accretions (perhaps of some historic merit in themselves, and certainly representing particular periods and processes of urbanisation) were to be cleared away to reveal 'monuments' such as York's walls.[39] The medieval walls of Newcastle upon Tyne were revealed (although one section now stands forlorn facing a car park). This approach reveals much about contemporary ideas of the nature of artefacts and conservation; it is common elsewhere, and has been termed 'disencumbering.'[40] Coventry shows perhaps the most radical example of this treatment of structures identified for protection: many timber-framed structures stood in the way of the radical modernist-inspired new city centre, and were dismantled, stored, and eventually re-erected on the edge of the city centre in Spon Street (Figure 2).[41]

Some bombed buildings and areas found new uses, or new uses were proposed, which could have led to the retention, repair or restoration of the damage. An interesting example is the Royal Crescent, Bath, where Abercrombie suggested remodelling the damaged central section of 16 houses (some damaged) into a 'Centre of Civic Administration', with a new rear block replacing the existing 'dilapidated Mews' and, potentially, eventually the conversion of the entire Crescent to public uses.[42]

Perhaps the most significant of such re-purposings is the use of bombed historic buildings as memorials. Churches, as prominent landscape features, public buildings, and imbued with more spiritual and heritage values than most buildings, were often selected for retention and re-use as some form of memorial; indeed they focused attention on developing ideas of conservation at this time (Figure 3).[43] The retention of Coventry's bombed cathedral as an adjunct to the eventual competition-winning design for its replacement is well known; less so is the earlier scheme to incorporate some of the ruined structure into a replacement.[44] Following a campaign in the mass media (starting in *The Times*) and professional press, some bombed churches were retained and converted into monuments, sometimes standing in gardens formed from their churchyards;[45] and there are examples in Birmingham, Bristol, Dover, Liverpool, London, Southampton, York and others (as well as overseas, notably Berlin, Hamburg and, until recently, Dresden). The retained church in Plymouth is particularly striking as it now stands isolated on a roundabout of a high-speed inner dual carriageway, backed by the unusually-designed outer wall of a shopping centre; not what was envisaged in the 1943 plan.[46] Dover, however, remains a neglected ruin.

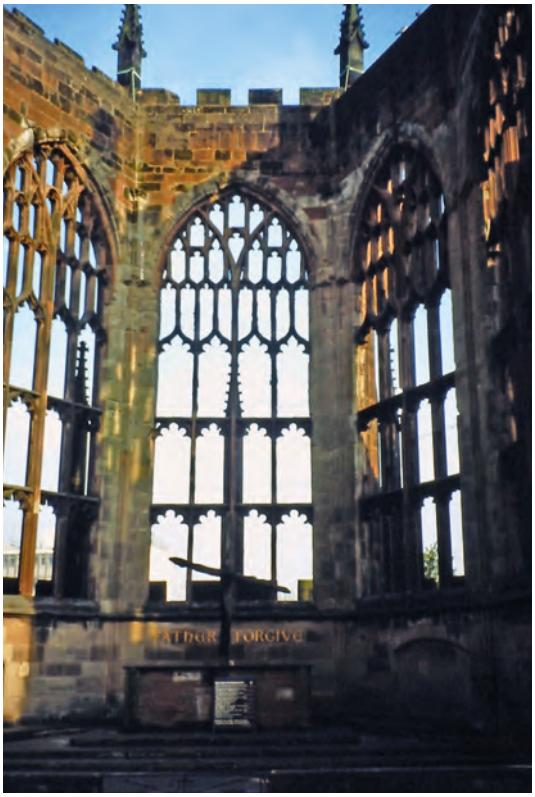
The reconstruction, rather than the replanning, raised a number of conservation-related questions such as the significance of adapting retained fabric to new uses, the extent of new work (and styles and materials) that could be considered appropriate, and the originality and authenticity of schemes. The contribution of the bombed churches and schemes for repair or retention as ruins has been mentioned. In the UK replication

Figure 3: *Bombed churches remaining in the modern townscape: Bristol, Birmingham, Coventry (Greyfriars), Dover, London (Greyfriars), London (St Alban), Plymouth, Southampton, Coventry (Cathedral) (photographs: author).*

Charles Church, Plymouth

Christ Church, Newgate, London

Greyfriars Tower, Coventry



Coventry Old Catherdral apse

St James, Dover

Southampton

St Alban, Wood St, London

St Peters, Bristol

St Thomas, Birmingham

of destroyed fabric is exceptionally rare – there are examples in London and Bath, but this was usually restricted to repair of historic terraces. This contrasts with examples on mainland Europe; in Ypres after the First World War and Warsaw after the Second, for example. The pressure for actual reconstruction from the mid-1950s, when rationing of building material was lifted and when the financial crisis of the immediate post-war years was over, led to numerous and large-scale schemes which paid little heed to conservation.[47] Even though it is argued that the radical nature of early reconstruction plans was toned down both by the formulaic post-1947 Act's Development Plans and by economic realities,[48] the scale and bulk of what was proposed was usually substantial. In Worcester, for example, inarguably an historic cathedral city, the consultants' road straightening and widening would have left no more than a handful of pre-war buildings remaining, had it all been implemented.[49] Indeed, although the traditional history of conservation is insufficiently nuanced, it remains accurate to say that much of the conservation movement today originates in these competing pressures.

To summarise, although often little recognised today, many of the numerous post-war reconstruction plans did pay some attention to issues of conservation, preservation and heritage. Both building and area scales were represented. However, the evident opportunity for redevelopment afforded by the bombing (or, if unbombed, the jumping on the replanning bandwagon) tended to

relegate conservation to a minor role. And not all plans, even by those who made their reputation in replanning historic towns, such as Thomas Sharp,[50] were all that sensitive to context and design: for example, in (unbombed) Oxford, Sharp shows what a later critic would describe as 'toothpaste architecture.'[51] Hence, and undeservedly, the most common view of how the reconstruction plans dealt with heritage and conservation would probably be very negative. The image of 'the planner' erasing the past to make way for his rational road layouts,[52] or looking at a depiction of a motorway soaring over the City of London and saying 'there's be no harm in giving it a trial?',[53] are inaccurate but typical representations.

Heritage *of* reconstruction?

The massive rebuilding from *c.* 1946-1973 changed many town centres, introduced new materials and architectural styles/forms, and is not widely popular: indeed it spurred the rise of the conservation movement. But this itself is now reaching the end of its life and is threatened with redevelopment – in fact some has already been replaced. The Princesshay retail development in Exeter, for example, featured in Sharp's reconstruction plan, has been redeveloped and this process has been used in a study of theories of conservation.[54] How can we appropriately conceptualise and evaluate the conservation-worthiness of so many buildings and whole areas that are so unpopular? Especially when even the most iconic new urban layout, by the most well-known planner (Abercrombie's Plymouth) was not implemented as designed?[55] On a scale rather smaller than this city-centre plan, large-scale structures (sometimes termed 'mega-structures') were not uncommon in the reconstruction era, particularly as large infrastructure renewal occurred: these, too, are subject to obsolescence and potential replacement, particularly as technology changes.[56] Equally at risk are the ordinary products of the reconstruction period, from individual shops to houses. Changing expectations and technology, and sometimes short-lived innovations in construction or materials, lead to obsolescence here too. Piecemeal redevelopment of The Moor, for example, a retail street in central Sheffield, in recent years has substantially changed its 'reconstruction-era' character and appearance.

Selection for conservation

Some of these post-war areas and buildings have survived for close to 70 years. However, many are now structurally, functionally, and/or economically obsolete. Normal processes of urban and architectural development would replace them. But do they – or some of them at least – have a value that might lead to retention/reuse/refurbishment, notwithstanding a widespread negative response to their character or appearance?

Processes of selection are crucial here and, in particular, whether selection criteria are explicit; whether they can adequately consider the sometimes unusual characteristics of post-war development; the relative weight

accorded to expert and public opinion; and where the actual decision-making rests. The conservation decision-making process, whether at the local planning authority level (for conservation areas) or Ministerial level (for listed buildings) has long been a matter of concern: over three decades ago the architect Cedric Price said that 'what is objectionable is the staggering conceit and arrogance of those who determine just what part of our built environment should be deemed sacrosanct.'[57] This is well illustrated by the views of a key decision-maker, Tessa Jowell, as Secretary of State for Culture, Media and Sport: 'a building or space that is not a pleasant or interesting place to be, that does not engage the people who use it, is likely to have a short life due to neglect or vandalism born out of indifference or outright hostility.'[58] This overtly suggests that buildings or places currently perceived, and by whom is not clear, as 'not pleasant or interesting' will not be retained. Yet there may well be valid reasons why they should be considered, and particularly pertinent to the post-war period are architectural values of innovation, uniqueness and design history. On the other hand, 'familiarity breeds contentment',[59] and there are examples where initial dislike turns to support, and heritage designation, in the face of threatened redevelopment (the example of Birmingham's Rotunda is discussed below).

That decision-makers are human, and selection criteria never exhaustive, is reflected in the issue of the changing values in heritage and conservation.[60] Crucial for the 'reconstruction era' especially in light of recent foci in architecture and urban design include the issue of 'iconic buildings': but how many 'reconstruction era' buildings are iconic in any meaningful sense? And what of the *non-iconic* ordinary fabric of the reconstruction? In conservation more widely, and in the discipline of history (specifically the history of the built environment), concern for the everyday, the ordinary, has become a major issue.[61] This also raises the problem of how buildings survive and adapt during several decades of use, and which stage in a building's history is to be retained or restored? While this applies to buildings of older periods too, the fact that the buildings and areas of the 'reconstruction era' are those with which we have all grown up and are familiar perhaps presents an additional complexity, particularly when the issues of public input and familiarity (see above) are involved.

Again, there are contrasting views. Some would argue that memory (allied to concepts such as familiarity, place-identity and so on) is itself problematic. Memory 'comes from somewhere else, it is outside of itself, it moves things about', 'and when it ceases to be capable of this alteration, when it becomes fixed to a particular object, then it is in decay. Seen in these terms, objects are the enemy of memory.'[62] We could, therefore, consider whether there are more radical means of retaining the value of building and places (i.e. large-scale, urban, objects) without retaining the fabric itself. In the post-war period we should have full architectural

Figure 4: *Neglected marker of former building: Hill Street Gate, Coventry: demolished late 18th century, partially obscured by poor patch repairs over roadway marker of c. 1993.*

drawings and, at the very least, planning applications. Increasingly sophisticated IT technology can provide photographic, photogrammetric, 3D, LIDAR and other surveys/scans, including of interiors. Similarly, IT-based engagement with a local community *about* the building/site/area before demolition can record otherwise problematic features such as local perceptions, recollections and values.[63] Yet, in relying on any such approaches, 'in recording past achievements the value of the record is strictly limited by the skill and perspicuity of the recorder … the record depends on an arbitrary selection of the aspects to be recorded and that selection can clearly only be made in the light of knowledge possessed at the time of recording.'[64] Earlier, the architect (and protector of bomb-damaged heritage via church ruins) Sir Hugh Casson warned that 'reports, documents, plans, photographs, however sincerely meant, however carefully prepared, can never be wholly trusted. The first duty of us all in this business is not to collect facts and not to look at drawings but to go out and look for ourselves.'[65] You can't look for yourself if the original isn't there!

The then Secretary of State controversially supported the 'recording' approach, albeit not as a first choice: 'I have already said that "there is no substitute for the real thing" in heritage matters … but when the choice is between obliterating a historic building so that nothing is left but the architect's drawings; and having a perfect digital record of every square inch, available for students and

historians for all time, I know which I would rather have.'[66] Unsurprisingly given her role, this provoked instant backlash: recording would be 'almost acceptable if you are an archaeologist, useless if you are a layperson who appreciates your surroundings; it doesn't preserve the way you react to the building in the street, nor the enriching effect it has on your everyday life, in spite of the Minister's suggestion that we are now able to create almost perfect virtual models of historic surroundings. What could be more accessible to the public than a building standing on a public street?.'[67]

There are also examples where traces of buildings are evident in the modern urban landscape: ground plans of excavated buildings (examples in Canterbury and Coventry: Figure 4) and a steel outline in Cincinnati. These may keep the memory of a building – site, shape, but not physical structure – and may be thought of as relics, memorials or mementoes rather than conservation or preservation. But the scale of much post-war rebuilding is not conducive to this form of memorial. As this was an important period in the country's history, and is still in relatively recent memory, as Peter Smith said, 'we will deeply regret not having understood the writing on the curtain walls of the sixties and seventies.'[68]

A closer look at Birmingham

Birmingham is, indeed, an historic town: only becoming a city in 1888 as a result of industrial revolution growth. It is an excellent example of 'reconstruction-era' planning and building not just because of its scale as England's 'second city' but because, unlike other examples of reconstruction such as Plymouth, Coventry or even the City of London, the damage was relatively light and scattered. Although in equal second place in terms of weight of bombs dropped, the damage was insufficient to bring significant Government assistance.[69] The then City Engineer and Surveyor, with responsibility for town planning, Herbert Manzoni, was uninterested in the 'reconstruction plans' that so many other towns commissioned; and so Birmingham's progress in the period 1945-73 was atypical in its process although not in its product. There remain strong parallels in Birmingham for what happened in, for example, Exeter, Bristol, Hull, Norwich, Southampton, Coventry and others; and in the less-bombed towns which rebuilt at this time. Manzoni's expressed views are interesting:

- 'we have not got to start replanning Birmingham. All we want is the opportunity to carry out the plans we have already.'
- 'any dream that a completely new city can emerge, Phoenix-like … is quite erroneous.'
- 'I'm not interested in small solutions, only big ones.'[70]

So the city centre was rebuilt, in a rather piecemeal fashion, block by block, with the armature of substantial new infrastructure including a major inner ring road with tunnels.

Contemporary views of those who went through the process are instructive:[71]

> I can remember all of the redevelopments. We thought at the time it was absolutely wonderful. You know all these new buildings. I mean it was the 60s and anything new was brilliant and it mean it was ...it was wonderful to see Birmingham being put on the map at last. You know, we thought, you know, no-one could go any further than this. This is the epitome of development, the rotunda and you know the circular office building, what about that? Unique.
>
> So I think in the 1950s, '60s, it was a brilliant idea. The whole thing was bubbling away, bouncing and it slowly declined. You couldn't put your finger on [when] it had gone, but in 1975, 1980 it had gone, you know. It is a similar thing when I used to work in the city centre.
>
> I think a lot of other buildings could have been kept – we lost them, they just wanted to get rid of them. Possibly nowadays they would look a little differently about it and try and preserve them.

Equally instructive are the views of key agents of change, such as the architects involved in designing the new buildings (albeit speaking with hindsight, interviewed relatively recently). John Madin, for example, felt strongly about Manzoni's approach:

> The city itself owned quite a lot within the ring road and I thought this was a great opportunity to produce a plan ... But he didn't go along with this and so I, I've been frustrated for the last fifty years over this ... I just think [Manzoni] hadn't got the architectural concept experience to realise what you could do with a three dimensional master plan for the centre of the city. I just don't think he realised how important it was to do this![72]

Madin is certainly a significant local figure, locally trained and producing numerous high-quality Modernist buildings. Yet many are locally little appreciated; some, including perhaps his best, have already been demolished. His work has recently undergone a critical professional reappraisal with an RIBA-sponsored book.[73] In many respects, therefore, his surviving buildings meet many criteria for consideration of their conservation-worthiness.

So the city entered the current century with a city core structured by the ring road, by then criticised as being drawn too tightly, a 'concrete collar', and already undergoing substantial alteration and downgrading. Many individual structures were from the reconstruction era, some being of considerable size including urban block-sized retail developments ('shopping centres' or 'precincts'), the central library and what parts of the civic complex were implemented, the Bull Ring indoor shopping centre partially over the ring road, and the New Street

Figure 5: *The Rotunda, Birmingham, by James A. Roberts, c. 1967; as refurbished by Urban Splash (with Roberts's approval) in 2006-7. Listed Grade II (photograph: author).*

station with shops and offices floating on a 2 ha concrete platform above it. As the ring road itself was being rethought and partially redeveloped, so too were many of these buildings being reviewed. Some were wholly redeveloped; some were retained, albeit stripped to bare skeletons, rebuilt and reclad.

The Rotunda, a cylindrical office block by James Roberts, completed in 1964 and detested at the time, is one such structure. Its damage by an IRA pub bomb in 1974 helped its re-evaluation by the local populace such that, when its demolition as part of early proposals in 1986-7 to replace the Bullring (which had dated very quickly indeed), there was a campaign to retain it, and it was listed at Grade II. This is, indeed, 'familiarity breeds contentment.' The replacement Bullring shopping centre opened in 2003 and part of its structure is suspended from large trusses,[74] two of which are rooted through the now-listed Rotunda podium – surely an example of development adversely affecting a listed building (Figure 5). More fundamental was the stripping of the building to its reinforced concrete skeleton in the mid-2000s for refurbishment as apartments.

A number of other structures of this date have been re-clad, usually less successfully (but more cheaply) than the Rotunda. In some cases, a light metal or plastic sheeting has been applied over the original stained or failing concrete. In others, the original walling has been wholly replaced usually by glazing. The latter tends to produce a sleeker, more contemporary external appearance; but it usually removes a noticeable visual characteristic of Birmingham reconstruction-era buildings: narrow vertical 'fins' articulating the façade, a version of the traditional column or pilaster, and wholly in the fashion of the 'stripped classical' style common, especially for public buildings, in the inter-war period.

Madin's central library, however, was to fare much worse. It has been neglected despite campaigns, with the support of English Heritage, for it to be listed. Yet two recommendations from EH have been

Figure 6: *Central Library, Birmingham, by John Madin, c. 1973. Hoardings going up for demolition in March 2015 (photograph: author).*

very pointedly rejected by successive Secretaries of State. The site is crucial to the City Council's regeneration plans and, at the time of writing (early 2015) demolition is imminent and inevitable (Figure 6). When interviewed, Madin was scathing about its treatment – perhaps unsurprisingly.

> Well, while we're talking about [the Central Library] basically what the [city authorities] have now done to the central civic precinct which is beneath the library is disgraceful! I designed the library as a civic square with fountains and waterfalls; this [has] been closed off. The whole civic square has been filled with fast food, in the very heart of the civic centre of Birmingham![75]

The debate about the Central Library

The debate about whether the Central Library, a substantial structure of unique form[76] and a key node in both the movement structure of the rebuilt city and the city's civic and intellectual life – supposedly the largest municipal library in Europe – reveals many of the tensions about values and decision-making processes explored above. The building is, certainly, a contested heritage. The debate was most clear in a comparison of views expressed by the then Leader of the Council (LC) and a local website.

LC: 'How has the situation changed in the five years since the former Secretary of State decided the building should not be listed … In terms of the physical condition of the building, clearly that has deteriorated further ….'

Website: 'Well it has (if it has) because the Council have let it happen – if deterioration of a Council building isn't their responsibility whose is it?.'

LC: '… the building has never received a single architectural award since its completion, locally, nationally, or internationally … not a single building by John Madin has been statutorily listed.'

Website: 'Let's not do something because it's not been done before, not a visionistic argument really.'

LC: '… the opinion of both the City Council and the overwhelming majority of leading organisations representing the educational, commercial and civic life of the City, together with residents …'

Website: 'Opinion of residents? Have we had a vote? Or consultation?'

LC: '… the accretions to the original building have also clearly detracted from the original monumental statement …'

Website: 'He means the additional stuff – well TAKE IT DOWN!'

The opponents of demolition, and the website author, make some significant points. How far should the lack of architectural awards or the lack of listing of its designer's other buildings be criteria? The deterioration was, clearly, caused by lack of maintenance over an extended period, and is not a defence against heritage recognition; Madin also noted that the stained and failing concrete panels – not the main structure, which remains sound – was a result of the Council's decision in the 1960s not to pay for the Carrara marble cladding of his original design.[77] There has been no formal public consultation over demolition, and little over the proposed office district replacement: as with other regeneration projects over the past few decades, criticism seems to be portrayed as 'disloyal' to the city.[78] And the comment on 'accretions' relates to the roofing of the central open square and building of single-storey retail outlets, an initiative in the late 1980s of the same Council now apparently criticising them as detracting from the original design.

The library's problems are practical and political. Practically, it needed millions of pounds spent even on making it weathertight. As the city had long decided on an iconic replacement library, which was finally opened in Centenary Square in 2014, it was without a use. Madin's design – inward looking, a lack of external windows, and with restricted public vertical circulation – emphasises the monumental scale and appearance of the building but mean that adaptation would be problematic. Politically, the city

leaders were determined, as they have been on numerous cases in the past, that a new library, a new iconic structure, was needed. Old icons would be swept away to make space (or, in this case, finance through sale of the site) for it. This had got to a point where it was not negotiable. Political lobbying certainly took place between the City Council and the two Secretaries of State who rejected the library's listing, but has not been fully explored.[79]

Conclusions

Catastrophe such as wartime destruction usually pays little heed to society's valued structures – indeed they may instead become specific targets, as with the Baedeker raids of 1942. Hence historic monuments, buildings and areas are likely to suffer significant damage.[80] Replanning and rebuilding are often done speedily: a crisis needs a swift response – it is often difficult to appropriately consider how heritage materially contributes in reconstruction. The need to replace functioning buildings such as houses, shops and offices often means that heritage is a low priority. Despite this, some significant conservation issues were raised in some of the numerous reconstruction plans produced between 1940 and about 1952; including some recognition of the importance of area-based conservation. The recognition of the challenge to some buildings or areas did lead to explicit discussion, and articulation of new approaches; as was the case with Britain's bomb-damaged churches. The new legislation in 1944 and 1947 gave specific recognition to the identification, and implicitly the retention, of some individual structures through the 'listed building' system.

The nature, scale and speed of crisis often means that replacements or repairs are not always of the highest-quality design, materials, or implementation. This is clearly seen in the case of work to some of the bombed churches where, except in exceptional circumstances, only 'plain, substitute building' was permitted.[81] The continuation of rationing for some building materials until 1954, and the poor national financial position, meant that some work to non-priority heritage structures remained temporary, or poor quality, for years thereafter.

The reconstruction becomes the 'ordinary urban landscape' over several decades. It becomes familiar, rather than new; increasingly, people are born and brought up with it as their everyday surrounding. To them it is familiar rather than threateningly new, replacing an older familiar of an older population. Public opinion of reconstruction buildings does, therefore, change through time. But, in conservation terms, the 'ordinary' is usually under-valued.

Changing tastes and use requirements, and age and obsolescence, make the 'ordinary' subject to transformation or demolition. In this they are no different from any other structure subject to the usual patterns, processes and pressures of urban change. But, being the product of a painful event, having rapidly

replaced the urban landscape familiar to many but having become familiar in its own right, the buildings of this period themselves constitute a difficult and dissonant heritage, whose evaluation is contentious.

Hence there is vigorous debate on the fate of some buildings, not others. The roles of influential individuals fighting for or against specific structures can make the difference between survival or demolition; although the personalities and processes of decision-making remain relatively little studied. Retention of some structures is uncontroversial; retention of many, the ordinary urban background, is unthought-of and they vanish. Again this is a familiar urban process, the 'sieve' through which the number of buildings surviving from any period decreases as that period retreats further into history.[82]

While urban change is inevitable, how much of this important period could/should we retain? For it *is* an important period, perhaps the defining period of urban form in the twentieth century. Some of it, not just individual structures but urban *ensembles*, does merit retention despite the inevitable controversy. At the same time, can we move to greater use of innovative means of public engagement and capturing/sharing memories of the reconstruction? Accepting that digital or paper records are not the same as the artefact itself, particularly an urban-scale artefact that affects all of our senses, nevertheless as we move more and more into a digital era perhaps this will become more acceptable to more people. Yet all of this raises the question of the place of mementoes and memorials of a turbulent period. It is losing its immediacy as it moves further into the past; decision-makers of the future are unlikely to have lived through the catastrophe of war and only marginally more likely to have lived through the turbulence of reconstruction. For them, then, the memory is second- or third-hand, and likely to be of decreasing significance.

Therefore, *how does the reconstruction become heritage?* This is a key issue for all post-conflict, post-catastrophe towns in due course. It is a difficult question and experience within the UK suggests that there are no readily-generalisable answers. Some heavily-damaged towns underwent massive reconstruction and now simply wish to move on. Others pay some heed to the heritage of bombing, though (usually) less to the reconstruction. Yet, away from the decision-making processes of urban managers, the heritage of bombing, destruction and – implicitly – of rebuilding remains of wide, if not large-scale, interest.[83]

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1 This work builds upon lengthy and detailed archival research, examination of reconstruction plans and exploration of the towns and cities concerned. I am grateful to colleagues for collaborations of various kinds in this work, principally Dr David Adams (Birmingham City University) and Professor John Pendlebury (University of Newcastle). This paper builds on three relevant publications: Larkham, 2003 and Pendlebury, 2003 both examine conservation in the reconstruction period, and this is set in a wider chronological perspective in Larkham, 2014.

2 Rothnie, 1992.

3 The National Archives (hereafter TNA) HLG 71/34.

4 The best discussion of bomb damage mapping is Woolven's Introduction to Saunders, 2005; and Woolven, 2010.

5 Delafons, 1997; Harvey, 1993.

6 Harvey, 1993.

7 Harvey, 1993, pp. 4, 6.

8 For example see Tubbs, 1942, 'The new opportunity' with photograph of St Paul's rising above the smoke and ruins, p. 21.

9 The 1947 Act is a common starting-point for planning histories: understandable, as its effects have been far-reaching. See Cullingworth (ed.), 1999, for an example.

10 This concern was widely felt after a 1921 book by General Giulio Douhet, and following the bombing of Guernica in the Spanish Civil War: Patterson, 2007. More generally, for the UK, see Haapamaki, 2013.

11 Larkham and Lilley, 2000 (as updated).

12 It lasted sufficiently long in the collective institutional memory that it, and the personalities involved, were mentioned by senior English Heritage staff when interviewed by the author in 1992-3.

13 TNA CAB 87/11, 3.

14 TNA HLG 71/2222.

15 TNA HLG 79/199, report dated 13/11/1945.

16 TNA HLG 79/202.

17 TNA HLG 79/202 and 203.

18 Pevsner and Wilson, 1997, 493.

19 For example Greed, 1993, p. 115.

20 This section draws heavily on Larkham, 2003.

21 An example of such mapping is in Sharp, 1949, p. 63; although this maps 'quality of buildings', that quality being 'special architectural quality' (presumably as identified by Sharp himself).

22 Abercrombie and Nickson, 1949; Adshead, Minter and Needham, 1948.

23 S. D. Adshead, in a letter of 29 March 1943 to H. T. Cook, Town Planning and Development Officer for Southampton (Adshead and Cook were working on the plan for Southampton): Southampton Record Office SRO BA/2/39.

24 Abercrombie and Plumstead, 1949, p. 53.

25 *Towards a Plan for Richmond*, 1945.

26 James, Pierce and Rowley, 1945, pp. 11-12.

27 Abercrombie, Owens and Mealand, 1945, p. 42.

28 Adshead, Minter and Needham, 1948 (this report is unpaginated).

29 Morrell, 1940, p. 42 (written before the Baedeker raid on the city).

30 Abercrombie and Nickson, 1949, pp. 32, 62.

31 James and Pierce, 1947, p. 24, my emphasis.

32 Spalding (ed.), 1945. This plan was most unusual not only in being produced by a civic association, but in being edited by a woman.

33 Wolverhampton Borough Council, Reconstruction Committee, 1945.

34 Dobson Chapman, 1944, p. 10.

35 Parr, 1945, p. 9.

36 Reilly and Aslan, 1947, pp. 125, 121, 118.

37 Allen and Mattocks, 1950, pp. 43-9.

38 Nicholas, 1945, pp. 192, 2.

39 Adshead, Minter and Needham, 1948, as shown on the map 'Central Area as proposed.'

40 See Ladd, 2014, and Lamprakos, 2014.

41 Gill, 2004. Suggestions that surviving buildings might be moved to 'less inconvenient sites' were made by Richards, 1942, p. 94, and Coventry City Council, 1945. In December 1952 the Chief Inspector of Ancient Monuments 'uniformly decried' this approach: TNA WORK 14/1781.

42 Abercrombie, Owens and Mealand, 1945, p. 42.

43 Larkham, 2004, 2010.

44 Campbell, 1996.

45 See Casson, 1945; the processes of dealing with such memorials in the City of London is instructive: Larkham and Nasr, 2012.

46 Paton Watson and Abercrombie, 1943, where the iconic *beaux-arts* city-centre plan (facing p. 66) clearly shows the Charles Church, surrounded by its churchyard, adjoining the road not within the island.

47 This led to numerous emotively-titled polemics against the scale of destruction, such as *The Erosion of Oxford* (Curl, 1977) and *The Sack of Bath* (Ferguson, 1973).

48 Hasegawa, 1999.

49 Minoprio and Spencely, 1946; see the appended plan overprinted on an inter-war OS base map.

50 For Sharp see Pendlebury, 2003, and the theme issue of *Planning Perspectives* (24, 2009).

51 Sharp, 1948, particularly the photograph of the city-centre model facing p. 149.

52 The widely-reproduced cartoon by 'Batt' (Oswald Barrett) in Purdom, 1945, p. 174.

53 A *Punch* cartoon by Fougasse (11 August 1943).

54 Sharp, 1946; Tait and While, 2009; While and Tait, 2009.

55 Chalkley, 1983, see Figure 2.

56 For infrastructure more widely see Larkham, 2013; for the example of Cumbernauld town centre see Gold, 2014.

57 Price, 1984, p. 34. (Price also re-used these words in other publications and lectures.)

58 Jowell, 2005, p. 18. This was, most unusually, a personal statement, subtitled an 'essay on the historic and built environment', by a serving Secretary of State.

59 Smith, 1974.

60 All histories of conservation cover this. Particularly wide-ranging are Jokilehto, 1999 and Glendinning, 2013. Hunter's 1996 edited collection deals thoroughly with the UK while Larkham, 2014, reviews the period covered by the present paper.

61 Much of this derives from American cultural geography: see Jackson, 1980, and Groth and Bressi, 1997.

62 Forty, 1999, p. 7, building on de Certeau, 1984, p. 87.

63 Jones and Evans, 2012.

64 Faulkner, 1978, pp. 466-467.

65 Sir Hugh Casson, quoted in Civic Trust, 1972.

66 Jowell, 2005, p. 23

67 SAVE Britain's Heritage, 2005, unpaginated [p. 6].

68 Smith, 1975, p. 80.

69 Although the Cabinet authorised a survey on bomb damage (TNA HLG 71/1570), the city virtually vanishes from most of the surviving files (e.g. TNA HLG 71/2222 'Building priorities in blitzed cities: regional comments', post-1945).

70 Quotes 1 and 2: Manzoni, 1941; quote 3 is from Manzoni, quoted in Cowan, 2005 (original source not given).

71 Adams, 2011; Adams and Larkham, 2013.

72 Madin, interviewed by David Adams in 2011: Adams, 2012.

73 Clawley, 2011.

74 This is because beneath it runs a connecting roadway particularly for double-deck buses and, beneath that, the rail tunnels to New Street station: a significant problem for foundations.

75 Madin, interviewed by David Adams in 2011: Adams, 2012

76 Some have compared its inverted ziggurat form to Boston City Hall, but Madin denies

that he was influenced by this project when designing the library. See Clawley, 2011, p. 109.

77 Madin, interviewed by David Adams in 2011: Adams, 2012

78 This was certainly the case with academic critiques of the Convention Centre and Symphony Hall in the 1980s, when the then Leader of the Council apparently threatened to sue the university which employed the authors.

79 A number of documents relating to the demolition decision-making process have been withheld despite Freedom of Information requests: Clawley, 2013; Larkham and Adams, 2016.

80 See Lambourne, 2001 for a Europe-wide perspective.

81 War Damage Commission, 1944.

82 This process is exemplified by the replacement of unconcern for the everyday with, first, critical repudiation, then – because of increasing rarity – consideration for retention for successively Georgian, Victorian and twentieth-century buildings throughout the twentieth century in the standard history of conservation (Hunter, 1996).

83 See, for example, Harris, 2003 (and there are numerous other similar examples).

7 Heritage versus Innovation - the Grenoble Experience

Gilles Novarina and
Stéphane Sadoux

For centuries, heritage policies in Europe were based on the preservation of monuments which were considered as exceptional from a historic, artistic or cultural point of view. The birth of institutions such as the French *Commission des Monuments Historiques* in 1837 or the British Society for the Protection of Ancient Buildings a few decades later reflected this approach, based on the conservation of specific buildings. Although important, this movement did however not concern the historic city.[1]

From the beginning of the twentieth century, vast areas of historic towns were pulled down because they were seen as ordinary but also because public policy focused on the improvement of housing conditions, on the provision of public spaces (in particular parks) and on laying down infrastructure networks, including sewers. It is only during the second half of the twentieth century that the historic city became a matter of interest. In her seminal book *L'Allégorie du patrimoine,* architectural and urban historian Françoise Choay looked at the reasons why the historic city was taken into account so late in France: 'on the one hand, its scale and complexity and the long lasting mentality which associated a city to a name, a community, a genealogy, to a personal story in a sense, whilst paying little attention to its space; on the other hand the absence of cadastres and reliable cartographic documents before the nineteenth century, the difficulty of discovering archives related to the production and transformation modes of urban space.'[2]

It is only in the second half of the twentieth century that the conservation of historic cities became a subject for planners and architects.[3] Conservation policies – when they deal with urban rather than architectural heritage – involve not only the identification of elements which constitute this heritage, but also their relationships so as to foster a holistic approach of the historic city as a consistent entity. As Orbaşli suggests, 'urban conservation differs significantly from building conservation' in that it is 'multi-dimensional, and it involves, as well as the building fabric, the urban patterns, streets, open spaces, green areas and urban vistas'; it is also 'influenced by political decision-making at local and national levels.'[4]

The growth of an historic town

Grenoble was still a small town in the early nineteenth century. It is during the second half of the nineteenth century, and, later, from the 1950s, that it went through phases of rapid demographic growth. It is therefore an interesting case to study to understand the problems faced by local stakeholders in their attempt at identifying what exactly the built heritage of the city they live in might be.

The area built before the nineteenth century is small and does not include any spectacular monuments. We suggest the treasures of the historic city are elsewhere. It is thus worth taking a closer look at the ways various groups of local stakeholders have taken on board the various components of Grenoble's urban

Figure 1: *Grenoble from the Vercors. Credit: Steven Saulnier, 2016*

heritage over the twentieth century and have used them to build a local development strategy.

A city of mountains and of tourism

The first component to take into account when looking at the way Grenoble has been considered as a historic town is its geographic context. Raoul Blanchard, one of the founders of the French school of human geography, highlighted one of the specificities of the Grenoble conurbation: 'Grenoble, a conurbation of over 100,000 inhabitants when including its *faubourgs,* is an exceptional case because it is located in a large mountain range … Grenoble is the only major city in the French Alps; it has only two rivals in the entire Alpine range: Innsbrück and Trente.'[5]

Grenoble is located in a flood plain, at the confluence of rivers Isère and Drac. It is surrounded by three mountain ranges: Belledonne, Chartreuse and Vercors. This exceptional situation has sometimes been perceived as a weakness, sometimes as a strength. The fact that Grenoble is located in a mountainous area means that its climate is harsh. It also means that the town is somewhat isolated and that, as a result, exchanges with other French or European towns are rather difficult. However, the mountains also offer natural resources, in particular coal, limestone and water for hydroelectric power which has been the cornerstone of Grenoble's modern industrial development. The mountains also offer a range of sites that led to the development of tourism from the early twentieth century, for excursions

Figure 2: *Téléphérique de Grenoble Bastille*
Credit: Rights Reserved

and holidays. A cable car linking the city to the nearby *Bastille* hill was opened in the 1930s as a result of this interest in developing tourism.

An industrial town

Despite Grenoble's geographic setting, industrial activity was particularly dynamic from the early seventeenth century. Raoul Blanchard highlighted the important role of glove production which allowed export to many European countries and the United States (Fig. 3). It reached its climax in the nineteenth century before declining.

Blanchard also points out the inventiveness of industrialists who specialised in the production of high added value goods as a response to the extra costs due to the town's isolation. From the beginning of the twentieth century, this manufacturing activity was gradually replaced by real industries: the production of cement and energy thanks to the first hydroelectric power plants. Louis Joseph Vicat, who invented artificial cement in 1840 and Artistide Bergès, father of *houille blanche* (1889) were then considered as figureheads who saw innovation as the main driver of business growth. As geographer Armand Frémont pointed out, Grenoble's industrial dynamism does not date from the centre for nuclear research.[6] Rather, it is the consequence of a long history of entrepreneurship and innovation, reflected by the work and actions of Aristide Bergès, Louis Vicat, but also Albert Raymond, the inventor of the press-stud.[7] According to historian and journalist Paul Dreyfus, the growth of Grenoble is in fact due to the work of half a dozen persons: Aristide Bergès, Aimé Bouchayer, leader of the local industries;

Figure 3: *The Reynier Frères glove production plant in Grenoble. Credit: Rights Reserved*

and Maurice Blanchet, Chair of the Chamber of Commerce between the end of the nineteenth century and beginning of the twentieth century; Pierre-Louis Merlin, founder of Merlin-Gérin, Nobel Prize Louis Néel, but also Louis Weil, chancellor of the Faculty of Sciences.[8]

Grenoble's industrial character is shown by the role of industrialists in the modernisation of the city and its infrastructure. Edouard Rey, a leader of the glove industry who was also Mayor of Grenoble from 1881 to 1888, started a large-scale project to expand the town following the demolition of its walls. It is at this time that drinking water and sewer networks were built. New building techniques, in particular those relying on moulded cement, were used to erect parts of the town's haussmannian quarters. This allowed to build a real centre for the conurbation to the West of the 'old town'.[9] This new centre was then home to twenty thousand inhabitants. It is also in this area that nearly all the town's commercial and administrative functions were located. Edouard Rey was a progressive and linked to Freemasonry. He took part in the funding of institutions for vocational education. This time of industrial development was a key period in the Grenoble's history, as it was conducive to economic, social, cultural and urban innovation.

A city of science and higher education

Local industrialists also played a major role in setting up a local higher education system. They were looking for senior staff for their companies and took part in funding the engineering schools[10] which later became part of the town's university. Amongst these engineering schools, were: *Institut Polytechnique de Grenoble,* founded in 1908 following the success of the first training course in industrial electrics launched in 1892 ; *Ecole Française de Papeterie* founded by a group of paper and cardboard industries following a congress held in 1908 ; *Ecole d'Electrochimie et Electrométallurgie,* opened in 1921 to address the request of corporate leaders who wanted to employ highly skilled engineers – the school board included representatives from major industries such as Saint Gobain or Péchiney.[11]

Industries contributed to covering the running costs of the schools and to purchasing the equipment required to set up the research laboratories. This allowed the university to be one of the best-equipped in the country. Industrialists also contributed to adapting the schools' curricula according to the evolution of industrial techniques, and commissioned the research laboratories with studies. It should also be pointed out that industrialist Pierre-Louis Merlin also contributed to building both *Institut de Géologie* and *Institut de Géographie Alpine* in 1955.[12]

These public-private partnerships were at the basis of a development process which led to the city becoming a 'physicians' empire'[13] managed by Nobel Prize Louis Néel and home to a centre for nuclear research and later to electronics, computing and nanotechnology firms and research centres. This process was based

on a series of 'bifurcations'[14] that allowed a number of special areas of study to emerge from a common core of knowledge. Each of these areas were in turn applied in the field of industry. In 1957, a major conference was organised to strengthen links between the university and industries. In his keynote speech, industrialist Paul-Louis Merlin said: 'We must do everything we can to pull down the administrative or psychological barriers between academics or industrialists'. The narrow relationship between higher education, research and industry generated a development process that is now referred to as the 'Grenoble scientific ecosystem' – one which is particularly favourable to the emergence of technological innovation. This aim, clearly, was achieved. Dreyfus referred to this situation as a 'true symbiosis', pointing out that the 'concentration of brainpower' attracted even more industries and research centres, such as the centre for nuclear research, the Max-Von Laue-Paul Langevin Institute, the Centre for Research on Aluminium as well as a number of American companies, particularly Hewlett-Packard in 1971 or Caterpillar, a decade earlier.[15]

Staging histories and specificities

The town in the mountains, the industrial town and the relationship between the town, science and higher education are the three main narratives used by local stakeholders to write the story of Grenoble and its development. Each of these narratives depicts the local context in a different way. From a geographic point of view, this context is a resource for players of the industry or tourism sectors but a constraint for transport operators. The population can be depicted from the point of view of entrepreneurship and the economy in terms of the growing importance of innovation and of links with research. These narratives are not necessarily competing ones. At different points in time, local players – key politicians, corporate leaders, leading academics – tend to draw links between them in order to give meaning to major projects that aim to guarantee to conurbation's modernisation and development. Major events are helpful moments to reach these objectives – a fact that is well illustrated by the history of Grenoble who hosted a few such events.

The 1925 international exhibition of hydropower and tourism

Exposition internationale de la houille blanche et du tourisme was organised by socialist Mayor Paul Mistral. It aimed at staging the hydropower, invented by Aristide Bergès, and promoting Grenoble as a destination for tourists. As mentioned earlier, hydropower had been the cornerstone of both the city's industrial development since the end of the nineteenth century, and of excursion tourism in the area.

The exhibition was part of the strategy devised by *Association des Producteurs des Alpes Françaises* and its president, industrialist Joseph Bouchayer, to allow Grenoble to become the capital of the Alps as a response to the call for proposals launched in 1919 by then

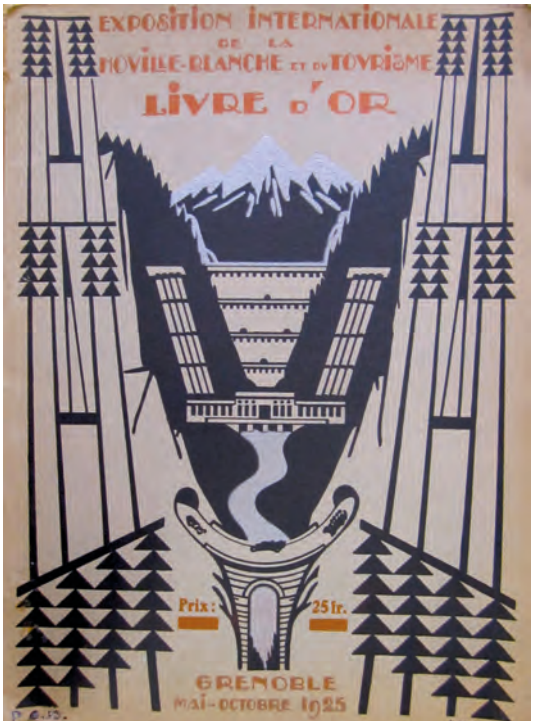

Figure 4: *Cover of the 1925 exhibition guestbook*
Credit: Cédric Avenier. (IFA: PERAU 535 AP 414/8)

Minister of Commerce Etienne Clémental to encourage the networking of Chambers of Commerce and Industry. The exhibition aimed at showcasing the area's resources and reporting on the population and corporate leaders' dynamism. It was organised by an industrialist, in charge of supervising the implementation of the plan designed by architect and planner Léon Jaussely who also drew up plans for a number of French and European cities (Paris, Toulouse, Barcelona) and who was at the time Chair of *Société Française des Urbanistes* and one of the founders of *Institut d'Urbanisme de Paris.*

The exhibition[16] was set up on an old artillery ground. It included two distinct areas (hydropower and tourism). The pavilions were built along two esplanades laid down in a green area with many views onto the mountains. Their construction mostly relied on modern techniques (moulded cement, reinforced concrete) and the site was dominated by a sixty metre high tower built by Auguste Perret – the first reinforced concrete tower to be erected in Europe. The exhibition was also the first phase of the range of projects included in the first urban planning document approved by the local council in 1925 (*Plan d'aménagement, d'embellissement et d'extension*). This plan provided for the building of a boulevard linking public parks and new housing areas where the city's wall used to be.

This major event aimed at demonstrating the influence of a small city during the first half of the twentieth century, both in France and internationally. The main components of what one could refer to as Grenoble's urban heritage (its geographic context, the mountainous landscape, its innovative economic activities and the inventiveness of local elites) were used to develop a project that involved the main stakeholders (local elected members, corporate managers, directors of cultural institutions, academics, etc.). This exhibition portrayed a town whose influence was the consequence of the dynamism of its businesses and of the quality of life it offered. It was also an opportunity to provide new amenities (a large urban park) and services (a congress centre) for its population.

Figure 5: *The Jaussely plan. Credit. Ville de Grenoble*

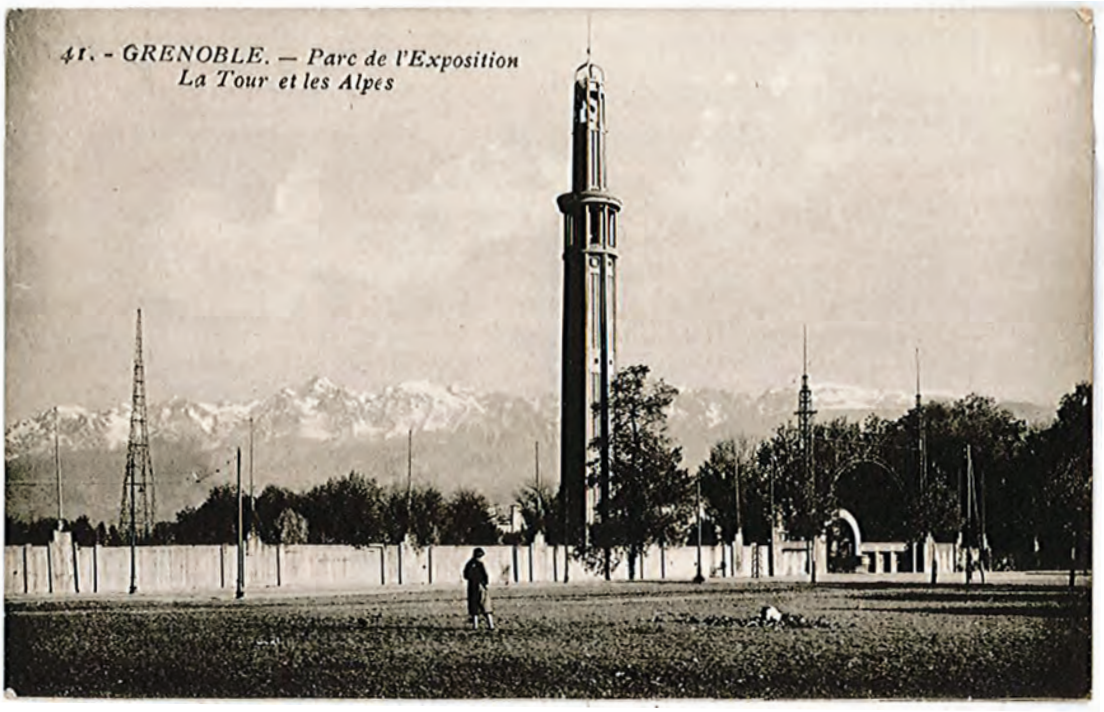

Figure 6: *Aguste Perret's tower and the 1925 Parc des Expositions. Credit: Collection André Sadoux*

The 1968 Winter Olympics

The second major even held in Grenoble were the 1968 Winter Olympics. When Grenoble decided to apply for the organisation, it was ill-equipped to do so, due to a dramatic lack of major infrastructure and to a rather chaotic urban fabric. What is particularly striking with hindsight is that Grenoble defined itself as the 'city of mountains', yet it was still an industrial town, with nearly half its population working in factories. As Frappat wrote, 'for most of these people, the mountains were merely a decor but were not part of their daily life.'[17] This was a first paradox. The second one is that the application submitted by Grenoble in 1962 stated that the city had all the buildings required to accommodate the various receptions and events, as well as all the institutions and organisations needed to run a large city. However, in a report published in 1964, the *Commission des équipements urbains,* claimed that amenity and infrastructure in Grenoble could cater for a population of 80,000, when it in fact needed to support a population of 300,000. The Olympics were a unique opportunity to literally upgrade the entire city within a few years.

A plan drafted by architect Henry Bernard had only just been produced and published before the local elections in 1965. It suggested a new city centre should be built to the south. The local population was concerned it would

contribute to the decline of the historic centre and that it would, as a result, generate spatial and social segregation. For this reason, the plan was never really implemented. Grenoble had therefore no clear planning vision when it started to prepare for the winter Olympics. Some of the infrastructure and numerous buildings built in the sixties were directly related to the Olympics, some were built ahead of the date that had initially been planned and others were in fact not part of the Olympics project.[18] The local council had decided to build a city hall in the early sixties and even though the building, designed by architect Maurice Novarina, was inaugurated for the Olympics, work had in fact started in 1963.

The extension of the *grands boulevards* to the east, towards the nearby city of Chambéry, had been planned for some years. The building of the first section of motorway A41 was an impulse to implement this, through the new *Boulevard Jean Pain,* running past the new city hall. The new central post office and police station were also located in this area, near the so-called S-shaped building (*immeuble en S*) and the three high rise housing blocks known as *Trois Tours* which had been erected in 1965.

Figure 7: *Model of the city hall. Credit. Ville de Grenoble*

Many of the sports amenities required for the Olympics were built in *Parc Paul Mistral,* the park where the 1925 international exhibition had been held – the only physical testimony of this major event being Perret's tower, all other buildings were pulled down and from then on, large-scale exhibitions were organised in *Alpexpo,* designed by Jean Prouvé and opened in 1968. *Parc Paul Mistral* was thus redesigned and part of the land was used to build an indoor ice ring, known as *Palais des Sports* or *Stade de Glaces,* designed by architects Robert Demartini and Pierre Junillion.

Another major component of the Olympic legacy is *Maison de la Culture,* a venue for cultural events. Designed by architect André Wogenscky, a French figurehead of modernist architecture who regularly worked with Le Corbusier, it was inaugurated in February by Minister of Culture André Malraux. Unlike the previously mentioned sports amenities however, this building was located in the southern part of the city, where Henry Bernard had intended the new centre to be. Last but not least, two new quarters were built: *Malherbe,* to accommodate the many journalists who attended the Olympics and *Village Olympique,* for the athletes, designed by Maurice Novarina.

It is fair to say that in this period, amenity rather than spatial planning was the key word.[19] As was the case in many European cities, the post-war period somewhat contributed to the fragmentation of urban space and the hosting of the 1968 Winter Olympics was one of the factors underpinning this process.

From social and urban innovation to technological innovation

The election of Mayor Hubert Dubedout in 1965 was a major milestone in the city's history. He was active in the civil society, particularly in neighbourhood associations, and was elected as a reaction against the leading left wing and right wing parties. This event led to a rejuvenation of the local elites, who paid little attention to local history, for they saw the city as provincial and in need of an in-depth transformation. The context of political and administrative centralisation – a characteristic of the early fifth republic – led local elected members to get involved in national development programs in order to access funding for the development of transport infrastructure, economic development, higher education or social housing. The conservation of the built heritage however, was not yet a priority for General de Gaulle's government. In the 1950s, local stakeholders were still able to design and implement projects based on the specific characteristics of the Grenoble area. One striking example of the creation of *Centre Universitaire International* on the Rabot hill, led by *Association des Amis de l'Université* and a number of industrialists.

Local elected members' attitude in favour of innovation in the 1960s was reflected by the construction of a campus in the outskirts in 1963, but also by the *Villeneuve,* launched just after the Olympics, as part of the third phase of the *Zone à urbaniser en priorité.* The urban morphology of this large-scale urban extension is effectively

a copy of Peter and Alison Smithson's Cluster city. The project, made up of megastructures, was delivered over a period of twenty years. It allowed a number of concepts and principles to be tested (social diversity, a local television station, integrated infrastructure and amenity). These became a source of inspiration for many social housing developments in France. As from the late 1970s however, and due to the context of economic crisis, social housing developments gradually became more traditional in their design, particularly in the city centre. Social innovation was being replaced by scientific innovation in local elected members' discourse.

At the beginning of the 1980s, traditional industries such as paper works, metallurgy, chemistry and agri-food were in decline. Local elected members rediscovered the importance of research and higher education and the multiple synergies they developed with local businesses since the early nineteenth century. Following the adoption of the first territorial strategy in 1973 (*Schéma directeur d'aménagement et d'urbanisme*), members of the local scientific milieu and planning practitioners met in different working groups in order to draw up proposals to plan the eastern part of the conurbation and develop a centre specialised in scientific and technological innovation (*ZIRST - Zone d'Innovation pour la Recherche Scientifique et Technique*). Corporate services such as floor space to let for start-ups, business incubators, catering or sports centres were provided to create links between research and industries. Major companies like Schneider and research centres (*France Telecom*, *Institut National de Recherche en Informatique et en Automatique*) located their buildings in this new landscaped setting, on a site where existing hedges and streams were integrated in the design. In order to develop what was to become one of the first French technopoles (along with Sophia-Antopolis near Nice), planners drew inspiration from foreign examples such as the Silicon Valley in California or Route 128 in Boston, whilst insisting on the fact that the projects carried out in France should be managed by the public sector.

In a study of the efficiency of technopoles, Chanaron, Perrin and Ruffieux highlighted the importance of pre-existing networks between engineers and scientists.[20] In Grenoble, this was particularly true of the relationships between staff of the hard science university (*Université Joseph Fourier*) of the engineering school, *Institut National Polytechnique de Grenoble,* and those working on companies such as *Télémécanique.*[21] In similar vein, Wakeman pointed out that projects such as the ZIRST near Grenoble were a blend of public funds, private industry and university know-how, adding that technopolis 'reinvented the scientist as an archetype of modern man'. According to her, 'these utopian places functioned as scientific models of urban space, work, and social relations, and they acted to articulate new modes of applied scientific production.'[22] The role of these projects in the shaping of the metropolis cannot be underestimated: Wakeman also reminds

us that several scientists ran for and won the local 1971 elections in Meyla, where the ZIRST was located and were thus able to promote and pursue the technopole model.

Along with the campus, the ZIRST, which has since been renamed INOVALLEE, was the starting point of a development process that gave an increasingly high role to new technologies, essentially in the fields of electronics and computing. At the same time, the industrial city lost its production jobs and turned into an 'industrial design pole.'[23] Since the end of the 1980s, the number of such actions and projects aiming at contributing to this type of development has increased both in the city itself and in the surrounding peripheral municipalities. The latest of these projects aims at regenerating the city's peninsula (*Presqu'île Scientifique*) and creating what is often referred to as a "French MIT". The ongoing GIANT project (*Grenoble Innovation for Advanced New Technologies*) aims at allowing researchers and industrialists in the nanotechnology sector to develop joint experiments, public and private laboratories and engineering schools. GIANT is the first step of a wider and more ambitious project for the regeneration of an area which is not well connected to the city centre and offers a number of brownfield sites. The masterplan for the *Presqu'ile scientifique* area was designed by architect Christian de Portzamparc. It aims at experimenting the new technologies developed by the 'Grenoble laboratory' in the fields of energy management (smart grids), transport and the environment and it is put forward as the first step of the construction of an *EcoCité* at the conurbation scale. The use of new technologies to set up a smart city is seen as the best way to address the challenge of the ecological transition.[24] The desire to turn Grenoble into a city of scientific and technological innovation is becoming increasingly important for local elected members, both at the city and metropolitan scale. This explains the lower level of interest paid to local history and urban heritage.

Regenerating the historic centre

In the mid-seventies, it was clear for the city council that the conservation of parts of the city centre had to become a priority, in particular those areas located around *Sainte-Claire* and *Très Cloîtres*. These areas had been largely ignored in the sixties and up to the mid-seventies due to a focus on out of town development.[25] At the same time, debates at the national level highlighted that state intervention in historic quarters of cities should focus on the renovation of the old housing stock. It is in this context that a *Zone d'Aménagement Différé* was designated in Grenoble and that a special department was created in the local council, in order to tackle the problems of the area known as *Vieux quartiers.* This department included staff with a range of backgrounds and skills (administration, legal, financial, technical).[26] Up to 80 people worked in this team, dealing with a range of issues such as design, land assembly, housing renewal, etc.[27] The work carried out in *Vieux Quartiers* in the second half of the seventies is often

quoted as a good example of the fact that public intervention is required in order to encourage private investment. In this case, public intervention through pre-emption allowed the council to purchase a high number of housing units or blocks - up to 76% in some areas, thus putting the public sector in a key position to spark off the restoration of old buildings and to rehouse the local population.[28] In total, 9200 housing units and 15000 inhabitants were involved in an area located on either side of river Isère whilst an additional 3000 units and 4800 were located in the Berriat area.[29]

Between 1977 and 1983, the city centre was subject to a number of regeneration projects, but the aim of the left wing local council was the improvement of the quality of life of the population (often working class) rather than built heritage conservation. Above all, the council wanted to retain the local population and to do so, the condition of the housing stock had to be addressed. The decision to include all these interventions in a so called 'old quarters' policy (*politique des vieux quartiers*) reflects the desire to prioritise actions in favour of social housing, given that studies carried out that time had shown that this was the only type of housing that the existing local population would be able to afford.[30] In fact, it has been suggested that regeneration as seen by the socialist local council of Mayor Hubert Dubedout was based on the condition that most if not all existing buildings and populations were maintained.[31] The actions carried out did not aim at showcasing the built heritage: they were social in nature.[32] It is perhaps for this reason that the regeneration of *vieux quartiers* had some adverse effects on the quality of the buildings' restoration. It is only in the middle of the 1980s, when the first tramway line was opened, that the right-wing local council initiated an ambitious plan for upgrading and redesigning public space in the city centre, in particular old public squares, and extending pedestrian areas and streets. It is also at this time that a museum of modern art was built. This renewed interest in the city centre was reflected by the designation of a conservation area[33] some twenty years later. It covered a large perimeter so as to take account of the diverse urban heritage.

These interventions allowed the local administration and leaders of local community groups, in particular *Comité de Sauvegarde du vieux Grenoble,* to become aware of the importance of twentieth century architecture in the city's built heritage. As Bandarin and Van Oers suggest, the 'historic city' concept is 'a moving target, destined to change with society itself', adding that this is only natural since social structures and needs evolve and, as a result, the physical fabric of cities adapt constantly.[34] In Grenoble, industrial expansion was accompanied by urban expansion, based on haussmannian blocks and on building techniques that made use of a local resource (natural cement) extracted from the mountains, in particular from the Bastille. Moulded cement is indeed one of the characteristics of the architecture of Grenoble as from the nineteenth century. This tradition

Figure 8: *Vieux quartiers in 2016. Credit: Stéphane Sadoux*

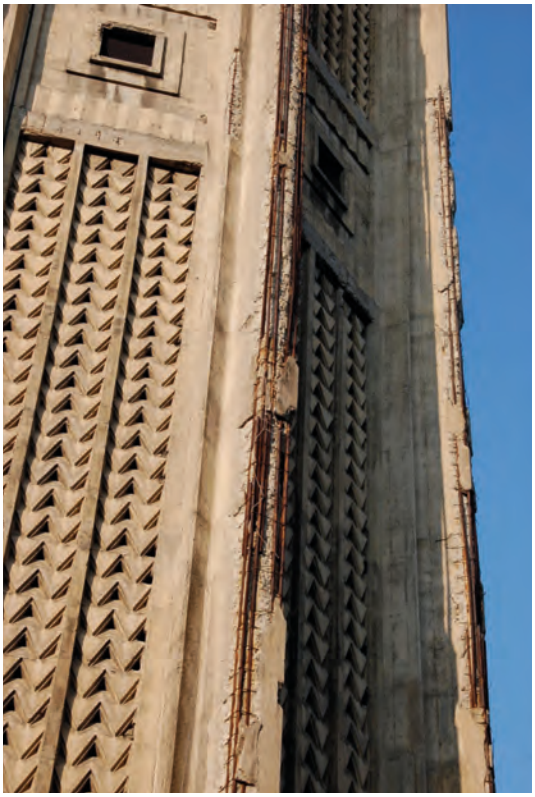

Figure 9: *Tour Perret today, in desperate need of restoration Credit: Cédric Avenier*

lasted until the beginning of the twentieth century, through the use of reinforced concrete. Auguste Perret's tower is a striking example of this specificity but also of the dramatic lack of interest in such built heritage at the local level: today, the tower is literally crumbling and it is hoped that the restoration of this landmark in local and indeed European architecture will go ahead in the near future.

Sadly, the awareness of the importance of 'grey gold' in Grenoble is only a matter of concern for specialists: this built heritage is not yet perceived as a resource that could be part of local development projects and policies. For most local stakeholders, heritage conservation is a specialised area which has yet to be taken into account as part of a conurbation-wide strategy. The Grenoble experience is a good example of the fact that, as Bandarin and Van Oers have pointed out, historic urban conservation is in fact become a specialised field of practice which tends to focus on a specific sector of the city. They do acknowledge that this has allowed to advance both theoretical and operational approaches, however they also highlight the fact that it has isolated the world of conservation from the management of wider urban

processes: 'after more than half a century, there is a growing understanding among practitioners that this approach needs to be revised to make way for a truly integrated view of urban management, one that harmonises preservation of what is defined as "historic" and management of urban development processes.'[35]

Conclusion: The effects of technological specialisation on local development

During the second half of the twentieth century, the main local decision-makers – politicians or corporate leaders – gave priority to a type of local development that solely relied on scientific and technological innovation. This led them to favour one aspect of local history – that of science and higher education – at the expense of other dimensions such as its geographic context (the relationship between the city and mountains) or its industrial past. During the second half of the twentieth century, local business leaders and politicians encouraged a local development exclusively based on scientific and technological innovation. This led them to focus on one aspect of local history – higher education and science – at the expense of some of the components of its heritage such as its geographic context, its relationship with the surrounding mountains, or its industrial past.

Grenoble is often promoted as being open to the world and connected to national and international networks. It refers to extraneous concepts such as technopoles, écoquartiers and écocité, as if the city's scientific excellence was sufficient and there was no need to take other territorial resources into account.

However, a number of indicators seem to point to a slow-down of this development mode which may be focusing on science and technology too much. Between 1999 and 2009, the number of jobs in the Grenoble's urban region rose by 16.2% and the income per capita by 14.8% - less than other urban regions of similar sizes. At the same time, its net migration balance is negative (-1%)[36]. This trend suggests a decline in the attractiveness of Grenoble: the city is not as successful in its resistance to the crisis as other cities that have encouraged both the productive and residential economy. The emergence of 'productivo-residential systems' requires a better valorisation of the territorial resources which are made available by a geographic context, but it also requires the development of amenities that the city can offer the various groups in its population.[37] With this in mind, it is clear that the valorisation of all the elements of the city's economic, cultural, and urban heritage – not merely the technological component – could become major assets in a strategy aiming at making it more attractive.

In a paper looking at the relationship between heritage and the knowledge-based city, Graham has argued that the questions of 'how the knowledge economy is rooted in place have largely ignored the processes through which this occurs', adding that 'heritage is one such key process and that the virtual

society has not replace economic and cultural needs which require that the knowledge economy and its creativity are based within representations of place that are manifested on the ground in the form of built space'.[38] For many years, Grenoble put forward its capacity to innovate. Today, it may well be time to accept that innovation is not only about science and high technologies and that it does certainly not preclude looking back in time. Grenoble has a very rich urban heritage, in particular it twentieth century architecture which it has tended to overlook. To ignore the past is to ignore past innovation.

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4 Orbalşi, 2000, p. 18.

5 Blanchard, 1935, p.7.

6 Frémont, 1987, pp. 293-310.

7 Brunat and Reverdy, 1989, pp. 283-293.

8 Dreyfus, 1976, pp. 113-132.

9 Blanchard, 1935, p. 144.

10 The following were founded between 1900 and 1940: Institute of Metallurgy; Papermaking school; Institute of electrochemistry; School of hydraulics; Institute of Chemistry.

11 Dreyfus, 1976, pp.113-132.

12 Dreyfus, 1976, pp.113-132.

13 Pestre, 1990.

14 Novarina, 1996.

15 Dreyfus, 1976.

16 For more information on the international exhibition for hydropower and tourism, see Delacourt, 2006, Vol. 1, p. 470.

17 Frappat, 1991, p. 48.

18 Joly and Parent, 1988.

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25 Bonneville, 1985.

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29 Joly, 1983.

30 Berthet, 1985.

31 Chalas, 1991.

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