

*'For there can be no doubt that to live in a private house is in every way a higher form of life. Flat dwelling can only be regarded as an emergency substitute for living in a private house'.
Hermann Muthesius 1904, The English House.*

PART I – BACKGROUND AND METHODOLOGY

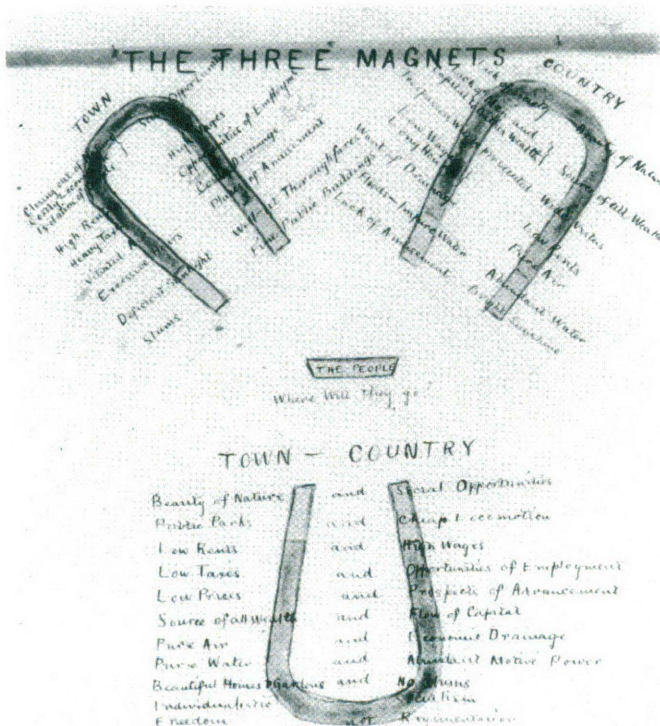
1 INTRODUCTION

1.1 AIMS OF THE STUDY

The primary aim of this study is to better understand the design and underlying physical structure of the suburb by developing an analytic framework that can inform the design process in which the author and others are involved. To achieve this, the study will be both reflective and practical, presenting an opportunity to stand back from daily practice and apply a more rigorous approach to the subject.

This study assumes that the design process is both creative and iterative. It is creative, developing or evolving new forms from existing ones. As Arthur Koestler has noted there are actually very few absolutely original ideas. Most of what seems to be new is a bringing together of previously existing concepts in a new way¹. It is iterative, alternating between separating a plan into parts (analysis) and integrating the various elements together (synthesis). The study is therefore structured to both analyse and synthesise the design elements of the suburb, as well as understanding how new forms are developed or evolved in response to emerging issues.

The author's interest in the suburb and its evolution has developed over a number of years. It was originally sparked by the reading of exemplary



¹ Koestler A, The Act of Creation, 1964, Hutchinson & Co, UK

suburbs of the nineteenth Century such as Forest Hills Gardens in New York, laid out by Olmsted Jr, with buildings designed by leading architects. The suburb appeared to be an integration of planning, landscape and architecture par excellence. This was in contrast to the standard Sydney suburb of the late 1980's which has either been ignored by the design profession in Australia, or disparaged as lacking in design quality². Furthermore, publications such as Ideas for Australian Cities have developed an equally cogent defence of the contemporary Australian suburb as providing a better standard of living than any other form of settlement³.

Why is it that while much of contemporary literature on the suburb is so damning, the early suburb and its evolution during the late nineteenth and early twentieth century are described as innovative, with many of the leading architects and landscape architects of the day involved in the design of the suburb. In fact the Garden Suburb Movement created the Town Planning profession. Why has the contemporary suburb become an object of scorn, while its predecessors in the late nineteenth and early twentieth century were of sufficient intellectual and design significance to initiate the discipline of town planning?

These questions led to a short study of suburbs in the United States, United Kingdom, and Canada by the author in 1990⁴. This study examined a number

2 Refer McKay, I. et al, 1971, Living and Partly Living, Housing in Australia, Nelson, Melbourne
3 Stretton, H, Ideas for Australian Cities, 1989 (3rd Edition), Transit Australia Publishing, Sydney
4 Graus P, Redesigning the Australian Dream, 1992, Byera

of overseas examples, finding that like the early exemplars, a higher level of design was required as residential densities increased, and that some past exemplars had achieved this. Concurrently in Australia, the Commonwealth government had begun to promote urban consolidation and design at higher suburban densities producing a national model residential code, AMCORD⁵. At that time an increasing interest in the design of suburb was occurring, perhaps best promoted by the New Urbanists in the United States, as well as recognised designers such as Robert AM Stern⁶. As guest editor of a special edition of Architectural Design, he examined many of the exemplary suburbs of the past. This was followed by Andres Duany and the New Urbanists.

Since that time the author has been involved in master planning and subdivision design for some 15 years on a day to day basis. While the earlier study provided a brief opportunity to study overseas examples over a six week period, this study provides the opportunity to more rigorously and methodically examine and better understand the physical elements of the suburb in the context of the values that Stretton and others have identified. As a practicing designer, particular attention is paid to design method and how a better understanding of the elements of the suburb may practically improve the physical design and layout of the suburb.

Hadley Traveling Scholarship, NSW Board of Architects.
5 Refer Australian Model Code for Residential Design AMCORD Practice Notes, 1995, Australian Government Publishing Service
6 Stern, Robert, ed. The Anglo American Suburb. 1981, St. Martin's Press

1.2 CENTRAL QUESTIONS

This study therefore begins with a number of questions. 'What makes a good suburb?' Why are recognised 'exemplars' of the past such as Hampstead Garden Suburb in the United Kingdom and Forest Hills Gardens in the United States, designed by the Olmsted brothers so called? What are their qualities and why have they proved to be so durable? Is design important? Why is design important if, apart from the early 'designed' Garden suburbs and the other exemplars studied here, subdivision layouts generally laid out by surveyors and engineers have included little formal design?

Design is important because it is the exemplars that recognise and respond in physical terms to important contemporary issues. The loops and cul-de-sacs that emerged in the standard subdivision are a product of Hampstead Garden Suburb, Radburn, and Golden Grove. Standard practice follows the exemplars, adopting practices that the market will accept and that are commercially viable. The standard subdivision, however, does not respond to new issues, and fashions may create forms that are not durable. For example, the loop and cul-de-sacs creates a discontinuous street pattern, preventing cars from entering the superblocks or even the whole suburb unless there is also a connective element within the hierarchy. This is in contrast to Hampstead, where cul-de-sacs and a connective street pattern have been achieved as a result of careful design

Why do the majority of contemporary suburbs seem lacking in comparison to many in the design professions? Is there any evidence that the exemplary suburbs of the past were actually lacking? Was the Garden Suburb simply a better paradigm that hasn't been equalled, or has the role of design changed in the process of producing suburbs and subdivisions on a mass scale? If it has, how can this be addressed? Has the New Urbanism rediscovered the original paradigm

and successfully addressed the very significant changes that have occurred over the past 100 years? In other words, is this work durable? The design profession is divided on this question⁷. How then can we better evaluate the current work on the form of the suburb?

Another question that arises from a reading of the literature is whether or not it is the physical form of the suburb that makes it 'good'. Can these physical elements be sensibly studied independently of socio/ economic factors? Authors such as Sandercock and Stretton have previously warned of the dangers of so called physical determinism,

'The assumption that physical planning (rather than economic and political change) can bring about social reform is the central weakness in the social theory of town planning that persists to this day⁸.

Given the complexity of the question of what makes a 'good' suburb, this study is confined to an examination of what makes a good physical urban environment. For the urban designer this is a critical question.

The final question is whether a useful framework can be developed to better examine the various forms that have evolved in suburbs over time. This framework should offer fresh insights into the suburbs that are being built today and provide useful guidance in the design and subdivision of the contemporary suburb.

7 Refer to Bressi, T.W, (ed), *The Seaside Debates: A Critique of the New Urbanism*, 2002, Rizzoli International Publications, New York

8 Sandercock, L, *Cities for Sale: Property, Politics and Urban Planning in Australia*, 1977, Melbourne University Press

1.3 BACKGROUND - 19TH AND 20TH CENTURY SUBURBAN PARADIGMS

The Garden City ideal is perhaps one of the most powerful social paradigms to have influenced physical planning. Its physical manifestation synthesized the social ideals with the physical characteristics of the City Beautiful into the Garden Suburb. Ebenezer Howard, the 'father' of The Garden City movement rejected the conventional high-density metropolitan city on all levels – social, economic, political, and environmental. 'Howard was thus advocating nothing less than the total reorganization of the entire country as something quite feasible and practical, in fact, almost inevitable'⁹. While Howard advocated a new social structure rather than a physical form, he was clearly advocating a *better urban environment*.

While the Garden City ideal represented a radical departure from convention, the Garden Suburb adopted many of the planning principles without the more radical elements of the social program such as common property. In Australia authors such as Robert Freestone have noted, 'The central concern was not the decentralized, cooperative society envisaged by Howard, but the improvement of the urban environment'¹⁰. In Australia there was also a need to produce food from the backyard. Furthermore, the highly developed picturesque architecture at Hampstead Garden Suburb created an image of the ideal suburb that was so alluring and powerful that it has exerted far more influence on the modern suburb than the Garden City. Developed by the upper and middle classes as a reaction against the industrial city it is still the predominant and most desired form of housing in Australia, the United States, and the United Kingdom.

Paradigm shifts occur when existing models or theories fail. Thomas Kuhn proposed this idea within the context of scientific enquiry in 1962. A paradigm shift takes place when an anomaly subverts the existing tradition. Kuhn set down two principal characteristics of paradigm change:

- New assumptions (paradigms/theories) require the reconstruction of prior assumptions and the re-evaluation of prior facts. It [paradigm change] is strongly resisted by the established community.
- When a shift takes place, a scientist's world is qualitatively transformed [and] quantitatively enriched by fundamental novelties of either fact or theory' (7)¹¹.

In 19th century industrialised England the conventional metropolitan city failed to provide an urban environment for the average family. A number of historians have made the point that 20th century planning essentially represents a reaction to the evils of the 19th century. While this point is perhaps obvious, it is 'desperately important: many of the key ideas, and key precepts, cannot be properly understood save in this context'¹²

We might also ask why have there been so few exemplars since Radburn? Much of the housing over the last 50-year period appears undistinguished and lacking in form, variously labelled as 'placeless' or 'sprawl'. This perception is of course arguable. Critics such as Stretton and Troy believe that while such suburbs may have lacked distinguishing qualities they have provided one of the highest standards of living in the world.¹³

9 Jonathon Barnett, *The Elusive City*, 1986, Harper & Row, New York, p.66

10 Robert Freestone, *Model Communities*, 1989, Thomas Nelson Australia, P1.

11 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 1962, University of Chicago

12 Sir Peter Hall, *Cities of Tomorrow*, 1988, Basil Blackwell Ltd, Oxford, p.7

13 Hugh Stretton, *Ideas for Australian Cities*, 1970, Orphan Books, Sydney

They have criticised the profession for ridiculing traditional suburbia and the choice it affords and have been highly critical of urban consolidation in the suburbs since the 1980's, believing it has increasingly created some of the worst living environments built in Sydney since the 1900's. Interestingly, New Urbanism attempts to create both better and more compact suburbs, legitimising urban consolidation. The New Urbanists claim to have either developed a new paradigm, New Urbanism or 'rediscovered' an authentic traditional form. It can't be both.

These questions are important. Urban consolidation, especially in the outer metropolitan ring of Sydney, is now changing the suburb on a scale and in a way that has not occurred previously. Many communities have resisted urban consolidation despite the development of design codes such as AMCORD. Increasingly the planning and design professions that have supported urban consolidation may be coming to a similar conclusion to the community that increased densities may not result in better physical outcomes, except perhaps in areas of higher affluence. This goes to the heart of the issue if we go back to Robert Freestone's contention that the exemplary suburbs created better urban environments.

1.4 LITERATURE REVIEW

The review of relevant literature commenced with a general review of books on the subject of the design of the suburb. These included histories of the Australian suburb and its influences such as Professor Freestone's *Model Communities*, reviews of the American suburb such as Robert AM Stern's *New York 1900* and his special issue of *Architectural Design* devoted to the Anglo American Suburb. Other significant texts relate to the broader area of city and urban design, including texts by Sir Peter Hall such as *Cities of Tomorrow*.

Once the study had commenced and the examination became more specifically concerned with suburban form, a review of articles from the American Planning Association's journal and a web search was undertaken. From this a number of articles describing a methodology for examining suburban form were found. In particular, an article by Lee and Ahn compared two suburban Case Studies by examining and comparing a number of forms. This methodology was derived from the work of AV Moudon who has published her findings in her journal *Urban Morphology*.

Details of all literature referred to have been set out in section 11.1 of this study.

1.5 SCOPE AND LIMITATIONS

Place and Time - Case Studies form the core of the enquiry, including 20th century projects in Australia visited by the author, as well as the overseas exemplars from which they have been derived. This time period covers the spectrum of most innovative work from the early Garden Suburb, through the Radburn idea, to contemporary models that incorporate many characteristics of these earlier models. The identification of genuinely new ideas is an important component of this study. Exemplary projects are contrasted with common practice of the day to more clearly identify their distinctiveness. This will also be applied to contemporary examples where it may be more difficult to clearly identify new or different models.

Selection of Case Studies - It is important to note that the scope of this study is limited to two Case Studies of each housing model, one international 'exemplar' and one Australian 'case study'. The term 'exemplar' is used for the overseas projects as they are generally the best of their type, and in many cases are the prototype of that type. The Australian examples are referred to as 'Case Studies' as while they are considered to be 'exemplary' in the Australian context, they are generally derivative of the overseas exemplar. Each case study is examined in some detail, preparing new drawings of each element of the 12 Case Studies at the same scale for comparative purposes. This, it is hoped may provide useful material for future examination by others. It is acknowledged however, that while fewer Case Studies allow a more thorough examination of the elements of each, it does limit the drawing of general conclusions.

The various Case Studies have been selected from both a literature review of exemplary projects as well as the canvassing of opinions as noted below in 1.6. Because the methodology here depends on a thorough documentation of each of the

Case Studies, examples that could be visited and documented by the author were preferred, where there was a choice of appropriate exemplars. For example Case Studies in Sydney were generally chosen for this reason, except for the case of Golden Grove in Adelaide, where the author had the opportunity to spend sufficient time to visit and document the case study. Similarly, three of the six overseas examples, Hampstead Garden Suburb, Forest Hills Gardens and Irvine have been visited by the author previously.

One unbuilt example, Garden Village has been included in the study. While other 'rail' suburbs exist in Sydney, they were not the work of a recognised planner or designer as is the case in all the other Case Studies examined here.

Types - A 'suburban' density of around 15 - 25 dwellings a hectare (net¹⁴) will form the bulk of examples to be examined. This density is similar to that promoted by state governments in most middle and outer rings of Australian metropolitan cities as part of their urban consolidation policies¹⁵. This density, while being higher than the traditional contemporary suburb, is consistent with the Garden Suburb ideal of the detached house and garden as well as that of almost all exemplary suburban models.

Higher densities being achieved in the inner city are quite a different problem and are being addressed by the NSW Government's Design Excellence provisions¹⁶.

Densities lower than say 10 -12 dwellings per hectare can be accommodated within standard subdivision patterns without a reliance on raised standards of design.

14 The definition of net is as per AMCORD - it includes all residential areas and streets that provide access to dwellings

15 Refer to the NSW Growth Centres Commission Development Code which advocates similar densities. It also defines net density with reference to AMCORD. www.gcc.nsw.gov.au/information/development-code.aspx

16 Refer State Environmental Policy (SEPP) 65 Design Quality of Residential Flat Development. www.planning.nsw.gov.au/programservices

1.6 STRUCTURE OF THE STUDY

This study consists of three parts as follows:

Part I – Values and Elements of Suburban Form

This part poses a number of central questions about the elements underlying the suburb. The elements are examined in the context of underlying values that may have informed the physical form of the various planning and housing models.

This part also describes the evaluative framework and methodology to be used, developing qualitative and quantitative criteria for examining and evaluating models/Case Studies considered exemplary and representative of the different approaches. A number of initiatives such as New Urbanism claim to answer the question posed above, and a number of new models in Australia have adopted such principles. As noted above, while this model is gaining significant acceptance there has been relatively little critical debate on the subject as noted in a recent publication.¹⁷

The second section describes the values and elements underpinning the Case Studies examined. There is no direct alignment of 'values' and 'elements'. Rather the values are described for each model and the elements have been grouped into categories, based on the author's experience and the work of authors such as Moudon and Ahn.^{18,19}

Part II – Exemplars

Part II examines and documents selected overseas exemplars and Australian Case Studies.

The proposed examples have been broadly canvassed through the RE PLAN planning website²⁰, to establish a broader range of prototypical exemplary projects than may have been developed solely by the author. This process has been iterative, with the author's preliminary list of examples circulated for comment and changes then made.

Part III – Evaluation and Conclusions

- Part III applies the evaluative framework developed to both the exemplars and Australian Case Studies documented to develop a series of conclusions that attempt to answer the questions raised in the first part of this study that include:
- What makes a good suburb?
- Can durable elements or characteristics of suburbs be identified?
- Are there elements or characteristics of suburban form that are lacking in current projects?
- Is the evaluative framework developed here useful in providing guidance to the design of better suburbs?

17 Bressi, T.W, (ed), *The Seaside Debates: A Critique of the New Urbanism*, 2002, Rizzoli International Publications, New York

18 Moudon, A.V, 'Urban Morphology as an Emerging Interdisciplinary Field', *Urban Morphology* 5, 27 Feb 1997, pp. 3-10

19 Lee, C.M and Ahn, K.H, 'Is Kentlands Better than Radburn? The American Garden City and New Urbanist Paradigms', *APA Journal*, Winter 2003, Vol 69, No1, Chicago Illinois. 2003

20 <http://listserve.uts.edu.au/mailman/listinfo/REPLAN>

2 METHODOLOGY - AN EVALUATIVE FRAMEWORK OF VALUES & ELEMENTS

2.1 THE DESIGN PROCESS - INTEGRATING A QUALITATIVE & QUANTITATIVE APPROACH

The central aim of this study is to examine and better understand the form of the suburb. It is clear from the literature²¹ that physical form cannot be understood in isolation, but in the context of social values. Consequently the theory of physical determinism is not supported here. It is argued that better urban environments, reflecting social values, do create the opportunity for a better quality of life. There is therefore a nexus between form and quality of life that justifies a study of form. The methodology and evaluative framework employed in this study is therefore both qualitative and quantitative. Further, the quantitative study of the exemplars in the form of Case Studies is both comparative and analytical as the elements are described, compared and then analysed. This approach has been developed to allow an empirical study of Case Studies to both reveal and compare physical form and properties in the context of a more qualitative examination of the social values that have underpinned the suburban paradigm and subsequent prototypes.

In this context a number of international prototypical or exemplary solutions will be examined and compared, as will local Case Studies that derive from the exemplars. In this study the term exemplar refers to a project that clearly reflects the elements or characteristics of a new suburban model. In addition to recognised exemplars of the past, a contemporary project, Seaside in Florida has been included. Seaside is considered by many to exemplify the principles and characteristics of the New Urbanism.²²

New Urbanism is perhaps the most influential suburban model on design in Australia at present. This model is gaining significant acceptance but is only beginning to be examined critically in the geographic and social sciences.

The methodology proposed here analyses the various projects by identifying common elements of suburban form, according to the methodology developed by Moudon²³, known as urban morphology. Moudon has observed that much literature on the suburb in the 10 years previously has studied socio economic and historical trends in suburban development, stating that,

*'little has yet been said about the forms that have materialized: the houses, streets, roads, parks, schools, offices, parking lots and other elements that together weave the web of suburban forms', and that the literature 'generally does not include more recent house forms, nor does it relate house forms to their host districts.'*²⁴

This study will concentrate on an analysis of the form of the suburb and its elements within a historical context and their change over time. Anne Vernez Moudon and others have developed this method to identify and compare formal characteristics of both residential and historic areas. Lee and Ahn have made a morphological comparison of Kentlands and Radburn using a series of plans comparing built form patterns, land use patterns, housing types, street pattern and circulation, and block plans²⁵.

The above methodology has been applied in this study together with a description of the social context relevant to that exemplar or case study. In addition the identified elements are tabulated and compared, to identify which aspects recur, exposing the 'durable' qualities.

21 Refer to Sandercock and Stretton in Section 1.1 above.

22 Mohny, D & Easterling, K, *Seaside: Making a Town in America*, 1993, Princeton Architectural Press.

23 Moudon, A.V, 'Urban Morphology as an Emerging Interdisciplinary Field', *Urban Morphology*, February 1997, pp.3-10.

24 *Ibid*

25 Lee and Ahn, 'Is Kentlands better than Radburn?' *The American Garden City and New Urbanist Paradigms*, *APA Journal*, Winter 2003, Vol 69, No 1

Finally the conclusion returns to design method to propose a better framework from which to both evaluate and design better suburban forms.

2.2 KEY ASSUMPTIONS

In its examination of suburban form, this study makes a number of assumptions. While each of these assumptions could themselves be hypotheses to be tested, this is outside the scope of the present study. They are described below.

- This study assumes that a selective study of international exemplary Case Studies and Australian Case Studies over the 19th and 20th centuries can identify good physical suburban form.
- It has been assumed that better forms or characteristics are more durable. Therefore this study has sought to identify durable characteristics as an indicator of good suburban form.
- This study accepts the thesis put forward by respected historians and critics such as Professor Robert Freestone that the garden suburb was in fact a very successful model community, 'an improvement of the urban environment'²⁶ that has not been surpassed. Robert Stern has noted,

'The tradition of planned suburbs and planned suburban enclaves which flourished between about 1790 and 1930 as the best and most comprehensively designed of their type'... 'Forest Hills Gardens and not Levittown rings the bell of status on Long Island' .²⁷

Lewis Mumford, perhaps one of the most distinguished authors on the city in the 20th century, noted,

'Yet none of the planning done within the 19th century, not even under Haussmann, compares in freshness of form and boldness of design with the best of the suburbs, from Olmsted's Riverside, near Chicago, to his Roland Park near Baltimore, and Parker's superb achievement at Hampstead Garden Suburb, in which buildings were an integral part of the whole design. We shall no doubt go beyond Howard's vision: but we shall owe him a debt of gratitude for first outlining the basis of this wider order.'²⁸

Mumford's comments are illuminating in two ways. Firstly he highlights the freshness of the garden suburb forms. The combination of city and country was clearly an innovation, not a romantic return to an earlier rural form, as some critics of the suburb have maintained. Secondly Mumford correctly sees Howard as the developer of a social idea, not a physical form. It was others such as Olmsted and Parker who interpreted the idea as physical form.

It has therefore been assumed here that the combination of city and country is a common element and a defining aspect of the suburb. All exemplars and Case Studies included here share this aspect, even though they may vary widely in form and density.

As Mumford has noted, the integration of built and plan form is one of the distinguishing features of the exemplars. For example, at Forest Hills Gardens, the entry buildings define the plaza creating a memorable sense of place, rarely matched in other suburbs. The plan and built form are inextricable linked to create a place. For this reason built form has been included as an integral element of suburban form.

26 Robert Freestone, Model Communities, 1989, Thomas Nelson Australia, p1

27 Robert AM Stern (ed), 'The Anglo American Suburb' Architectural Design Profile, Architectural Design, 1981, London ,P4

28 Lewis Mumford, The City in History, 1961, Martin Secker and Warburg, Great Britain, P. P566

It is assumed here that there is a clear relationship between ideals or social values, and physical form that can usefully be studied. As noted above, the garden suburb evolved from an idea or set of ideals rather than a plan or design. It was at the same time a very practical reaction to living conditions that had become intolerable – that of living in the overcrowded and filthy industrial English city of the 19th century. The ideals of the Garden City were therefore manifested in a very practical way, i.e., physical form. While it can be argued that much of Howard’s social vision (such as communal ownership) was not physically manifested, the new physical form dramatically improved the urban environment, creating the combination of city and country that was also central to Howard’s vision.

It is also assumed that the Garden City form is most relevant to the suburb. While Ebenezer Howard recognised the positive aspects of the city such as activity and community, he also saw that overcrowding and industry had degraded the traditional English way of life and the values underlying it. While his notion of combining the ‘best of the country with that of the city’ might be regarded as romantic because it attempted to somehow recreate an agrarian past, the notion has proved remarkably robust with the middle and upper classes who can afford to live in a suburb, making this choice overwhelmingly where this form of settlement is offered. While one may counter that this is an Anglo Saxon phenomenon, a review of cities such as Paris will reveal vast tracts of suburbs ringing the metropolis²⁹. Likewise New York houses far more people in the suburbs of Long Island than in Manhattan. One even sees this choice made currently in countries such as China where middle class suburbs are being created.

2.3 ELEMENTS OF SUBURBAN FORM

2.3.1 THE ELEMENTS

This study analyses the physical form of exemplary suburban Case Studies through a process of identifying the underlying elements of form and how they have been modified or evolved over time. The elements describe the design structure of the suburb and are illustrated in scaled comparative plans for each element. The elements have been selected in this study through a process of reviewing current literature on the subject. This has included the work of the Urban Morphologists such as Moudon, Lee, and Ahn as noted below. A number of urban design guidelines have also been reviewed including AMCORD, the Essex Design Guide, as well as development control plans adopted by local governments in New South Wales.

Three of the elements, street pattern, lot type, and built form derive from the work of Anne Vernez Moudon³⁰. . In her view, house forms (built form), lot sizes, and street layouts define the essential elements of urban and suburban form, as well as identifying significant changes. Ahn and Lee also use built form and street pattern (including vehicle and pedestrian networks), as well as land use pattern (identifying commercial areas, house types and open space) and block pattern in their comparison of Kentlands and Radburn.³¹ . In order that the design process can adequately be described, a seventh element, master plan structure, has been added here. This element describes the overall master plan and how the elements are integrated into a whole.

29 Robert Bruegman, *Sprawl: A Compact History*, 2005, University of Chicago Press

30 AV Moudon, Chapter 7, ‘The Evolution of 20th20th century residential forms: An American Case Study’, *Urban Landscapes, International Perspectives*, Larkham P.J. and Whitehand. J.W.R, Taylor and Francis, 1992, Routledge, UK

31 Lee and Ahn, ‘Is Kentlands better than Radburn? The American Garden City and New Urbanist Paradigms’, *APA Journal*, Winter 2003, Vol 69, No 1

2.3.2 DESCRIPTION AND MORPHOLOGY OF THE ELEMENTS

While the general term morphology refers to the study of the form or shape of things, the term urban morphology as used by Elizabeth Moudon in her analysis, refers to the comparison of the changing forms of a defined geographic area over time to identify long-term trends. Her research has identified a number of significant shifts from the 1920's to the 1980's in the United States such as changing densities, street patterns, lot patterns, and the privatisation of common open space.

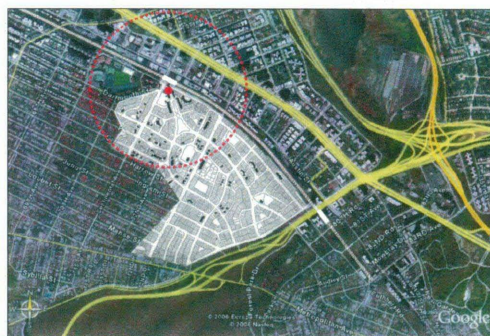
To identify changing forms of the various elements over time, this study has divided each of the elements of the Case Studies into three basic groups of similar forms. The Original Form (A) identifies the form of the element as it is found in the first exemplar. The Modified Form (B) describes the first significant modification, and the Modified Form (C) describes a further modification or change. Of course there may have been more than three forms of an element over the period studied. For the purposes of this study, it has been necessary to use only the most prominent three forms of any elements. The forms are set out in the table below and then described.

Element 1 – Master Plan Structure

This element explains the overall organisation of the plan integrating street pattern, open space, and land uses. It describes the design of the place, the structure around which a community can be developed. The various theories of community and especially neighbourhood have shaped the structure of the exemplar plans studied here. Each of the master plan structure plans depicts an 800 metre radius from a node point, rail station plaza, open space or community core. The 800 metre radius is the radius used by Clarence Stein as the basis for the neighbourhood unit.

Three forms have been identified in this study:

- **A – Edge Core.** The earlier communities studied here were usually structured around the rail station at the edge of the site on the rail line. They generally had very connected street patterns



	ORIGINAL FORM - A	MODIFIED FORM - B	MODIFIED FORM - C
M/PLAN STRUCTURE	Edge Core - A	Internal Core Connected - B	Internal Core Limited Connectivity - C
STREET PATTERN	Grid - A	Dendritic - B	Spine and Loop - C
BLOCK PATTERN	Regular - A	Irregular- B	Super block - C
SUBDIVISION/ LOT	Regular - A	Irregular – B	Discrete or Super Lot - C
OPEN SPACE PATTERN	Discrete - A	Linear - B	Hybrid - C
BUILT FORM	High Density Core - A	High Density Linear - B	Dispersed - C
HOUSING DESIGN	Site Specific - A	Generic- B	Code - C

Table 2.3.2 Element from Group

- **B – Internal Core Connected.** Later communities from Radburn became more internal with neighbourhoods clustered around the school or local open space. While these nodes were within walking distance of the surrounding houses, proximity to the rail line became less important



This element includes organising elements such as:

- Open space – park or linear reserve
- A core or neighbourhood centre containing land uses such as community, shops, higher density housing
- A community ‘heart’ such as a school, the most recognisable ‘neighbourhood’ centre.
- A core around or next to a transport node

Core can therefore be structured around:

- Community
- Transport
- Retail
- High density housing
- A mix of uses

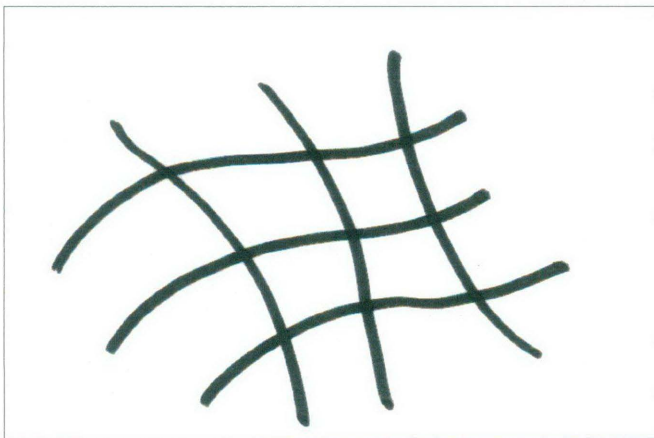
- **C – Internal Core Limited Connectivity.** As the motor vehicle became the dominant mode of transport, street patterns became less connective to reduce traffic in residential streets



Element 2 - Street Pattern

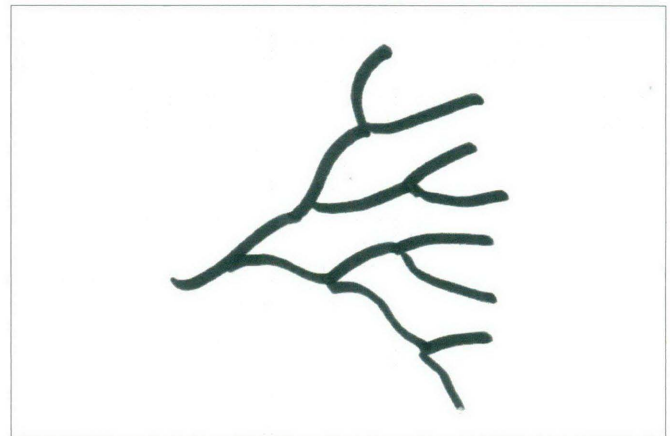
Street pattern is included in the analysis as it is a fundamental organising element of a suburb or neighbourhood. It may be developed pragmatically, responding to topography etc or as a result of the paradigm or prototype that is consciously or unconsciously followed. The pattern is in some cases rationalised into a strict grid (Adelaide Plan) or in other cases a more romantic one following the site's contours (Riverside, Chicago), or a formal non grid geometry (Daceyville). Moudon argues that street pattern prototypes have changed over time as follows, identifying three basic types: grid, continuous curvilinear, and, loops and cul-de-sacs³². This study has identified three forms as follows:

- **A – Grid.** The small grid form is associated with the traditional rectangular urban block of generally small attached dwellings such as terrace houses. It also includes the small detached or semi detached houses found in the early industrial estates and garden cities. The large grid street form is not included here as it is seen to contain street patterns within it. An example of this would be Irvine, where the large arterial street grid contains loops and cul-de-sacs within it

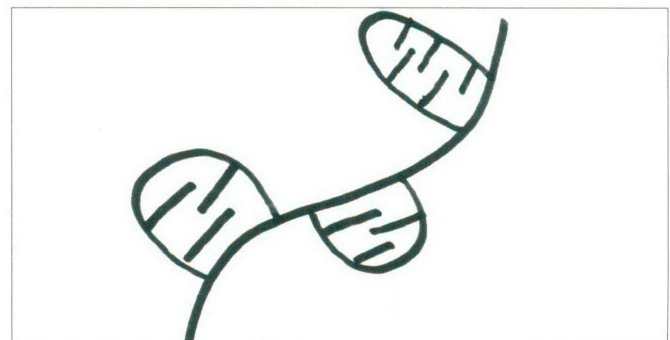


- **B – Dendritic.** This form derives from the grid, breaking some linking streets to create a traffic hierarchy in response to increasing car use. This pattern was first seen at Hampstead where cul-de-sacs were introduced within a larger grid pattern. Because the cul-de-sacs is not the dominant type, the overall pattern is connective

This form is branch-like, creating a distributed hierarchy of roads from higher order 'collector' roads down to local order roads. Because the lower order roads branch out from the collector roads, the network is less connective than the grid



- **C – Spine and Loop.** This form evolved from Radburn where the majority of streets were cul-de-sacs. While this pattern was significantly more dendritic than previous models, the streets were still generally straight. This dendritic pattern became curvilinear as blocks became wider and connectivity and short walking distances became less important as the motor car all but replaced public transit



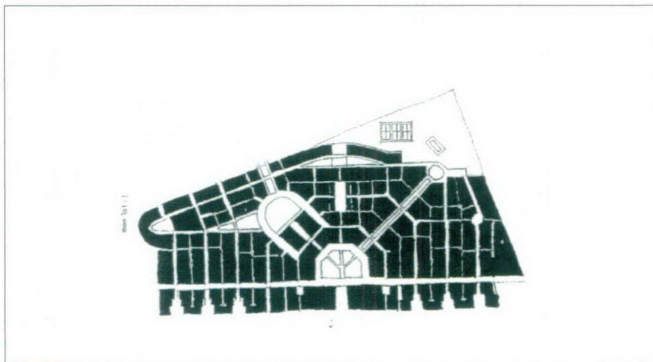
³² AV Moudon, Chapter 7, 'The Evolution of 20th century residential forms: An American Case Study', Urban Landscapes, International Perspectives, Larkham. P.J. and Whitehand. J.W.R, Taylor and Francis, 1992, Routledge, UK

Element 3 - Block Pattern

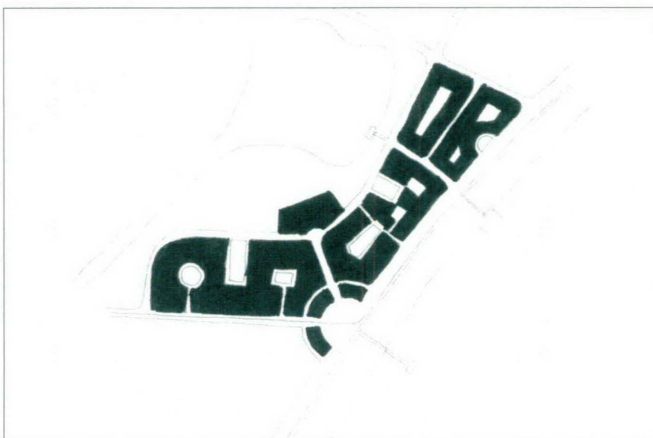
Block pattern is generally derived from the individual lot and resulting street pattern. Generally, small lots such as the terrace house lot generate a strict orthogonal street grid which results in a regular block pattern. Axial or radial street patterns are only possible where lots are larger. This results in irregular blocks and is less efficient.

Block pattern is therefore dependant on the other elements for its form. It is an important element in itself as it is the basic unit of built form in the suburb. Three forms have been identified in this study as follows:

- **A – Regular.** This derives from the grid street form common in the earlier suburbs



- **B – Irregular.** This form derives from gridded dendritic street forms where the street pattern is regular, but cul-de-sacs break up the block pattern



- **C – Super Block.** The super block emerged in the mass subdivision suburbs such as Irvine where large parcels within a large grid were sold to developers who would then develop their own street patterns within the super block. This form therefore primarily derives from the process of lot production



- **Element 4 – Lot and Subdivision Pattern**

The lot is included as an element as it is the basic unit of subdivision and is closely related to street pattern as described above. Combinations of types of lots, houses, and street networks also create the basic types of neighbourhoods, which characterise entire suburban areas. Lot configuration is inextricably linked to the dwelling type. The long narrow lot accommodated the small narrow terrace house and service yard. Later it also accommodated small vegetable gardens. The impact of the car and garage created far wider lots, which meant that each lot had to 'pay' for more length of the public street. Later configurations sought to return to a narrower lot but with larger dwellings for a more affluent generation. Moudon identifies three lot types³³ in the United States that have changed over time in the following chronological order:

- Long and narrow lots within a grid
- Wide and shallow lots within a continuous curvilinear network
- Zero lot line and garden apartments within a loop and cul-de-sacs network

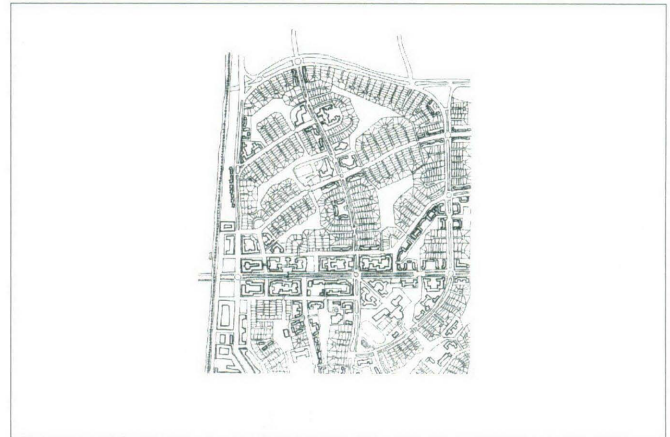
The lot forms identified in this study are similar to those identified by Moudon above as well as block pattern (element 3) as follows:

- **A – Regular.** The grid street pattern exemplars have regular lots; either long and narrow in the earlier examples, or wider and shallower in the more recent examples as houses have increased in size and gardens are used for recreation rather than more functional uses such as vegetable plots

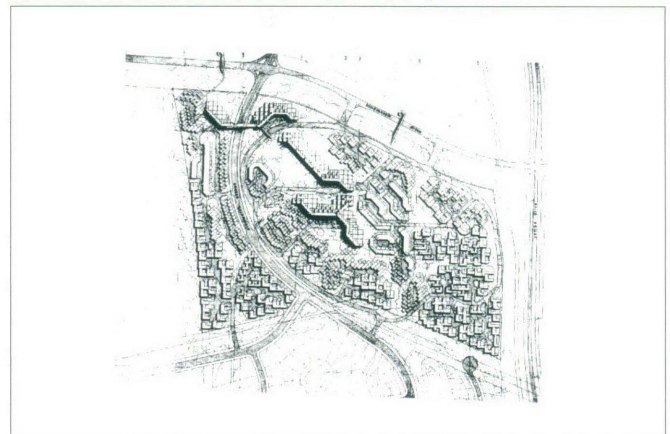


33 AV Moudon, Chapter 7, 'The Evolution of 20th century residential forms: An American Case Study', Urban Landscapes, International Perspectives, Larkham. P.J. and Whitehand. J.W.R, Taylor and Francis, 1992, Routledge, UK,

- **B – Irregular.** Lots became less regular as they increased in size and the street pattern became curvilinear



- **C – Discrete or Super block.** In the super block form the lot and block are the same element. In the case of both Radburn and Tapiola, the apartment buildings are set within an open landscape in the Modernist pattern rather than defining, and being defined by the street and block



Density and lot size are closely related. The Australian suburb is traditionally low density where the predominant house form is the detached dwelling and a private yard. Because the detached dwelling continues to be the predominant housing form in Australia, only modest increases in density can be achieved by decreasing allotment sizes and street reserves, especially as average dwelling sizes continue to increase. The result is a built form outcome, where significantly larger detached houses are sited on smaller lots. This is changing the form of the suburb as we know it.

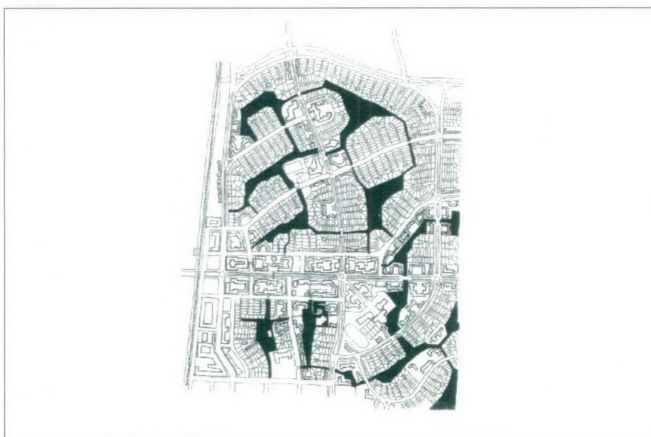
Element 5 - Open Space Pattern

The configuration and allotment of open space is a significant element of any suburb or neighbourhood, and therefore a significant element of suburban form. Landscape and open space was a fundamental part of the Garden Suburb paradigm, and succeeding models, in quite different forms. From an analysis of the exemplars in this study a shift in open space types has been discerned as follows:

- **A - Discrete parks**, ranging from pocket to regional parks, defined by streets (nodes) predominate in the earlier examples



- **B - Linear open spaces/ reserves** predominate from Radburn (links)



- **C - Hybrid**. A combination of discrete parks and linear open spaces/reserves, with both generally defined by streets occurs in most contemporary examples



The earlier models have created a strong definition between public and private open space, generally including traditional public parks surrounded on all sides by a public street with high levels of surveillance, as well as private gardens not accessible by the public. Models such as Radburn introduced the linear park that extended along the rear of dwellings, with an ambiguous separation between the space and the dwelling. This blurring has created a lack of distinction between the public and private domain. This has been seen as a serious problem at Macquarie Fields as described in this study. There are however other examples of blurred distinctions between the public and private domain, generally in more affluent communities where there does not appear to be such a problem. It can still be concluded that a well defined public domain is more durable as this arrangement will work in a range of communities. More recent models include linear as well as the more traditional park. Both are however well defined by public streets. If one was to apply the Moudon chronology, a shift from clearly public open space to more privatised common open spaces, and then a return to more public spaces can be discerned.

Element 6 – Built Form

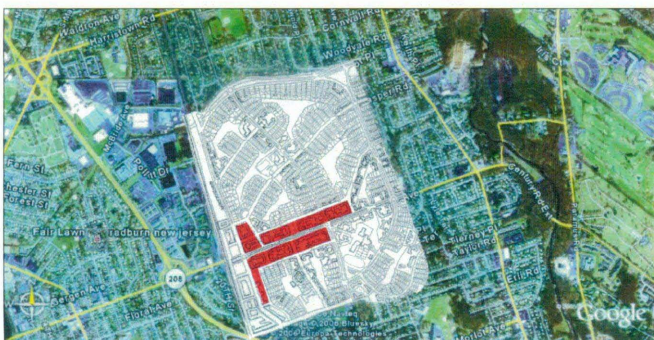
Built form is the three dimensional or spatial element of suburban form, physically defining space and place. In this regard built form is an important element in determining the character of a place, and creating the places for the community to meet and socialise, providing a visible heart to the community.

From the examination of exemplars here, two aspects of built form can be discerned. The first is the organisation and distribution of built form within the suburb. The second is the defining of key urban spaces or nodes. The three forms identified with regards to the distribution of built form from are:

- **A – High Density Core.** High density apartments and shops are located in a core (Forest Hills Gardens, Daceyville) with lower rise, generally detached houses outside the core



- **B–HighDensityLinear.** Linear concentrations of higher density dwellings (Radburn and Newington)



- **C – Dispersed.** Configurations where density is more evenly distributed throughout the plan (Tapiola)



The second aspect is related to the first, with many of the High Density Core exemplars also strongly defining key urban spaces. This is however not always the case as can be seen at Tapiola where the central core is well defined even though a range of densities are distributed throughout the suburb rather than being concentrated around nodes.

Element 7 – Housing Design

Innovative housing design is one of the characteristics that distinguishes the majority of the exemplars from standard practice and is therefore an important element. Three forms have been identified as follows:

- **A – Site Specific.** Houses and apartments were specifically designed for Forest Hills Gardens, Hampstead Garden Suburb, Daceyville, Radburn, Tapiola and Swinger Hill. It may be the aesthetic quality of the architecture that has elevated examples such as Forest Hills Gardens and Hampstead Garden Suburb over say Letchworth and Welwyn Gardens with regards to recognition and publication. They were architecturally distinguished, and in many cases a new plan form was developed for the project in response to specific needs. This can be seen at Radburn where new house types addressed both the 'front' and 'back' because of the novel street pattern that was developed

The greatest inventiveness occurred in England during the Arts and Crafts Movement when the modern detached cottage was developed, responding to modern functions and technologies, creating a new aesthetic – the bungalow or cottage. This can even be seen in lower cost public housing at Daceyville Garden Suburb in Sydney. The importance of the inexpensive suburban house for traditionalist English and American architects is shown by their commitment to model houses – McKim Meade and White as well as Frank Lloyd Wright³⁴

While the Modern Movement revolutionised the design of the private dwelling around the time of Radburn in the late 1920's, this

was restricted to a relatively small number of individually designed dwellings. One exception is Tapiola where innovative modern houses, townhouses as well as low and high rise apartments were designed by a range of well known Danish architects



- **B – Project Housing.** In contrast the typical contemporary suburban dwelling has continued to be remarkably conservative, often designed in-house by home builders. This has been the case at Irvine and Golden Grove. The significant shift in design has been the continual increase in size since the time of Radburn except for isolated examples such as Swinger Hill where the European courtyard plan was adopted. Relatively inexpensive housing continues to be a driver in Australia as detached houses continue to be the cheapest form of domestic construction (less than half the square metre cost of an apartment), although as houses continue to grow in size the absolute cost is rising. The cost of land in the major cities, especially in Sydney is increasing and may in the future reduce the attractiveness of the detached house.



34 Robert AM Stern (ed), 'The Anglo American Suburb' Architectural Design Profile, Architectural Design, 1981, London, p6

- **C – Code.** The next significant innovation in housing design has been the advent of the design code, as developed at Seaside. This has however re-established traditional elements such as the porch as the other street elements lost in the stripped down contemporary mass production project house. Innovation can be discerned also in the stepped terrace garden apartments built at Newington, based on an earlier Sydney garden apartment model³⁵



While Moudon notes ‘these carefully designed, often innovative suburban forms have served as exemplary precursors to later development, they, in effect, bear little resemblance to the mass of developer- controlled subdivisions whose standard designs remain selective interpretations of their famous antecedents’³⁶, it is argued here that exemplars do in fact influence suburb designs, even if they are significantly modified subsequently

Another possible weakness of the morphological analysis, it could be argued, is that it is devoid of social context. For example, Ahn’s analysis of Radburn does not address issues of safety and surveillance that have become significant problems in subsequent Radburn type estates in Australia. It is for this reason that this study analyses the elements of suburban form in the context of **social values**

35 From a discussion with Bruce Vote, one of the designers of the apartments at Newington

36 AV Moudon, Chapter 7, ‘The Evolution of 20th century residential forms: An American Case Study’, Urban Landscapes, International Perspectives, Larkham P.J. and Whitehand. J.W.R, Taylor and Francis, 1992, Routledge, UK

2.4 CONTEXT OF SOCIAL VALUES

This study carries out an examination of the elements of suburban form in the context of the values underpinning the various suburban models examined. This is fundamental to this method as it is the values underlying the various models that connect them to the society of the day. Changing or evolving values reflect society’s response to the significant social issues of the day. It is these changes that in turn bring about significant changes to the form of the suburb. It is therefore important to identify values as well as the social, political, and economic context of each model to understand the relevance of a particular model and how it may have changed. New suburban models were developed in response to significant and widespread social change, such as war and industrialisation that in many cases brought significant social upheaval. In fact most models were reactions to change, and sought to create model communities that would re-establish an earlier or ideal way of life (even if that view was nostalgia for a past that never really existed).

Any discussion of the form of the suburb must therefore be set against a background of values and ideals. The history of the suburb is a history of Utopian models and ideas, as well as movements for social reform. Interestingly, while the social ideals of paradigms such as the Garden City were quite radical, the planning models that emerged were quickly transformed into socially conservative physical models.

Regardless of the Utopian beginnings of the suburban paradigm it is widely valued and represents the ideals of the majorities of the populations of the Anglo Saxon countries where it has developed. Even in other countries where dense existing settlement patterns precluded such a form of development, the garden suburb has been studied. Hermann Muthesius noted, *‘For there can be no doubt that to live in a private house is in every way a higher form of life.*

*Flat dwelling can only be regarded as an emergency substitute for living in a private house*³⁷.

Much of the debate about good housing revolves around how private space is valued in comparison to the public realm, as well as what makes a 'better living environment'. Australian authors such as Stretton and Troy have placed paramount value on the private dwelling and garden. The New Urbanists, in contrast argue that the contemporary suburb has largely ignored the value of the public domain, as well as the semi public domain, the mediating space between the two domains – the porch. Clarence Stein and Ebenezer Howard advocated the best of city and country, stressing the low-density house and garden as well as the neighbourhood common space³⁸. In this sense the garden suburb encapsulates both domains. The argument about the relative value of private open space is important in any exploration of suburban form.

37 Hermann Muthesius *The English House*, 1987, Oxford BSP Professional Books (paperback re-issue of the original 1904 *Das Englische Haus*)

38 Ebenezer Howard, *Garden Cities of To-Morrow*, 1902, London. Reprinted, edited with a Preface by F. J. Osborn and an Introductory Essay by Lewis Mumford, London: Faber and Faber, 1946