PART II – PROTOTYPES AND EXEMPLARS

3 THE RAIL SUBURB 1870 - 1912

3.1 BACKGROUND AND STANDARD PRACTICE

Riverside Drive

Entry to Forest Hill Gardens

The rail suburbs emerged between 1850 and 1920, overlapping with the garden suburb. The rail suburb was actually the precursor to the garden suburb, making it possible for middle and lower income workers to live in a low density suburban environment and commute to their place of work in the industrial city – a choice previously only open to the wealthy. Once built, this model inspired reformers such as Ebenezer Howard to propose even more radical solutions. There was therefore an important cross flow of ideas between the United Kingdom and United States. Bedford Park in the UK and Riverside and Forest Hills Gardens are amongst the best known. According to Peter Hall, 'Both Bedford Park and Forest Hills work brilliantly, and are deservedly celebrated. But they work not because of their surface form but because of their function - both are deliberately and self consciously rail suburbs'[39]. The rail suburb created a 'state of existence within a few minutes walk of the railway station or tram stop, a few minutes walk of the shops, and a few minutes walk of the fields'[40] Some suburbs near the city were located on a trolley car or tram route, or even underground. The railway station was usually placed at the heart of the planned suburban villages.

39 Peter Hall, Chapter 11, 'Retro Urbanism; On the Once and FutureTOD' in Harvard Design Magazine No 12 – Sprawl and Spectacle, Fall 2000

40 James Kenward, The Suburban Child, 1955, Cambridge University Press

Before the invention of the motor car, commuters had to walk to and from the station every day, encouraging a compact plan. A similar form emerged in Sydney along the North Shore Line although a built master planned suburb did not emerge.

According to Lewis Mumford, the 'railroad' suburbs, strung out along a railroad line, were 'discontinuous and properly spaced: and without the aid of legislation they were limited in population as well as area...Riverside, Illinois, founded as early as 1869, had only 9,153' (people)[41] . The location of the station or tramline acted as a natural limit to the spread of the suburb as houses had to be sited within easy walking distance of the station. In contrast, Sydney's North Shore Line created a continuous line of suburbs with each station spaced at twice the comfortable walking distance. In the early American suburbs, only those wealthy enough to afford a horse and carriage could live further out. As long as the railroad stop and walking distances controlled suburban growth, the suburb had a form. This form only lasted less than a generation according to Mumford.

'Instead of creating the Regional City, the forces that automatically pumped highways and motorcars and real estate developments into the open country have produced the formless urban exudation... it is a poor form of city planning that permits the answer to dominate its entire scheme of existence'[42] .

41 Lewis Mumford, The City in History, 1961, Martin Secker and Warburg, Great Britain, p.573

42 Ibid, p.579

Along with middle class suburbs such as Riverside and Forest Hills Gardens there were many industrial villages that could be seen as an early manifestation of socially responsible suburban planning, pre-dating the Garden Suburb. While some early industrial villages consisted only of boarding houses, later examples such as Port Sunlight included the elements of the pre- industrial village. According to Stern, the industrial villages of the First World War were the 'swansong' of their type.

While new model communities such as Riverside, Illinois were conceived and built in the United States in the middle of the 19th century predating the Garden Suburb, there were no such planned suburbs built in Australia that pointed the way toward modern Garden Cities.[43] Perhaps the 1889 competition winning scheme by W.L.Vernon for a Railroad suburb in Kensington (unbuilt), inspired by 'model estates' overseas, was the first. The Kensington Freehold Corporation intended to develop its 1000 acre (400 hectares) upon 'the most artistic and scientific principles'[44]. Nor were there any built factory settlements in Australia, which is not surprising as agriculture was more significant than manufacturing in Australia at the time. It is noted that while the exemplars included here are generally arranged in chronological order, the Australian rail suburb studied is actually later than the Australian garden suburb example as there were no earlier rail suburb examples, and the Case Studies are grouped by type for the purposes of comparison.

43 Robert Freestone, Model Communities, The Garden City Movement in Australia, 1989, Thomas Nelson Australia, p.52

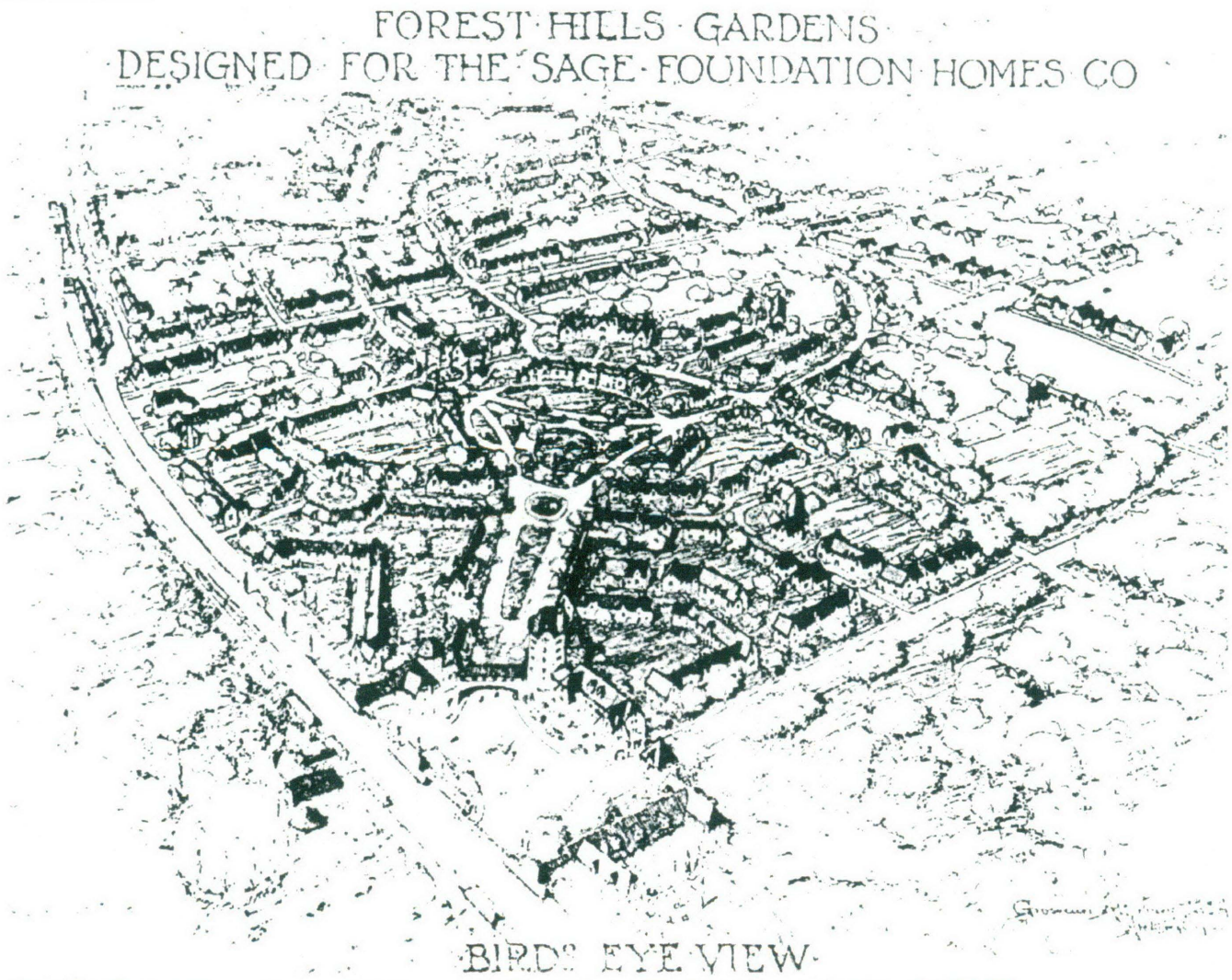
44 Ibid, p.55

3.2 INTERNATIONAL EXEMPLAR - FOREST HILLS GARDENS 1912

3.2.1 BACKGROUND AND VALUES

The Sage Foundation developed Forest Hills Gardens after Letchworth and Hampstead Garden Suburb as a model suburban residential town, designed by the Olmsted brothers and the architect Grosvenor Atterbury. Located on a railway station, Forest Hills Gardens afforded middle class and lower income workers the same opportunity to live in a healthy suburban community and commute into the industrial centre rather than living there. This was previously available only to those wealthy enough to afford private vehicle transport – a very small number at that time. Strong social values underpin Forest Hills Gardens.

Clarence Perry, the originator of the neighbourhood unit concept was a resident of Forest Hills Gardens and was inspired by the 'neighbourhood plan'. While the Sage Foundation intended the development to be a village of low cost housing, its proximity to Manhattan pushed land values too high and it became a middle class enclave over time. Forest Hills Gardens is romantic in character, achieved by the curving roads; traditional village square and architecture complete with buildings that bridge over the entry roads, giving an almost medieval feel. There is a strong order achieved by the axial entry road cleverly combined with the more romantic curving streets. There is a sense of the country estate, which is heightened upon moving from the denser village core into the curving streets of mainly detached houses. The suburb is currently a prosperous one.



Forest Hills Gardens, Queens. Grosvenor Atterbury and the Olmsted Bros., 1909-12. Aerial perspective drawn in 1910. CU Original Plan

3.2.2 ELEMENTS

Element 1- Master Plan Structure (Edge Core – A)

Like earlier precedents such as Riverside in Illinois, there is a strong civic core with apartments in the centre and lower density housing further from the core. Forest Hills Gardens is 15 minutes by rail from Manhattan. It is not as diffusely designed as Hampstead Garden Suburb – It is planned sequentially from a high-density core at the station graduating from 'town to country'[45]. Key elements of the master plan structure are:

- Strong core associated with the rail station and entry
- Core linked to the central open space on axis with the entry
- Clever overlay of an axial and orthogonal organising grid

Element 1 - Master Plan Structure

45 Robert AM Stern, 'The Anglo American Suburb' – Architectural Design Magazine, 1981

Element 2- Street Pattern (Grid – A)

The street pattern contains monumental City Beautiful elements such as the axial entry avenue and is less romantic than Riverside (note that Riverside was laid out by FL Olmsted Senior, and Forest Hills by his sons). ' Fantastically crooked layouts have been abandoned for the cosy, domestic character of local streets, not perfectly straight or long stretches but gently curving to avoid monotony'[46]. The plan cleverly overlays a rectilinear grid over a circular drive that runs through the estate and connects to the entry Avenue.

- Hybrid pattern of axial, rectilinear and curvilinear – overall grid is however rectilinear
- Axial street signifies entry and village centre
- Connective street grid throughout
- No cul-de-sacs
- Streets surround open space except for private common open space within a block

Element 2 - Street Pattern

46 Christopher Tunnard, 'The Romantic Suburb in America', Magazine of Art 40, 1947

Element 3- Block Pattern (Regular – A)

The block pattern is generally regular as a result of the overall grid. The curving streets are gentle and do not create highly irregular blocks.

- Hybrid of generally regular with some irregular shapes
- Generally regular

Element 3 - Block Pattern

Element 4- Subdivision and Lot Pattern (Regular – A)

The subdivision is a generally traditional grid in blocks divided into relatively deep narrow lots common at the time. There are a number of irregular shaped lots planned with rear common areas.

- Generally narrow detached lots
- Lots generally regular within the block. Irregular at block ends
- Special apartment lots are located adjoining the station

Element 4 - Subdivision & Lot Pattern

Element 5 - Open Space Pattern (Discrete – A)

Open space includes traditional neighbourhood parks as well as green spaces, verges and medians within the principal avenues as a formal landscape element. There appear to be some common open spaces within a number of blocks. The open spaces are surrounded by the rear of individual dwellings in a similar way to Daceyville Garden Suburb.

- Generally discrete public local parks defined at the edges by streets
- Linear green space on axial entry
- Private enclosed shared open space located within blocks

Element 5 - Open Space Pattern

Element 6 – Built Form (High Density Core – A)

Built form defines the urban core at Forest Hills Gardens. The key sites near the station were built as shops, apartments and a hotel. The balance of sites was sold undeveloped under a review process supervised by Grosvenor Atterbury. Outside the core, the vast majority of the site is subdivided into individual lots with a number of higher density sites principally near the rail station.

The built form of the civic core is even stronger than Riverside with enclosed bridges spanning the roads leaving the square, initiating a progression from the urban square, past dense apartments to the more rural edges. The sense of place created by this transition is very strong[47]. The key points are:

- Clear transition in scale from dense core to more suburban edges
- Apartments and civic buildings in 'village' centre adjoining station
- High level of architectural design
- Detached, generally two storey, houses throughout the site

Element 6 - Built Form

47 Philip Graus, Re-Designing the Australian Dream, 1992, Byera Hadley Travelling Scholarship Report

Element 7 – Housing Design (Site Specific – A)

A number of special sites were developed to the design of Grosvenor Atterbury leading from Station Square and at key locations where the roads fork. The apartments are lower in scale than at Riverside. They are associated with the entry near the rail station.

HIgher Density Apartments at Forest Hill Gardens

3.3 AUSTRALIAN CASE STUDY – GARDEN VILLAGE, BOTANY BAY (UNBUILT) 1916

3.3.1 BACKGROUND AND VALUES

While there does not appear to be a built example of a designed Rail suburb in Australia, Sir John Sulman did prepare a design for a model industrial village in Botany in 1916. This was not built but was included in his 1921 volume on town planning[48]. Referred to as a 'Garden Village for industrial workers', it drew inspiration from the industrial 'villages' such as Bournville in the UK. While this exemplar shares many of the values seen at Forest Hills Gardens, much of the scheme was also argued on economy as the village was intended to be built for workers and therefore had to be comparable in cost to a more standard subdivision. Sulman argued that a better and healthier urban environment could be created if the standard narrow lot and house with insufficient open space was abandoned, saying that

'reducing the roads from the quite unnecessary 66 feet to 40 feet providing they are not the main arteries. On this basis....the space saved could be thrown into the back yards. Further by pooling one-tenth open space of several adjoining areas, an internal reserve might be formed in alternate blocks as a playground for children, the young, and the middle aged...But it would mean that ten cottages to the acre would be the maximum' [49] *(25 per hectare)..*

The plan therefore espouses the values of a healthier urban environment with regard to more space between houses, numerous community open spaces for play and relaxation, while compromising on other areas such as roads so as to maintain housing affordability. This compromise was to be taken to its logical conclusion at Radburn and has continued to present practice. The continued increase in the size of the dwelling in proportion to its lot requires this compromise to be rethought.

48 Sir John Sulman, Town Planning in Australia, 1921, Government Printer of NSW, Sydney

49 Ibid p.109

Historic Plan

3.3.2 ELEMENTS

Element 1- Master Plan Structure (Edge Core – A)

The master plan structure is a model one, combining City Beautiful elements such as axial avenues as well as a plan that cleverly maximises the number of dwellings with an open space or water outlook.' The village would be very healthy as it is surrounded on all sides by the bay or open ground, and is in close proximity to an industrial area, thus saving the workers time in travelling.'[50] The plan comprises large blocks with principal streets that all have open space vistas to open space or the water.

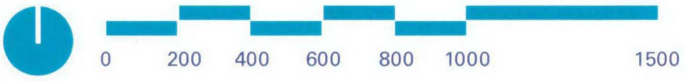
The linear shape of the site constrains the form of the master plan especially the potential to vary the street pattern. Within this shape the master plan concentrates its focus on a higher density core on the corner of the principal road where the tram line is proposed. From here an axial avenue connects to a school at the end of the axis.

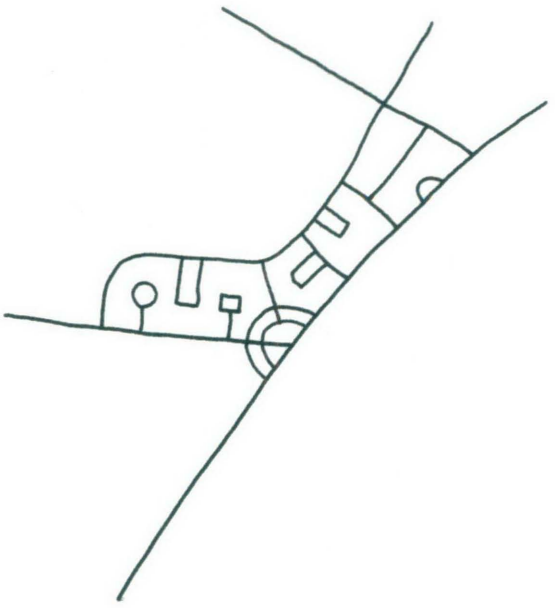
Element 1 - Master Plan Structure

50 Ibid p 110

Element 2- Street Pattern (Dendritic – B)

The street pattern is predominantly rectilinear largely because of the linear form of the site. The street pattern, is however, not a traditional grid, rather it places an axial avenue at the point where the site 'bends', creating a sense of entry and monumentality between the entry and school building placed at the end of the axial street. A series of cul-de-sacs punctuate the blocks similar to that of Hampstead Garden Suburb, a significant departure from the pattern at say Forest Hills Gardens, creating a 'Dendritic' order of streets. The large blocks reduce the quantum of road within the scheme.





Element 2 - Street Pattern

Element 3- Block Pattern (Irregular – B)

The blocks are quite irregular when one considers the regular linear shape of the site. The irregularity of the blocks results from the placement of small communal open spaces either within the centre of the blocks or at the edges of the block. The blocks are also very deep as a result.

Element 3 - Block Pattern

Element 4- Subdivision and Lot Pattern (Irregular – B)

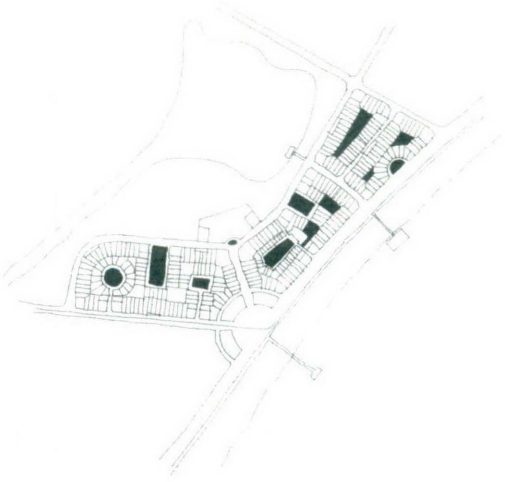
The subdivision is modified from the traditional pattern in that it creates a combination of largely standard rectilinear detached house lots as well as a number of tapering lots resulting from the cul-de-sacs and circular open spaces. There is one larger apartment building that includes both a common open space as well as individual gardens for ground floor apartments.

Element 4 - Subdivision & Lot Pattern

Element 5 - Open Space Pattern (Discrete – A)

The plan includes some 14 discrete common open spaces, eight of which are wholly within the block accessible only from the surrounding dwellings rather than a road. Of these only one is a large space. The six larger open spaces are all accessible from the street, although three of these are within the block. While Sulman proposed internal communal open space he was aware of its potential shortcomings.

'The one objection to the internal reserve is the question of supervision and maintenance. If the subdivision is owned and managed...municipally or by a co -operative, then it could be worked satisfactorily; but, if each lot is sold outright, it would be almost impossible to secure proper management ...It seems clear therefore, that, unless under continuous control, the internal reserve is not a satisfactory solution.'[51]



Element 5 - Open Space Pattern

51 Ibid P 109

Element 6 – Built Form (High Density Core – A)

Similar to both Forest Hills Gardens and Hampstead Garden Suburb, a higher density core of hotel, hostel, and a co operative are placed at the entry to the site adjacent to the tram line. Sulman was to use this form in his plan for Daceyville also.

Larger buildings are also placed at prominent corners and at the end of the axial avenue. Large semi-detached houses are placed on the axial avenues appearing as grander houses between the more prominent corner dwellings. The other dwellings are all detached on relatively small lots.

Element 7 – Housing Design

Being an unbuilt project there were no house designs prepared. It is not known whether housing would have been specially designed for the project.

Element 6 - Built Form

4 THE GARDEN CITY/ SUBURB 1900 - 1925

4.1 BACKGROUND AND STANDARD PRACTICE

Ebenezer Howard's famous Garden City diagram was a figurative representation of a social ideal not a design for such a community. While the earliest examples of Garden Suburbs were the built expressions of designs inspired by Ebenezer Howard's ideal, they did not embody some of Howard's more radical social reforms, such as the common ownership of property.They did however create some of the best living environments, perhaps not surpassed to this day. One of the earliest examples, Hampstead Garden Suburb in England, together with the earlier described Forest Hills Gardens, built by foundations as model communities 'with a commitment to the improvement of the physical environment of the masses'[52], have been described perhaps as the best exemplars of the Garden Suburb[53].

52 Stern, Gilmartin, and Massengale, New York 1900, Metropolitan Architecture and Urbanism 1890 – 1915, 1983, Rizzoli International Publications, New York, p.428

53 Ibid

4.1.1 THE ENGLISH HOUSE AND GARDEN

The low-density suburb and detached dwelling is a paradigm peculiar to the late 19th and 20th centuries in largely Anglo Saxon countries such as the United States and United Kingdom. At the turn of the century widespread interest in English cultural achievements reached a peak, especially technical and industrial development. The English Garden City Association was of particular interest to German architects and planners after its foundation by Ebenezer Howard and his colleagues in 1899, as was the growth and development of Letchworth Garden City (founded in 1903) as an exemplar of this approach.[54] The German writer Muthesius searched for ideal housing types, simplicity, functional design and a lack of pretence.

For Muthesius, the 'Modern English house engages our attention largely because of the high level of culture it expresses'[55]. English life stood out from the rest of the countries of Europe.

'England is the only advanced country in which the majority of the population still lives in houses, a custom that has survived all the political, social and economic changes that European civilisation has undergone in the past one hundred and fifty years. Whereas on the continent these changes caused mass migration into the cities, where people became imprisoned in giant multi-storeyed barrack-like blocks, in England, where, indeed, industrial development had started so much earlier, they barely touched the inborn love of country life.'[56]

54 Hermann Muthesius, The English House, 1987, Oxford BSP Professional Books (paperback re-issue of the original 1904/5, Das Englische Haus)

55 Ibid

56 Ibid

For Muthesius the exemplary qualities and social values of the English House included:

- Functional design reduced to the essentials
- Built for the family alone
- Not a 'style' or 'architecture'
- House and garden arranged in a close-knit relationship

Muthesius saw the detached house as fundamental to Anglo Saxon values:

'...the regularly laid out garden must not extend merely to one side of the house, but all the way round it, so that the house appears from all angles to rest on an adequate base. The position of the house in relation to the road is entirely immaterial, since, as we have several times remarked, an English country house has no relationship with the road, except one of complete dissociation.'[57]

4.1.2 THE REFORM MOVEMENT AND LOW DENSITY ENGLISH GARDEN SUBURB

Value is defined as 'worth, desirability, utility', or 'what is important in life'[58]. Much of the literature dealing with the Garden Suburb and indeed the low density suburb itself deals with the creation of a better healthier way of life for the city dweller. The rejection of the squalor and disease of the 19th century industrial city in favour of migration to the suburb leading to the possibility of a better life became a recurring theme in many of the publications of the day. The suburb came to represent an emblem of material and social success. It is therefore useful to examine the idea of a 'better life' in some detail.

What might a better life actually be? In the context of the polluted and filthy 19th century industrial city, the notion of combining the best of the city and the country can be seen as a desire for a better healthier life. The radical reforms of Ebenezer Howard also contained a powerful socialist thread, proposing the abolition of individual land ownership – possibly a reaction against the inequity of ownership and class divide developing in the large metropolitan centres of Great Britain and the United States. The values underlying this vision of a 'better life' were therefore profound and more complex than just an escape from the city. Rather than just quality of life, Howard was proposing to change the existing social and economic order. This was quickly rejected by the planners who actually developed the Garden Cities. In other words, while the original Garden City paradigm espoused utopian socialist ideals, they quickly became diluted, moving from a social model to a planning model. As with the ideas of many social reformers, key aspects of Howard's social program were not manifest in the physical garden cities. Howard's belief in physical determinism was similar to the earlier proponents of Gothic Revival architecture that believed a 'True and Pointed Christian Architecture'[59] would revive religious adherence in the nineteenth century.

What was not rejected however was the notion that the suburb offered a better way of life. Even 100 years later with the advent of a cleaner post industrial 'service' city, the vast majority of the Australian population prefers to live outside the city centre in low density suburbs. The values that underpin the low density suburb centre on the detached dwelling as the centre of traditional family life and values.

57 Ibid
58 Australian Oxford Dictionary, Oxford University Press, 1999
59 Pugin A.W, The True Principles of Pointed or Christian Architecture, 1811, John Weale, 59 High Holborn

The suburbs also enshrine the sanctity of the individual where one can express one's own tastes and pursue one's own interests. The suburb allowed the middle and later the working classes to have what previously only the landed gentry could hope for – an estate of their own. The term esquire meant 'owner of property'. The values of the low density suburb, the detached dwelling and home ownership have become inextricably linked in Australia and the other Anglo Saxon countries.

The issue of density is also fundamental to any discussion of suburban values. Prior to the Industrial Age the majority of the population lived in villages, on farms, or in the city. The very wealthy lived in sizable city townhouses such as Bedford Square in London or Manhattan in New York. Many also kept a country house if they could afford it or vice versa. Without affordable mass transit, working class people needed to live near their place of work, be it on a farm, the wharves, or increasingly, factories. As the Industrial Revolution progressed the need for more workers in the one place increased dramatically. With limited transit, housing became more crowded, and because of a lack of water and sewage infrastructure, more unhealthy. Initially, the Industrial Revolution created dramatically declining living standards. Overcrowding or density became associated with poor housing, disease and the behaviour of the lower classes. The suspicion of higher density housing still persists.

Density itself became tied to the notion of Environmental Determinism or Reverse Historicism where the resultant form is seen as the cause of the problem. Density itself was seen in the late 19th and throughout the 20th century to create undesirable environments and consequently undesirable behaviour. 'The limitation of density was the most characteristic feature' wrote Abercrombie in 1916 (p19).[60]

With the advent of more affordable public transit in the US, UK and Australia, where there was room to expand, a new housing paradigm emerged – the modern suburb.

The Garden City movement combined city and rural elements. This model for new settlements outside the city quickly moved to the edge of metropolitan areas, creating suburbs at relatively low densities (still high by later Australian and US standards). In texts such as 'Nothing Gained by Overcrowding' Raymond Unwin stated 'If the Garden City Movement stood for anything it was a decent house and garden for every family – that is the irreducible minimum'.[61]

The turn of the century brought together Arts and Crafts theories about lifestyle and built form. Victorian Gothic Revivalists such as Ruskin and Pugin, promoted the improvement of the middle and working classes with moralistic overtones. They promoted a form of historicist determinism that assumed by recreating a Gothic architecture, the social and moral attitudes of an earlier (romanticised) time would be recreated.[62] They also rejected industrialisation, proposing social reform as well as the improvement of the physical environment.

In addition to emerging social reform movements, a number of other factors contributed to the emergence of model worker housing estates. The nineteenth century factory owner needed large numbers of workers in shifts day and night. With limited public transit, this could only be achieved with a large workforce within walking distance of the factory.

In Australia, Government delivered the most innovative Garden Suburb models such as Daceyville Garden Suburb in the early twentieth century.

60 Refer J. H. Forshaw and Patrick Abercrombie, County of London Plan, 1943, Macmillan & Co

61 Unwin R, Nothing Gained by Overcrowding!' 1912, R.S King & Son, Westminster

62 Refer Anthony Vidler, After Historicism, Oppositions 17, Summer, 1979, Rizzoli Publications New York, p. 5.

This model was taken up and generally diluted by private enterprise in suburbs planned for affluent buyers. Haberfield was one example of a high quality private development. While later suburbs may have lost many elements of the garden city commentators such as Hugh Stretton have noted that most Australians still place home and neighbourhood at the heart of urban planning in the style of early garden city advocates;
'The garden city environment today is no longer the most obvious residential planning ideal of the planning profession. However most of the distinctive features of the garden suburbs promoted by reformers like Charles Reade are still regarded by many Australians as desirable (if increasingly expensive to obtain).'[63]

Key elements of the model include:

- An emphasis on creating a community and neighbourhoods
- Low density housing – generally cottages or small groups of attached dwellings in a garden setting (12 dwellings per hectare)
- Private or common gardens for all dwellings
- Provision of gardens to practice horticulture
- Provision of open space including public parks and common gardens
- Commercial and factory uses were separated from residential uses

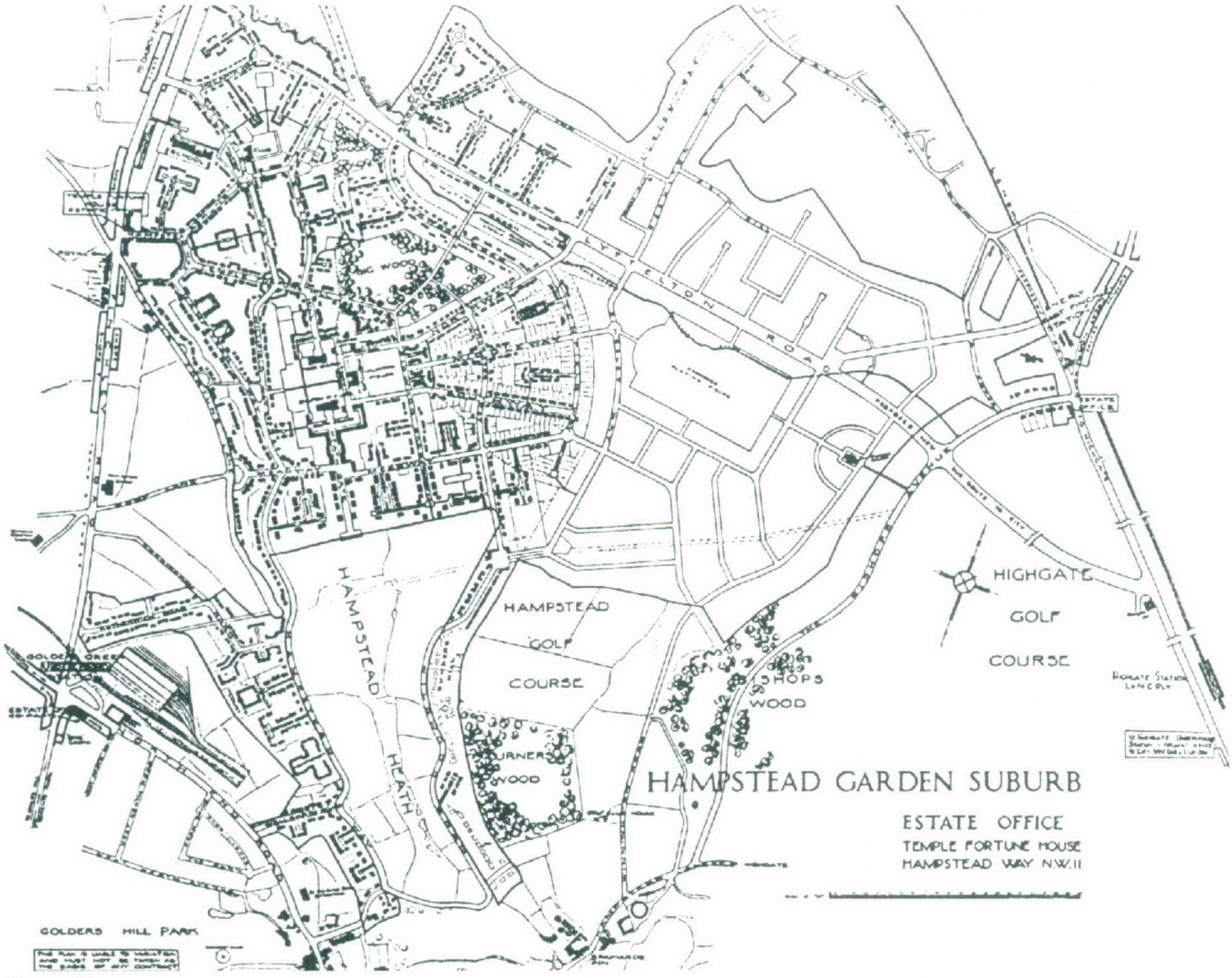
63 Hugh Sretton, Ideas for Australian Cities, 1970, Orphan Books, Sydney

4.2 INTERNATIONAL EXEMPLAR - HAMPSTEAD GARDEN SUBURB 1909

4.2.1 BACKGROUND AND VALUES

While Unwin and Parker's work at Letchworth was important in giving form to the Garden City idea, their work at Hampstead Garden Suburb was to have a far wider influence[64]. Hampstead's distinguished architecture and memorable spaces provided a powerful image of the Garden Suburb ideal, internationally.

Hampstead Garden Suburb encapsulates the values noted above such as rural character and closeness to nature, a sense of space, a romantic picturesque architecture and composition of roads and buildings, combined with axes and a sense of order and stability. The cul-de-sacs, an invention of Hampstead, created a new sort of space or place – a smaller community of 12 -15 families. This freshness of form is a characteristic noted by critics such as Robert AM Stern. Hampstead has continued to be a sought after suburb.



Historic Plan

64 Jonathon Barnett, The Elusive City: Five Centuries of Design, Ambition and Miscalculation, 1986, Icon Editions

4.2.2 ELEMENTS

The key elements of the master plan are:

- Overall picturesque effect is more dominant than a formal plan.
- The plan responds to topography
- Axes and linkages are set within a less formal plan
- Strong reliance on the architectural quality of key public buildings

Element 1- Master Plan Structure (Edge Core – A)

The master plan structure of Hampstead Garden Suburb is very much a product of the picturesque aesthetics of English garden design. Unwin and Parker had been influenced by the ideas of Camillo Sitte as set out in the introduction of his publication Der Stadetbau. Rather than a formal plan, Sitte was interested in generating a succession of changing viewpoints. Robert Stern has suggested that Hampstead incorporates lessons from Wren's Plan of London, Nash's Regents Park, Riverside, and Bedford Park, being more informal than previous English models, and contrasting with the more formal City Beautiful Movement. Rather than a formal square or parks, there is a vast and empty greensward. 'The big scale of American City Beautiful planning would be inappropriate in Britain, despite a similar aspiration toward non-conformity'.[65]

Element 1 - Master Plan Structure

65 Creese, The life of Sir Edwin Lutyens, Scribners, New York, 1950

Element 2- Street Pattern (Dendritic – B)

A key difference at Hampstead is the advent of the cul-de-sacs. Possibly used for the first time in the UK, , the required special legislation was provided by the Hampstead Garden Suburb Act 1906. This proved to be a very successful prototype for future low density developments, creating a hierarchy of streets distinguishing between streets serving houses only and streets for through traffic.

The cul-de-sacs created groups of houses clustered around a courtyard type space. Furthermore space was left between the groups of cul-de-sacs so that each house had a street and courtyard view. The street pattern is a loose grid that overlays axial streets radiating out from a formal park. Streets, apart from the cul-de-sacs, are connected. The plan is 'rambling' in a sense and draws from the English rural 'lane' creating a strong country image. The street pattern takes topography and vistas into account. In this way it contains a number of elements that were to be adopted by the Garden Suburb plan. The loose street geometry cleverly 'sorts' traffic and creates vistas. Key characteristics include:

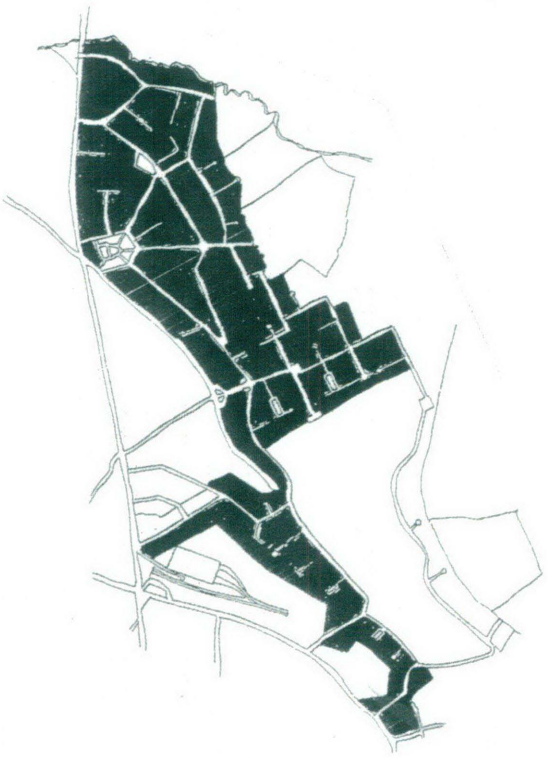
- The advent of the cul-de-sacs
- A hierarchy of axial streets, grid streets for traffic, and cul-de-sacs for houses
- A skilful overlay of an overall connective street grid with cul-de-sacs, a loose pattern of axial streets radiating from a formal park, and axial avenues signifying entry and the village centre
- Streets generally surround public open space – exception on the Heath.
- No rear lanes

Element 2 - Street Pattern

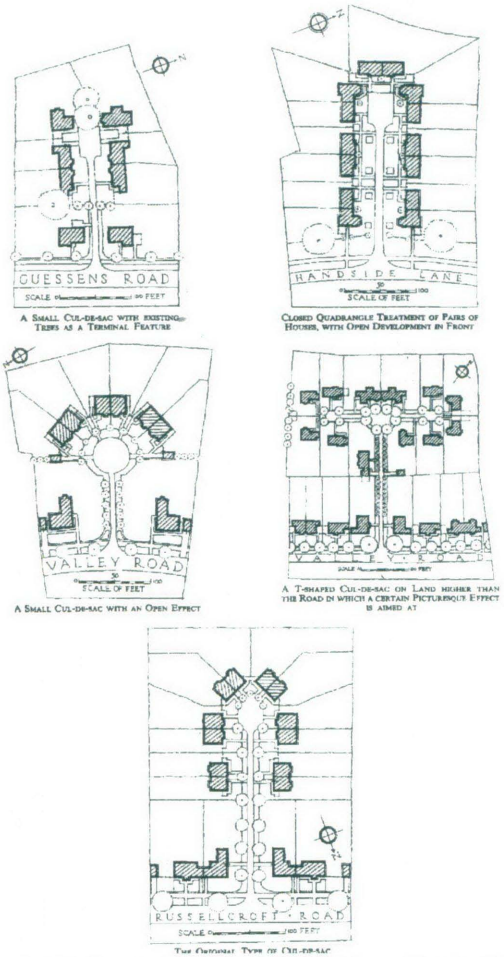
Element 3- Block Pattern (Irregular – B)

The block pattern is not as regular as Forest Hills Gardens resulting in a wider variety of block configurations, notably:

- A mixture of rectangular, square, and triangular
- An equal quantity of each type
- Blocks are treated as super blocks or 'quadrangles'



Element 3 - Block Pattern



Typical Cul De Sacs Variations (Source: Welwyn Garden Suburbs)

Element 4- Subdivision and Lot Pattern (Irregular – B)

The subdivision pattern is also not traditional as the cul-de-sacs clusters, rather than the road pattern, structure the subdivision. The subdivision pattern is divided into large 'super blocks' that contain the individual housing clusters. There is a mix of lot types including traditional and rural. Key characteristics include:

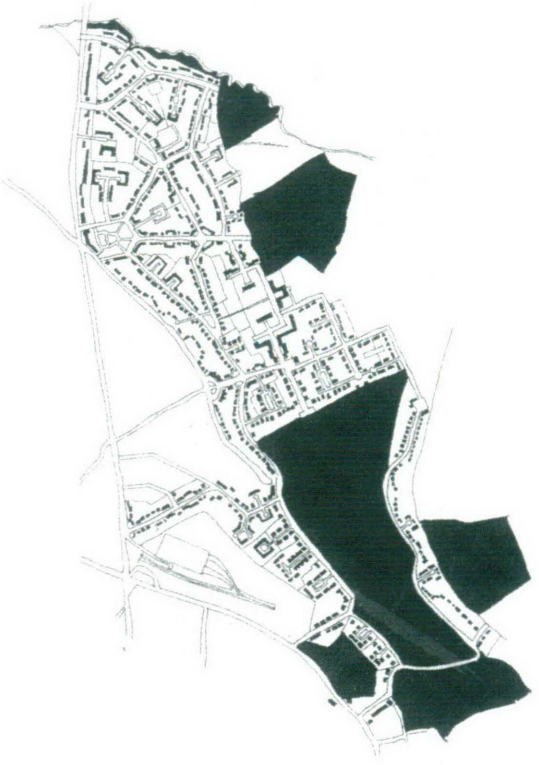
- New subdivision pattern integrated around the cul-de-sacs
- A new type of shared open space incorporating this new form
- Larger subdivided lots located further from the railway station

Element 4 - Subdivision & Lot Pattern

Element 5 - Open Space Pattern (Discrete – A)

The open space pattern is less formal than Forest Hills Gardens. This extends from the large rambling common (or Heath) to the other spaces. The real innovation is the small common open spaces created at the head of each cul-de-sacs, as indicated in the diagram above in Element 4. This becomes a shared space for the families living in the cul-de-sacs. This pattern was to become a model for many future projects and possibly the physical precursor of the 'neighbourhood' even though there was as yet no clearly defined 'neighbourhood unit' based on the logic of the local school. Key points include:

- A large heath separating the suburb from adjoining places
- Few traditional parks
- Cul-de-sacs that create a private shared quadrangle space
- Private shared open space also located within blocks



Element 5 - Open Space Pattern

Element 6 – Built Form (High Density Core – A)

The urban core at Hampstead is well defined with architecturally distinguished buildings, including a church designed by Sir Edwin Lutyens. Hampstead contains a mix of detached and attached housing clustered around cul-de-sacs courtyards. As can be seen in the previous detail plan, the the cul-de-sacs at Hampstead is a carefully designed, well defined urban form. The attached housing reintroduced the quadrangle form – a collegiate arrangement that was to be used in the later Garden Suburbs and Cities including Letchworth and Welwyn. This arrangement could be seen as the pre-cursor for the Radburn Plan with walkways added to the rear of the dwellings. Much of what appears to be detached dwellings were in fact group dwellings. While both Letchworth and Hampstead achieved a density approximately one-third lower than Ebenezer Howard proposed in To-morrow[66], it is still relatively high compared with the contemporary Australian or American suburb of say 10 dwellings per hectare gross. The predominant house form is the detached dwelling and is far more dominant here than at Letchworth

Element 6 - Built Form

66 Ebenezer Howard, Garden Cities of To-Morrow, 1902, Reprinted, ed. F. J. Osborn, Faber and Faber, London[1946]

- Well defined urban core
- Mix of attached and detached dwellings
- Generally detached housing (density)
- Attached housing grouped around cul-de-sacs

Cul-de-sacs Housing

Large Cottages

Element 7 – Housing Design (Site Specific – A)

One of the important influences on the form of Hampstead is the non residential architectural work of Sir Edwin Lutyens who designed some of the key community buildings including two churches and an institute, placed very much in the picturesque manner. They are quite monumental in scale and are very unusual in a suburban setting, giving a much stronger sense of place and distinction.

4.3 AUSTRALIAN CASE STUDY- DACEYVILLE GARDEN SUBURB 1912

4.3.1 BACKGROUND AND VALUES

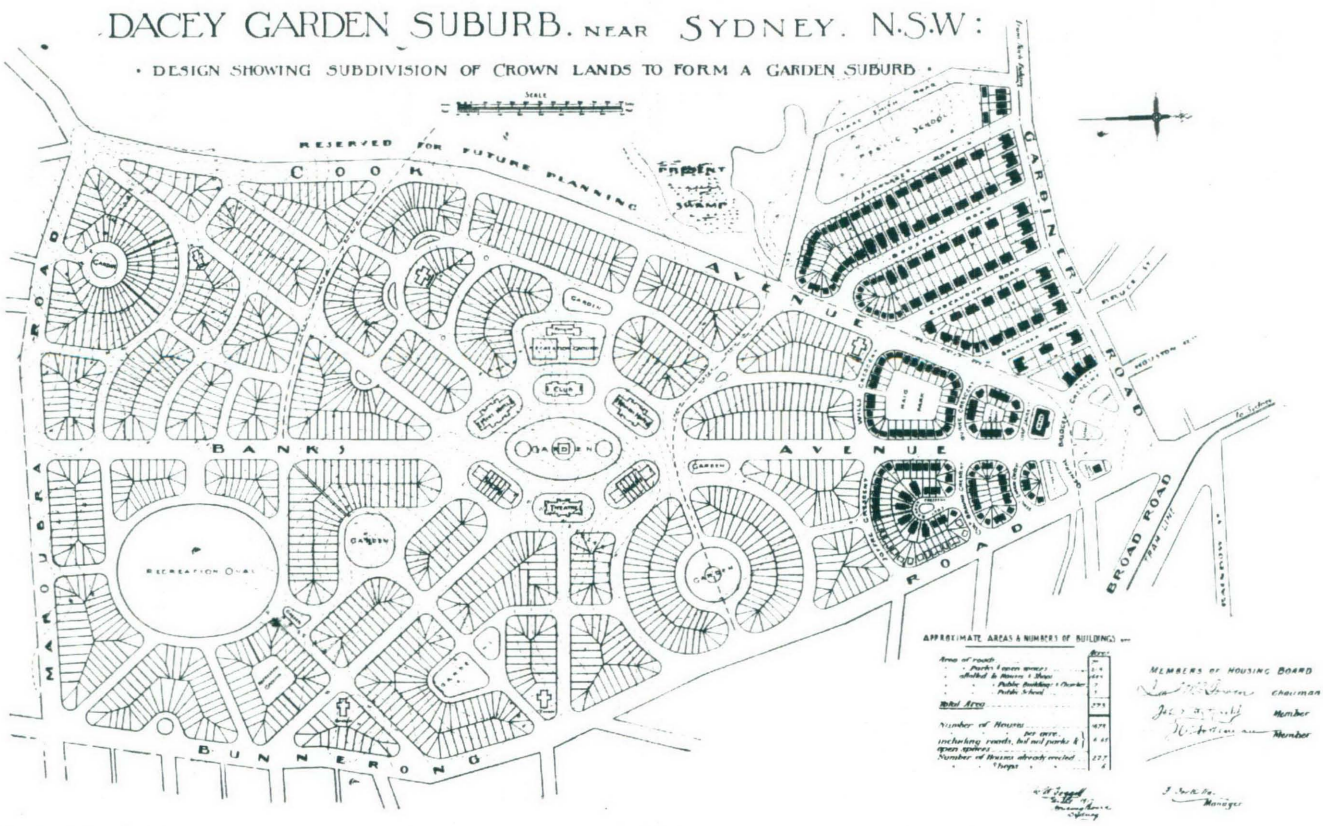
'Dacey Garden Suburb' was developed from 1912 as the first 'true' Australian garden suburb directly deriving its plan from English exemplars such as Letchworth and the Garden City Movement[67], pre-empting major international 20th century housing models such as Radburn and Colonel Light Gardens. Developed by Government it 'could afford the philanthropic influences of model town planning such as open space and lower densities'. It was the culmination of a reform movement to rid Sydney of urban blight and poor living conditions, established as a model suburb to demonstrate a better standard of living eliminating narrow streets and rear 'night soil' lanes, and introducing private and public open space. At this time some 35% of all housing in Sydney was considered unfit for human habitation.[68]

The 1909 Royal Commission recommended relocating workers into detached greened suburban houses. In 1911, John Rowland Dacey, NSW Treasurer, introduced legislation for a 'model suburb' to create healthy, affordable housing to serve as a standard for municipal councils and a monument to the first Labor government in NSW. It also provided a means to beautify a desolated area. The committee oversaw the establishment of Dacey Garden suburb. This evolved into a more pragmatic Garden Suburb on a smaller scale. Some private developments such as Bedford Park (1875) in London used street tree planting and lower dwelling densities. Well-known Arts and Crafts movement architects Richard Shaw, and Unwin and Parker designed much of the architecture at Bedford Park. The layout included alternative pairs of semi-detached cottages surrounded by gardens set well back with hedges instead of fences. Street trees were also included. This was used again in Letchworth and Daceyville.

In 1978 Daceyville covered 12 hectares with 500 dwellings. In 1980 the Department of Housing carried out 'rehabilitation' of some dwellings, infill of new buildings on vacant lots, and the construction of new townhouses and one bedroom apartments via the further subdivision of the existing deep lots. While the urban renewal was contrary to the original density intent of Daceyville Garden Suburb, the streetscape was maintained. Over time much of the non-residential uses have become residential. Currently the suburb is well maintained, especially the front gardens. It remains one of the most successful large public housing projects in Sydney.

67 Susan Jackson-Stepowsky, Dacey Garden Suburb – a Report for Daceyville Heritage Conservation Area within its Historical Context, City of Botany Bay Council Draft DCP 38 – July 2003

68 Max Kelly, Plague Sydney: a Photographic Introduction to a Hidden Sydney 1900, Doak Press, Sydney



Historic Plan

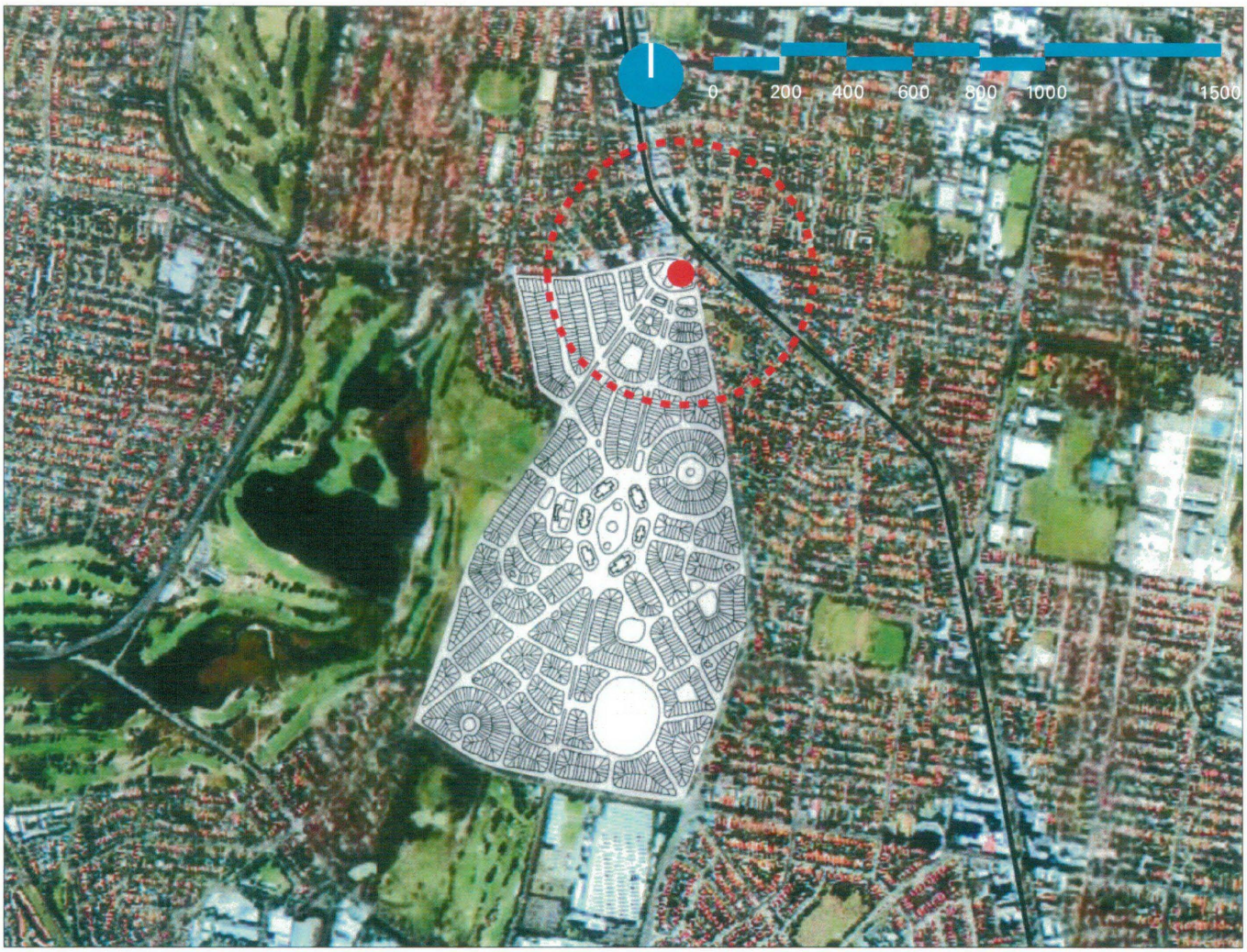
4.3.2 ELEMENTS

Element 1- Master Plan Structure (Edge Core – A)

In 1919, Sulman called Dacey Garden Suburb 'an exemplar of what a garden suburb should be'. Key distinguishing elements included a range of cottage designs and sizes, no front fences, vistas created by curved streets, wedge shaped allotments, no back lanes or pubs! The first plan was prepared in 1912 by the Government Architects Office with a density of 12 dwellings per acre (30 dwellings/ hectare), 40 shops, three schools, a technical school, four churches, and a school of arts. Dacey called for a second plan from Sulman, Hennessy and Fitzgerald. The plan reduced the area to 336 acres (135 hectares) to accommodate 1437 dwellings at just over four dwellings per acre (10.5 dwellings/ hectare).

'Love of vista, axis, and order' was used at Letchworth.[69]These elements underlie the plan for Dacey Garden suburb. Lutyens work at Hampstead Garden Suburb (1906) also influenced the built form at Dacey Garden Suburb. In summary, the key elements are:

- The importance of axial vistas to order the curvilinear plan
- The axial plan links the entry core to the central open space similar to Forest Hills Gardens
- Architectural quality is a significant element in the character of the place



Element 1 - Master Plan Structure

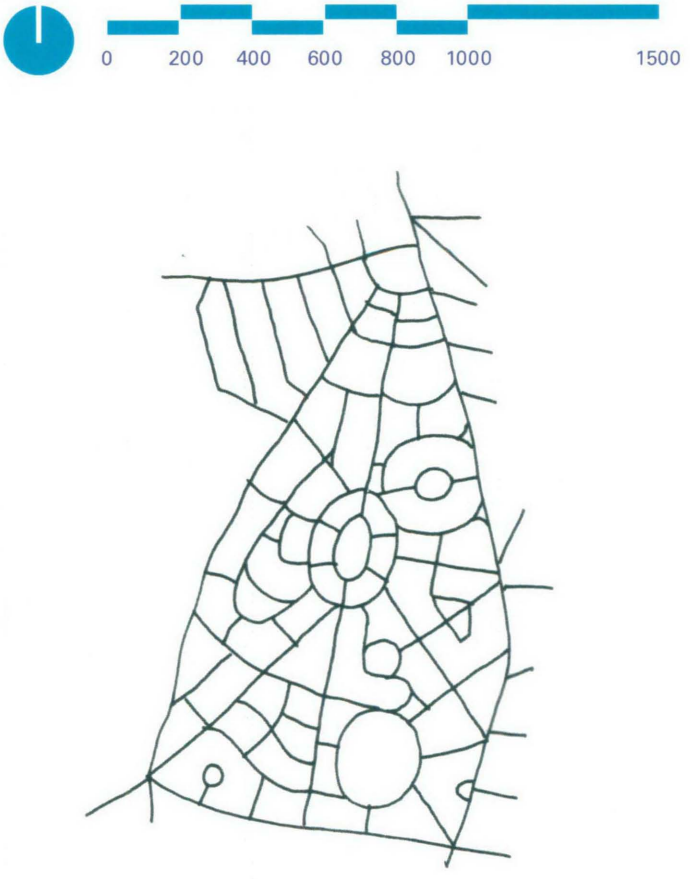
69 Peter Davey, Arts and Crafts Architecture, Phaidon 1997, p.182

Element 2- Street Pattern (Grid – A)

The first plan was a grid plan typical of the time. The revised plan was radial, fanning out in three directions from the entry point (civic centre and park) creating important long vistas. It also introduced more curvilinear secondary streets. The plan combines the City Beautiful principles of axes and vistas with the more Arcadian rural curved street. This was also thought to slow down the increasing number of cars. Sulman removed rear lanes and a number of streets to create extra allotment area.

A third plan was drawn up in 1917 by William Foggitt (now the Government Architect) as a revision to the Sulman plan. It was more curvilinear and secondary streets abandoned the grid pattern to avoid monotony. Straight streets maintained important long vistas. The smaller curving secondary streets helped control through traffic as the motorcar became more popular. Key elements include:

- Formal pattern of axial streets radiating from a central park
- Secondary streets are curvilinear
- Axial avenues signify entry and the village centre
- Connective street grid
- Axial streets dominate the plan and reduce connectivity
- Very few cul-de-sacs
- No rear lanes
- Streets surround public open space – except for private shared open space (since modified to include streets here also)

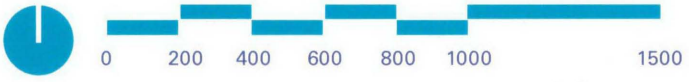


Element 2 - Street Pattern

Element 3- Block Pattern (Irregular – B)

As noted above, block pattern is closely related to density. While the original plan for Daceyville was grid like, the two subsequent iterations continued to both lower the density and introduce more curvilinear streets. As the plan became more curvilinear the block pattern became more irregular and 'inefficient'. Because some of the blocks were treated as 'superblocks' with a common open space area, this created yet another block type. Key elements include:

- Subsequent designs became more irregular in form
- Largely irregular blocks
- Many curvilinear blocks
- Some blocks treated as super blocks



Element 3 - Block Pattern

Element 4- Subdivision and Lot Pattern (Regular – A)

Foggitt proposed building 1637 dwellings on a 273 acre site (110 hectares) leaving 63 acres for future development. This resulted in a density of 15 dwellings/ hectare. The Foggitt plan reduced the average allotment from 6000sqft (1/8 acre) to 4600sqft (600m^2 – 470m^2). The subdivision pattern created largely detached cottages with gardens big enough for private cultivation to encourage the notion of both the family and self sufficiency. Lots ranged in size from 6000 to 4600 sq ft (600 – 470m^2); similar to what contemporary Sydney lot sizes in master planned communities have come down to after years of larger lots. The fundamental difference is that at Daceyville the cottages were relatively small, approximately half the size of a contemporary detached house. Key elements include:

- Generally long narrow lots
- Super blocks are generally subdivided conventionally
- Some super blocks incorporate shared open space
- Houses are set back at corners
- Minimum frontage requirements imposed

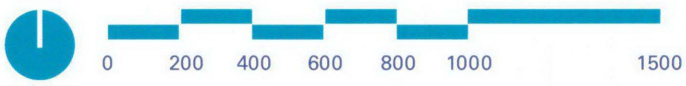
Element 5 - Open Space Pattern (Discrete – A)

Large parks surrounded by streets were conceived as the civic focus of Daceyville. The use of axial avenues reinforced with treed verges and medians adds a sense of formality. Astrolabe and Haig Parks were central to the open space concept. Smaller parks were placed either on land unsuitable for building on or to reflect the natural topography. Smaller 'commons' surrounded by private dwellings were also provided as communal spaces to encourage neighbourhood activity – anticipating Radburn.

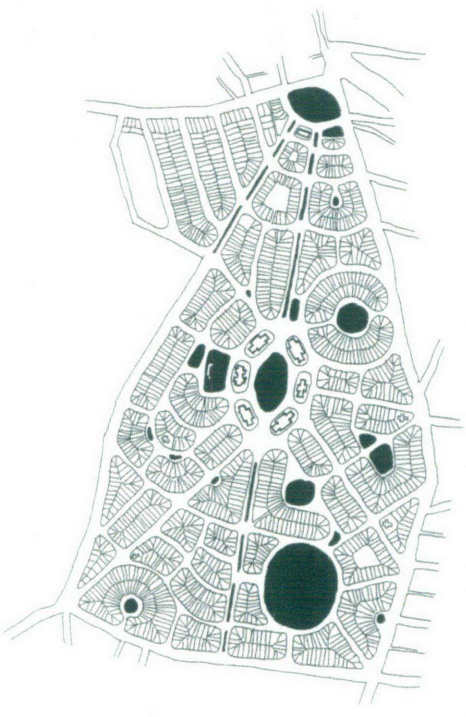
Private open space was principally front and rear gardens. Lots were deep enough to sustain vegetable gardens as at Bournville. A number of these backyards have subsequently been subdivided to increase dwelling yield.

Front fences were dispensed with to unify public and private space extending the landscape in to the private realm. It was the first instance of the planned use of open front gardens in Australia. A subtle definition was provided to the street by a 100mm concrete plinth and to the sides by a 900mm high ornamental twisted wire dividing fence to the front house alignment only. 1800mm timber palings enclosed back gardens.The 'public' front garden reinforced the ideal of common ownership and leasehold. Many front gardens are now highly personalised and privatised.

- Discrete parks and planted medians on axial avenues
- Large public parks are the civic focus
- Some private common open spaces within super blocks



Element 4 - Subdivision & Lot Pattern



Element 5 - Open Space Pattern

Element 6– Built Form (High Density Core – A)

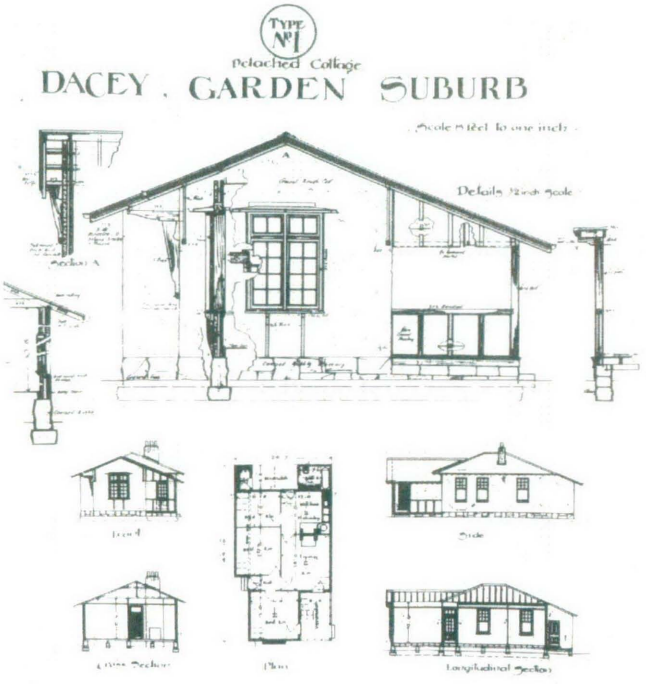
There is a high density urban core in the form of a crescent at the entry to the site that includes shops and apartments over. Compared with Hampstead, Daceyville has a larger quantum of small detached cottages and slightly lower density overall. There are a significant number of semi detached and 'quadruplex' dwellings that cleverly combine a number of dwellings into a cottage form, using attic storeys to maintain the small cottage scale Key features include:

- Many of the dwellings specially designed for the site
- Generally a high standard of architectural design
- Mix of attached and detached dwellings. Attached dwellings carefully designed to relate to the cottage buildings on the site
- A strong urban core with apartments over retail located at entry
- A large number of community uses planned within site – note that much of the plan and associated community uses within the site were not built
- Building standards were established with stylistic consistency
- Undefined front gardens with no front fences to allow the intermingling of individual private and public space into one overall garden suburb

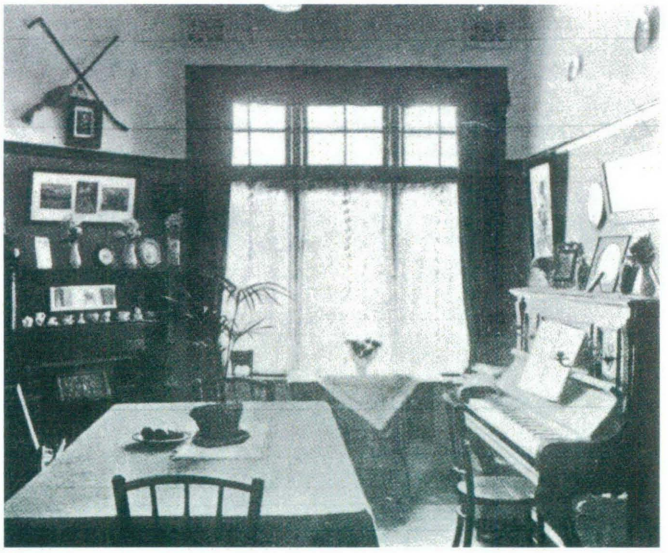
Element 6 - Built Form

Element 7 – Housing Design (Site Specific – A)

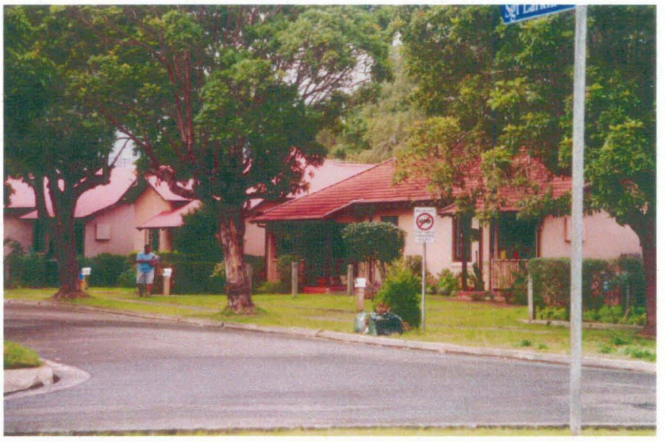
The houses at Daceyville were based on vernacular Arts and Crafts cottages, and California bungalows with adaptation in the local 'Federation' style. In response to concern about a lack of housing variety, the Daceyville Board sought competitive input to encourage diversity of design for semi detached and grouped houses. There was much debate on the need for 'architectural adornment' while keeping costs to £300 - £475 per dwelling. The winner was SG Thorp of Peddle & Thorp. Thorp's houses and the three designs by Foggitt were used. At least 20 different designs were built. There was a high degree of detailed architectural consideration including roofs, proportion, materials variation, cavity construction, sleep outs and verandahs. While a variety of dwelling types were developed specially for Daceyville, it appears that they were designed after the subdivision had been developed, rather than the houses being developed as part of the subdivision.



House Designs



Functional Planning



Streetscape

Main Avenue

Typical Cottages