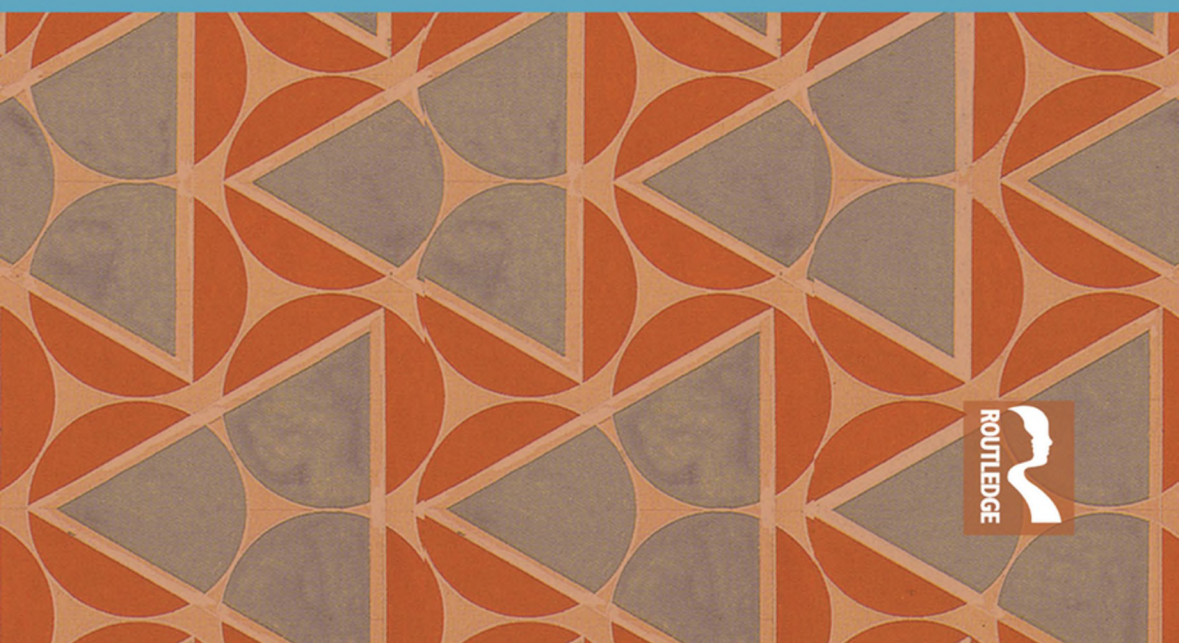
Nothing Gained by Overcrowding

Sir Raymond Unwin

With an introduction by Dr Mervyn Miller



NOTHING GAINED BY OVERCROWDING

In his 1912 pamphlet for the Garden Cities and Town Planning Association *Nothing Gained by Overcrowding*, Raymond Unwin set out in detail the lessons learnt from his formidable practical experience in the design and layout of housing: at New Earswick from 1902, Letchworth Garden City from 1905, and most significantly at Hampstead Garden Suburb, where the 'artisans' quarter' 1907–9 was probably his masterwork of spatial design. His interest in minimising the length of paved road to number of houses served, and 'greening' the ubiquitous mechanistic bye-law suburb of the late 19th century provided motivation for defining a general theory of design, which underpinned Garden City principles. *Nothing Gained by Overcrowding* emerged as a principle which was to have a revolutionary impact on housing and urban form over the next 50 years.

Unwin's theory had developed with his work, but the origins can be found in two earlier and less well known publications. 'On the building of houses in the Garden City' was written for the first international conference of the Garden City Association, held in September 1901. The following year he published the Fabian Society Tract *Cottage Plans and Common Sense*, in which he took first principles, 'shelter, comfort, privacy', and drew out general criteria and specific standards. Housing had to be freed from the bye-law straitjacket. This would sweep away 'back yards, back alleys and abominations … too long screened by that wretched prefix back'.

Republished here for the first time together, with an introductory essay by Dr Mervyn Miller, these three papers make clear the development of Raymond Unwin's theories of planning and housing, theories which were among the most influential of the 20th Century.

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Sir Raymond Unwin

Introduction by Dr Mervyn Miller

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APPRENTICESHIP

Raymond Unwin was born near Rotherham, West Yorkshire on 2 November 1863 (Miller 1992, 10–12). His father, a businessman with academic inclinations, moved to Oxford in the early 1870s, took his BA and MA and became an extra-collegiate tutor, an acquaintance of Arnold Toynbee and his circle. Unwin's Oxford boyhood left a profound impression – the quadrangle was to become one of his favourite layouts for co-operative housing, expanded to the blocks of *Nothing Gained by Overcrowding* (1912). Perhaps even more enduring was personal contact with John Ruskin and William Morris. In 1937, at the presentation to him of the Gold Medal of the Royal Institute of British Architects, Unwin recalled hearing Ruskin decrying the degradation and disorder brought by untrammelled capitalism and Morris's passionate defence of the values of craftwork (Unwin, 1937). This spurred Unwin to seek the ideals of a more ordered form of society, and a better planned environment. He had initially contemplated following his elder brother's vocation for the church, but Samuel Barnett (whose wife Henrietta would later commission Unwin to plan Hampstead Garden Suburb) advised against the church on hearing that Unwin was more concerned by human unhappiness than sin.

Influenced by Edward Carpenter (1844–1929) homosexual, vegetarian philosopher and advocate of the simple life, who had broken with Oxford to form a Ruskinian Community at Millthorpe near Sheffield (Unwin, 1931; Miller, 1992, 12–14), Unwin returned north to serve an engineering apprenticeship in Chesterfield. He joined Morris's Socialist League shortly after its foundation in 1884, and moved to Manchester the following year (Miller, 1992, 14–16), where he became branch secretary, propagandising with evangelical fervour and contributing abstruse articles to *Commonweal*, the League newspaper (Miller, 1992, 16–19).

He became close friends with the Parkers, cousins through the second marriage of his paternal grandmother. His uncle, Robert Parker (1826–1901), was a Buxton bank manager, head of a large family. Ethel Parker (1865–1949) began to exchange long letters with Raymond Unwin, and her younger brother Barry (1867–1947) also came under his influence from 1881. Barry Parker responded to Morris's reforms in the decorative arts and was articled to the

architect George Faulkner Armitage (1849–1937) of Altrincham whose studio included a craft workshop and smithy. When Unwin returned to Derbyshire in 1887 as an engineer for the Staveley Coal and Iron Company (Miller, 1992, 19–20), Robert Parker embargoed further contact with Ethel (1). Eventually there was grudging consent, and Raymond and Ethel married in 1893, with a simple civil ceremony.

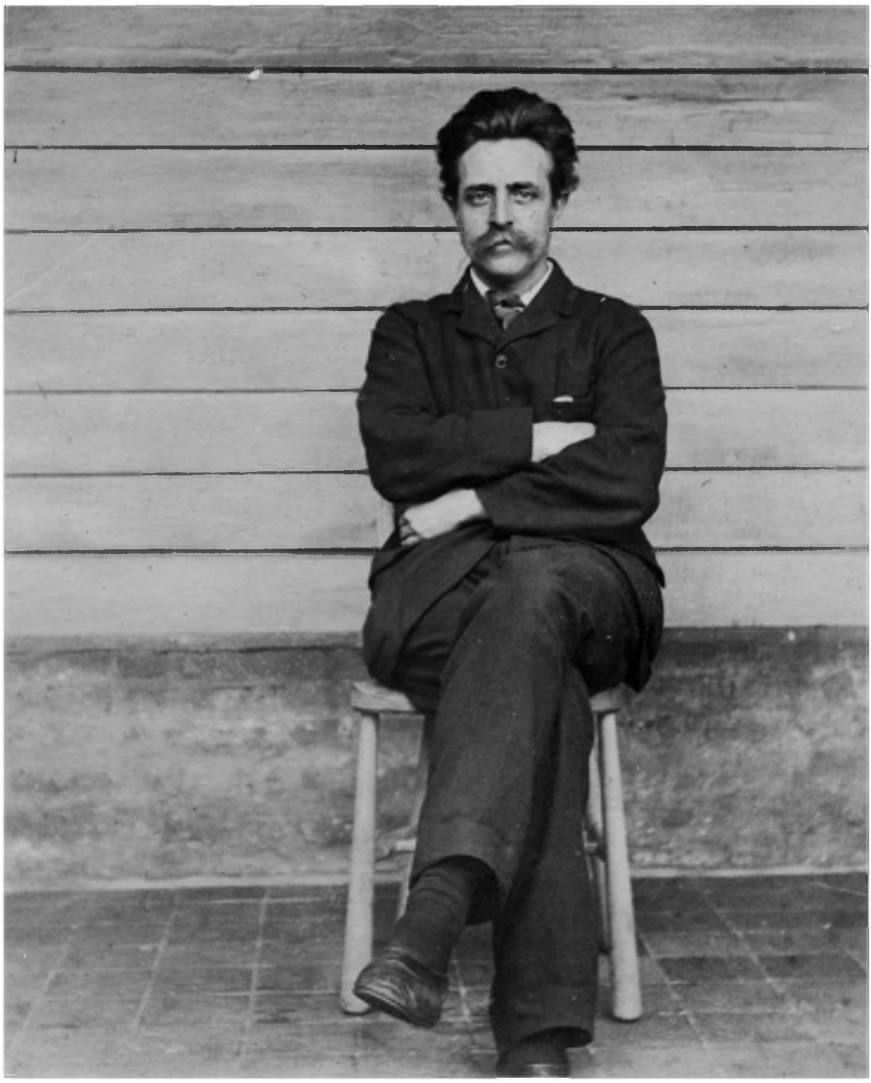


Figure 1 Raymond Unwin *c.*1895. The strength of purpose is evident in this photograph taken shortly before commencement of his architectural partnership with Barry Parker. (Author's collection).

On completion of his articles, Parker returned to Buxton, Derbyshire, in 1894, to design three houses for his father in the Park Ring, including the family home 'Moorlands', commencing independent practice as an architect, joined by Unwin in 1896. Parker is usually considered the aesthete of the partnership. As early as 1891, Unwin had written to Ethel that Barry had suggested division of labour with '*he* (Parker), *doing the artistic part and me* (Unwin) *the practical*' (2). Parker's commissions included individual middle-class houses, often complete with fittings and furniture (Miller, 1998). Unwin aspired to design reformed working-class housing, radically different from the conventional terraced villages he had laid out for the Staveley Company. Indeed, the regimented terraces and back alleys of Poolsbrook near Barrow Hill, Derbyshire (1891–4) could stand for the detested byelaw block, juxtaposed with enlightened open development in *Nothing Gained by Overcrowding* (1912). Theoretical development models emerged in the mid 'nineties, notably '*An artizan's living room*' (3), an 1895 sketch by Parker of a cosy beamed room with a focal fire (which included the cooking range), fitted furniture and the exposed stair to the upper floor, with storage chests beneath. Unwin lectured locally on cottage design, and grouping houses into quadrangles or around a village green; these were illustrated by Parker for their joint book, *The Art of Building a Home* (Parker and Unwin, 1901).

Throughout his life Raymond Unwin was a prolific and influential writer. While his seminal book *Town Planning in Practice* (Unwin, 1909) is probably his most enduring literary legacy, copious articles in journals and pamphlets provide

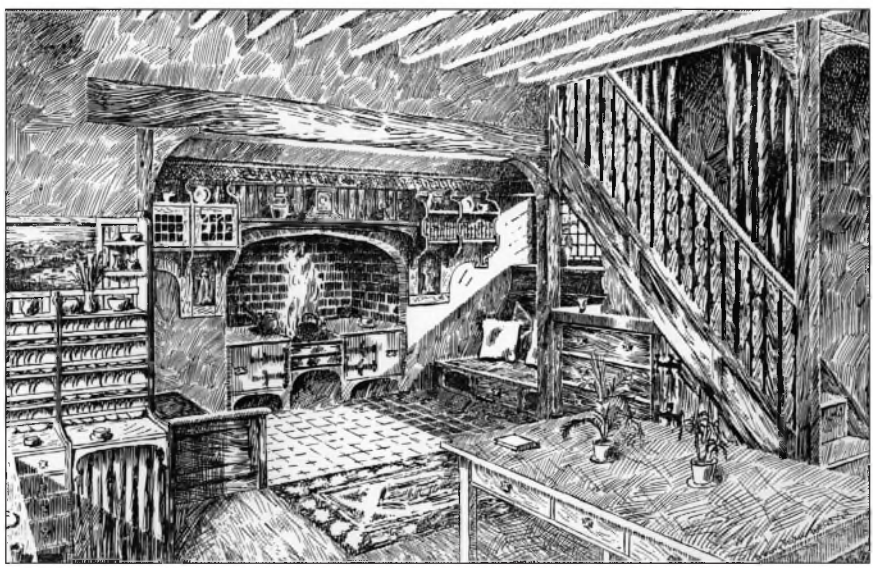


Figure 2 'An Artizan's Living Room', sketch by Barry Parker *c.*1895, as published later in *The Art of Building a Home* (1901). At this period Parker's sketch fleshed out Unwin's vision of reformed working class housing.

Figure 3 The Parker family with Raymond Unwin, Buxton, Derbyshire *c.*1898. Raymond Unwin (back row left) had married Ethel Parker (front row right) in 1893; with her younger brother Barry (back row right). The Parkers' parents are seated in the wicker chairs, with young Edward Unwin, clad in smock and sandals (front row) next to his mother. (First Garden City Heritage Museum, Letchworth.)

testimony to his analytical skill, leavened by homely similes. The three examples chosen for this publication relate to the evolution of Garden City housing, its design and layout, and emergence as the most influential model for twentieth century social housing and community planning. Sir Frederic Osborn (1885–1979) one of the most powerful advocates for Garden Cities and New Towns commended Parker and Unwin for 'democratising design' (4) and this concept runs as a thread through the three selected papers which follow.

'On the building of houses in the Garden City' (1901)

Ebenezer Howard had, sensibly, left many details of the layout and built-form of his proposed Garden City open to interpretation in context of the selected site. However, his proposals, as published in 1898 in *Tomorrow: A peaceful path to real reform* (Howard, 1898, 1902, 1946, 2004) described and illustrated a nineteenth century mechanistic Utopian concept very different from Unwin's plan for the layout of the first garden city at Letchworth, which emerged in Winter 1903–4 (Miller 1992, 55–8).

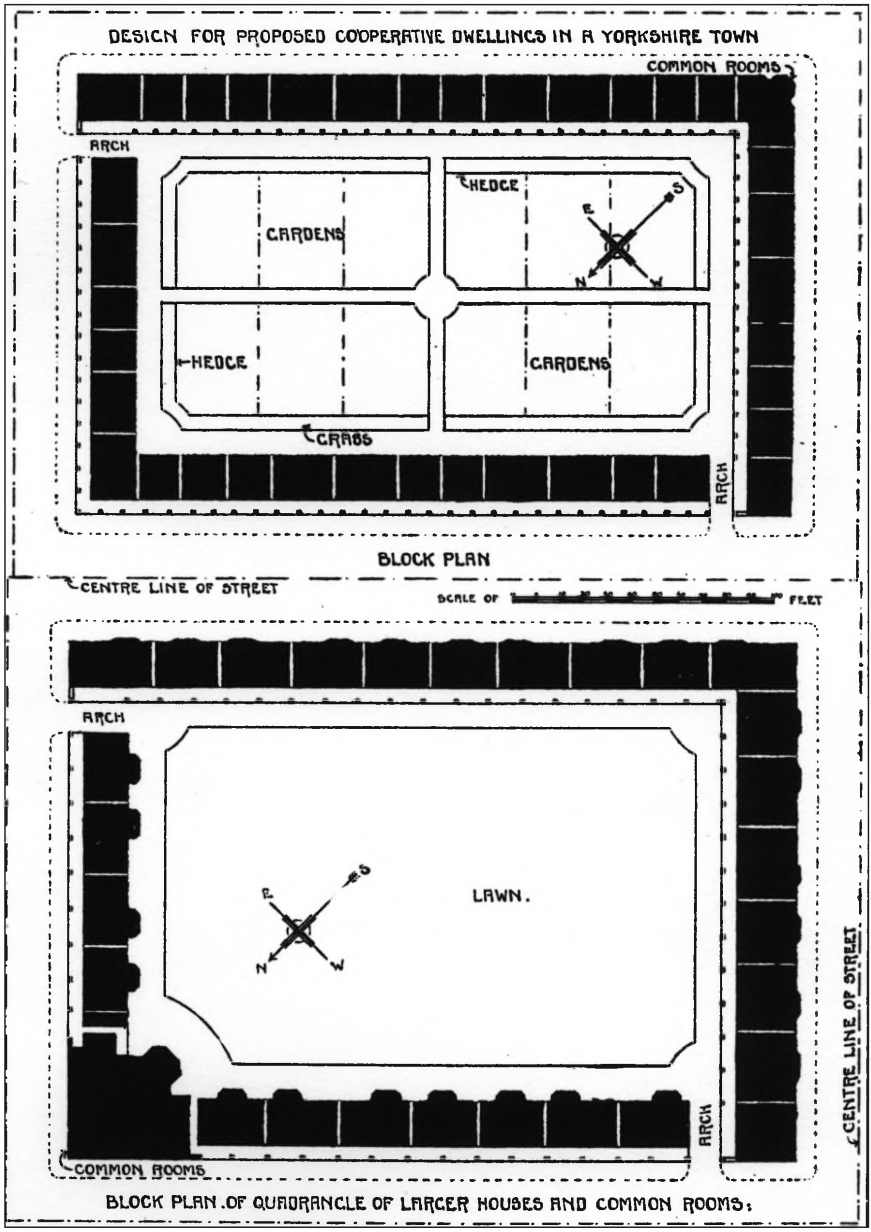


Figure 4 Block diagrams of proposed Co-operative dwellings, Raymond Unwin, sketch for an unidentified site in Bradford, Yorkshire late 1890s, as published later in *The Art of Building a Home* (1901). The collegiate quadrangle with its common rooms begins to morph into the reformed street block of *Nothing gained by overcrowding*.

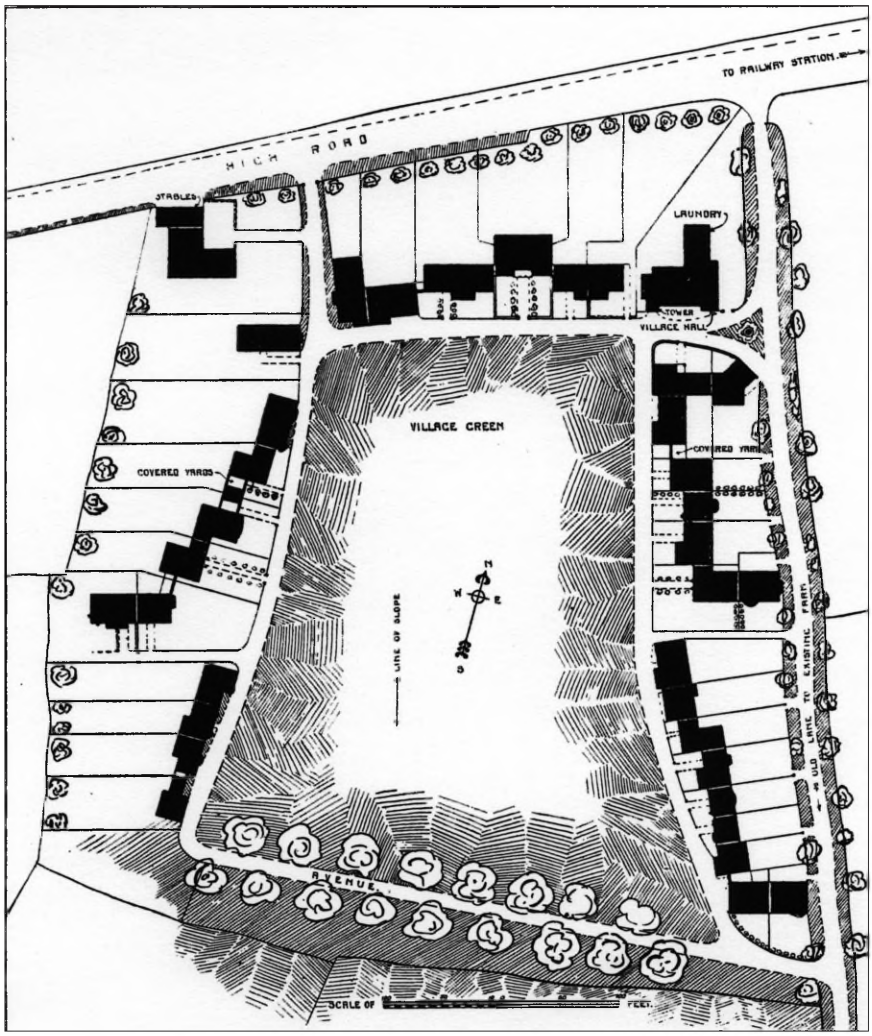


Figure 5 Idealised village green group, Raymond Unwin, sketch for an unidentified site in west Yorkshire late 1890s, as published later in *The Art of Building a Home* (1901). The village represented a potent symbol of neighbourliness for Unwin and often featured in his housing layouts: this example found built form at Westholm, Letchworth.

Backtracking to seek the initial contact between the two, who between them defined the concept and the practical demonstration of what Howard had called his 'object lesson', is not easy. A copy of Unwin's 'Co-operation in building' (published in *The Architects' Magazine* at the cusp of 1900–1 and later gathered into *The Art of Building a Home*) (Unwin 1900–1: Parker and Unwin,

1901; 91–108) was pasted into the Garden City Association press book. It is not certain when they first met, but by late September 1901, if not before, Howard and Unwin formed a bond of mutual respect at the first national conference of the Garden City Association, hosted by George Cadbury at Bournville (Harrison, 1999), his company village, on the south-western outskirts of Birmingham. About 300 delegates attended, many representatives of local authorities (including George Bernard Shaw as a St Pancras Borough Councillor) and some from far afield, including the architect Frederick Lee Ackerman, who would become a leading advocate of Garden Cities in the United States. Seebohm Rowntree was also present, younger son of Joseph Rowntree (1836–1925) the Quaker chocolate manufacturer who was contemplating emulating Cadbury's example by building a model village outside York: Unwin was commissioned to plan this and New Earswick proved to be a valuable testing ground for evolution of Parker and Unwin's cottage designs ([Waddilove], 1954, 15–25). The Bournville papers may have been tabled: the published *Report of proceedings* (Garden City Association [GCA], 1901) records the welcome by the Lord Mayor of Birmingham and opening address by Ralph Neville, the eminent lawyer who was Chairman of the Association. Then Unwin, describing himself as '*a poor substitute for an abler man*' moved the first resolution which urged local authorities to the powers of the Housing of the Working Classes Acts 1890 and 1900 to purchase cheap land on their outskirts to develop cottage estates (GCA, 1901, 13–14). The motion was then debated and adopted. Howard explained that while this was not the complete garden city solution, it should be adopted as a step towards the greater scheme (GCA, 1901, 18–19). London County Council was about to embark on such development (Beattie, 1980).

The second discussion session was held the following afternoon, after a tour of Bournville. The papers included Howard on '*Garden Cities, manufacturers and labour*' (GCA, 1901, 50–7)' and 'An outline of the Garden City project' (GCA, 1901, 75–8); Neville's '*Cooperation and Garden Cities*' (GCA, 1901, 61–8)'; Harold Clapham Lander's '*The advantages of cooperative dwellings*' (GCA, 1901, 61–8)'; and Unwin's '*On the Building of Houses in the Garden City*' (GCA, 1901, 69–74). This was also published as a standalone pamphlet (Unwin 1901), and the page references below are to this version.

Characteristically this last burst the bounds of its title and contained a statement of a broad physical planning framework – almost a 'design brief' for his layout for Letchworth, prepared in winter 1903/4. Unwin's approach (before he had absorbed the work of Camillo Sitte) (Miller, 1992, 60–4, 112–4) was remarkably consistent with his later, detailed exposition in *Town Planning in Practice* (Unwin, 1909). The first page contained his oft-repeated warning against '*meandering in a false imitation of so-called natural lines*', rather he advocated '*that beauty in orderly design for the creation of which alone power has been* given to us' (Unwin 1901, 1 [48, this edition]).

Figure 6 Cottages in Cunnery Road, Church Stretton, Barry Parker and Raymond Unwin, *c.*1900-01. This unassuming semi-detached pair became a prototype for housing at New Earswick and Letchworth. (Author's photograph.)

The plan was to be

> *Arranged in conformity with the land … sites for our civil, religious and recreative public buildings … have been determined, dominating the city. Wide avenues or roads must be planned to lead off from these sites in all directions, so that glimpses of the open country beyond shall be obtained from all parts of the town, and vistas leading up to the finest buildings shall greet the visitor from every direction.*
>
> (Unwin 1901, 1 [48])

> *… In the arrangement of the space to be devoted to dwellings, as in the laying down of the main city plan, a complete acceptance of natural conditions must be combined with some definite design. No weak compound of town and country, composed of meandering suburban roads, lined with semi-detached villas, set each in a scrap of garden, will ever deserve the name of 'Garden City'.*
>
> (Unwin 1901, 2 [49])

After defining the framework Unwin discussed the planning of residential areas, and the prototype designs which would fit like building blocks into the overall framework (Unwin 1901, 2 [50]) – advocacy of '*the quiet quadrangle*' evoked recollections of Oxford; the whole would, through co-operation, attain greater value than the sum of its parts:

Figure 7 Cottages at Starbeck, Harrogate, Barry Parker and Raymond Unwin, 1903, developed from the scheme for 'Cottages near a town' exhibited at The Northern Artworkers' Guild in Manchester. The fitted furniture and inglenook fireplace from 'An Artizan's Living Room' has become a reality. (Parker Collection, First Garden City Heritage Museum, Letchworth.)

Figure 8 Western Terrace, New Earswick, York, Barry Parker and Raymond Unwin, 1902–3. An initial sketch for the left hand pair by Parker shows affinity with the Starbeck pair, while the terrace of four is derived from coupling two of the Church Stretton pairs. (Parker Collection, First Garden City Heritage Museum, Letchworth.)

> *Splendidly attractive as the Garden City scheme is … because it presents to us … a clean slate to work upon; it is yet more attractive … because it promises to call together a community inspired with some ideal of what their city should be … which will have in its life something more worthy to be expressed in its architecture than the mere self-centred independence and churlish disregard of others which have stamped their character on our modern towns.*
>
> (Unwin 1901, 4 [51])

He also considered the positive role which byelaws and regulations might play in promoting an overall harmony of design, hoping that restriction would be superseded by a natural restraint, particularly in building materials to prevent '*the hopeless jumble of blue slates and red tile, of brick, stone and plaster*' (Unwin 1901, 6 [53]) characteristic of the modern suburb. Aesthetic control was ever a difficult matter, and Unwin suggested an advisory committee, representative of '*practical skill and artistic taste*', (closely resembling the division of labour between himself and Parker), who would as a last resort possess '*an absolute veto on monstrosities*' (Unwin 1901, 6 [53]). In six pages Unwin sketched a series of elements – a broad development plan, detailed design standards, aesthetic control exercised by committees – which marked the transition from the Victorian reform tradition to the more modern concept of environmental management which underlay town-planning, with its objective of striking a balanced relationship between the diverse and often

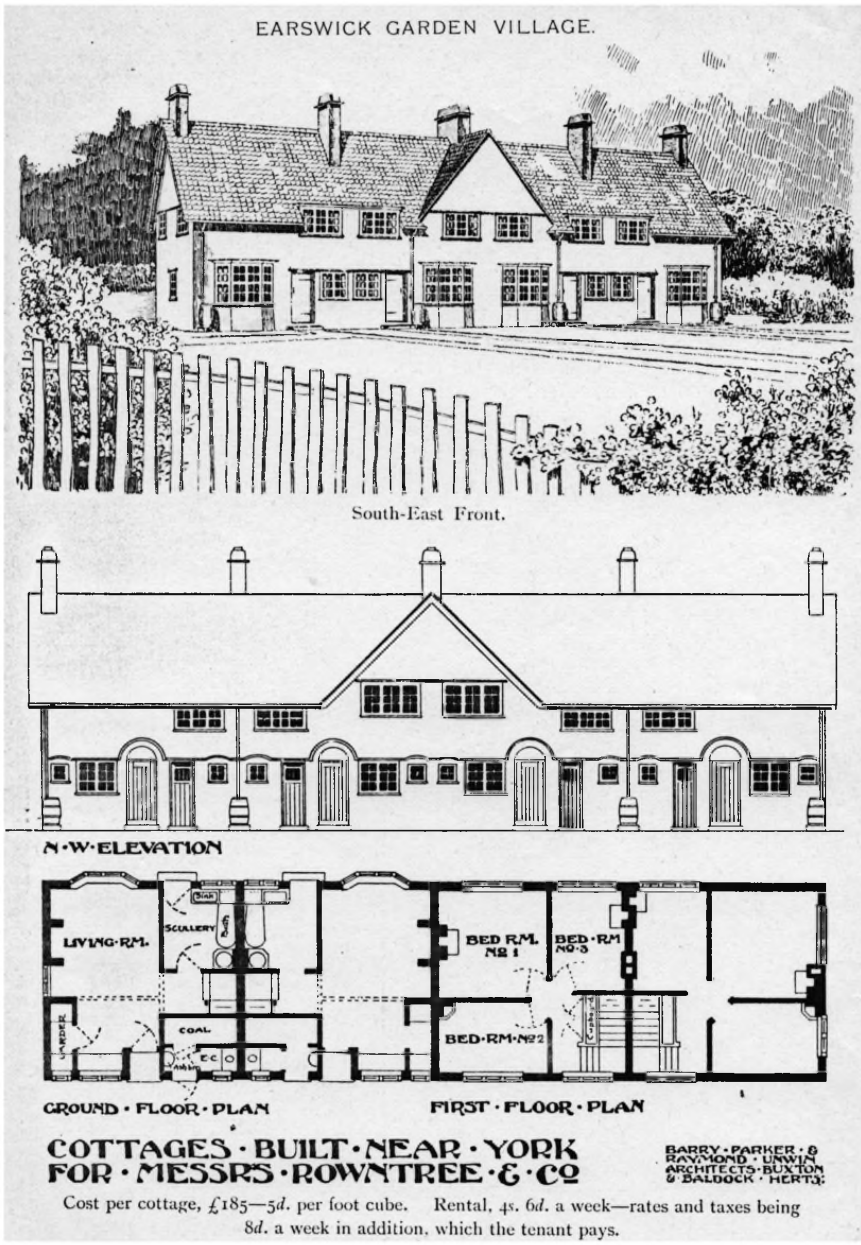


Figure 9 Type Cottages, Poplar Grove, New Earswick, Barry Parker and Raymond Unwin, 1904–5. The northwest street elevation brought the doors to the coal place and earth closet to public visibility and (together with the stairs opening out of the living room) was disliked by many tenants. (Author's collection.)

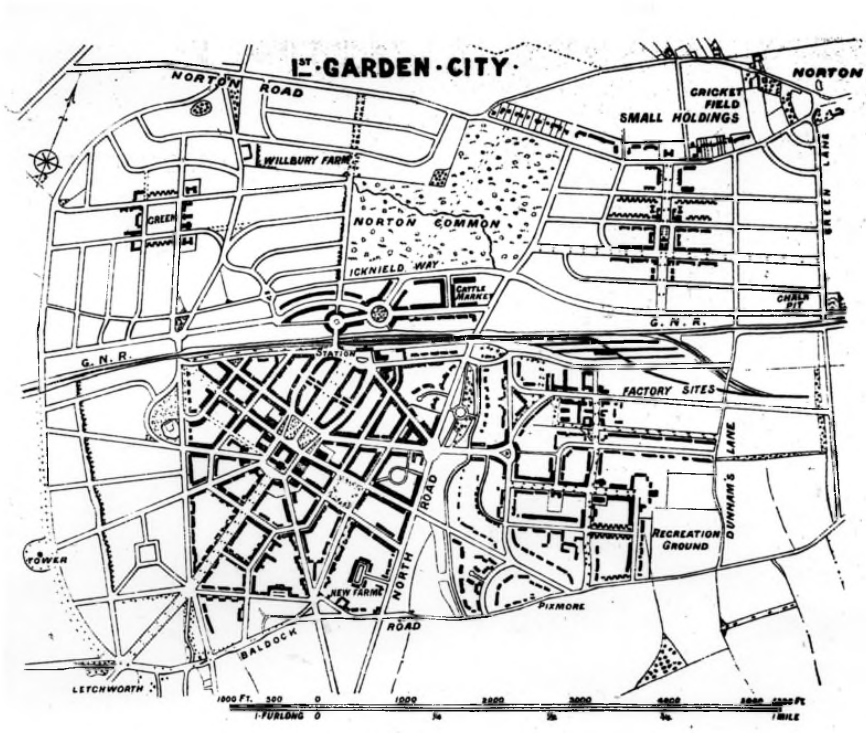


Figure 10 Master Layout Plan for Letchworth Garden City, Barry Parker and Raymond Unwin, 1904. Officially published under the practice name, this plan, with its balancing of a formal centre (based in part on Wren's 1666 plan for rebuilding the City of London) with informal 'village' neighbourhoods was Unwin's work. (Author's collection.)

conflicting demands of activities, buildings and open space. Unwin's concept of planning changed little in essentials from that stated in his Bournville paper.

The two years following the Bournville Conference brought accelerated progress towards developing the first Garden city. Howard recognised in Unwin a kindred enthusiasm and idealism, tempered by a pragmatic, undogmatic approach. After the floating of the Garden City Pioneer Company at the successor conference held at Port Sunlight, Unwin became closely involved in the search for the site (Miller, 1992, 50–1). By July 1903, the Letchworth Hall estate (and additional land) had been purchased and attention turned to obtaining a layout. A limited competition was held, and Barry Parker was called to provide testimony to his partner's experience as an *engineer*. The plans were reviewed early in 1904 and on February 28th the Boards of the recently formed First Garden City Ltd resolved to adopt the Parker and Unwin plan (Miller, 1992, 52–4). The layout, with its formal centre and web pattern (derived from part of Wren's plan for rebuilding the City of London after the Great Fire) and more informal residential areas proved to be a robust basis on which to develop (Miller

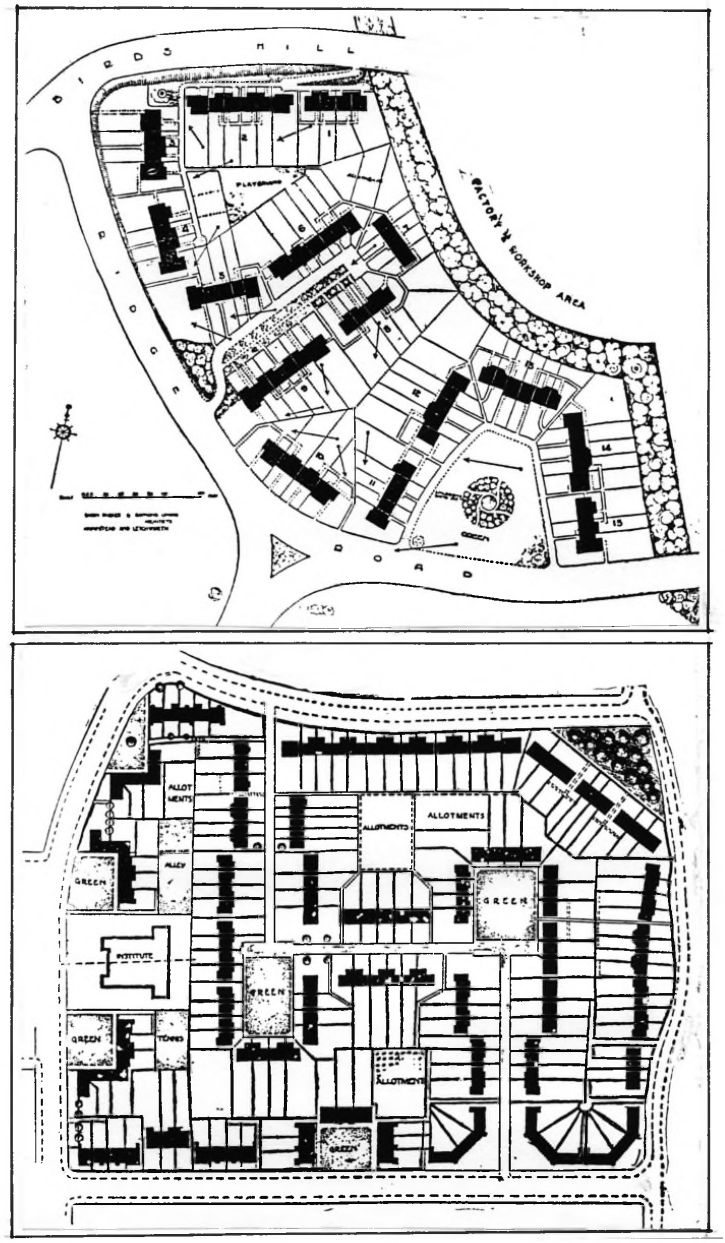


Figure 11 Letchworth Garden City cottage estates, Birds Hill, 1906 and Pixmore 1907–9, Barry Parker and Raymond Unwin, as published in Raymond Unwin's *Town Planning in Practice* in 1909. Short terraces with articulated building lines, greens, minimal road lengths and spacious gardens were key elements in Garden City housing.

1992, 54–8; Miller 2002, 43–9; Unwin, 1913, Appendix B in Purdom, 1913), albeit that deviation from the ideals of Howard and Unwin was probably inevitable. Parker and Unwin were appointed as consultants to review development proposals, and drafted building regulations which combined technical and aesthetic matters (Appendix K in Purdom, 1913), but were constrained by First Garden City Ltd, anxious not to discourage developers, to accept compromises in design and layout. After Unwin was appointed to the Planning Inspectorate at the Local Government Board in 1914, Parker remained the sole consultant until 1941, during which time Letchworth matured and the sinews of its layout were clothed in greenery. The vision glimpsed in Unwin's Bournville paper was manifest and had attained maturity.

Cottage Plans and Common Sense (1902)

If 'On the building of houses in the Garden City' had concentrated on aspects of overall planning, *Cottage Plans and Common Sense* got down to practical design matters. Unwin redesigned a quadrangle layout described and illustrated in *The Art of building a home* (Parker and Unwin, 1901, 103–7 and Plates 6–10), and developed the text from a lectures given to the Workmen's National Housing Council and to The Fabian Society in November 1901. The latter published it as Tract no 109, *Cottage Plans and Common Sense* in March 1902 (Unwin, 1902). In keeping with their aims of municipal socialism he urged full use of the Housing Acts, just as the London County Council prepared to develop its own pioneer cottage estates. He began with the basic principles of '*shelter, comfort, privacy*', from which he drew general criteria and specific standards – a pioneer exercise in this respect. Unthinking byelaw compliance inhibited innovation imposed by an unimaginative alliance of public health inspector and speculative builder. Sunlight was to be agent of a new approach: '*it must be insisted upon as an absolute essential, second only to air space … every house should turn its face to the sun whence come light, sweetness and health*' (Unwin, 1902, 3 [59, this edition]). This would abolish '*back yards, back alleys and other such abominations … too long screened by that insidious excuse of that wretched prefix back*' (Unwin, 1902, 3 [59]).

The reworked quadrangle rationalised the house plans and played down the generous common rooms of the earlier schemes. Unwin considered that

> *…there is something at once homely and dignified about a quadrangle which gives it a charm even when the buildings are quite simple and unadorned … An Oxford or Cambridge college is simply a collection of small tenements, built in squares, with some central common buildings.*
>
> (Unwin, 1902, 4–5 [60–61])

He suggested a maximum density of 20–30 houses to the acre (12–18 per hectare) the more generous Garden City standard of 'twelve houses to the acre' awaited the planning and implementation of Letchworth from 1904. Significantly,

Unwin began to analyse the relationship between street length, frontage, width and density, in 1912 the cornerstone of *Nothing Gained by Overcrowding.*

> *... the narrow house with straggling projections required greater depth: and the deeper the houses the greater is the expanse of the side streets which has to be divided among them ... if the quadrangle layout is adopted there need be no waste in side streets, because the houses face all ways, and this would about balance the extra cost per house due to the wider frontage, while the saving of detached outbuildings and backyard walls would mean a considerable economy.*
>
> (Unwin, 1902, 6 [62])

Accommodation standards were defined. A three bedroom house with 18ft 9in frontage had a net floor area of about 930sq. ft., a living room, which included the stairs, 195sq. ft., and in a few cases, a parlour of 126sq. ft. In the latter the scullery represented little more than a back lobby with copper and sink, leading from a rear recessed porch off which were taken an integral coal place and w.c. The principal bedroom was 147sq. ft., with two of 100sq. ft. and a very small bathroom. All furniture was clearly indicated – '*in planning the room the furniture should always be arranged and drawn in to make sure that the provision has been made for work, rest and play*' (Unwin, 1902, 12 [68]). The three bedroomed type with living room and scullery was generated from a pair built in Cunnery Road, Church Stretton, Shropshire in 1900–1, and was also virtually identical in layout with Nos. 3–6 Western Terrace, New Earswick (1903), designed shortly afterwards, although different externally. Another model was designed for 'Cottages near a Town' exhibited at the Northern Artworkers' Guild in Manchester in 1903, with a prototype pair built at Starbeck on the eastern outskirts of Harrogate. This exemplified the way in which Parker and Unwin-designed housing swiftly began to resemble a kit of parts, with a repertoire types to fit differing orientation and site context at Earswick, Letchworth and Hampstead Garden Suburb (Miller, 1992, 27–32). For now, the quadrangle dwellings with their projecting party walls disrupting the roofline (as required under the London Building Acts) were surely intended as models for London housing.

Given 'that a certain limited rent will only pay for a certain limited space', Unwin urged that 'the available room ... be most liberally given where it will be most thoroughly and continuously used' (Unwin, 1902, 11 [67]), a preface to room by room analysis to show that every room or element would ideally be multi-functional. The exposed staircase (which came to be disliked in practice) would provide a sense of greater space, act as a storage unit and assist air circulation. Bedrooms should include study corners. This 'activity based' approach supplemented area standards, which later became more rigidly codified: almost sixty years later the Parker-Morris Report, *Homes for Today and Tomorrow* (MoHLG, 1961) reiterated the methodology evolved by Unwin in 1902. Aesthetics were inseparable from function: 'that indefinable something which makes the difference between a mere shelter and a home' (Unwin, 1902, 15 [71]).

Figure 12 Westholm, Barry Parker and Raymond Unwin, 1906–7, off Wilbury Road, developed by Garden City Tenants Co-partnership, was probably the closest built version of the early Village Green grouping, published in 1901 in *The Art of Building a Home*. (Author's photograph)

Figure 13 Silver Birch Cottages, Station Road, Letchworth Garden City, Barry Parker and Raymond Unwin, 1906–7: the varied street picture contrasted with the monotony of the repetitive byelaw terrace. (Parker Collection, First Garden City Heritage Museum, Letchworth.)

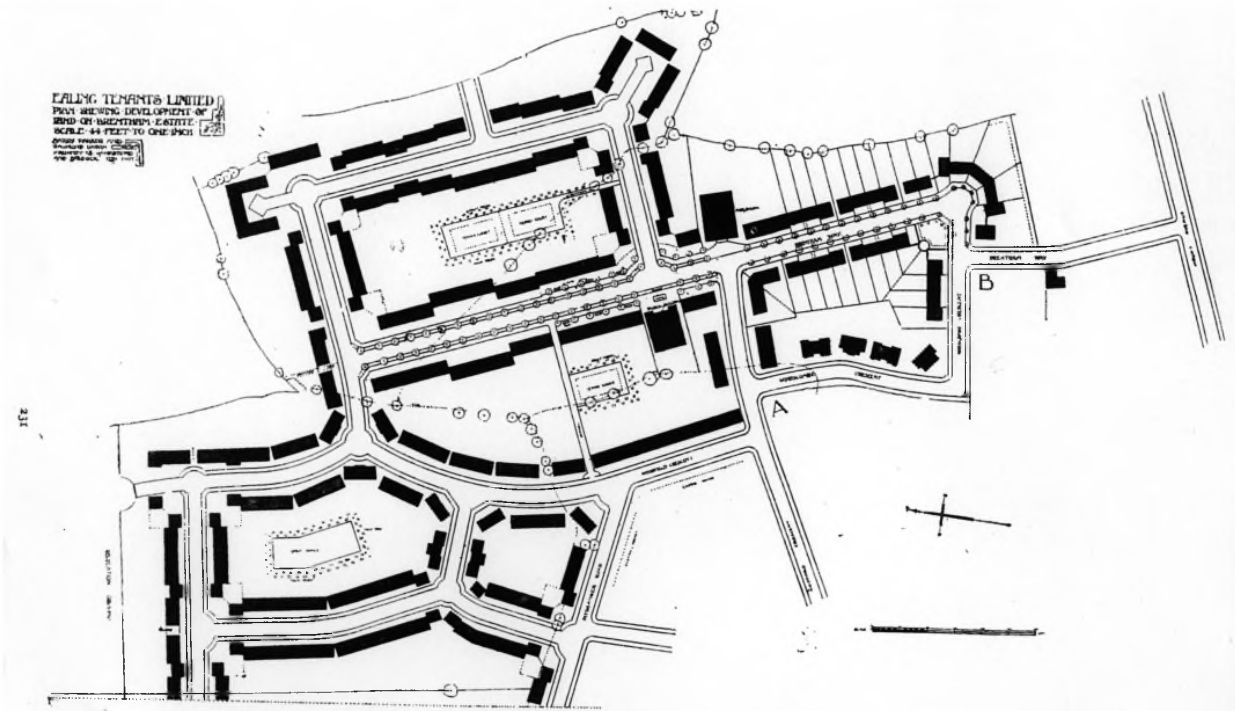
Good design was integral, not cosmetic:

> *... when a quantity* [of fittings] *is required ... no extra cost is entailed by having them well designed and of good proportions ... That nothing can be spent on the ornamentation of artisans' cottages is no excuse whatever for their being ugly ... a plain and simple building well designed is very far from being ugly.*
>
> (Unwin, 1902, 12 [68])

Cottage Plans and Common Sense marked an important advance in the literature of housing design. It set out a consistent and rational approach, balancing individual and community aspects, tempered by pragmatism rather than utopianism. It recognised the importance of standards and their limitation in promoting creativity. It was attractively presented with illustrations by Wilson Bidwell (1877–1944), one of Parker and Unwin's most capable assistants whose practice with Robert Bennett (1878–1956), another 'graduate', designed some of the finest cottage housing in and around Letchworth (Miller 2002, 68–9 and 118–19). The tract paved the way for the ascendancy of the architect in public housing design.

Nothing Gained by Overcrowding (1912)

During the first decade of the new century Raymond Unwin drew attention to the anomaly of costly hard paved grids of bye-law streets and alleys compared to the lightly paved carriage drives serving country houses (5). His quadrangle layouts sought to substitute communal amenity areas for the back alleys, privies and yards of bye-law development. His 1907 layout plan for Brentham Garden Suburb, Ealing, contained an open-centred quadrangle block virtually identical to that at the core of his argument of 'Nothing Gained by Overcrowding' (Unwin, 1909, Ill 169). His seminal book, *Town Planning in Practice* appeared in 1909, and aside from its visual richness, contained density and plot calculations pointing forward to the rallying cry of his 1912 pamphlet (Unwin, 1909, 319–28). In February 1911, Unwin presented this material to a National Housing and Town Planning Council conference held in Liverpool: 'Town Planning and its effect on the Housing Problem', published in May 1911 (Unwin, 1911b). He presented comparative 20 acre blocks at densities ranging from 9.6 to 25 dwellings per acre. The high density scheme used a wide frontage house type of 23 feet (reduced to 16 feet in the first publication of *Nothing Gained by Overcrowding*). His conclusions did not waver: incremental crowding of dwellings disproportionately diminished the return in amenity value to the tenant. In May 1911 he spoke on the theme at the Sixth National City Planning Conference held in Philadelphia (*Proceedings*, 1911, 105–6). Later the same year, these aspects were taken further in comparative diagrams contrasting layouts at different densities, with tables of plot area, road and service costs, published in the 'Introduction' to the Second Edition of *Town Planning in Practice* (Unwin, 1911a, ix–xiii).



Illus. 169.—*Plan of the Ealing Tenants' Estate.*
The making of Brentham Way, leading from the Estate to Mount Avenue, was not permitted, because its length exceeded 600 *feet, until land was acquired enabling the cross-road A, B to be planned.*

Figure 14 Block Plan of Brentham Way, Ealing, Barry Parker and Raymond Unwin, *c.*1906–7, as published in Raymond Unwin's *Town Planning in Practice* in 1909. The bold rectangular street block could be taken for a test-prototype for *Nothing Gained by Overcrowding.*

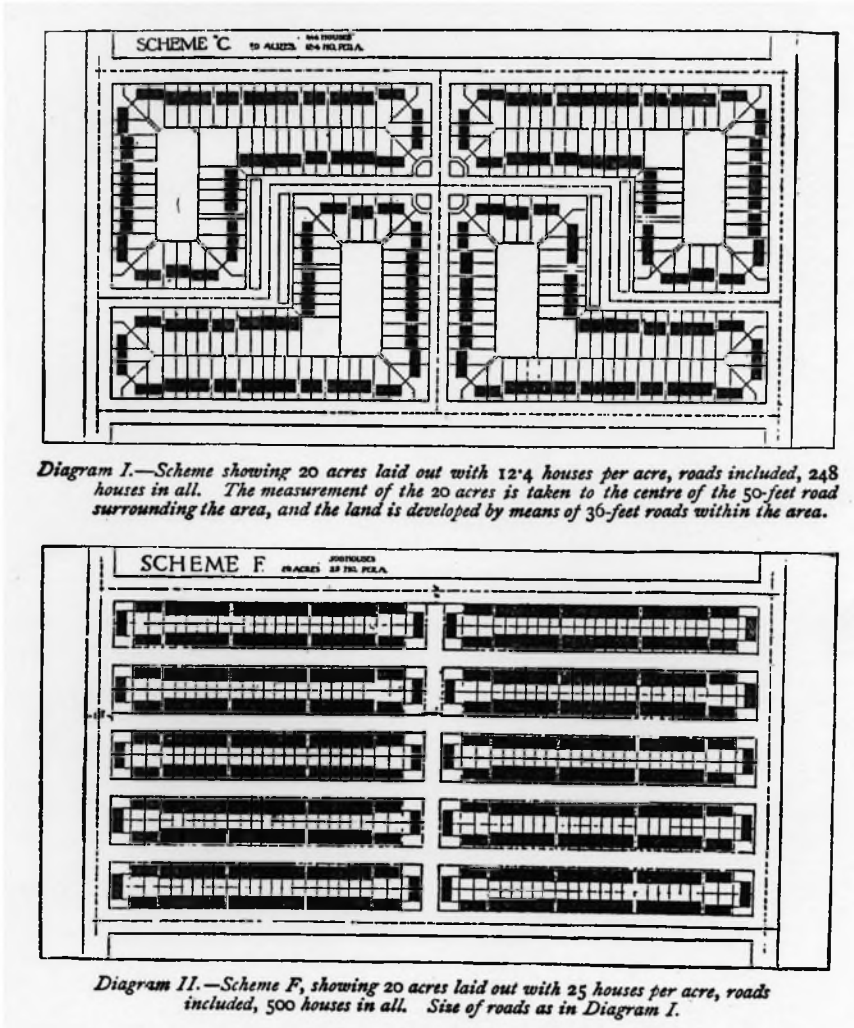


Diagram I.—Scheme showing 20 acres laid out with 12·4 houses per acre, roads included, 248 houses in all. The measurement of the 20 acres is taken to the centre of the 50-feet road surrounding the area, and the land is developed by means of 36-feet roads within the area.

Diagram II.—Scheme F, showing 20 acres laid out with 25 houses per acre, roads included, 500 houses in all. Size of roads as in Diagram I.

Figure 15 Preparatory bock diagrams for *Nothing Gained by Overcrowding,* 1909–11, as published in Raymond Unwin's *Town Planning in* Practice, 'Foreword to second edition 1911.

Finally, in January 1912 Unwin delivered 'The Town Extension Plan', a Manchester University Warburton Lecture (Unwin 1912b [TEP]), presenting a review of progressive German and American Practice (Unwin 1912b [TEP], 35–45) before calling for widespread use of the 1909 Housing and Town Planning Act to achieve planned, articulated low density suburban development (Unwin 1912b [TEP], 49–50). The case for adopting Garden City standards

was developed from the draft material discussed above into a virtual dress rehearsal for the definitive form of *Nothing Gained by Overcrowding* (Unwin 1912a [NG]), published later in 1912 by the Garden Cities and Town Planning Association. In both he reiterated his proposition that Garden City standards were aesthetically and socially more satisfactory than bye-law layouts, and also economically viable, he reiterated the detailed comparison between the two on the basis of hypothetical ten acre sites, illustrated alongside each other to demonstrate

> *That the greater the number of houses crowded upon the land, the less economical is the use being made of it, the higher rate must the occupier pay for every available yard of the plot, and the smaller will be the total return to the owners of the land in increment value due to building operations.*
>
> (Unwin 1912b [TEP], 52: Unwin 1912a [NG] 3 [77, this edition])

Turning to Table I in *Nothing Gained* (Unwin 1912a [NG], 5 [79]; Unwin 1912b [TEP] 52–4 – not tabulated) one is conscious of sleight of hand. Unwin assumed the cost of land to be the same in both cases, but glossed over the fact that the total land requirement in the second example would rise to 22.35 acres in order to provide the same number of houses, and acquisition cost from £5,000 to £11,184.4.2. Likewise total road costs would have been £10,021.1.4 rather than £4,480 shown on the ten acre portion, a differential apparent from the entry for comparative total costs of land and roads per house, but the global totals were omitted. Furthermore the total road cost per dwelling was actually higher, at £29.9.8 for open development than the £28.6.8 of the bye-law layout, notwithstanding Unwin's contention that the latter required extravagant lengths of roads and alleyways. The byelaw layout required only 13.20 feet per dwelling compared to 17.42 feet with open development. Unwin's analysis went no further than the obvious fact that the greater the density of houses the greater the proportion of any given site covered by roads and buildings, drastically reducing garden area as in Diagram II in *Nothing Gained* (Unwin 1912a [NG], 6 [80]). Building frontage was lost at road junctions, and at higher densities it became necessary to include linking roads devoid of building frontage. This was reflected by the increase in plot area by more than three times, from 83½ square yards to 261½ square yards, achieved by decreasing the density proportionately less, from 35 dwellings per acre to 15.2 dwellings per acre. Under his concept of 'plot value', ground rent would be calculated by dividing plot areas by road and land costs equally between the plots created. Thus the 83½ square yard plot would rent at 8d. per week; the 261½ square yard plot at 11¾d. Joyfully Unwin declared to his Manchester audience

> *Now I ask you, if there are two shops and one of them offered 83 marbles for 8d. and the other offered 261 marbles for 11¾d. would not the youngest player know which was the best offer?*
>
> (Unwin 1912b [TEP], 54; Unwin 1912a [NG] 7 [81])

He tactfully omitted to describe the effect on the lad who only had 8d. to spend! But therein lay the nub. Garden City plots were larger and healthier but special pleading for Garden City standards over the offer of '*the old-fashioned speculative builder*' could not disguise the fact that, failing subsidy, extra land and road costs would be recovered from higher tenancy rents.

Other assumptions were also questionable. The tract carried the subtitle *How the Garden City type of development may benefit both Owner and Occupier.* The benefit to the occupier/tenant was seen as the better value in terms of plot area, secured by his higher rent, with communal facilities in the block centres. This land was deducted from the large plot areas and combined in the centre of the block. Land costs would also be divided equally among the tenants, as would presumably construction and maintenance costs for the communal facilities, further increasing rents. Unwin would have justified this in the common good. After all, he emphasised that bye-law street and alleys constructed willy-nilly were the most expensive form of open space. As road costs per house were higher (and overall road costs substantially so), the benefits of open development were more apparent than real. He also ignored building cost, but these would certainly have been higher than for the bye-law terrace. He showed an alternative in Diagram III (Unwin 1912a [NG], 9 [83]), which juxtaposed a rationalised terrace house (with a frontage of 20 ft 6 in in pairs, avoiding a back alley by tunnels to each pair) with open development with a 'green' block centre, and frontages averaging the same as for the terrace. This was claimed to equalise the cost of services and sewerage, however there would have been longer runs in open development. Unwin conceded the possibility of '*slight extent* [of] *the cost of main drainage … increased by reducing the number of houses to the acre, because necessarily, the houses will cover a greater area*' (Unwin 1912a [NG], 10 [84]). In truth, the claimed benefits to the tenant were somewhat illusory because of the undisclosed costs' impact on rent. Tenant preference for a cheaper house with a more manageable garden at a lower rent, albeit without communal facilities would likely have been dismissed as heretical.

Turning to the landowner and assuming that the value of the sites remained the same for both schemes it has already been shown that he would reap much greater rewards. Unwin declared to his Manchester listeners that '*the Town Planning Act may prove to be the handsomest gift this country has made to its landowners for a very long time!*' (Unwin 1912b [TEP], 56). The developer would make a substantially greater capital outlay for the land but would eventually exact his tribute from the tenant and his overall revenue would be no greater than from higher density schemes, however, unless he decided to increase ground rents proportionately with the increase in plot size. In order to show the increased costs in the best possible light Unwin had envisaged this happening for the higher density scheme, but felt that there was less incentive for the developers to do this on the lower density scheme, crediting him with a degree of altruism rarely matched in the real world. Perhaps he already realised that a public body such as a local authority or a limited dividend housing association would be the only agencies likely to implement the new standards unless pressed by the imposition

of effective planning control, with densities of between 10–12 houses per acre, the classic Garden City standard (see Unwin, 1909, 320 for his explanation as to how the standard arose from consideration of providing tenants with gardens large enough to grow a supply of vegetables). Local authorities as developers would have been charged with the recovery of all costs, with the possible exception of some of the highway costs, directly from 'economic rent'.

The planning process had a crucial part to play in bringing about the transformation. Even without restriction of density the price for the larger area required for the lower density scheme might not necessarily have been as high per acre as for the smaller site however. Unwin also discussed the possibility of landowners voluntarily agreeing to a reduction in unit price from the maximum building potential created by straightforward compliance with building byelaws, because of the benefits of being able to sell land more quickly to satisfy increased demand. He suggested that the total increment from the byelaw scheme might be fixed and spread over the larger area of land required for the open development, thus significantly lowering the price per acre and the total return to the landowner (Unwin, 1912a [NG], 17 [91] et seq). First Garden City Limited, developers of the Letchworth site, were already disposing of land for development at figures which reflected the restricted density of potential development (Unwin, 1912a [NG], 20 [94]), but they had originally acquired their site at agricultural value, circumstances unlikely to be repeated in the context of suburban extension. The introduction of statutory town planning and, particularly, density limitation, would, it was expected, have the effect of bringing down the price of suburban land, eroding for once and all the high expectancy created by high density bye-law development. It was, of course, Unwin's hope that local authorities would make progress in the introduction of the density limitations permitted in the 1909 Housing and Town Planning Act, and there were several references to this throughout, claiming compliance in the last sentence of the tract (Unwin 1912a [NG], 20 [94]). Therein lay one reason for the political opposition which mounted during the Parliamentary progress of the Bill, stemming from a realisation that total returns from building land would be reduced, even though the faster rate of land take might benefit landowners as a whole. Unwin presented calculations to show the effect of reduced land costs, as might be secured through planning, presenting Scheme II with land cost halved to £250 per acre, which brought ground rent down to 8½d., a figure which compared quite favourably with 8d. under the densely developed Scheme I. Unwin's political convictions lay behind his belief that

> *... it is the obvious duty of the community to provide for the right system of development, and not to be turned aside because of the hardships that may fall upon a few individuals who have laid their plans on the assumption that they would be continued to be allowed to do something which has proved to be detrimental to the community ... It is probable that no change can be introduced, however beneficial, that will not cause individual hardship.*
>
> (Unwin 1912a [NG], 17 [91])

Unwin claimed to have tested the principles with cheaper and dearer land and roads (Unwin 1912b [TEP], 58): despite the flaws and omissions there was obvious validity in his general proposition that

> *Where land is comparatively expensive, and roadmaking comparatively cheap, the advantage in price per plot to be gained by overcrowding will be greater than where land is relatively inexpensive and roadmaking comparatively dear.*
>
> (Unwin 1912a [NG], 7 [81])

In view of his success in securing cheaper roads at New Earswick, Letchworth and Hampstead Garden Suburb, it is perhaps surprising that he did not bring out the effect of this experience in reducing total development costs. The prime requirement for success of his policy was, however, a virtually unlimited supply of cheap suburban land. The block layout in *Nothing Gained* symbolised his aspirational fostering of neighbourly co-operation begun with inclusion of communal amenities in his early prototypes. Using the backland for the open space he retained the maximum road frontage for building purposes. The recreation area

Figure 16 Hampstead Way and Asmuns Hill, Hampstead Garden Suburb, Barry Parker and Raymond Unwin, 1907–9, photographed *c.*1914. Following his move to 'Wyldes' Hampstead, Unwin's office took charge of 'The Artizans' Quarter' at Hampstead Garden Suburb: the pair of 'Foundation Cottages' on the left were the first to be built (Unwin Collection, Rylands Library, University of Manchester.)

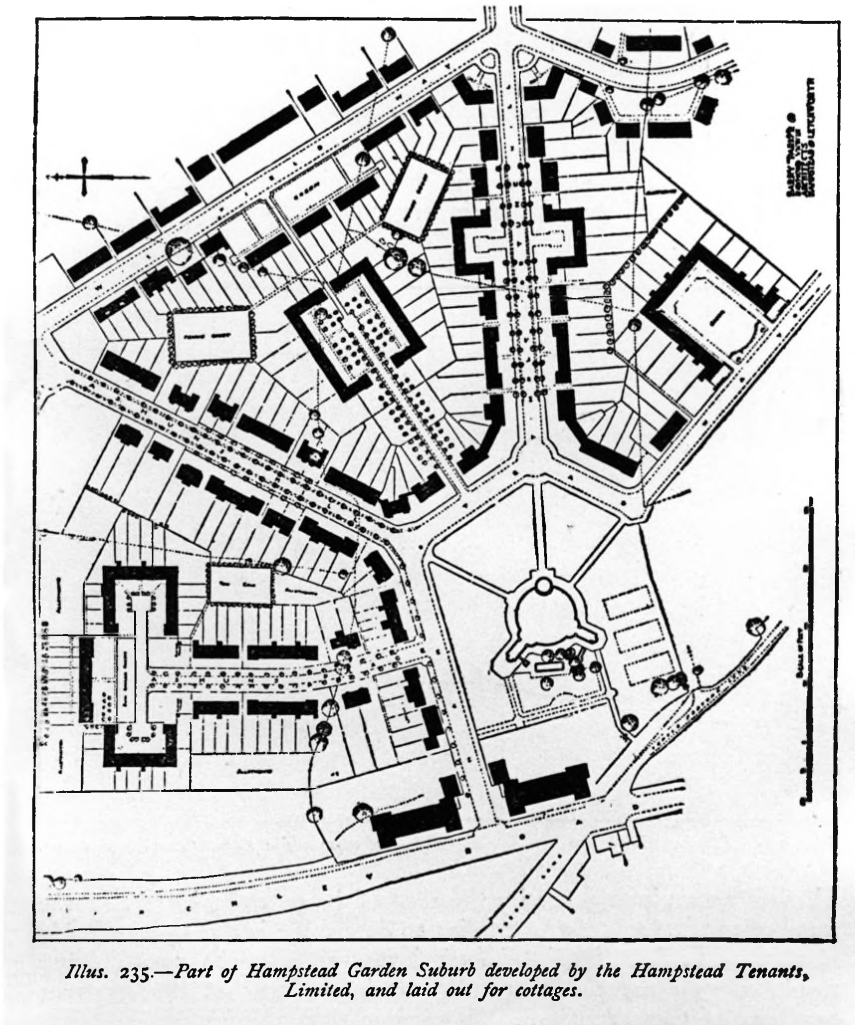
was thus accessible from the surrounding houses by a safe pedestrian route, forming a self-contained ten acre neighbourhood block. It required only the superimposition of the cul-de-sac and independent footways, extensively used at Hampstead Garden Suburb, to create the Radburn super-block, by his American colleagues, Henry Wright and Clarence Stein in the late 1920s (Stein, 1951), updating the Garden City to the motor age.

The spread of low density suburbs highlighted the necessity to consider urban planning at a strategic level. Both the Warburton lecture and *Nothing Gained by Overcrowding*, addressed this taking, respectively Manchester and London as models (Unwin 1912b [TEP], 54–8; Unwin 1912a [NG], 13–16 [87–90]). He had considered the implications of suburban development for some years, writing in 1906 that

> *... each new town extension is defined and has limits ..., each planned as a whole and finished with some comely edge. Should the town need to extend still further, a belt of meadow, park or wooded grove can be reserved and the defined area maintained* (6).

At that time Unwin was about to start putting this into practice at Hampstead Garden Suburb, where the Hampstead Heath extension stands as an internal green reservation (Miller, 1992, 80–7; Miller, 2006, 53–7). The concept of the

Figure 17 Willifield Green, Hampstead Garden Suburb, Barry Parker and Raymond Unwin, 1907–9, photographed *c.*1914. The focal point was The Club House, with its Bavarian style watchtower; ironically the building fell victim to a German air raid in 1940. (Unwin Collection, Rylands Library, University of Manchester.)



Illus. 235.—Part of Hampstead Garden Suburb developed by the Hampstead Tenants, Limited, and laid out for cottages.

Figure 18 The 70 acre 'Artizans' Quarter', Hampstead Garden Suburb, for the Hampstead Tenants Co-partners, layout plan, Barry Parker and Raymond Unwin, 1907–9, as published in Raymond Unwin's *Town Planning in Practice* in 1909.

'green girdle' or 'green belt' was a live issue in planning theory and practice during the early 1900s (7). Unwin illustrated this with '*The Garden City principle applied to Suburbs*', which appeared both with the Warburton lecture and in *Nothing Gained*. This was a handsome aerial perspective drawn by his assistant A. H. Mottram (1886–1953) (Miller 2006, 66). It showed a formally-planned central city, with radial roads converging on a central semi-circular crescent and green, open to a river front. To the right lay a main railway line, serving an

extensive industrial area and dockyard, and the principal station. The city had absorbed several villages, but green reserves had been preserved along valley bottoms, and expansion had occurred in detached planned settlements left of the centre. The precise geometrical arrangement recalls Hampstead Garden Suburb. This diagram acquired an independent iconic life, and became a springboard for Unwin's thoughts on regional strategic planning. It appeared in his articles for the Ministry of Health journal *Housing* (8), and in 1922 illustrated 'The Overgrown City' (Unwin, 1922) written for the Russell Sage Foundation of New York who were about to embark on funding the preparation of the New York Regional Plan. In 1924 it even appeared in model form in a display of good town planning at the British Empire Exhibition at Wembley, London, sponsored by the Ministry of Health (Williams-Ellis, 1924, 231–3, 279).

His calculations of the impact of suburban expansion used the geometrical proposition that the area of a circle increases in proportion to the square of its diameter, resulting in the progressive diminution of the increase of the radius necessary to house a given annual increase of the population. His calculations also involved decentralisation from central London and he foresaw an increase of radius of 3 miles to 14½ miles to accommodate an increase of 4 million population at 25 persons per acre (Unwin 1912a [NG] 13–16 [87–90]). Again there was a degree of sophistry which annoyed the Garden City protagonists, notably C. B. Purdom and F. J. Osborn. 'I never liked Unwin's examples' Osborn wrote to Barry Parker, 'they made people think we wanted to expand London to a continuous urban tract' (9). Such growth was actually brought under voluntary control under the 1909 Housing and Town Planning Act, and the Ruislip- Northwood scheme in Middlesex was the first to be commenced under that measure (Aldridge, n-d *c*1915; Miller, 1992, 142–5).

Nothing Gained by Overcrowding complemented Unwin's earlier writing to form a formidable, and to supporters of Garden Cities and town-planning, unassailable case for the widespread adoption of new standards on social, aesthetic and economic grounds. Whatever its shortcomings, 'Nothing Gained by Overcrowding' became a rallying cry. Moreover supporters could point to practical achievement at New Earswick, Letchworth and Hampstead and the increasing number of co-partnership garden suburbs. The block diagrams graphically contrasted the two systems of development and the message was reinforced by idyllic photographs of the newly-developed 'Artisans' Quarter' at Hampstead Garden Suburb. Having presented the case with a flourish, it was perhaps inevitable that Unwin would be drawn into a public career to deploy his powers of persuasion to wider adoption of new standards, including the statutory density for new housing of 12 houses to the acre, maximum. This was the work which evolved from his Socialist League evangelising, from which he turned that experience into constructive engagement with housing and town planning looking forward to his influential work on behalf of the Tudor Walters Committee (Miller 1992, Ch 8). Their 1918 *Report* (LGB 1918) laid the foundation for the 1919 Housing and Town Planning Act, the 'municipalisation'

of the Garden City and the subsequent adoption of low densities and open layouts in private interwar housing development.

It is worth seeing how *Nothing Gained by Overcrowding* fared. In January 1918, months before the Armistice, the Garden Cities and Town Planning Association published a third edition of *Nothing Gained*, with a foreword by Lord Salisbury commending its message to fulfil the expectation of better housing after the War's eventual end (Unwin, 1918). In December 1919, at the outset of his career in the newly created Ministry of Health, the government body responsible for the approval of subsidised local authority housing, Unwin reworked his concept and calculations. Twelve houses to the acre was now a required standard. The Ministry's fortnightly periodical *Housing* featured 'The Cost of Open Development' (Unwin, 1919a). Average land cost had fallen from £300 per acre in 1914 (substantially below £500 in the original calculation) to £212. The cost of roads and sewers had risen from £5.8.0 per linear yard for a 36 foot highway in 1914 (Unwin had assumed £7.5.0 for a 42 foot highway in his original calculation) to £11.6.0. Based on these two factors, open development was claimed as little more expensive and was in any case prescribed by statute. Inclusion of alternatives with densities as high as 34 dwellings per acre was largely academic, but of continued propaganda value. On the basis of combined land and sewer costs five alternatives differed comparatively little from the Ministry approved example, from £63 per plot in the highest density scheme to £67 13s 4d in the latter. Net cost per square yard per plot ranged from 33s 11d [£1.70] for the 340 square yard plots of the Ministry scheme compared to 17s 6d [87.5p]. Ground rent on the basis of *Nothing Gained* revealed a smaller difference, on side of the difference was much smaller, but on the side of the high density scheme at 1s 0¾d [5.75p] and 11¾d [4.75p] respectively. Unwin again drew two ten acre blocks for comparison, costed on the 1914 and 1919 figures. He had significantly increased dwelling frontage and now needed a cul-de-sac to provide additional development frontage, visibly lowering the efficiency where it cut through to the backland, which revealed a major inconsistency:

> *... frontage is quite as important as ... the number of houses per acre. The relatively high cost of road-making at the present time increases the importance of the economy of road frontage.*
>
> (Unwin, 1919a, 162)

Why did he not attempt to rationalise a narrower-fronted house for which his earlier designs provided ample precedent? The type illustrated in *Cottage Plans and Common Sense* (Unwin, 1902, Plate VII [65, this edition]) would have been an effective design for urban housing. However, low densities were now *fait accompli*, and the real issue lay in abnormally high building costs created by shortages of labour and materials, which were omitted from the calculations, and dramatically raised Exchequer subsidy, above a local authority contribution pegged at the income from one penny local rate. Land and road cost appeared almost as incidentals. Perhaps Unwin's tacit purpose was to reassure local authorities,

responsible for delivery of the housing programme, that the new standards were not in themselves a prime cause of the increased costs with which they were faced.

The Garden Cities and Town Planning Association republished *Nothing Gained by Overcrowding* as a slender pamphlet in 1933 (Unwin, 1933), and Frederic Osborn corresponded with Unwin in 1939 about density, and the necessity to provide a strong case for low density cottage development to counteract the growing appeal of high density, high-rise flats to architects and intellectuals (10). In 1946, as state-developed New Towns became a reality Osborn wrote to Barry Parker urging him to revise the document. Parker candidly replied that any figures likely to be '*fictitious, fanciful, undeterminable, unpredictable and enigmatical*' (11). Analysis suggests that this had always been the case. If so one must admire Unwin's powers of persuasion in securing the construction of the interwar housing programme on the basis of an attractive concept, which proved elusive to justify, but provided an enduring and effective slogan for housing campaigners.

Aftermath

Unwin's career moved into the public realm shortly after the publication of *Nothing Gained by Overcrowding*, which limited his direct role in community planning. Already, shortly after the passage of the 1909 Act, he had been appointed consultant by King's College, Cambridge, whose land on the north western fringe of London was to be brought under the Ruislip–Northwood and Ruislip Manor Scheme (Miller, 1992, 142–5). Together with Sir Aston Webb, he was assessor for a competition for a master layout plan. The winning entry by A. and J. C. S. Soutar (the latter would be Unwin's successor at Hampstead Garden Suburb Trust) was formal in character and was set within the guiding framework of the Ruislip scheme, which was finally approved in September 1914, shortly after the outbreak of the First World War has postponed likelihood of early development. In 1913–13, he also drew up, in partnership with Patrick Geddes and his-son-in-law F. C. Mears, a plan for a garden village at Marino facing Dublin Bay on the northern outskirts of the Irish capital city – Geddes had drawn attention to *Nothing Gained by Overcrowding* in evidence to the Dublin Housing Inquiry (Miller, 1985). After joining the Local Government Board as a Planning Inspector in 1914, Unwin was seconded as Chief Architect to the Explosives Department of the Ministry of Munitions, created by Herbert Asquith with David Lloyd George as Minister (Miller 1992, 154–60; Swenarton, 1980). This might seem to have been an unlikely vehicle for development of Garden City style housing: however, large munitions factories were established in comparatively remote areas where adequate housing was lacking, which required building of dormitory huts, succeeded by permanent housing and community facilities. Unwin developed close rapport with Christopher Addison, head of the supply division, and this continued through the Ministry of Reconstruction and after 1919, through the Ministry of Health, under

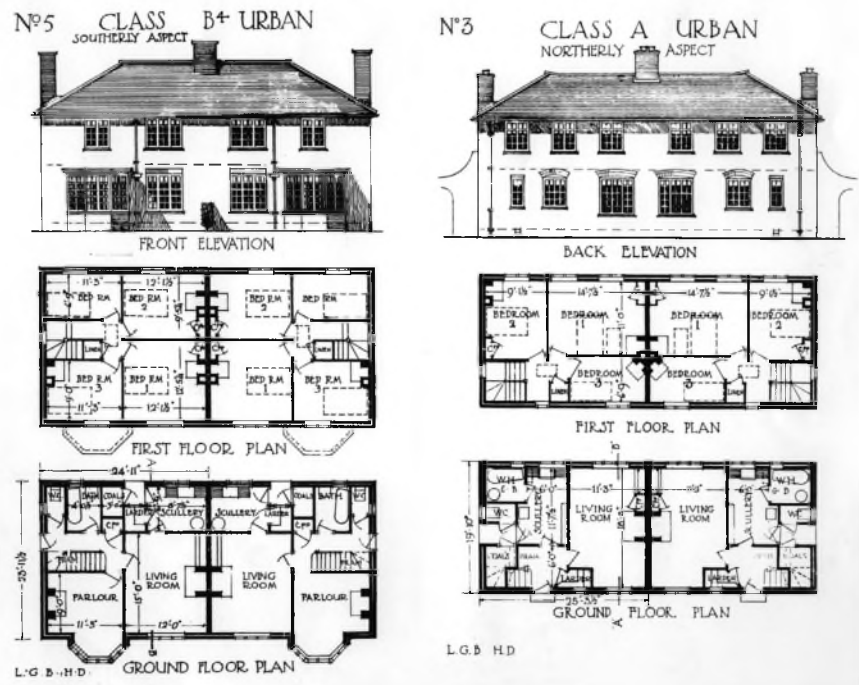


Figure 19 Type designs from *Housing Manual*, HMSO 1919: The Tudor Walters Committee, of which Unwin was the most influential member, opted for Garden City style housing as the basis of the postwar council housing programme in its 1918 *Report*. These examples are taken from the *Housing Manual* 1919: rising costs soon eliminated wide use of the top-range parlour types. (Author's collection.)

Addison's stewardship from 1919–22. Gretna–Eastriggs in Solway Scotland achieved the scale of a small new town, where Unwin was personally involved with the layout and a team of leading Garden City architects including Courtenay Crickmer from Letchworth were based on site. Although publication was embargoed under the Defence of the Realm Act, complimentary accounts of the 'munitions villages' appeared in the American architectural press (Ackerman, 1917) and led to their emulation in projects such as Yorkship Village, Camden, New Jersey, 1918, by the United States Emergency Fleet Corporation.

In 1917 Unwin gave evidence to the Committee of Inquiry into the supply, construction and design of working-class housing convened by the Ministry of Reconstruction under the Chairmanship of Sir John Tudor Walters (Miller, 1992, 164–70). The Report was published in October 1918. Unwin's contribution was crucial to the statutory adoption of Garden City standards for post-war housing, built under the 1919 Housing and Town Planning Act by local authorities with subsidies from the newly-created Ministry of Health (Miller, 1992, 171–82; Swenarton, 1980). As noted above, the content of *Nothing Gained*

by Overcrowding was revised, and Unwin wrote several articles on the theme for the Ministry journal *Housing*. His interest in building materials and constructional standards, first quantified in *Cottage Plans and Common Sense* was reflected in his support for the work of the Building Research Board (Atkinson, 1971). As chief Housing Architect (later Chief Technical Officer for Building and Town Planning) he was the key figure in approving the design and layout of housing schemes submitted by myriad local authorities. These included the exemplary Pixmore and Jackman's estates at Letchworth, by Crickmer, and Bennett and Bidwell respectively (Miller, 2002, 118–19); major London County Council schemes such as Watling and Becontree (Home, 1997); Sea Mills by Bristol City Architect, where Unwin appeared personally before the council (12); and schemes by his former partner Barry Parker – at Bridport, Loughborough, Newark and, most importantly, Wythenshawe, Manchester's Garden City satellite (Miller, 1992, 183–4; Miller 2010, 80–6), where Unwin held a public inquiry into the city's proposal to bring the land for development within its boundary. Parker also designed the interwar housing at New Earswick, using varied *culs-de-sac* to secure economy of layout (Parker, 1937; [Waddilove], 1954, 25–7).

After the First World War low density suburban private development became a self-fulfilling prophecy, which the non-statutory provisions of the planning procedures of the 1919 legislation could only fitfully shape. Unwin became was acutely aware of the danger, and following his retirement from the Ministry of Health in October 1928, was appointed Adviser to the Greater London Regional Planning Committee (1927–33) (Miller, 1992, 189–209), which addressed itself to the articulation of the incoherent sprawl with a 'green girdle' or, preferably an encompassing green belt to form the background upon which self-contained Garden Cities would be located – Unwin's *GLRPC Report 1929* (Unwin, 1929) contained the concept which fifteen years later Patrick Abercrombie commended as the basis for his *Greater London Plan 1944* (Abercrombie, 1945, 2, para 3). Unwin himself developed these strategies through papers such as 'Urban development: the pattern and the background' (Unwin, 1935), published in Britain and the United States.

In 1920, Raymond Unwin's daughter Peggy married Curtice Hitchcock, an American economist and publisher, who had accompanied Woodrow Wilson's delegation to the Versailles Conference the previous year. This event marked the beginning of Unwin's parallel career in the United States, where his experience of planning and housing influenced the updating of the Garden City concept by John Nolen, Henry Wright, Clarence Stein and Clarence Perry, who visited England during the 1920s, and adoption of Federally-funded public housing under President Roosevelt's new Deal in the 1930s (Miller, 1992, 232–5). In 1922 Unwin was interviewed by the Russell Sage Foundation as a potential lead consultant for the New York Regional Plan; they subsequently appointed Thomas Adams (another leading figure in the transatlantic dialogue on housing and town planning). This unusual reverse did not diminish Unwin's status and influence. Indeed Wright and Stein used the

Figure 20 The patriarch of planning, Raymond Unwin, photograph portrait New York, 1934: his work for the National Association of Housing Officials spurred their lobbying for the Housing Act, passed in 1937. (Author's collection.)

block diagrams from Nothing Gained as the basis for planning Sunnyside Gardens, New York (1925–8) (Stein, 1951, 23–36), which Unwin may even have visited on his trip to New York with Ebenezer Howard and Barry Parker for the International Garden Cities and Town Planning Federation of 1925. In 1928 Unwin became a consultant on finalisation of the plan for Radburn, New Jersey (Stein, 1951, 37–69), the Garden City for the motor age, in which cul-de-sacs fringed a neighbourhood block with central greensward, though which pedestrian routes led to the school, with underpasses at distributor roads. Traditional Colonial and Old English architecture belie the modernism of the concept which gave its name to countless residential neighbourhoods on both sides of the Atlantic. The 'green towns' of the mid-1930s, such as Greenbelt, Maryland (Stein, 1951, 101–60) with its modernist apartment blocks and terraced houses, set in crescent formation provided a template for the postwar British new towns, via the seductive illustrations in Abercrombie's Greater London Plan (13).

More generally, Unwin became involved with moves towards public housing in the United States in the mid-1930s (Miller, 1992, 232–5). In 1934 he joined a Rockefeller Foundation funded International Housing Commission and collaborated with the National Association of Housing Officials on a tour of 14 major

Figure 21 The Unwins visit Greenbelt, Maryland, in March 1938, accompanied by John Lansill of the United States Government's Resettlement Administration.

cities in the United States, with Ernest Kahn, a Frankfurt Economist; Alice Samuels, a housing manager from Bebington, Merseyside; Ernest Bohn, head of NAHO and Henry Wright. After the tour the group met in Baltimore to work up a report: as with Tudor Walters it seems that Unwin's was the dominant voice, particularly as the Report, *A Housing Program for the United States* (Public Administration Service, 1935) contained many Unwinesque turns of phrase, including a section headed 'Nothing Gained by Overcrowding' (Public Administration Service, 1935, 18). Unwin had, apparently worked on the report until three hours before sailing homeward. The legislation was passed in Roosevelt's second term as the Housing Act 1937. Unwin's final housing tour in the United States was made in November–December 1939 (14).

Each visit brought lecturing engagements, often at schools of architecture and planning. In 1936 Raymond Unwin was appointed Visiting Professor of Town Planning at Columbia University New York, after the death of Henry Wright (Miller, 1992, 235–6). His lecture series was a comprehensive view of planning and community, with housing at its heart (Unwin, 1936–7). He shaped the ethos of a generation of American planners. As ever, accompanied by his wife Etty, he enthusiastically participated in informal studio seminars. Carl Feiss, a young graduate planner, was his loyal assistant, and reported on Unwin's untiring energy, even on field trips in difficult conditions (Feiss, 1963). The 1939–40 Session was given after outbreak of the Second World War in Europe: Unwin was stranded and unable to obtain a passage home. In Spring 1940 he fell ill and died that June, near his daughter's summer home at Grassy Hill, Connecticut.

Despite its shortcomings, *Nothing Gained by Overcrowding* was central to Raymond Unwin's determination that housing should add value and a sense of community to the lives of its residents. As one of his younger generation successors, Sir Frederic Osborn wrote that Unwin was

> *A social reformer who is also a man of intense appreciation of visual beauty … a deep sympathiser with deprived humanity who wanted everybody to have the fullest possible life in every way including his* [Unwin's] *own aesthetic pleasures.*
> (Hughes, 1971, 404–5)

This was the grand objective to which his sometimes finicky calculations and simplistic propositions were directed. The recent enthusiasm by government for reviving development of privately developed Garden Cities has resulted in the introduction of the concept in the National Planning Policy Framework (Department for Communities and Local Government, 2012, 13–14, para 52). The Town and Country Planning Association, heir to The Garden City Association formed in 1899 to further the development of Howard's vision (Hardy, 1991). In Spring 2012 the TCPA republished *Nothing Gained by Overcrowding* to celebrate its centenary, with an afterword 'Everything to be Gained' (TCPA 2012b), and in July 2012 hosted a conference to discuss the policies, practicalities and development

models for creating Garden Cities and Suburbs today (TCPA 2012a). It remains to be seen whether Unwin's battle cry has the strength and staying power to inspire revival of the fuller vision or will it rather invoke a reference in passing?

Notes

1 Personal letters covering the crucial period 1885–91 were in the personal collection of Mrs Joan Hitchcock Rich, Raymond Unwin's granddaughter, Grassy Hill, Connecticut, at the time of writing this book. The diary, recording Unwin's frustration at the lack of contact with Ethel Parker is in the Unwin Collection, Rylands Library, University of Manchester.

2 RU to Ethel Parker, 9 August 1891, Hitchcock Rich Collection.

3 From the mid-1890s Barry Parker appears to have provided the imagery for Unwin's aspiration to design reformed working class housing. 'An Artizan's Living Room was drawn in 1895, and first published to illustrate 'Our Homes', *Building News* 10 26 July; it also appeared in a privately printed brochure of the same title (Buxton: n-d, *c.*1895). It received wide circulation as Plate 12 in Parker and Unwin, 1901. The original drawing is in the Parker Collection, First Garden City Heritage Museum, Letchworth Garden City.

4 Sir Frederic Osborn emphasised this point at meetings with the author in the late 1970s. He expanded on the concept (without specifically using the term) in a letter to Lewis Mumford, 31 August 1966, where he credits Unwin as '*a social reformer who is also an artist or a man of intense appreciation of visual beauty*' (Hughes, M. (ed.) 1971 404–5).

5 Unwin's campaign against the inflexible highway standards required under public health byelaws led to his advocacy of paved surfaces proportionate to the amount of traffic generated. This was articulated in detail in his address to the VII International Congress of Architects held in London in 1906: the requirement to hard pave a width of up to fifty feet was dismissed as '*as absurd as the result it produces is monotonous*'. Grass margins and avenue planting should take up the surplus width of the highway reservation. A '*simple carriage drive*' would suffice, saving '*both the dreariness and cost of the useless expanse of roadway*' (Unwin 1906 124,125). It should be noted that in *Nothing Gained by Overcrowding* he used a standard byelaw road in both examples for comparison, and relied on eliminating superfluous lengths of road rather than diminishing the widths.

6 'City Planning. The improvement and laying out of towns. Lecture at Cambridge by the architect of Garden City', 1906, *Cambridge Independent Press*, 16 February, cutting, Unwin Collection, Rylands Library, University of Manchester.

7 The term 'green girdle' appears to have originated in the expansion of continental cities outside their walled historic centres, distancing the modern suburbs by a broad boulevard on the site of the demolished fortifications – the Ringstrasse in Vienna is a classic example. Cologne reserved a broader 'green girdle' in the late 19th century. In England, in 1901, Lord Meath, Chairman of the LCC Parks and Open Spaces Committee and William Bull proposed the reservation of a tree-lined circumferential parkway encircling the capital (Meath, Lord (1901), 'The Green Girdle around London', *The Sphere* 6 64: Bull, W. J., (1901), 'A Green Girdle round London', *The Sphere* 5 128–9. In 1910, G. L. Pepler developed the proposal into a 'great girdle' a quarter of a mile wide, ten miles from the centre of London for his presentation at the RIBA Town Planning Conference (RIBA, 1911 611–27).

8 The illustrations included the addition of a 'before view' showing a narrow river crossing and a winding lane through open fields, to the right a single track railway, which provided the context for the crisply formal development shown in the familiar view (Unwin, 1920, 267 and Supplement).

9 Frederic Osborn to Barry Parker, 31 October 1946, Osborn Papers, Welwyn Garden City Library; Osborn claimed that this was a tactical weakness on Unwin's part in several of the letters he exchanged with Lewis Mumford, for example on 29 January 1952, see (Hughes, M. (ed.) 1971 202), where he stated '*Unwin … was a bad propagandist … ; nothing could have been more unwise than his famous demonstration that you could put double or treble the population at decent densities by expanding London only a few miles in radius. As he didn't want to expand London by even half a mile I could never see why he used that illustration!*'

10 Raymond Unwin to Frederic Osborn, 21 June 1939; Frederic Osborn to Raymond Unwin, 23 June 1939, Osborn Papers, Welwyn Garden City Library.

11 Frederic Osborn to Barry Parker, 31 October 1946, Osborn Papers, Welwyn Garden City Library; Barry Parker to Frederic Osborn, 7 December 1946, Parker Collection, First Garden City Heritage Museum, Letchworth Garden City.

12 According to a consultation draft of the *Sea Mills Conservation Area Character Appraisal and Management Proposals* (Bristol City Council City Design Group March 2010-document since superseded) 12, para 5.23, Raymond Unwin met the City's Housing Committee in October 1919 (source – unspecified newspaper 10/10/1919). The adopted *Sea Mills Conservation Area Character Appraisal and Management Proposals* (Bristol City Council City Design Group, January 1911) omits mention of the Unwin meeting, but para 5.31 reported that on 14th October 1919 the Housing Committee approved the Master Plan for Sea Mills. The layout of the estate followed the diagram of 'The Garden City Principle applied to Suburbs' closely, this Conservation Area appraisal analyses the overall layout closely to reveal numerous examples of building groupings and road junctions directly influences by Town Planning in Practice and the *Tudor Walters Report* (ww.bristol.gov.uk/conservatioareas accessed 06/08/2012 accessed 06/08/2012).

13 Although not mentioned in the *Greater London Plan,* illustrations show awareness of the updating of the imagery of new settlements, as reflected in the aerial photographs of Greenbelt, Maryland taken in the late 1930s and the sweeping curves of its layout plan. The concept of the illustrative new town of 'Ongar' its plan and the housing neighbourhood drawn by Peter Shepheard (Abercrombie 1945 insert between 170–1) bespeak awareness of the American exemplar. The Unwins visited Greenbelt in March 1938.

14 I have pieced itineraries for the housing tours together from many sources including notes in the Unwin Collection in the British Architectural (RIBA) Library at the Victorian and Albert Museum, London and the Unwin Collection in the Rylands Library, University of Manchester, from family letters, press references and cuttings. The Spring 1939 tour was typical, taking in Toronto, Detroit, Cranbrook, Chicago, a family visit to Dollard, Saskatchewan, Vancouver, San Francisco, Chicago, Urbana, Washington, Pittsburgh, New York, and finally Boston (with lectures and tours of housing estates along the route and formal speaking engagements in the principal cities), from where the Unwins sailed home on 6th May. In addition to his wife, Unwin took along his 11 year old granddaughter, Joan Hitchcock (Mrs Norman Rich) who kept a vivid diary of the tour.

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ON THE BUILDING OF HOUSES IN THE GARDEN CITY

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The Garden City Conference at . . Bournville . . . .

Report of Proceedings

INCLUDING PAPERS AND SPEECHES

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Garden City Association.

Report of the Conference held in the Y.M C.A. Hall, Birmingham, and the Girls' Pavilion, Bournville, on Friday and Saturday, 20th and 21st September, 1901.

OBJECT OF CONFERENCE.

To consider the experiment of Mr. Cadbury in removing their works from Birmingham to Bournville; the difficulties and advantages which attend the removal of works from large cities to new districts; how local authorities and other organisations can co-operate with such movements; and the desirability and practicability of a combined movement of manufacturers and co-operators to new areas, so that new towns may be established on land to be purchased for the community.

London:
GARDEN CITY ASSOCIATION, 77, CHANCERY LANE, W.C.

1901.

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CONFERENCE

Convened by the Garden City Association at Birmingham on Friday, September 20th, and at Bournville on Saturday, September 21st, 1901.

Presidents:

The Right Honourable EARL GREY

AND

Mr. RALPH NEVILLE, K.C.,

SUPPORTED BY

Rev. Dr. Thomas Allen; Mrs. Sheldon Amos; Mr. Percy Baines; George N. Barnes, A.S.E.; Mr. R. A. Barrett (Ashton-under-Lyne); Sir M. M. Bhownaggree, M.P.; Councillor W. J. Bigwood (Camberwell); Councillor C. H. Bishop; Mr. Gerald M. Bishop; Councillor Bowden, Mayor of Burslem; Rev. J. L. Brooks; Councillor John Bryan (Southwark); Councillor Bye (Shoreditch); Mrs. George Cadbury; Mr. George Cadbury, J.P.; Mr. Edward Cadbury; Mr. W. T. Charleton; Councillor G. J. Clark (Shoreditch); Councillor Gordon (Stepney); Mr. Walter Crane; Mr. George Crosoer; Alderman Davis, Mayor of Leamington; The Right Hon. Samuel Edwards, Lord Mayor of Birmingham; Councillor E. Edwards; Councillor R. R. Fairbairn (Worcester); Councillor Rev. W. Falkner Baily (Camberwell); Councillor W. A. Frost (Shoreditch); Bailie Gibson (Edinburgh); Mr. Edward Grubb, M.A.; Councillor A. Hawkyard (Leeds); G. A. Hardy, L.C.C.; Mr. F. W. Hildyard; Mr. Henry Holiday; Mrs. Ebenezer Howard; Mr. Ebenezer Howard; Councillor W. W. Howlett (Shoreditch); Mr. T. H. W. Idris; Mr. M. Y. Jameson (Stepney); Councillor Lang Todd (Edinburgh); Mr. H. C. Lander, A.R.I., B.A.; Councillor E. E. Lawson (Leeds); Mr. A. L. Leon, L.C.C.; Alderman Lupton (Leeds); Dr. Millson (Southwark); Mrs. Macnamara; Rev. E. F. M. McCarthy, M.A.; Mrs. Magrath; Mr. Richard B. Martin, M.P.; Alderman R. F. Martineau; Mr. Edwin B. Mead (Boston, U.S.A.); Professor Muirhead; Miss Neville; Councillor Owen; Mr. Alderman Lawley Parker (Birmingham); Councillor Rigby-Pratt (Finsbury); Mr. T. P. Ritzema, J.P.; Dr. H. M. Robinson (Shoreditch); W. A. Robinson (Canada); Mrs. Edward Rose; Mrs. Lily Rose (Reading); Mr. Edward Rose; Mr. B. Leebohm Rowntree; Mr. G. Bernard Shaw; Mr. Alderman Smallwood, J.P.; Alderman Dr. Smith (St. Pancras); Councillor G. A. Smith (St. Pancras); Councillor J. Smith (Shoreditch); Rev. H. Bodell Smith; Councillor W. Steel (Shoreditch); Miss Julie Sutter; Councillor J. J. Tyler (Worcester); Mr. T. Elliott Viney; Mr. Mathew Wallace, J.P., C.C., Mayor of Camberwell; Mr. J. Bruce Wallace, M.A.; Mr. T. F. Walker (Birmingham); Mr. P. B. Walmsley; Mr. G. P. Watkins; Mr. Aneurin Williams; Mr. A. W. Wills; Mr. John A. Wilson, M.P.; Mr. Raymond Unwin. M.S.A. and others including

comfort and amusement of the children while the parents were away at work. A small hospital would also be a great convenience.

It is not contended that all or even a large proportion of those living in isolated homes are at present prepared to throw in their lot in a federative scheme; but it is believed that there exists a sufficiently large number of persons willing to make the experiment as soon as a good opportunity presents itself.

The Garden City project will afford exceptional facilities for the establishment of one or more homes on Co-operative lines. In a broad and comprehensive scheme such as Mr. Howard proposes, no department can be left to chance; the homes of the people deserve as much attention as the manufacturing, commercial, or other branches of the undertaking. Every effort must be made in order to provide the people with conditions which will encourage the free development of the highest ideals of home and social life. The experiment is of huge proportions and will be closely watched by all those who interest themselves in the well-being of humanity. If it is successful, as there is every reason to hope it may be, the domestic happiness of the people must be kept steadily in view by the provision of comfortable homes to which the worker may return at the close of each day assured of the welcome awaiting him and where, relieved of all worry, he may enjoy with his family the fragrance of the flowers, the pure air and the beauties of the countryside, which by a cruel system have been denied to so many of his fellows, but cut off from which he can never hope to rise to the full dignity and nobleness of manhood.

ON THE BUILDING OF HOUSES IN THE GARDEN CITY.*

THE successful setting out of such a work as a new city will only be accomplished by the frank acceptance of the natural conditions of the site; and, humbly bowing to these, by the fearless following out of some definite and orderly design based on them. To straighten a river, level a hill, fill up a valley, or even to cut down a fine clump of ancient trees, to make the site fit some preconceived design, would be presumptuous folly. Such natural features should be taken as the keynote of the composition; but beyond this there must be no meandering in a false imitation of so-called natural lines. Let our avenues be straight or boldly curved, not aimlessly crooked; and let our open spaces be not shapeless patches, but squares, circles, or other orderly forms. The glittering path of the river as it winds across the plain, or the slope of the mountain range standing out in silhouette against the sky, delight us indeed; but the inconceivably complex conditions which form these curves have no part in any work of ours; and, in attempting to mimic them, we but miss that beauty of orderly design for the creation of which alone power has been given to us.

Let us assume then that the general plan of our Garden City has been arranged in conformity with the land; and that sites for our civil, religious, and recreative public buildings have been determined, dominating the city. Wide avenues or roads must be planned to lead off from these sites in all directions, so that glimpses of the open country beyond shall be obtainable from all parts of the town, and vistas leading up to the finest buildings shall greet the visitor from every direction, giving impressions of

* This paper was written for the Housing Conference of the Association held at Birmingham and Bournville on 20th and 21st September, 1901, but the Association as a body is not responsible for the opinions expressed.

dignity to those who come, leaving with those who go a remembrance of beauty. Well may we take a hint from the ancient city of Constantinople, where in old times, Mr. Lethaby has told us, the prospect towards the sea was carefully guarded in the City Building Act, and where the upper parts of the houses were mostly twisted round on corbels to assist in gaining them a seaward aspect. So let it be a first consideration in our city, wherever it is possible, by taking advantage of hillside slope or wide diverging roads to preserve for the inhabitants a clear view of the landscape beyond.

In the arrangement of the spaces to be devoted to dwellings, as in the laying down of the main city plan, a complete acceptance of natural conditions must be combined with some definite design. No weak compound of town and country, composed of wandering suburban roads, lined with semi-detached villas, set each in a scrap of garden, will ever deserve the name of "Garden City." Acres of such suburbs are only one degree less dreary than miles of cottage rows; they cover an extravagant amount of land while missing most of the advantages which a generous use of land can give.

The three main natural circumstances to which our design must bow are connected with what are now recognised as three of the chief requirements of health in the house, namely, light, air and cheerful outlook. The first requires that every house must turn its face to the sun, no house can therefore face northward; the second requires that on two sides of each house there shall be open air spaces large enough to be always fresh and sweet; and the third requires that these spaces shall offer something more for outlook than the dismal monotony of a narrow street. It is one of the many advantages of the Garden City proposal that it will make possible for the first time on a large scale the due consideration of these vital conditions in the arrangement of its dwellings.

As our roads must run in all directions it will follow that a great number of the houses, if they are to be open to sunshine, must turn their faces from the road, and, consequently, what are now known as their "backs" to it. Obviously, also, there will be

a general tendency for the faces of one set of houses to be turned towards the "backs" of another. It is only necessary to realise faintly what our back streets and yards are generally like to decide at once that with such backs this arrangement would be unbearable; and to determine that to our Garden City there shall be no "back"; that every side shall be a front side. If, when we passed down some side alley from our fine streets, we could always find ourselves in a spacious court or garden, simple as may be, but free from squalor at least, quiet, and in the summer cool and green, instead of among such sights as usually greet us, the first step would indeed have been taken towards realising the ideal of "A Garden City." And it only needs that we should lay out our town dwelling-sites on the basis of the square; that we should fill in the spaces between our main thoroughfares with large quadrangles opening one into the other, instead of with narrow streets and narrower rows of back-yards, which are draughty without being airy, and foster dirt and squalor. Squares, on the other hand, are airy and sweet, they admit floods of sunlight, and afford space enough to give a bright and varied outlook to all the houses, whether used as playgrounds or for the growth of trees and plants so necessary for the purifying of town atmosphere. It is not to the row or the semi-detached villa that we must look for the solution of the housing problem in towns, but to the quiet quadrangle with its wide expanse of grass, or the square with its spacious garden. Only on this plan can we arrange for every house to have its main face towards the sun, while at the same time it shall look out upon a space large enough to be always fresh, large enough to give beauty and variety for the eye to dwell on.

Moreover, nothing offers more charming possibilities for street architecture, as we may easily realise, by recalling an Oxford or Cambridge college, a Cathedral close, or even many a square of almshouses. All these consist of groups of tenements, often small and simple, with usually, it is true, some central building, gate-house, chapel, hall, or other common rooms, and it may be a covered way or cloister leading to them, which impart a sense of unity and dignity to the whole.

It is partly because such groups of tenements form a larger unit of more suitable scale to figure in a street that they are usually so much more successful than rows of separate cottages; but it is mainly because there has been some organised life, some association, some definite ideal to find expression in these buildings, that they interest and charm us. For architecture always reveals the life it clothes and reflects its ideals. And this seemingly unpractical statement will prove to express for us who are seeking to build a beautiful city just that truth which it is most vital for us to grasp, and which when understood will be the most practical guide we can have. Splendidly attractive as the Garden City scheme is, because of the unique opportunity which it offers for laying out a city from the beginning unhampered by the usual restrictions; because it presents to us as it were, a clean slate to work upon; it is yet more attractive on account of the prospect it gives of something new to write upon that slate; because it promises to call together a community inspired with some ideal of what their city should be; a community, moreover, whose units will be bound together by common aspiration, by some definite relationship of mutual association; a community, in short, which will have in its life something more worthy to be expressed in its architecture than the mere self centred independence and churlish disregard of others, which have stamped their character on our modern towns.

Among all the benefits which the growing spirit of co-operation bids fair to confer upon us not the least interesting will be its effect on architecture. By bringing to society a new system of mutual relations, it will give to life just that order, that crystalline structure, which it had in Feudal days, and which, when it exists again, we cannot doubt, will find beautiful expression for itself in architecture. In the squares and quadrangles of our Garden City dwellings the spirit of co-operation will find a congenial ground from which to spring, for there association in the enjoyment of open spaces or large gardens will replace the exclusiveness of the individual possession of backyards or petty garden-plots, and will no doubt soon be followed by further association, to which the arrangement so admirably lends itself.

"Example is better than precept," and it will be well if the Municipality of the first Garden City are able to set an example: to build some quadrangles of houses self-contained, having no straggling projections or untidy backs; and to show how by sufficient variety in design all may be made to comply with the conditions laid down above, and all be made at least comely to look upon whether before or behind: to show moreover how by three-sided squares or broad terraces the view from some rising ground may be preserved for all: or to show, perhaps, how a factory may form a fitting centre for an area of modern dwellings, the broad space of land round it affording outlook and air space, while serving to isolate any noise, dust or unpleasant odour that may be inseparable from its processes.

Apart from such example, however, something may be done, and must certainly be attempted, by wise regulation. That species of Bye-law-Architecture with which we are familiar, with its distortion of form, its exaggeration of roof, and awkward angles cut off by lines of space and height, must not be taken as a condemnation of all restraint. Natural restraints are many, and produce no such distortion. It is the hard and fast form of the regulations, and the want of any sympathy between the building impulse and the restraint, resulting in mutual antagonism and suspicion, which leads to such depressing results. In our Garden City the conditions of land tenure will reduce the pressure on space; while we may well expect in those who seek to live in such a city a more general sympathy with the purpose of its bye-laws. Moreover, in making a new start it will be possible to give to our restrictions as to light and air space such a generosity of strictness as shall make it quite needless to draw a hard line about details. So long as we measure our open space by fifteen or twenty feet, or allow our buildings to tower up to the verge of excluding light from our narrow streets, it is needful to have a very clearly defined and inflexible limit. But let the minimum open space be fixed at say 150 feet across, and the maximum height of buildings at one-third the width of the street, and we may safely be content with an average measurement without quibbling about the precise shape of the area, or troubling

whether the topstoreys are technically in the roof or not. If our restrictions are to guide without distorting, they must be generous enough to allow of their having, when pressed against, a little of the flexibility which characterises natural restraining forces. Much more difficult will it be to deal with the style of buildings. And some appreciation of that practical truth referred to above may be needed to save us from supposing that we can by one huge effort of creative genius design a beautiful city complete in all details, or from the folly of trying to beautify our city by decreeing that all its buildings shall be Classical, Palladian, Gothic, or any other style. Without attempting anything of this kind which could only cramp and distort, it is possible perhaps to revive an old natural limitation to which much of the beauty of ancient cities was due, and to regain, by some regulation of building materials, that general harmony of effect which was so often due to the prevalent restriction to local materials. We may at least prevent the hopeless jumble of blue slates and red tile, of brick stone and plaster, which we see in every modern street or suburb.

Beyond such restrictions it is probable that the influence of the municipality could most safely be exerted through a committee, representative of practical skill and artistic taste, to whom might be given general advisory powers, and an absolute veto on monstrosities. But the municipality in framing its regulations and the committee in discharging its functions must alike remember—to quote Mr. Lethaby again—"that Art is not the pride of the eye and the purse." "It is the well doing of what needs doing." Undoubtedly they must devote themselves chiefly to securing that whatever requires to be built shall be well built; and while maintaining some general order and harmony, there must be no attempt to force ornament or extravagance upon the builders. The extremest degree of simplicity may be safely welcomed, for assuredly, if there is among the citizens a love for their city, and some comeliness in their life, these will reveal themselves in the beauty of their streets; and if these are lacking, no efforts of any committee can give the needful inspiration.

September 9, 1901.

Outline of Garden City Project.*

By EBENEZER HOWARD.

1.—The purchase of a large agricultural estate of, say 6,000 acres (about 3 1-3 miles square) with the object of establishing a Garden City, as an experiment in housing and other important social and industrial reforms. A Model City on a new area.

The average price paid for agricultural land in 1897 was £40 an acre. At this figure the cost of estate would be £240,000. This may prove far more than necessary, but is hardly likely to be exceeded. Cost of land.

2.—The purchase of estate to be effected by a Joint Stock Company, with sufficient capital to acquire the estate and to develop it on the best municipal lines. The share and debenture capital of the Company to bear a fixed and limited return, not exceeding 4 per cent. or 5 per cent. All profits beyond this to be applied in local improvements and for the benefit of the community to be formed. Land to be acquired by a Company.

3.—The estate selected to be carefully planned, under the best expert advice, so that as the town grows, its factories and workshops, the homes of the people, the parks and open spaces, schools, churches and other public buildings may be placed in the most convenient positions, so as to minimise the ill effects of any necessary objectionable features, and to secure the best and most widespread results for all natural and artificial amenities. Estate to be well-planned by a committee of experts.

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* As some readers of this Report may not be acquainted with Mr. Howard's proposals in his book "To-morrow," an outline of these is here given. It need not be said that the Association is in no way committed to any of Mr. Howard's suggestions with regard to details, and that its object is to carry out the general principles advocated by him with the assistance of the best available practical advice and assistance.

COTTAGE PLANS AND COMMON SENSE

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Fabian Tract No. 109

COTTAGE PLANS

AND

COMMON SENSE

BY

RAYMOND UNWIN

WITH ILLUSTRATIONS BY BARRY PARKER AND RAYMOND UNWIN

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Cottage Plans and Common Sense.

How to provide for the Housing of the People is a problem for which our larger municipalities are now being compelled to find some solution ; and all over the country these bodies are busy preparing plans for housing schemes. Social reformers are generally agreed that the people must be housed outside the congested town areas ; many, like the Garden City Association, advocating the creation of entirely new towns. Such thoroughgoing schemes are hardly yet practicable for municipal bodies ; but under the Housing Act of 1900 they now have power to build outside their own districts : and in the following remarks on the character of the houses required it is taken that the best policy for the municipalities is to build attractive cottages on the outskirts of their towns, always having due regard to the reasonable accessibility from these houses of places of employment and centres of interest and amusement.

In building, that work is being done for the future rather than the present must never be forgotten. It is of the utmost importance that dwellings which are to last one hundred years or more should be of such a character as it is reasonable to suppose will be valuable dwellings during the whole of their lifetime. As a matter of mere financial justice to succeeding generations this is essential, especially in view of the demand for an extension of the time over which payment for the buildings can be spread. Obviously it is not fair to borrow on the future and build for the present only. It is not enough for a municipal authority to copy the house and arrangement which satisfies the average builder or speculator. Only the very best that is known and can be devised to-day is likely to stand the test of time ; and this must be based upon the permanent and essential conditions of life and health, not on passing fashions or conventions established by the speculative builder.

Chief Purpose of a House.

In designing any particular building it is generally very helpful to take the primary requirements and think out the problem from the beginning, as though no custom in connection with such buildings had ever grown up. Only in this way is it possible to separate the essential requirements and conditions from others which are merely conventional, and to get them all into some due perspective of importance. In like manner, to approach the question of cottage design and arrangement from the point of view of the original requirements, and develop from them, will probably be the best way to bring the various points into true relations. It is safe to assume that shelter from inclement weather, protection from predatory neighbors (human or otherwise), and comfort and privacy for family life, were the chief reasons which impelled men in the first instance to live in houses. Probably the seeker for house-room to-day is influenced by much the same considerations, although the second, protection, has lost some of its force. In satisfying this desire for shelter, comfort and privacy, one is at once confronted by a difficulty : the roof and walls which shut out the driving rain, the searching wind and the neighbors' prying eyes, at the same time exclude fresh air and sunlight, the full enjoyment

of which is one of the most necessary conditions of a healthy life. Against this difficulty it is a primary duty of the house-builder to be on his guard. The degree both of shelter and privacy must, in fact, be limited to what is compatible with a sufficiency of fresh air and sunlight.

Air and Sunlight. Modern building bye-laws have already done something towards securing air-space to every house, though, as will presently appear, there are methods of defeating their object, which they do not at present touch. But a sufficiency of air may be regarded as an acknowledged first condition for every decent house. The necessity for sunshine has still to receive the same public recognition; and there can be no doubt that our present knowledge of the importance of sunlight to health makes it needful to add to the first condition a second, that every house shall be open to a sufficiency of sunshine. Every house should at least get some sunshine into the room in which the family will live during the day-time. Into as many more of the rooms as possible let the sun come, but let no house be built with a sunless living room: and this condition must cease to be regarded merely as *desirable* when it can conveniently be arranged: it must be insisted upon as an absolute *essential*, second only to air-space: other things must, if need be, give way before it. At the present time, although for larger houses acknowledged as an important point, for cottages the question of aspect seems hardly to be considered; and, where thought of at all, a comparatively trivial consideration, such as the convention that a cottage should face to the street, is allowed to over-ride it. The essential thing is that every house should turn its face to the sun, whence come light, sweetness and health. The direction of roads and the fronting to streets are details which must be made to fall in with this condition, or to give way to it.

Back Yards. By no means the least advantage which will arise from giving to aspect its due weight will be the consequent abolition of backs, back yards, back alleys and other such abominations, which have been too long screened by the insidious excuse of that wretched prefix *back*. For if every house is to face the sun, very often it must also have "its front behind"—as the Irishman expressed it. The little walled-in back yard is of course somewhat firmly established in the public affection: entrenched behind the feelings of pride and shame, it appeals alike to those who are too proud to be seen keeping their houses clean and tidy, and to those who are ashamed to have it seen how unclean and untidy they are. To encourage pride is a doubtful advantage, while it is a positive disadvantage to weaken in any way the incentive towards cleanliness which shame might bring. Like lumber-rooms, too, these yards constitute a standing temptation to the accumulation of litter, far too strong for the average mortal to resist: old hampers, packing cases, broken furniture and such like find a resting-place there in which to rot, instead of being promptly disposed of. They are but wells of stagnant air, too often vitiated by decaying rubbish and drains. Back yards have, of course, their uses and advantages. They are convenient for the younger children to play in; but, alas! how very unsuitable! Too often sunless,

always dreary, the typical back yard, shut in with walls and outbuildings, is about as sad a spot as one could offer to children for a playground. The coster may keep his barrow there, and the hawker sort his wares; while as open air washhouses something may be said for them. But some of these uses are occasional only, and too much must not be sacrificed for them, while the rest may be met in other ways. It does not seem to be realized that hundreds of thousands of working women spend the bulk of their lives with nothing better to look on than the ghastly prospect offered by these back yards, the squalid ugliness of which is unrelieved by a scrap of fresh green to speak of spring, or a fading leaf to tell of autumn.

Town or Country. How far the improvement of transit facilities and the solution of the land question would enable the whole of the dwellers in large towns to be spread out on the basis of about six houses to the acre, as at Bourneville, has yet to be proved. Undoubtedly, whenever at all possible of attainment, the majority of men would accept Mr. Ruskin's ideal of a house: "Not a compartment of a model lodging house, not the number so and so Paradise Row, but a cottage all of our own, with its little garden, its healthy air, its clean kitchen, parlor and bedrooms." Under present conditions in large towns such schemes seem beyond the reach of municipalities. It is the great suburban districts which have to be considered for the present, where, after all, the majority of working folk are housed, neither in the country nor in the city, but between the two: those vast areas filled with streets of houses where it seems impossible to secure for each cottage land enough for a separate garden, where houses are not six to the acre, but four or five times six, or even more.

Open Space. Some space to each house, however, there must be, even in towns. If, instead of being wasted in stuffy yards and dirty back streets, the space which is available for a number of houses were kept together, it would make quite a respectable square or garden. The cottages could then be grouped round such open spaces, forming quadrangles opening one into the other, with wide streets at intervals. Every house could be planned so that there should be a sunny aspect for the chief rooms, and a pleasant outlook both front and back.* At present it is too often the custom to draw out a cottage plan that will come within a certain space and then repeat it unaltered in street after street, heedless of whether it faces north, south, east or west. Nothing more absurd or more regardless of the essential conditions could be imagined. Every house should be designed to suit its site and its aspect; and this is not less necessary when dealing with small houses built in rows, but more so.

Quadrangle. There is something at once homely and dignified about a quadrangle which gives it a charm even when the buildings are quite simple and unadorned. There is a sense of unity, of a complete whole, which lifts it out of the commonplace in a manner that nothing can accomplish for a mere street of cottages.† Each square could have some individuality of treatment,

* See Plate I.

† See Plates II. and III.

the entrances could be utilized to produce some little central feature, and the effect of thus grouping small cottages to produce collectively a larger unit in the street, of a scale capable of assuming some dignity, would be such an improvement as will not readily be realized by any who have not seen what a few simple college quads may do for an otherwise commonplace street. An Oxford or Cambridge college is simply a collection of separate small tenements, built in squares, with some central common buildings. It is undoubtedly the most satisfactory arrangement for numbers of such tenements where the space is limited. In this manner from twenty to thirty houses, according to size, can be arranged to an acre, including streets; and this number should nowhere be exceeded except under very great pressure. Even if it must be exceeded, probably it is better to go up and make extra floors, let in flats, than to curtail the open space. One larger space of ground is more effective than a number of small yards. Squares, such as suggested, would always be sweet and fresh, being open to the sun and large enough to be airy without being draughty. The distance across, preventing the overlooking of windows, would ensure the essential privacy of the house, in spite of the want of back yards. The space in the centre would allow a few trees to grow, some gardens to be made, and a safe play place for the children to be provided, while it would afford a pleasant and interesting outlook for all the cottages.

In the planning and laying out of these squares it would be well to provide for all sorts of tastes, for it will be easy to get plenty of variety. In some cases the whole square could be filled with allotment gardens let to those who wanted them; in others the space might be devoted to a broad lawn for tennis or bowls; in some a band of small gardens might surround a children's central playground, and in others a public garden be established; in some cases there might be a roadway all round the quadrangle, while in others the road might run down the centre with gardens attached to the houses on each side. On some sites it would be possible to get three-sided squares open to the south. Where the cost of land makes it needful to build more than two storeys high it would be a great advantage if on the southern side the buildings were kept lower to allow the sun to get well into the court.

In some localities the corner houses of squares would not pass existing bye-laws; there would in such a case be an opening for small walled gardens, which would be a boon to break the monotony of the streets, while stores, laundries, warehouses, workshops, and other needful buildings might find sites on these corners.

Self-contained Houses.

Before passing on to internal arrangement it is necessary to refer to the plan of building small houses with long projections running out behind, which, common in all towns, is almost universal in London. These projections effectually shade the rooms from such sunshine as they might otherwise get, and impede the free access of fresh air. Some municipal flat-dwellings afford a depressing example of this. In these houses the living rooms, which are only about ten feet square, face each other across a narrow space between such projections, and are only eleven

feet apart.* That a municipality could build living rooms at the top of an alley 24 ft. long, with windows only 11 ft. from the face of the opposite house, and could call that "clearing the slums," affords surely some measure of what slums must be. From such rooms the sun is effectually excluded, whatever their aspect; little fresh air will penetrate to the ends of those blind alleys; and a drearier outlook one would hardly have thought it possible to conceive. But, alas, it *has* been conceived; and on a fine estate near London there are to be found houses of this type having kitchens (sure to be used as living rooms) the windows of which look into alleys only 10 ft. 3 in. wide; these windows project, and the fronts are just 6 ft. 3 in. apart, while between them rise blackened wood fences exactly 3 ft. from each window! These houses are specially planned to accommodate two families, being provided with two living rooms and two outlets to the back.† To realize how bad this type of house is, one has but to consider how they would appear in the light of the most lenient building bye-laws if the doors from the main buildings to the projections were built up, making each house into two cottages technically, as already it is two virtually. Some municipalities would then consider themselves almost justified in pulling down such projecting cottages, to let air and light reach the others. They are virtually "back to back" houses opening on to 11 ft. wide streets with a dead end. Where houses must be built in rows, it is difficult to get enough air and sun to them in any case; and it is only possible to do this when all projections which can cause stagnation or shade are avoided. Every house in a row should contain all its rooms and offices under the main roof, and present an open and fair surface to sun and air on both its free sides. If so built it matters not which side is to the street, or which to the court; both are alike presentable; the aspect can govern the arrangement of the rooms unhampered by superstitions of front and back.‡

The self-contained house is not only better but more economical. A given cubic space can be built more cheaply when it is all within the main walls and under the main roof. A somewhat greater width of frontage is needed, and where streets are already laid out there might be extra cost of ground due to this which would be greater than the saving in the building. But the narrow house with straggling projections requires greater depth; and the deeper the houses the greater is the expense of the side streets which has to be divided among them. Where land is to be laid out, if the quadrangle arrangement is adopted, there need be no waste in side streets, because the houses face all ways, and this would about balance the extra cost of street per house due to the wider frontage, while the saving of detached outbuildings and back yard walls would mean a considerable economy.

Cottages must fit the life of occupants.

Under present rates of ground rents, cost of building and wages of occupants, we must reluctantly admit that it is hardly possible to give to every cottage all that is in the abstract desirable. But, far from being a reason why the ideal of cottage accommodation should be left out of

* See Plate IV. † See Plate V. ‡ See Plates III., VI. and VIII.

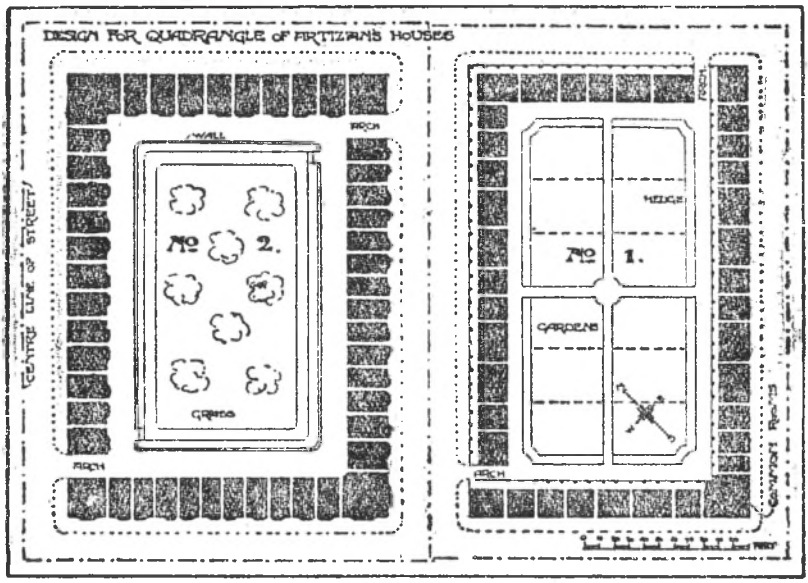

PLATE I.

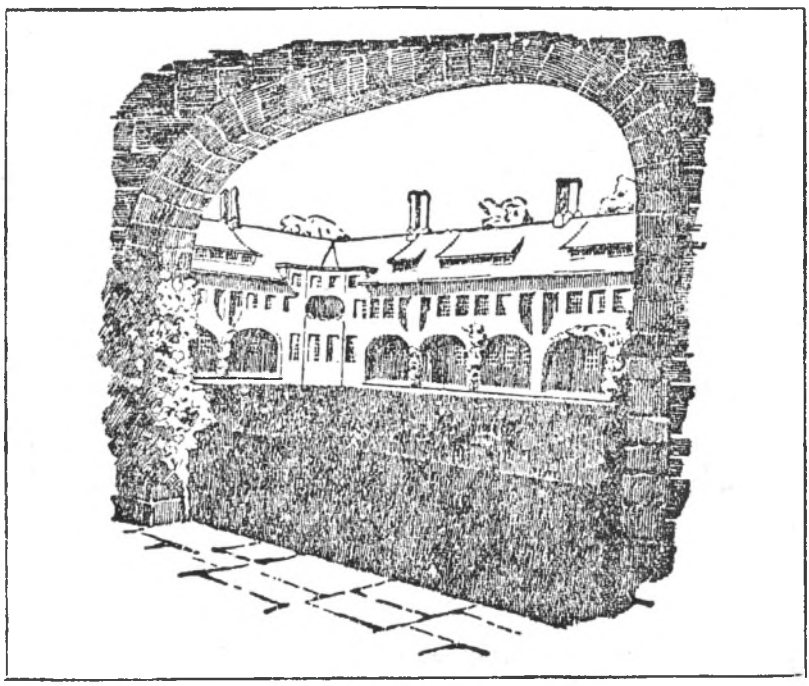

PLATE II.

View in Quadrangle No. 1, Plate I. Showing Common Room at the angle.

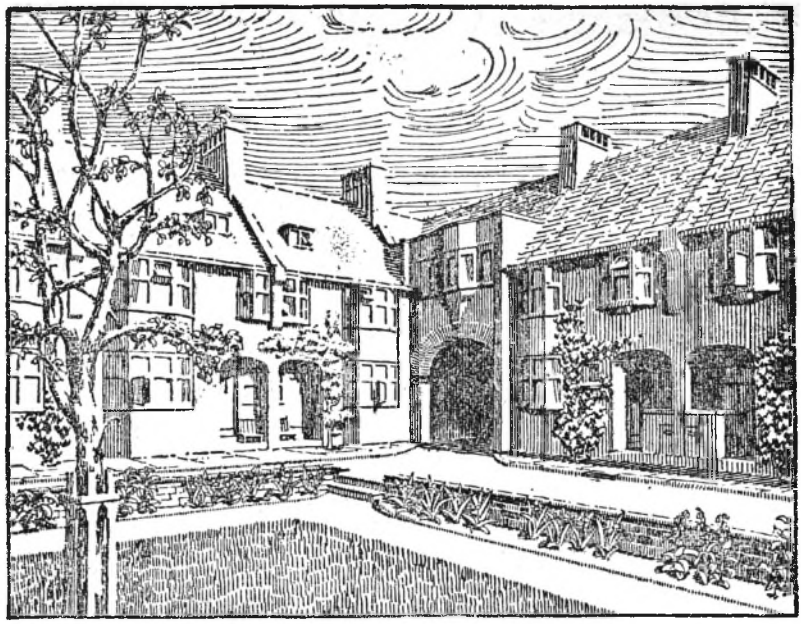

PLATE III.

View in Quadrangle No. 2, Plate I. N.B.—The fronts of some cottages and the backs of others are shown.

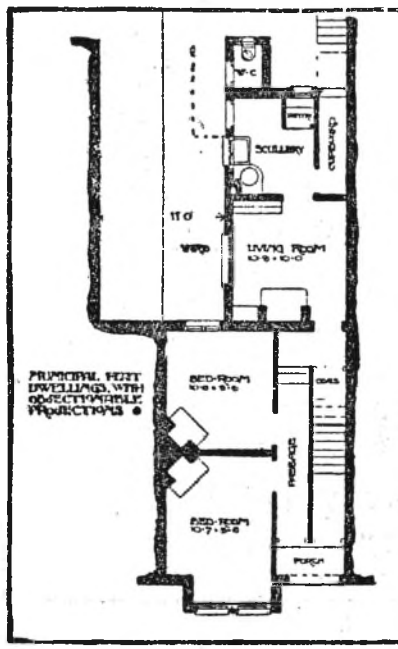

PLATE IV.

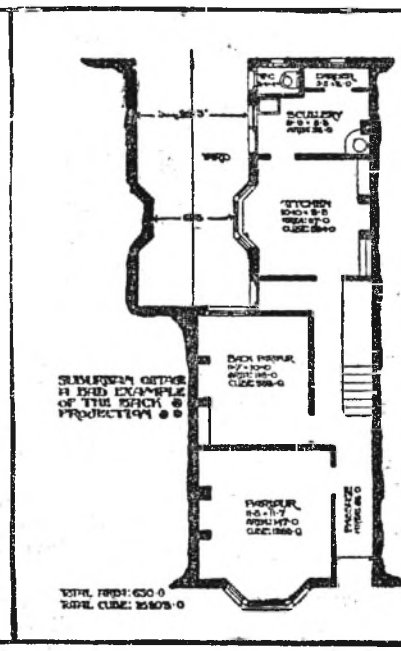

PLATE V.

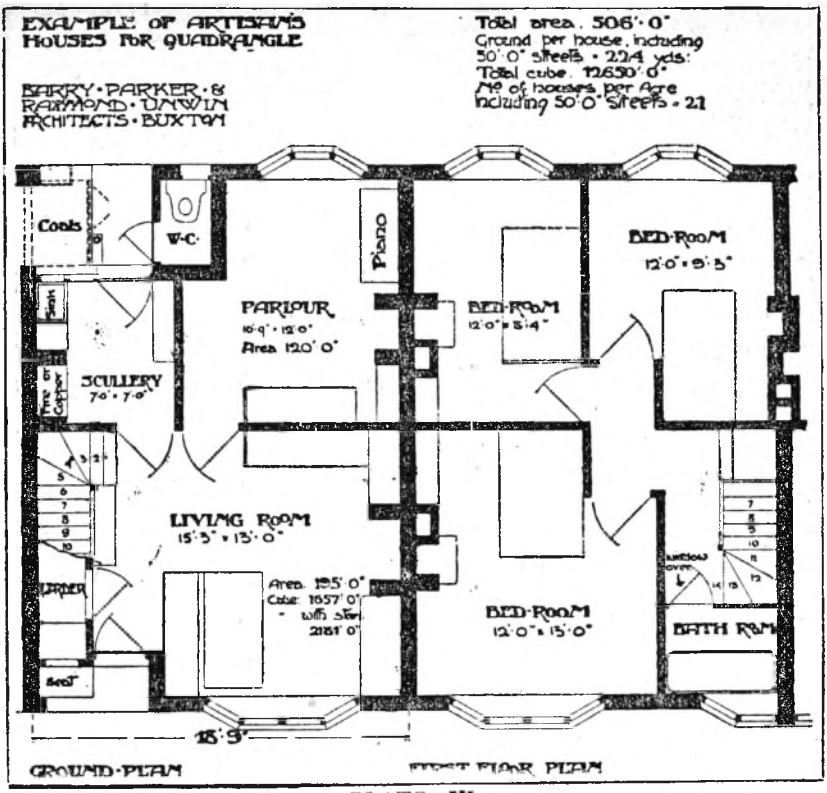

PLATE VI.

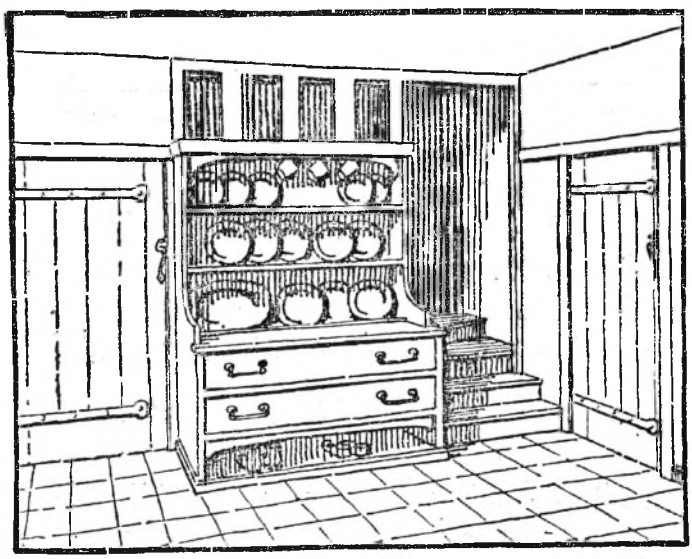

PLATE VII.

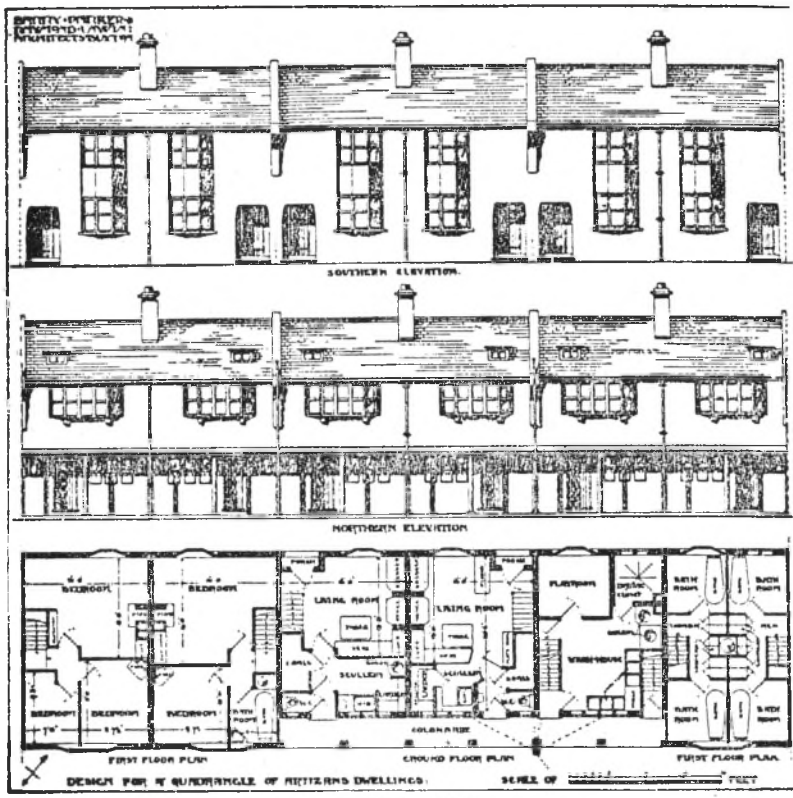

PLATE VIII.

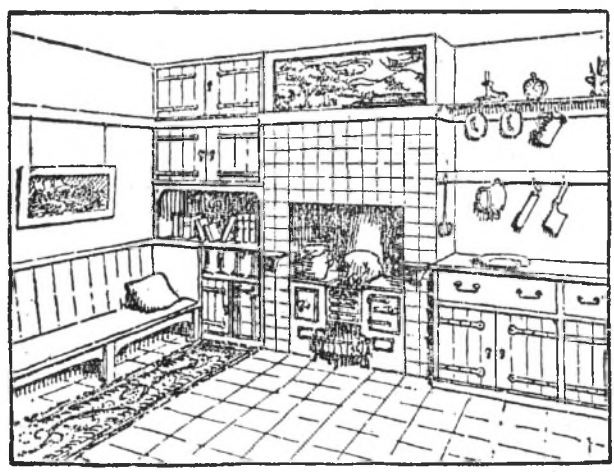

PLATE IX.

consideration, this is really a most cogent argument for its careful study. For the less the accommodation it is possible to give, the more important it is that what is given shall be so carefully apportioned that the house may approach as far as possible to the ideal. Although we all probably hope and strive for some change in one or other of the restricting conditions, for the time being it is needful to remember that a certain limited rent will only pay for a certain limited space. Except by a very careful study of the life which that space is to shelter, it is not possible to design the house so as to properly fit and accommodate that life. And it is only by making the house fit the life of its occupants that a right and economical use of the space can be obtained. The available room must be most liberally given where it will be most thoroughly and continuously used. When mankind first took to living in houses these consisted of one room ; perhaps the most important fact to be remembered in designing cottages is that the cottager still lives during the day-time in one room, which for the sake of clearness is best called the living-room. In the vast majority of cases the housewife has neither time nor energy to keep more than one room in constant use, and, during the greater part of the year, the cost of a second fire effectually prevents another room from being occupied. This living-room, then, will be the most thoroughly used and in all ways the chief room of the house ; here the bulk of the domestic work will be done, meals will be prepared and eaten, and children will play, while the whole family will often spend long evenings there together. The first consideration in planning any cottage should be to provide a roomy, convenient, and comfortable living-room, having a sunny aspect and a cheerful outlook. In it there should be space to breathe freely, room to move freely, convenience for work, and comfort for rest. It must contain the cooking stove, some good cupboards, and a working dresser in a light and convenient place.* No box 11 or 12 feet square should be provided for this purpose. Such a place cannot be healthy when occupied by a whole family, nor can it be other than inconvenient and uncomfortable.† In a very small room neither door nor window will be kept open except in very hot weather, because there can be no avoiding the direct draught. It is very important to plan a living-room so that the doors or stairs may not destroy the comfort, or even the sense of comfort. They should be kept away from the fire, and, above all, should not open across either the fire or the window. By far the most comfortable arrangement is to have the outer door set inwards a little, in a shallow porch, leaving a window-recess on the same wall ; if the room is a fair length, say not less than 15 feet, the door can then be wide open, and yet the light side of the room be free from draught. The common arrangement of an inside porch with the inner door opening at right angles to the outer one, directs the draught straight across the window to the fire, and largely destroys the sense of comfort in the room, while cutting it off more effectually from the fresh air. The chimney extracts a very large volume of air continuously from the room, and this must be made good

Living-room.

* See Plates VII. and IX. † See Plate VI. ; also VIII.

from outside. The more easily this air can come in the less keen will be the draught. It is not sufficiently realized that what has to be done is not to exclude cold air, which is impossible in a room with a fire, but to admit it in the way which will give the best ventilation with the least discomfort. In planning the room the furniture should always be arranged and drawn in, to make sure that provision has been made for work and rest, for meals and play. Many a room is ruined because the dresser, the table, and the settle, have not been tried in on the plan.

Furniture.

Windows facing the street are much less depressing if slightly bayed to invite a peep up and down as well as across; a projection of a few inches in the centre, with some advantage taken of the thickness of the wall to set back the sides, will suffice to add very much to the outlook.*

Bay Windows.

With regard to windows, doors, cupboards, and all other fittings, it should not be forgotten that when a quantity is required, as is usually the case in housing schemes, no extra cost is entailed by having them well designed, and of good proportions. Money is often spent in bad ornament, which but detracts from the appearance of the buildings; but an elegant mould or shaping costs no more than a vulgar one, and a well proportioned door or mantel is as easily made as one ill-proportioned. That nothing can be spent on the ornamentation of artisans' cottages is no excuse whatever for their being ugly. Plain and simple they must be, but a plain and simple building well designed may be very far from ugly.

Fittings.

After the living-room, the sleeping-rooms must be regarded as next in importance, for these will be occupied all the night. Of these it is only needful to say that they should be as large as can be provided, and as well ventilated as possible. There should be plenty of windows, easily opened, and everything possible done to encourage the opening of them. If the rooms can be arranged so that there shall be a comfortable corner between fire and window, where a quiet hour with book or pen can be spent, this is very desirable. For there is no real reason why the accommodation of the small house should not be increased by a more general use of the bedrooms for these purposes.

Bedrooms.

A small larder with direct light and ventilation should be provided for every cottage, the window of which should not be exposed to the heat of the sun. A cupboard in the living-room, even when ventilated, is hardly a fit place in which to keep food.†

Larder.

A scullery, to relieve the living-room from the more dirty work, should be the next consideration. This must have a glazed, well-drained sink, under an opening window. If the washing is to be done in each cottage, there must be a copper or set-pot and space for a small mangle to stand. When it can be arranged, a little cooking-stove, just large enough to be used in hot weather, will be a boon. But it is not well to put the main cooking-stove in the scullery, for the result will inevitably be

Scullery.

* See Plates VI. and VIII. † See Plates VI. and VIII.

that, for the greater part of the year, the family will live with the fire, in the tiny scullery, and the more airy living-room will be left vacant, and will, in fact, become a parlor.

Parlor.

However desirable a parlor may be, it cannot be said to be necessary to health or family life; nor can it be compared in importance with those rooms and offices which we have been considering. There can be no possible doubt that until any cottage has been provided with a living-room large enough to be healthy, comfortable, and convenient, it is worse than folly to take space from that living-room, where it will be used every day and every hour, to form a parlor, where it will only be used once or twice a week.

If this is true of the parlor, how much more true is it of the passage? To cut a piece three feet wide off the end of a small room, for the very doubtful advantage of having two doors between the inmates and the fresh air, or to obtain the occasional convenience it may be for a visitor or member of the family to be able to pass in or out without being observed, is surely an extreme instance of valuable room and air space sacrificed to thoughtless custom and foolish pride.* Any one who has known what it is to occupy a large airy house-place will not readily sacrifice its advantages for either a needless parlor or a useless passage. For the question is not whether it is an advantage to have either a passage or parlor in addition to a decent living-room, but whether it is worth while to have either at the sacrifice of the living-room. A desire to imitate the middle-class house is at the bottom of the modern tendency to cut the cottage up into a series of minute compartments.

Stairs and Landing.

In small houses, such as we are considering, the 500 or so cubic feet of air space which are usually shut up in a staircase and landing, would be much more useful if thrown open to the living-room. That there is any advantage at all, either to that room or to the bedrooms, in having this "buffer state" of stagnant air between them, seems extremely doubtful; while there can be no doubt at all of the immense gain of having an extra 500 feet of air in a room which contains, perhaps, only 1,400 feet altogether, and many rooms contain less. The space should in any case have ventilation, and direct light is, of course, desirable. The extra height which would be obtained by throwing stairs and landing open to the living-room would greatly help in keeping that room well ventilated, as also would the possibility of having a window open so far from the occupied parts of the room.

Coals, etc.

To complete the self-contained cottage, there must be found some place for coals, some small receptacle for ashes and rubbish, to be emptied every few days, and a water-closet or properly fitted earth-closet. A porch opening from the scullery provides a suitable place for these, so that, while within the main building, they may still be entirely in the outside air. The facility afforded for inspection, and the general tendency which even the less enthusiastic have to keep clean the outside which shows, would prove valuable advantages of this plan.†

* Compare Plate V. with Plates VI. and VIII. † See Plates VI. and VIII.

Bathroom. A bathroom for every cottage is an ideal which some day will surely come to be regarded as essential. In small tenements where the cost of this ideal may still be prohibitive, there seems no reason why there should not be provided at least a bathroom to each quadrangle. One of the great advantages of substituting open courts for narrow streets would be the ease with which some little corporate feeling might be fostered in them. In municipal housing schemes, which spring from the co-operative effort of the whole town or city, it would seem specially fitting that something should be done to foster associated action among the tenants. And this is the more urgent because it is only by such association that we can hope to provide for the many some of the most desirable conveniences of life which wealth now enables the few to secure for themselves individually. We have already pointed out what advantage would arise from the associated use and enjoyment of the small plots of land which are all that can be given to each cottage. It has been found quite practicable in very many flat-dwellings to have a considerable amount of associated usage of wash-houses, sculleries, drying-grounds, etc., even among the most unenlightened tenants. There is no reason why the same arrangement should not be made with cottages. Quadrangles lend themselves peculiarly to the provision of small laundries, baths, reading-rooms, and other such simple and easily managed co-operative efforts.

Co-operation.

Wash-house. A well-fitted wash-house having a plentiful supply of hot and cold water laid on to all the tubs, a proper washing and wringing machine, and a heated drying closet, is out of the reach of even the well-to-do cottager. But there is no reason why one or two such should not be provided for each court of houses; no reason why every little scullery should be blocked up with inadequate washing appliances; why every woman should have to spend a whole day toiling at the weekly wash which she could do with less labor in an hour or two if she had the use of proper apparatus; or why every living-room should be encumbered with clothes-horses or made uncomfortable with steam.* The capital cost that would be saved by not providing space for, and fitting, washing appliances in all the sculleries, would pay for the one co-operative wash-house. And a very small addition to the rent would allow for the provision of hot water and heat for drying. To such a laundry should be attached a small room divided from it by a glazed screen, where little children could play under the mother's observation. The want of such a place prevents many a mother from using a public laundry, as also does the distance from home, and the necessity of conveying clothes to and fro through the public streets, objections which would not be present in the case of the quadrangle with its small laundry. One or two baths, heated from the same source, could be provided; and it might be found possible to lay on a hot water supply to each cottage from the same centre. This has been done by the Liverpool Corporation in their Dryden-

Play-room.

Baths and Hot Water.

* See Plate VIII.

street houses, where a constant supply of hot water is provided to every sink at a charge of twopence per week to each tenement. This arrangement would greatly simplify the problem of providing baths to each house, as it would save the cost of the separate hot water installations. It is very desirable that a bath should have hot water attached, but one with cold water only is a great advance on none at all; and, in plans for artizans' houses, every alternative arrangement should be well considered, and every effort made to provide a bath of some sort. A bath-room adjacent to the scullery, or even a bath placed in the scullery, may sometimes be contrived when space on the bedroom floor is out of the question. And there are several alternative arrangements for getting a supply of hot water from the copper or side boiler direct into the bath. Where, however, a bath-room to each house is out of the question, one or two baths could easily be worked in connection with the laundry.* Add to these a recreation or reading-room (also being tried at the Dryden-street houses) and there would be in each quadrangle a small co-operative centre, the attendance on which might easily be arranged to be undertaken by the tenant of the next cottage, for a small payment.

Communal Centre.

Such a centre would, by associated effort, provide for each cottager many advantages which he could not hope to secure for himself by his individual effort, and all for the payment of a few pence per week extra rent. Beginning with the laundry and baths, the most necessary and well-tried items, such co-operative centres would undoubtedly grow, as experience taught the tenants the advantage of association in domestic work; the common-room to supply somewhat the place of the individual parlor, the bakehouse, and even the common kitchen would be matters only of time and the growth of self-restraint, and the co-operative spirit. As the communal centre grows in importance, it will begin to affect our architecture, forming a striking feature in each court and giving a more complete sense of unity to it. At some point it may become worth while to have a covered way from the cottages to the common rooms—care being taken, of course, to put this only where it will not shade any sun from the house. But this is, perhaps, wandering too far into the future, leaving the immediately possible for the ideally desirable. None the less, it is along these lines that we must look for any solution of the housing question in town suburbs which shall be satisfactory from the point of view of health and economy, and at the same time afford some opportunity for the gradual development of a simple dignity and beauty in the cottage, which assuredly is necessary, not only to the proper growth of the gentler and finer instincts of men, but to the producing of that indefinable something which makes the difference between a mere shelter and a home.

* See Plate VIII.

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NOTHING GAINED BY OVERCROWDING

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NOTHING GAINED BY OVERCROWDING

THE Garden City movement, as the name implies, stands for a more harmonious combination of city and country, dwelling house and garden. The rapid growth of towns and cities during the eighteenth and nineteenth centuries, due to the organisation and concentration of industries, took place without any proper regard being shown for health, convenience or beauty in the arrangement of the town, without any effort to give that combination of building with open space which is necessary to secure adequate light and fresh air for health, adequate un-built-on ground for convenience, or adequate parks and gardens for the beauty of the city.

Many attempts and proposals had been made to conteract this evil, but it was only after Mr. Ebenezer Howard had put forward the bold proposal to build a city on new lines, and with his supporters actually commenced to carry out that proposal, and only after Mr. Horsfall had explained what was being done to regulate the growth of towns in Germany that the public realised either the extent of the evil or the possibility of the remedy.

Mr. Howard's suggestions included then the proper planning and limiting of a town, so as to keep it always within reasonable touch of open country ; this may be called the larger aspect of the question ; but they also included the proper arrangement of the individual buildings and the limitation of the amount of building in relation to the area of open space, and this may be called the detailed aspect of the question.

What is meant by the founding of a new Garden City is now fairly generally understood, but it is perhaps too often assumed that the Garden City principle is only applicable where it is possible to start a new and entirely independent town right away in the country. Mr. Howard in his book recognised that it is not possible to regulate the aggregations of population in such a way that there shall be only detached towns of a limited size scattered about independently of one another. He fully recognised that one such town having reached the prescribed limits might need to provide for the development all round it of subsidiary towns at a short distance, intimately connected with it ; that in fact there might be developed a federated group of towns recognising one general centre. It is important to regard this principle as forming a constituent part of the Garden City movement because of its applicability to existing towns.

The fact that many of these towns have already far exceeded the limit of size which is deemed desirable by the advocates of the Garden City is, no doubt, unfortunate, but it can hardly be urged as a good reason for making no protest from the Garden City point of view against these towns being allowed to continue to grow in a homogeneous manner, swallowing up and obliterating the country all round, like the

spreading of flood water over a shallow valley. Nor is it enough that the Garden City movement should urge that suburban development be carried out with such a relation between the amount of building and open space as would accord with the detailed principles advocated for a Garden City. If it is deemed desirable to limit the size of a new town like Letchworth to something like 35,000 people and to plan for an agricultural belt to intervene between this town and the federated townlets which may be permitted to spring up around it, surely it is still more desirable to make some effort to secure definite belts of open space around existing towns and to encourage their development by means of detached suburbs grouped around some centre and separated from the existing town by at least sufficient open ground to provide for fresh air, recreation and contact with growing nature.

This federal aspect, if we may so term it, of town development has the great advantage of expressing in outward form the natural organisation of a large community.

People tend to flock together in villages or towns that they may enjoy the advantages of social intercourse with the wider opportunities for pleasure and culture that spring from it, and that they may enjoy the material advantages which arise from the co-operation of many individuals working for some common purpose. But it is impossible to secure effective action from any large number of people if they all try to act directly. Effective individual co-operation is limited to the comparatively small number who can have immediate personal knowledge of each other and can come into immediate and constant personal relation. Such a limited number of individuals form a group, and where other similar groups exist they cannot effectively co-operate as individuals, but each group must as a whole come into contact with another group through the medium of some central person representing the group. In the same way when the number of minor groups results in the selection of so many representatives that they exceed the number possible for individual co-operation, these representatives must again form a larger district group and come into contact with others through some district representative. This is what we mean by organisation, and though it takes many different forms the essential features are common to all the forms, whether to the companies and regiments of an army, acting through and controlled by their officers, the lodges or districts of a friendly society, or the departments and workshops of a great industry.

This basic principle of organisation should find its expression in the form of the town which, instead of being a huge aggregation of units ever spreading further and further away from the original centre and losing all touch with that centre, should consist of a federation of groups constantly clustering around new subsidiary centres, each group limited to a size that can effectively keep in touch with and be controlled from the subsidiary centre, and through that centre have connection with the original and main centre of the federated area.

In the development of existing towns therefore, the Garden City principle has much to offer which is of the greatest value because it is based on the natural principles of organisation and would give expression in outward form to such organisation. Detaching the units or suburbs one from another, giving them each their subsidiary centre around which they should be grouped and upon which they would depend, while the overgrown centre might have to remain a larger unit than is desirable, it would yet be possible to secure limitation to the units constituting the new growth and to secure between these units and between them and the parent town some defining and dividing belt of open land which would be of inestimable value.

Many towns are beginning to regulate their growth by means of the Town Planning Act. Now, therefore, is the opportunity to press upon the notice of the public this

aspect of the Garden City movement and to secure if possible some recognition of the principle. See Diagram VII.

In many cases development has, in fact, taken place along some such lines. An examination of the map of London, and of many other large towns, will show how their growth has largely consisted in the absorption of older townlets or villages which had sprung up near the town around some centre point. In many cases the old centre remains, and is still a focus of life and local movement within the larger town.

Such places as Westminster, Hampstead, or Dulwich, in London, date back to the ancient villages well outside the town, and still constitute effective centres of local organisation. The Garden City principle would recognise these centres, would maintain their definition by limiting their growth and the growth of the town in such a way as to preserve some belt of open country, meadow, park, or woodland, sufficient to give outline and emphasis to each unit and to provide for the ready access to the country of all the individuals living within the urban area of the unit.

But, as in the larger field the Garden City movement defines the proper relation and proportion between urban and rural areas, so within those urban areas it defines in detail the relation and proportion between the buildings themselves and the ground surrounding them; and it is this aspect of the question I wish chiefly to consider, for it will be found that much the same economic principles which determine the possibility of limiting the proportion of the individual building to the surrounding garden space, will also influence the limitation of the proportion of urban area to surrounding country.

The overcrowding of buildings upon the land has been so generally practised, and is so generally assumed to be necessary, that one cannot hope to advance far without first considering carefully whether there is any economic difficulty standing in the way of limiting the number of houses or other buildings to be erected upon a given area of land, and, if so, what that difficulty is.

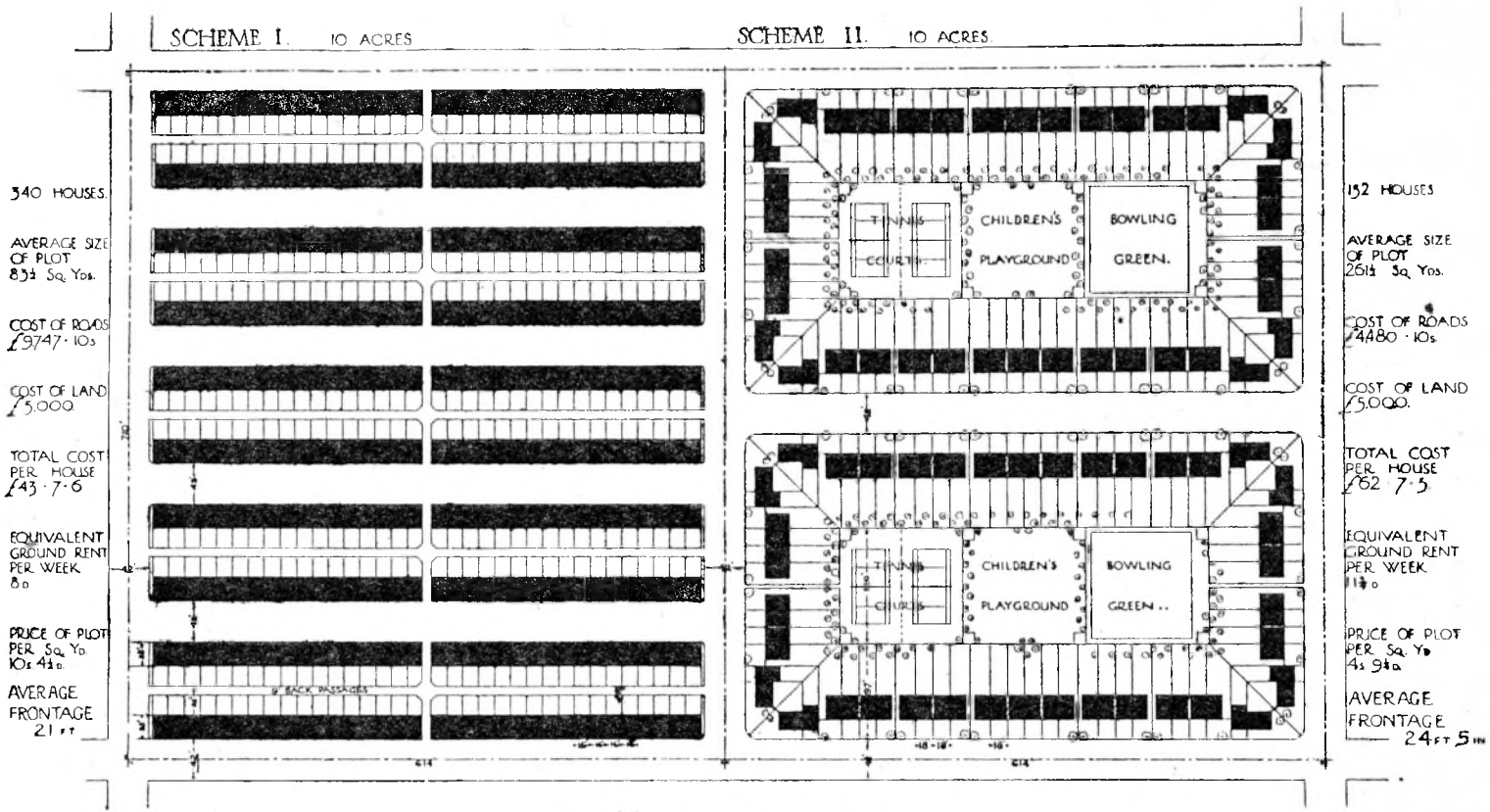
To most people, whether they are interested in the land as owners or builders, or are disinterested inquirers, it seems at first sight so obvious that the more houses you put upon each acre of land the more economical is the use made of that land, and the less will each person have to pay for it, that few have really troubled to test the matter. It has generally been assumed that though it may be necessary, to some extent, to put a limit to the number of houses that may be crowded upon an acre, that this limit should be made as high as possible, and that any limitation must necessarily be a serious tax upon the community.

It can, however, be shown that this view is very far from correct; that on the contrary, the greater the number of houses crowded upon the land, the higher the rate which each occupier must pay for every yard of it which his plot contains, the smaller will be the total return to the owners of land in increment value, and, indeed, the less will be the real economy in the use of the land.

I do not say that nobody can obtain advantage from overcrowding buildings; that point we will deal with later; but first let us, by definite figures, thoroughly establish the facts. This can best be done by taking two exactly similar areas of ground and working out the costs of development with the larger and the smaller number of houses to the acre.

As a first example we will take the conditions as they exist in many large towns, where by-laws of the usual type are in force, and where provision is made for a back road to give access to the cottage yards, and we will assume two schemes of development for similar areas each containing ten acres of land, measured to the centre line of the surrounding road. See Diagram I.

Diagram I.



TWO SYSTEMS OF DEVELOPMENT CONTRASTED

Scheme No. I. shows one of these ten acres developed with approximately the maximum number of houses permitted under modern improved by-laws, assuming the type of house which occupies 16 feet of frontage. It will be seen that a total of 340 houses can be placed upon the ten acres, at the rate of thirty-four houses to the acre, the roads being included in the measurement. These houses are built up to the road line; the roads are made 42 feet wide, and back passages are provided 9 feet in width.

Scheme No. II. is developed in accordance with the Garden City principles. The houses are to be of the same size and occupy the same frontage as before; but instead of being built in continuous rows they are built in groups of two, four, or six, and a space is left between each group; in addition to this, provision is made for passage-ways through the groups so that direct access is obtainable to all the gardens from the front roads, and no back roads are required. In this case only 152 houses are arranged for on the ten acres, that is at the rate of 15.2 houses per acre, considerably less than half the number of houses in Scheme No. I.

In both cases the value of the land before development is assumed to be £500 per acre, the main roads to cost £7 5s., and back roads £1 per lineal yard. These costs of course include not only the making of the roads and the laying of the drains, but also the making up of the roads when they are taken over by the Local Authorities, as both these costs have, in one form or another, to be borne by the cottage. Although very often the owner or builder may incur the first cost, and he may leave the purchaser of each plot to bear the second, it is necessary, for fair comparison, to take the total cost of the road.

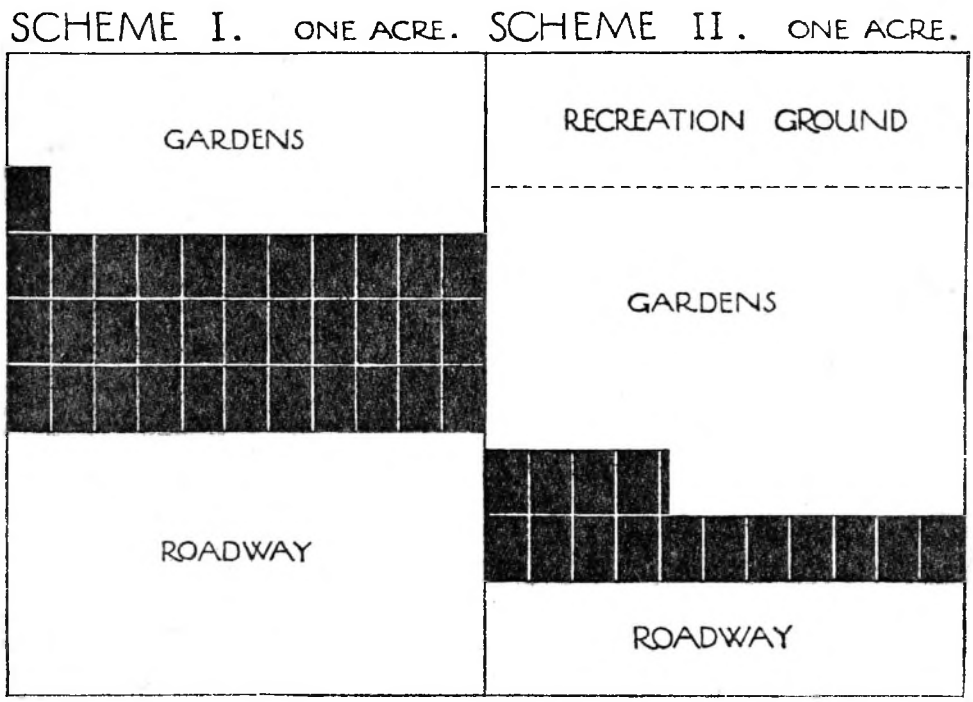
The following table gives the cost of development in each case, that is, the main costs of land and road making, together with the average size and cost of plot and the equivalent ground rent on a 4 per cent. basis. Some of these figures are also given at the side of each scheme in Diagram I.

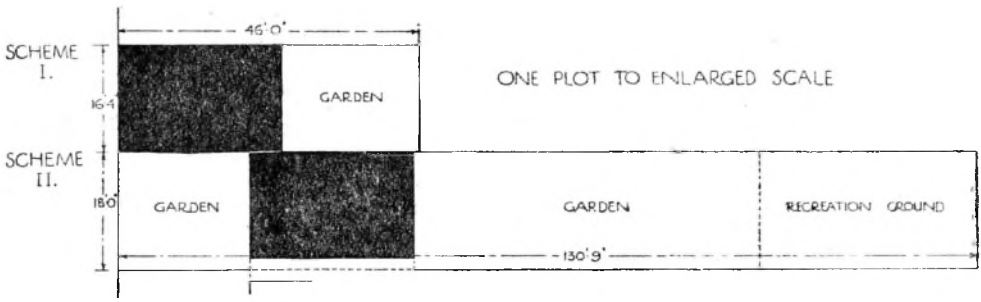
TABLE I.	Scheme I. With land at £500 per acre.	Scheme II. With land at £500 per acre.	Scheme II. With land at £250 per acre.
Number of houses	340	152	152
Average size of plot	83½ sq. yds.	261½ sq. yds.	261½ sq. yds.
Cost of roads	£9,747 10 0	£4,480 10 0	£4,480 10 0
Cost of land	£5,000 0 0	£5,000 0 0	£2,500 0 0
Total cost of land and roads per house	£43 7 6	£62 7 5	£45 18 6
Equivalent ground rent per week	8d.	11¾d.	8½d.
Price of plot per sq. yard	10/4½	4/9¼	3/6

It is apparent that in Scheme No. I a large proportion of the ground must be occupied by the roads, to provide frontage for the large number of houses. In Scheme

No. II. the greater part of this land is available to be added to the gardens, or to be arranged as recreation grounds in addition to the gardens, as shown in the diagram.

Diagram II.





EFFECT OF TWO SYSTEMS OF DEVELOPMENT ON EACH ACRE AND EACH PLOT.

Now roadways represent perhaps the most expensive form in which open space can be provided : not only so, but every additional road means a serious loss of frontage available for building, because at every point where one road joins another there is

lost not only the frontage occupied by the width of that roadway but the frontage occupied by the depth of the building and plot. In Scheme No. I it will be seen that the whole of the frontage of the vertical roads is occupied in this way, and is therefore ineffective for the purpose of affording frontage for buildings. There is, of course, a similar loss at each corner in Scheme No. II. but there are only eight corners where the loss can occur, while there are twenty such corners in Scheme No. I. Thus it happens that the greater the number of houses crowded upon an area of land, the greater must be the length of road provided per house, the greater the proportion of the land occupied by roads, or, in other words, the greater the waste of the land. It will be seen from the table how this affects the area of the plot and the cost of the roads. In Scheme No. I there are only 83½ square yards of ground actually available for the building and backyard, while in Scheme No. II. an average of 261½ square yards is available. Although the number of houses has only been reduced by rather more than half, the area of the plot has been increased more than three times.

The cost of the roads in Scheme No. I comes out at £9,747 10s., while in Scheme No. II. in spite of the much more liberal provision of frontage, to allow for passages between every pair of houses and spaces between every group, it only comes to £4,480 10s. The cost of the land in each case would be £5,000. If this is added to the cost of the roads in each scheme, and that total divided by the number of houses arranged for, it will be found that in Scheme No. I the cost of the small plot of 83½ square yards is £43 7s. 6d., equivalent to a ground rent of 8d. per week on a 4 per cent. basis, while in Scheme No. II. the cost of the large plot of 261½ square yards has only risen to £62 7s. 5d., equivalent to a ground rent of 11¾d. per week. From the point of view of the tenant, therefore, in Scheme No. I, he pays £43 7s. 6d. for the freehold of 83½ square yards of land, equivalent to a price of 10s. 4½d. per square yard. In Scheme No. II. he pays £62 7s. 5d. for the freehold of 261½ square yards, which is at the rate of 4s. 9¼d. per square yard.

Let me ask whether in purchasing any other commodity, the public are content to take such very bad value for their money. Supposing there were two village shops, and one offered to supply eighty-three common marbles for 8d., and the other one offered 261 marbles of the same size and character for 11¾d., can it be supposed that there would be any village boy who would not know which shop to patronise ? To put it quite bluntly, these are the two offers, made by the old-fashioned speculative builder on the one hand, and by the Garden City or Garden Suburb on the other. The exact effect upon each acre of ground is illustrated by means of Diagram II. in which the roadway, the houses, and the gardens are collected into separate areas. Comparing these sample acres from the two schemes, it will be seen how the space occupied by the roadway and by the additional number of houses swallows up so much of the total area of ground as to leave very little to be divided among the larger number of houses as back yard or garden for each.

The financial effect of reducing or increasing the number of houses to be placed upon a given area of ground will, of course, vary as the cost of land and road making varies.

Where the land is comparatively expensive, and road making comparatively cheap, the advantage in the price per plot to be gained by overcrowding will be greater than where land is relatively inexpensive and road making relatively dear. It is important also to distinguish between variation in the number of houses to the acre and variation in the building frontage provided to each house.

It will be well to take one other example of two comparative developments, adopting land at the cheaper rate of £300 per acre, and taking the total cost of roads

per yard lineal in both cases at £5 8s. A comparison of the figures in this case is still more remarkable, as will be seen from the following table:—

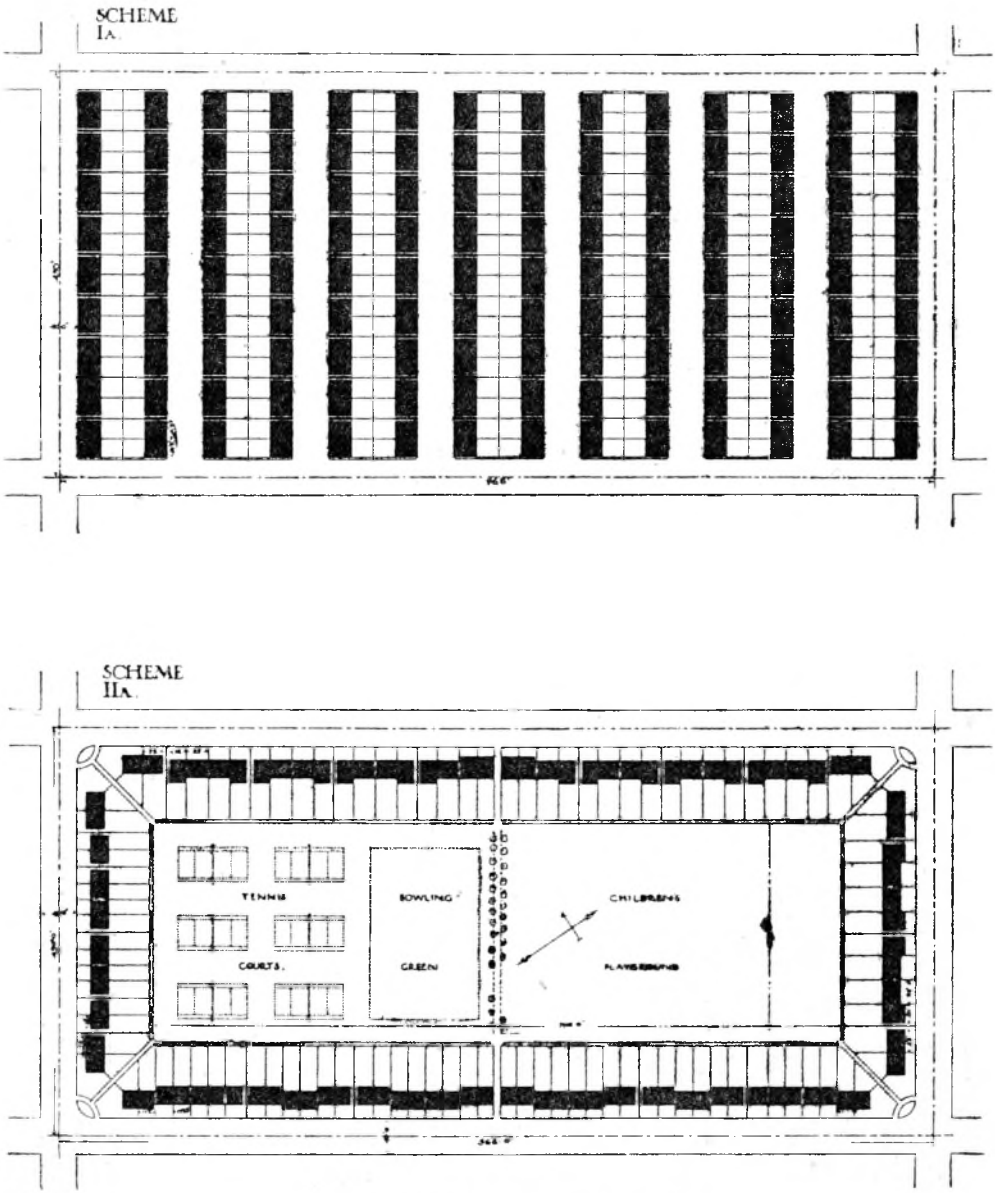
TABLE II	Scheme Ia. With land at £300 per Acre.	Scheme IIa. With land at £300 per Acre.	Scheme IIa. With land at £150 per Acre.
Number of houses	252	106	106
Average size of plot	98 yds.	398 yds.	398 yds.
Cost of roads	£7,942 0 0	£2,478 0 0	£2,478 0 0
Cost of land	£3,000 0 0	£3,000 0 0	£1,500 0 0
Total cost of land and roads per house	£43 8 6	£51 13 7	£37 10 6
Equivalent ground rent per week ..	8d.	9½d.	7d.
Price of plot per sq. yard	8/10¼	2/7	1/10¾

In Scheme IIa the frontage of the individual buildings has been varied to suit particular types of cottage adapted to the aspect shown. In some cases the frontage of the actual building is as much as 25 feet, in others as little as 15 feet. In order to compare quite fairly with Scheme IIa, the frontage of the actual buildings in Ia has been taken at 20 ft. 6 in., which is exactly the average frontage of buildings in Scheme IIa ; and in addition to the 20 ft. 6 in., passages have been allowed between every pair of cottages so that direct access is available to all the back yards without any back roads.

It will be seen, on comparing these figures, that the economic results of overcrowding are even less favourable than in the first example taken ; that as compared with Scheme Ia, with twenty-five houses to the acre, there is only an increased cost equivalent to a ground rent of 1½d. per week in Scheme IIa, with only ten houses to the acre, which allows a large area of land either for big gardens or for recreation grounds, as shown in the diagram. While the tenant would only pay for his large plot of 398 square yards at the rate of 2s. 7d. per yard, he would have to pay for the small plot of 98 yards, just a quarter of the size, at the rate of 8s. 10¼d.

This remarkable result is not only due to the fact that so much of the land is occupied by the numerous roads to give access to the additional number of houses, but to the further fact that, to provide for the same actual frontage of buildings, a greater amount of road is required per house in overcrowded schemes of development, than in less crowded schemes. In this case, taking the whole of the road length, in Scheme Ia there is an average of 15 ft. 3 in. of road, or 30 ft. 6 in. of road frontage per house, although the frontage of each building averages only 20 ft. 6 in. ; while in Scheme IIa, with the same average frontage for the buildings, there is only required an average of 13 ft. of road or 26 ft. of road frontage per house, in spite of the fact that in addition to passages between every pair of houses, as provided for in Scheme Ia, there are provided wider passages between every group of houses. This is due to the waste of frontage that occurs at so many road junctions in Scheme Ia.

Diagram III.



TWO SYSTEMS OF DEVELOPMENT CONTRASTED.
SEE TABLE II, PAGE 8.

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This point must be clearly borne in mind, because there is a general impression that for development with a few houses to the acre, a greater expense of roads, drains, etc., is required per house than would be needed if more houses were placed upon the acre. This impression is no doubt partly due to the fact that it has usually happened that schemes which have been planned with a reduced number of houses to the acre have also given greater frontage per building and greater distance between the groups of buildings, but in order to understand clearly the effect of reducing the number of houses to the acre this complication should be eliminated. If the building frontages are taken to be exactly the same in each case, as in the scheme now under consideration, it will be seen that there is required, in the overcrowded development, an average length of 15 ft. 3 in. of sewer, surface water drain, gas, water supply pipes, etc., for every house built; moreover, if all the roads are to be equally patrolled, the policeman and the scavenger's cart will have to travel 15 ft. 3 in. for every house; whereas in the scheme with a reduced number of houses to the acre, there will only be required 13 ft. of road, sewer, gas, water, etc., per house. Setting back the houses from the road and leaving a small front garden does indeed increase the cost of scavenging slightly, because the distance to be walked in each case is that much greater; but reducing the number of houses to the acre need not, by itself, increase the cost of any of these services.

It is possible, however, that to a slight extent the cost of main drainage will be increased by reducing the number of houses to the acre, because, necessarily the houses will cover a larger area and the lines of main drainage and main gas and water pipes will have to be carried further at a larger size to distribute over the greater area, but generally speaking this will only mean a slightly larger pipe for a greater distance along a main road, and can be but a very small matter, whereas we have seen that a positive saving per house in the length of road, and therefore of all the services, may result from reducing the number of houses to the acre.

The figures given in connection with the two schemes we have discussed have sufficiently demonstrated the first proposition which we set out to prove, namely, that the greater the overcrowding of houses upon the land the higher must be the price that the tenant will pay for the available land which he can use. We have seen that, in one instance, he pays more than double the price per yard, and in the other instance more than three times the price per yard in the overcrowded systems of development, compared with what he would have to pay in the less crowded system advocated, to provide for the owner the same price per acre for the undeveloped land in both cases.

The second statement, that the return in increment to the owners of land is *reduced* by the crowding of houses to the acre instead of being increased thereby, as is generally supposed, still needs to be proved; for at first sight it will seem that, in the particular cases under consideration, the landowner was not affected by the different systems of development, because the land was assumed to be sold by him at the same price per acre in both cases. But the increment which we are considering, being the difference between the value of land for building purposes and its agricultural value, is affected not only by the price at which the land is sold, but by the quantity of land which is converted from agricultural to building uses. From this point of view let us see how the two systems of development affect the owner of a large estate upon which there is developed some new centre of population. Suppose for example, that coal is discovered under the estate, and that several coal-pits are sunk. If we assume that, as a result, there are required 6,678 new houses to accommodate the miners and their families, together with the necessary complement of

professional men, tradesmen and artisans, or a total population of something like 33,000 people; if, further, we assume that the surface value of the land for agricultural purposes is £40 per acre and that its value for building purposes is £300 per acre, it will be easy to compare the result to the owner of developing all the building areas on his estate on the old-fashioned, crowded system shown in Scheme IA with what it would be if he adopted the Garden City method shown in Scheme IIA.

To accommodate 6,678 houses on the basis of Scheme IA he will be able to sell—

$\frac{6{,}678 \text{ houses}}{25.2 \text{ houses per acre}}$ = 265 acres of land, at £300 ..	£79,500
Deduct agricultural value of 265 acres at £40	10,600
Gross increment due to the building operations	£68,900

If, however, having come under the influence of the Garden City Association, he should decide to limit the number of houses per acre to an average of 10.6—that is, as in Scheme IIA, the result will be as follows: He will now sell—

$\frac{6{,}678 \text{ houses}}{10.6 \text{ houses per acre}}$ = 630 acres of land, at £300 ..	£189,000
Deduct the agricultural value of 630 acres at £40. . ..	25,200
Gross increment due to building operations	£163,800

or an additional increment of £94,900

So long, therefore, as the estate of the owner is large enough to accommodate the whole of the development, however much it is spread out, the owner's profit or increment is reduced as the overcrowding increases. Where many owners are concerned this would be true of the owners as a class, but might not be true of the individual owner who might sell the whole of his land in any case. The amount of this increased increment due to the limitation of the number of houses to the acre by the Garden City method of development of course depends on the land being sold at the same price. There seems, however, no reason why the land should be sold at the same price, no justification for the Garden City method of development conferring this enormous increased increment value upon the owner. We have seen that increment is due to the increased value of land for building purposes, and it would seem more natural that it should be estimated rather in relation to the amount of building than in relation to the size of the garden attached to the building, and it is obvious that the owner of land could afford, without loss to himself, to estimate his increment at so much per house instead of so much per acre, and where larger gardens are provided, let or sell the land at a reduced rate sufficient to recoup him first for the loss of agricultural land, secondly for the amount of increment due per house.

Let us now see at what price on these lines the owner could afford to sell the greater quantity of land required to accommodate the population we have been considering under the Garden City type of development shown in Scheme IIA. If the increment is to be per house instead of per acre, he will need to receive the same amount of increment in both cases, and the total sum which he ought to receive for the 630 acres would be as follows:—

630 acres deducted from his agricultural land, at £40 per acre ..	£25,200
Add the increment value assumed to be received under Scheme IA	£68,900
Total	£94,100

If we divide £94,100 by the 630 acres, we shall find that this represents in round figures £150 per acre. We see therefore that if the landowner in this case were willing to accept a certain increment per house, irrespective of the size of the garden, he could afford to supply the land to a Garden City Association undertaking the housing of the whole of the population springing up on his estates on the basis of Scheme IIA, at the rate of £150 per acre, and be in the same position as if he had allowed the old-fashioned speculative builder to develop the land for the same population on the basis of Scheme IA, and charged £300 per acre for the land.

If now we refer to Table II we shall see that the result to the tenant of this reduction in the price of land is that he may have, under the Garden City system of development a plot of 398 yards at a cost of £37 10s. 6d. or at a ground rent of 7d. per week, without reducing the return to the owner of the land; whereas, under the old fashioned system he would have had to be content with 98 yards of land which would have cost £43 8s. 6d., or 8d. per week ground rent; while the actual cost per yard of his plot would be 1s. 10¾d. in place of 8s. 10½d.

There would, however, be certain allowances to be made; the larger garden would cost a little more for fencing and the cost to the owner would no doubt be slightly greater in providing a larger area for building operations, if only in the matter of survey expenses, so that in all probability it would be necessary for the tenant to contribute at least the same ground rent and perhaps a fraction more in order that the larger plot should give the same return to the owner; but the point which I wish to emphasise is this, that there is no economic difficulty in providing for the development of land on Garden City principles, but that for practically the same cost it is possible, if the owners of land will accept the same total return in increment, to give every house a garden, which, even from the point of view of the value of its produce will be worth vastly more than the 1d. or 2d. per week that it may sometimes cost.

In the above example we have assumed the simplest case of a large estate which could accommodate the whole of an industrial population settling upon it.

By way of further example we may consider the result due to the steady growth of a town, which would follow from each of the systems of development shown in the first example, Schemes I and II; and in this case the results to the owners will be true of the owners collectively, but not necessarily of the owners individually.

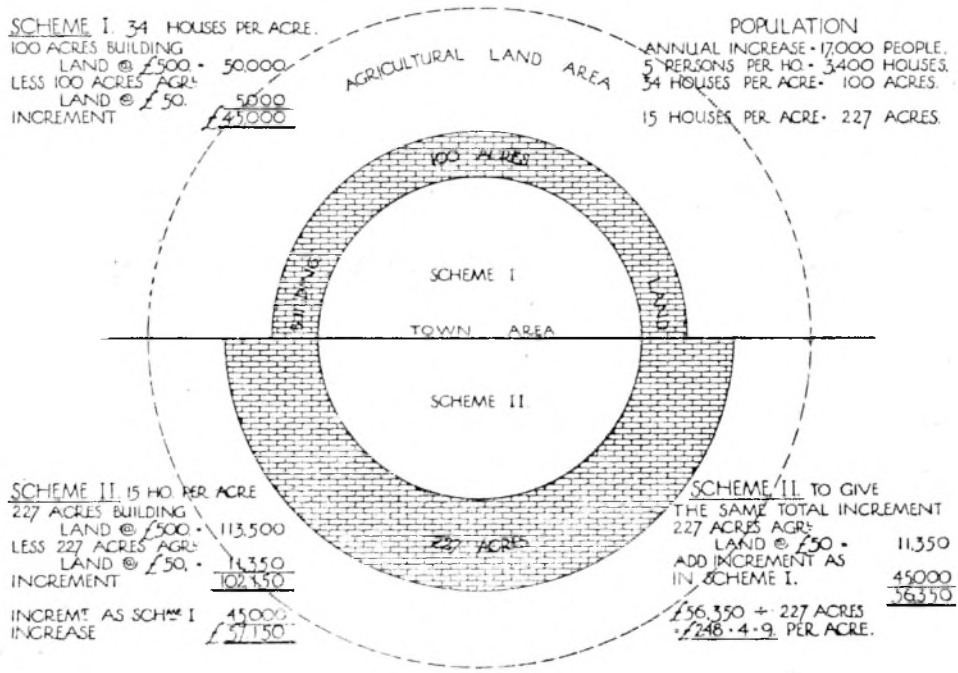
Diagram 4 illustrates the effect when the two Schemes are applied to a town in which an increase of population of 17,000 people takes place every year. Assuming five people to the house, that would mean 3,400 houses to be built every year. The upper half of the diagram shows the development before the adoption of a town planning scheme, the lower half shows the development after the adoption of a scheme limiting the number of the houses in the same proportion as we have limited them in Scheme II, as compared with Scheme I, and the figures show the total increment value and also the reduction of the price per acre which would give the same increment value in both cases; while the third column in Table I shows how the reduction of the price of land here arrived at would affect the cost of the individual plots.

It will be worth while at this point to consider the effect which the extra acreage required to provide for the population with the limited number of houses to the acre will have upon the size of a town; because at first sight it might be imagined that a very serious difficulty would arise in the increased distances to be travelled from the centre to the circumference. Owing, however, to the fact that the area of a circle increases not in proportion to the distance from the centre to the circumference but in proportion to the square of that distance, it follows that the increased radius

required to give an area sufficient to provide each year for a given increase to the population of a town is a rapidly diminishing one: a glance at diagrams V and VI will illustrate this. Further it is probable that the application of town planning to the development of land around towns will lead to considerable economy in its use. It is only necessary to examine town maps or to move about outside the central area of any town to realise that for want of good planning there is much waste of land.

It may be useful to illustrate this question of expansion by reference to the city of London. The area of inner London administered by the London County Council represents a circle having a radius of $6\frac{1}{4}$ miles. The present population of this area

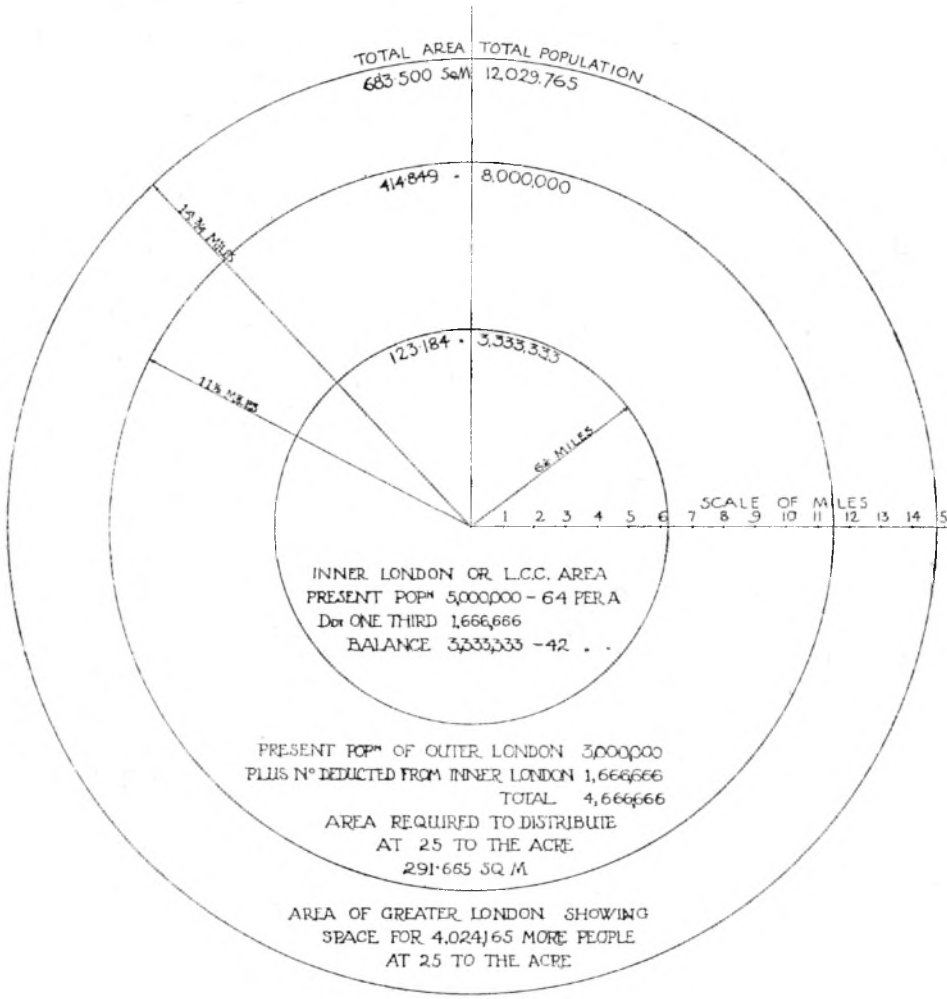
Diagram IV.



is approximately 5 millions, equal to sixty-four people per acre on an average. There are still considerable areas quite unbuilt upon within this district of inner London. Supposing it possible to reduce the density of population of inner London to an average of forty-two per acre by inducing one-third of the people to live outside the boundary, let us see how this would affect the distribution of population in Greater London. The Metropolitan Police Area is approximately represented by a circle having a radius of $14\frac{3}{4}$ miles. The present population of this outer area is about 3 millions. If we were to add to this the $1\frac{2}{3}$ millions which we have assumed to be persuaded to move out we should have increased the population of Outer London to $4\frac{2}{3}$ millions of people. See Diagram V.

In the Hampstead Garden Suburb there will, when it is completed, be an average of something like seven houses to the acre, but the Suburb being a residential area does not have its full proportion of land occupied by business premises and

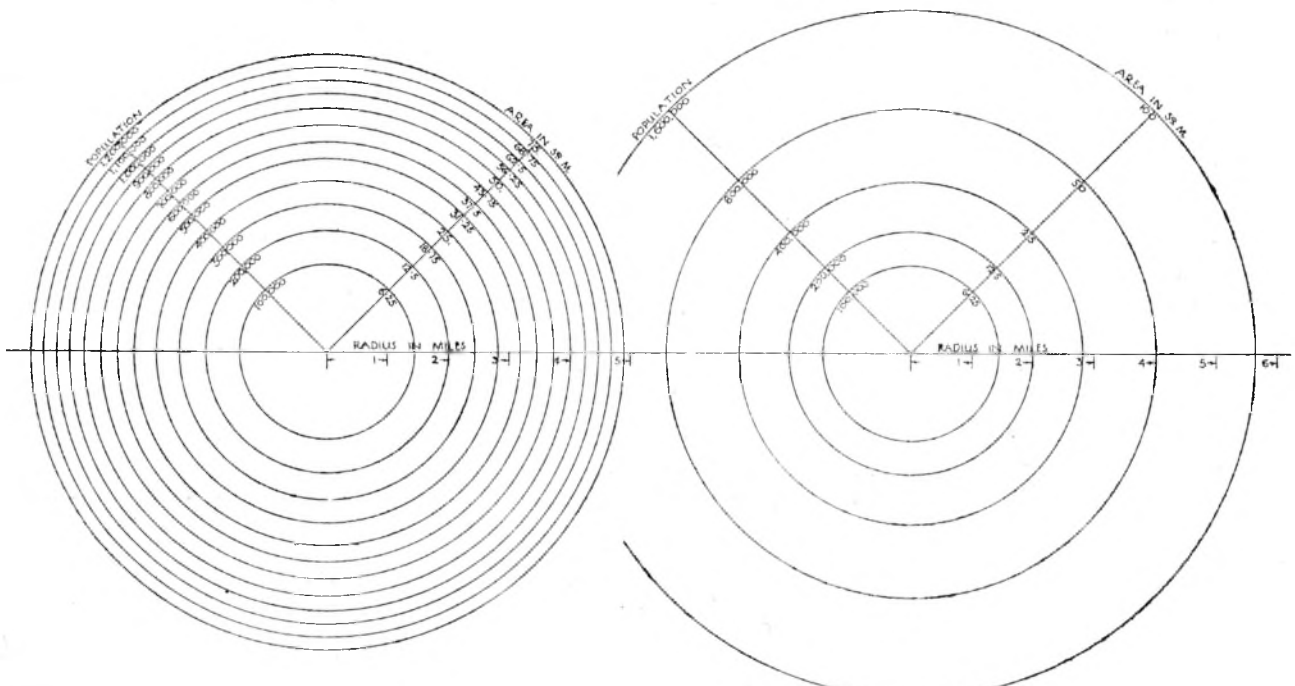
Diagram V.



workshops. If we add to the area of the Suburb the greater part of the eighty acres of open space around which it is planned, to represent an area devoted to these purposes, we should then find that the average population to the acre would be something like twenty-five people, equivalent to about five houses. Assuming that

Diagram VI.

DIAGRAM SHOWING RELATIVELY SMALL INCREASE OF RADIUS REQUIRED TO PROVIDE AREA SUFFICIENT TO HOUSE A GROWING POPULATION TAKEN AT AN AVERAGE OF 25 PEOPLE TO THE ACRE.



the 4⅜ millions of population, which we have considered should be provided for in Greater London, were to be spread out on this basis of an average of twenty-five to the acre, I find that including the population supposed to be left in Inner London, the total of 8,000,000 people would only need an area having a radius of 11½ miles, while the present area of Greater London would allow of the population increasing from eight millions up to twelve millions distributed on this same basis.

It will be seen, therefore, that the total additional distance to be travelled as a result of preventing overcrowding is a comparatively unimportant matter. Indeed overcrowding, though very bad in certain areas, is very much a local evil, and it is remarkable to find how small is the average number of people to the acre in many districts of London, where one knows that the overcrowding on certain individual acres is very bad. We may, therefore, safely say that there is no sound argument against reducing the number of houses to the acre on the score of seriously increasing the distances to be travelled. See Diagram VI.

It may well be asked, how is it if the economic advantages of overcrowding are so small and the disadvantages so great that the overcrowding system has so generally been adopted? The reason is simply this, that the one person who can secure the advantage happens to be the person who is generally able to settle the type of development, namely, the individual who, having a limited plot of land, sets out to secure the maximum return he can from it by building upon it; and it is true that the value of land as a definite stand for a building is greater than its value as garden land around the same building. In the case of the owners of land, the reason is probably due to the fact that they have not thoroughly thought out or understood the matter, and have looked at the price per individual acre, and have not realised, for example, that if they could sell two acres of land for £300 every year, they were doing better than if they sold one acre of land for £500. But, unfortunately, the majority of people, and particularly the occupants of small houses, which are the ones usually most overcrowded, care chiefly to get a house of some sort at the least cost, and have no means of knowing, because no choice is ever put before them by which they may judge, that they are paying at an extravagantly high rate for their small plots as compared with what they might pay for much larger plots.

When a hard pressed working woman goes to look for a house she considers chiefly the rent, and it will be seen that even in the most favoured circumstances, unless there is some alteration in the value of land, the bigger plot does cost a trifle more. In our first example the difference is the substantial one of 3¾d. per week, a difference which is truly small compared with the difference in the size of the plot, but is a substantial one none the less.

So long as each individual speculative builder looks at his own acre of land only, having bought it and paid the price for it, it is probable that he can sweat out of that land a little more profit by building the maximum number of houses upon it, because in spite of the increased cost of development, under present circumstances the return, whether he sells the land or lets the houses, will increase a little the more buildings he puts upon it, and increase a little faster than the increase in the cost of development. But if the number of houses to the acre around a growing town is limited under a town planning scheme, this does not mean that the builders will get less profit in the future. It may mean that an individual speculator, who has bought an individual plot, will make less profit out of that particular piece of land than he would have done, though, as has been shown, the difference will be very much less than he imagines. He need not, however, lose anything of his profit per house, because the same number of houses will be required; and though it may require a little more

capital to purchase enough land for the same number of houses, there seems no reason to suppose that the limitation of the number of houses to the acre is in any way liable to reduce the builder's profit either on the buildings themselves or on the increased value of the land due to development, if this profit is estimated per house, as it should be, and not per acre, as at present is the custom. And we have seen that this is true for the owner of land also. In spite, therefore, of the fears of the landowner and the speculative builder there does not seem to be any reason why town planning should not prove to be to the real benefit of both parties. It is, of course, not contended that the limitation by a town planning scheme of the maximum number of houses that may be erected upon the acre of land will not cause loss to anyone. It is probable that no change can be introduced, however beneficial, that will not cause individual hardships.

When anyone purchases land he estimates its probable value and takes the risk of increase or diminution. If a railway station is opened adjacent to his land, its value will go up ; if a factory is built on the next plot, it may go down. In one case benefit and in the other injury results ; but the fact that these risks may work hardship does not prevent either the station or the factory from coming ; and there seems no reason why the community should refrain from putting upon the use of land for building purposes a limitation of the number of houses to the acre, because this may diminish the value of certain pieces of land and increase that of others. Indeed, there is another point of view which might be put with some force by those who have purchased land a little farther out of the town. May it not be put thus : A. has purchased land on the assumption that the overcrowding of buildings would continue to be allowed long enough for him to develop it. If, in the interests of public health, that overcrowding is forbidden, he has simply made a mistake in his speculation, and he loses thereby. But can he really claim that there is any injustice ? For B., who has purchased some other land a little further out, has calculated that the general tendency to check overcrowding which has marked the development of by-laws for some time past, would, at an early date, bring a building value to his land, and he will be a loser if overcrowding continues. Could he not, with equal force, say that it is very unjust to him that so many houses should continue to be allowed to be built to the acre that building value is prevented from reaching his land, a value which would accrue to it if such overcrowding were prevented, as it ought to be in the public interest.

It seems to me that in matters of this kind it is the obvious duty of the community to provide for the right system of development, and not to be turned aside because of hardships that may fall upon a few individuals who have laid their plans on the assumption that they would continue to be allowed to do something which has proved to be detrimental to the community. The fact is that nobody can acquire a prescriptive right to injure the community.

But, however this point may be regarded, I think that the figures which I have given prove that the hardship to anybody of limiting the number of houses to the acre would be very much less than is generally supposed, owing to the fact that the advantage due to crowding houses upon land is a constantly diminishing one as the crowding increases; and I think, further, I have proved that the overcrowding system is injurious to all parties and really beneficial to nobody.

It is quite startling to see the extent to which this is true, and it shows how a haphazard system of growth in a community may result in the introduction of the most serious evils on account of some supposed interest, which, when this method is contrasted with the rational and co-ordinating system, proves to have the very

smallest amount of real weight, out of all relation to the evils which have been caused.

Startling as the figures above are, it is important however, in framing regulations for limiting the number of houses to the acre, that the fact should not be overlooked that a particular plot of land is more valuable in proportion to the amount of building put upon it. Where there is no limit to the number of houses which may be built on any area of land, it is obvious that the larger the house the fewer the number that can be built, and therefore the cost as between the different sizes of house tends to adjust itself. It is only to some extent, however, because it is quite true that the smaller the house the greater in proportion to its cost must be the costs of the plot on which it stands, and the cost of the roads required to give access to it.

Now, the limitation of the number of houses has the effect of securing that every individual plot is large enough to hold quite a considerable sized house. Quite apart, therefore, from the cost of the plot the result of limiting the number of houses to the acre is to take away even such natural tendency as at present exists for the cost of the plot to be adjusted to the cost of the building by reducing the size of the plot as the buildings grow smaller. We have seen that with ten houses to the acre the average size of the plots will be about 400 yards. Now, on a plot of 400 yards area, there are often built in suburban districts houses costing £600 or £700, and even then a fair-sized bit of back garden is left. The extra road frontage required for such a building to be put on a plot over that required to erect upon it a small cottage, costing about £200, is small in proportion to the difference between the costs, while the actual price of the land of the plot remains the same in both cases. But there can be no doubt that the ground rent which could be charged to such a plot, with a £600 house upon it, would be very much greater than the ground rent which could be charged if there were a £200 cottage upon it.

A very considerable inducement will therefore result from the limitation of the number of houses to the acre for the builder to use each plot for the biggest type of building for which he can secure a demand. Experience has shown that where plots have been laid out by a land owner, not of the minimum size, and where they have been let at a fixed ground rent, it is very difficult to induce the speculative builder to erect upon them small cottages, even where the demand for small cottages is very great. In many towns, of which Cardiff affords a notable instance, it will be found that the builder has erected upon each plot a large type of cottage, having three rooms and a scullery on the ground floor and three or four bedrooms on the first floor. This large house is so costly that the workman cannot afford to pay the whole of the rent himself, and is therefore forced to take in another family to lodge in part of the house to help pay the rent. I think it is of great importance, therefore, when limiting the number of houses to the acre, whether this is done by a town planning scheme or by an individual owner leasing or selling land for building purposes, that the reduction of the number of houses to the acre should not be by means of a simple flat rate of ten or twelve, but should be in accordance with a scale bearing a relation to the size of the house. In this way only can the tendency to build larger houses than are required in any district be checked, and in this way only can the excessive overcrowding of the medium and larger sized house in places where there is a great demand for them be prevented. In several cases of development on Garden City and Garden Suburb lines, in order to secure that too large buildings should not be erected on the more generous sized plots there provided, it has been necessary to fix for each plot a maximum size of building to be erected upon it. The following scale has been adopted in one instance, as between the landowner and the Society developing the land, and it affords an example of the way in which the limitation of the number

Diagram VII.

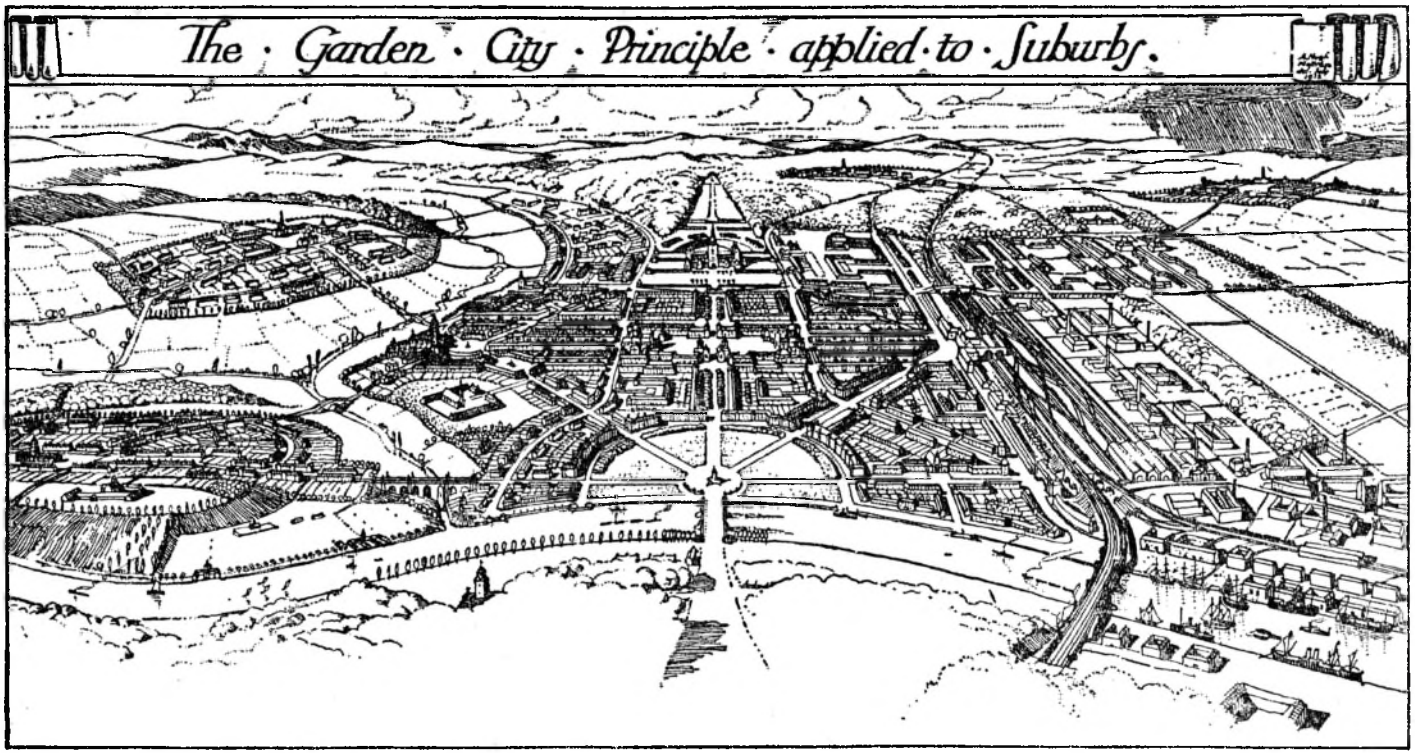


Diagram illustrating the development of a town by means of self-contained suburbs with defining belts of open space. See page 2.

of houses to the acre can be secured while to some extent guarding against the difficulties that have been referred to :—

TABLE III

Houses not exceeding in cost, when cubed at 6d.	..	..	£225	not to exceed	14	to the acre nett.
do.	do.	cubed at 6d.	..	..	£350	,,	,,	12	,,	,,
do.	do.	cubed at 6½d.	..	..	£500	,,	,,	11	,,	,,
do.	do.	cubed at 6½d.	..	..	£700	,,	,,	10	,,	,,
do.	do.	cubed at 7d.	..	..	£900	,,	,,	8	,,	,,

The average over the whole Estate not to exceed 7 to the acre, gross measure.

In framing the regulations at the Garden City at Letchworth it was sought to meet this point to some extent by the following provisions :—

1. That in the case of houses on ordinary sites, not more than one-sixth of the site should be covered by buildings.

2. By stipulating that dwelling houses costing less than £200 should not exceed 12 to the acre ; houses costing from £200 to £300 should not exceed 10 to the acre ; houses costing from £300 to £350 should not exceed 8 to the acre ; and so forth.

These regulations being framed under the Company's lease, it was possible to allow more discretion in their interpretation and application than would be practicable if they were to be enforced by Local Authorities as building regulations under a town planning scheme. But it is suggested the difficulty may be met by some such arrangement. Certainly to limit to a fixed amount, say ten or fifteen for example, the number of houses irrespective of size which may be erected on the acre, would be a very rough and ready way of securing the ends desired ; and the alternative method which has been suggested of limiting the number of cubic feet of building to the acre, although accommodating itself more scientifically to one aspect of the subject, is nearly as crude as the previously mentioned flat rate limitation, because quite unrelated to another aspect. The fact is that there are two important and different considerations which make some sort of limitation desirable. One has relation to the amount of building and the other has relation to the population, and the desired end can only be attained by some scale which takes into account both these relations.

A limitation of the cubic contents of the building would have the effect of requiring one acre of ground for a single house when it reached a certain size, and that not a very large size, if, at the same time it was to have the effect of preventing more than ten to fifteen families living on the acre. For the purposes of general amenity, a certain amount of open space in relation to cubic size of building is desirable ; but, on the other hand, it is perhaps even more desirable that there should be sufficient area of open ground for garden and recreation purposes for each family, irrespective of the size of the house it occupies. It is for this reason that I think a scale system of limiting the number of houses to the acre would be found to be on the whole simplest and most satisfactory. Such scale can be arranged to allow sufficient space in proportion to the increased cubic size of larger houses, and at the same time provide for the proportionately larger area of garden per family, which is desirable as compared with the cubic size of the smaller types of cottage.

It has the additional advantage of following closely the lines laid down in the Housing and Town Planning, etc., Act, 1909, which permits " restrictions on the number of buildings which may be erected on each acre, and the height and character of those buildings."

The Garden City Method of Development.

FRONT GARDENS TO HOUSES UNDER TOWN PLANNING.

The By-Law Method of Development.

ORDINARY SUBURBAN VILLAS, SHOWING AMOUNT OF SPACE FOR FRONT GARDEN.

Garden City Method of Development.

FRONT VIEW AT HAMPSTEAD GARDEN SUBURB, ILLUSTRATING 12 HOUSES TO THE ACRE NET OR ABOUT 10 GROSS.

BACK VIEW, SHOWING THE AMOUNT OF OPEN SPACE, WITH 12 HOUSES TO THE ACRE NET, OR ABOUT 10 GROSS, AS IN SCHEME IIA.

The By-law Method of Development.

CHARACTERISTIC STREET OF ARTIZAN HOMES IN INDUSTRIAL TOWNS AND CITIES.

BACKS OF ARTIZAN HOMES.

The Garden City Method of Development.

BACK GARDENS, 12 HOUSES TO THE ACRE NET.

The By-law Method of Development.

BACKS OF SUBURBAN VILLAS, SHOWING AMOUNT OF GARDEN SPACE IN REAR.