The Legacy of Le Corbusier and High-Rise Housing

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Was Le Corbusier the bogey man who condemned families to high-rise housing, or was he an idealist whose ideas were misunderstood and misinterpreted by his followers?

Le Corbusier, once idolized by architects and planners, is today blamed for having advocated high-rise housing, a form which failed. High-rise housing in Britain is considered to be firmly based on Le Corbusier's ideas. In journalistic and other accounts, British architects are accused of having followed 'their Swiss-born master' (Jameson, 1977), the 'Swiss architectural guru' (Lyall, 1981), of yielding to an ephemeral aesthetic fashion originating in Europe (Osborn, 1975).

What actually were Le Corbusier's ideas on high-rise housing and how faithfully were they followed by his British admirers? This paper examines Le Corbusier's views on skyscrapers and high-rise housing derived from his writings, projects and realized buildings. His concepts are shown to be a fusion of ideas on the individual dwelling, the residential community and the city, on dwelling construction and management, and on aesthetics. The strength of his influence on British architects is traced through to the Roehampton estate, generally acknowledged to be the most pure example of Corb in British housing. That estate is found to depart in many significant ways from Corbusian ideas. Later estates such as 'The Piggeries' in Liverpool are found to bear even less resemblance to the original. The far-reaching social and economic implications of Le Corbusier's concepts were little understood by his followers who built only the surface appearance of parts of his complex vision.

Le Corbusier and the Skyscraper

Le Corbusier was fascinated by the skyscraper. In it he saw the potential of making polemical statements against the congested, slum-ridden European city of his time and against the horizontal Garden City which threatened to solve the European city's problems by destroying urbanity. The skyscraper first appeared in his 1920 project for a 'City of Towers' and composed the centrepiece of his *Ville Contemporaine* for Three Million Inhabitants of 1922. The sketches for that project provided designers with a powerful series of images of a city crowned by towers (figure 1). The images of these 'immense but radiant prisms' with their faceted glass facades reflecting the 'blue glory of the sky' (Le Corbusier, 1924: 178)[1] were to haunt the collective consciousness of designers for years awaiting an opportunity for realization. In subsequent urban projects, the *Plan Voisin* of 1925 and *Ville Radieuse* of 1933, Le Corbusier employed skyscrapers in order to decongest the city centre while augmenting its density, to improve accessibility and mobility, and to increase the provision of parks and open space. The skyscraper he con-

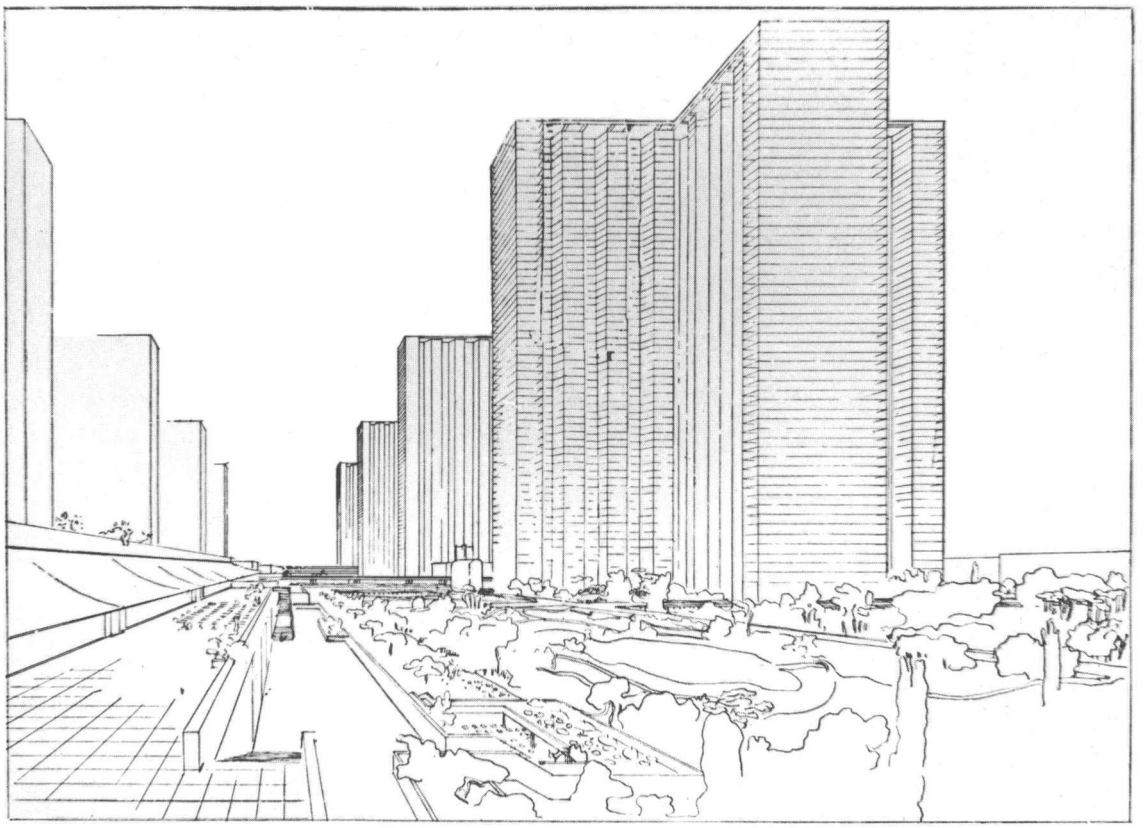


Figure 1. A city crowned by towers from *Une Ville Contemporaine, Salon d'automne*, 1922. (Source: *City of Tomorrow*, p.245)

sidered to be 'a magnificant instrument for the concentration of population, for getting rid of land congestion . . . for internal efficiency' (Le Corbusier, 1937: 51–52). Beyond the rational, functional application of the form, Le Corbusier also appreciated its symbolic qualities. The skyscraper, he thought, was young, strong, virile, and reflected the spirit of the times. As the lofty cathedrals of the past visibly declared faith in God and the power of the Church, so Le Corbusier suggested the prismatic skyscraper of steel, concrete and glass could be a suitable product of the 'machine civilization' whence it sprang, affirming faith in large-scale industrialism. The skyscraper 'is a miracle in the urbanization of the cities of machine civilisation' (Le Corbusier, 1937: 53). And he also felt a personal delight in the intoxicating experience of height. Of his own ascent to the top of the Eiffel Tower he wrote: 'The very act of mounting gives me a feeling of gladness; the moment is a joyful one and also a solemn one' (Le Corbusier, 1924: 186). He suggested that skyscrapers could give to many the exultation experienced by mountain climbers in man's struggle to attain height. And after visiting New York's skyscrapers he referred to his enjoyment of the 'joyous and exulting sensation of space, extent, freedom' while criticizing them for being too small and far too crowded together (Le Corbusier, 1937: 65; 51–55).

What functions were to be carried out in Le Corbusier's crystalline towers of sixty storeys? *The towers were always intended as offices and not dwellings.* They were to contain

the city's brains guiding society from above (Le Corbusier, 1924: 187). There is some confusion regarding the use of his towers. In 1945 Le Corbusier complained bitterly that his adversaries unjustly accused him of designing dwellings of fifty storeys though he had always specified that the towers were to be used as offices and 'never as buildings for human habitation' (Le Corbusier, 1924: x)[2]. Le Corbusier's own city plans do, in the main, clearly distinguish between sixty-storey tower buildings for business and two lower, residential building types – the 'set back' blocks and the 'cellular' blocks (figure 2). In addition Garden Cities on the periphery provided lower dwelling forms for the majority of the population.

buildings would render them affordable only by business (Le Corbusier, 1924: 103). Intuitively he felt that a height of about 50 metres would not affront 'psycho-physical reflexes' and would still permit clear visual contact with the ground (Le Corbusier, 1937: 65); and, together with other urbanists of several countries, he agreed that psychological, structural and economic difficulties rendered higher apartment buildings quite unfeasible (Le Corbusier, 1942: 26).

Le Corbusier was deeply concerned with finding solutions to the problem of mass housing, the 'problem of the epoch' (Le Corbusier, 1924: 210) and he devoted great energy to placing dwellings on the agenda of architecture, trying to overcome the reluctance of the architectural establishment

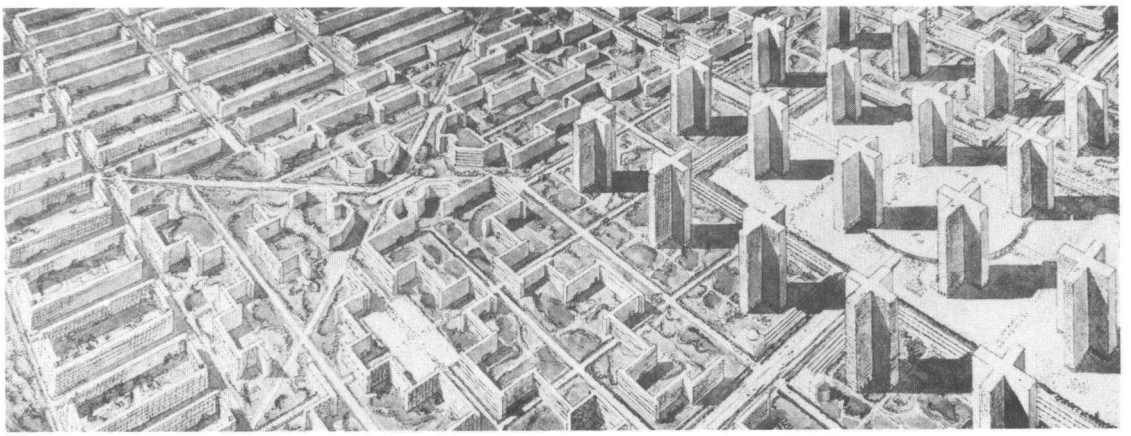


Figure 2. Three building types in the *Ville Contemporaine*, 1922: on the right, sixty-storey office towers; centre twelve-storey 'setback' residential blocks; left residential blocks on the 'cellular' principle. (Source: *City of Tomorrow*, p.169)

Mass Dwelling Designs – *Maison Dom-ino* to the *Unité d'Habitation*

Housing in skyscrapers was not one of Le Corbusier's solutions, but housing in high buildings of up to seventeen storeys certainly was. What reasons did he give for limiting himself to this height? He sensed an incompatibility between family life and the complicated vertical circulation of higher buildings (Le Corbusier, 1923: 54), and realized that the expense of higher

to consider dwellings (Le Corbusier, 1943). Through his influence in CIAM[3] and his own tireless publications, he played a strategic role in promulgating concern for and inventing solutions to mass housing for the consumption of the world's designers. Unlike his more socialist colleagues, he was adamant that his efforts should not be limited to housing for lower-income groups, arguing that all classes were poorly housed, and believing that housing needs should be the basis of housing design (Le Corbusier,

1923: 250; 1933: 146). He conceived of the dwelling within the context of town planning solutions for the design of residential communities and the whole city, and as a problem not only of design but also of construction, and of management.

Le Corbusier's mass housing designs began in 1913 with the *Maison Dom-ino* and culminated with the completion of six *Unités d'Habitation* in the 1950s and 1960s. The *Dom-ino* speculations, begun during a building slump, received impetus from the devastation of Belgium at the start of World War I, since the solution was to provide a model for reconstruction. The *Maison Dom-ino* had a simple construction system, a reinforced concrete frame produced by industrialized techniques (figure 3). The frame formed a two-storey unit based on a double-square plan plus stairs. Within this frame the internal organization and external facades could be developed from a range of standardized parts quite independently of the skeleton[4]. Four themes which were to continue in most of Le Corbusier's later housing projects were already present: a dwelling unit of two floors; independence of structure from layout or facade; possibility of mass production; use of the roof terrace. The ideas were so far only developed for units of two floors plus roof terrace (*Oeuvre Complète*, 1910–29: 23–26).

Most of these themes were taken up in projects such as the Monol and Citrohan houses of 1920. By 1922 a major scale leap occurred in the *Immeubles-Villas* and the 'set back' and 'cellular' buildings of the *Ville Contemporaine* (figures 4 to 6). The double-storeyed dwelling units built by industrialized methods were multiplied, stacked one upon another and aggregated into large apartment structures up to twelve storeys high. Set amongst parkland in a city designed for recreation and for mobility, these buildings were to capture the 'essential joys' of sunlight, space and green, improving upon unhealthy courtyard flats in traditional corridor-streets or the wastefulness of detached dwellings. At this stage, possibly under the influence of recent USSR dwelling experiments, and the phalanstery concept of Fourier, Le Corbusier introduced shared facilities between the individual dwelling unit and the city. At the base of the buildings he placed tennis courts, parks and gardens and on the rooftop, a gymnasium, solarium, theatre, a running track. The family home, he designed primarily for play as a response to the increased leisure which he foresaw would be made possible by industrialization (Fishman, 1977: 233). The blocks of 'cellular'

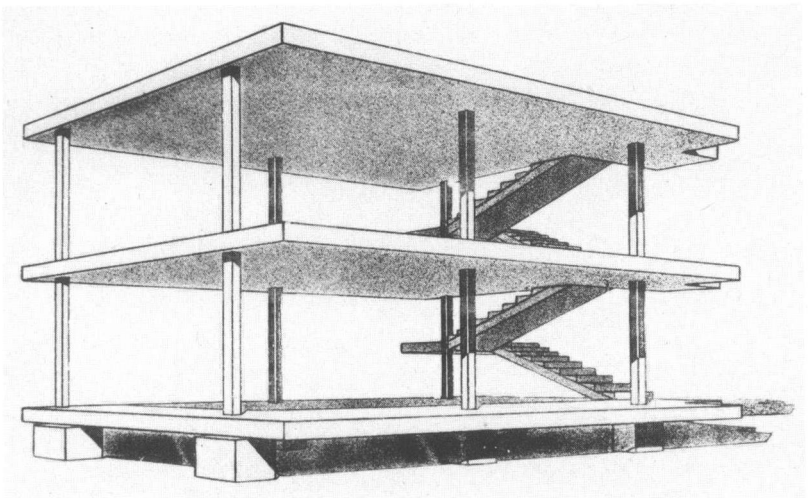


Figure 3. *Maison Dom-ino*, 1914, a reinforced concrete frame allowing mass production of housing. (Source: *Oeuvre Complète 1910–1929*, p.23)

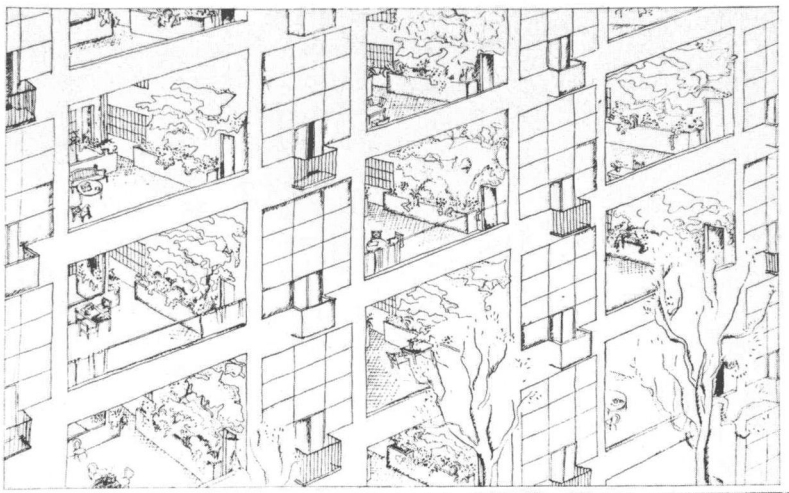


Figure 4. *Immeuble-Villas*, 1922, showing double height villas with gardens stacked vertically. (Source: *Oeuvre Complète 1910–1929*, p.43)

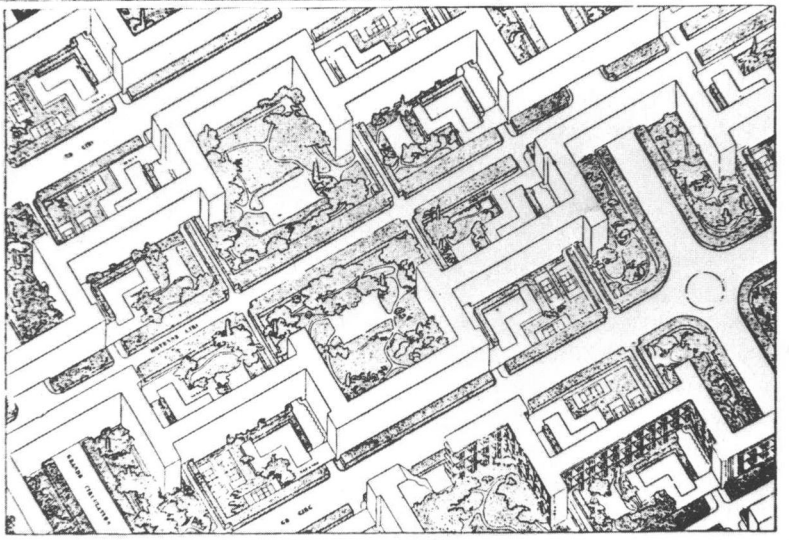


Figure 5. 'Set back' residences, 1922, with parks and sports facilities at their base. (Source: *City of Tomorrow*, p.233)

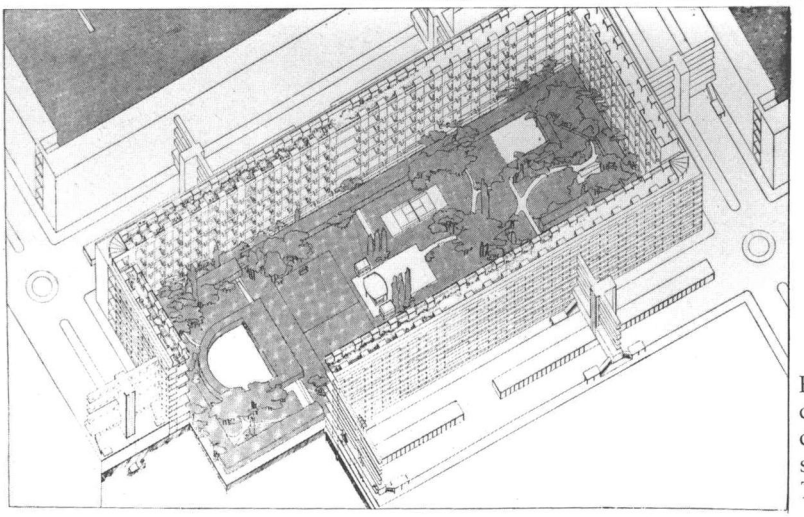


Figure 6. 'Cellular' residences, 1922, providing communal facilities for serviced flats. (Source: *City of Tomorrow*, p.221)

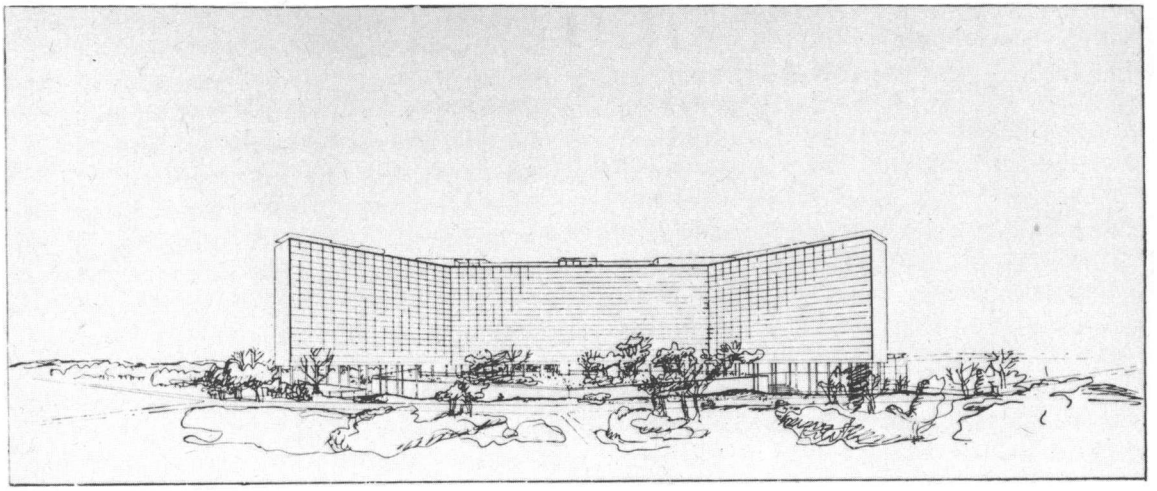


Figure 7. Kellerman housing project, 1937. A *Unité d'Habitation* for 4000 inhabitants with communal services, kindergartens and leisure provision. (Source: *Radiant City*, p.219)

dwellings with spacious hanging gardens were in fact serviced flats containing at ground floor level 'an immense workshop for the household economy' including restaurants, food provisions brought directly from the countryside, and laundry services (Le Corbusier, 1924: 217). The dwellings in the large apartment blocks, which were later to evolve into the *Unité d'Habitation*, were originally intended for upper-income occupants. The *Immeubles-Villas* each had a generous 170 m^2 floor area, partly double height, plus 60 m^2 terraced gardens, and maid's quarters for every dwelling. Lower-income groups of workers in the *Ville Contemporaine* were to live in detached houses or in six-storey villa blocks on the 'honeycomb' principle in peripheral garden cities (Le Corbusier, 1923: 203–6).

Over the next few years, Le Corbusier developed the five points of his new architecture – the building raised on *pilotis;* roof-gardens; plan free of the structure; horizontal windows; the free facade. And he developed large-scale housing proposals as variations of the 'set back' form within town planning schemes. This applies to the *Plan Voisin* for Paris (1925) and the *Ville Radieuse* (1931–33). By the 1937 Kellerman project (figure 7), a change was made to the 'set back' archetype, that of separating it into free-standing sections. The result contained all the ingredients of the later *Unité d'Habitation:* a free-standing vertical community of 4000 people; an interior street; special attention to sound insulation and thermal control; space for sports, pools, gymnasia, library, club; a nursery and kindergarten; a hospital; communal services for cleaning; a food co-operative, restaurant and hotel; and even an exhibition space for CIAM's architecture and planning projects! (Le Corbusier, 1933: 215–21).

The years of World War II gave Le Corbusier time to reflect and refine his housing ideas, while at the same he tried unsuccessfully to interest the Vichy government in turning them into real examples. But it was not until the end of the war that a commission from the French government for the Marseilles *Unité d'Habitation* at last provided the opportunity of actually building mass housing based on ideas which had been mulled over, or in Le Corbusier's own words, 'which did not cease to haunt me', for more than three decades (figure 8.1). Here at last was the coming together of several *partis:* a self-contained living block

for 330 families in a single seventeen-storey high structure set in a vast parkland; the building raised off the ground on *pilotis* so that unhindered ground space could flow through underneath; double-storeyed dwellings entered from an interior street; dwelling plans independent of the structure; sound-proofing between one dwelling and another; facades fully open to light, air, greenery and views of mountains and sea; shops, hotel and other services within the building; and on the roof-top, a kindergarten, gymnasium, club, cinema, theatre and running track. The *Unité* was constructed of *in situ* and precast concrete, made use of Corb's Modulor proportional system to break up the facade into an intricate composition, and appeared not only as an apartment building but also as a dramatic sculpture in the midst of a large park (Le Corbusier, 1948: 138; *Oeuvre Complète 1946–52:* 191–228; Le Corbusier, 1947).

Corbusier's Influence in Britain

Le Corbusier's ideas on housing and its place in the city were slow to spread among British designers. *Vers une Architecture* and *Urbanisme* (published in English in 1927 and 1929 four and five years after the French versions), provided debate rather than acceptance of his ideas (see Jackson, 1970: 18–20, 61–62). Throughout Continental Europe his ideas began to diffuse among *avant-garde* architects aided by the activities of CIAM, founded in 1928. From CIAM's second meeting, held in Frankfurt in 1929, onwards, the theme of the minimum dwelling remained a prime focus of the group's deliberations. There was however some dissension within the group on the importance of high-rise housing (see Benevolo, 1971: 536–7; Von Moos, 1979: 157–63). Le Corbusier's charismatic personality and clearly-conceived architecture and urbanistic designs played a key role in CIAM's work. Britain, however, was absent from CIAM's first meeting and represented only by an observer in 1929 and 1930. It was not until the Athens meeting of 1933 that Britain played an active part, represented by Welles Coates, Chairman of the MARS Group[5], which had been established earlier that year. This was the meeting from which emerged CIAM's 1933 Athens Charter on the functional city, which singled out high-rise dwellings, placed wide apart independently of road alignment and built with 'modern building techniques' as a form to liberate ground for large open spaces, to give dwellings adequate sunlight and to eliminate noise, dust and air pollution (CIAM, 1963). The Athens Charter, acknowledged to be primarily a personal manifesto by Le Corbusier, was in fact only published a decade after the Athens meeting in anticipation of the demand for reconstruction ideas once the war ended (Von Moos, 1979: 210–12).

Throughout the 1930s flats built on principles akin to CIAM's preoccupations began to appear in Britain, challenging the standard walk-up tenement blocks produced by philanthropic and municipal housing agencies. The scheme most impressive for its formal excellence, provision of communal services, sports facilities and gardens was the privately developed Highpoint scheme by Lubetkin and Tecton (1933–38) (see Coe and Reading, 1981: 120–4, 152–7). Le Corbusier, who visited Highpoint I, acknowledged it to be a beautiful building. He wrote, '. . . we find at Highgate the seed of something, the seed of the vertical garden-city as opposed to the horizontal extension . . . For a long time I have dreamed of executing dwellings in such conditions for the good of humanity' (*AR,* 1936).

Le Corbusier's influence on the development of high flats in Britain received another boost in the publication of Yorke and Gibberd's book *The Modern Flat* in 1937, republished in 1948. Yorke, a founder and secretary of the MARS group and Gibberd, who became a MARS member, employed

arguments and even vocabulary strongly influenced by that of Le Corbusier's to plead the case for flats:

'We see that the people of the present time are not housed well and according to their needs . . . we believe that we shall want to escape from suburban street corridors to live in parkland with common amenities, air and a view; and that the problem of housing cannot be solved by the provision of millions of little cottages scattered over the face of the country . . . A few tall buildings rising up to the light and air, spaced well apart, properly served with communication, would keep the dwellings away from through traffic roads, and their noise and danger . . . Open spaces for walking and recreation, with cafes and places of entertainment between the blocks would bring the open country right into the town' (Yorke and Gibberd, 1948: 11–13).

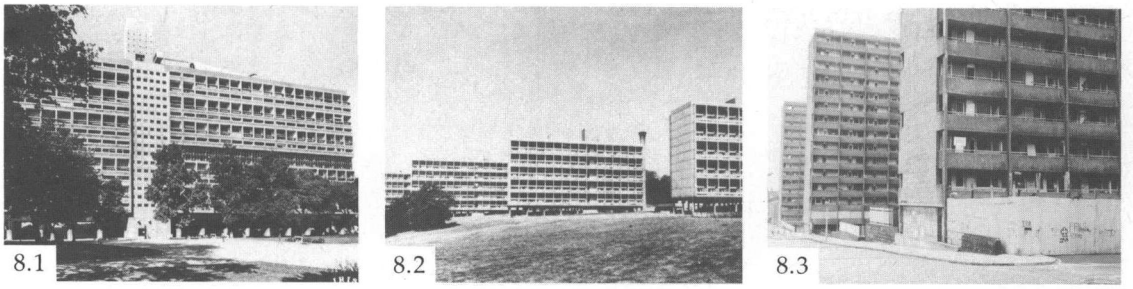
Their book drew the attention of British architects to Le Corbusier's *Ville Radieuse*, and three of his completed dwelling schemes in France and Switzerland, as well as many new flats by CIAM members and others in several countries.

Political change and the reconstruction needs of post-war Britain yielded new housing and planning powers to local authorities. This gave progressive young architectural graduates the chance for innovation in housing design. In particular, the London County Council's architectural department, restructured in 1950 to give more autonomy than it had previously enjoyed under the Valuer, was a prime agent in the introduction of Le Corbusier's housing ideas. A number of the LCC architects made a pilgrimage to the *Unité d'Habitation* in Marseilles in 1951 while it was still under construction and held a well reported discussion on their observations (*AR*, 1951). The consensus of opinion overwhelmingly favoured the building. It was described as 'a very lovely building', 'exciting and beautiful', 'always interesting and often exciting', 'the aesthetic quality of the conception is beyond dispute'. The scale was described as having a 'human and domestic quality', 'less vast' than expected, kitchens and corridors were dismissed; the negation of people's desire for house and garden was bypassed by suggesting the construction of flats far higher than the *Unité* for smaller families to allow houses and gardens for larger families; and there was considerable regret that the Marseilles *Unité* was only one of many needed to create the vertical garden city. Dissenting voices which rejected the building as 'too arbitrary, abstract and monumental', an authoritarian imposition of the will of the architect on residents, were in the minority.

In fact, LCC architects of the 1950s were split into two factions: the Corbusians and those who followed a more humanistic, Scandinavian tradition. The renowned Roehampton estate in Wimbledon, built between 1952 and 1959, gives concrete expression to the ideas of the two factions: Alton East by the Scandinavians and Alton West by the Corbusians. On the estate's twenty-fifth anniversary in 1980, architects of the two factions could still recall with passion the debates, which for Whitfield Lewis, the Principal Housing Architect, made that period 'the best years of my life'[6]. For most of the 1950s and 1960s, the Corbusians dominated the LCC's designs.

British High-Rise Housing – Alton West Onward

That Alton West derives from Le Corbusier is acknowledged by many commentators – James Stirling referred to it as 'the first built example of Corb's "City in the Park"' (*AJ*, 1964); more recently it is referred to as the culmination of the LCC's Corbusian housing schemes (Frampton, 1980: 266) – but how accurate a description is this? Instead of Le Corbusier's rationale for high dwellings to create parkland, Alton West manifests the idea of mixed development, i.e. high dwellings for small families in order to free ground partly for open space but mainly so that larger families may live in houses or low maisonettes with gardens.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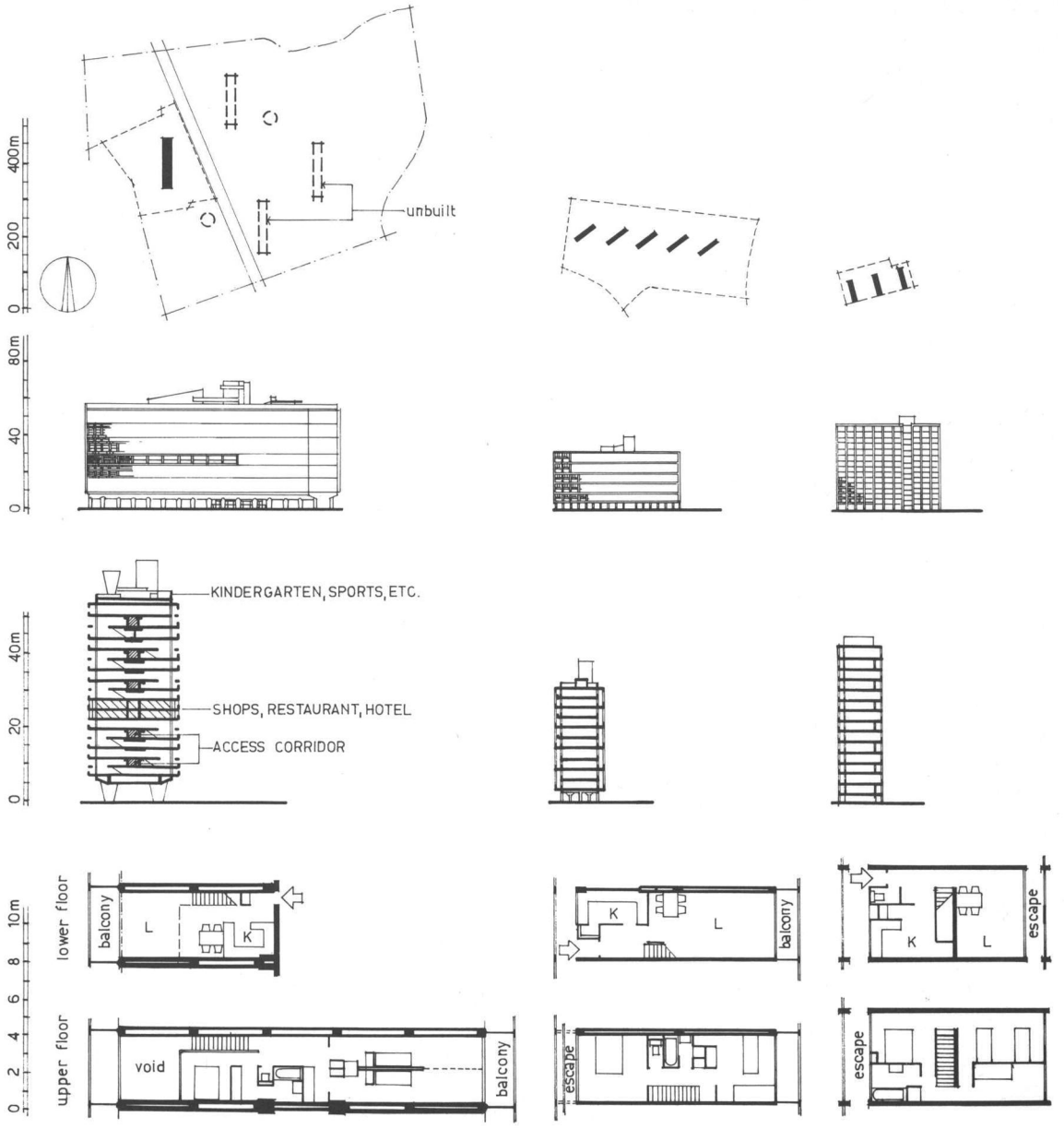

The eleven-storey maisonette slab blocks are considered to resemble Le Corbusier's *Unité* – they are elevated on *pilotis*, are comprised of superimposed maisonette units with skip-stop elevators on alternate floors; they are built of reinforced concrete with some precast elements based on Le Corbusier's Modulor proportions. Closer inspection, however, reveals the enormous disparity in conception and execution of the two buildings (compare figures 8.1 and 8.2 drawn to the same scale). First is the question of scale. While the *Unité* houses 1600 people in 330 dwellings of six types, the Alton slabs contain only 300 people in seventy-five identical two-bedroom dwellings, a number too small to justify communal facilities at ground or roof level. The *Unité* is conceived as a whole community, a microcosm of the city, potentially self-sufficient, while the Alton slabs are merely housing blocks, dependent for shops, kindergartens and recreation on the estate's facilities. Access to *Unité* dwellings is from an internal corridor every third floor, allowing totally private facades and patios to stretch to the building's edge. In the Alton slab, balcony access on alternate floors plus fire escape corridors on upper levels limit both the privacy and light received inside the dwellings[7]. And in addition, they create large areas of publicly accessible, uncontrolled space which must be supervised and maintained. The interior floor area and volume of the *Unité* dwellings are larger than the Alton dwellings, provide the much-admired double-height volume of the living-room but also create some peculiar deep, narrow rooms. The *Unité's* sound-proof dwellings, achieved by separating the walls of each dwelling from the structure by lead pads, is not attempted in the Alton blocks. The varied, lively facades of the *Unité*, the sculptural, grand quality of its *pilotis*, roof structures and escape stairs and the proportions which deceptively reduce the scale of the building, find few counterparts in the repetitive panels of five identical buildings of Alton West. Only at a very superficial level can it be argued that there is a similarity between Le Corbusier's housing concepts and those of Alton West.

The high maisonette slab building type was repeated by the LCC in many estates, e.g. Loughborough Park in Lambeth, Bentham Road in Hackney, but without the essential surrounding open space and with declining site locations, landscaping and budget. The LCC architects were the pacesetters, spreading the slab-block and tower block across the country by widely publicizing their buildings, and by taking up positions in the Ministry of Housing and Local Government, in London Boroughs, in

Figure 8. Erosion of the Corbusian high-rise dwelling.

8.1 The *Unité d'Habitation* at Marseilles by Le Corbusier (1946–52).

8.2 Alton West Slab Blocks, Roehampton by the London County Council Architecture Department (1952–59).

8.3 'The Piggeries', Everton by Liverpool City Architect (1962–66).

	8.1	8.2	8.3
Dwellings per block	334 (various)	75 (2 bedrm)	70 (3 bedrm)
Inhabitants " "	1600	300	350
Density (p.p.h.)	360 p.p.h.	250 p.p.h.	1050 p.p.h.
Dwelling area – internal	98 m^2 (3 bedrm)	66 m^2 "	78 m^2 "
– balcony	12 m^2 "	4 m^2 "	–
" volume	253 m^3 "	160 m^3 "	190 m^3 "
Corridor length per dwelling			
– access	2 m	4 m	5 m
– escape	–	4 m (upper flrs)	10 m

other cities, or forming private practices with local authority commissions.

The appropriation of the architects' high-rise image by central and local government and by large-scale building contractors for their own political and economic ends, has been described by Cooney (1974), Dunleavy (1978) and McCutcheon (1975). Built at heights up to thirty-three storeys at very high densities on slum clearance sites, alongside railways, gasworks and motorways, most high rise have no communal facilities, kindergartens, play-spaces or decent landscaping. They were built of relatively untested industrialized systems which have since shown themselves prone to water penetration, condensation, sound transmission and even structural failure. Provided with inadequate, low-speed lifts subject to frequent breakdown, and left to stand with a minimum of maintenance and caretaking, these high-rise dwellings are a debasement of Le Corbusier's concept of self-sufficient dwelling communities in a parkland setting. Neither are they good examples of the British ideal of high-rise blocks for small families in well-landscaped mixed development schemes.

One of the least successful or attractive high-rise housing estates is Crosbie, Haigh and Canterbury Heights in Everton, Liverpool, known locally as 'The Piggeries'. Comparison between the Piggeries, the Marseilles block and Alton West demonstrates the erosion of the Corbusian high-rise housing ideal (see figures 8.1, 8.2, 8.3). Built between 1962 and 1966 to an extremely high density in unlandscaped grounds, each of the fifteen-storey Liverpool blocks contains seventy three-bedroom maisonettes directly overlooked by maisonettes in adjacent blocks. The dwelling units are over-provided with fire escape routes with the result that the dwellings are surrounded by noisy public access or escape balconies and have no private balcony at all. While each dwelling in the *Unité d'Habitation* needs only 2 m of corridor, this rises to 4–8 m in the Alton West slab blocks and 15 m in the Piggeries, which not only represents a wasteful capital cost but demands continuing provision for maintenance and supervision. The reality at the Piggeries was that they were tenanted by families with many children, not provided with adequate kindergarten or play facilities, run without a resident caretaker, and with inadequate maintenance of the balconies, lifts and refuse chutes. The buildings became highly vandalized and difficult to let, eventually being abandoned[8].

The Problems of High-Rise Housing

Were the problems of high-rise dwellings in practice anticipated by Le Corbusier? The necessity of adequate management was a point he clearly acknowledged. For the *Immeubles-Villas* of 1922 he specified a rotating 24-hour staff of six people who would supervise the building's foyer (Le Corbusier, 1924: 216). In the *Ville Radieuse* he wrote of the need for building corridors to be patrolled by policemen released from outside traffic duties by his new road solutions (1933: 39). To solve the problems of lifts he proposed that they be grouped to serve a large number of dwellings, and operated by professional attendants day and night (Le Corbusier, 1933: 38, 50; 1937: 62–63; 1942: 26; 1946: 76). He was confident that lifts, like any machine, could be made to work, and also confident that social and economic solutions could be reached should elevator operators strike (Le Corbusier, 1937: 64–65). Lack of privacy due to neighbours' noise would be eliminated by building the 'self-contained, soundproofed cell' (Le Corbusier, 1933: 39, 113). Problems of children's play would not arise since a staffed kindergarten, swimming pool, gymnasium and club were an integral part of the building. Nor was loneliness likely because of the generous provision of communal facilities, clubrooms and recreation. He recognized that the buildings would be

expensive, but also conceived many economies: saving of land and infrastructure compared with the house and garden alternative; saving of wasteful travel time, saving of housekeeping labour through moves towards communal food provision and housekeeping services; and an intended move towards reducing the area of individual dwellings in favour of more generous communal facilities.

The Marseilles block did follow through most of these ideas, but was therefore extremely expensive. Initially built as subsidized dwellings, the French government sought to recoup some of the high capital costs and avoid upkeep costs by selling off the apartments (Osborn, 1952). Today the building has a preponderance of residents in higher income brackets (Schafer, 1974). Its success is indicated, however, by the fact that many residents have stayed for more than twenty years, and there is a long waiting list to get in (Howard, 1970; Schafer, 1974). Subsequent *Unités*[9] were forced to reduce the standards of the first by decreasing the floor area and volume of each dwelling. Shops were moved to the foot of the building, and there was a loss of sculptural expression in the design of the facades and *pilotis* (*Oeuvre Complète, 1946–52:* 166). The main ideas, however, are intact – an efficiently operated communal dwelling block in a park, made up of private sound-proofed individual homes offering views of sky, space and green and able to meet needs of food, recreation, kindergartens and sociability within the building.

Le Corbusier's High-Rise Legacy

Le Corbusier's heirs who produced the imitation vertical Garden City have squandered his legacy without fully understanding it or realizing its complexity and value. His is a legacy which is easily abused. It depends on designing the individual dwelling as part of the residential community in a city which closely integrates man-made buildings with natural landscape, and it depends on a conception of society in which the communal level achieves great importance (Sutcliffe, 1977: 238–9). In order to work well, Le Corbusier's high-rise housing ideal demands a high and continuing level of expenditure on staff to keep it running smoothly, to landscape and maintain the grounds, to operate lifts, to run the clubs, kindergartens and sports facilities. Instead, what was built was solely the high buildings, a small part of his complex vision. Yet those inadequate high dwellings have been used as evidence to reject all high dwellings, and to discard Le Corbusier's urbanistic ideas[10]. Jencks has even suggested that the 'modern movement' in architecture died on the day that the Corbusian-inspired high-rise housing estate, Pruitt-Igoe in St. Louis, Missouri, was demolished (1977: 9).

In fact, Le Corbusier's legacy has scarcely been tested anywhere in the world, and not at all in Britain. Nor is it likely to be tested in the near future. With a declining public sector unwilling or unable to execute his ideas and an indifferent private sector, his inheritors have rejected their legacy to pursue an earlier one based on the horizontal Garden City. The house and garden at relatively low density, individually maintained with few facilities in the public or communal realm, now dominates architectural, planning and housing thought. Privatization of household services and child care, and wastefulness of the journey to work are accepted – along with the hope that jobs will continue to decentralize. Instead of presuming that good housing automatically follows the replacement of high blocks by lower forms, reconsideration of Le Corbusier's contribution can help identify those ideas on the dwelling, community and city, on construction and on maintenance, which can be applied to make successful housing whatever its form.

NOTES

1. Dates of Le Corbusier's works in brackets are those of the original French editions. Dates of the English translations are given in the references.

2. The confusion may be attributed in part to his ambiguity. In *Vers une Architecture*, the City of Towers sketch is labelled as apartments followed by the comment that they would be devoted exclusively to business since 'family life would hardly be at home in them' (Le Corbusier, 1923: 54). In *Urbanisme* he clearly states that 'the skyscrapers are designed purely for business purposes' (p.167) and that 'each evening the centre would be empty' (p.102). Yet the density calculations refer to 'inhabitants' of those buildings, and their numbers are included within the city's projected three million population (p.168). And an earlier part of the book refers to the possibility that a twentieth-century city may contain dwellings poised twenty, forty and sixty storeys high (p.79).

3. CIAM stands for the Congrès Internationaux d'Architecture Moderne.

4. For a detailed account of the Maison Dom-ino idea see Gregh (1979).

5. MARS, the Modern Architectural Research Group, lasted until 1957.

6. Author's notes at Housing Centre Trust's study visit 'The Alton Estate, Roehampton, after 25 years. An Appraisal', 3rd June, 1980.

7. Le Corbusier did occasionally sketch the north-south facing apartment block with an access corridor on one side but did not elaborate that form (e.g. Le Corbusier, 1933: 114).

8. Demolition was considered by the Liverpool Council but the buildings have instead been sold at a token price to a private company for conversion into well maintained and patrolled private apartments for single people.

9. There were five subsequent *Unités d'Habitation* built by Le Corbusier at Nantes-Rezé (1955), Meaux (1956), Charlottenburg, West Berlin (1956), Briey-en-Forêt (1957) and Firminy-Vert (1970).

10. There has recently been some favourable reassessment of his architectural work (e.g. *Oppositions*, 1979; several contributions in Walden, 1977) and a renewal of interest in his early houses and sketches.

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