AN EXAMINATION OF THE PROVISION AND USE OF SPACE IN EUROPEAN HOUSING, INDOOR AND OUTDOOR, COMPARING NORTHERN AND SOUTHERN COUNTRIES.
CHAPTER SIX

WEST

GERMANY
Germany is divisible, it might be said, not only into its present political division of east and west but into its past divisions, and it is divided too geographically. Of its past political dividedness the Nazi regime on the one hand and on the other its predecessor, the Weimar the Republic, are most immediate examples. Of its geographical divisions that of north and south has been most significant, for to the different habits of living which geography has determined over the centuries, has been added during the last century-and-a-half the economic difference between industrial north and agricultural south. This meant that the northern cities, particularly Berlin, developed into great concentrations of apartment blocks, at one time the most concentrated in Europe, while in the semi-rural communities of the south, with farming integrated into the employment structure of the towns themselves, there has remained a kind of garden-city existence. Until recently, it was vigorous enough as a way of life to present an obstacle to the southward spread of the urban ways of the northern industrial, commercial and governmental centres.
TRADITIONS AND THE EMERGENCE OF SACHLICHKEIT

It was the environment created by that southern way of life which charmed Raymond Unwin and Patrick Geddes when - separately, alas - they set out to gather architectural and social material for their turn-of-the-century prophecies about environment. And so at Hampstead the traditions of southern Germany mingle cautiously with English traditions, and in a different way, less cautiously, an equivalent mixture appears at Ramsay Garden in Edinburgh. It is a mixture of elements not in opposition; it is an application of the commonplace and the practical within distinct but related European traditions; an acceptance of the idea that an environment in the industrial age can be composed of selected elements, using social sense to make the selection and architectural skill the composition.

It was to southern Germany that the foreign visitors were drawn, the literary, the musical and those interested in the visual arts. Berlin and the north could not inspire the same interest, unless it was in engineers and scientists. John Buchan (as well informed as any foreign critic just then) makes his fictitious engineer visiting the German capital in 1915 get only an "impression of ugly cleanness and a sort of dreary effectiveness". To the northern Germans, aware of the dangers of such qualities, especially the quality of pretentiousness which accompanied them, not lost on the same Buchan character, the problem seemed not to offer such simple solutions as borrowing from southern traditions. They in their turn went abroad in search of ideas and
solutions. Of such, Hermann Muthesius, no fictional character, is the relevant example. His publication in 1904 of Das Englische Haus, in three volumes of detailed study of examples by forward-looking British architects, was a turning point in German thought about environment. Grasping a principle, that of sachlichkeit, and expounding it rather than the style in which it was being expressed, Muthesius was able to show that simple forms, and simple relationships between buildings and their landscape, could make a greater architecture than the pretentious urban environment of the northern German cities.

"Im besonderen ist der arkitektonische Pomp, das Stil und Architekturmachen, dem wir in Deutschland noch so sehr ergeben sind, an ihm nicht mehr zu finden. Hier ist höchst lehrreich zu beobachten, wie eine schon vor vierzig Jahren entstandene Bewegung gegen das Stilnachahmen, die gleichzeitig engeren Anschluss an die einfachen ländlichen Bauten suchte, in ihrem Verlauf die erfreulichsten Früchte getragen hat. Dieselbe Sachlichkeit, die wir in der Gestaltung des Hauses bemerken, ist in seiner Situierung auf dem Gelände und seiner Stellungnahme zur umgebenden Natur zu beobachten. Innige Anpassung an die Natur mit dem Bestreben Garten und Haus zu einem einheitlichen, eng verschmolzenen Ganzen zu machen, ist das Ziel."2

Thus sachlichkeit gets the recommendation which, directly or indirectly, leads to the new German architecture, to the Wannsee villas and to Spandau-Haselhorst. But time had to pass before projects such as Spandau-Haselhorst at Berlin could become reality. The English house by Lutyens, or for that matter the Scottish by Lorimer, could only be taken as a model for the well-to-do German villa. It did not a lead directly to house-type suitable for lower-income-groups in German
suburban settings. For this there had to be new study in England, specifically directed to garden city development, and experiments with these, such as Margarethenhöhe and other Krupp housing at Essen and other places in the Ruhr. Later, it was possible to make the breakthrough represented by Spandau-Haselhorst and find there the sachliche environment for the German worker which took due account of full urban conditions and opportunities. Of this development some case study material is submitted. Thus the new German environment was not an indigenous product, a contribution made by the old Germany to the new or even extracted from the old and applied to the new, but a result of constructive, informed eclecticism (in the good sense) with no particular geographical point of origin. As Miss Denby remarked, there is no German national tradition in housing. 3

All this was further complicated by the old religious frontier between Catholic Germany and Reformed, although in a general way the identification of Reformed Germany with Prussia and the north has contributed to the forging of the northern quality of hardness still harder, the accentuation of an existing division rather than the creation of a new one. Today, with much assimilation in progress between north and south, and much colonisation of the south by refugees from the east many of whom share the social and religious background of the north, the religious division may be on its way to obliteration. It is being assisted thither by the churches themselves and this assistance is not merely of recent origin in the new ecumenical climate created by Pope John XXIII, but goes back to secret theological exchanges which were in progress in
Germany before they had begun anywhere else. 4

Yet the very fact that Germany is a recent composition of erstwhile sovereign states, each with its history and its own well matured traditions, means that the German environment of today emerges from a background rich with the contributions of the past. Even the northern city tenements make in some respects this kind of contribution, expressing in their logical form Bismarck’s concept of an iron-hard Prussia building an empire, while an equally significant, if opposite, contribution comes from the surviving peasant dwellings of Bavaria, those of the social category from which, through migration, a strong element of the teeming city populations was drawn. Both kinds of dwelling contrast with the opulent environment of the old southern landed gentry, which also survives and has a new significance today for the industrial magnates who themselves are one of the steady survivals of all the regimes since large-scale German industry began. Again, between such contrasting environments each with its logical reason for existence and for its survival in some form, lies a wealth of architectural and social achievement; in the merchant houses of the old burghs; in the farmhouses where the peasantry was raised in status first by agricultural reform and then by mechanisation; in the villas of the more fortunate who, in the 19th Century, avoided the tenement life of their city and established in its suburbs a kind of landed gentility for such was undoubtedly the model, and imported English ideas did not interfere with it. And if a certain assimilation of socially different groups began when the separate states became the empire, the different
ways of life continued, the social classes themselves grouped differently but still distinct from state to state.

Until the 19th Century, living conditions in German towns, north and south, are thought to have been quite reasonable. Each town had its simple economy, which consisted of crafts, commerce and agriculture, and its population of craftsmen, merchants and farmers, with their workers. The master in each case lived in his own house and with a high incidence of one or two-men businesses the proportion of townspeople living thus was usually big.

Such dwellings still exist in plenty in areas not touched by industrialisation and it is obvious that they represented a high standard of living and working space, especially in the richer areas. Nor did they suffer from lack of light and air, for the ground behind even the most heavily built-up street was open, and frequently merged directly into farmland, while buildings were often of no more than two or three storeys, and interior courts (for the prevailing plan, as was remarked in Chapter I in a more general context, was the courtyard plan) were large and airy.

In the larger towns the 17th and 18th Centuries brought about some intensification of development through the addition of quarters for soldiers and officials and in this can be traced the origin in Germany of the rented apartment. But only in the 19th Century was there proliferation of this dwelling-type, when a labouring population emigrated to the towns from the rural areas and could only pay for the meanest and cheapest quarters.
Thus began the evolution of the Mietskasern (lit rent-barracks) which culminated in the famous double-perimeter blocks of Berlin. An example is illustrated with the case study material. On the outer perimeter, with windows to the street, are artisan or middle class dwellings. They consist of two rooms, each called stube, which is translatable as living room though only one would be used as this, and in many cases of large families both would have beds, the küche or kitchen, which was always the place for meals and frequently also the place to sit, and a bathroom with bath, basin and W.C. There is also a balcony. At the common stair, which is day-lit, only three dwellings open from each landing.

On the inner perimeter are workers' dwellings with more restricted accommodation. They have no bathroom, though a W.C. is provided, and there is no balcony. The single-room flat which is more or less the equivalent of the Glasgow "single-end" as regards space, though better equipped as regards sanitation, also makes its appearance. The worst feature is the inadequate daylighting and sunlighting at the lower floors, both along the street facades, especially the side-streets, and around the internal courts; but, all-in-all, this was a spirited attempt in its way to provide in the most economic possible form accommodation which had to be provided in some form. That there were rent-abuses, and outrageous profiteering, that there was terrible overcrowding, especially in the years following World War I, is all admitted as part of history, but at the same time the standards of space provision and equipment are not to be despised. A standard for urban
living was set, and at least it was capable of assisting in the attraction of people of the artisan class and labouring class from their dwellings in the country towns and villages. As in Scotland, the lodestone was first of all employment, but it would be unwise to under-rate the magnetic effect of a city apartment close to the bright lights and the social opportunities of which the bright lights were the symbol, especially when it was all new and modern, as new and as freshly finished and painted as in a seidlung of the 1930's. Though that newness is now past living memory, old people have recalled to the present writer their recollections that paint remained fresh for many years in the relative smokelessness of a community which used coke as a fuel and not coal⁵. Here too was a basic difference from Glasgow, with its carbon-laden atmosphere from the burning of soft coal. These German blocks of apartments were much admired abroad, for their efficiency, for their strong construction and particularly for their economy of land, a matter which made the problems of transport in the mushrooming English manufacturing cities seem by comparison severe.⁶

Standing as they did, well built and, in terms of the 19th Century, sanitary, closely linked to workplaces by the excellent system of electric street cars, then the most modern form of urban transport, they were a consistent statement of one way in which to live in cities. By comparison the Scottish achievement in Glasgow, built up round a famous example of the same form of urban transport, is less impressive. By further comparison, the contemporary blocks in Naples seem to lack everything.
The extent of migration from rural areas to towns may be judged from this table:

<table>
<thead>
<tr>
<th>Year</th>
<th>% Rural Population</th>
<th>% Urban Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871</td>
<td>63.0</td>
<td>36.1</td>
</tr>
<tr>
<td>1895</td>
<td>49.8</td>
<td>50.2</td>
</tr>
<tr>
<td>1910</td>
<td>40.0</td>
<td>60.0</td>
</tr>
<tr>
<td>1919</td>
<td>37.6</td>
<td>62.4</td>
</tr>
<tr>
<td>1925</td>
<td>35.6</td>
<td>64.4</td>
</tr>
</tbody>
</table>

Within half-a-century the balance is almost exactly reversed. Had the matter rested there, the Mietskaserne might have stood a longer test of time, but things turned out differently. The drift to the towns intensified. The countryside round these barrack-like quarters was itself built up and accessible open space was thereby shut away.

Realisation that the Mietskaserne were not the right environment for 20th Century Germans to live in came slowly, and to attribute the whole change to Muthesius and his group is to over-simplify. He was one of many, but as an officer of the German Foreign Service at one stage of his career he had the importance of position and if anyone could have reached the Kaiser's level in an effort to affect social policy, it could have been he. It is a matter of general knowledge that this was not an easy level to reach and Muthesius and others were making their environmental discoveries at a bad time. The First German Reich was seeking imperialistic expansion, not internal improvement. The Kaiser and his advisers had business in hand which needed facts about English warships rather than houses. If as yet he failed to use
the word lebensraum to justify that business, at did Hitler on similar business twenty years later, this is, if anything, only an additional sign that he was not listening to the voices of social reform, and maybe least of all to social reformers who were also architects, for their proper business was still thought to be the monumental rather than the useful. But that is a matter of political history which needs no exposition here. Its relevance is its effect, which was to postpone almost all action about the Mietskaserne problem until 1919.

THE HOUSING PROBLEM AFTER WORLD WAR I

The Weimar Republic, the Second Reich, entered its career in 1919 with good intentions, but the circumstances of a nation in defeat with an accumulation of unsolved social and economic problems were not the best for an active drive towards creating a whole new physical environment. There was no strong sense of a traditional Germany and its ways of life, for the Republic looked forward rather than back, and yet there could be little thought of a utopia. The immediate concern was an emergency housing programme which, in addition to encountering the physical difficulties of shortages of materials, had to be steered round the appalling obstacles of inflation.

Apart from difficulties normal to a country emerging from four years of war, a war during which virtually no new house construction had been done and little renovation of existing housing, there was the problem of accommodating refugees from the unpacified east, including large numbers of Jews fleeing to Germany from pogroms in Poland. These had to be quartered in halls and warehouses, where (says André
Schwartz - Bart) they hopefully waited for a house.

"Whole families lived in a great hall divided into apartments by lines of chalk. Cutting the hall in two, an aisle barely two feet wide gave the tenants access to the door. Each feigned unawareness of his neighbour's existence. To cross a chalk line was to straddle the wall of a private life; to pay a visit, one said with a forced smile "knock, knock", until the host invited one to enter . . . . Some attached cords to the ceiling and hung up a mirror, a painting, a family photograph." 7

Similar scenes are remembered from the refugee camps which existed in several countries after the Second World War. Some remain, and then as now the difficulties of creating the right accommodation for immigrant people with unfamiliar standards of living were acute, for nothing is worse than to offer such people a lesser standard than is being offered to the population of the host-country. In 1919 it was for everyone in Germany to put up with emergency conditions, especially in housing, and in that year nearly 10,000 dwellings of a barely habitable standard were created by German municipalities for refugees and other homeless, chiefly by converting army barracks and by sub-dividing large old houses. Most were single-room dwellings not much better than what would have resulted from building up the chalk lines of the halls and sheds into solid partitions.

The accepted standard for new blocks, however, was the two-room dwelling in which Hamburg in particular excelled, and in Germany as a whole in the period 1920-24 over 500,000 more or less permanently habitable dwellings of this kind were provided. 1924 was the year when the currency became stable and the national economy began its
climb to normal efficiency. Yet this figure fell far short of the 200,000 per annum which was the target set, and succeeding years showed little improvement. The housing survey of 1927 showed a shortage for all Germany of about 1,000,000 dwellings.

This shocking result inspired a major new effort and for the next three years production topped the 300,000 mark, only to fall again sharply in 1932 to 130,000. That was the year of the Republic’s demise, for it was in May 1933 that the Nazi regime came to power.

The Second Reich, therefore, never reached a quantitative solution of the housing problem. But qualitatively much was achieved. In 1924, research which had been proceeding privately was co-ordinated in governmental hands in twin research institutes for the design of settlements and dwellings and for increasing building production. This had the effect of encouraging experimentation rather than conformity with accepted patterns, and though new dwellings themselves were pitifully small, good planning made the most of the available floor space.

The case study material includes a street of flats in Hanover dating from 1926, which was visited and examined. With hundreds of similar streets built throughout Germany in the 1920’s this street can be described as a simple application of the sachlichkeit principle. The buildings in this street consist of an unpretentious handling of traditional forms selected to provide the practical solution to simply stated planning and production problems, without architectural mannerism or definite sense of a time-determined style.
PARTICIPATION OF THE BAUHAUS

It was, of course, during the 1920's that the Bauhaus began to operate, and its influence, though perhaps greater abroad than within Germany and therefore easy to exaggerate in the present context, became important. A time-determined, if unprepossessing style was what the German public saw. What so few of them saw to be the essence of this visual form was the technically and socially important, if theoretical, assertion that planning and production are aspects of the same problem to be solved in a unified social, economic and architectural context. Fortunately for Germany and for the world, however, leading Bauhaus figures were soon taking part in housing, including Gropius himself, and designers and craftsmen trained there in every branch of architecture went out into the field of housing design and production with practical results which ultimately justified their theoretical approach. The Frankfurt-am-Main experiments in standardisation and mass-production of whole units of a dwelling were one, preparing the way for the widespread development of industrial production still in progress in many countries.

The space-provision of some Bauhaus-inspired German housing, including Frankfurt examples, is examined in appended case study material. Held in check as these schemes were by regulations and by Clients' economic resources, some slender evidence nevertheless emerges of efforts to create more space than in other contemporary German examples. This was in attempted demonstration of the Bauhaus contention that rational constructions and use of factory-made
components would make available more space at like cost. But there is also a better use of space. Both achievements were of importance to European housing generally, beyond the range of influence of the more time-determined Bauhaus creations of style and mannerism.

Although Bauhaus designs for housing got their last and possibly most successful airing at the Berlin display in 1931, the year 1927 can be said to have been the fateful year for the Bauhaus version of the modern German dwelling. In that year the Deutscher Werkbund, the association of artists and industrialists which since close to the turn of the century had been promoting rational design, put on show at Stuttgart, with the support of the municipality, the Weissenhof exhibition of modern housing. Mies van der Rohe was the director and the team of architects who designed the exhibits were representative of the Werkbund (Hans Poelzig and Peter Behrens), of the Bauhaus (Gropius), of the De Stijl Group, and of the modern movement in architecture generally, (including Josef Frank from Austria and Le Corbusier with Pierre Jeanneret, from France). Thirty-three dwellings were built and furnished; some were in terraces, some in blocks of apartments, and the Corbusier exhibit was in the form of a flatted block and an example of his Citrohan dwelling unit. Each contribution was in its way notable, both as regards space-arrangement and construction, and almost any of the buildings, it has been said, would achieve distinction if it appeared today as part of a first-class new town or redevelopment project, for the ideas now in use were all there: the pedestrian precinct, (although limited in execution), the house-plan dictated by actual use of space, and
with the studied relation of interior to exterior/storage walls and canalised services. Amongst the furniture were the S-shaped steel chairs which since have gone into world-wide production. There was variety of approach both to planning and to detail. The work of Mies already displayed his belief that less is more. The Gropius houses were of a spartan severity of draughting discipline. Hans Poelzig indulged in some of his voluptuous shapes, especially in furniture design, and Joseph Frank allowed a Baroque taste to influence the furnishing of his otherwise sternly cubist space conceptions. It must surely be a universal judgement today that both in the dwellings themselves and their grouping in a precinct in the hills above the crowded city of Stuttgart lay the best combined solution of the German urban housing problem with all its variables and differences of approach.

Yet the fate of this Werkbund enterprise was the very opposite of universal acceptance. Within six years it had been singled out by the Nazis as the prime example of Kulturbolschewismus. In 1933 photo-montage postcards of Weissenhof appeared with arabs and camels striding up and down its walks entitled "Arab Village, Stuttgart". Soon afterwards pitched roofs were put on the flat-roofed structures as though to conceal the depths of depravity to which architects under the Republic has allowed themselves to sink.

Then in World War II came bomb damage and the bricking-up of big window openings to conserve heat, and by 1945 the Weissenhof houses were scarcely recognisable. The restoration now in hand under the patronage of the Federal Republic's first president, Theodor Heuss, who
was once president of the Werkbund, probably the first restoration of pioneer modern historical architecture anywhere, promises to give back what was lost. But for German housing the official disgrace of 1933 had had its decisive effect.

What really went wrong? It is said that the flat roofs leaked and needed to have a new construction placed over them. This is credible, if impossible now to prove or disprove. It is also said, and this is credible too, that Weissenhof architecture and furniture design lacked the common touch, particularly needed if such designs were to be capable of appealing to a southern German community. Again it is said that propaganda, led by the lively young school of architecture at Stuttgart, went too far. It was one thing for German housewives to be told that the slim new furniture was beautiful in its own way, cheap and practical. It was another to be told that fine old inherited pieces well made by village joiners were incongruous and must go. At this point there was rebellion or at least passive resistance, as we have seen in the course of this thesis that there still is on the part of the client when the argument for aesthetic conformity is pressed too far by the architect. Again, it was easy to understand that, to get more houses built, machines must be used, and since machines worked best in geometrical shapes, modern houses and furniture must consist of simple geometry. But it was less easy for a population steeped in friendly Biedermeier tradition, in one sense a Victorian version of the baroque, or else in its opposite in severity, Potsdam Greek, to see beauty in the resulting hard lines. Josef Frank's softer interiors,
more in tune with southern feeling than those of the other houses, were not enough to remove the conviction that hardness was an indigenous quality of this new architecture.

For ordinary people, there was now a difficulty, too, with Bauhaus apologetics. The easy word *sachlichkeit*, with its practical down-to-earth sound, had given way to the academic *funktionalismus*. Where exactly the exchange occurred is a question needing its own investigation. Van de Velde used *sachlichkeit* and this word continued in use in Bauhaus language, with other words having a like unacademic connotation: *dienstbar* (serviceable), *brauchbar* (usable), the latter used by Bruno Taut identifying *brauchbarkeit* as the quality which established the *ästhetik* of the new architecture. Linguistically it is difficult not to consider *sachlichkeit* and *funktionalismus* as synonyms, and so the Bauhaus apologists must have assumed them to be. Yet while continuing to use the one, they gave their allegiance, as to a dogma, to the other. Perhaps it was a mistake, followed by another apologetic misjudgement in describing what was being done as a new architecture at all, and a third in the term *internationaler stil*, asking the world to accept (or reject) this style, as the 19th Century apologists had asked for their styles to be accepted.

Muthesius' writings contain their own warning about styles and architectures, and he uses *sachlichkeit* to mean a quality excluding the existence of style and even of architecture, in any academic sense.
"Was aber am englischen Hause von eigentlichen, ausschlaggebenden Werte ist, ist seine vollige Sachlichkeit. Es ist schlecht und recht ein Hause, in dem man wohnen will. Da ist kein Aufwand an Repräsentationsanlagen, kein Phantasieergruss an Ornament und Formenkram, kein Prätension, selbst keine "Architektur". Es steht da ohne Prunk und Zier, in jener selbstverständlichen Anstandigkeit, die, so natürlich sie sein solte, in unserer heutigen Kultur so selten geworden ist. Und damit verkörpert es eine Eigenschaft, die einen Kostbaren Teil englischen Wesens ausmacht: die anspruchslöse Naturlichkeit". 

He was also alive to the dangers of the word "modern", expressing the view that in current German use it was only a slogan.


With this and other warnings unheeded, it was all too easy for the common man in Holland, Germany and throughout Scandinavia to coin the nickname funkistil (the spelling varies with the language) and to think of the new architecture as merely the latest fashion, of no more significance than the latest thing in hats. The Weissenhof aesthetic seems not to have aroused revulsion until the Nazis generated that reaction, but it is doubtful if in Germany it aroused enthusiasm on a significant scale. The idea of functionalism was not accepted in depth, and in whatever public misunderstanding of Bauhaus apologetics may have occurred, lay in the origin of a great architectural tragedy. Germany had again reached a point of division. Appended case study
material contains evidence of this, and evidence, too, that the point has not been passed, particularly in the matter of furniture design and selection. The search amongst German designers today is for the humanised version of the Bauhaus aesthetic, accepting a judgement of history, however regrettable its elements of unfairness and misunderstanding may have been.

Bauhaus-inspired architecture not put on exhibition at Weissenhof or at Berlin was used as brutally in another way. Throughout German cities in the years 1927 to 1933, overcrowding and its attendant ills not only remained unabated but intensified, and extended to the new seidlungen, for all that these fine-looking buildings with their up-to-date equipment and modern aesthetics expressed flight from the kaserne existence. The fine qualitative work of the republican regime was lost in its quantitative failure and in its inheritance of the problems of the industrial migratory revolution for which previous regimes had not provided solution.

THE NAZI INTERLUDE

When the Nazi regime came into being in 1933 with the appointment of Hitler as Chancellor, most aspects of social and economic life were brought under rigid control. It was a control based less on expediency than that exercised by the republic when it took over from the empire, for behind it lay a prepared ideology, and ready policies. The policy about housing, indeed about the whole physical environment, was that in a vastly increased production its
German essences must be re-discovered, not the least of which must be a re-discovered relationship with Germany itself, die schöne heimat. This was an essence which to Hitler himself was primarily Austrian.

It was a matter of mountains, valleys and romantic little towns, ingredients of the Kärntner Heimatlied, that tenderest of all songs of the motherland province of his native country, utterly removed from modern industrial Germany.

But it was on that romantic nationalistic basis that the internationalistic qualities of Bauhaus-inspired architecture, including housing, were totally rejected and a fresh start ordered on the whole architectural front. This led on the one hand to grandiose governmental buildings in Berlin by von Speer, with their Schinkel-inspired neo-classicism and strongly marked imperialistic qualities. A rare illustration of Hitler's own room in von Speer's Reichkanzlei is included with the case-study material.

On the other hand the new start led to a re-adoption of the romantic tradition for domestic architecture. In housing practice this meant simply a return to an emphasis on the individual house and garden, a popular move in that it pandered to a universal wish to own a house and a garden, and a shrewd move economically since in a war economy it would ensure that each family had its piece of land for food production. Besides, it made possible a system similar to that operated in Sweden, whereby unemployed people could be used to build their own homes. All this was on a primitive level of provision of space and equipment. Each house had three rooms; wohnraum (living, kitchen, dining), one double bedroom and a single. There was an outbuilding with a stall for a beast, a cellar
or store and a toilet. Cost both of buildings and services were minimal, and likewise the cost of roads, for the widths and the surfacing were kept to the minimum compatible with efficiency. Layouts of these peasant-like houses were spread in great stretches of development on city and town perimeters, where the name stadtrandsiedlung (lit. town - border - settlement) was given to them, and in cases of the lowest-cost housing, such as the unemployed self-help schemes, the peasant standard was further emulated by the limitation of water-supply to one pump for every four houses. On the other hand, gas and electricity were laid to each house.

It was understood that a new class of small farmers and part-time agricultural workers also employed part-time in industry, was thus being created, but it has to be remembered that the image of German life carried by the Nazi leadership was of the peasant south, and such a class they could only see as a healthy addition to a northern society suffering, it seemed to them, from too little contact with its own native soil.

The houses themselves were almost incredibly cheap. The gross figure is given by Miss Denby as RM 3,500 (£275), with rents of RM 20-25 (about £2) per month, including amortisation in 34 years. As regards the use made of these dwellings and their land she reported:

"These peasant-proprietor colonies, though primitive, seem flourishing and happy places. Rabbits, chickens, vegetables and flowers are apparently reared by everyone!"

She adds the criticism that no scheme existed for co-operative marketing of produce.
This is 30 years ago, but so far as these things can be judged by their long-term results, the present situation of these half-rural half-urban schemes is that they in general have fared in the same way as the low-density garden-city schemes in Great Britain. There is much zealous gardening, amounting in the German case to a small-scale agriculture which is better represented in Great Britain by the government-sponsored small-holdings of the same period. There is also neglect, with garden ground undug and, more frequently, the stall for the beast is empty, which is perhaps a less surprising thing. But at least part of the reason for this is that, contrary to Nazi expectation at the time the whole system began, German industry boomed, first with the Nazi war-effort itself and then with the vigorous economic development of the 1950's which is still in progress. The part-time industrial employment for which these settlements were created was economically realistic only for a few years in the 1930's, with a short renewal (remembered well by officers of the British Army of the Rhine who had to do with civil affairs) in the years following 1945.

Such is the present tempo of German production, however, that the impression gained by the foreign observer today is that, despite full industrial employment, the part-time agriculture of these stadttrandsiedlungen continues. The writer made an overnight stop at one such holding near Hamburg, described with the case-study material and typical of the situation in other holdings nearby. It is significant that the error to which Miss Denby called attention has now been put right. In the early hours of the morning a co-operative truck arrived to take produce away to the Hamburg markets.
It was in the 1930's, too, that terrace housing was given its full trial, though not always in its Bauhaus-inspired form. It seemed to be the kind of urban development which least conformed either with the kasernen of the older city areas or with the apartment blocks of the new, built by the Republic. Here the inspiration seems rather to have been that of the Muthesius group and is therefore by derivation partly British, but Germany has its own tradition of terrace houses, going back to the famous Fuggerei in Augsburg built in late mediaeval times by an industrialist, as we now might call him, for his workers. Of the modern examples, the Frankfurt terraces are no doubt the best. Frequently the two-storeyed buildings involved are flatted and not true terrace housing, in which case the upper flats have balconies while those on the ground each have a small garden, sometimes with a kind of patio, abutting the common playground which in urban housing in Germany has been a firm requirement for at least four decades of this century. Here it might be appropriate to remark on a particularly meaningless change made by the Nazis in the space arrangements for children in the seidlungen which had been built in their predecessors' time. The kindergartens, for tending children while mothers shopped or went to work, were closed by the withdrawal of official grants, the Nazi theory being that every child is best looked after by the mother, no matter how large the family, or what may be its economic circumstances. The wider intention was to prevent women from competing with men in the labour market, it may be guessed, and this too was presumably the reason for the marriage loans inaugurated by the Nazis. These were granted
to approved young couples intending marriage, to furnish and equip their house on assurance that they would not leave Germany and that the wife would not take up employment.

From the examples cited and from those studied, illustrated and commented on more fully below, it emerges that the cry for more **lebensraum** with which Nazi Germany attempted to justify its military and political aggressions, was not reflected in generous living space in homes themselves, as was the case in Italy under similar political conditions. It could be argued, of course, that the German equivalent was space out of doors, as in the **stadtrandseidlungen**. But indoors the German dwelling of the 1920's and 1930's remained uncomfortably small. The typical three-room flat of the period of the Republic, consisting of a living-room with two small bedrooms opening out of it, measured only 350 to 400 square feet, rising to 500 when an extra room was added. The Nazi "peasant" house had living accommodation of 300 square feet though with storage, an outbuilding and the roof space in addition.

The Nazi effort was divided into two four-year plans, 1933 to 1936, and 1937 to the outbreak of war, when the second plan was interrupted and never resumed. The first was intended to revive the German economy after the depression years (which were blamed on the previous regime but were a world-wide phenomenon) and placed great emphasis on house construction. There was some success, and by 1935 the national figure of house production had risen from its lowest figures of 130,291 for 1932 to 212,022, while the 1929 high of 312,270
was exceeded in 1936 and 1937, with a decline in 1938 caused by allocation of labour and materials to armament. During this period a serious housing shortage remained. According to a census of 1933, more than a million households had no home of their own as compared with 600,000 in 1927. At the same time there were 150,000 empty dwellings, and the inference that there was insufficient purchasing power in the country to cover the acquisition of proper quarters for everyone seems inescapable. Miss Denby expressed this in simple language:

"This brings us to the real difficulty experienced in rehousing in Germany - the poverty of the people."

THE HOUSING PROBLEM AFTER WORLD WAR II

It is difficult to trace events in German housing during the course of World War II. In 1939 there were about 10 million dwellings in the area which is now the Federal Republic, serving a population of 39.4 million. But war destruction over the whole of Germany was very severe and within the same area 2,500,000 dwellings were completely destroyed. A very large number, variously given, were so badly damaged as to be uninhabitable, and the total available for occupation seems to have been something below 7 million, yet the population continued to increase. The same area in 1952 contained 47.9 million people and in 1958 51.5 million. Most of this increase is accounted for by the influx of immigrants from East Germany, for there are not likely to have been any big natural increases, especially if account is taken of wartime mortality, including concentration camp and other massacres. Up to 1958 over 4 million immigrants have had to be accommodated in West Germany and to begin with there was a
repetition of the scenes enacted after World War I. Thousands of families, Germans and immigrants, had to find shelter in hastily patched-up huts, in cellars and in rubble-built hovels, most of them glad to have a roof over their heads at all. By 1965 the number of immigrants is estimated to have risen to 10 million.  

Housing requirements are best stated in terms of households. A report of the United Nations estimated that in September 1950 there were 15.2 million West German households, exceeding the number of available dwellings by 5.75 million. Only 40% of these households did not share their dwellings. A housing survey conducted in 1950 at what was probably the peak of the housing shortage determined that 6.5 million dwellings, or 425,000 per annum, would have to be constructed by the beginning of 1965 in order to satisfy by that time the most urgent needs, these not including desirable slum clearance to eliminate dwellings far below standard. "Household" in German usage includes such categories as apprentices and students living away from home. This makes the figures somewhat less serious judged from the point of view of countries where these young people are thought of as living with families or as lodgers. It is for this reason that one of the case studies appended to this thesis is a block of single room flats at Hanover for apprentices, an indication that interest in this category is not merely statistical.

The housing survey of 1950 was followed by energetic action. Production for that year had been 360,000 dwellings, not hopelessly far short of the new annual target of 420,000. By 1956 it had risen to a peak of 558,000. By comparison, figures from the period of the former republic are puny, for out of the peak figure of 339,000 dwellings built in
all Germany in 1929, only 197,000 were built in what is now West Germany. Thus the target set for 1965 was reached almost a year in advance, and by January 1965, 8.5 million dwellings had been built since 1950 in the Federal Republic, housing or rehousing 25 million people, for slum clearance did not have to wait so long as had been expected. Of this impressive total, roughly 4.5 million can be described as financed by public funds, within the machinery provided for putting government money to work, and 2.5 million built for owner-occupation, the money being provided or raised privately using, however, in most cases the banking and credit arrangements which apply to the country as a whole.

It all began in the winter of 1946 on the basis created by the allied occupation of the country. The first references to this are found in proclamations and orders of the day issued by military leaders following the Nazi capitulation of May 1945. Typical of this is Field-Marshal Montgomery's message in which housing is second only to food on the list of provisions to be made for the defeated nation as "an immediate object" of military government. But the occupying forces were best used for general public works, leaving Germans to build or repair their homes. "The vital thing", writes Sir Brian Horrocks, "was to open up communications, so that food and goods could be moved freely from one area to another." To this end troops were put to work on repairing roads, bridges and railways. Aided by these restored communications, the first twelve months of military occupation in co-operation with the reconstituted German local authorities, the
Länder, saw an energetic effort to provide home and shelter. Over 500,000 damaged dwellings were made habitable. Repair of the more seriously damaged took longer, slowed progress, and it was not until after the currency measures of 1948 that new construction began on any scale. With the establishment of the Federal Republic in 1949, the Ministry of Housing at Bonn, Bundesministerium für Wohnungsbau, took over, and proceeded, within the framework of the Marshall Plan, to carry out first of all a special project for miner’s houses in connection with the need for coal output. Whereas at least 400,000 miners had no homes at all in 1945, the shortage had been reduced to 90,000 by 1953 and for this class of worker has since been almost eliminated.

The same determination to reach objectives has been characteristic of German central and local government throughout the 1950’s and 1960’s, part of the German economic miracle of which so much has been heard in recent years. It may therefore be true generally of most other social classes that the days of their acute housing shortage are over. How true it is in particular, for instance in the big conurbations such as Hamburg (not to mention West Berlin, which is taken to lie outside the necessary scope of the present study), is more doubtful. Even on the generality opinion seems to differ. Wendt, writing in 1959, on a basis of U. N. figures and a Bundesministerium für Wohnungsbau report for 1958, confidently predicted that by 1960 no shortage would remain. Dr. Erwin Lunke, wrote in 1965 that no shortage did in fact remain, except for a few special categories. On the other hand interviews
undertaken in the course of preparing the case studies appended to this thesis suggest that it is not over, or at least that there are possibilities that it will return, unless production accelerates. The writer forms the opinion that it is present without being fully acknowledged, certainly in the big conurbations, but also in cities outside these, for they are the communities in possession of the land resources needed by modern space-hungry industry. They are ready to re-create the conditions of 19th Century industrial expansion and of a housing need acute locally.

Hanover is an example. In 1939, a population of 471,000 lived in 147,000 dwellings, of which half were flats and half villas, including stadtrandsiedlung cottages. This was comparable with Edinburgh, if we roughly equate these cottages with the cheaper Scottish suburban bungalow. The occupancy rate in both cases was about three persons per dwelling, an average reached in a balance of generally overcrowded flats against undercrowded villas, particularly the older and larger villas. Wartime evacuation and air raids reduced the Hanover population to 217,000 in 1945, with only 7,500 dwellings left intact and half of the remainder totally destroyed or too badly damaged to be made habitable. But by 1949 the population had risen to 428,000 and in 1965 stands at 564,000 living within the same area as that of the pre-war population. Since 1945, 120,000 dwellings have been built or rebuilt within the city boundaries, so that now, with a total of 195,000 dwellings, the occupancy rate is almost exactly what it was in 1939. Undercrowding today is known to be less that it was then, particularly because older villas, at least, have been divided into flats while new villas have been
space-controlled and in any case are rarely financed to a point where space per person becomes lavish. Overcrowding, therefore, cannot be as bad as it was in 1939 and earlier. Thus far, Wendt is supported, but if the Hanover case study at Wassmanstrasse is typical, there is at best a delicate balance between space provided and space needed for the growing young families of the period of affluence, without considering the position of new families of immigrants coming to fill the employment offered by expanding newly sited industry.

If the family from Wassmanstrasse, whose dwelling was examined in detail, decide to remove, they will do so to an area outside the city, and the pressure on existing space suggests that they will make this move soon. Already it is estimated that 100,000 travel to work in Hanover from such areas within a 15-mile radius, mostly from their own villas, such as the Wassmanstrasse family would try to create for themselves. Superficially considered, it would seem that in the aggregate this kind of transfer from city to suburb must release pressure on city housing. In fact it does the opposite, because the presence of big suburban or satellite communities only increases the requirement within the city for commercial floor-space, ousting existing residential floor-space, and tending to create the same pressure on suburban residential floor-space as that which has been existing all the time in the city. The need, then, in Hanover is for increased productivity of suburban housing, and Wendt's argument rests on that need being met. Perhaps it will be met, wherever there is land for it, but the writer's impression is that while house production in Germany is commonly considered to be one of the
phenomena of the modern German economic miracle, the cure is incomplete, not perhaps because production itself is faulty but because of houses not being produced where they are needed most. That, of course, is a matter for regional planning of industry and housing, and there are not many claims that this kind of planning distinguishes any of the countries studied in this thesis. There seems to be little useful comparison to make about the relation of this factor to the provision of housing space, between any of them.

However distributed between Germany's many growth points, confidence in global production of housing space is high. A good indication of this is contained in recent Federal Government policy to lift the restrictions on new floor space per dwelling which have existed ever since 1919. This is being done by means of a transition from housing controls which included control of space provision, to a partly free market. Legislation leading towards this started to come in 1960, based on the principle that, as the housing shortage is overcome, existing controls of space, of rent, of mortgage conditions can be replaced by a "socially conscious rent-law". Successive legislation has introduced freedom to redevelop old residential property and to plan new siedlungen on a basis of actual space needs, but in particular on the removal of rent control. Rent control has already been lifted in 462 of 566 cities and other urban communities and it has been reported to the writer that the transition has been orderly. There has been no wave of notices to quit, which would have given rise to social concern, nor a flood of extortionate rent demands. This is partly due to built-in social safeguards, including economic security for the
accommodation needed, whether rented or owner-occupied, for every family or single person suffering from an emergency. This provision, which may be unprecedented both in its aims and its form, is part of the Housing Finance Act of 1965, and seems assured of success, on a basis of all-party political support. Officially the remaining housing shortage affects only special social groups, such as very large families, certain young couples and old people. Their problems are the subject of new legislation in the form of the Housing Amendment Act of 1965, of the operations of which it is too early to make predictions.

Part of the reason why German housing production has been so prolific is that workers' housing has not been the only category to be given government help. Indiscriminate bombing, much deplored, meant that urban areas suffered extensive damage in every kind of district, not only those predominantly working-class areas which lay near industrial installations. Except for the fortunate of all classes whose homes survived, and for a minority who survived wealthy and still in possession of big houses away from target areas, all the social classes were represented among the homeless and resourceless. From the beginning, therefore, legislation has enabled Government to help to build middle class housing also, and the Second Housing Act of 1956 made particular provision in this direction, also with the intention of encouraging home-ownership on a wide, and indeed classless basis. Basic to all housing legislation which the Bundestag has passed since, this Act distinguished three types of housing:
1. Social housing enjoying subsidies and loans at low rates of interest from public funds; i.e. workers' housing.

2. Other housing construction aided by tax concessions and tax exemptions: i.e. middle and upper-middle class housing.

3. Housing financed entirely from private funds and enjoying no financial privileges: i.e. luxury building, including such categories of dwelling as summer cottages.

The general financing of housing is by a system of multiple mortgage loans modelled on Scandinavian systems. Capital is raised on the security of a sound structure planned and if possible equipped so as to avoid early obsolescence, and on the general security of a national economy sufficiently integrated with its own social security as to be, in effect, a guarantee of ability to pay rent. For the system to work well the dwellings must still be rent-earning on a full scale after amortisation, when such rent becomes capital for new housing. Quality of construction and the adequate provision of space, therefore, become requisites. In Scandinavia, as a result of success in all the necessary directions, the housing associations handling rent and capital are now wealthy institutions and it is the aim that those of West Germany will become so in due time. This is not, of course, a matter of avoiding obsolescence by unlimited quality and generous space. Structural quality and provision of space must maintain their relation to rent, but as the association acquires its own wealth it can afford its own generosity and standards can be raised without the need to raise rents by the same proportion. As has been reported in the descriptions of Danish case study material given in Chapter 5, Scandinavia has much proven experience
of this whole process, though still having to struggle to raise space standards to new desirable levels.

In Germany the subsidised social projects are financed by public loans at a low rate of interest and are limited as to the size of dwelling constructed, being subject also to limitation of rent levels and maximum levels of tenants' incomes. To meet the prescribed conditions of the First Housing Act of 1950, the habitable area of a dwelling was restricted between a maximum of 702 square feet and a minimum of 345 square feet, and the maximum rent was fixed at DM 1, or in exceptional cases DM 1.10 per square meter (10.8 square feet) per month. These restrictions were modified in 1953, chiefly to induce private capital into this area of investment, and again modified in the Second Housing Act of 1956 which inaugurated a new six-year plan.

The details of prescription throughout are exceedingly complex, and their administration by the regional and local authorities even more so, but in measuring the results over periods of years the Ministry of Housing reveals in its annual reports an interesting upward trend in the average habitable floor area per dwelling.
The effect of the 1953 relaxations is very marked, that of 1956 less so. The inference is that the 1956 stipulations were an ipso post facto legalisation of what the Länder were already permitting. Part of this is accounted for by the graph of the percentage of villas (one-family houses) in the annual production figures for the same years. The term "villa" here means all non-flatted dwellings; villas, terrace-houses, patio-houses, and their variations. The legal definition under Teutonic and Scandinavian Law is "an independently matriculated property". In these statistics and on the following graph, therefore, are included private villas, speculative schemes of villas, both presumably for middle-class occupation, and also state-assisted social housing for working-class occupation which on an average over the same years amounted to 40% of the total. For all these categories government policy has been one of encouragement, by state-aid where relevant, by more generous mortgage credit terms and by tax concessions, but the resulting statistics came from the response.
The graph shows a fall immediately before the raising of permitted floor area in 1953 and in 1956-57. According to a property-dealing solicitor to whom this graph was shown, the explanation lies in the fact that at both times the private developer, particularly the speculator, was straining at the leash to build to a bigger floor area and had already been doing so, by means of various devices, with the tacit consent of local authorities. But with the prospect of restrictions being raised, of which there was public knowledge in both cases from Bundestag debates, it was in developers' interests to delay development until advantage could be taken of the relaxed conditions, again with an eye to how far it might be possible to go. As in Denmark, the restrictions apply to wohnfläche (habitable floor area) and since this does not include garages, outbuildings or storage rooms, there has been much use of these, arranged in such a way that they can be converted inconspicuously into rooms as at the Höjbjerg houses studied in Chapter 5.

One of the appended case studies, a patio-house at Fulda, demonstrates also this method of defeating Ministry control of space provision.

The same case study demonstrates how decidedly bourgeois is the approach to space-use. The kitchen and bathroom have a functional look, but the other rooms are a survival of the lush interiors of the last century. The German villa today is not the peasant cottage of the Nazi period, but a comfortable house with its roots at many levels of past experience in the art of living. This is brought out in another way in two case studies concerning rural life. They show how farmhouses of traditionally peasant form have been given the new look of today, with its
bourgeois flavour, the one adapted to continue the peasant tradition of living in one large room, the other taking the more pretentious line of imitating the urban dwelling's divisions into rooms for separate purposes.

Two other case studies of villas are appended. The first, at Berchtesgaden, is deliberately chosen as an example of the extreme to which bourgeois taste can go, almost wholly unaffected by any trends of modern art, whether from the Bauhaus or anywhere else. The other, from the countryside near Bayreuth, might be described as a good average result of the better guided operation in which a good architect and understanding clients try to reach a balance between sympathy with tradition and modern functional planning. Both have the additional interest of displaying a consciousness of site, of the wish to make use of views of mountains, the kind of scenery in which much of southern Germany is rich. This is an aspect of space-use encountered in one way or another in each of the countries studied, but - it might be judged - too little accepted as a requirement, at least as regards publicly financed housing. In these German examples the effect is to draw into the limited space of the interior a space experience in the visual sense able to compensate for limitations more severe than those actually imposed, for both are built for the well-to-do.

These are examples of the landhaus, not that of the suburb, and are not part of the search for the right way in which to arrange villas as housing groups. They are for the fortunate (in one sense), with no neighbours and no problems of access or of communal social services to bring planning and construction within the orbit of those concerned with layout and servicing.
In Germany, as in the other countries studied, the widely expressed trend towards villa development, inevitably carrying public opinion away from its earlier support of dense urban development in tall blocks, is causing some concern. Even where villa development is handled well from the town planning point of view, incorporating such up-to-date conceptions as the segregation of wheeled traffic from pedestrian, the layout is basically extravagant in certain things. Roads and services are bound to be expensive, especially as their standard is no longer that of the stadtrandsiedlung of the 1930's, with its outdoor water points and its gravelled road surface and other rural features. Again, the distribution of schools and shopping centres so as to conform with today's variously enunciated neighbourhood-unit concepts, means in some degree a heightened cost in the running of these institutions. In the current atmosphere of affluence which prevails in Germany, such extravagance may not be as serious as it would certainly have been in the periods of economic stress of the years between the two World Wars, but it remains a matter to worry the theorists who, in such places as the schools of architecture, have been working out alternative methods of layout.

As in the other countries, these experiments have taken two directions. First there has been the notion, partly inspired from England, that a humane solution lies in a mixed development of tall blocks and low blocks, the latter being arranged as far as possible to satisfy the villa-urge. This kind of thinking was illustrated at the Berlin Exhibition in 1950 in the layout and grouping of blocks in the
Hansa Viertal. There, in particular, the courtyard houses went far to provide villa-like seclusion even in the midst of an urban development. The basis of such development is, of course, the realisation that in a big urban complex it is impossible to provide country-like conditions for every dwelling, while on the other hand the shut-in form which dwellings must take in such an area if they are to uphold the rural illusion, means that the occupants cannot enjoy distant views. Towers of flats and big slab-blocks, on the other hand, can be sited so that everyone above ground floor level enjoys a view, and this in the hilly country of which much of Germany consists is of great potential value. At Hanover, despite tenants' appreciation of the well spaced layout of the second development of blocks, it was a complaint that no distant views were available, just as it was appreciated by the apprentices in their tower block at Kassel that they had an excellent outlook over the city itself.

Having regard to the fact that much German building land must consist of hills with steep slopes, it has come to be realised that, with careful design of hillside developments, there can be an attempt to achieve both privacy and open views for many more dwellings within a dense development than would be possible on level ground, without building tower blocks at all. Attention has also been paid to the problem of low angles of sunshine, especially in the winter on north-sloping sites.

Very recently, forms of development have been appearing on drawingboards similar to the Halen Siedlung at Berne designed by Atelier V in 1959. Perhaps the most interesting of these is the study
by Eckhard Schulze-Fielitz, a member of staff at the Technical College in Hanover. It consists of what he calls "hill-face" development, and is in a sense a multi-storey development laid to the angle of a hillside, for constructionally it is designed to rest on girders running from the foot of the slope to the top, the individual dwelling units having no independent foundation on the hillside itself. This means that the irregularities of the hillside, even with rock formations, need not interfere with a regularity of layout, making factory production of components and general acceptance of a modular discipline feasible.

In the hands of Schulze-Fielitz this constructional system does not seem to lead to overdone regularity. Indeed, by varying his dwelling types, which are for the most part terraced dwellings having some of the characteristics of the patio house, and in particular by varying the heights of dwelling from one to two and even three storeys, an irregular silhouette is produced capable of intimate association with a hillside, rocky or wooded.

This and other characteristics are well brought out in a model, a photograph of which is appended with the case study material. The model shows how the structural system can be varied so as to allow rock outcrops, or in this case wooded protruberances, to remain as open spaces in the layout.

Access to the dwellings is by corridors at every third floor reached by diagonally-running elevators, and in order to avoid an underground feeling in the access corridors, clefts are left here and there between the dwellings leading light into the heart of the structure.
The sides of these clefts are available to light kitchens and bathrooms and the availability of height to allow one dwelling to project above another, or even to rise from a different part of the girder structure beneath, provides for through ventilation. Similarly, each dwelling can have a terrace or patio on the roof of the dwelling beneath it.

Further development of the same idea is put forward by Schulze-Fielitz in an unsuccessful but historically important competition entry for the design of Bochum University, entered in 1963. It shows a girder construction on sloping ground in which at certain points four to five-storey concrete tower blocks are raised. These towers have foundations in the hillside and part of their function is to carry the girder construction on which the lower buildings are erected. Clearly this idea could be used in residential development, enabling tower blocks to be combined with quite small separate dwelling units and, in fact, create a new kind of mixed development for hillside sites. It seems much to be hoped that German architects and planners will develop this brilliant idea through successive stages of careful experimentation and solve the many detailed technical problems which at present place it in the category of the unrealistic.

Meanwhile, it is of considerable interest to compare this layout development with the Cap Camarat development on the French Riviera described at the end of Chapter 7. There construction was a matter of returning to old traditions, using mass concrete, stone, etc. In the German version the hope of using modern industrialised constructions for this kind of development seems to give it a more general application.
It is also interesting to compare the Schulze-Fielitz idea with the proposals by students of Edinburgh University for the new town at Livingston where, without the same topography, but with increased daylighting and sunlighting problems characteristic of the northern countries, sloping ground is used to similar effect.

Apart from the circles of the learned and the informed, led as in Bauhaus days by the architectural schools further and further into advanced theory, it has seemed to emerge from the present study that even basic ideas of functional design, which owe so much to German inventiveness at the Bauhaus in the 1920's, are only slowly acquiring general acceptance in Germany, even at this late stage of modern building-technological development. This is revealed clearly in the insides of dwellings. In the private house, no matter which class of society is being considered, and whether the building itself is of functional design or clothed in some way with romantic forms, or else adopts traditional constructions in a functional way but as a tool of romanticism, the inhabitants want if possible to surround themselves with furniture other than the stern artifacts which the Bauhaus has bequeathed to modern society. These are accepted as equipment in kitchens, as storage units in other rooms, as light fittings, and have had a generally discernible influence on pots and pans and on cutlery and crockery, but romantic clothing seems to be demanded as soon as the purely utility parts of the house are not concerned.

All in all, interior taste in modern Germany seems to swing between functional kitchens and bathrooms to luxurious and in some
degree dignified furnishings of living quarters. The deeper psycho-
logical significance of the latter seems to be beyond the present writer
to explore but he is satisfied that there is more involved than mere
trends in fashion. The mixture of functionally and unfunctionally
designed objects appears in showcase windows in furniture stores
throughout Germany, and the case study material includes a set of
photographs taken more or less at random through the showcase windows
of such places, in Kassel, in Hanover, and in Hamburg. These photo-
graphs speak for themselves. The range of goods runs, as will be
seen, from the reproduction pieces of which the house visited at Berchtes-
gaden was full, to more modern objects appealing, perhaps, to the next
generation of furniture buyers. The end of the story is not yet, but
there seems a world of difference between the aesthetic and functional
achievement of, say, the Tugendhat House and the Bavarian extravagances
which one of the present case studies brings out. And the Barcelona
Pavillion with which Mies van der Rohe blazed the trail of modern German
design in far off southern exotic Spain still seems remote from the
chosen environment of the Germany which he left in order to travel to
new opportunities on another continent.

This conclusion arises from the case studies, but also from the
perusal of housing magazines. The case study material is therefore
supplemented with some illustrations drawn from the popular German
magazine Schöner Wohnen. One such illustration shows a page of
cupboard units worked out on a module and incorporating experience
with storage walls first put on public view in Germany at Wiessenhof.
Such cupboards were seen and recorded in various German houses visited. A second illustration shows a kitchen based on similar principles and not unlike the kitchen studied at Fulda. A third shows the inside of a livingroom designed by an interior-architect called Raumkonzeption to advertise in the same magazine the products of a furniture manufacturing company, evidently aimed at a buying public ready to accept in some degree the modern design idiom. Here are exhibited some standardisation of fitments, functional space-provision and space use, but also the softening influence of traditional features. It should be added that the writer never found rooms like this in Germany except in houses actually occupied by architects or other people engaged in professional modern design, similar indeed to his experience, even more surprising, in Scandinavia.

At the same time it should be remarked how high a standard of design the industrially produced domestic equipment of modern Germany reaches. Cookers, refrigerators, washing machines, are both neat and effective, comparing favourably with those of Scandinavia, with Italy and with France, and certainly with Scotland where, as pointed out in Chapter 8, only a very recent effort by the electrical equipment industry has brought designs, both functionally and aesthetically, to the continental level. Within their own country, in this field, the efforts of the Bauhaus pioneers have borne fruit.

From all that was seen and studied it appears that, between the strictly urban approach of the Weimar period and the pseudo-peasant approach of the Nazi period, the Federal Republic takes a careful middle
route through the difficulties of deciding its domestic environments, keeping in close touch with its own social trends.

Doctrinaire solutions are understandably avoided and also universal formulae, but ingenuity and invention and also the wish to lead the industrialised West in the exercise of these qualities are not thereby quenched.
CASE STUDIES

1. GENERAL HISTORICAL MATERIAL (indexed with submitted drawings etc.)

2. GERMAN HOUSING OF THE BAUHAUS PERIOD

The case study material, from literature and periodicals of the time, relates to three developments: the group of developments linking Spandau and Siemensstadt in Berlin, the Siedlung Römerstadt at Frankfurt-am-Main, and the 1927 Exhibition Group at Wiesenhof, Stuttgart.

(a) The Spandau-Siemensstadt Developments, Berlin.

It is of some interest that this group of developments owes its origin to the electric cable works begun on the western edge of Berlin in the 1890's as a result of inventions made by Karl Wilhelm Siemens (1823-83), the German engineer who had settled in Britain to develop there his contributions to metalurgy, furnace design and electrical engineering. His firm, Siemens Brothers, became responsible for a great part of the development of overland and submarine cable telegraphs, and the factory at Berlin developed with explosive force. It was to house Siemens workers that Walter Gropius and others worked on the Siemensstadt housing during the late 1920's. It was significant that here should appear those buildings which, in particular, applied to German industrial housing the lessons developed in England by another German, Muthesius. It was not, of
course, a matter of blind copying, but of intelligent interpretation, which already had passed through the garden city stages, both those using villas, as in the Ruhr and the gartenstadte of the Berlin suburbs using separated small blocks of flats.

The Gropius contribution took form when in 1929 he won a competition held by Berlin City Council for laying out 111 acres at Spandau-Haselhorst. The competitors were given an air photograph of the site and full data about the surroundings. The scheme had to include a town hall and other meeting places, besides schools, shops, and laundries and accommodation for bachelors and old people. The amount of space to be allocated for streets, squares, schools, playgrounds, open spaces and dwellings was carefully scheduled as were the relative number of dwellings required of different sizes and of different types of accommodation.

Many eminent architects had competed and the estate was actually developed by a group of three, W. Gropius, Hans Sharoun and Fred Forbat, with Gropius as leader. Different materials, plans and equipment were tried in the buildings and there were experiments too with the spaces between the blocks. The results in appearance, in popularity and in maintenance costs were to be carefully watched and to be used to guide future projects. One of the tragedies of the 1933 Nazi take-over in Germany was that this progressive start could not be continued into a full-scale programme of experiment and development.

It was in 1929 that Gropius was commissioned to build the development properly called Siemensstadt, of four-storey flatted blocks
with wide green spaces between. This was less experimental in nature than Haselhorst, but these are the much photographed blocks which, as an example of German flatted development of this period, remain unsurpassed.

The Haselhorst development, a plan of which is given, was developed first with 19 blocks, spaced according to their heights of four and five storeys in relation to the angle of light so that each flat gets a sufficiency of sunlight. There were 1,214 flats, all orientated north and south, with their road accesses running east and west and having footpath accesses wide enough to take privileged vehicles, running along the fronts of the blocks. With the Wiesenhof layout at Stuttgart in its original form, this was the first application in Europe of the "Radburn" principle of segregated traffic. The second development at Haselhorst was intended to be one of 724 terrace houses extending northwards of the flats in a similar pattern of development. There was to have been a greenway down the centre leading to a school site, indeed a complete European version of Radburn. The school was built, but instead of the houses appeared more blocks of flats and this robbed Haselhorst of its possible place as the first example of mixed development of houses and flats on the scale which became used a decade or two later in European cities generally.

The dimensioning and planning of these Berlin flats was made very difficult by local authority demands associated with the Russian-born official, Baurat Klein, whose own designs for the
"ideal house" went in somewhat a different direction from those of
the Bauhaus architects. He saw his buildings only on paper, and
considering what they would be like to live in, laid most emphasis
upon their workability, ignoring questions of making them easy to
build. Thus, his aim was separate bathrooms and kitchens on the
principle that the one belonged to the bedrooms while the other belonged
to the dining and living area. This was in direct opposition to the
Bauhaus idea of grouping plumbing in one stack. Where the two
sides agreed was in the need for space, but that the city could not
authorize.

Visitors to Germany at this time, including Miss Denby,
found the Haselhorst flats very small.

"Rooms were often so small", she says, "that
families had been obliged to discard their
furniture on moving into their new homes and,
poor though they were, to buy new. The doors
were made so narrow that it was difficult to
carry even a tray through them and by the time
that even 'minimum furniture' was in place,
there was practically no space left for a normally
sized family." 20

In fact, the local authority restriction was mild. A three-
bedroomed flat was allowed to reach an area of 750 square feet and the
plan given shows how conveniently such a flat could be arranged, though
it is true that the arrangements to some extent depend on the use of
Bauhaus-type furniture; but that was not yet in production on the scale
required, and the situation Miss Denby described had no immediate
remedy.
Perhaps the important feature of the Gropius plans is that they attempt to do away with feeding in the kitchen and instead turn the conventional German arrangement of settee and coffee table in the stube, into a feeding arrangement. Plans also show an encouragement of the use of the balcony as an outdoor room by depicting a table and chair standing there too.

Balconies were separated from one another visually by a screen wall, which is made a feature of the elevations of all these Gropius-type flatted blocks, appearing as a vertical fin running through the floors from ground to roof. Basements, which are allowed to peep above ground with narrow clear-storey windows, contain bicycle cellars and laundry equipment while attics of a similar form are provided for storage, a feature also noticed in Danish housing of the 1920's and 1930's. This arrangement derives from older German and Scandinavian housing customs though it undergoes a certain rationalisation in the hands of the Bauhaus architects.

Experimental openness of mind about the use of open space seems to have resulted in indecision. On the one hand the romantic idea is present of using the open space between blocks as communal landscape with mature trees retained. This, of course, was the general approach among avant-garde architects, led perhaps more by Corbusier than by the Bauhaus, but it had to fight against the opposite, equally romantic conception, not unconnected with that of the English garden cities, that a better use of this space was gardens and plots on which the tenants could grow vegetables in their spare
time. To the Bauhaus architects this was a retrograde idea since it appeared to them to be more correct for urban dwellers to spend their evenings in a different kind of leisure, devoted to cultural improvement, while the raising of vegetables was left to specialised workers producing them within an industrialised agriculture. The plan of Haselhorst illustrated, coming from Gropius' own office, shows the space between buildings laid out as grass with trees and winding paths in a romantic manner, interrupted here and there with nursery schools for children. Haselhorst was carried out according to financial arrangements described earlier in this Chapter, by a co-operative housing association, the Gemeinnutzige Wohnungsbau A/G.

It should not be forgotten that the Spandau-Siemensstadt developments had a predecessor in Bruno Taut's group of flats and terrace houses at Britz in the Weisseesee part of Berlin. Here was the famous horse-shoe (Hufeisen) block in which a large central open space is surrounded by a band of flats having an apron of back gardens between them and the open space, an arrangement distinct from that of the Gropius plans. Despite its dramatic form the Britz layout is more traditional than Haselhorst, using corridor streets, but the terrace housing is advanced in layout, having access roads running past the ends of the blocks and minimum-width roadways, virtually footpaths, giving access to the houses themselves in a system of single-sided development. Britz, however, is not the original European example of this kind of layout. Bakkenhusene, Copenhagen, described in Chapter 5, has a better claim, built as it was in 1922.
The Britz layout is illustrated together with type plans of the houses. One of these, a single-bedroom house with two beds installed in the living room, witnesses to the kind of conditions the lower income groups of Berlin were at that time prepared to accept, however shocking such conditions may have been to visitors. It bears comparison with the INA - Casa type-plans from Italy, for there is the same invasion of living space by sleeping space. It will be noticed that the bedroom contains a child's cot so that this tiny dwelling is designed for a family of father, mother and three children. It is noticeable, too, that while the living room contains a settee and table and chairs, the kitchen has an alternative feeding space, not yet attempting the kind of reformation of German cooking-and-feeding habit which the Gropius plans attempted.

(b) Römerstadt, Frankfurt-am-Main.

This is a development of which Ernst May was leader. He was a native of Frankfurt, returning there in 1925 after his education in Munich to become stadtbaurat, translatable as city architect. In this capacity he evolved the famous experiments in industrialised production of dwellings, of which an early illustration is given which shows concrete elements being placed in position by cranes of highly modern appearance. This photograph is interesting to compare with the construction photograph from Rosyth included in the Scottish case studies, where mechanised technical methods are limited to the use of a steam-driven light railway.
Römerstadt has a dramatic layout in which two-storey terrace houses with back-gardens are arranged in corridor streets running circumferentially, with a centre of a circle taken on the adjacent main road, which, true to good town planning practice, by-passes the whole development. Radial lines interrupt the circumferential lines in a regular pattern which introduces little bastion-like public open spaces at the extremities. These bastions combine with the wall of the back-gardens to form a firm architectural perimeter to the development. Beyond this perimeter lie rows of allotment gardens, primarily intended for the inhabitants of blocks of flats which lie further along the main road from the terrace houses. In this way a comprehensive provision of open space is made, for in addition to the allotment gardens for the flats and the individual gardens attached to the terrace housing, there is also some communal public open space. Thus in one way, the Römerstadt development is perhaps the most comprehensive in its range of achievement of all the inter-war German schemes.

(c) The Weissenhof Exhibition, Stuttgart.

This exhibition and the events leading to it have been described earlier in this Chapter. The case study material assembled consists of photographs covering the general layout and the individual houses, together with the interiors and furnishings. These are from the Spring number of *L'Architecture Vivante* of 1928.

The layout is in essence the precinct which since then has been generally adopted in modern town planning. It can also be claimed to be the original example of mixed development in which the buildings
are deliberately different in design and content, though this can equally be attributed to its exhibition purpose, and thus no social purpose read into it. It is unquestionably a prototype example of siting and of landscaping characteristic of international architecture since; and the photographs, taken while the exhibition was open during 1927, show with what care landscaping had been carried out. An intrusion is a vehicle road running up the middle of the site where only a pedestrian route was intended.

Of the house types, plans are given of the single-family dwelling designed by Gropius, of the similar house by Joseph Frank, and of the three-storey block of flats designed by Mies van der Rohe. On the plans furniture shown on contemporary pictures has been inscribed by the author of this thesis.

The Gropius house displays a rational arrangement of living space, dining space and kitchen on the ground floor with larder and other storage, including a hobby room, while the first floor contains three bedrooms, a bathroom and a laundry.

It is also significant to reflect on the recurrent difficulties discovered in the course of this study in all the countries with washing machines and other laundry gear, for which there never seems to be a place (with the exception of the earlier salle d'eau of French housing), while all the time a plan like this had existed and the house was there to study. This Gropius interior includes a kitchen in which there is a kind of sink, new at that time, with running hot and cold water coming through a mixer tap and also the older type of sink, semi-circular and
with only a cold water tap, without which German housewives of the 1920's would have felt helpless. Living room furnishings include two tables, the reason for which is not quite clear, armchairs being pushed against a wall rather than formed into a group with the cushioned settee. All the chairs are of the Bauhaus kind, made of tubular steel with canvas seat and back, and the light fittings are recognisably of the same origin, the adjustable lights over the dining table being a distinguished piece of design which has not been much improved upon since those days.

The house by Joseph Frank shows a similar arrangement of rooms without the laundry arrangements, but with a tiny covered courtyard as part of the ground floor plan, resulting in an L-shaped living room of which the narrow part becomes a convenient sitting space from which, through a picture window, a view over the city of Stuttgart can be enjoyed. In this part of the room, Frank arranged a variety of comfortable furniture with cushions, and it is here, amongst all the Wiessenhof exhibits, that the general public with its Biedermeier tastes might have felt rather more at home than in the severity of the Gropius and other Bauhaus interiors. The rest of Frank's living room is filled with similar soft and comfortable furniture and there is even a picture hung on the wall, a habit generally eschewed by most of the Bauhaus initiates.

Joseph Frank's kitchen has excellently arranged storage-wall accommodation and a well designed row of items of cooking and washing equipment, which includes a low tub at which floor-washing buckets
can be handled without too much lifting. In his design electric plug-in arrangements appear at working height, the first appearance of this feature, so far as the writer knows, in Europe.

The flats by van der Rohe vary in size in a way which cannot be described in the normal language of numbers of bedrooms. The smaller flat has a livingroom/kitchen, out of which opens a bed alcove containing two beds, representing the matrimoniale function seen at its best in Italian housing. There is one single bedroom, presumably for a child, and a bathroom. Storage is arranged in cupboards built into walls, with specially large cupboards in the entrance hall, intended for hanging clothes.

The larger flat, which possesses one of the balconies featuring prominently on the well-known south elevation, has a large living room behind this feature, divided into a sitting area at one end and a dining area at the other, adjacent to and connected with the kitchen. The kitchen is a working kitchen and nothing else, carefully fitted with equipment to a minimum space arrangement. Off the living room open two bedrooms, each containing two single beds and there is a bathroom off the entrance hall, the hall itself having wash basin and some storage for coats. The furnishing of the living room includes a divan which could be turned to account as a fifth bed.

Variants of both these plan arrangements divide up the bedroom areas differently, in the one case by including a small matrimonial bedroom and a single bedroom next to it, eating somewhat into the space of the livingroom/kitchen. In the other case, that of the larger flat,
the bedroom area is divided into three long narrow bedrooms, each containing two beds placed end-to-end.

It is interesting to see here the lack of regard for bedroom space which on the other hand is so highly regarded in Italy, and the insistence on livingroom space. One reason for this is, of course, the absence of the siesta from German life north and south with its requirement of use of bedroom during the middle of the day.

Besides these examples some illustrations are included with the case study material showing work by Mart Stam, the Dutch architect who took part in the Weissenhof exhibition with his colleague, J. J. P. Oud. His dining room/kitchen arrangement produces one of the dramatic photographs of the series, with its black-topped dining table and white painted tubular dining furniture forming a foreground. But it has not the charm needed to commend functional architecture to the European public of the day.

Of the two Corbusier buildings, one is an example of his Citrohan house-type, developed in 1922, arranged as a family dwelling on several storeys, but with much more generous space arrangements than the German designs. This removed them into some degree of irrelevance, since German housing authorities were still deeply concerned about building houses of minimum space. For this reason, besides being a foreign exhibit, the Corbusier contribution at Weissenhof is not of much concern in this case study.

On the other hand, it is to be noticed that the Bauhaus architects as a group were releasing themselves from the space restriction under
which they had had to work in the northern cities, chiefly Berlin. The Gropius house contains over 1,600 square feet of accommodation and of the two flatted types incorporated in the van der Rohe flatted block, the larger exceeds the stipulated 750 square feet by about 100 square feet. Yet it can be said that the achievement in space arrangement represented by the Weissenhof exhibits is first of all the rational use of space provided. This is not only a matter of flexible living-dining-cooking arrangements, but also the reduction to the minimum of communication space, and the rational use of bedroom space (whatever Italians might think) by pushing the beds into positions against walls and introducing plenty of built-in storage accommodation. It was also a matter of correct choice of furniture and it is easy to understand, again, how ordinary tenants moving into this kind of accommodation, especially if it were restricted in space by regulations, could not introduce into it their ordinary heavy wardrobes, big beds, large dining room tables, etc.

A comment on the difficulties in producing the Weissenhof Exhibition is provided by an anonymous Danish architect writing in Arkitekten in 1928:

"For those, who like me, visited the Exhibition a fortnight after it was opening, the good propaganda must have backfired rather seriously. The fully built and furnished houses were not fully built nor yet furnished. Tradesmen were everywhere and in certain cases there was a nasty impression that workmanship - apart from the question of new forms of construction - did not come up to the standard which we call good work. Fortunately, I had the opportunity to see the Exhibition again"
"two months later. It was then completely finished and most of the little faults had been put right. It might, of course, have been caused by difficulties through having to work in accordance with foreign architectural drawings."

3. WASSMANNSTRASSE, HANOVER.

The first case study of houses in their present occupation in Germany is that of the flat mentioned above in Wassmannstrasse, Hanover, built in 1926. As a layout form, that of perimeter building round a hollow block with street frontages on four sides, this represents the first stage of departure from the mietskasernen.

Entering Wassmannstrasse, with its 60 foot-wide carriageway, its 6 foot pavements, its paved apron between the inner edge of the pavement and the building line and its friendly-looking facades with, - it seems - sunshine penetrating everywhere, the scene is measurably different from that of the old city slums. In the hollow of the block the network of inner courts has been omitted, the six-storey height customary in dense city areas reduced to three, and the pretentiousness of imperial Germany, which marked the facades even of the poorest dwelling with formal features inherited from classicism, removed in favour of a simple vernacular treatment of brick walls, wooden window frames and a tiled roof, all in a simple and unpretentious architectural expression.

In the design of the dwellings themselves, there is the same kind of departure from the dwelling types of the mietskasernen. This is the impression received on entering the friendly little entrance hall, with its wooden staircase of very domestic design and neat row of letter-boxes at the stair-foot saving the postman the climbing which he is occasioned in Danish and Scottish flats. Again, on entering the dwellings themselves, with light streaming in from well designed
windows unobstructed by tall buildings opposite, the impression is one of how effective was this minor revolution in German housing. But there are also old features retained. In the mietskaserne, the staircase was in the same position, having a window to the outside and leading to the same little landings in the centre of the depth of the block. Similarly, the bigger and better placed dwellings in these barrack groups ran through from front to rear with big windows, although they were often overshadowed, and with separate kitchen and bathroom opening off a common hall. There is even one feature of the better mietskaserne flats which the Wassmannstrasse dwellings do not have, a balcony, and there is a descent in space standards from a stube (living room) of 250 square feet, common in the Berlin and Hamburg slums, to 200 square feet. Ceiling heights too, are less, coming down from 11 feet to 8 feet. Except in Italy, there were similar reductions in space at this period in the other countries studied, particularly Scotland, and it does not follow that the direction was wholly retrograde. In northern countries the reduced space was easier to heat, and except in rare conditions of summer-time heat-wave, the loftier and cooler rooms of the older blocks had little merit. Tenants interviewed, at any rate, had no regrets about these changes of dimension, although it was doubtful if any of them were able to draw the comparison which was in the writer's mind. Clearest in their minds, particularly those of housewives, was the economy of cleaning, heating and decorating which smaller rooms brought about. As recorded in Chapter 8, Scottish housewives agreed.
An economy frequently practised in German housing of the 1920's was to reduce the number of chimney stacks, only one stack passing through the centre of each flat. It was made to pass between kitchen and bathroom, serving also the entrance hall, so that in winter it was a matter of leaving the doors of rooms open to the hall in order to get heat to spread from the hall stove. This arrangement was also found in Italy but is uncommon in the northern countries. At the flat in Wassmannstrasse this economy had not been made, for in addition to the stack serving kitchen and bathroom a stack exists in the party wall into which a stove in the stube discharges.

The Wassmannstrasse development was part of the first wave of building activity after the stabilisation of German currency in 1924, and was made possible by the ingenious financial device of the Hauszinssdeuer (lit. house-rent-tax). When inflation had destroyed the old wealth, existing mortgages were revalued up to 25% so that houseowners found themselves discharged of their former mortgage debts up to 75%. The amount of rent saved for interest on the abolished part of these mortgages was now raised for public use in the form of the house-rent-tax. With this step the State opened up a new source of income, partly applied to the balancing of the national budget, but creating big funds for financing housing. This was applied in the form of loans through private banks, mortgage banks and communal savings banks, which were permitted to invest part of their income from savings in mortgages. Special building fund banks were added, Bausparkassen, having a certain relationship to the building societies
of Great Britain. Borrowing was done by the sale of security bonds, issued in the owner’s name and therefore available to him for normal market trading. These bonds were for amounts as small as 100 or even 50 Marks, and therefore able to be bought by people of low income. Under the Weimar Republic, the State acted as lender for second mortgages, taking the funds necessary for this purpose from the income of the house-rent-tax. This method of financing housing continued from the end of World War I up to 1932, and it meant that about 45% of building costs could be obtained in the first place on the private market, a further 45% to 50% could be obtained as house-rent-tax mortgages at only 1% interest, and the remaining 10% was furnished by the owner from his own capital. The administration of the house-rent-tax fund rested with the local authorities, and in the Wassmannstrasse example of housing presently under examination, the city of Hanover furnished the finance for it through a bausparkasse in which the tenants were investors.

The sample dwelling visited consisted of three rooms plus kitchen and bathroom, one of the rooms being in use as a stube. The other two rooms were in use as bedrooms, one a double bedroom for parents and the other shared by two children. These, a boy of 12 and a girl of 8, would soon need separate accommodation and this situation was already creating anxiety since the house was not susceptible of even make-shift alterations. At present, however, it formed a comfortable enough dwelling for a household with two children. Furniture was of the period before the Second World War, made of native wood in
as markedly traditional shapes as possible within the needs of economy.

There was one more modern chair, exhibiting some of the effects of study of functional design renewed after World War II. There was also a fine old sofa of mid-nineteenth century date placed in a position found to be usual in German houses, along one wall of the livingroom having in front of it a circular table. This table serves some of the purposes which were discovered in France and Italy to belong to the livingroom of a busy family. It was used for sewing, and it was noticed that a sewing machine stood in its box on the floor in a corner. It was also used for homework by the children. The only regular meals taken at it were those of Sunday, except when there were guests for weekday evening coffee. All this had some relation to livingroom space use found to prevail, too, in Scandinavia, where in older houses the furnishing was not dissimilar. It was noticed that a standard lamp stood close to the round table and a question elicited the fact that this was a new purchase, replacing an old oil lamp, converted to electricity, which, until recently, had stood on the table itself. This lamp had been dangerous because of its flex.

It was noticed that on the walls of this house, occupied by a working-class family, there were oil paintings, some from last century, some from this. There were books, though not in great numbers and a wireless set was seen standing on a corner table. A wall clock was included, taking up less room, it was pointed out, than the older more ornamental kind of grandfather clock which many German families still
possess and of which they are normally very proud. This type of wall clock appears too in one of the older interiors depicted in the Danish case studies, but not in the more modern rooms.

Electric wiring for lighting had been provided when the house was built and was still in good order, though the present householders would have liked additional circuits to enable them occasionally to use electricity for heating. Space heating was found to be done by a low modern stove designed for burning industrially produced smokeless fuel of higher calorific value than the coke formerly used in this stove's predecessor, which stood in the same corner five or six feet high, the upper part of it being a coke magazine. The bathroom and kitchen hot water was heated by a boiler of somewhat less modern form standing in the bathroom itself. The kitchen cooking stove was similarly of older design, a new gas cooker standing beside it being now preferred and more used. The kitchen sink, of stove enamel, was of an uncomfortably small kind, but commonly used then, the bath and W.C. in the bathroom being likewise coeval with the house. There was no built-in washbasin, hand-and-face-washing being done at a plastic basin standing on a kind of rack which spanned the bath, having above it on the wall a shaving mirror. A container for soiled linen stood in a corner of this bathroom which was also used as a laundry, clothes-washing being done in the bath with the housewife kneeling on the floor to perform it, exactly as discovered at the smaller flat visited at Ivrea in Italy. She had ambitions, she said, to acquire a washing machine which in that case would be taken into the kitchen. She was asked if she would not
prefer to have it in the bathroom where, it was noticed, there was a waterproof floor draining to an outlet under the bath, into which outlet the bath itself drained too. This would make the bathroom serve as the French salle d'eau. That she would have liked, but had seen that the width of the bathroom would not allow such an arrangement without taking out the bath and the boiler, and possibly also moving the W. C., an operation too expensive to be considered.

Such alterations were possible at the request of the household, particularly since in the present case the family owned shares in their housing society greater than the present value of the dwelling, in which case it was easy to get the society's permission to make alterations, especially when they were improvements. In view of the need already noticed to move soon to a larger dwelling, it was not thought prudent to make serious improvements to the dwelling now occupied. Decorating, on the other hand, was in progress during the writer's visit to this house and the kitchen photograph in the case study material shows this. The work was being done on a self-help basis, but up to a tradesman-like standard and it was reported that this was the normal practice among tenants of this class, a practice found indeed to be universal in the countries with which this study is concerned, though seldom reaching the exuberance which Miss Denby discovered in Italy.

Asked what kind of house they would like to move into if they were given free choice, the family were unanimous that they would like a villa; they would move to one as soon as possible and the young son
produced a cut-out cardboard model of the kind of thing he wanted, though his mother thought they must be content with something simpler. It showed a log-built cottage of distinctly Bavarian type. It was astonishing how often in Germany this type of house, including its traditional aesthetics, was recommended in this way in preference to anything more modern. A Bavarian villa of a lavish kind, the money expended on it proving that everything was by free choice is, in fact, the subject of its own separate case study, and illuminates this trend.

It is possibly of some interest that a factor in this choice was the thought of space for children to play, even if there would only be a year or two of that left. The Wassmannstrasse groups of dwellings are not provided with play-space, the children of all ages playing where they could round the buildings and the streets, fortunately not used much by through traffic. It would have been of interest, too, to know if, having lived in a properly organised flatted community, with these and other communal matters put right, the family would have been so ready to move.

During World War II, one side of Wassmannstrasse was demolished by bombing and on the site cleared a new development had been created in the early 1950's, designed to harmonise with the old, both in scale and character, although following the standards of design set by the Federal Republic. This development was seen to be a further step away from the Mietkasernen. Peripheral development round a hollow space (Randbebauung) had been abandoned altogether and
thus also the corridor street. Instead, development had been designed in depth, with sun-orientated blocks. Most of these blocks were found to be on three floors with basement, but one block had been allowed to return to the six-storey scale of the mietskasernen, though without the other features of that obsolete form of development. With the main blocks running at right angles to Wassmannstrasse, opportunity has been taken to place garages in a set-back arrangement on the Wassmannstrasse alignment with a direct drive-out over the pavement into the roadway. It is curious that in 1965 the writer was forbidden this sensible garaging arrangement in a design on a similar site in Edinburgh as being dangerous to pedestrians. The Scottish planning authority did not specify what danger was feared but was unimpressed on being shown this German example. In both cases the street in question is not in use for through traffic, and below the kind of traffic volume where, for instance, segregation would be considered.

Otherwise the spaces between blocks were partly laid out as children's playgrounds, though not very successfully as regards landscape effect, for trees and shrubs had suffered considerably from vandalism and from wear and tear. The prototype seemed to be partly Scandinavian, but it was clear that these Hanover people had not acquired the kind of open space discipline which prevails in the Danish examples studied. Clothes-drying facilities had been provided as part of the layout and the basements of blocks contained primitive communal washing facilities which, we were told, were not much used by tenants, who preferred, like the family visited in the older part of the street,
to do their own washing in their own bathrooms. This echoed the opinions expressed by French, Danish, Scottish and Italian housewives.

The sample flat illustrated in the new development repeats much of the experience of the old, with the exception that, having a balcony, some extension of the living room has been made possible into this small open-air room. Tenants were using these balconies, as elsewhere, mainly for the airing of bedclothes in the mornings, but there was also some use of these spaces as open-air rooms, with deck chairs, potted plants and the like. It was not understood why they should not have projected slightly beyond the building line, which could have been done at very little greater expense in construction and with considerable augmentation of a space found, according to tenants themselves, to be too small.

Otherwise the plans of the new development as regards dwelling types were not greatly different from the old. The bathroom and kitchen were better equipped and there was central heating supplied from a boiler-house, but chimneys were in existence too, on the scale of one per stack of dwellings, alternating with ventilation stacks which in time of need could be pressed into use as flues. This appeared to conform with the similar precautionary arrangements taken for French housing.

Dimensions between older and new developments at Wassmannstrasse were found not to be greatly different. Kitchens and bathrooms have become bigger and the stube somewhat larger, even if the balcony is not counted.
The next case study is a nine-storey tower block at Kassel, exhibiting some of the characteristics of more recent German domestic architecture. In Kassel the tempo of life is fast, modern, forward-looking, but this is more than an industrial centre. It was founded over 1,000 years ago, and the landgraves of Hesse made it an intellectual city, for they were patrons both of science and the arts. A landgrave in the mid-1700's, Wilhelm VIII, was for a time governor of Breda and Maastricht. He developed a great love of art, and thanks to him Kassel has an outstanding collection of Dutch and Flemish masters - Rembrandt, Rubens, Frans Hals, and others - which form the nucleus of the town's art gallery. Its salute to modern art was marked by the third Documenta exhibition held from June to October of 1964.

The brothers Grimm lived in Kassel for 30 years, and a charming, intimate museum devoted to them has manuscripts, pictures, prints, and many editions of the Fairy Tales.

On Sundays and Wednesdays throughout the summer the people of Kassel go out to the Wilhelmshöhe park, former residence of the landgraves, for on these days water flows over the artificial cascades and the fountains play. Wilhelmshöhe is a legacy of the expensive fancies of several landgraves and among its paths and rare trees are picturesque follies - a mock ruined castle of the romantic period, a vast statue of Hercules, and these fantasies of water. In the house
itself is a unique museum devoted to wallpapers and wall hangings of all kinds - leather, silk, cotton, flock, paper - from many lands; a fascinating cross-section of the art of interior decoration during 400 years.

The case study example is characteristic of Kassel as a modern centre, in a particular respect deserving its own mention in this thesis. It consists of flatlets for young industrial workers, including apprentices, who, as noted above, are a special class within German housing, the only example of this found in the countries visited.

The reasons for their being a special class have to do with German peculiarities of social and economic history. In the Middle Ages artisan production was highly organised under the town guilds with their own apprenticesystem. But in the 17th Century, as many as 80% of the population lived in rural areas dependent on feudal masters, leaving the townsman to be his own master, starved of labour and concerned with the preservation of his rights and privileges and such prosperity as survived the chaos of the Thirty Years' War. As industrial methods began to supersede craft production, apprentices from the rural areas provided a source of cheap labour. They still lived with their masters and paid them a premium for their training, but the mediaeval craftsmen's guilds almost ceased to count, and had no power to enforce rules governing the training of apprentices. For his part, the master ceased to be the fatherly figure of mediaeval times and his concern was now to extract work while taking less and less interest in education, and none in the problem of housing his trainees. Meanwhile,
Germany was approaching its period of political unification and intensive development of production, and in the 19th Century voices were raised about the quality of the producers. Among these was that of Friedrich List, the political economist, who classified the trained artisan class as one of his "productive forces". Clearly it was essential to re-create in industry the conditions both for training and other care which had made the mediaeval craftsman the productive force of his time. Training and housing must again assume central importance, displacing exploitation, and far-sighted employers and politicians called for a change. This came through legislation in 1897 when some of the advantages of the mediaeval guild system, of group supervision and of communal responsibility for housing, were transmitted with modifications to the modern age. The other countries studied remained faithful to a liberalism which had set employers free from their responsibilities in this respect and so did not impose on them the same conditions.

Following as a somewhat retarded effect of the 1897 Act, housing of apprentices and young artisans in self-contained dwellings began in Germany on a small scale in the 1920's, and was continued under the Nazi government in the form of barracks under para-military discipline, but the Federal Republic has reverted to the more humane arrangement, of which the tower block in Kassel is a good example. It stands on Weserstrasse on a site not particularly well chosen, but free of the encumbrance of large surrounding buildings. In consequence there are good views, especially to south and west and each
flat was found to have a balcony facing the view on a plan staggered to produce this orientation and also to provide for each flat, a high degree of privacy.

Flats are arranged on a central spine within a leaf-shaped plan in which the flats vary in outline. Deep, with narrow frontage at the base of the leaf, the flats become more square in shape towards the tip. The spinal corridor is served by a single staircase and a lift which at ground floor level opens from a single-storey entrance hall furnished as a small commonroom. Each flat contains a bed-sitting room with a French window opening from it and behind a curtain, a kitchen recess, which contains a sink and a small gas cooker with a food cupboard, while the bathroom contains W.C., washbasin and shower.

It was noted that finishings throughout the building were of high quality, the floors being of hardwood in the flats and of hard-burnt tile in the passages, staircase and entrance hall.

In the sample flat visited, these arrangements were working well though a lack of storage was complained of and a certain consequential amount of clutter observed. The kitchen cupboard seemed very small and its equipment rather clumsy, but it was in use for cooking, which the young men inhabiting this block were encouraged to do for themselves. This was also complained about: why was there no restaurant?

Occupants are responsible for furnishing their own rooms but
basic furniture of good simple design can be hired at a low price from the sponsoring organisation. It was the first example of furniture seen in a German dwelling which was in the slightest degree affected by the Bauhaus, and it was noticed that the architectural aesthetic employed in the structure of this miniature tower block had leapfrogged the Bauhaus period of design and exhibited instead some of the mannerisms which have reached Europe via F. L. Wright and Louis Kahn.

Certain of the flats have a bigger floor area, and are intended for two inhabitants, but not for married couples; on marrying, any occupant has to move to other accommodation. Hot water is supplied from an automatic gas-fired boiler in the basement and a charge is made for it as part of the rent, about one-third of the total. This includes domestic hot water and space heating. The only other communal facility of importance provided is daily cleaning. At the end of each passage a housekeeper's closet with sink and storage for cleaning materials was seen and also a rubbish chute, discharging into a container in the basement. The entrance hall, besides table and settee, has a cigarette machine.

In the sample flat studied, the occupant in spite of his complaints had made himself very comfortable with furniture partly hired and partly supplied by his parents who were country folk, he having migrated to town to train as a sheet metal worker. It was noticed that in the course of two years' residence in Kassel he had obliterated all visible rural characteristics both in himself and his surroundings.
The last vestige was a cheap fibre suitcase of the kind which German country-folk of poor circumstances are seen carrying on their shopping trips to town, replacing the more elegant and dignified wooden hand-waggon of former times which it would be impossible to take into modern public transport.

The same principle of orientation is incorporated into the design of a tower block of ordinary flats erected nearby in Kassel in 1952 by the same organisation. There are ten floors, and this had been judged to be a case for an elevator. This instrument with its surrounding staircase is in the centre of the building to the north east. Each flat thus enjoys a living room and balcony exposure to the south, southwest or west. It was examined in less detail, but its planning is illustrated for the sake of comparison.

There are five dwellings per floor, three of them single-room flats each with a total area of 367 square feet and two of them two-room flats having an area of 496 square feet. As in the other Kassel example, bathrooms are internal, but kitchens, well integrated with the dining corner of the livingroom and also with the balcony, have daylight.
5. FULDA

The next case study is a mixed development of three-storey flats with two-storey and single-storey terraces and, in the centre, a version of the patio house, on a hillside east of Fulda.

Fulda is a small city with a character distinct both from northern and southern Germany, having its roots in an ecclesiastical Germany of long ago. It lies north and east of the point where the river Main joins the Rhine, in the hinterland of Hesse, a picturesque district of spreading cornfields, gentle valleys, wooded mountains and, among these, towns and villages.

Fulda has been an important ecclesiastical centre for 1,200 years. St. Boniface, Archbishop of Mainz, who chose it as his burial place had a monastery built there in A.D. 744 from which Christianity was carried to many parts of Germany. A thousand years later it became one of the prince bishoprics.

Today it is a graceful town with stately patrician buildings, charming gardens, and St. Michael's church has a rotunda forming a circular sanctuary which dates from 820 and is the oldest round church in Germany. Outside, on its later south transept, is one of the rare totenleuchten, a light kept burning in mediaeval graveyards: it is still lighted at Fulda as part of a memorial to the dead of two world wars.

The rest of Fulda is mainly of the eighteenth century when baroque flourished in all its glory under the prince bishops. The cathedral, containing the tomb of St. Boniface, was rebuilt at that time
and so was the bishops’ palace, a magnificent building now municipal offices and museum, with formal gardens and an orangery where an exquisite salon is used for concerts.

It would be pleasant to record that an influence is exerted on modern Fulda by this remarkable heritage. In general, perhaps it is, but it is a matter of atmosphere rather than embodiment into buildings. Yet in its originality of conception and unselfconscious expression of a pattern of life which compounds the old faith with acceptance/modern social conditions, our example of Fulda housing is not without its line of local derivation.

In the mixed development chosen, particular attention in examination was paid to the patio houses, which adopt a form of semi-detachment, the one house over-shooting the other so that the projecting walls of each, windowless, provide private enclosed areas, one to each house. Entrance is by footpath access but, in order to exploit the over-shot arrangement which places the patios front and rear alternately, there is no attempt to define which is the entrance and which is the garden front of the layout.

This is a Bausparkasse development, designed up to the floor limits of the 1953 regulations. These are represented by the floor areas of the main floor of each house, but are skilfully augmented by a cellar downstairs, easily capable of use as a room, but ranking as a cellar or outhouse and therefore not part of the space the regulations control. This practice has been referred to as one of the ways in
which the private developer willing to pay for more space has been able to outflank government restrictions.

The building savings bank concerned is the G. d. F. Wüstenrot which proudly proclaims itself as the "Grösste und Älteste Deutsche Bausparkasse". Its offices in Kassel were visited and some of its advertising material is illustrated with the case study illustrations. It was noticed that the housing types illustrated all go in one direction of "ein eigenes Haus - eine eigene Wohn". This proclamation of the ideal of the single-family house seemed to be answering the wishes of tenants interviewed in their flats and also echoing the satisfaction with these single-family houses expressed by the occupants visited.

It was noticed that the example of housing shown in the form of models and drawings in this building society's office were traditional in character moving only a short step forward into the use of modern materials, constructions and aesthetics, from those favoured by Germany of the Nazi period. Much emphasis was placed in well worded advertisements on the fact that by engaging in a banking arrangement for their own house, Germans live rent free. The expression "Mietfrei Wohnen" is prominently displayed under a still more dramatic heading "would you like to hold on to your rent?".

In the sample patio house studied, particular interest centered on the kitchen-diningroom in which the German tradition of eating in the kitchen is taken to a bourgeois level of the socially acceptable by dividing the room into a cooking area and a dining area separated by a
service counter. The whole room is small and depends on closely studied integration of the kitchen equipment. As elsewhere in the course of this study, the house was visited in mid-morning and the kitchen was photographed with the breakfast things still not cleared away, yet there was little disorder of an offensive kind and the housewife interviewed was loud in her praise of the arrangements. They were not elaborate but consisted basically of a practical minimum of worktop space and the use of lower and upper tiers of cupboards with well planned shelving in which each object has its place where it fits, and no other place. Drawers for spices and dry goods suspended under the upper tier of cupboards reflect a growing habit to store this kind of material not in cupboards, but in its own transparent container, instantly identifiable. It was noticed that space had been saved at the sink itself, even if only measured in square inches, by removing the mixer tap to the wall above the sink where it was taken neatly through a tiled surface into the wall. Rubbish disposal was by chute directly from the worktop to the cellar and there was an extract fan for taking cooking smells away at once. The cellar itself contained a large refrigerator and deep-freeze together with a conventional larder, and it was explained that these were the provisions which made it possible to assign so little space to the working kitchen, thus consuming as little as possible of the permitted floor area of the house for utility purposes. The large and handsome livingroom and generous bedroom; space (master bedroom and two bedrooms for children) seemed to be
exactly what the family occupying the house wanted. Married only a few years, these parents, Roman Catholic and typical of this old catholic city, already had three children who were occupying one bedroom arranged like a dormitory, with a second room arranged as a playroom or nursery. This arrangement was praised by the parents, giving them the full use of their own quarters, and indeed allowing their master bedroom, opening into their living room through a wide archway, to act as additional space for their daytime accommodation. The atmosphere of those two rooms can best be described as a modern version of Biedermeier solid comfort: good pictures, thick carpet, elaborate curtaining, good porcelain, rich dark colour. Such lush and thoroughly bourgeois furniture was in noticeable contrast to the functionally designed kitchen and bathroom, but there was functional comfort in the well-sprung bed and similarly resilient chairs, and no posing of furniture groups for effect.

In the house visited, the overshot arrangement resulted in a patio opening from the living room, and also overlooked from the master bedroom. This seemed the preferable arrangement to that perforce adopted by the other house, of entering the patio from the dining recess. Yet, in this relatively warm part of Germany, outdoor meals are often taken and those householders with their patio in direct communication with dining room and kitchen had the advantage in this respect over those who reach it from their living room only. The bathroom, placed in the centre of the house, contained washbasin,
W.C., bath with handset shower, a container for soiled linen and a rotary washing machine containing also its own spin-drying equipment. This bathroom served the purposes of the French salle d'eau, and the housewife said she was glad to have her washing arrangements in the bathroom and not in her kitchen. The bathroom could have been lit through the roof but/in fact lit by glass bricks drawing light from the neighbour's patio. This was not actively resented by either party since the glass bricks were completely impossible to see through and did not carry sound to any marked degree, but was regarded as the doubtful feature in an otherwise excellent arrangement of two houses built together. It was noticed how the bedrooms and other rooms of these houses were angled to catch the maximum sunshine. This also meant that one patio was a sun-trap, while the other turned away from the sun, but it was pointed out by both householders that this was an excellent arrangement since a number of people wanted a shady courtyard rather than one which was too sunny and there were thus advantages in both cases.

Garaging for these houses was in the form of a garage compound shared with the other types of dwelling, which were of conventional terrace house and flatted forms.

The occupants of these patio houses at Fulda were mostly of middle class standing, engaged in the management of the growing industrial structure of this prosperous town. Like the working class tenants at Hanover, when asked what their next move would be if
they were able to afford a better house, these people at Fulda gave their vote for a free-standing villa. But it was given in a more complicated way. As one rose in industrial management the stage was reached where the next move was not a villa in the immediate environs of the city, but a relatively distant country residence, or landhaus, which could be reached for long weekends, for holidays and indeed for the increasing amount of leisure time which automated industry would create and was already creating. The place for such a house was in the mountainous country of south Germany, which it would presently be possible to reach along the newer extensions of the autobahn system in a matter of hours. This corresponded with experience in Scotland where the rich man's weekend house is often not in the environs of Edinburgh or Glasgow, but far off into the highlands or southern uplands. As might be expected, the type of house preferred by these Fulda people was the southern German vernacular house traditionally connected with Bavaria, and having encountered this dream house twice, it was decided, therefore, to make such a house the subject of the next case study, but going beyond the range of the Bausparkasse kind of house into the luxury and non-subsidised class free of all governmental restriction.
The house selected for the Bavarian case study is at Berchtesgaden, erected there in 1938 by a wealthy industrialist from Mannheim at the heyday of the popularity of this place for leading German citizens of the Nazi period. It was occupied by the American Army from 1945 till 1959, when it passed into the hands of the new industrialist class, and at the same time was given a face-lift both indoors and outdoors. It therefore broadly represents in its space use, and particularly its decor and kind of furniture, the taste of one part of modern-well-to-do German society. Its interiors are surprisingly florid, even allowing for the taste displayed being only a development of that applied to the interior treatment of the house at Fulda, where functional design of furniture was largely confined to bathroom and kitchen. This florid display is not characteristic of the Nazi period which ran more to exposed woodwork, beamed ceilings and peasant-like furniture constructed of native woods. A remnant of that is found in the breakfast room, in much of the ceiling treatment throughout the house and in the "bar," where it appears in the exposed construction of the stair.

Both in its earlier and in its later occupancy, this house is designed for generous use of space, but with housekeeping economy in view, and particularly the need to economise on domestic staff. Everything is intended to be managed by the housewife and one resident maid, the latter no longer German but immigrant (for the Bavarian
peasant families which at one time supplied their daughters for this work now look for better things).

There is a main floor consisting of all the day rooms, to any one of which meals or refreshments can be brought from the kitchen. The kitchen serves, via a pantry, a breakfast room and dining room. It also serves a bar, and through the bar snacks can be brought to the living room and through the living room to a terrace. The kitchen is functionally arranged for the preparation of food and the disposal of waste, which, as in Fulda, descends by a chute to the basement. The kitchen also contains a table for the maid to take her meals, separately, and not as in Scandinavia sitting with the family.

From the bar, stairs lead to the bedroom floor, which is arranged for family and guests with a guest sitting room. One bedroom can be used as a sitting room, and is equipped with a desk, the object of this being to accommodate a business executive or secretary accompanying his or her director on a visit and being able, from this desk, to deal with long weekend work and communicate with sections of the industrial empire concerned. Of two bathrooms, one is a luxury room with the twin wash basins found in wealthy German villas built during the last 30 or 40 years, and a bidet, which is/more recent arrival from France. Except for the master bedroom which communicates directly with this bathroom, bedrooms have washbasins. All these washing appliances are supplied with hot water heated by electricity in a central container in the roof space, a practical arrangement giving as direct connection to the draw-off points as possible by
means of pipes run diagonally across ceilings.

A basement contains the maid's bedroom and maid's bathroom, with storage space and a heating chamber which supplies circulated hot water for space heating. There is also a laundry and a wine cellar.

It is of some mild interest to notice that the American occupation of this part of Germany brought with it social customs little known before. It is difficult not to assume that the bar in this house, with its very elaborate cocktail cabinet, represents American drinking habits rather than German ones. Likewise it seems probable that the swing seat on the sun porch came here via Louisiana or the Carolinas, and it is possible that the lush furnishings of the main bedroom and the sitting room are an amalgam of southern German and American aspirations. It is in any case significant that, both in its original design before World War II and in the alterations made after that set of upheavals, there is hardly a trace of the kind of modern architectural design, exterior or interior, for which Germany is famous internationally and which is regarded as Germany's contribution to the design standards of this century. Having seen and experienced this kind of house and having talked to its inhabitants and understood their aspirations, it becomes easier to understand how the Bauhaus and in particular, how the Weissenhof exhibits did not make the impact on German society, then or later, which they deserved.

Having seen what transmutations the Bavarian peasant tradition had undergone at Berchtesgaden through various processes, it seemed right to discover what had happened to it at the grass roots
where living customs are still coupled with the conduct of farming, itself nowadays an industry and undergoing rapid rationalisation.

HORNBERG

For this purpose a community of smallholdings at Hornberg was visited, being one of many agricultural districts where use of land has been intensified in order to settle on the land refugees from eastern Germany who are not suitable for integration into industry or do not want to enter it. Farm mechanisation and improvement of buildings are proceeding side by side under systems of grants from central and local government similar to those operating in Great Britain. Again, the situation is not unlike that encountered in Italy at San Romualdo, though the planning here is not of the same order as the very advanced planning practiced by the Italian sponsoring organisation.

Two houses were studied, one a cottage occupied by the aged mother of a middle-aged couple who occupied the other cottage and who in turn, had a young family which was in process of migration from the area to take up urban industrial employment.

The two houses were part of a series of buildings, partly for human occupation, partly for animals, partly workshops, lining one side of a cart track leading to the centre of the village. The aged mother lived in two rooms, one a kitchen, one a tiny bedroom, entirely unmodernised. In a corner of the kitchen stood an ancient wood-burning iron stove, the sole cooking device and also the source
of heat for this primitive dwelling. Water was drawn up through the floor by an iron pump with a lever handle, discharging into a wooden bucket, and even the evening meal, which the old woman was consuming as the writer arrived, a gruel of milk and oatmeal, had a look about it of the living habits of long ago. It turned out that her duties were to tend and milk the cows on the family holding, and this she did, rising for milking at the crack of dawn, taking them to grass, returning to water them, then to bring them in and bed them down. She obviously lived hard, but had the happy look of someone completely removed from the problems of the modern world, living in the simple rhythm of a well-tested existence. Through the kitchen wall in the evening could be heard the sound of her beasts stamping their stalls; and in front of the house, between it and the roadway, lay the heap of dung to which new material was added each day as the stalls were cleaned. The house was nevertheless in a state which can only be described as clean, and it did not appear that the milk had failed to reach the standard set by the local health authority, being removed in cans in the early morning under the strict and efficient co-operative marketing system of the district.

Here it was relatively easy to understand the fascination with which the rulers of the Third Reich had accepted the peasant ideal for the living conditions of the working population of the country. At the same time it remained to be noticed how the new generation of the same family, the young people, had departed to take work in
industry, not even accepting the improved conditions of the second house, which then came to be inspected.

This house was in process of reconstruction inside and out, with the installation of modern equipment in kitchen and bathroom and the insertion of new windows, doors and other such fittings. But underneath its modern appearance the new house adhered closely to the plan form of the old one. The kitchen, similarly placed in relation to entrance and stair, was essentially a workroom, with range and sink occupying similar positions to those of the old woman's stove and pump. The stair, exhibiting in its excellent precision joinery, but also in its distinctly hand-made qualities, where lay the derivation of the stair at Wassenstrasse at Hanover, led from entrance hall to bedrooms above. The bathroom installation, which was in progress at the time of the writer's visit, was being done in a curious way, the bathroom space being in fact one half of a bedroom. Thus one half of the floor was being tiled, the other half being laid in wood with space for a bed in the corner. This was claimed by the householder to be a brilliant idea. The bathroom was not intended for more than the weekly or monthly bath, daily washing of hands and faces taking place at the kitchen sink. Why, then, should the bath have a room to itself? In the bathroom stood a white enamelled water heater of good modern design fired with wood, and this was given as another advantage of being able to use the room also as a bedroom, in that in cold weather, with the heater fired, the room was
warmer for occupation than the other bedrooms upstairs. There seemed to be some inescapable logic in the claim that it was silly to allocate cubic space to a bathroom which would only be in occasional occupation for a short time. It was the same logic which Raymond Unwin used in his rural house-type where the bath runs along one wall of the living room, which is in fact the kitchen too, containing cooking range, sink and washing boiler. 23

The remodelled living room of this house at Hornberg took an altogether different direction. It had become urban and bore a close relation to the living room in the older housing at Wassmannstrasse, Hanover, sharing with it, too, the furniture arrangement found on the type-plans of the Gropius development at Spandau-Haselhorst. This, it will be remembered, consisted of a dining table and chairs, and a settee to which the table could be drawn up for the elaborate servings of coffee and pastries which in Germany to a great extent take the place as entertainment of the more elaborate kitchen-cooked meals of the French. There was the same well designed corner stove, the same kind of clock attached to the wall. There was a sewing machine, this time a treadle machine on its own table, covered with a cloth ornamented with brightly coloured embroidery. It was noticed that the polished white metal stove pipe served, perhaps unconsciously, as a sculpturesque decoration of excellent proportions in almost an advanced modern manner of design. It seemed to be a piece of natural functionalism to which no particular aesthetic thought had been given. Muthesius would
have had to praise it.

In the bedroom, with its heavy old double bedstead, the absence of the crucifix was an indication that this set of families belonged to a Lutheran persuasion which extends in a broad wedge down into this southern part of the country.

In the kitchen, the idea of worktops had not come through. Sink and cooker stood as separate pieces of equipment against a wall while work either in preparing food or in serving it took place at a table in the centre of the room. The wall behind the cooker and the sink, however, was tiled and the kitchen taps appeared from the tiling in a completely modern way, as at Fulda.

ROTHENBURG-AN-DER-TAUBER

Another version of farmhouse modernisation was case-studied near Rothernburg-an-der-Tauber. This had taken place within an old farmhouse dating from 1788, half-timbered and picturesque, one half of the building being occupied by beasts and the other by people. These consisted of an elderly couple and their grown-up son, who, contrary to what others had done, proposed to stay on the land and continue his family’s traditional occupation of farming.

Modernisation had begun in the farm kitchen, kept in its traditional character as a living room also. The old solid fuel range, with its complicated firing arrangements, many doors and compartments for different sorts of roasting and baking, remained where it had always stood, on an inside wall against a chimney rising straight
to the ridge of the roof. Beside it now stood an electric cooker which by some coincidence had exactly the same bench height. On a side wall, a complete modernisation had taken place involving a sink, and two tiers of modern cupboards, the upper tier with the sliding doors leaning slightly towards the user, characteristic of many modern German kitchens. As in the other cases cited, water taps were set in the tiles of a tiled wall-space below the upper tier of cupboards, and such things as drawer-handles were of the best choice from the manufacturer's catalogues. Against the third wall of the room stood a Bendix washing machine and in the remaining corner, the traditional Bavarian table with built-in benches. The whole floor had been newly tiled in red hard-wearing tiles which made it seem curiously natural that a visible line of animal dung, carried by human feet, should trail across the floor from a door leading to the beasts' stalls. Both the old couple and their son, together with his wife and young baby, were very proud of this modernisation of their farm kitchen, although it was confessed to us that the Bendix washing machine was only operated by the young wife. Her mother-in-law preferred to put her washing to boil on the old solid-fuel cooker in the traditional way. Next door to the kitchen was a modernised living room with rather well chosen dining room furniture and some chairs easy to sit in which had been arranged in a curious and unlife-like way, as the plan submitted with the case study material shows.

Clearly the life of this farmhouse still centres on the old
kitchen, and the writer was entertained there by both generations of the family in traditional Bavarian fashion, sitting at the table on the built-in bench, drinking home-made cider. This table and its benches is the sitting room of the house; the unlife-like effect of the chairs in the next room seemed in consequence to mean that they are merely a status symbol for the young couple, to help them on their way, perhaps, to becoming industrialised farmers with a city-consciousness.

9. HARBURG

The case study of a smallholding near Harburg, perched on one of the dykes which interlace the low lying marshland which extends between the city of Hamburg and its nearest neighbours to the south-east, shows a how/typical example of a Stadtrandsiedlung of the 1930's has fared. The atmosphere is completely rural, but the gravel road, intended originally for the occasional motorised vehicle, has been given a tar-macadam coating and the smallholding itself has allowed a parking area to encroach on its comparatively slender land resources. The writer discovered, through staying the night at this smallholding, that the road, originally intended only to give access to the smallholdings, now carries a not inconsiderable volume of traffic which is using the road as an unofficial bypass of a congested area nearby where modern industry, spreading from Hamburg and Harburg, has encroached on farming land. Some of the traffic, however, is brought about by the smallholdings themselves, harnessed as they nearly all are to the
production of milk and fresh vegetables for the Hamburg markets.
In the early hours of the morning trucks thunder past fully-laden with
these commodities making for the markets, and it is no longer enough
for smallholders with produce to deliver to trucks as they call, to
park the truck in the road itself. Under pressure both from the
coop-operative and from local authorities, parking and loading spaces
within the holdings have become the rule. To that extent the horse-
wagon gravelled tracks of the 1930's with their encroaching greenery
have become obsolete.

While this thesis is not concerned with agricultural production
it is interesting to record that the smallholders themselves were of the
opinion that developments within agriculture, the availability of better
plants, particularly seedlings, the availability of manure varieties,
etc., made it possible to maintain a higher production on a reduced
area of land than was possible in the 1930's when the whole area was
laid out. Originally intended as one of a group of homesteads for
families partly engaged in agriculture and partly in industry, the holding
visited was now full time occupation for the husband, and since a small
shop selling day-to-day consumer goods was attached, it also occupied
his wife, and the whole group of activities involved appeared to be
yielding a sufficient livelihood. Thus it seemed that, while the
economic arrangements on which these stadtrandsiedlungen were
established has changed radically, and while motorisation has altered
the road system and other service arrangements, (for each house now
has electric power and its own water supply), agricultural industry has itself provided for the development of its own half of the undertaking and a new economic basis has been established for the continuation of this kind of semi-urban agricultural unit.

As at Hornberg it was interesting to compare German small-holding conditions with the more fully organised but not dissimilar conditions at San Romualdo, near Ravenna, where clearly the Italians had gone ahead of other countries, with the chicken-raising small-holding at Berchères-les-Pierres in France, and with the East Lothian small-holdings in Scotland. In the latter production seemed to compare exactly with the German example but, it was noticed, with less satisfactory housing. In the German example the space arrangements of the 1930's formed a good basis for modernisation recently carried out.

BAYREUTH

The case study at Bayreuth, also an example of the Landhaus, has been described above as a good average result of the better-guided operation in which an architect and understanding clients try to reach a balance between sympathy with tradition and modern functional planning. It is also an example of a house planned to absorb an extensive view of a beautiful countryside and the site is well selected too in that this view is towards the south and can therefore be enjoyed as part of the normal orientation of principal rooms. This is one of the things which German private housing learned from Muthesius who,
in turn, was interpreting the English country house of the Baillie Scott, Lutyens and Unwin period. In the example selected there seems also to be some distant memory of the Hill House at Helensburgh in Scotland where C. R. Mackintosh produced his classic example of a gentleman's house in the country enjoying a glorious view southwards.

This Bayreuth house also bears some comparison with the Cap Camarat houses of the Côte d'Azur, with its division into wings containing an enclosed outdoor space, which, in this southern German version, roughly represents the open-air patio of the southern French example. It is partly under cover, as befits a countryside sharing the severe Alpine climate, but it is capable of being experienced as part of a garden in summer time and for the fullest seasonal use is equipped with an open-air fireplace.

As in the case of the house at Berchtesgaden, this house is built to accommodate entertainment of guests and has a separate wing for their accommodation, complete with a bathroom containing shower, basin and W.C. The separating element is the livingroom which is also a music room with space for a grand piano, and a sitting space defined by a corner fireplace which shares the chimney used for the outdoor hearth.

Division from the dining room is by an openwork room divider level of and curtaining, with a change of three steps, giving the livingroom
extra height and dignity. A battery of telephones occupies part of the room-divider and it is suspected that in time to come some sound-proofing and sound absorption will have to be introduced into this conventional architectural feature, the more so since the dining space is floored in characteristic German country fashion with hard-burned tiles, acting as a powerful resonator for the sounds of feeding and conversation at the table besides business telephone conversations at the room divider. Some deadening of all this has been achieved by an acoustic ceiling composed of wooden slats with spaces between. It was noticed in this dining space, given the name essdiele (lit. eating-part) that the dining table arrangement did not follow the architect's plan, in which he had assumed an association between the table and the room divider. Instead the table stood in the centre of the room, thus interfering somewhat with the use of the opposite wall as a site for furniture.

Like the house at Berchtesgaden, this house assumes the presence of a kitchen-maid, and the kitchen is removed from the dining room by a space described as wirtschaftsraum, containing washing machine, some storage furniture and in fact used as a kitchen extension.

As at the Hill House, Helensburgh, an interesting likeness, the main entrance is at the side, making use of an existing gateway of sandstone which in former times led to a larger house further into the site. The entrance is equipped with a lavatory and cloaks recess, and is flagstone-floored.
The bedroom wing, containing two double bedrooms, a bathroom and a lobby lined with clothes storage, is entered from the dining room and wholly shut off from the front half, which it adjoins. The explanation of this is the need to provide increased privacy. The bathroom is the most fully equipped found in the whole of the investigation, with which this thesis is concerned. It contains bath, shower, twin washbasins, W.C. and bidet. It is also the largest, measuring 216 square feet.

Heating is by warm air from a basement boilerhouse reached by staircase from the front hall, which also communicates with cellarage.

From the living room, and from a window in the master bedroom, as from the verandah outside the diningroom, opens "einen herrlichen blick ins maintal", the valley of the Main in which the city of Bayreuth is situated. The view is framed in a series of mature trees which have been carefully retained as part of the landscaping of the site. In its traditionally designed physiognomy this house points a way towards functionally defined space relationships, indoor and outdoor, capable of more than this limited architectural expression.
SUMMARY OF CONCLUSIONS FROM CASE STUDIES

(1) Housing of the 1920's deserves new study, including a resumption of the programme of development and research which Gropius and his colleagues intended in conjunction with their Berlin projects.

(2) The present popular mood which rejects the severity of the Bauhaus tradition nevertheless deserves respect and modern domestic architecture needs to discover a modern counterpart of the comfortable Biedermeier interiors.

(3) System-building pioneered by Ernst May deserves to develop in German hands and make a new major contribution to European experience. If it did so along the lines associated in this chapter with the name of Schultze-Fieditz, this might reach important objectives both of construction and design.

(4) Inside the house the kitchen-dining room in German hands, with more experience than the other countries, could develop in the direction of greatly eased housekeeping.

(5) Emphasis on the stadtrandsiedlung and its low density kind of dwelling whetted the German appetite for the single family house. This should be allowed to lead to some use of the villa as a house type but with revised layout patterns capable of saving land, roads and services. Too much recent development has simply followed the layout forms of the 1930's.

(6) Haste in house-production has retarded town planning and adequate space arrangement in the aggregate now depends heavily on integration with town planning.
19. Innenarkitekt Peter Maly; Hamburg

20. Calculations for this spacing are given on pages 72 and 73 of W. Gropius: *The new Architecture and the Bauhaus.*

21. Elizabeth Denby; *Europe Rehoused*, p. 135.

22. Goldschmidt; *Life of Friedrich List* 1878

23. Raymond Unwin; *Town Planning in Practice*, p. 326.
CHAPTER 7.

FRANCE
TRADITION: CONFLICT OF IDEAS

When Queen Marie Antoinette made her tragically irrelevant suggestion that in the absence of bread the people of Paris should buy cake, this erstwhile Austrian princess revealed more than her own pious hopes and her ignorance of French social conditions. Her kind of ignorance, in the strictest sense of the word, stood revealed as a guiding principle of government. In the absence of knowledge of how matters really stood, it was fair to assume that the good living conditions and the happily arranged architectural environment which the well-to-do enjoyed were somehow for all to enjoy. The economy of Paris might be in ruins and that of the rest of France parlous; the state of things within the palace community at Versailles itself might be a perversion of the environmental conditions which it was intended to embody and to symbolize, but nothing, it seemed, could shake the belief held by those in charge of the country that prosperity and general well-being, the civilised life for which France stood in the minds of admirers abroad, lay within the grasp of all Frenchmen.

Admirers abroad had much to do with the entrenchment of upper-class French opinion that all was well, and there was, indeed, much to arouse admiration. By 1793 there were no higher technical skills than those of France. French engineering was pressing on towards the marvels of the next century. French skills with cutting and sewing cloth and leather, with cooking food, with making wine and distilling brandy, stood where they do today nearly two centuries later. French architecture, an embodiment of so much that was characteristically French, so well
attuned to accompany the other excellencies, stood again at the high level of achievement which had distinguished it in the middle ages. Wherever the great cathedrals had been regarded with reverence, their plans and details copied, their master-builders invited to build in the same way in countries far off, it was now the French house that was so regarded and the French architect; and not only the house but also its painting and its furniture, its fabrics, linen, crockery and cutlery. Here was a reservoir of ideas and skills from which, it seemed, all Europe might obtain supplies.

The tragedy of the queen's irrelevance, therefore, carried with it a bigger tragedy, that of the irrelevance in France itself of this French architecture, its sensible space concepts and its practical planning, the subtle flavours of its decor, its bread and its cake. The tragic assumption was that space need not be rationed. It was a commodity with which extravagance could be used. It would never be in short supply, a subject of famine. Yet the famine of space in the growing French cities was as bad as the famine of food.

To the architects of this period of domestic architecture, to their royal and noble clients, to their rich bourgeois clients, there was - it seemed - enough money to go on enclosing space almost limitlessly within noble architectural interiors. Royal and Ducal wealth was expressed in fine curving staircases, grand salons with high ceilings, well-arranged groups of specialised domestic accommodation round big courtyards with views of fountains or statuary, gardens and lakes. All of this was the symbol of a world of generous good living. All that might have seemed to stand in the way of universal plenty was the obstinate attitude of popular leaders, of merchants and bankers, resisting the unlimited expenditure of royal and
ducal gold on more and more of this architectural marvel.

To the simple minded, and it is to be feared that there were some such among the crowned heads of Europe of the 17th and 18th centuries, the situation was perplexing, but its problems were not insoluble if the old ways could be continued for yet some further trial of arms, yet more taxation to raise the funds the bankers would not lend, yet more fair words to clamouring multitudes. But time was running out. The vision of plenty - of food, of money and of a fit environment in which to live - was receding, and patience with royalty, nobility, clergy and even with the bourgeoisie was wearing thin. Yet when patience wore out and monarchic France became republican, when the wealth of all these strata of society was redistributed for the benefit of those now described without such stratification as the citizenry, the power exercised in their name was not exerted to control environment. The creation and the control of space in which to live was not yet seen as a function of government.

It took time, of course, for the new polity to settle down to the solution of its many and complex social problems, and in those days social science was not at hand to help with its methods of survey and analysis. Though steps were taken to combat the bread famine which, with other grievances, had begun the revolution, the other famines remained, and the new idea of a classless society tended to paralyse efforts to design an environment for it almost as much as it generated a wish for the creation of something as grand and as different from the environment of the old stratified society. In the years of civil disturbance there was, of course, a partial standstill of building, but it was as though the very shapelessness of the new society had baffled the republican administrators into leaving its
architectural environment amorphous too. And when, under Napoleon, full-scale building production resumed, architecture tended to follow the trends of the last decade of the monarchy and find in monumentality a vague symbolism of hope rather than a statement - still less a demonstration - of immediate social needs satisfied.

Again, under the influence of the industrial revolution to which the political revolution was in one sense only an introduction, and in the rapid succession of regimes which succeeded one another in the 19th and 20th centuries, France seems to have suffered from a consistent lack of governmental grasp of the immediate and fast-developing problems of living space. The nation had no coherent concept of environment. In the present study some of the conflicting concepts which have helped to prevent such coherence are brought to light and also some of those which, despite incoherence, have led in recent times towards some realisation of the ideal of enough space for everyone; enough bread and even some cake, for the affluent France of the 1950's and 1960's has its own special opportunities to discover and to create its version of the modern European environment, and to do so with generosity.

The opportunity placed before the France of 1789 by the Revolution was that of dealing with her new urban and industrial community development on a social basis. It was the time for all kinds of reappraisal, and the visible misery of the lower income groups of urban society, especially in Paris, living in a socially and architecturally amorphous urban mass, ought to have been sufficient spur to effort. To the social and political historian it may seem wonderful and inspiring that out of the revolution there emerged splendid new principles, fit to apply to the establishment
of great new constitutions and governments in a world-wide diaspora of republicanism and democracy. It may seem that foundations were laid on which, through time, the right political, social and economic organisations for modern industrial society anywhere could be erected. To the architectural historian, looking in vain for concrete expression of the new principles in some new shape of cities and towns fit for ordinary people to live in, and where a new environment could develop, there seems to be nothing splendid or wonderful about it. All the Assembly seems to have found its way to do was to promote some new residential building on land hitherto sacrosanct, by redemption of feudal and seigniorial rights (nearly leading to war when the German princes refused to renounce rights to their Alsation possessions). The building was done speculatively and was hampered by other aspects of revolutionary financial policy which weakened confidence, even after feudal rights had been abolished altogether without indemnity.

If the leaders of the Revolution took no other steps, neither did their architects, whose commissions were mostly for monumental buildings in which symbolism was a main function. Whereas architects of the monarchy, while designing the monumental in wide variety had yet been much concerned about the planning of good houses, at least for the privileged, those of the period following the revolution, such as Marie-Joseph Peyre, although they too built houses for their own new privileged class, seem to have been almost wholly concerned with monumentality, in the style now called "the antique". It was not the antique of Pompeii: a later generation of the archeologically informed was to show how well the Roman citizen had lived in his functionally arranged home. It was the temple antique, of Athens and Paestum, and thus came into existence Brongniart's Paris Bourse,
with its 64 Corinthian columns, the Pantheon, and other monumentalities. 1

France had missed the opportunity to express the revolution in architecture and had to wait a century and a half for a Swiss expatriate in France to say "L'architecture est chose de plastique", to show with creative ideas for a new urbanism how the amorphous might attain dignified and expressive form: "Voilà ce qui donne a nos rêves de la hardiesse: ils peuvent être réalisés", and to suggest how poor Marie Antoinette's pious hope might attain architectural truth in a new identity of house with palace: "dans la géométrie l'ordonnance porte en puissance la noblesse et la beauté... la maison est un palais, et le palais est une maison". 2 Peyre and others could not prevent the masses of people from invading expropriated rich houses, first to ogle the contents and then, as opportunity offered, to plunder them. There was nothing Greek about placing a Louis XIV armoire, no longer needed by its late owner in the chateau, against the wall of the cottage living room or of the Parisian all-purpose salle de séjour; nor was it a cult of the antique that led to the aping (after a suitable interval of months, if not years) of chateau manners by the new rich class of citizenry now dignified by a new conception of that status name and having the wealth to support it. But this was an exercise in space use, not space provision and led nowhere, unless it was towards the cluttered and over-furnished dwelling which in France especially symbolised the 19th century.

Meanwhile, the constitutional planning of early republican France brought to the country as a whole a geo-political shape which in its possible encouragement of regionalism, the architectural development one-by-one of its new départements, contained much that might have been fruitful. In fact, most creativeness, of a kind, came into evidence in the département
of the Seine, where, it will be remembered, Georges-Eugene Haussmann made his own contribution to French urban architecture and as prefect of this département under Napoleon III led to a new Parisian domination of the French environment. But the geo-political aspects of the revolution and the republic contained an imaginative concept of a France in which, geographically and perhaps ethnically, each of the new regions might have had its own environmental development.

Ethnically France still consists of diverse races, of a general intermingling of Nordic and Mediterranean people with their well known contrast of long heads, light skin and fair or red hair, with rounded heads, sallow skin and dark hair. In the south there is the admixture of broad-headed Basques and the dark people of the Dordogne who seem to retain a Cro-Magnon quality. In the north there are too the heavily built people of Brittany and a remnant of the so-called Dinaric type in the northeast. All these had once their cultural identity and at least two preserve for local use their distinctive language which has nothing to do with French.

Geographically France extends from just short of the 42nd parallel of latitude, on which lies the northern fringe of Rome, to the 51st, which runs through the lower part of the English home counties, and contains such different kinds of land formation as the Alpine Mont Blanc massif, the sub-tropical delta of the Rhone and the bleak windswept Atlantic coast where rocks and a treeless landscape bear resemblances to the northern sea lochs and the islands of Scotland. More generally characteristic of France are the long river valleys which extend from the central massif to the Bay of Biscay or to the Channel, and give their names to the départements through which they run. At one time the main communication
system of the country and still not obsolete as such, the rivers themselves, while contributing to regionalism, have also contributed in no small measure to the concept of a unified France. Monarchy and republic alike have seen the development of chains of riverside towns, each taking its character from the others. Paris, always the biggest urban concentration, has long served the country as its characteristic riverside city, a symbol of the geographical nation as much as it symbolises the political nation or serves as its social focus. Inherited from the monarchy, this self-selection of Paris has continued to be characteristic of the republic, of the First Empire, of the restored monarchy and Second Empire and then of the restored republic. Regional variety has thus always encountered a Parisian norm, and found that the urge to conform with it felt by people who sense that they are provincials, has hindered development of a true regionalism, despite ethnic and geographical factors.

A result of this is a curious mixture of southern and northern influences throughout France. The simplest way to state this is to say that particularly during the 19th century, the southern European environment is brought to the Channel coast and the northern to the Mediterranean. Thus in the north we find an expectation of sunshine, which is only partly fulfilled, in such things as open-air cafes and sunblinds to windows. In the south we find Marseilles and Nice copying the closed-in northern form of city housing block, climatically unsuited to windless summer heat, though partly justified in winter when the mistral blows its cold air down the Rhône valley. Again, there is throughout the country the long midday pause for a meal characteristic of the south of Europe. This has its effect on housing, for it makes the long journey to work which is acceptable to Danes, Germans and Scots anathema
to French, as it is to Italians. French and Italians want to make this journey four times a day, not just in morning and evening.

Separation from the influence of neighbouring nations has also affected the modern French environment. The Pyrenees stand as a barrier to Spanish influence. The Alpes Maritimes cut off Italy in a similar way, with Monaco as a buffer along the narrow coastal corridor where housing has its own special character of cosmopolitan luxury. For centuries the Channel has limited the penetration of English influence, even in the Pas de Calais, despite some vernacular similarities, and along the eastern frontier the Low Countries interrupt transition from French environmental habit to German which, where it exists close to France in the Rhine valley system, is complicated and, it might be said, invalidated by the existence of self-conscious national minorities and the ebb-and-flow of plebiscite decisions. It is not thought that such transitional areas in themselves present much of interest to the present study and they are therefore neglected, though they were visited as part of the writer’s travel programme.

But if the revolutions, political and industrial, have failed to attain their appropriate environmental expression, if the bread these events have offered instead of cake is stale and unsatisfying, what then can be traced of the environmental achievement of the old regime and what did it consist of? This important question needs an answer for even a cursory glance at a building of that age visited tourist-fashion, as the surviving examples are visited assiduously, reveals design qualities which could never have been stale. They express a wish for an environment which, within the prevailing social framework, would be comfortable,
convenient and elegant. For the social classes able to achieve it, this was
a wish fulfilled in the achievement of a really mature domestic architecture.

Part of this maturity has its roots in the fact that in the middle ages
French manners and customs were the standard for much of Europe, as
French was the international language; and part in the circumstance that,
as the lights of those ages dimmed in the new light and learning of the
Renaissance, France again led the way with a diligent and well directed
adoption of the Italianate manner, which, through France's international
standing as not the least of its causes quickly became the new internationalism.
Thus from the first conceptions of the Italianate house in France, for which
the examples here to choose might be those of the Place Royale developed
under Henri IV (1553 - 1610), the nearest approach just then to housing,
there lay behind what came to view, in the first place crudely, the experience
of Florence, Rome and Venice won in a century or more of development.
And where Italy once more was about to throw such experience to the winds
of civil disorder and feuds, state against state and city against city, to delay
its nationhood for nearly two hundred years, all this experience came to a
France about to enter what was possibly the fullest nationhood as one
monarchy which any of Europe's larger nations has ever experienced.

The Place Royale had a simple origin. It was to let in light and
air to the crowded Quartier St. Antoine. It was followed by the Place
Dauphine, occupying a waste untidy piece of ground between the Pont Neuf
and the Palais de Justice. After the first two standard-size houses had
been built at the Place Royale by royalty itself, the pavillon du roi and the
pavillon de la reine, the other sites on both piazzas were offered to the
public at a ground rent on condition that each was indivisible and that the
Crown's approved design had to be followed. Not only did the two developments
set a new standard for France, followed in many towns, but for Europe,
transforming the concept of the Italian piazza into that of the residential
square, and to Blomfield's researches into the manner of building, Rasmussen
has added the interesting observation that the Place Royale was a pedestrian
precinct, that favourite device of the mid-twentieth century. The houses
themselves, with rooms opening into one another without corridor or other
arrangements for privacy, left much to be desired, but in this direction too
improvements were on the way. Catherine de Vivonne, Marquise de
Rambouillet, is credited with originating the idea of finally evicting from the
French house "la brutalité féodale". Private rooms, she decided, the
cabinet and the boudoir, should be provided as well as public rooms, with
service staircases and planned in conjunction with bedrooms, cabinets de
toilettes and salles des bains. Cavernous chimneys which sent all the
heat up the stack were to be replaced by more rational devices and walls
inside were to be covered with comfortable materials. All of this she
brought to reality at the Hotel Rambouillet, drawing the plans herself,
says Sauval. Her own room was the famous chambre bleue hung with blue
velvet and adorned with gold and silver, where, reclining on a lit de repos,
she received her guests.

But her work survives only in the work of others she inspired to
emulate her efforts, for the Hotel Rambouillet was burned down a century
later and no plan of it is extant. Whether or not she was the true source of
reform it is of interest that she, a client rather than an architect, expressed
herself so forcibly about the need for it that society followed her example and that historians took notice. This source of reform of French domestic architecture is known and acknowledged not only by historians. It is given its place too in the popular conception, particularly that prevailing in the 19th century. Dumas catches the humane content of it, and also its modest splendour, when he describes the second meeting of Athos and Madame de Chevreuse, which took place in "... un petit boudoir dont la fenêtre donnait sur le jardin. Ce boudoir, selon la mode qu'en avait fait venir Madame de Rambouillet en bâtissant son hotel, était tendu d'une espèce de damas bleu à fleurs roses et à feuillages d'or." 

It was thus in monarchic times that Frenchmen and Frenchwomen set a standard for the town house, jointly acceptable to noble and rich burgher, and that space arrangements round it, whether of street or square or merely courtyard, were put into lasting order. For the privileged, here was a method of house design and of urban planning to contain it, ready for general if not universal application. And if under the absolutist form of monarchy which France evolved the method was allowed to run riot, first at Marly and then at Versailles, that does not efface the simultaneous and more powerful - because more pervasive - influence of the new norm for the ordinary French gentleman's house, noble or bourgeois, rural or urban. By the 18th century, says Lavedan, the hotel had become the most elegant and enchanting dwelling which has ever been created in France.

That the typical hotel of the Parisian faubourg known so well from romantic literature was two storeys high, where the houses of the Place Royale and Place Dauphine were higher, was brought about by a law passed in 1550 that only buildings of two storeys were allowed in these suburban
areas. They were not only allowed, but encouraged in certain permitted
areas by gratis distribution of sites on condition that buildings conform to
this and other standards laid down. And so the Parisian hotel was from its
origin a generously arranged series of rooms round a court on two or at
the most three storeys, with stables and carriage-house at ground level
in their own wing. Previously horses had been stabled in towns in the
cellar with steep ramps as the means of access. The bourgeois influence
in hotel design is attributed by Blomfield, together with its sense of domestic
comfort, to native influences brought to bear on the design problem in
conjunction with Italianate ideas by a strongly native race of architect-
entrepreneurs of bourgeois origin and of continued resolutely bourgeois
standing who, every evidence suggests, took complete charge of design
even when the king was client. The list of famous names includes some
whose main work was hotels: Jules Hardouin Mansart, Jacques Jules
Gabriel and his son, Ange Jacques; Emanuel Heré, Francois Blondel,
Jean Courtonne. Courtonne's Hotel de Matignon (1721), not necessarily
the most distinguished of all but one of which good plans exist, serves to
illustrate the high water mark of domestic design which the fully developed
hotel had reached in the period just preceding the Revolution. Skilful use
of the site allows a court of adequate size for the house and also its kitchen
quarters, which have a court of their own close to the salle à manger.
This name comes into use in this period together with others for rooms
with specialised purposes, which with it have passed into the contemporary
usage of our own day as though they and the ideas of domestic design they
stand for had always existed.

With the increase in skill in arranging space, came improvements
in plumbing. There was the "Chaise d'aisance" for private use in its cabinet or garderobe compartment and the less noble form of the same device called the "lunette" arranged in a neat row of from two to six in "lieux communs" where privacy was relative to the number of persons of whichever sex were there at any given time. Kitchen quarters too benefitted from the improved sense of cleanliness and orderly operation which now prevailed. The chimney piece with its spits and its oven with salt cellar was now supplemented by a cooking bench with flame-filled flues passing under and round a row of potholes arranged in the stone top, precursor of the modern cooker, and there began to be a well furnished wash-up place or scullery - lavoir - together with a jarder or garder-manger.

It will be seen, too, that Courtonne provided little service stairs besides his grand staircase. The only faults in his plan seem to be that the dining room is a passage too and indeed that five of the principal rooms are only accessible through each other. But here, surely, are the ingredients, the ideas, and their embodiment in a design, for a dwelling to be lived in by real people, out of which a system of space provision might have been evolved, having a wider application than that of the rich gentleman's dwelling.

Something with a wider application did evolve: the hotel particulier, into which not a few of the big classical-fronted blocks in central Paris came to be divided, Ange-Jacques Gabriel's north side of the Place de la Concorde among them. This was important, for it transferred to the city dwelling the principle that rooms must have specialised uses in the manner of the hotels, and it came to be accepted for the new type of bourgeois dwelling
which became the Parisian norm as the 18th century gave way to the 19th; namely the *appartement*. There we see the survival, too, of the baroque shapes of hall and staircase, the neat arrangement of cabinets and garderobes cleverly lit from wells, the *salon* and the *salle à manger* surviving wherever there was space as separate rooms, though run together where there was not.

But these things reach fruition only at the end of the 19th century, when the baroque features have a *Biedermeier* quality and Viennese experience, escaping revolutionary influence, has taken part.

In Paris the *appartement*, or section of a house cut up inside in order to be let off to different people, had its own history. The orders of friars - Franciscans and Carmelites - were among the first to exploit their land by building such dwellings, of which the 17th and 18th centuries have good remaining examples, responsibly designed, both in Paris and in the provincial towns of Rennes, Bordeaux and Nantes. Right at the end of the 18th century came the *appartments* of the Rue de Rivoli, by Percier and Fontaine, working for Napoleon I. Unfortunately the general exploitation of urban land for *appartement* development in the 19th century, part of the industrial revolution rather than a result of the political, was not a matter of responsible design but one of profit for a few, while the populace itself lived on in what later came to be called substandard conditions, often, it may be feared, amounting to misery. In France, as elsewhere, this was a lamentable episode in architectural history, although in the midst of the hurly-burly there were the now well-known pioneering examples of socially conscious design. The first was the work of Charles Garnier under the Second Empire, who while applying to his facades the eclecticism of the
period, faced the problem of convenient interior arrangement with a new clear distinction between reception and utility rooms. Then came Auguste Perret, bringing to this achievement the benefits of new construction with large windows, improved technical services and breaking with eclecticism.

Both were working within arbitrary town planning restrictions whereby nothing might exceed a height of 65 feet (20 meters) above the street unless the additional height is progressively set back from the building line, like a stepped pyramid.

Before the appearance of these pioneering works by individual architects and their clients, there had been some intervention by the authorities. In 1848, after the revolution of that year, which itself followed serious cholera outbreaks caused by unhealthy housing, two decrees were made, the one setting minimum standards for rented dwellings, the other establishing public health committees to supervise them. In 1850 commissions for the investigation of insanitary dwellings were set up (commissions sanitaire du logement), their tasks being to enter and survey insanitary dwellings, tabulate their conditions and propose means of alleviation. The latter had some of the force of law since there were penalties, not often enforced but present as a threat, for owners who failed to carry out prescribed improvements. But all the legislation concerned was adoptive and few communes took any notice of it. Up to 1853 only 228 local authorities out of France's 36,000 had appointed commissions. The disastrous war of 1870 directed attention to other national troubles and by 1889, the year of the Paris Exhibition at which the Eiffel Tower, the Hall of Machines and other technical wonders marked French recovery from that war and heralded the progress of France in the coming age of technology, only 5 of
the commissions were still in operation. Before the end of the century, however, important foundations for a housing policy were laid. In 1890 was founded La Société Francaise des Habitations à bon Marché, to press for government action both in the form of legislation and financial help. In 1894 came a housing act (Loi du 30 Novembre 1894), which tried generally to further the building of cheap houses by private enterprise and by housing societies either to let or for sale to skilled and unskilled workers. Subsidies were offered and the whole procedure given into the hands of committees formed at Département level. In 1906 the administrative structure was strengthened by the addition of a central government council (Conseil supérieur des habitations à bon marché), and the initial letters H.B.M. for matters relating to cheap dwellings had entered the language both of parliament and the civil service. All this did little beyond setting up administrations. It had come about too late to affect the 19th century and already in the early years of the 20th, governmental attention was being transferred to preparations of another kind. War with Germany, including the chance to avenge the defeat of 1870 by Prussia, was imminent, and demanded the full machinery of government and ministries to the exclusion of even the most necessary and desirable social improvements on the home front. But although nobody had prepared an environment for it, the 19th century industrial revolution is measured in revealing statistics. Within the century the population of Paris multiplied its population by six, and there were proportionate increases at Lyons, Bordeaux and other manufacturing or trading centres. In 1801 only about one million out of a total French population of 27 million lived in towns. By 1936 the urban population had risen to 22 million. On the other hand the total population had risen to
42 million, leaving 20 million living in rural areas, the highest proportion of any of the major industrialised countries of Europe. Now, in 1964, the figures are estimated at 31 million urban population and 17 rural. Yet neither the vast urban development all this represented, nor the retention of so impressively large a rural society living through its own kind of technical development, has promoted a really distinctive urban or rural type of dwelling. This seems to be only partly accounted for by 19th century failure to attend to the slum problem in town and country, and it therefore invites a general search for retarding factors.

One such might be the prevailing belief that, by the beginning of the 20th century, France had reached a low birth-rate, and that it would continue to decrease, but already in the 1930's this was being shown to be grossly incorrect. In the period 1880 to 1930 it had only fallen from 23.9 to 18.0 per 1,000 of population, a decrease of about 25%, whereas in Great Britain within that time, as in Germany, the rate was halved. Since then in France it has increased and is still increasing, but the fact seems not sufficiently to have engaged official attention. By 1900 the shortage of satisfactory dwellings for the workers in the great cities (says Miss Denby) was acute, and by 1925 (says Professor Dr. Friedrich Schmidt) quoting the statistics of a housing survey, 200,000 Parisiens lived in "locaux antihygieniques".

HOUSING AFTER WORLD WAR I:

PIONEER WORK AND CONFUSION.

Even after the devastations of World War I there was little positive action by government to replace what had been destroyed on a controlled basis as regards standards of living space inside the dwellings
or outside in the town plan. Hence the high incidence in the border zone of France and Belgium of little cramped brick houses, reminiscent of the English industrial north, for even the work itself was let to foreign contract, and the problems of design were left unsolved. There was legislation enough. The Town Planning and Town Extension Act of 1919 (loi du 14 Mars 1919) laid on all communes of more than 10,000 population the duty to produce within 3 years a plan for the improvement and extension of every place in which there had been war damage. But although many plans were drawn, it took long to gather impetus for concrete action. This was partly because the only financial assistance forthcoming from Government was long-term loans. Yet these covered 75% of building costs and were at moderate rates of interest, and besides this there was authority in an Act of 1912 for communes themselves to undertake housing for the lower income groups, especially those with large families. An Act of 1922 added to the legislative position by granting subsidies of up to a third of building costs, by which measure the rent could be lowered by 50%. Special public boards were created, and municipal housing societies (Sociétés de Crédit Immobilier) established, each under its chosen name, such as the Regie Immobilière de la Ville de Paris, which grew to become one of France's biggest housing finance institutions. Over 700 housing societies were founded, most of them still in existence, altering their arrangements in accordance with advancing legislation.

The outcome was a certain limited production of dwellings. High density blocks - no better than the mietkasernen of Berlin - were put up on land made available on the obsolete outer fortified perimeter of Paris - this as late as 1930. There was also some garden city building
near Paris and the other cities. Corbusier's Pessac, near Bordeaux, was itself an example. But it was not until the Loucheur Act (La Loi Loucheur du 13 Juillet 1928) that a serious effort was made to stimulate a supply of low-rent dwellings. It established a five-year plan for the construction of dwellings for low-income groups with special subsidies for re-housing big families, and moderate-rent dwellings for middle-class people who were now able, too, to borrow from the state at a low rate of interest to build their own pavillon, as the villa, cottage or bungalow is still known in modern France.

Under the Loucheur Act, therefore, two sets of standards operated. For low-income groups the Act continued the H.B.M. standards of the 1894 Act, improved; but to these were now added for middle-class occupancy the H.L.M. standards (Habitations à Loyer Modérés). In both cases the standards covered various sizes of dwelling in terms of numbers of rooms and thus was created a usefully varied and adjustable range of official requirements. Each carried its own borrowing arrangements. For the building of H.B.M. dwellings 90% of the capital required could be borrowed at 2% from the State. For H.L.M. dwellings (also known as habitations améliorées) the rate was 3%. It was hoped to win back capital by charging rents up to 5% of the cost of construction but inflation took control of the process and up to the outbreak of World War II only about 1.25% of costs was coming back in rent.

The economic situation prevailing in France in the years before World War II was one factor in limiting production under the Loucheur arrangements. Another was the lack of legislation of comparable force to create the comprehensive town planning needed, and particularly to produce
the required services; water, gas, electricity and roads. Such planning was necessary for the large layouts either of apartment blocks or small houses which full use of the financial provisions of this Act demanded and between 1919 and 1931, when the international depression upset even those efforts that had been made, only one million had been added to the national stock of dwellings. This left a shortage of nearly half a million. For every 100 dwellings built, there were 44 more needed, and that was to house those families who were without their own independent dwelling. Were necessary slum clearance and replacement to be measured in addition, the figure would have been, perhaps, doubled and the country faced with a need for a second million new dwellings.

If lack of grasp of the importance of France's population statistics, and of the industrial revolution, lay behind this poor performance, judged quantitatively, what was it that restricted quality to a few outstanding schemes? Corbusier's experience at Pessac in 1925 supplies part of the answer. His brief from M. Frugès, sponsor of the project, gave him a free hand with design and construction:

"I give you full powers to break with all conventions and to bring in all applicable building methods. In a word, I want you to solve the problem of formulating clearly the plans of the dwellings, and to find a standardisation..."³

Faithful to his brief Corbusier produced his design, and his factory-orientated construction, prophetic of trends which since then have begun to take firm hold of housing practice everywhere. He designed for space, enclosure, privacy, fitness for climate, and much else. But with the work complete and the houses otherwise ready for occupation, the local authority made difficulties about services, particularly water supply. It took three years,
and finally the intervention of M. Louchur himself to get the water supply provided. 1

The experience of the promoters of Drancy was similar. There the development stood empty of tenants for a like period because of failure by the management of the Metro to extend a line out to it, having made a gentleman's agreement to extend it and further by the unwillingness of private operators to run a bus service lest it be taken over by the public transport authority, acting tardily to let others pioneer success. And then, an emergency arrangement having been made to billet Gardes Mobiles and their families in one half of the scheme, the local town council opposed that good idea for a practical means of rescuing the project. Other experimental schemes met opposition too, either because of enmity aroused or just apathy. Official France and the French building industry were not fired with eagerness to put their country into the lead in designing and constructing a domestic architecture for everyman of the 20th century to emulate what both these elements within the French community accomplished for the privileged man of the 18th. Here was a strange repetition of a tragedy. But although the new experimental architecture was treated as irrelevant within France, its social and economic relevance was seen clearly enough abroad and in the present study traces are followed which show how ideas of space-arrangement generated at Pessac and Drancy, Chatenay-Malabry and Plessy-Robinson, assisted developments in the other countries.

Another part of the explanation why at this period quality was present
in so few examples of French housing lies in the unwillingness of the Frenchman himself to improve his accustomed living conditions. Of this Miss Denby said:

"The individualism of the average Frenchman is one of his strongest characteristics. Discomforts such as inadequate sanitation, unhealthy dwellings or lack of sun and air, are tolerated, but any infringement of the supposed rights of the individual, even those of the slum owner, is resisted passionately. Citizens seem to be much more immediately concerned about their communal rights and amusements, their cafes, market-places, and so on, than about the individual discomforts of family life in one-roomed apartments at the top of a six or seven-storeyed house without sanitary conveniences. This indifference makes housing reform a difficult job . . . ."9

The sources of this opinion are not given, but the general bearing is the same as that of shoulder-shrugging answers by tenants to questions put to them in the present study: "Did you struggle hard to get your new house?" and "Do the neighbours you left behind envy you your new surroundings?" This, nearly 30 years later, when European public opinion has moved emphatically towards a wish for better housing, seems to show not only that Miss Denby's assessment was right, but that there is a survival today of the same entrenched but less excusable indifference to the need for improved environment. Part of that may still be a matter of economics, as it was for the "penniless slum-dwellers" who in a subsequent passage she described as "unwilling to move to new houses in the suburbs, for which they will have to pay higher rents".

But in 1964, with full employment and a levelling of incomes which has gone far to make the French worker affluent as compared with the poverty of his 1937 conditions, this factor should now be less potent. The process is described by French social scientists as the embourgeoisement of the workers, a word which the writer has found to mean as much in the other
four countries as it does in France.

Acceptance of progress in the narrow sense of more housing space and better equipment in the house is, no doubt, more general in France today, yet it was possible in the course of the present study, in areas where the industrial revolution has had little effect, to observe the almost complete contentment of French families living under quite primitive conditions, and making out of simple room arrangements and an absence of equipment what to them were comfortable conditions. One such is a case study from Montlouis, I. et Loire, where behind a village grocery, the grocer and his wife live in a minimum of space (300 sq. ft.) indoors and for their outdoor space merely share a few more sq. ft. of a paved court, used also for vehicle storage and loading, and both declared themselves happy and content with their accommodation. Their living room, with its working area consisting of desk and chair, its feeding space of table and chairs and its relaxation corner with armchair, radio and reading-lamp, displays the art of living in a high degree of development, all the higher for its utter simplicity. This art, too, is a factor capable of retarding acceptance of the more formulated kinds of modern housing which, as distinct from such spontaneously arranged dwellings, might be felt by such independent people to stipulate too clearly how they are to be used, and to do so at too high a cost.

But if the bold experimental schemes of Seine-et-Oise, of Lyons and of Bordeaux of the 1930's passed such people by, and interested comparatively few others who both in the geographic and social sense stood nearer to be affected by them, they are too important in the wider sphere of European housing to be left at the stage of mere mention, and some
paragraphs are now therefore devoted to the two which seem to the writer to be the most important of their number, Pessac and Drancy. He considers that they had the most formative influence on future space arrangements both in France and beyond.

At Pessac certain essential ideas came together in a practical demonstration of much that Corbusier had been suggesting in the form of drawings and text in exhibition work and polemics. Primarily, there is a return to the freedom of planning of the hôtel, but in the form of the multi-level space conception of the Citrohan dwelling-unit which, it will be remembered, emerged from its first studies in 1920 in the thought-context of Une Maison - Un Palais and reached the public at the Salon d'Automne in 1922 in the form of plaster models. At Pessac this dwelling-type, with its cross-wall construction, is used in two ways; as a free-standing villa and, perhaps more rationally, as a terrace-house with the cross-walls as party-walls and their mass used to assist the solution of the sound-transference problem from dwelling to dwelling. In the same arrangement a step is taken towards visual privacy by arranging adjacent houses with opposite orientation, so that the roof-terrace of each house is bounded on two sides by the party-walls of two other houses. At ground floor level, this device results in mixtures of backs and fronts, entrance-gardens and sitting-out gardens, an arrangement for which it is harder to find a rational argument. For the problem of the internal kitchen and, above it, the bathroom, it can be claimed, on the other hand, that lighting and ventilation by means of a well taken out of the roof-terrace is a fully rational solution.

If the primary idea at Pessac is a space conception indoors, only
second to this is the essential idea of the two-storey outdoor room which appears as an alternating unit in the row of houses lining the western edge of the site. This is a version of the distinguishing feature of the villa blocks of the *Ville Contemporaine* of 1922 and of the flatted garden demonstrated at the *Pavillon de l'Esprit Nouveau* at the International Exhibition of the Decorative Arts in Paris in 1925. There the demonstration was much assisted by the presence of a mature tree round which the roof, untruthfully representing the floor of the villa above, made a large circular opening. At Pessac, though there were trees very near, the outdoor room is made to stand on its own merits and is, perhaps, too bare and draughty to succeed. So, *a fortiori*, is the interesting attempt to revive this feature at an unlikely place, the Gorbals in Glasgow, described in Chapter 8.

Thirdly, there is at Pessac an application to repetitive housing of the relation between adjacent building blocks discovered and used by the same architect in his twin villas at La Roche - unlike twins, since the internal arrangements are quite different, the one from the other. But by this unlikeness is achieved privacy for main rooms despite proximity, each overlooking its own piece of open space. At Pessac the two pairs of twin blocks at the northeast corner of the layout demonstrate the same successful balance of proximity and apparent remoteness. This is a quality of great topical interest to each of the countries studied and is not surpassed by the best attempts at the same combination which have been built or put on paper since. Of this kind of achievement more is said in the thesis conclusions in Chapter 9.

For all that Pessac was so forward-looking, it seems at first
sight to fit awkwardly among Corbusier's contributions to modern housing. It makes no use of the tall building, nor does it introduce the communal facilities which his writings and published drawings have stressed in importance. The simplest explanation of the absence of these characteristics lies in the unlikelihood of persuading anyone in Bordeaux in the mid 1920's to build tall blocks on a suburban site, and the difficulty encountered everywhere of diverting housing money away from building the dwellings themselves. Yet it has been observed that the arrangement of villas and terraces with roof gardens, patios and open ground floors at Pessac was basically a variation on the theme of the tall building which we know from the context of La Ville Radieuse. 10

On the other hand, if we think of the derivation of ideas, the use of buildings on two floors, surrounded by open space geometrically composed, recalls the composition of the Quartiers d'Habitation which appeared in 1901-04 in Toni Garnier's presentations of his ideas for the Cité Industrielle, preceding his appointment as city architect of Lyons, and suggests that Pessac is partly a Garnier conception. At Lyons little came of his idea for the quartier. Its interesting use of villas of one and two storeys and of different sizes to mix the classes within each housing block, was not for immediate adoption in a society as stratified as that of the French city a century after the revolution. Nor did it seem to people whose use of streets was conditioned by the Parisian boulevard, with its crowded and sociable sidewalks, that there could be any value in the separation of pedestrians from wheeled traffic which Garnier suggested by opening the centres of his blocks as greenways. Indeed, it is a curious but relevant reflection that pre-revolution society would have understood such ideas
better, for in its own way the hotel mixed the classes within its complex of living arrangements, and its court was a social focus of much greater importance than the street outside. We may suppose, too, from evidence from places where there was no Haussmann to sweep them away, that the slum clusters of the older city centres in their own grim fashion had little pieces of open space away from the street where a localised community life found expression.

Support for contending that Garnier's influence affected Pessac comes from the fact that for Garnier's idea Corbusier himself has praise to offer. He claims for such quartiers a "high architectural significance", besides the more utilitarian virtue of allowing the whole town to be traversed in every direction independently of the streets "which there would be no need for a pedestrian to use".11 This alone might have been taken to account for a certain relationship between Pessac and a Garnier quartier, but to Corbusier's own assessment can be added that of M. Frugés who first heard of his architect through handling the 1923 edition of Vers Une Architecture in which not only is this Garnier material given more prominence than in later editions, including the 1927 English edition, but Corbusier's own theoretical developments of it, predominantly two storey, receive at least the same attention as he devotes to his development of Perret's City of Towers. And if, as promoter of the development, M. Frugés found greater interest in the possibilities of industrialised building processes with which the chapter in question was concerned, his instructions to his architect show that he accepted the validity of the new approach to design, social as well as architectural and technical.12

Neither Garnier nor Corbusier see in their work an influence from
pre-Revolution France. In Corbusier's own case this is explained by his dislike of the grand manner, in particular Versailles, his sense of a need to re-interpret the masterpieces of the ancient world using terms which the Renaissance never found, and his selection of examples of classical form, such as S. Maria in Cosmedin, on which its leaders set no special value. The hotels, not sharing all the characteristics of the grand manner, might have been admitted as relevant examples of an architecture possessing the quality of fixtures to be inhabited, but they are not cited in Corbusier's works. Yet it is of distinct interest to compare the block called Sektor C at Pessac, which has a hotel-like series of courts, with a hotel plan not selected for its similarity, the Hôtel de Conty, by Aubry (1732), on the Rue St. Dominique, Paris, a building in which only the centre block was two storeys high, the rest being single storey and thus fulfilling Garnier's low density conception. In this comparison it is remarkable how such dimensions as courtyard widths and depths of block approach one another, and how similar are the shapes and sizes of the pieces of garden, allowing for a change of aesthetic. With Blondel's Architecture Francaise in general use by French architects of the 1920's it seems hard to believe that Corbusier has not been influenced, subconsciously perhaps, by these dimensions of works of a period with which he otherwise admits neither sympathy nor contact. At any rate, here is a bridge, consciously constructed or not, between the best of pre-revolution French housing and the first modern attempts to create a French house in a social group as true to the class structure of the 1920's and 1930's as was the hotel two centuries earlier.

It was, of course, a tragedy that Pessac, standing empty for three years though eventually occupied and lived in, thus was publicly stamped with
the mark of failure. It meant that for French housing the socially-conscious and architecturally sensitive tradition of Garnier was now cut off. Great was the loss to French housing, a loss which can best be stated by listing certain virtues which Garnier’s designs and their fullfilment by Corbusier at Pessac possessed. Such a list might read thus:

(1) A sound town-planning conception.
(2) Restriction of height while not abandoning high density.
(3) Balance between space indoors and space outside.
(4) Variety and flexibility of space indoors.
(5) Privacy for individual dwellings.
(6) Possibility of mixing the income groups (more in evidence in Garnier’s work than at this stage in Corbusier’s).13
(7) Easy reduction to systematic forms of construction.

The relative failure of Pessac seems to be an indictment of public authority rather than the private enterprise which launched it. While its disgrace derived from a weakness in administration, already pointed out as a general weakness, it was common knowledge that the Bordeaux bureaucrats in failing to provide water, were objecting to the uncompromising geometry of Corbusier’s open and closed cubes and prisms.14

Drancy, also marked by initial failure, was wholly the concern of public authority. The development was undertaken by the Housing Office of the Department of the Seine as part of improvements financed under the Locheur Act to the sum of 14,000,000 francs voted in 1929. A further sum of 21,000,000 was planned to follow in 1933, but was stopped by the world monetary crisis, which, as we have seen, also affected housing in the other
countries studied. Drancy, entrusted to Marcel Lods and Eugène Beauduin as architects, was the last to be launched before the crisis and represents the furthest extent to which the ideas behind Perret's City of Towers and Corbusier's La Ville Radieuse could reach acceptance by the most enlightened of the French housing authorities. At Drancy the heights of building run from three and four-floored blocks of flats to fifteen-storey towers. The four-floor blocks run from northeast to southwest in pairs and contain the larger dwellings widely separated by gardens bordered by steps which can also be used as seats under which are ingenious shelters for prams and bicycles. These blocks and their square open spaces are roughly a half-full-size reduction of the garden-apartment blocks of La Ville Radieuse and the germ of the Garnier-Corbusier-Perret idea of the open ground floor with piloti is present in the covered colonnade which gives access to all parts of the development, including the tower-blocks, which stand at the north end of a series of low blocks and are backed with an open space over which their long shadows are harmlessly absorbed. The 15-storey towers contain small flats designed for single people and childless couples on the scale of four flats per landing, and it has always been a criticism that 2 flats on each floor get little or no sun.

It was in these Seine developments that the Éviers-Vidoir or Garchy system of refuse disposal, using the sink-aperture for refuse reception and the combined waste-and-soil pipe as the refuse chute, was given its first big chance to establish itself. It involved, of course, a disposal plant on the site, and the success of the system had not only to take with it the cost of this plant but also depended on satisfactory separation of kitchen waste from sewage by gravity in a settling tank before reaching the sewer itself. It would
not accept tin cans, and for this reason alone would have proved unsatisfactory in most European countries. The Scandinavian system of the glazed-tile chute, using paper-wrapped waste, though a cruder conception, seems to be the more generally favoured in France after World War II, even if it involves expensive separation of metal from other waste at the destructor. But it is to be observed that in France today, even under the extended housing regulations of 1953 referred to later in this chapter, there is nothing to force housing promoters to provide for refuse disposal. Tenants are obliged, if nothing else is done, to carry their refuse to the pavement edge for collection by municipal vehicles.

In the sample dwelling at Drancy illustrated with the case study material, the H.L.M. space standards of 1929 are seen. Briefly they mean that the Salle de séjour, which we shall have to translate as living room, must be at least 100 square feet in area in dwellings with one bedroom and must increase by 33 square feet for every bedroom added. This seems to have been a sensible arrangement, which the type-plan used carries further towards flexibility by encouraging the use of one bedroom as an enlargement of the living-room on occasion. All flats have a balcony leading out of the living room, besides airing balconies leading out of the kitchen quarters, or, more particularly, out of the salle d'eau. This is a small, tiled room with running hot and cold water, a sunk floor and a gulley in one corner. Any kind of washing can be done in this room without fear of flooding. In some flats it is combined with the other sanitary accommodation, in which case only part of the floor is sunk, having the shower-nozzle over it.

There is clever detailing of fittings at Drancy, especially in the tower-flats, which are, on the whole, better equipped than the others.
Kitchen equipment includes the sink, cooker and draining board in one unit, the small gas cooker having a drop-door so that it can be used as a shelf, and between the kitchen and the living room is a storage wall in which an upper tier of cupboards opens to the living room side and a lower to the kitchen, with drawers and a hatch opening to both. Entrance halls have cupboards and there is a wine cellar which also serves as a larder. In addition, there is storage space for each flat either in attics or basement.

All the flats are centrally heated, on a basis of a sum per annum per radiator, and there is also a central supply of hot water. This is rationed at four gallons free per day, delivered at boiling point each morning to a container in the flat, and any more hot water run off is metered and paid for on a quarterly account.

Pessac and Drancy form, in a sense, a pair of parentheses round French housing between the wars. The one introduces ideas, in greater wealth than the country managed to adopt within that period. The other shows the absorption of ideas and their assimilation architecturally and economically. Both point to the difficulties of constructing housing systematically without sufficient administrative arrangements and political authority. They also point to, and demonstrate, the success which follows good architectural design by socially conscious architects, a class not present in all European countries at that time, but destined to distinguish the best work in most of them after World War II had given time for this kind of architect to gain some control over the main decisions of housing policy.

HOUSING AFTER WORLD WAR II

Whether or not the socially-conscious architect was responsible
for initiating interest in the setting of new standards for French housing, the war years, 1939 to 1946, saw some useful efforts made to find possible solutions to the problem of the French family's living space. Among these was the research carried out from 1941 to 1944 by the Institut Alexis Carrel (Fondation française pour l'Étude des Problèmes humains). This roused the interest of French social scientists in the provision and use of space and led to the significant work done since the peace by the government-sponsored Centre Scientifique et Technique du Bâtiment, particularly in the field of systematic study of lighting, sun-exposure, ventilation and heating, and by the Centre National de la Recherche Scientifique. 1941, too, saw the courageous publication in Paris of the C.I.A.M. Charte d'Athènes, introducing to a wide public the existence of this basic document concerning human right to a sane environment.

Standards of space arrived at tended to regard the H.B.M. standards of the 1929-39 period as inadequate, and led to a new statement of acceptable standards written into regulations made under the famous Habeas Domus Act of 1947.

The scene was now the chaotic one of France emerging from World War II weakened by years of German occupation, by war damage, and by the dissensions which accompanied the processes of law against war-criminals and others caught in the net of vengeance. Provisional governments, bridging the gap between the Liberation of August, 1944, and October 1946, when a constitution for a Fourth Republic was agreed, established the Ministry of Reconstruction, which bravely attempted to deal both with war damage and with the backlog of housing programmes which had been abandoned in 1939 just when France was beginning to overhaul the corresponding backlog of
building left over from World War I.

The backlog accumulated by 1945 was daunting. Of 12,500,000 existing dwellings, to house a population of 13,000,000 families, 400,000 were fit only for condemnation, while no less than 3,000,000 were badly in need of repair and modernisation. And the situation was aggravated by the high marriage rate and high birth rate which France now experienced together with other countries emerging from the war. In 1948, the central government agency, Direction de l’Aménagement du Territoire (Directorate of Physical Planning), carried out a survey from which it was calculated that 240,000 dwellings had to be built annually for 30 to 35 years in order to settle down then to an average production per annum of 150,000 to keep the stock of residential real estate replenished in the face of normal annual loss and increases of demand.

Meanwhile, post-war legislation had been launched on a daring level. The Habeas Domus Act stated five ambitious principles:

(1) Each person is entitled to a dwelling, a permanent and universal requirement.

(2) The dwelling is the space which satisfies at once the spiritual and material requirements of men.

(3) It is subject solely to the laws of conscience of its occupants.

(4) The dwelling, not being a privilege, but an essential right, must not be dependent on economic conditions.

(5) Slums are the responsibility of everyone: this disgrace is indivisible.

Basic standards of space were laid down, serving also as a measurement of over-crowding. They amount to an average of 150.7 sq. ft.
per person, detailed as follows:

- 226 sq. ft. for one person having one room
- 301.4 sq. ft. for two persons having one room
- 452.1 sq. ft. for two persons having two rooms
- 699.7 sq. ft. for four persons having three rooms
- 753 sq. ft. for five persons having four rooms
- 904 sq. ft. for six persons having five rooms

Not in themselves ambitious, these standards were not dissimilar to the H. L. M.' (Habitations à Loyers Modérés) standards of the Loucheur Act, but it was a new step to apply them to low income groups, those of skilled and unskilled workers, to the lowest income groups, in fact, and thus to make them a national minimum. And it was a new thing for French government to accept responsibility both for standards and for quantity of production.

It might be useful now to set out in tabular form the sequence of standards applied in France from 1929 to the present, using the initials by which they have been known, including the adaptation of H. L. M. known since 1953 as L. E. F. (Logements Économiques et Familiaux). Areas are to the nearest sq. ft. converted from sq. meters.

<table>
<thead>
<tr>
<th></th>
<th>1 room</th>
<th>2 rooms</th>
<th>3 rooms</th>
<th>4 rooms</th>
<th>5 rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>HBM</td>
<td>269</td>
<td>377</td>
<td>484</td>
<td>581</td>
</tr>
<tr>
<td>1929</td>
<td>HLM</td>
<td></td>
<td>495</td>
<td>624</td>
<td>753</td>
</tr>
<tr>
<td>1946-47 HLM</td>
<td>344</td>
<td>495</td>
<td>613-635</td>
<td>764-786</td>
<td>904</td>
</tr>
<tr>
<td>1951</td>
<td>HLM</td>
<td>279-355</td>
<td>452-527</td>
<td>581-667</td>
<td>700-907</td>
</tr>
<tr>
<td>1953</td>
<td>HLM</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>1953</td>
<td>LEF</td>
<td>248-323</td>
<td>365-484</td>
<td>474-667</td>
<td>570-769</td>
</tr>
<tr>
<td>1954</td>
<td>LEF</td>
<td>366-484</td>
<td>484-613</td>
<td>570-732</td>
<td>732-883</td>
</tr>
<tr>
<td>1955</td>
<td>HLM</td>
<td>as in 1953 but with an average reduction to 517 sq. ft.</td>
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</tbody>
</table>
The kitchen, bathroom, W.C., circulation and cupboards are not included and the area stated represents the surface areas effectively used, excluding walls, flues, and stairs. For storage space the 1953 H.L.M. regulations prescribed a total per dwelling of 5% of the area stated in the table, and advice given is that it should be distributed between a hanging cupboard near the entrance and cupboards in the rooms, hanging cupboards to have an effective depth of 27 inches enabling clothes hangers to be hung crosswise. Linen cupboards are to be 16 inches deep. Kitchens under the same regulations are to be of at least 53.8 sq. ft., either as separate spaces or else as part of the séjour. The minimum kitchen equipment required is:

1. Sink with cold running water
2. Draining board
3. Flue of 3.9 sq. inches cross section
4. Ventilation
5. Working surface at 35.4" above floor level.

A space for a coal-burning range is to be provided under the flue, besides a gas outlet and space provided for a refrigerator. The most common types of cupboards asked for under the regulations are low cupboards for cleaning materials and pans, a larder, and upper tier cupboards for kitchen equipment and preserves, with tall cupboards running through both tiers for brooms, and electric floor cleaning machines.

The 1953 regulations virtually cut out the separate salle d'eau without actually prohibiting it, leading to widespread adoption of the bathroom equipped for washing and for drying, in which case the minimum equipment is a washing trough measuring 2 ft. 7½ ins square with a drain 19½ ins. above
the floor, hot and cold water, electric power for a washing machine, and a ventilation extract duct in the ceiling, requiring a minimum space of 20 sq. ft., assuming that the washing machine stands outside the salle d'eau itself. Adding a factor, therefore, of 100 sq. ft. to represent kitchen, bathroom, circulation and cupboards (This is an average for these things taken from the case study material), the floor areas for modern French housing for comparison with the total floor areas expressed in the figures for the other countries are, approximately:

Single-room dwelling 300 - 400 sq. ft.
2-room dwelling 450 - 600 sq. ft.
3-room dwelling 600 - 700 sq. ft.
4-room dwelling 700 - 800 sq. ft.
5-room dwelling 800 - 1000 sq. ft.

Sanitary provision must include a W.C. inside the dwelling, a wash-basin and either a bath or a shower with cold water supply and an apparatus for delivering hot water. In dwellings of 5 rooms or more there has to be a second basin, either in the bathroom or in one of the bedrooms.

H. L. M. space standards continue to be closely connected with finance made available through the Sociétés de Crédit Immobilier, which survive from the years following the legislation of 1922, and the Sociétés Cooperatives d'Habitations à Loyer Modéré set up under the Loucheur Act of 1928. These cooperative societies are state-controlled and are the agency for granting reduced-rate state loans redeemable in 30 or 65 years. Depending on circumstances such loans may be granted to cover 80% and sometimes 90% of the cost of building. French citizens qualify as recipients provided that they live by their own work and do not already own a house or
residential property, unless it is a site for a house. The societies are also the developers of co-operative housing schemes, and the frequency of the caption published under illustrations of French housing schemes in the architectural press, "owner: Societe d'H.L.M. de la Ville de.......", indicates their prolific and successful work in this capacity. 16

It is also possible to bring loan finance to assist speculative housing. People buying speculatively built dwellings can obtain capital as a loan, varying between 50% and 80% using the Sous-Comptoir des Entrepreneurs. This bank was created to permit the central mortgage institution, the Crédit Foncier de France, to make loans for new buildings, from which it was otherwise barred. Rates of interest, however, are higher than under the co-operative society arrangement and periods of redemption shorter.

Since 1951, when new regulations were introduced as part of a restriction on building (Arrête du 4 mai 1951), all loans have been given maximum values in relation to size of dwelling, as follows:

Type II: floor area, 484.4 sq. ft.: living room, bedroom, kitchen,

\[ \text{salle d'eau, W.C., dégagement, volumes de rangement} \]

1 325 000 F

Type III: 613.5 sq. ft. living room, 2 bedrooms, etc.

1 700 000 F

Type IV: 731.9 sq. ft. living room, 3 bedrooms, etc.

2 100 000 F

or 2 300 000 F if there are 3 children.

(The salle d'eau and W.C., after 1953, conform with the arrangement described overleaf, and after 1959 the sums of money are divided by 100
to become the revalued New Franc.)

Thus it will be seen that the expression Habeas Domus has the literal meaning of home ownership when, assuming continued solvency, loans are amortized and co-operative society shares are released from security.

That anything effective could be done to implement the Habeas Domus Act, however, rested on the availability of the American economic blood-transfusion into post-war Europe known as Marshall Aid. Marshall Aid was administered together with the Monnet plan for the modernisation and re-equipment of French industry, including detailed provisions for the development of the building industry and the production of its materials, particularly cement products. Linked as this had to be with the development of European steel production and the economic use of French-produced steel, emphasis was placed on the use of reinforced concrete for all building projects which reached beyond the range of traditional brick and timber construction.

Thus there was a new reason to commission buildings from the acknowledged masters of concrete construction, Perret and Corbusier, though it was to the latter's chagrin that the main part of the reconstruction programme, that of rebuilding the Normandy cities went to Perret.

By this time Perret had reached old age, and advances in design comparable with his flats in Paris at the turn of the century, mentioned early in this chapter, were not to be looked for. Yet there were men working in sympathy with his ideas of order in structure who could take forward the Perret tradition. Among these was Marcel Lods, architect of the Drancy scheme, who had separated from his veteran partner, Beaudouin, during the war years and was now partnered by J. J. Honegger, with a young team
of research-trained men, ready to undertake major projects and to put them on a basis of research and development.

Corbusier, on the other hand, was no spent force and still awaited the chance to build in reality some of the projects put forward in the 1920s in the form of drawings, models and mock-ups. Yet he was still suffering business misfortune. Commissioned to redevelop the destroyed - counter-sabotaged - central area of St. Die, in the Vosges, he planned a layout in which a core of civic buildings was defined, east and west, by unités d'habitation arranged 1,000 feet apart in fulfilment of the ideas demonstrated in La Ville Radieuse. But the plans were rejected, and it was left to two towns which had suffered less destruction, Marseilles and Nantes, to offer him commissions of a more fragmentary kind, to see them carried out, and so to give post-war Europe some meagre representation of this pioneer architect's further potential contribution to housing.

Corbusier's approach to his commissions was still too personal and impulsive for his clients, particularly when these were the public authorities themselves. It seems that they found him, as J. M. Richards has suggested "inspired by a rather utopian social philosophy, but even more by a romantic enthusiasm for everything that modern technique can achieve." Such was not the spirit of the 1946 Monnet plan with its emphasis on achieving the possible rather than the ideal. But once more Corbusier's housing, fragmentary as always, deserves close study, including serious social study. The case study material in connection with this chapter, therefore, includes his work. The example chosen is his unité d'habitation at Nantes, built in 1954-56 to the H.L.M. standards of 1953, following the grudging success of his more famous unité at Marseilles which
was part of the immediately post-war measures, having been begun in 1947 and completed in 1952. Again, of the other work produced, a development by Marcel Lods, taking further his experience of the inter-war years, merits serious study, selected from among many possible examples partly because, in the main text of this chapter dealing with the formative work of the inter-war years, comparison was being made between works of these two architects.

The Marcel Lods example is a development by private enterprise, at Marly-les-grands-Terres, near Paris, begun in 1955 and completed in 1962.

The reason why the unité at Nantes is chosen as a case-study, and not the more famous and perhaps greater piece of Corbusier architecture at Marseilles, is that Nantes, under the name used there, "la Maison Radieuse" has been studied by a team of sociologists from the Centre National de la Recherche Scientifique, whose report is of interest to this thesis, and there is no comparable study of Marseilles.18 But, since the conception at Nantes depends so much on Marseilles, it seems necessary to record about it some relevant impressions, however obvious and well known, and to set both developments into their scene.

Though even in its originally intended form the full development commissioned at Marseilles was fragmentary, it was on a town planning scale. There were to have been four unités on a site straddling the main road out of the city southwards, connected by a parkland development having the open-space qualities long associated with the Corbusier city concept. But being part of the programme of rehousing bombed-out Marseilles families, it was difficult, to say the least, to maintain the standing of the
project as a major pioneer work and it needed ministerial intervention from Paris to get even one of the blocks built, while the parkland part of the project was restricted to a fragmentary area.\(^{19}\)

To what extent this restriction of the development has impaired the environmental experience of living in the solitary block built is difficult to estimate, and the sociologists who examined the similarly solitary block at Nantes admit the difficulty of assessment. But however that may be, Marseilles is admitted to have seen the generally successful launch of the basic element within the *unite* idea: the two-storey flat, displayed, as we have seen, at Paris in 1925 and although present in the Pessac experiment, not subjected there to its essential test in a multi-storey building. The two-storey flat was not used thus for the first time in history. The first, in geometrically organised form, may well have been in the New Town of Edinburgh as described in chapter 8. But at Marseilles and at Nantes we see it in its 20th century context, however partial. Similarly, the internal streets, well known in the design of the mediaeval monastery, in the middle-eastern covered bazaar, in the shopping arcades of 18th and 19th century European cities, and in the heart of the modern ocean liner - the nearest precedent - appears now in a context of new relevance. There are five such streets at Marseilles, containing, besides shops, the welfare services and a hotel, with the rows of doors, each with its shaded light and sense of privacy, of the dwellings themselves. On the roof the effect is of a piazza or series of piazzas, rather than that of a liner's boat-deck. This is achieved by grouping there a series of small institutions: nursery school with play area, a gymnasium, a restaurant, and a swimming bath, with sun-bathing space. A 1,000-foot long cinder track surrounds these things and
the illusion of being at ground level is maintained by a high surrounding wall which shuts out the view.

The children's play area, a concrete mountain range full of tunnels and caves, is, with the nursery school, one of the features in regular use. It also exemplifies the sculpturesque quality which this architect has contributed to the modern use of concrete.

Dimensionally the likeness to an ocean liner is again in evidence. The building is 450 feet long, 66 feet wide and 200 feet high, containing 340 dwellings to house some 1,600 people. It has fifteen residential floors, a two-storey shopping street, and a two-storey-high open base constructed of massive concrete pilotis.

The dwelling units, completely sound-proof, and even with their small outdoor rooms completely private, are given individual identity; outside by colours applied to the exposed areas of party-walls, and by irregular alternation with conventional single-floor flats.

In his handling of the building material, concrete, Corbusier gave post-war Europe its first example of béton brut, deliberately left textured by its shuttering, but the poetry of this discovery of a new vernacular quality in concrete went unappreciated by official France busy with its concern over building costs. Applied to the construction of large public buildings such as the St. Die project would have involved, this finish, together with heavy modelling of the material, can save money which might otherwise be spent on expensive finishes. But by some kind of common consent modern society accepts housing blocks, however monumental in scale, as carrying cheap finishes, and at Marseilles the client quite rightly saw the use of the new vernacular aesthetic as a cost-raising factor. For such an experimental
project costs were necessarily high, but were believed to be so in this case because of the lavish way the material had been handled, and besides the effect of this belief, true or false, it was a disappointment for the avant-garde of the building industry that, after years of preaching industrially rationalised production of housing, Corbusier now seemed to be adopting a hand-craftsmanship approach. But, as at Pessac and at Drancy, the chief difficulty was to persuade Frenchmen generally that the boulevard-fronting enclosed block was not the ideal form of housing; that new forms must be found, particularly for southern France. Perhaps too little was made of antecedents in the Ministry of Education building at Rio de Janeiro, in which, under Corbusier’s leadership, the design of facades in depth sufficient to defeat the injurious effects of tropical sunshine was cleverly handled and a whole new technique, subsequently developed in the newly emerging African countries, instituted. The application of this to the Marseilles block brought to the inhabitants a new way of relating their indoor life to hot sunshine. So, in another way, did the coolness of the interior streets. Had a more open mind prevailed, southern France might have felt enabled, through serious study of this Marseilles experiment, to proceed more quickly towards the evolution of a dwelling-type properly designed for its climate. It took a dozen years or so to get back to basic thought about that, to the commencement of the Cap Camarat project described later in this Chapter.

At Nantes the site is on the suburban fringe of this capital of Brittany, close to a surviving village, René, which provides some of the necessary communal facilities, reduced therefore to a lesser scale of provision within this unité than the scale provided at Marseilles. This reduction had a
beneficial effect on cost, which came within the ceiling set at the time by government. Although only one block was commissioned, this appears to have satisfied Corbusier, perhaps because he was able to observe that Rezé had an important future role as part of a linear industrial city along the Loire from Nantes to St. Nazaire, though, less credibly, he puts the words into the mouths of his clients. 20

These were the members and management of the Société Cooperative de Nantes: La Maison Familiale, consisting in large measure of employees of the Posts, Telephones and Telegraphs, and of the Compagnie Général Transatlantique, which is in part state-owned. From the beginning of the commission in 1952, there was extensive co-operation with the staff sides of these organisations and it seems that, engaging with his clients at levels where there was active interest in the social success of the undertaking, Corbusier found himself at last in good hands. He alludes to this by remarking that construction, which lasted for eighteen months in the years 1953 to 1955, took place "dans un silence miraculeux". 20

The Nantes unité is smaller than that at Marseilles. There are 291 dwellings, arranged on 16 floors reached from 6 internal streets served by one battery of four elevators. Machinery and services have been allowed to invade the two-storeyed colonnade of pilotis on which the building stands, being placed above the single-storeyed entrance-hall, which besides the concierge's reception-desk contains a newsstand and a branch post office. Although shops are planned on a frontage of one of the internal streets, the inhabitants meanwhile benefit from the proximity of a little group of shops in the village of Rezé, with a developed organisation of deliveries, and also have the use of existing public and private primary schools. To this is
added the nursery school (école maternelle) on the roof, a buvette, some salles de réunion and a four-room lodging for visitors.

Part of the colonnade is a covered play-space for children, continuous with an open air space which contains a volley-ball pitch, and there is a certain amount of car-parking.

The position of Corbusier in the whole matter of housing in France is complicated. On the one hand it is undoubted that he has suffered grievous misfortunes, and seems destined to enter history as a case analogous to that of other men, great architects too, who could not manage their commissions. Inigo Jones is a possible example, and if he is, then other French architects of the reconstruction period might feel they deserved to be cast in the part of Wren, competent manager of things and people, whose commissions flowed in and all, or nearly all, reached satisfactory completion. This is the simple picture, but it has another side, which is that the Corbusier commissions have always had about them the client's acceptance of an experimental basis of design, construction and costs. This the ordinary run of French architects is inclined to resent and, in resenting, to envy, for on the whole there has been little experimentation allowed in housing in France since 1946.

The basic involvement has been with the thorny three-cornered problem of space, of cost and of production. In the face of the requirement of 240,000 dwellings per annum stated by the Direction de l'Aménagement du Territoire, production methods had to undergo drastic revision and here it was not the imaginative pioneers but the building scientists and production engineers who were called upon to say what was to be done, and action taken went along lines laid down by French engineering tradition rather than anything traditionally architectural, and a little way from the work of pioneer
modern architects.

A wide range of techniques were attempted in an effort to industrialise production, at least of the main structure, chiefly in the use of concrete frames made up of pre-cast units, and in cladding these with precast concrete panels. In the production of panels, steam-curing was used, and two French systems went quickly into production on a European basis, with factories working on licence in a number of countries. To be economically feasible, the panels had to be made within 50 miles of the building site where they were to be used. On the building sites, there were many difficulties. The tightness of exterior wall-joints, the effects of condensation on the cold exterior wall of compound constructions, various kinds of cracking, and the difficulty of assembling and managing the required labour force, using new skills and not those of the traditional trades, were all problems. It was found, too, that heavy prefabrication is not only limited in range from a factory, but can only cope with annual programmes of from 100 to 600 houses per undertaking, which meant that their rate of production could not compare with an industrialisation in keeping with industrial methods generally, i.e. light prefabrication. Thus, French industrialised building has tended to take the form of heavy elements made for the frames of buildings (which in their nature cannot be light), followed by the placing of lightly constructed panels, those being as complete as possible, eliminating finishing trades in the same way as heavy concrete panels had done. This is how the case study at Marly is constructed, and it is easily seen that the
method, involving fine drawing and many lines running close together, is somewhat removed from the aesthetic of the Marseilles and Nantes blocks. All over France similar constructions are to be seen, involving the division of a facade into light, conveniently constructed units, irrespective of their relation to finely-conceived systems of proportion. In handling such system-building, French architects have found themselves somewhat bereft of their freedom to design.

Meanwhile, traditional building methods proceed, involving the large number of materials produced in France: stone and brick (both usually covered with cement rendering), timber, plaster, tiles and slate. There are many local variants in an ancient country where building crafts have developed through the ages, and new working methods, unless they come into use in entirely new hands, have to be assimilated slowly, owing to lack of technical knowledge and reluctance with funds. But the small contractor, having a perfect knowledge of his own methods, is able to operate at fairly low cost and this makes traditional building unbeatable whenever the size of contract can admit the small man. All such operations have grown up together with local regulations, of which France has infinite variety. None of the countries studied is further from adopting a national building code. Yet there are French standards, les Normes Francaises, edited by l'Association Francaise de Normalisation (AFNOR), which are gradually gaining ground, especially applied to big projects.

Of the architect's position in the post-war situation, with system-building ready to his hand, at least for big projects, the IUA volume of 1959, Habitation No. 2, gives him this advice, by an anonymous French pen:
"Les matériaux récents enrichissent la palette de l'architecte, les procédés perfectionnés lui ouvrent des possibilités nouvelles, l'échelle des réalisations contemporaines lui permet une plus large expression. En vérité, sa responsabilité en est accrue..."

Certainly this is true of urban housing and much evidence was seen by the writer that the architect in France has been ready to take this advice. As a manager, he has succeeded in achieving a vast production (still short of the Direction annual total). How far the new constructions have really enriched his palette in his capacity of creative artist is more doubtful. For exercise of that faculty there is evidence that he turns now and then towards rural building, or at least urban building in a rural setting.

Considering how evenly balanced is the urban and rural distribution of population in France, it is remarkable how little attention has been given by government to rural housing, though this is explained by the seriousness of the problem in the urban areas. It will have been noticed that the case studies and examples mentioned so far have followed a pattern of urban agglomerations. These are closely linked areas including more than one town. The largest is Paris itself. Other conurbations include that at Marseilles, Lyons, which takes in St. Etienne, the industrial conurbations at Lille, at Nancy-Metz, Bordeaux, Toulouse and Strasbourg, and the probable linear development from Nantes to St. Nazaire which Corbusier noted when he was asked to undertake his Nantes commission. Round these conurbations are multitudes of semi-rural growth points, major and minor, to which industry and population are migrating. Selle-sur-Cher is an example, and the work done to improve urban housing is being felt there, although the little town is in a rural setting.

For the rural areas themselves there is as yet little organised
development. French agriculture has a remarkable stability, partly because of its variety both of soils and climate, partly because cultivation is more widely and consistently spread than in any other European country. The lowlands show everywhere some type of improved land, and pastoral production and forestry extend the areas of production into the uplands.

It is characteristic of French agriculture that three quarters of the holdings and nearly two thirds of the area are in the hands of owner-occupiers. Tenant farmers in 1929 held 20% of the holdings and 30% of the area. Smallholdings are also characteristic of France and only in the wheat and the sugar-beet areas of the northeast are large farms common. Even there the number on the whole has been decreasing.

In view of these factors there has in fact been little need for government activity, either to stimulate agricultural production or to see a housing problem requiring special solution. The French small farmer and smallholder has been able to use for rural housing the government’s credit arrangements designed primarily for urban housing, particularly the Crédit Foncier system of loans which has been described above.

Of innumerable possible examples of this, the case selected is at the village Bercheres-les-Pierres, Eure et Loir. It consists of a small farm house built on a holding sub-divided from a larger property and intended to specialise in poultry raising. The house is designed by Bedreau, a Chartres architect, working in collaboration with his clients on a basis of recommendations contained in a much used handbook on rural housing written by a civil engineer and published in 1952; L’habitat Rural by Christophe Mondin. This book is a careful study of functions, with recommendations related to government standards of housing and at the same time placing
some reliance on getting regulations relaxed, a process for which the
French use the word dérogations.

Mondin arrives at three type plans, which are illustrated together
with the case study material. All accept the principle that separate
streams of people use the farm house, each requiring their appropriate
entrance, but he also insists that the living quarters of the farm house
must be capable of being used by people in their working clothes. He
suggests, for instance, that the whole ground floor area should be tiled,
and all his plans show arrangements in which the séjour and the kitchen
are contiguous. One shows the two run together to form a single multi-
purpose room. Mondin is likewise firm in his decision that rooms all
need to be somewhat larger in rural areas than in urban dwellings: "En ce
qui concerne les pièces du logement, on devra prévoir si possible des
surfaces plus grandes que celles des pièces correspondantes d'une
habitation urbaine". For this he adduces the reason that "la famille
rurale est généralement assez nombreuse", and adds to this the need
for housing the occasional seasonal worker.

He lists the contents of the rural house as follows:

Salle de séjour, for which he allows the alternative name salle commune,
with kitchen.

Entrance porch or vestibule giving access to a salle de propreté, possible
to translate loosely as "room for work which involves mess."

Bathroom

W.C.

Storage cellar, in addition to a larder and plenty of storage cupboards.

Mondin thinks that the kitchen should always be possible to use in
conjunction with the *sejour*, on the grounds that cooking, feeding, rest and leisure, are all joint activities in a farming household. He points out that a convenience resulting from this is that the cooking appliance can be combined with a heating appliance for winter time. And he thinks that in the case of large farms where considerable numbers of workers have to be fed at the farmhouse, it might be convenient to include a refectory adjacent to the kitchen with its own independent access from outside. One of his type plans depicts this. In any farm house where workers are fed without living in the house, he suggests that there should be a door to the kitchen for their independent entry to the house and that they should feed in the kitchen itself. He considers that the *salle de proprete* plays the part of a sieve, serving equally as the place for cleaning vegetables, for the preparation of preserves and also the preparation of food for animals. In other words, this is where the dirty work of the kitchen is done leaving the kitchen itself to be used for the preparation of food and its consumption by the farmhouse family and its various dependants. The bathroom, Mondin suggests, should be grouped with the bedrooms, and have a surface of from 20 to 40 sq. ft. There needs to be good ventilation and lighting and a floor surface easy to wash.

The case study at Berchères-les-Pierres shows in detail how Mondin has been applied to the specific problem of the farm house, and a parallel case study of an old Picardy farm house serves to illustrate the background from which he and others have drawn inspiration and from which their basic thinking about living the rural life is derived.

Other case studies, however, at *Selle-sur-Cher* and at *Clamecy de la Nievre*, illustrate an aspect of the rural problem which is of growing
importance as industry is decentralised into rural areas, by government planning or its own. The life is urbanised; yet it remains rural too, and in the mixture the lost France, the regional France which Paris as the standard for everything has tended to obscure, has its chance to find itself again, and when French regional planning gains strength, as surely it must, it will be of some importance how much local modern architectural vitality is found in areas which such planning may select to become its growth-points.

These two case studies also illustrate where some French people are going in the matter of the house-and-garden relationship. In both cases, the householders are keen and successful gardeners, coming as they do of peasant stock. Despite the abandonment of the private garden in by far the greater part of French housing in its urban forms, whether traditional or modern, there may yet be a revival of interest in the garden like that noticed in Germany and in Denmark, at any rate for the small garden.

It seemed to the writer that French families interviewed divided fairly evenly between those who wanted to do gardening and those who did not. Some, as at Nantes, were content with flowerpot and balcony gardening, doing this very skilfully; others wanted to do more than they could. Others again, as at Villedieu in Normandy, case-study of urban housing of the small town kind, could not conceive of their being responsible for gardening at all.

It is difficult to generalise about the use of space out-of-doors in grounds attached to individual housing. For rural houses attached to farms the state of things at Bercheres-les-Pierres seems to be normal,
although sometimes flower gardens were seen, usually fairly small in size and obviously not the subject of much energetic work. On the other hand, very colourful flower gardens were encountered, as at the example depicted at Essertine. Possibly it could be claimed that a kind of norm is depicted in the garden case study at Châtres-sur-Cher, with its formal arrangements of hedges, shrubs and areas of gravel, emphasising ornamental characteristics between the house and the road, with utilitarian arrangements predominant in the back-yard behind.

In the case of blocks of flats, as at Marly, there was general pleasure in the enjoyment of communal gardens and other evidence of this is included in miscellaneous study material in the form of photographs showing communal gardens, children’s playgrounds and in one case near Dijon, a well screened and landscaped clothes-drying area. Close to Strasbourg a revealing photograph was taken showing allotment gardens carefully tended by flat dwellers living close at hand who are otherwise surrounded by communal gardens, all of it well kept. These flats were found to be occupied by people of country stock migrating to the Strasbourg conurbation to take up industrial employment and they are therefore an analogous case to the family visited at Clamecy for whom vegetable growing was something of great importance. It should be added that the absence of vegetable cultivation at Bercheres-les-Pierres was not through lack of interest but because ground was available on the adjoining related holding for all this, including a large and beautiful apple orchard. This was operated by the husband’s parents for, as already indicated, the Bercheres-les-Pierres situation was one of the grandsfamille, the rural counterpart and, in a sense, prototype of the two-generation situation studied
under urban conditions at Nantes.

Plainly the attitude of occupants of modern French houses to the open space provided depends on their background, but it seems likely that, having regard to the very large population of country dwellers characteristic of France, more attention will have to be paid by housing developers to the needs and wishes of those who are not content merely to survey the beauties of communal garden but want themselves to participate, whether for the purpose of having to do with gardening or for the utilitarian purpose of filling their larders. To the latter problem the marketing of cheap vegetables may present some solutions but not to satisfy every case.

Gradual realisation by French government that the solution to the urban housing problem must everywhere include the preparation of development plans, in which housing and other land uses are integrated, has led, as in other countries, to the development of regional planning, particularly since the end of World War II. To take an obvious example of the benefits of this, it would have been impossible for such a development as Marly to have been built and then left without proper communications with Paris as was Drancy. Similarly, it would be difficult now for the most unwilling local authority to have left a housing development unsupplied with water, as was done at Pessac.

Nevertheless, for a country which produced Toni Garnier, Perret, and Corbusier, to mention three men whose work in France has given them international standing as architect-planners, it has taken very long for the regional planning idea to become established and practiced. Indeed it is only at the moment of writing these words in February 1965 that news has arrived of the formal creation of the Groupe Centrale de Planification
Urbaine, which brings together representatives of all the ministries concerned in town planning and has as its responsibility the regional planning of the main conurbations which have been mentioned above, together with certain of the large towns outside the conurbations, such as Nice, Rouen, and Grenoble. Statements made by the French government in announcing the establishment of this group include the prediction that the urban population of France will double in the next 20 to 40 years, partly by a new migration from the French countryside to the towns. 21

Although the new group is to have responsibility for advising on inter-urban communication, railways, roads and air routes, with the siting of airports, it seems that, as before, the rural areas will be left largely to themselves as regards development. Agricultural research and development may be the only governmental effort made on their behalf. The research institutions mentioned above, working through the Centre Nationale de la Recherche Scientifique are represented in the group.

It will remain to be seen how they are able to use this representation to promote more social and architectural research in relation to housing. Meanwhile it is noted that among studies in preparation at this research centre are three which might lead the principal decision-takers a little further behind the scenes than they have been content to remain. The titles are: L'Etude Dynamique de la Vie Sociale

L'Evolution des Structures et des Relations Familiales.

Les Aspirations dans la Vie Sociale.

The first of these is an attempt to establish a methodology for social study in relation to planning, the second to determine if possible something more about community structure requirements, beyond the bland
assumption that miscellaneous families who find themselves living side by side in a new development of good modern dwellings immediately become a community. The third, closely related to both, is an attempt to establish what are the yearnings of modern social life and to discover in what way they can be made part of a dynamic towards the planning of a happier urban society. Successful research along such lines, with adequate governmental action at all levels and well integrated activity by all the ministries and agencies, should accomplish much and altogether change the dreary picture of unco-ordinated effort and lack of initiative which characterised French housing and community planning at an earlier stage.

The tradition that Paris determines what the rest of France shall do, together with the general grouping of urban France towards the north has caused French housing generally to follow northern rather than southern trends. The historical basis of this has been elaborated above, and it was pointed out how the Marseilles conurbation, through its abandonment of the Corbusier project, lost its chance to develop from his house types there a peculiarly southern French trend in housing. The Côte d'Azur, however, has continued to be the holiday region for much of France and for Europe and it was perhaps a matter of time before this kind of population settlement, with its consciousness of southern French climate and landscape, produced its own contribution to French housing.

This has happened on a site at Cap Camarat in the Var département not hitherto reached by development because of its remoteness from communications. Within the 100 hectares which comprise the main part of this peninsula, rocky but covered with scrub vegetation, a planned development is in process of construction consisting of five villages of 35 to 50 dwellings
each. The project is sponsored by the building interest Leredu with Atelier Montrouge as architects (Jean Renaudie, Pierre Riboulet, Gerard Thurnauer, and Jean-Louis Veret, with Louis Arretche, a pupil of Corbusier, responsible for the detailed design). All five villages are to share communal facilities placed at the site entrance, consisting of shops, a hotel, clubs, gaming rooms and seaside bathing, including a swimming pool.

The principles of the design have been set out as follows:

"(1) to develop each site and enhance it, respecting its general structure, and grouping the dwellings so that with their architectural forms they complement rather than detract from the natural beauty of the landscape.

(2) The dwellings and their collective facilities to be concentrated so that large natural masses such as rock formations are balanced by the masses formed by the architecture.

(3) To preserve extensive areas of country in its natural state on a basis of non aedificandi so as to maintain the harmony and rhythm of the landscape and to preserve nature.

(4) To produce convenient automobile access and car parking." 22

The architects, allowing their conceptions to develop out of the works of Corbusier, have incorporated these principles into their design by respecting first of all the characteristic forms of the traditional Mediterranean village, in which the houses huddle together against a rock slope, or cliff, each with its view of the sea, and departing from the urban types of development which Nice and Monte Carlo have developed and with which these two cities in particular have turned southern French architecture away from its own traditions. Their first essay, now completed and occupied, is the village of Le Merlier, of which details are illustrated.

The type of house with its combination of the Corbusier dwelling-
type, as exemplified at Marseilles and Nantes, with the patio developments
designed by various avant garde architects in each of the countries, has
appeared on drawing boards for some years but seems first to have broken
cover and to have come into actual existence at the hands of Atelier V at
Berne. For this reason, although Switzerland lies outside the scope of
the present study, a study sheet is included in the case study material
depicting this development and noting the characteristics, which, in turn,
have affected the design at Merlier and also certain other adaptations,
such as the proposals for Livingston in Scotland, for this is also a type
of dwelling suitable for southern slopes in northern Europe.

At Le Merlier the houses are somewhat further apart than at
Berne but have similar arrangements of narrow stepped streets slipping
between terraces set at different levels on the hillside. The houses are
designed to fit into each other enabling a number of different spatial
combinations and volumes to be composed, complemented by little streets
and squares reserved for pedestrians but to which vehicles may occasionally
have access. Some houses have terrace-patios between two wings, one
consisting of living room, dining room, kitchen, entrance and lavatory,
and the other a bedroom wing with a bathroom. Others are in one block
and consist of living room with dining-space, kitchen, bathroom, bedrooms,
W.C. and laundry. Open space provision varies from house to house, but
generally has the character of a patio with extension beyond the enclosing
cheeks of the buildings to form more exposed roof terracing, which in turn
is compensated for lack of privacy by enjoying wider views. There is no
question here of H.L.M. or L.E.F. standards, the development being on a
commercial basis, designed for the well-to-do, who however have been brought down to certain limitations of space by the social requirement that here they must do their own housekeeping. In consequence the space arrangements at these Cap Camarat houses are such as might well be developed within governmental standards, or these standards expanded to make such obviously desirable variations as the entrance cloakroom and the spacious living room possible.

Three characteristics make these houses particularly suitable for southern Europe. First, shared with the Corbusier dwelling unit at Marseilles, is the deep living room, which filters the strong southern sunshine through a window opening which has its own depth, secondly the thick heavily insulated concrete construction, helped by its turf roof to resist strong sunshine and keep the whole interior cool in summer, and thirdly the use of the terrace as an outdoor room.

At the same time and partly by the same means, each house preserves privacy from its neighbours; the privacy of the Marseilles and Nantes units, and also the privacy of the patio house as a type developing in this direction in more than one part of Europe.

The high density obtained, 15 houses per acre, strongly suggests that, with privacy adequately secured, this is a type of development capable of use in many situations, and capable of development in a variety of northern and southern European adaptations, taking climatic conditions into account. It is also to be noticed that the interesting device of staggering the blocks so that, while strictly speaking they form terraces of houses and present terraced frontages to the little access streets behind them, they also present
the kind of varied townscape both along their streets and on their seaward
and open side as to suggest, in fact, the pleasantly accidental qualities of
the Mediterranean coastal village, dear to the heart of painter and poet.
In this way the Cap Camarat development seems to be pointing in a
direction in which these social elements in modern industrialised society
who do not like its mechanisations might be allowed to retreat.

While Corbusier may have surprised and disappointed his clients
in his experimentations with rugged finishes and the like at Marseilles
and at Nantes, in developments of this kind they may have a more logical
place, particularly when they grow as naturally as they do here out of
the ruggedness of a site. The search for a modern architectural vernacular
seems here to have been rewarded, together with the satisfaction of a
social need, and all within a planning conception more mature, perhaps,
than that of the socially similar if architecturally different development
at Arenzano studied in Chapter 4.

Meanwhile Atelier Montrouge is engaged on a neighbouring project
at Gigaro, also in the Var département, where the groups of houses, not
yet built, are to take the form of parts of circles eccentric to each other
rising in terraces roughly in accordance with the deep contours of a site
more rocky than that at Camarat, but in this different way fulfilling the
same design requirements using the same four principles.

Of the Cap Camarat development some material is included with
the case study plans and photographs, but it was not the subject of a full
case study with interviews and study of household details. Therefore no case study report is submitted.

**CASE STUDIES**

1. **HISTORICAL MATERIAL** (see submitted folder)
2. **MARLY-LES-GRANDES-TERRES**

At Marly-les-Grandes-Terres the residential block is quite unlike that at Nantes. Instead of two-storey flats opening off internal streets and extending to the facades in the form of small outdoor rooms or loggias, there are conventional single-storey flats with accesses from conventionally lit staircases and a windowed facade interrupted by the equally conventional balcony. But it is partly on account of these quite normal characteristics that Marly is taken into this study. Though it is the work of a distinguished modern architect capable, it must be assumed, of adventurous design, of innovation on his own account or of designing to incorporate innovations contributed to architectural knowledge by others, the Marly achievement is to demonstrate first-class skill applied to an unadventurous design to an unadventurous selection of dwelling types. The space-standards adopted are L.E.F. (**logements économiques et familiaux**), differing only slightly from the H.L.M. standards to which the unité at Nantes was erected, and in this respect too they illustrate a norm at which much modern French housing seems to be levelling-off, catering for the bourgeois family, or for that of the worker, who, through current industrial affluence has gone through the process of **embourgeoisement**. Sited in the socially select south western environs of Paris, Marly-les-Grandes-Terres is in fact wholly middle-class in occupancy, though it is significant of the reduction in standard of living in a modern capital as compared with a
provincial town that many of the flats at Marly are smaller than those occupied by workers at Nantes.

There is another and indeed opposite reason for selecting Marly for study. On the town planning scale, in its characteristic as an unité de voisinage, this development illustrates a certain degree of application in much recent French housing layout of ideas drawn from La Ville Radieuse. Though the blocks themselves may be conventional, their arrangement on the ground is not, and at Marly it is possible to see how the unité at Nantes would work if it were part of a development of the scale Corbusier wished for, both there and at Marseilles; and not only the scale but also the content of social facilities, for at Marly a full range of these is either incorporated now or planned to be built within the economic programme of the development. Housing is in 27 blocks containing 1500 flats to accommodate a total of 6,000 people, arranged round a large central open space in nine quadrangular groups. The central space is partly parkland, partly sports area, with, at the northern end, space for the underground garaging of 600 cars, and at the southern and wider end the shopping centre and schools, a medical and surgical clinic and provision for a salle polyvalente: a public hall capable of use for a variety of entertainment ranging from cinema and theatre to indoor sporting events.

Wheeled traffic is confined to a peripheral road, with car parking at each housing group and at the shopping centre, giving a total of 900 parking places. With the garaging to be provided, this amounts to a provision of car storage on a scale of one car per family. When the writer paid his visit the development was incomplete, and it was therefore too early to judge whether or not this provision was adequate. But that it has
been provided is a measure of a growing awareness of the car storage problem, which was not yet the case at Nantes. It was observed, however, that cars parked at the shopping centre came from outside the development and noticed too that this is intended by the promotors, who say in a brochure that the 250 car spaces there are intended for shoppers coming from the district as a whole. In process of time the load may well become too great for the provision made, and it will be interesting to see how any necessary new provision for car storage comes to be made, whether below ground or by sacrificing more of the generous but enormously valuable open space. It is an advantage, of course, that at the height of shopping activity in mid-morning, most of the inhabitants' own cars, used for travel-to-work, will be away.

The site itself is a dramatic one on a plateau with views to the east giving glimpses of Paris. A steep ravine contains the river Seine, also to the east, and on the further bank rises the hill on which the old town of St. Germain stands within the remains of ramparts of the Vauban period. Not far in the opposite direction lies Versailles, the influence of whose grand manner layout affects the landscape as far as St. Germain, including the monumental form of the main Versailles - St. Germain road with its generous tree-planting extending in depth on both sides.

Direct connection with the Versailles tradition might be denied by the designers of Marly, but this is clearly no inappropriate place in which to design on a grand scale, and the scale of buildings to layout seems in consequence to echo the grand manner for all that the conventionally classical devices of axes and vista alignments are not employed. The relationship of relatively large blocks of buildings containing by contrast
relatively small dwellings and rooms, all looking out over large open spaces, with a distant view forming part of the open space experience of each dweller seems to justify this kind of landscape planning apart from its exemplification of an independently 20th century planning theory. It is the promoters' proud boast that buildings cover only 10% of the site.

Unlike the Nantes unité, Marly is not the work of a co-operative society. It is a speculation by André Manera & Cie., the Parisian development company, working with a syndicate of nine credit societies each responsible for one housing group, under the syndicate name, Sociétés Civiles Immobilières de Construction "Marly-Grandes-Terres". Dwellings were all built for sale, the societies arranging loans for buyers, particularly the vital mortgage from the already mentioned lending bank, the Sous-Comptoir des Entrepreneurs.

What is built is the second of two schemes for the development of the site. The first, prepared in 1952, showed five multi-storey blocks occupying the centre of the site and taking up only 5% of its total surface. Parking and garaging was arranged under the buildings so that the ground itself was wholly reserved for pedestrians. This project met violent opposition from the authorities and was abandoned after several years of discussion. In the second scheme a height restriction of 48 feet is respected, and this allows 5 floors to be built, but the economics of the development have not included the use of lifts, so that we are confronted with 5-floor walk-ups, a somewhat unusual situation for middle class housing. This is perhaps the first respect in which the Marly blocks suffer in comparison with La Maison Radieuse.

True to experience of under-cover access gained at Drancy, and to
the promise of under-cover access from cars to dwellings and from dwellings to shops contained in the earlier abandoned scheme, there is to be a complete range of covered ways connecting the Marly buildings with one another. At the time of the present writer's visit only their concrete footways had been built, all following a not apparently functional rectangular pattern of lines parallel with the buildings instead of taking the more obviously functional diagonal short cuts. It was noticed, however, that the inhabitants were using these footways and refraining from even obvious short cuts across the grass, unless there happened to be a gravelled garden path handy. These gravelled paths are still less functional as routes, since they form an abstract pattern of curves leading to toddlers' playgrounds, garden seats and other landscape features.

Within the site the landscape has had to be created, for despite its interesting environment this was a featureless expanse of rough grassland, extending from the landscaped main road. It may be too early to estimate the success of the new landscape of grass and trees. Trees, it was observed in many cases, were newly planted mature trees, but there were also saplings. Hard standings range through the full repertoire. There is yellow gravel from the river Seine, familiar from the parterres of the Palace of Versailles. There are cement slabs, stone setts and tarmacadam, with some elegant and obviously expensive stone slabbing introduced into the pedestrian alleys which divide the shopping centre.

The shopping centre is illustrated as part of the case study material. It is designed on the same principle as the whole Marly development. Shopping space is arranged peripherally round a central open space, which is treated as a formal garden, with pool and fountain, with seats for shoppers
to rest, both in the open and under cover. Extending over part of the
garden will be built the *salle polyvalente*, having a ground floor foyer entirely
glass-walled so as to continue the garden character visually and to avoid
monumentality. Opportunity was taken to examine the workings of the
shopping block. Observation showed, on the whole, smooth processes of
selection and payment and materials for making two full meals for the
writer and his family were bought within ten minutes at a peak hour of the
day (11.30 a.m.). Against this successful test of the facilities, however,
has to be set the fact that only 70% of the houses in the whole scheme were
completed and occupied, whereas the shopping centre itself was more or
less finished. Yet it was clear that this shopping centre could stand
considerably more loading with customers, and at the time of examination
it was perhaps surprising that such a range of shops as were provided
could exist on the limited custom then available. Kinds of shopping extend
beyond food and drink to clothes, furniture, hardware, lingerie and hair-
dressing; there is a chemist, a tobacconist, a post office and a launderette:
en un mot tout ce qui est nécessaire à la vie courante d'une petite ville. 23

Flats are arranged back-to-back separated by a central spine
containing bathrooms, W.C.'s and storage units. This assists sound-
proofing of the principal rooms, though the writer found tenants complaining
that the bathrooms were noisy and conveyed an unpleasant feeling of commun-
ality. The arrangement also effects orientation, which has to be east-and-
west, but this is, too, the alignment for the main blocks throughout the
scheme selected from the point of view of civic design. For the short
cross-blocks which divide the housing groups and face north-and-south, there is a different type-plan in which the main room runs through the building. Each stair serves 20 flats on the scale of four per landing and the landing also includes a small compartment in which is situated the rubbish chute. Flats are of three, four and five rooms ranging from 590 to 860 sq. ft. of usable superficial area, i.e. close to the L.E.F. maxima of 1954. Also within the L.E.F. limit are a few single room flats advertised as "studios", with a usable superficial area of 240 sq. ft.

Each flat has a balcony extending from the main room, partly within the building, partly projected beyond the facade, and it is arranged that the rooms on either side of the projection belong to the same flat. As a result of this arrangement overlooking of balconies is reduced to a minimum. The balcony at 48 sq. ft. is relatively large in area and this space is claimed in sales literature to permit "les repas en plein air et l'installation de chaises longues, berceaux". Of the same space, Architecture d'Aujourd'hui has said: "Les sejours sont prolonges par un balcon-loggia tres vaste permettant de prendre repas en plein air". 24 Tenants interviewed did not all think of their balconies in this way, and none were found to contain furniture on the scale suggested in these somewhat overstated descriptions.

Those at Nantes measure 64 sq. ft. in area, and being considerably more private than the Marly examples are thus in two respects better suited for use as outdoor rooms. At Marly, while some tenants were satisfied, others complained that their balconies lacked privacy in relation to the communal space outside, even if they were not overlooked by, or were within earshot of, neighbours on either side. The railing fronts were criticised by some as making the balconies much too open to view, by others
praised because they made contact possible with the landscape outside. Nevertheless these balconies were being used as evening and siesta sitting-out space, and also in the morning for the purpose universal in the countries studied, except Scotland: for the airing of bedclothes.

Since it was felt that, built within the L.E.F. standards, space might be critical, especially without the safety-valve provided at Nantes in the salle de rangement, care was taken to study flats in which space available was put to full test. Two were selected for particular study: a 3-room flat and a 5-room flat.

The 3-room flat, east-facing, was occupied by an elderly couple who, like the similar couple interviewed at Nantes, had moved into this dwelling from a villa, but without the inducement of being near their own young people, who in this case lived in another part of France. Their villa had been large and furnished with good period furniture. They had brought to their flat as much of it as they could, but had found that the spaces provided were not easy to furnish with such large pieces. The double wardrobe, of a mid-19th century Baroque style, and the bed forming part of the same suite, filled the main bedroom uncomfortably. Even more crowded was the similar furniture, taken from the villa guest-room and now crammed into the second bedroom, a room measuring 8 ft. wide by 12 ft. 6 ins long, neither dimension readily accepting a double bed of the old-fashined kind. Matters were made worse in both rooms by other furniture for which no space had been found anywhere else. Thus in the second bedroom the out-sized bed was jostled on one side by a piano, which it had not been possible to accommodate in the living room, and on the other by a bookcase, likewise excluded from the living room, which this bed
pinned against the wall. The living room was almost filled with a large sideboard and a full-size dining room table with six chairs, leaving only a small amount of space for two armchairs and a radio-cabinet. The effect was similar to those encountered in flats in Italy. The kitchen, with its cooker, sink, small worktable and two chairs, even with its refrigerator well accommodated in a corner, seemed the most comfortable room in the house. It was with no surprise that the writer learnt that meals were taken here, as in Italian examples cited, and that ease of working in this kitchen, together with the good supply of hot water and sensible bathroom arrangements as compared with those left behind in the villa, were the things that made the new existence in such a flat worthwhile. But the suggestion made to the wife by the writer of this thesis, that a few of the old pieces of furniture be disposed of to make more living space available, was received with the remark "Pas possible; c’était ma vie....". Memories were too precious and space and convenience were by comparison expendable.

These were not among tenants who complained about the noisy bathroom block, nor about the balcony. The latter, although east-facing, was much used for sitting out in hot weather and was preferred in this position to one facing west and therefore, it was argued, too sunny and hot (despite shutters) to be of the same use. Suddenly France seemed to be a southern country and the writer was reminded of similar sentiments expressed about the sun-shaded streets of the Tuscolano patio-house development in Rome described in Chapter 4. Being in a ground-floor flat, too, there was a pleasant illusion that balcony and greensward outside, though not in communication, were continuous. This, it was remarked, helped
to compensate for the loss of the villa garden.

Another compensation was ease of shopping and safety from motor traffic. For all this the old people were thankful and full of praise for the layout, which, with the healthy site high above the river, had been their reason for buying the flat. This they had done without recourse to mortgage arrangements. They were lonely, had not yet made friends with anyone at Marly, but were accustomed to such a state of things since their grown-up family had left home some years earlier.

The 5-room flat, west-facing, was occupied by an army major, his wife and three children who, on appointment to a N.A.T.O. command group, had moved here from married quarters which had been more commodious but less practically arranged. Furniture was all new and whether by accident or design, it was in scale with the various dimensions of rooms, even with window divisions. The elder child, a boy of seven, occupied the second bedroom; two younger children, girl and boy, occupied the third. When they grew to an age requiring segregation the boy would have to be moved in beside his elder brother leaving the girl to have a room by herself. This would be an unpopular move, but the military life contained greater uncertainties, and it was this family's habit that problems were solved when encountered rather than before. Meanwhile the family and its possessions fitted into its available space. The only complaint was lack of built-in storage, for here, as at Nantes, the proposed arrangement of cupboards and hanging-space, indicated on the plans as extending along the rear wall of the living room and occupying a recess in the bedroom passage, had not been built. It was complained that the development company were exploiting permitted costs to limit such provision even when it was part of a seller's
contract with a buyer, and there was a legal argument in progress. The major thought, too, that finishes were poor and he had a long list of defects which he was trying to force the development company to make good. These were mostly the result of hasty joinery and rough plasterwork. They did not extend to plumbing or to electricity, although it was also a complaint that householders had no control over the central heating, which in cold weather sometimes needed topping-up with electric fires.

Heating is by hot water in the form of radiant panels, 1/3 of it in the floors, 2/3 in the ceilings, with an increase in the density of pipe coils along the exterior walls in order to counteract heat loss from the glazing. Glazing is single, with sliding sun-shutters, but wall panels, of prefabricated concrete, are a multiple-layer assembly containing fibreglass and also a continuous air space.

The living room, having a completely glazed wall between it and the balcony, suffers the greatest heat loss, and it is probable that the major’s complaint about that room is well founded. Other inhabitants, who were interviewed without detailed inspection of their flats, confirmed that this room is cold. It seems a case for double-glazing, a practice which France, not being all of it a southern country, might well adopt from the northern countries, such as Denmark, where heat-loss of this kind is taken seriously.

The major’s arrangement of living room furniture was both skilful and directly dictated by the plan. Dining space and sitting space were well defined, and there was an absence of the clutter noticed in the other flat visited, and noticed too in others which were glimpsed but not inspected and recorded. The children’s disorder of toys in the living room
was recorded on a photograph as a feature which in time might become annoying to adults and pose the question of a second living room. This is something that French housing standards have not yet faced, but which, as was observed at Nantes, people are ready to create when space, such as the nondescript central core there, is provided.

3. NANTES: LA MAISON RADIEUSE

For the writer, this was possibly the most interesting case study of all those undertaken. That was partly because of its character and that of its architect, but partly that here, thanks to the Centre National de la Recherche Scientifique, the writer found himself, for once, armed with comprehensive social survey data to give him findings of a fully objective kind. Thus, in this case study it is possible to quote percentage replies to set questions, instead of the more random and subjective assessment of householders' opinions and reactions with which, necessarily, the rest of the study had to be content.

It was salutary, however, in the encouraging sense, to find that the writer's own methods of interviewing and recording, and his assessments, produced results easy to integrate with those of the French team. Since this also occurred at Prestonpans, with the same kind of integration, he feels that his method and skills have passed muster, even if most case professional studies were carried out without any kind of team assistance.

The French sociologists' description of the design, written from the point of view of people seeing this kind of modern architecture for the first time, is worth translating and quoting:

"The unité follows functionalistic principles of a very strict kind. They derive from the basic idea of separating freely-designed spaces while developing in height a group of dwellings forming a viable social unit.
"It has the dimensions of a large village. Inside there are collective facilities in number still limited, but which indicate initial possibilities for an active social life.

"Everything is designed to facilitate simultaneously possible contacts between households and complete independence for those who want to protect their freedom. Consequently there is complete sound insulation of dwellings, arranged so as to be complete little independent houses, and the arrangement of interior streets allows those inhabitants who prefer that to stay by themselves, to circulate without getting together with anyone.

"This is in contrast with the usual French development, which is conceived as a group of smaller blocks and of little houses (pavillons). In such developments it is not a question of building high to liberate open space, but of an intimate liaison between natural elements and dwellings of dimensions relatively reduced. Social life is envisaged in groupings corresponding to different kinds of architectural group, each facilitated by the arrangement of buildings. The intention is to allow people to live by themselves or as part of a group, but with entirely different kinds of accommodation.

"The originality of the Maison Radieuse lies in its grouping of a big number of similar dwellings in one block. It reconciles the principle of vertical grouping with that of the horizontal."

Their survey embraced more than the provision and use of space. It took in family budgets, size of families, the functions within the family of father, mother and children, the teenage problem, and the degrees to which life in the unité and its surroundings is collective. In all these subjects of study it took note of class differences and how they affected behaviour, using three income groups: ouvriers, employés, intermédiaires, translatable as unskilled workers, skilled workers and the lower professional class, which in France forms a clearly distinct stratum. It was noted that La Maison Radieuse had a greater proportion of lower income groups than other developments studied by the same team and suggested that in some respects this would tell against it. On the other hand it was accepted that this made it a "dwelling of the people", since the administrators had "played
the game through to the end" and not allowed an invasion from house-
hunting upper income groups, at least not on a significant scale.

As regards the provision and use of space, the French survey is largely content with generalities while occasionally noting certain detail. For this reason the present additional survey, by the writer of this thesis, addressed itself particularly to detail, in the sample dwellings studied. There are drawn to $\frac{1}{4}$" scale in the usual way. The only scale drawings in the French study are diagramatic, designed to show the arrangement of dwellings interlocking on one and two floors round the internal streets, familiar to architects since the publication of plans and sections in the 1952-57 volume of Corbusier's Oeuvre Complete, from which they are also reproduced with the case study material both for ease of reference and to illustrate points not made in the text of that volume.

While the general architectural arrangement of dwellings and accesses, and of specialised accommodation such as the nursery school, is clear from these plans and sections, the particular arrangements of dwelling types and sizes have to be studied on the plans and elevations, and it may be helpful to give the mixture of types in the form of a table:

<table>
<thead>
<tr>
<th>Types of dwelling by rooms</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers of types included</td>
<td>29</td>
<td>45</td>
<td>15</td>
<td>188</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Floor areas in sq. ft.</td>
<td>248</td>
<td>550</td>
<td>702</td>
<td>918</td>
<td>1036</td>
<td>1155</td>
</tr>
</tbody>
</table>

The preponderance of the 4-room dwelling, which, according the national standard (H, L, M,) is for families of 5, reflects on the one hand an acceptance of the need to break with a past in which, as experience had
shown, the 2 and 3-room dwelling had tended to develop overcrowding, and, on the other hand, a rising standard of living, particularly among workers.

Examining family sizes at Nantes, the French team set up the following table:

<table>
<thead>
<tr>
<th>Family sizes in numbers of children</th>
<th>0 (Single persons)</th>
<th>0 (Couples)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5/6</th>
<th>7 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of each at Maison Radieuse</td>
<td>6.2</td>
<td>14.1</td>
<td>18.2</td>
<td>28.2</td>
<td>18.5</td>
<td>8.9</td>
<td>5.5</td>
<td>0.3</td>
</tr>
<tr>
<td>% of each for City of Nantes</td>
<td>50.2</td>
<td>20</td>
<td>15.3</td>
<td>8.1</td>
<td>3.7</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since over 60% of the families in the unit have 2 children or more, the inference seems to be that the 68% of dwellings of 4 rooms and over will provide a reservoir of unused space. In fact there has been a certain undercrowding of these dwellings, but this is because some lower income families who entered as childless couples or couples with one child have decided to continue to live in 1, 2, or 3-room dwellings after their family numbers had increased. Some of these smaller dwellings, therefore, are overcrowded, but that is thought to be a matter for economic and cultural development which will correct itself through time. On the other hand the team recorded enough interviews with labouring families having different numbers of children to show that this class still generally disagree with the national standard of overcrowding. For example, whereas a 4-room dwelling is officially overcrowded if it contains more than 5 people, families of unskilled workers tend not to want extra space until the number exceeds 6.
The present writer considered that little would be gained by searching out further data of that kind, and decided instead to study the more normal kinds of occupancy, as exemplified here by the middle and upper income groups represented. He also noticed that the French team, having commented on the likeness in size between the unité and a large village, had not searched out the presence of that well known institution in the smaller provincial communities, la grande famille: more than one generation of the same family living deliberately in proximity.

It was decided, therefore, to find, if possible, an example of such a family group living in the unité and study how the different generations used their dwellings, how they managed their internal and external relationships, and to hear their account of the relationships of the income groups. This, it was felt, would be a good way of measuring the effect of the unité as a social unit of the village-like scale.

Accordingly two dwellings were identified, one occupied by a young family of husband, wife and two children, with the wife's widowed mother occupying one room, and the other occupied by the husband's father and mother and younger brother. Both households fell within the intermediaire category. The young husband (35) was a primary school teacher, his wife (28) and mother-in-law (47) office workers, and his father (64) a retired municipal official trained as a lawyer. The younger brother (18) was at secondary school. The two children were a boy of 8 and a girl of 6.

The visit was timed for the déjeuner break of two hours, when it was thought that the whole unité would be in its most active state. This turned out to be the case. On arrival the car park was found to be reaching saturation point and streams of inhabitants were making their way into the
building. Thus was possible a brief study of communications in which it was found that a suspected overcrowding of elevators did not occur. With some people living on the lower floors using the stairs, there was little waiting for elevators and little congestion anywhere. The internal streets, with their shaded lights at the doorways and their subdued colours, had a nighttime effect in which people arriving home carrying parcels of food, including characteristic long loaves, looked as if they were arriving for supper, not lunch. It was a quiet scene without, it seemed, much greeting or talk. It did not seem that here was a community of people who all knew one another.

The first dwelling visited, that of the young family, was on the west facade of the building, and had its kitchen and pièce de séjour on its upper floor overlooking but not entering the west loggia, with bedrooms on the floor below together with loggias, east and west.

The dwelling occupied by the parents-in-law, was on the opposite side of the building and of the other type, with kitchen, pièce de séjour and loggia on its lower floor, and its bedrooms above. This is known locally as the appartement montant, the other as the appartement descendant.

Of the informal manner of entry, which, in either kind of dwelling is into the pièce de séjour past the little open-plan kitchen with its room-divider fitment, the French sociologists record a 74% vote that it is inconvenient, 16% that it is convenient, 10% neutral. It is of interest to note how the income groups voted in this matter:
It seems that the lower income groups object less to the informality than do the higher. At the same time it must be remarked that none of the people spoken to by the present writer complained of the arrangement, and they were of the upper income group.

A possible subject of complaint might have been the smallness of the kitchen, 36 sq. ft. as compared with the more normal 75 sq. ft., and the French sociologists report only a 32% vote approving this size. But since the present writer's inspection was at the hour of déjeuner he had the best possible opportunity to observe the operation of preparing and serving this meal, and how the space arrangement worked, both for these purposes and for the siesta afterwards. Here it is appropriate on the basis of observation made in all the French case studies, to remark upon the neat kitchen habits of the French housewife, contrary to general belief. Not only does she cut up and prepare her food cleanly but she avoids the clutter of containers and parcels of various kinds which were observed in Denmark, in Germany and still more so in Scotland. There are of course variations and exceptions, but in the two cases observed at Nantes, this neatness resulted in the preparation of the meal wholly within the kitchen without expanding operations to the dining table. It was also noticed that the

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<td>Total Vote</td>
<td>16</td>
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<td>Unskilled workers</td>
<td>12</td>
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ventilation worked well: even a savoury fry did not pervade the air in
the space beyond the standing fitment. As in Italy, shopping seems to
be restricted to one or two meals at a time and less food is stored in the
dwelling than in the other three countries. The larder is listed among
H. L. M. and L. E. F. requirements but not specified in size, as it is in
Scotland.

The serving of the meal in both cases involved no tablecloth,
and storage of the crockery and cutlery had been managed within the
standing fitment, supplemented in the case of the older family by a
sideboard. When it had been eaten the washing-up was quickly done and
chairs were re-arranged for conversation with the window as focus. In
the case of the older family the loggia door was opened and the outdoor
space treated as though it belonged to the indoor. This was a very
pleasant experience of the application of a modern architectural principle,
and suggested that in one respect, at least, the montants dwellings at
Nantes were to be preferred to the descendants, where the loggia is not
available for this purpose.

The kitchen includes a delivery hatch from the street, a great
convenience for the working housewife. Cooking is by gas, with a small
oven and three rings, and fumes are drawn by hood and duct into the adjacent
service stack, access to which is available through panels opening to the
street. Kitchen work of any degree of intricacy has to be artificially lit
even when sunshine is strong, and it seemed that the penetration of daylight
into the core of this type of building could be improved by relatively small
alterations in dimensions, and possibly also in finishes. The famous rough
finishes, although productive of good acoustics - an important matter in a dwelling with an open plan - are unpopular. Neither of the families visited liked them and the French sociologists reported universal dislike. On the other hand the smooth black plastic floors also have an adverse effect on daylighting and are not widely acceptable. They are said to call for the use of a mechanical floor polisher (*cireuse*) which, nevertheless, only a few tenants have obtained or hired, and to some they suggest both difficult maintenance and engrained dirt: "*c'est une vraie saleté ça fait trop d'entretien*".

In general, it appears that the plan of kitchen and *salon* is approved. Characteristic comments, "*c'est beaucoup plus pratique*" and "*cela évite de faire du ménage dans le salon*" illustrate the common sense approach, but the French sociologists report that 76% of tenants said that they ate in the *salon* because the kitchen is too small to eat in, only 14% because it is "*plus agréable*".

Of the two families visited by the present writer, both praised the arrangement. Both had made good furnishing arrangements, although in the older family's case a two-storey sideboard had the effect of narrowing the dining space and, with the adjacent commode, crowding the available sitting space. Avoiding such narrowing and crowding, the younger family get more out of the available space for all its functions, even though they had no *loggia* access.

Neither the French sociologists nor the present writer found much consciousness of a three-fold division of cooking space, eating space and sitting space, and of the architect's name for it all, *salle commune*, there was no mention, nor have the furniture plans more than a rudimentary
relation to his. In particular, the use of the bedroom in the younger family's house, the belle-mère occupying Bedroom 1 and the parents making do with Bedroom 2, upsets the designed arrangement. The belle-mère, too, with her heavy old furniture, did not seem to be getting the best out of her allotted space. It was curious, to see that the loggia opening from her room was filled with a clothes-drying rack, with adjacent washing in a tub, and not used for sitting out. A solitary plant in a pot did nothing to redeem this utilitarian arrangement, while the other loggia contained the young father's hobby bench. All this contrasted with the beautifully arranged garden-like loggia made by the older couple, who also kept plants in their second loggia outside the bedrooms.

The sliding partition between Bedrooms 2 and 3 seems to supply a partial solution of the problem of children, particularly teenagers, sharing or not sharing a bedroom. About this the French team produced some findings. First, that there is a difference of approach between the sexes. Teenage sisters on the whole prefer to share a larger room with each other whereas brothers want a small room each. Where there is a brother and a sister, there are obvious reasons for separation, yet companionship suffers. In both the dwellings visited, the partition was found slid back and we were told that this was its normal daytime position.

The large central core of unallocated space under or over the internal street, between bedroom 1 and bedroom 2 - 3, where are also the salle d'eau and W.C. arranged against a vertical plumbing duct, attracted the writer's attention, as it did that of the French team. This large space is called on the architect's plans salle de rangement, with storage fitments shown built against the walls, but to achieve economy during construction
these fitments were omitted, a step which led to general complaint by tenants about the lack of placards, as the French housewife calls her wall-cupboards, and the space thus acquired a certain shapelessness and apparent lack of purpose. The French team reported that it is nevertheless used mostly for storage when not made an extra bedroom and in the two dwellings visited by the present writer the missing fittings had been supplied by handyman methods both to provide hanging space for clothes and space for trunks and other heavy and bulky gear. In the case of the older family one side of the space had been made into a small library with bookshelves and table, a distinct improvement on the architect’s plan, having regard to the limited storage needs of an elderly couple. The accident of an administrative decision has led, therefore, to interesting results in the realm of tenant’s own freedom to create his own accommodation within a structural space supplied. Here was an interesting repetition of the Samuel Pepys installation referred to in Chapter 3.

The French team discovered examples of dwellings occupied by lower income groups where the salle de rangement had been made into an extra bedroom, in defiance of regulations, both those of the local authority and those of the co-operative. This possibility, it was acknowledged, made it difficult to apply the overcrowding standard as directly as could be done to other housing.

It was found by the French team that the W.C. and salle d’eau were generally accepted as efficient and convenient, including the raised coaming at the door which (said the housewives) helped to keep the floor clean outside. This salle d’eau is not the separate space for rough washing and laundering seen at Drancy but a washing place combined with wash-basin
and shower, as laid down in the 1953 H.L.M. standard. Some tenants complain that the simple arrangement which allows the shower to discharge over the whole floor, without a receptacle of any kind, is crude. Some complain about the absence of a bath, which is of assistance in washing clothes besides its main function, and the housewife of the young family visited was found to be soaking clothes in an old fashioned wooden tub, out on a loggia.

There is on the other hand an arrangement between the co-operative and a Nantes wholesaler for the hire of domestic machinery, and a number of tenants have hired washing machines. These stand in various positions in the salle de rangement since the salle d'eau in its damp laden nature is unsuitable for electrical machinery having contacts exposed to the air. The alcove behind the W.C. is a satisfactory place for those makes of machine to stand which have to be coupled to the plumbing system. There is some complaint that it cannot be placed in the kitchen, which is too small for such additional gear.

In the course of the present study in France, the common size of the salle d'eau appears to vary between about 20 sq. ft. and 70 sq. ft. At La Maison Radicuse it measures 30.5 sq. ft. and as regards size it appears to satisfy. The French report says that 41% of tenants interviewed felt it was large enough, but it seemed to the present writer that the plentiful spare space round it has to do with this reply.

The French report mentions that tenants were heavily in favour of the arrangement of hiring washing machines and installing them in the dwellings, preferring this to any possible arrangement of a communal laundry. "Je ne suis pas sociale", said one, "la machine à laver personelle".
est préférable". That agrees with replies about this received by the writer in all the countries, and the matter is taken into the conclusions in Chapter 9.

Hot water is heated by gas within each dwelling and there is general satisfaction with it. Space heating is by hot water pipes embedded in the floors and with it too there is satisfaction, except on the lowest floor where heat losses downwards to the open air of the pilotes are serious enough to reduce temperatures below comfortable levels in winter. This did not affect the two households visited by the writer, whose dwellings were on upper floors of the building, the one entered from street four and the other from street five.

Separation by one street was fortuitous. It had been a matter of taking dwellings which were available, and had nothing to do with the planning of an existence en grande famille.

The significance of this grande famille was explained very simply. The older couple had retired and decided to live near their young people, at the same time thinking that it would be opportune to reduce housekeeping both in scope and cost. During most of their life they had lived in a villa. It had become burdensome, the garden too big, and the whole menage too expensive. They had been attracted by the combination of collectivity and privacy promised in the design of the unite and had applied for a tenancy at the same time as their son and his wife. It was agreed that they would help the younger menage by providing meals from time to time, including the customary and regular Sunday dinner, and they would provide a sitter-in service jointly with the wife's mother.

She was in less satisfactory circumstances and went out to work in Nantes as a secretary, but it was agreed that the two households together
supplied enough space for her to move in with the young couple. It was understood that in the event of illness the children could be accommodated by the older couple, who, it was also agreed, would continue to house their own younger son.

A visit of this kind provided too little data to judge the success or otherwise of this whole arrangement. It seemed possible that the belle-mère was from time to time a problem. But there was no doubt that the traditionally close relationship between the generations of a family had found that the unité arrangements could fit round it, and, indeed, that they were capable of giving the different generations a feeling of home.

Of this aspect of social relationships the French report says little. It does not discover the existence of this or any other grande famille among the 291 households, but it presents the results of a questionnaire which enquired generally about relations of young families with their parents, wherever the latter might be living, and more particularly about how often they saw each other, having regard to the existence of the block of guest-bedrooms in the unité. 45% saw their parents neither less nor more frequently than they did before they moved in. 35% saw them less. 16% saw them more frequently. 4% had no reply. Replies took account of increased or reduced distance. 10 families had adapted themselves to increased distance. 10, on the other hand, found that thanks to the bedroom block, they could now accommodate their parents on visits, and, of these, 2 families found that longer duration of visits made up for their now being fewer.

Some commented that the further away their parents lived the better;
"moins on se voit, mieux cela vaut". Others said the opposite; "on préfère se rapprocher". Again others gave reasons for proximity "par affection", "pour l'entraide", as in the case of the example which the present writer uncovered.

The French sociologists paid more attention to the other social relationships: to what extent has the unité become a neighbourhood?

Of this they say first of all that those who have come from a distance and are without local ties are the most willing to participate in the life of the place. It was remarked by many that "on peut si l'on veut se faire rapidement des amis". Of people asked individually whether they were pleased or not with the extent of their friendships with other inhabitants 27% said yes; 13% thought on the whole, yes; 38%, without regret, said no; and 22% were unable to say. Women going out to work had difficulty in making friends with other women who stayed at home, but were on the whole not sorry. Men and women having this difficulty shrugged it off: "si on voulait on s'en ferait" (des amis). "je ne sais pas pour me jeter a la tête des gens". Significantly some quoted the proverbial provincial impression of the Parisians: "on vit a la parisiennne, chacun pour soi".

Of the role played by different members of the family in getting known to other inhabitants, the French sociologists reported that in 33% of cases studied it was the mother who most easily got known, in 27% the children under 15, in 25% the father, in 8% the children over 15 (who in any case are a small minority). Whether or not they went out to work, women had the best opportunities of meeting others. They must do so while shopping; again they must do so when taking their children to the
nursery school on the roof, and in looking after their children playing up there or on the ground.

Of the mixture of income-groups it was noticed that the upper income-groups tend to congregate on the upper floors. The fourth and sixth streets are virtually middle-class. And everything points to the acceptance of like social status as a condition of establishing friendships, as distinct, however, from the kind of neighbourliness which brings about the mutual assistance covered by the word *entreaide* which, says the report, is an often repeated description of neighbourly relations with the people next door or opposite, whatever the relative social status.

In this whole matter, the deliberate creation of anonymity in the dimly-lit streets, coupled with the utter privacy of the dwellings, including their completely sound-proof separation, tend to discourage people from knowing one another and the report seems to conclude that this is on the whole the right arrangement. People who want to know one another can achieve this, but they are not thrown at each other even if only a wall separates them. Both families visited by the present writer were emphatic that conditions were exactly right. They said that life in the normal block of flats was vitiated by everyone knowing everyone else, by the gossip (*les histoires, les cancans*) and quarrels, which got worse and worse through lack of privacy. They added the interesting comment, which may throw light on the sociologists' figures, that of the original tenants a number have left who did not like the conditions and those who now live there are the ones to whom it is all more or less congenial. It might be that further inquiry, after a lapse of years, will show that among housing developments at Nantes this becomes a refuge for the discreet, even for the
introverted.

Of the space provided out of doors, there is great landscape beauty in the treatment of the pond, allowed as it is to pass under one end of the building, but it is regarded by mothers of young children as a hazard although no drowning accidents are yet recorded. The bridge has become a social feature, a meeting place, and the informal parkland which is gradually developing is an excellent wild playground for children, who, on the other hand, are seldom to be found on the roof, which is too windy, and only in small numbers in the defined playspace on the ground. The careful retention of existing trees, it was noticed, has the value of breaking the wind besides its landscape value.

The car park for 60 cars, enlarged from a smaller area which accommodated 36 is again too small, and will have to be enlarged as the scale of car-ownership approaches one car per household. This will have an adverse affect on the parkland concept, unless more land is taken into the scheme. It would seem that this, or else car storage on more than one level, will become necessary. Already, as the case study has shown, more than one member of each family travels to work in Nantes which is 20 minutes off by motor vehicle. It is reached by a half-hourly bus service, quarter-hourly at peak periods of the day, the infrequent trains to Reze being of little use, but the writer's impression is that unless the bus is made more comfortable for such commuter travel, more and more people will use cars as soon as they can afford them, and the car-owning figures will rise above the rate of one per household. In the countries visited, France and Italy were found to have the least comfortable buses.
Germany by far the most comfortable, with Scotland next and Denmark third. This is a factor which, together with whatever is done by town planning to encourage or discourage the use of cars for commuting, will have a major bearing on the car-storage problem. At Nantes, the solution seems to be undecided all round, and the bus company drives on with its squalid, grossly overcrowded old vehicles.

4. SELLE-SUR-CHER

Following the analysis of Marly and Nantes, with their emphasis on the scale of the big block set in a big landscape, it was felt that a search should be made for some recent French housing in which there had been a return to the tradition of Toni Garnier of the small block in a setting of intimacy. Of comparatively few which still follow this tradition, which can also be described as consisting of medium density but low-rise building, a development was selected for study at Selle-sur-Cher, built in 1955 to L. E. F. standards. Exclusively for manual workers, it is of the patriarchal kind where an industrial interest builds houses for its employees. Thanks to the system of state loans, this form of building is as much encouraged as that of the co-operatives and the credit societies, with one of which the developer, Produit Céramique de Couraine, makers of sanitary fittings, established financial arrangements. The factory remains the owner, and the workers occupy houses as tenants, rent and taxes being the subject of an arrangement involving also the unemployment and health insurance contributions. It was reported to the writer, but not separately investigated, that the lead in this form of development since 1946 had been taken both by the state itself for its own employees, undertaken by the civil service department, Service des Domaines, and by state-controlled industry, such
as the management of Renault Motors, Régie Nationale des usines Renault.
The administration of the Monnet Plan had encouraged combinations of expenditure on factory development with development of factory workers' housing, and this had continued to be government policy.

The layout at Selle-sur-Cher, at a density of 15 houses per acre, consists of a series of blocks of single-storey terraced houses with tiny entrance patios grouped round a kind of village green. There are lock-up garages in separate blocks on a scale of one per dwelling and traffic is directed along roads running at right angles to the terraces. Lanes, capable of accommodating wheeled traffic but intended principally as pedestrian ways, run along the fronts of the terraces, each having on its opposite side the rear accesses to the back gardens of the adjacent terrace. Close to each rear access is a shed to serve as a tool-store and for general purposes, for it is part of the design that gardens should be cultivated. In addition to this, each entrance patio has a store for household gear, hobby tools and bicycles.

Accommodation ranges from single-bedroom to two and three-bedroom dwellings, but here the chance was taken to examine the minimum standard, a single-bedroom dwelling occupied by a labourer, his wife and one child. This was in a terrace of similar dwellings. Kitchen and bathroom, with separate W.C., extend along the entrance front facing north, while living room and bedroom face south into the garden. Kitchen and living room are open to one another, but there is a closed hallway and hall cupboard, designed to give privacy to the entrance and also to separate the bathroom and W.C. from the rest of the dwelling.

The kitchen contains a solid fuel cooker which also supplies hot
water and there are two flues, one available for the attachment of a
space-heating stove, if required, in the living room. Attention was
drawn to the method of chimney sweeping, done once a year, by means
of an opening in the wall closed by a special fireclay block held in position
by weak lime mortar. After cleaning, this block is mortared back into
position.

Bathroom equipment consisted of wash-basin, shower-bath and
bidet, all of excellent quality. But this was partly explained by the
nature of the factory.

It was interesting to observe that, even in a house of such restricted
floor area, two dining tables were in use, one of elegant polished wood
in the centre of the main living room and one of a more utility kind, at
the entrance to the kitchen, covered with oil-cloth. There was a refrig¬
erator and a radio but no comfortable chairs and the bedroom contained
nothing but the parents' bed, a child's bed and a wardrobe. The living
room table, though not used for feeding, was clearly in use for other
purposes: at the moment of the writer's visit it was being used for ironing
and the housewife explained that the smaller table was unsuitable for this,
both because of possible food stains and because of its restricted size.
The family was only semi-literate, a fact discovered by noticing that
there were no papers or magazines lying about, and confirmed in conver¬
sation. The only child's toy seen was a doll, seated at the head of the
child's bed.

The garage allotted to this house was used for extra fuel storage,
mainly forestry waste. It was explained that despite lavish provision of
garages few of the tenants had cars, but, on the other hand, the garages
provided welcome extra general storage space, allowing the shed at the foot of the garden to be used only for garden tools and the store by the front door for the immediately available fuel, for bicycles and hobby tools.

Gardening was being done on an impressive scale, a fact partly explained by evidence that, although now described as factory workers, most tenants were of farm-labouring stock. They had become unemployed through farm mechanisation (this was surprising, for farms in this region seemed to be run still on a relatively primitive basis), and had turned to industrial employment when the present factory, migrating from city conditions, had come to Selle.

It was interesting that some of the houses were provided with an outdoor cooking range in the entrance patio but we did not see any of these in use. It was noticed that, despite zealous gardening, comparatively little attempt had been made to obtain privacy through planting between the gardens and as we walked through house and garden we were watched across the garden fences by curious neighbours quite a number of houses distant. Clothes-drying, probably intended to be screened by garden planting, was very visible everywhere in the back gardens. The garden sheds were of interesting construction with fireclay units introduced as ventilation, forming at the same time a pleasant wall pattern. The kind of screening intended between gardens is well illustrated by a picture taken at Dijon in a development otherwise quite different, and this is appended to the case study material.

Tenants interviewed were emphatic that life in a house of this kind was to be preferred to living in a flat which would be their lot if they were to move to one or other of the nearby industrial towns, such as Dijon,
as many redundant farm workers had been forced to do. The little terrace houses, they said, were "almost as good as villas".

5. CLAMECY DE LA NIEVRE

A villa development for tenants of artisan standing was inspected at this small town, which is a growth point for industry associated with agriculture. The development lies on the outskirts and is the work of a co-operative society, building to H. L. M. standards but adopting this form of development in some opposition to the municipal H. L. M. office, which deals only in flatted forms.

This is a layout in which the houses follow contours along a southerly slope with entrances to the north and living rooms to the south, the fall being used to create cellar-space and garaging in the underbuilding, assisted by excavation. Thus the houses follow the historic form of the villa plan and also conform with the space-saving arrangement of entrance and utility rooms found at Selle-sur-Cher and in other places where the conventional back door is dispensed with. Re-appearing in mid-20th century, this house-type, distilled to minimum dimensions from the luxurious scale of its Renaissance prototype, seems to have the effect, here at Clamecy and elsewhere, of satisfying with a minimum of fuss the space requirements of the modern small house and also the basic pattern of family activity of the modern middle-class or artisan household.

The occupants at Clamecy are lower middle-class and artisan, mainly country folk attracted to this kind of housing because of the garden space provided. Gardens were found to be well cultivated, chiefly for vegetables which were growing both in front and rear well up to prize-winning standards. It was explained that they were essential to the family
budget and there was no room for more than a very few flowers. Trees and shrubs were wholly absent, with unfortunate and naked exposure of the concrete fences which in this development divide the properties. In many gardens clothes were drying in front gardens close to the road: to this additional unsightliness nobody seemed to object, nor to the usual display of bedclothes airing on window cills.

One house was visited and a plan is included in the case study material. An entrance hall leads past a kitchen on the one side and a bathroom with separate W.C. on the other, into the séjour which is designed so that it can be used in conjunction with the kitchen or with another adjacent room, also possible to use as a bedroom and shown as such on the architect's plan. Two other bedrooms complete the arrangement, the larger intended as the master bedroom but used in this example for two children, the parents being content with the smaller room. The kitchen has room for a dining table and the occupants said that all meals were taken there, the table being capable of expansion to seat six. This did not inhibit another dining table with chairs from occupying the centre of the séjour, used for the accustomed variety of purposes: ironing, sewing, homework, writing. The architect's plan showed tables in both places, accepting this inevitable arrangement, but his were of different sizes, that in the kitchen being intended only for minor meals and that in the séjour placed so as to allow a group of arm chairs to be grouped round a stove. There was provision for a sideboard placed against the end wall of the room where it helped to leave the maximum clear space for sitting, but the occupants had placed their sideboard on the side wall where it most obstructed. The explanation given was that this
kind of furnishing was the more elegant, and that it consisted of wedding presents from parents and grandparents whom, moreover, it would offend if such valuable pieces were exchanged for tawdry modern furniture de nulle valeur. It was all solidly built, in a taste belonging to the 1930's.

The séjour was intended to have a fixed stove or fireplace entering a chimney provided in the gable, but in this and other houses there stood a portable butane-gas stove of neat modern design containing its own gas cylinder. The attraction of this heating method, it was explained, lay in its cleanliness and efficiency, no heat being wasted in a flue or into the gable structure. Since electricity is considered too dear to use for heating, the alternative would be to burn wood, since this part of France has no coal, and that would be both expensive and space-wasting. Hot water is likewise supplied by butane-gas and this is the fuel too for cooking. Thus three gas cylinders have to be kept supplied: one in the séjour stove, one in the kitchen cooker, which also supplies hot water to the adjacent sink, and one beside the bathroom in a cupboard, supplying the wash-basin and shower.

The sanitary equipment in this case did not include a bidet, and it was interesting, if unexplained, that the lower part of the bathroom walls remained painted while the upper walls were tiled. True to the elder tradition of the salle d'eau, the shower was fitted so that it could be used, with its trough, for clothes washing. A wet waterproof bathing cap hung on a tap was proof that it was in use too for its more straightforward purpose. The kitchen sink was the usual combination of sink and single drainer carried out in vitreous china. There seemed to be a lack of storage furniture both in the kitchen and elsewhere, yet during the
visit it was noticed that a \textit{déjeuner} involving three pans of prepared food was cooking, and there was no mess of any kind left on the kitchen table or at the sink. As noticed at the \textit{Maison Radieuse} at Nantes, in general the French housewife has kitchen habits considerably neater than those of the other countries, and so gives her architect a less severe test of his kitchen working arrangements.

It was noticed that while money had been saved on built-in furniture, finishes were good. There was a kitchen floor of good-quality thermoplastic tiles and elsewhere strong linoleum. Under the table in the \textit{sejour} was a cheap and not very beautiful carpet. Asked about floor finishes, the housewife said that with serious gardening in progress, more or less all the year round, it was essential to have floors easy to clean. She also explained that, although the front entrance was arranged to help towards keeping the rest of the house clean, her husband often used the French window (\textit{la croisée}) for getting in and out of the garden and she did not want to discourage him by insisting on his coming round each time by the front of the house.

It was observed that the garages under these houses were seldom used for cars, but, as at Selle and other places, for storage and as tool cellars, covering a great miscellany of objects. Here, too, was one of the instances where pet animals were being bred, outside one garage a battery of home-made rabbit hutches stood neatly and in such good alignment that they did not create the squalid and untidy look which such things usually do. A case study photograph shows this structure, and there is likewise a garage interior.

It was thought appropriate to examine two other types of modern
French housing: the terrace house on two floors and the maisonette (apart from the rather special maissonettes at Nantes). An example of each of these was studied in the context of investigating the reconstructions in Normandy resulting from war damage. The terrace house scheme selected is at St. Lô-Agneaux, designed by a young local architect, Traverse. The example of maissonettes chosen is at Villedieu, designed by Raymond Merlet, a well established general practitioner who has his office at Vaucresson.

6. ST. LÔ-AGNEAUX.

The terrace houses at St. Lô-Agneaux are a "Radburn" development in which entrance to the houses is from a pedestrian court while garages, built into the houses, disgorge into short cul-de-sac roads between the blocks. In plan, the houses owe something to experiments with the terrace house in post-war Britain. There is an entrance hall from which a stair rises to an upper floor of three bedrooms with a bathroom, the bathroom being placed over the kitchen which is at the back of the house in line with the stair. To the right of the stair in front is a living room and behind it the garage which in France is allowed to be entered from the house and advantage is taken of this to enter it from the kitchen. An interesting feature of the kitchen arrangement is a small wash place consisting of a sink or tub built of concrete with a sloping front usable as a scrubbing board, the whole built into a recess. To use it the housewife stands in the garage and thus relieves the kitchen of the mess involved in washing clothes, and the arrangement allows the tub and its gear, with the hot water supplied, to be used for car washing. It was noticed that the garage was of generous size and that one wall was used for the storage of wine bottles, both empty and full. The household visited owned a car as did most of the others in the
same block of houses so that in this case the garage was also used for its correct purpose, for car storage.

English derivation was acknowledged by tenants who were aware that they were living in houses "du type anglais". There was laughter about this, being a pun on the saying which associates les anglais with creditors and this, it was thought, was appropriate too since over them all hung the dread of not keeping up their payments to the société.

The kitchen contained the usual sink with drainer, constructed of vitreous china and there was a four-ring gas cooker using butane gas, a refrigerator and a Bendix washing machine. The housewife was asked, if, having bought a Bendix, she still used the traditional washtub. Her reply was that she did on occasion but found it useful mostly in connection with scrubbing floors, washing the car and washing the mud off boots when her husband came home from outdoor work. He was a road surveyor and bringing home dirty clothes and boots would have caused her a problem if this coarse concrete washtub had not been there.

It was noticed that the living room had been intended by the architect to serve as a combined living room and dining room, the arrangement for dining consisting of the inner end of the living room separated from the kitchen by a folding plastic screen which opened directly into the kitchen. In the house visited this dual arrangement was not used, though the screen itself was in use for communication between kitchen and living room generally. As in other French houses visited, the whole living room was furnished for dining, with a large table occupying the centre, standing with its chairs on a rectangle of linoleum. There was the usual large sideboard and other chairs stood round the walls, Objects round the walls included a radio on a table,
a group of plants and the baby's perambulator.

Upstairs there was the arrangement, decreed both under H.L.M. and L.E.F. standards, of a separate W.C. and a bathroom containing the showerbath with hand-set, hot water being supplied by an electric storage heater. There were two built-in cupboards upstairs including one large enough to be called a box room and one large storage cupboard downstairs. In addition to these, three wardrobes were in use for a family consisting of husband, wife and two children. In this house was encountered the ornamental or symbolic feature last seen in Italy, the large doll settled in the centre of the matrimonial bed. In this bedroom was seen the only armchair in the house and also the only carpeting, in the form of two rugs. The doll was explained as an old custom which "helped childbearing", not specifically fertility, as in Italy, but this may have been a euphemistic way of expressing things. This was the most northerly place where the doll on the matrimonial bed was found, used seriously as a symbol. By contrast, one was seen in Scotland (at Peebles, in a house not forming a case study) where it was stated to have no significance but to have been brought home from Majorca.

This scheme at St. Lô is intended to be developed with various communal facilities and it has some communally supplied space heating in the form of a radiator in the living room and one in the hall serviced with hot water from a communal boilerhouse. The development of a shopping centre and other features is held up by lack of available land and money.

Though tenants were aware that the buildings were planned on English lines they had never heard of Radburn, thinking America built nothing but skyscrapers. They liked their house, found it pleasantly spacious. Asked if they did not feel that the living room would be better if it were
arranged in two parts, as the architect intended, one for dining and the other for sitting, they said that this would make their meals uncomfortable. They liked their big table, particularly on Sunday when grandparents came to share their dinner, which commonly lasted for about two hours and even when it was finished they often sat on at the table drinking coffee or wine. At other times the table was useful for sewing, for homework and her husband used it in the evening to sit and write his reports. The housewife thought it was much better to have a table in the middle of the room like this than to have it pushed away against a wall right at the back where there was no light.

Asked about the absence of armchairs except for the solitary example in the bedroom, the housewife explained that armchairs were for old people. There was very little time for sitting in them when life was active and she felt that when she was not standing in the kitchen cooking or looking after the children, it was quite good enough to sit on an ordinary chair at the table. Of the armchair in the bedroom, the explanation was full of smiles and references to the doll, and further discussion was not attempted.

There was the usually noticed absence of books in this house but plenty of magazines, in fact five. Two of them were women's magazines, two were news magazines and one a picture paper. There was enough to read in these, it was explained, with the morning and evening paper too. Occasionally paperback novels appeared but were not usually kept after they had been read.

Out of doors, in spite of the Radburn element in layout, there was little evidence of communal use of the space in front of the houses, even as a
children's playground. It was noticed too that little landscaping had been done. It was explained that there had been no money to carry out a planting plan with trees and grass which had been intended.

7 VILLEDIEU

The maisonettes at Villedieu were planned round a piazza, with entrances from the rear along balconies, and there were balconies also along the front, intended as sitting-out space. The plan of these maisonettes was reminiscent of the two-storeyed terrace housing at Ivrea in Italy and very similar in dimensions. It was noticed that the W.C. was provided in the entrance hall, not together with the bathroom upstairs, and the housewife in the maisonette visited praised this arrangement since, as she claimed, it was a place used a good deal by people either when they entered or left the house when it would be inconvenient to have to run upstairs. It will be remembered that there was a space for this arrangement at Ivrea but in the house visited there this space had been thrown into the kitchen to make it larger. Here at Villedieu the kitchen seemed to be just large enough, but, unlike Ivrea, there was no attempt to use it for feeding. This was done in the dining room entered conveniently and directly. The kitchen contained the usual sink-drainer of vitreous china with a butane gas heater under the sink supplying hot water. There was likewise a butane gas cooker with an oven and also a solid fuel central heating boiler discharging into a chimney which was also available for a stove to heat the dining room and living room together. The division between dining room and living room was merely a curtain drawn across the centre and it was noticed that in each room stood a dining table. It was explained that the dining table in the dining section of the living room was, in fact, used for feeding, the other table being to sit at
for "social purposes." There was also a bed in the living room available, it was explained, for a visiting grandmother, who, living at some distance, stayed overnight when she visited.

Upstairs, besides the bathroom, with its usual shower and basin, were two bedrooms, one for parents and one for two school-age children, the parents' bedroom also containing a cot for a baby. There was an interesting utility space in the form of a balcony separated from the access balcony by vertical slats. This space was used for general storage and for hanging out washing and was described by the housewife as quite indispensable. There was also storage within the house in the form of a large cupboard on the landing, packed tight with linen and household goods.

Both parents had experienced the full devastation of warfare. The parents' houses on both sides of the family had been destroyed and they lived in cellars, even after they were married, until in 1956 they had been given this maisonette, built by the Office Municipal H.L.M. of the town. They considered that they had been lucky to be given this dwelling, were very content with it and had no wish to be anywhere else than in the centre of the town. He liked to be near his work, she to be near the market and her shopping, both to be near their favourite cafes and their friends who were all townsfolk. They would feel lost if they were living in a suburban dwelling with a garden, having no inclination to do gardening and no skill at it. She explained that vegetables were cheaper in the market than if you grew them and she was good at marketing. Likewise the children were near their schools and altogether their existence was very conveniently arranged.

8. FARMHOUSE STUDIES:
Mondin begins his book with an exhaustive study of the traditional French farm house and his findings are based on the space provision and space use, which he discovers there. In the course of the present study contact with this derivation was made by examining an old farm house. This was done at Rollez in Picardy, where it was found that two rooms in the centre of the house correspond exactly to Mondin's idea of the interrelation of daytime activities, the one a kitchen, the other a sitting room but each sharing to some extent the characteristics of the other. Bedrooms were at one end of the house, away from entrance doors. There was no bathroom, but on being asked where, if given the chance, they would place a bathroom, the occupants were unanimous that it should be grouped with the bedrooms. There was no room corresponding to the salle de propreté, but it was found that the functions of preparing animal food etc. were performed in the sitting room, strange as it may sound, where, to indicate another relationship with the outdoor life of the farm, the elegant table, armoire and a fine old dresser, shared the room with a motor bicycle. This use of the sitting room was made more comprehensible by the presence of various signs that the kitchen adjacent to it was also the sitting place for the family, and on the occasion of the writer's visit, the old grandfather of the place was seated there in wooden chair in front of the cooking stove. A space use of a special kind at Rollez was the existence at one end of the house of an office used by a son of the household employed as an official in the forestry service, Exploitation Forestière. This office was given official dignity by its choice of heavy old furniture and the old country tradition of church and state of pre-revolution times was represented by the presence in the office of a
valuable crucifix placed on a dresser immediately opposite the official desk.

In this old farm house storage was provided in outbuildings which formed the traditional courtyard with the inevitable midden, added to each morning as the cattle and horse stalls adjacent were cleaned out. There was the usual farmyard pump but cold water was supplied to kitchen sink indoors. Latrines were in the outbuildings, in the form of twin earth-closets, one reserved for females.

The new farmhouse at Bercheres-les-Pierres adopts in general the Mondin recommendations omitting, however, for cost saving reasons, the salle de propreté. It was also observed that the farm housewife had placed a table outside her front door in the open air at which, at the time of the writer's visit, she was engaged in cleaning fruit for preserves, one of the functions which Mondin claims to belong to this omitted room. Mondin does not mention the washing machine or other laundry equipment as appropriate for the salle de propreté, but it was interesting to observe at Bercheres-les-Pierres that a Bendix machine occupied one corner of the entrance vestibule, connected through the wall to the kitchen drainage and plumbing: obviously there for utility, it was also treated ornamentally, with a polished copper vent pipe from its drying equipment and with a large potted plant standing on it, presumably removed for access to the soap inlet when the machine was put into operation. It was explained that the omission of the propreté was due not only to economy but to the need to conform to H. L. M. standards, with which the house otherwise does conform, including the separate W. C. and bathroom. No derogation was allowed.

The storage cellar under the house also contains a central heating
boiler with a full distribution of space-heating radiators. Domestic hot
water is heated in winter from the same boiler, but in summer hot water is
supplied by a gas circulator fed from butane gas units accommodated out-
of-doors in a small shelter neatly fitted against the side of the house as
part of the cellar stair structure. Cooking all the year round in this home
is by electricity.

The distinction between the kitchen and the living room was the
subject of a good deal of compromise between the architect's arrangement
and the wishes of the housewife and her husband. The architect's intention
had been to use the living room for all daytime purposes, including feeding.
The housewife had agreed with this, and had set about using the kitchen only
as a place for cooking, all meals being taken at the dining table. The
husband had then wanted to take some at least of his meals in the kitchen
and to have the living room as an "elegant" room. All this had resulted in
the sitting room becoming principally a salle à manger, with the addition of
certain extra equipment which Mondin does not deal with: a piano and a
sewing machine, and also an ornamental coffer, obviously an heirloom.
The part of the living room containing this equipment was given the suggestion
of separation from the feeding area by dividing it from this with an archway.

An attempt had been made, despite space restrictions, to carry out
Mondin's recommendation for a separate office. This was represented by
a table with a telephone and papers standing in the entrance vestibule, a
not altogether inconvenient arrangement having regard to the size and planning
of the vestibule which indeed has become a very useful little extra room.

Kitchen equipment in this house extended to a suite of built-in
cupboards, not perhaps the best of which the architect was capable, for it
sounded as if they had been designed by the housewife and somewhat disapproved of by the architect when he saw them. The matrimonial bedroom was reminiscent of Italy, with its crucifix over the bed, but this did not necessarily indicate strong religious devotion. On a Sunday which was included in the writer's visit to this village, the husband did not attend mass and it was suspected that the wife attended mainly to display to her visitors due propriety. The small daughter, devout and well catechised, guided the party, including supplying the necessary information about time of celebration.

It was noticed that in addition to space recommended by Mondin extra storage was provided in this house in the roof space with access from the rear gable outside, in which a hoist was included for raising and stowing bulky and heavy articles. The occupants, husband and wife and two children of school age, were all pleased with their home. The husband a vigorous man, had plans for expansion both for the house and of his business, was somewhat irritated by the imposition of restricting space standards by government, but somewhat reconciled to these by cost saved. Costs are not in general the business of this thesis but it might be quoted here that the cost per square foot of this house, roughly £4, is closely similar to costs for the same size of house encountered in Scotland and in Denmark.

It was noticed that, while the land close to the house was kept neat, with some trimmed grass, there was little attempt to do gardening. Potted plants on the front door steps seemed to be sufficient, with a window box at the front door, to embellish the house in this respect.
SUMMARY OF CONCLUSIONS FROM CASE STUDIES.

(1) In France the pioneer work of Garnier, Perret and Corbusier needs a new synthesis, preferably in one brilliant composition on a town planning scale in which the cité industrielle and ville radieuse are combined, even if this should strike the logical French mind as an impossible compromise. Space standards need not change in order to accomplish this.

(2) The villa or pavilion is not a sufficiently successful house-type in French hands to justify its extensive use. Ingeniously grouped dwellings, self-contained but not isolated, seem better to express French personality and the course of French social history in modern times. The Cap Camarat development on the one hand and the little épicerie at Montlouis on the other, point the way to psychological and social success.

(3) Determination is needed to establish a norm for a relaxing and practical salle de séjour.

(4) In flat design, the achievement of the maison radieuse needs to be re-combined with the ease of system building; the separate and wholly private dwelling retained, but more simply constructed.

(5) The balcony or loggia as an outdoor room calls for development in relation to all house-types, particularly in the southern climate.

(6) The lack of relation between modern space provision, H. L. M. or L. E. F., and the heavy traditional furniture still widely sold presents a problem until taste can change.

(7) Landscape design everywhere must recapture both the grandeur of great 17th/18th century French landscape design and the pastoral idyll.
REFERENCES


2. Le Corbusier: Vers une Architecture p. 81
   Urbanisme p. 67
   Une Maison - un Palais p. 121

3. Laborde; Le Palais Mazarin, et les habitations de ville et de campagne au dix-septième siècle, pp. 323, 324

4. Alexandre Dumas; Vingt Ans Après, ch. 22.

5. Lavedan; French Architecture, p. 195

6. Denby: Europe rehoused; p. 215

7. Schwan: Stadtbau und Wohnungs wesen der Welt: Frankreich, von Dr. Friedrich Schmidt; p. 186 (French Text).


11. Corbusier: Vers Une Architecture. p. 52


13. Compare with Ramsay Garden, Edinburgh, where Geddes demonstrated the mixture of income groups.


15. Compare with S. Romualdo, Italy, Chapter 4, where this combination was extended to include the reception of urine and excrement in a not dissimilar sunk-floor device, with a somewhat different basis of Italian precedent.

16. See, for example, the highly select examples of French housing illustrated in Habitation 2: IUA, edited by J. H. van Broek.
17. J. M. Richards: *Contemporary Architecture*. Chambers Encyclopaedia, Vol. 1. p. 567. Similar pronouncements have been heard from this kindly critic of the modern movements' pioneers elsewhere, and must surely have some basis.


19. By M. Eugène Claudius-Petit, Minister of Reconstruction in the first post-war elected French Government under the Fourth Republic. Like M. Loucheur in the case of Pessac, this minister seems to have had a clear understanding of the legislation for which he stood, while unable to generate the same understanding at local authority level.


23. The promoters' brochure, which in this respect seems not to be overstatement.


CHAPTER EIGHT

SCOTLAND
Scotland's right to architectural and social identity is not widely recognised, even by scholars working in their own fields, and the field of housing contains examples of the lack of this recognition. Some of these are books used in this thesis as works of reference. Schwan, a German, editing his world-wide survey of housing and planning in the 1930's, failed to include a chapter on Scotland, but included a chapter entitled England and Wales, not (as occasionally happens) used as a synonym for the United Kingdom, for no mention of Scotland was made in it.¹ The criterion he appears to have used to decide whether or not a country merited inclusion was that of political independence, for newly independent states, such as Esthonia was just then, get a place, though Estonian work described was scarcely more significant than Scottish work of that time. ² Bowley, an Englishwoman, wrote her book about housing in England and Wales in the 1940's with an appendix on Scotland which, she says, was "included to show the more important differences between Scottish and English housing problems".³ More recently Wendt, an American, wrote about housing policy in the United States, West Germany, Sweden and the United Kingdom with only occasional mention of Scotland in the text and none in the statistical tables which form an essential part of that otherwise excellent work.

Constantly the subject of complaint by Nationalists, this kind of treatment is widely resented by Scots whether it is their problems or their achievements that are being ignored, or whether both are being assumed to merge with those of the rest of the United Kingdom.

Miss Bowley's appendix rightly calls attention to housing problems, mostly serious, which confront central and local government in
Scotland, and experts would probably agree that problems rather than achievements are the characteristic of Scottish housing. At the same time there have been achievements and, no doubt, more are on the way, but they need diligence to discover and to appraise as do those of other countries where there is no high average of achievement, as, for instance, there is in the Scandinavian countries. Thus the search for case studies in Scotland bears more resemblance to that conducted in Italy than to that conducted in Denmark. Indeed it can be remarked at once that Scotland has its Garbatella and its Ivrea. It also possesses in Glasgow a kind of Naples and with the depressed south of Italy can be compared the depressed Scottish north; for even if no new town like Gela is proposed for a site in Shetland, there is in Lerwick some outstanding modern housing.

The decision to treat Scotland in this thesis as an independent contributor to modern housing knowledge and practice is not a matter of nationalism but of recognition that in this field besides others, Scotland has not only her traditions, different from English traditions, her problems, for which the London-based solutions might be wrong or only partly right, but also her own creativity. It may be in considering creativity, including creativity which through political or other causes has been frustrated, that Scotland most easily earns a place in the present comparison of northern with southern countries which excludes England. In any event, the present writer feels that the unusual step of taking Scotland by itself into a context of European discussion is justified in general both in terms of past and present, but in particular to engage attention for those aspects of Scottish
housing, traditional and modern, which are European in essence before they are British.

In the past, despite political and economic interdependence with England, Scotland has maintained her own relationships with Continental Europe, and in doing so has felt a sense of community with Europe. Examples are to be found in architecture, but also in other fields. The most obvious is the ecclesiastical, where, since the Reformation, the Church of Scotland has maintained continuous ties with the Reformed churches across the Channel. The Scottish Roman Catholic Church has maintained its ties with Rome, of course, but via Ireland and France rather than through England. Again, Scottish Episcopalians took their place in 17th century politics as non-Jurors and became in the following century proscribed rebels. Despite a 20th century rapprochement with the Church of England they stoutly assert independence of that body while readily enough accepting fellowship with Anglicanism in its world-wide context, ready too to close ranks with the Old Catholics of Holland, Switzerland and Germany, and with Scandinavian Lutheran episcopalianism.

In another way the Judicature, through its practice of Scots Law, has remained distinct from that of England, though sharing with England the highest court of appeal. Not until recent times has it made systematic exchange of thought with other European judiciary bodies its business, but such exchanges are in full swing now, supported by the law faculties of the Scottish universities. As regards the practice of medicine, long the pride of the Scottish universities, particularly Edinburgh, there have been on the other hand continuous links with the medical schools and their staffs of the main Continental centres.
In architecture, mediaeval and Renaissance Scotland were in contact with France, the Low Countries and with Scandinavia besides contact with England, and Scottish master craftsmen travelled to these countries to do work there. Andrew Smith's work at Stavanger in the late 17th century is an example, overshadowed in the following century by Charles Cameron's for Catherine II of Russia, but both consisting of the fruitful kind of exchange of which C. R. Mackintosh and his relationship with the Vienna Secessionists is the modern example. All three set out on their journeys abroad because of lack of patronage at home, and this too is a characteristically Scottish situation, recurring today. Given the opportunity, Scots architects have been ready for Continental exchanges, and have found repeatedly that their problems are easier to solve when solutions suggested by Continental colleagues working under analogous conditions first are studied.

To summarise a situation capable of lengthy explanation, it can be suggested that in architecture as in other fields Scotland has been significantly aware of her northern position in Europe as a matter of culture, society and social structure, also of geography and climate.

Far into the past, Scottish architecture shares traditional characteristics with other parts of Europe where geography is bleak and wild, where trees are few and rock is everywhere near the tilled surfaces of the relatively small areas devoted to agriculture. This is how Aeneas Silvius (afterwards Pope Pius II) describes the Scottish countryside, which he saw in 1435. Timber was scarce, and in
village and town, walls were of stone and earth. When in 1385 the English burned Edinburgh, even the houses of that city were of these materials and roofed with thatch, decidedly inferior to those the invading army knew in their own country where, at least in the better streets, dwellings were stoutly framed of oak. The likeness was to the West coast of Brittany, to parts of the Iberian peninsula, and (but for contrasting climatic conditions) to southern Italy and the Dodecanese.

HOUSING TRADITIONS BEGIN.

Of the ordinary Scottish house or hut of very long ago the window-less stone-and-thatch cottages of the Hebridean crofting communities, one or two still inhabited, are a vividly convincing remnant. The first break with this kind of building was the Pictish and Iron Age Broch, a circular tower with cellular walls which contained galleries and staircases. From it, with impulses lent by the defensive watch-towers of the communities of the Celtic Church, arose the lasting and important building tradition of the tower or fortalice which Silvius and others saw standing at nodal points in the Lowlands system of infield and outfield farming. These fortalices were the seats of lairds and tackmen who operated the lowest level of the feudal system. With strong wall constructions and vaulted ceilings in the lower floors, they fostered a building technology which was able, when the time came to translate this rural building type into the town dwellings which later mediaeval and early Renaissance Edinburgh developed. This met and married a set of fashions brought from France and Italy during the Franco-Scottish alliances. "The Renaissance met Scotland", says Ian Hannah, "in
at Crichton an Italian palazzo...."  In Edinburgh, in the late 15th century, it might have been added, it raised, as at Gladstone's Land, a six-storey city building. This was an apartment house, an architectural type, which the Continent was only just evolving too, though such buildings were soon to become as characteristic of the cities of France, of Italy, later of Germany, lastly of Scandinavia, as they became of Old Edinburgh.

This is not to say that the single-storey rural cottage and the multi-storey town "land" had nothing to link their contrast in form and building technique. Between their extremes existed the two-storey and three-storey town house, of which an example at Inverkeithing is illustrated. But it too was essentially a flatted building. One family inhabited the single-room dwelling on the ground floor; another lived in the corresponding dwelling reached by the outside staircase.

Adaptation of the plan arrangement of the laird's fortalice to serve as a single-family dwelling on more than one floor in the towns, was a slow process. It was hastened by the Hanoverian ascendancy which resulted from the Union of the Parliaments in 1707 and from the Jacobite defeats of 1715 and 1745, for soon afterwards the English town house, of basement, ground floor, first and second floors, made its appearance, as at George Square, the first and only such extension of Old Edinburgh built by James Brown in 1766. The formal arrangement was English but the construction was not. The basement, containing the kitchen, was still the massive lowest storey of the fortalice, though with less formidable wall-thicknesses. The staircase, with its elegant
open well, was Georgian in form but its stone steps with thick mouldings repeated part at least of the construction of the stone stairs of earlier Scottish houses. The massive chimney-breasts, likewise of stone, continued the construction which began at Stirling and Crichton, and even earlier at Linlithgow Palace.

Constructionally there is no English counterpart of George Square although it consisted entirely of the English type of single-family dwelling. The buildings of James Craig's New Town of Edinburgh, which followed close on the heels of James Brown's development, continued the same constructional techniques but made a careful mixture of dwelling types. In Charlotte Square the Adam brothers designed corner pavilions of the main blocks to contain a flatted arrangement. It is of an interesting kind, of what would now be called maisonettes, for each flat has two floors, and the lower is entered by formal steps from the street in the London or Bath manner. This "main-door" flat has continued into later Scottish practice and when a dwelling having this form of access is put up for sale it is always so described in the advertisement, the mode of entrance being both a convenience and a status symbol.

The intervening dwellings in the Charlotte Square blocks are of the George Square kind. They are each for one family, repeating the arrangement of basement kitchen with servants' quarters, ground floor dining room with library or study, first floor with drawing room and second floor and attic sleeping accommodation. This type, too, extended in repetitive form interspersed with flatted arrangements along George Street, Princes Street and Queen Street; but in the
streets which cross those main east-and-west thoroughfares, Castle Street, Frederick Street and Hanover Street, the flatted arrangement dominates. It was in a flat, indeed a maisonette, at 39 Castle Street that Sir Walter Scott lived and wrote during the years 1802 to 1826. There he dreamed of Abbotsford, his country retreat, just as the Danish schoolmaster was found in his kollektivhus flat sketching out his ideas for a villa (Chapter 5).

Already, then, the first development of the New Town displayed its own tendency to retain Scottish traditions, and when the next developments came, at Drummond Place, Great King Street, Scotland Street and others, the Scottish flat was freely mixed with the English type, though always retaining an English remnant in the main-door flat. This provided the formal steps and street entrances which, it may have been felt, the dignity of a Georgian Street demanded.

Thus by 1820 or so, the Georgian face of Edinburgh was in part an English dress applied to a body in which the organism had as much affinity with the flatted developments of Continental cities. This was in evidence, too, in the wish to develop densely, for the early attempts to build carriage-houses and mews along back lanes at the ends of generously scaled gardens soon gave way to a more closely-packed arrangement in which twin sets of mews formed only an inner perimeter of each block, while along the centre ran a street of what were in effect working class flats. After the slightly different arrangement at Thistle Court, Thistle Street and Rose Street are the first examples of this type of flatted street which also includes the notorious Jamaica Street and is the precursor of much cheaply built housing found in greater
quantity in Glasgow, Dundee and other Scottish urban areas where the working population was the predominant element.

Besides similarities in the selection of dwelling types between Scotland and the Continent, a similar reluctance to expend land generously on low densities, and on open space between the houses, is therefore in evidence. There is still the same readiness to build high, for Scotland Street rises to four storeys, five if the basement flat is counted.

The usages of Scots law had to do with this. Despite a fundamental agreement with English law that land itself is the basic heritable property, it has become customary in Scotland to allow separate ownerships of houses and of the land on which they stand, which, through a remarkable relic of the feudal system, remains in the ownership of a feudal "superior". Further, it is customary to permit separate ownership of flats built on the same land. The different system of tenure prevailing in England, under which it is difficult to own a flat freehold, hardly affected Scotland. In England, its effect with other factors has been to promote house-building habits distinct from those of the rest of Europe, Scotland included. This difference of attitude was first expounded by Werner Hegemann, who indeed traced its origin in principle, the English principle of one family per house per site, to the proclamation made in 1580 by Queen Elizabeth "perceiving the state of London", which in a roundabout way established it. It was further explained by Rasmussen, who added emphasis to Hegemann's comparison with the Continental attitude by saying that as late as the 19th century "the importance
of the question had not dawned upon people on the Continent”. It could have been said that it had not dawned either in urban Scotland, until in the eighteenth century the English type of town house arrived in the New Town development.

Although famous and admired, the examples of the English house in Charlotte Square and neighbouring streets had a comparatively short existence. As a type of dwelling it suited only a limited range of aristocratic occupants, and as the 19th century proceeded on its course towards the levelling of the social classes it became the subject of conversion into flats, particularly along the fringes of the New Town, leaving the main-door flat there as a memory of the rival form of dwelling.

Historical material about such a conversion came to hand and is filed with the case studies. It concerns a conversion at 5 Bellevue Crescent, one of the last streets of English houses to be built. It is a top-floor flat with attics and resulted from a conversion undertaken in the 1870's to cater for the less well-to-do on a wider scale than the New Town development originally provided for. A photograph of the interior taken in 1913 shows the tenant reading to his wife in their sitting room while she sews. He was a joiner, an elder of the church, the kind of classless, well-read Scotsman who at that time probably had no exact English counterpart. He used his sitting room in this way; it served also as a dining room (the table was moved aside for the photograph) and both he and his wife were averse to taking meals in their kitchen. When visitors came to the house the drawing room was entered and afternoon tea served there; there were rarely visitors to other meals unless they were relatives, when it was not felt necessary to use the drawing room for their entertainment.
Besides these two public rooms, which faced the crescent with an east aspect (this worried nobody), there was a kitchen, a bathroom and a bedroom to the back of the house, with two attic bedrooms reached by a narrow stair from the hallway, which also contained a coal cellar and cupboard-space. Off the kitchen was a "bed-recess", a small window-less room, being a modification of an earlier practice, common throughout northern Europe, in which such recesses were open to the kitchen but could be closed off with folding shutters. The bathroom was an enlargement of an earlier privy, which seems to have been similar in form to Farmor's, described in Chapter 5.

The plan given shows furniture of a simple Victorian kind, hardly any of it non-functional and perhaps the only object to strike an unfamiliar note today is the "mangle" standing beside the kitchen dresser, ready for the preliminary pressing of linen, before ironing. Ironing was by flat-iron heated at the kitchen range and then set into a polished metal shoe before being applied.

In such a household, there was originally a domestic servant who slept in the bed-recess, but already by 1918 the servant problem had reduced this family from its employment of an Irish maid, the last full-time servant, to dependance on a "washerwoman" who came on two mornings per week to do cleaning and laundering. With a record of 5 Bellevue Crescent, top floor, in existence from 1913, the flat was revisited in the course of this study and it was interesting to see how, with no changes at all in the room arrangement but only some improved plumbing and a redesigned kitchen, the old space arrangement was being made to work with full satisfaction as a flat for a modern
professional family of the 1960's. This kind of occupancy is common
to much of the New Town, especially in the flatted buildings, and the
young lawyers, advocates and others who are the occupants have little
feeling that their space arrangements are in any way cramped or
uncomfortable. Nowadays they often possess a country cottage too, at
40 or 50 or 100 miles range from the city, for use at weekends and in
vacations, which in the case of advocates last up to two months in the
summer time. In this class of Edinburgh professional society it
would occur to few to move to a bungalow in the suburbs, for their
cottage in the country is a real country residence where the children can
learn about country life, engage in animal-loving and the whole family
enjoy a sensation of living in the midst of an agriculture with which
they are unlikely to have business or professional worries, whereas in
a suburb there might be a greater sense of the activities by which their
daily bread is earned.

It can be seen, therefore, that the Edinburgh New Town
flat emerges from its 150 years of history still with a function to fulfil
as housing for today, and not one altogether remote from that which it
performed when its first occupants transferred from the old tall buildings
of the medieval town to its Georgian streets. This conclusion has
significance for modern housing architects, as the case study material
shows and as will be developed in describing it.

In the west of Scotland things went differently. It was a
matter of providing houses of minimum size, cost and architectural
aspiration for a new population moving not from an old town to an elegant
new town but arriving destitute in a great new community of mills, wharves
and shipyards. In Glasgow and generally along Clydeside during the last decade of the 18th and the early part of the 19th century, cotton mills formed a relatively dense industrial development. About 75% of the output came from mills in Lanarkshire and Renfrewshire with a heavy concentration in Glasgow. A second industrial category in rapid development was metal industry with shipbuilding, and the whole industrial complex induced a tremendous migration of countrymen, including many from the distressed Highlands which had never recovered from the religious and political wars of the 18th century. These countrymen found employment, skilled or unskilled, in the new industries and somehow they had to be housed. Thus it was that street after street and block after block of regularly built flats grew up, in Glasgow, in Clydebank, in Greenock along the Clyde estuary and in Motherwell, Wishaw and Coatbridge in the iron and steel-producing area up-river.

Much of this housing was undertaken by industrialists who, as their factories, plants and shipyards expanded rapidly, were put to great straits to assemble and house labour. Coming from tied houses in the rural areas, the hands needed for the new factories were in no financial position to buy houses or build them for themselves, and there was no pool of houses available for rent. The new factory owners met the position by building what were, in effect, industrial plantations. They not only built houses near their factories but also furnished the settlements with grocery stores, and occasionally schools. New Lanark, founded by David Dale, the cotton spinner, and his famous son-in-law, Robert Owen, in 1783, is the outstanding and pioneer example. Placed at the Falls of Clyde in collaboration with Arkwright himself, inventor of the water
frame, it was a self-sufficient mill community, virtually a new town on a small scale. Unfortunately for it and for the rest of the cotton industry, prosperity was short-lived, for the supply of its raw material was stopped by the American Civil War, and it survived only as a minor industrial village, spinning rope. It is now about to be restored by the Adam Housing Society as a "live" museum piece, the houses in their neat flatted terraces let to tenants in the modern Scandinavian fashion.

In the iron and steel industry which, with coal-mining, shipbuilding and railway development, rose to the dominating position in Scottish industry of the latter half of the century, the practice of providing houses to go with jobs was continued quite late in the day. The original firm of David Colville & Sons built terraces and tenements in Motherwell, and the Colville combine of the 1930's fell heir to streets of these houses when it took over the old family company. The railways and coal companies did likewise, and both British Railways and the National Coal Board are still the landlords of numbers of dwelling houses which came to them with the tracks and rolling stock, or with the pits and mining gear. However, over the years, the duty of providing houses for industrial workers was taken over, in the main, by private investors. Tenement buildings, in stone and lime, were reckoned to be good security for a modest income.

Out of the readiness with which money was put into houses for rent, labour once sluggish in moving about, became mobile. As the saying went, keys to houses in tenement properties were given away with pounds of tea. To all appearance, despite very rapid urban expansion, Glasgow housing was keeping pace with its growth of population. But if
it was doing so, the price paid was the establishment of very low standards, both of space provision and space use. Lasting in quantity well into the 1950's and still far from solution as a problem both in quantity and quality of accommodation, this Clydeside residential development was a main subject of attack by the Royal Commission of 1917, quoted at length later in this Chapter. Development occurred in two waves. The first, not controlled by effective legislation, consisted of comparatively disorganised building having a strong affinity with the vernacular architecture of the older Scottish burghs though rising to more storeys and accommodating more people. Examples shown on old Glasgow photographs are illustrated with the case study material.

The second wave, illustrated from the same source, was a more orderly affair. It started with the passing of the Glasgow Police Act in 1862, which for the first time laid down space standards for Scottish housing:

One-apartment house: 700 cubic feet.

Two-apartment house: 1,200 cubic feet.

Three-apartment house: 1,800 cubic feet.

By 1866 these figures had been raised to 900, 1,500 and 2,000 cubic feet respectively, and under a Glasgow Building Act of 1892 they were raised to 1,000, 1,600 and 2,400 cubic feet. If one thinks in terms of an 8 ft. ceiling, even this last advance of the standard for a 3-room house means a permissible floor space of 300 sq. ft. This is less than half today's standard for new housing in Scotland; similarly it is less than half the common provision in new Italian housing of the Mussolini period. Today a three-room house of 300 sq. ft. only has validity as a
standard for overcrowding. In Copenhagen (see Chapter 5) it was treated in 1950 as the minimum space for four people.

The Burgh Police (Scotland) Act 1892 might be said to have laid the foundation of later housing requirements by setting a standard of general control over such matters as heights of ceilings, width of common passages and the provision of waterclosets and sinks and water supply in houses, in addition to the growing practice of setting standards of cubic space as a whole. Local authorities other than burghs were empowered by the Public Health (Scotland) Act 1897 to make byelaws for such matters as were covered in the case of burghs under the Police Act and for waterclosets, earth closets and privies. These additional powers were extended to burghs in 1903 with further powers to control the cubic capacities of dwelling houses. Section 66 of the Burgh Police Act of 1903 decrees a minimum cubic air space for a house as a whole, of 400 cubic feet per person.

Under the Glasgow Building Act of 1892, regular streets of well built stone flats four storeys high with hollow squares behind containing yards, gardens and sheds, sprang up all over the urban areas of the west of Scotland. Building was continuous round the perimeter of each block but divided into units by firebreak walls containing stacks of flues for conducting the heavy soot-laden gases generated in the combustion of the dirty soft coal which was the only fuel for heating and cooking. Kitchens and livingrooms were therefore arranged against these stacks while a cluster of bathrooms, (if any), boxrooms, fuel-stores, with the entrances to the flats, gathered round a common staircase between the flats equidistant between the two blocks of chimneys. This architectural rythm,
consisting in sequence of party-wall with chimney, the windows of one flat, the staircase, the windows of another flat, then the further stack of chimneys, and so on, characterises the street fronts of miles and miles of 19th century development throughout the whole Clyde basin. The window pattern included in many cases bay-windows for the main room, from the outside a pleasant corrugation of the facade, and inside performing something like the function of the Continental balcony.

At their best these flats were not uncomfortable places and their space arrangements are often interesting and practical. A good example is illustrated from 45 Albert Road in the Queen's Park district of Glasgow on the south side of the river. There are no bay windows, but an effect of open-ness is created by having in the main room at the front very low cills, a foot or so from the floor; and the stair is lit from windows in the rear wall, thus bringing the plan arrangement close to the *mietskaserne* plan illustrated with the German material.

The arrangement of space use depicted is from the memory of members of the family who lived there until 1933, when of the complete family which once occupied the flat, consisting of father, mother, three daughters and a son, only the mother and the son, grown up and practicing as a music teacher and piano tuner, remained in occupation. The daughters had left home and one of them, married to a well-to-do stockbroker, had migrated to a country house in the village of Carmunnock which has since become engulfed in the outward spread of Glasgow. Unfortunately, Carmunnock has decayed as a village as a result of this engulfment and her house there, though visited in this study, was now in other hands and was not found to be worth close investigation. The fact,
however, that she and her husband went to live there illustrates the existence in Glasgow of a habit similar to that existing in Edinburgh for the professionally trained, especially if they also had an interest in the arts, to elect to live either in a good quality flat or in a country house, leap-frogging the common run of suburbia which lay between. It should be added here that the whole family had worked its way up to professional status having migrated to the city in the 1860's as penniless countrymen on one side of the marriage and, on the other, as bankrupt hand-weavers put out of business by the industrial development of mechanised weaving in the north of England.

This, in a way, was the happy kind of family history. While there is no reason not to consider it typical of a large number of Scottish urban dwellers of that period, the social conscience of today has tended to focus more attention on the fate of those who did not manage to achieve economic progress. These are the inhabitants of the Gorbals and other similar areas where flatted development never reached the standard of Queen's Park. Here the characteristic dwelling was the "single end" such as that studied by Dr. Ronald Bradbury, Director of housing for the City of Glasgow from 1939 to 1951. His famous plan of it is reproduced from the R.I.B.A. journal of 1939, in which he first shocked opinion about Glasgow's state. Flats consisted of single-room or two-room dwellings such as the Glasgow Police Act of 1862 allowed, with sanitary accommodation shared between two, three, or even four dwellings. Such sharing between families was probably no worse an arrangement than those prevailing in the hamlets from which the same families had migrated and may have been considered better. The dark corridor may well have been the worst feature.
In rare examples this was eliminated by means of balcony access which began to appear in the 1880's. One such example, from 1889 in Perth, was visited. It was found to have common toilets placed in a separate block or tower, closely reproducing the arrangement of the country-cottage privy. Free circulation of air between toilets and dwellings was a sound health precaution in the medical opinions prevailing at that time, and it may be inferred that, without overcrowding of dwellings, the system of common toilets was found satisfactory enough. By the time Dr. Bradbury made his record of occupancy in the Glasgow example, overcrowding had taken such charge that it introduced a false standard of judgement of the architecture itself, put the Scottish urban flat into total disrepute and, during the 1930's and '40's, greatly assisted the spread of suburbia in the form of private enterprise bungalows. Apart from overcrowding of individual dwellings, shocking density statistics were produced for whole areas, particularly during the surveys carried out by civil defence officials during World War II. In the Plantation, a crowded district of minimum-sized flats, a density of 700 persons per acre was measured in 1944 and surviving members of the Clyde Valley regional planning team, who took this information into their survey of the city and its environs during that year, are emphatic that such conditions, far from being isolated examples, were typical of large areas of the city. The existing density figures stated in the Clyde Valley Regional Planning Committee's Report of 1945, and the density proposals of the proposed regional plan were based on that kind of documentation, which, though challenged by the Corporation of Glasgow and officially disbelieved for six years, were then accepted as true and became the basis of plans to reduce Glasgow's densities by organised
overspill, first to new towns built under the New Towns Act, 1946, and then to reception areas set up by later and separate legislation. But this was all part of the belated operation of town and country planning during and after World War II. Long before that, central Scotland had sought its own remedies for the overcrowded space conditions of city housing both in east and west in the establishment of the garden cities and garden suburbs of the early 1920's. These made the beginnings of the suburbia problem which built up to its own enormous proportions between the two wars.

An important, if neglected, lead towards a sane urbanism came from Patrick Geddes, preaching and exemplifying his idea of the mixed community. His example was Ramsay Garden, perched on the castle hill of Edinburgh at the head of the "Royal Mile". It consists of an L-shaped block of flats, outwards enjoying wonderful views over the valley of the Old Nor' Loch and inwards enclosing a carefully landscaped entrance court. Flats vary in size from 3 to 7 rooms, and a hostel intended for students, now owned by a printing firm and used for its unmarried staff, was included. In the hands of the Edinburgh architect, Macgillivray, Ramsay Garden blended the fortalice tradition with impulses from the new romantic architecture of southern Germany, where Geddes, like Unwin, had been fascinated by the freshness and interest of the urban scene. Ramsay Garden looks like a new development but in part it was a redevelopment, for it carefully incorporated a small group of existing buildings. It was hoped that the whole Royal Mile might be renovated in this way, as he also recommended to be done in the centre of old Dunfermline.
Internally, the flats are distinguished by sensible kitchen arrangements and up-to-date plumbing. Of this aspect of housing Geddes wrote in his Dunfermline report:

"The domestic point of housing improvement which I press for all properties... is that of improving kitchen and scullery accommodation. This may seem a small matter, but this can only be from masculine limitations or feminine modesty... When this begins to be realised masculine chivalry will take the form of improving the kitchen and appurtenances, alike for Cinderella's sake and for her mistress's." 11

Unfortunately Geddes' example was not followed to any marked extent in slum improvement and redevelopment. No new urbanism emerged. Nor were slum kitchens the subject of efforts other than his own. But middle-class housing improvement was on the way by means of a process of which the last has probably not been heard: the sub-division of 18th and 19th century town houses of the English kind, beginning in the streets of the Edinburgh New Town. It has been remarked that those dwellings had a short life, since they appealed to a limited range of occupant. To go further, they appealed to no kind of occupant once the servant problem had reached the proportions which robbed even No.5 Bellevue Crescent of its Irish maid, for on four and even five storeys (including basements) with ceiling heights (and therefore staircase flights) of up to 13 feet, housekeeping without domestic servants and entirely without the mechanical devices of today, became impossible.... A new wave of conversions was embarked upon, sometimes well conceived and even
taking account of what Geddes was talking about.

The process went by stages, for the way of life established in these New Town houses nevertheless died hard. To observe the first stage, a house on only three floors in Warriston Crescent was studied as lived in during the 1920’s and 1930’s. This is a street of English houses by the Water of Leith in which the dimensions set in the upper part of the New Town were considerably modified, and where in consequence full residential use on the given plan arrangement lasted longest.

The house was at that time a manse, and the family concerned were the minister of a city church, his wife and grown-up daughter, the latter acting (as was so often the case in those years) as housekeeper to her father and mother. Formerly there were servants, but until 1935 the old functional arrangements were largely maintained. Food was cooked in the basement, hoisted in a food elevator to the ground floor, and served with traditional 19th century elegance in the dining room. In that year a significant modification was made. A disused room in the basement was reclaimed for use and made into a dining-sitting room for the family in winter. There was both reluctance and relief felt about this move. It was felt to be a socially retrograde step, but it made housekeeping easier, and it disposed of the growing difficulty and expense of keeping the dining room and the drawing room of the house warm with no other means of heating than coal. The electrical installation, dating from 1923, was for lighting only. Between 1923 and 1935 the price of domestic coal of the kind used in a house of this class ("Best Blackband") rose from 1/6d. per cwt. to 3/-d, and if this might be regarded today as
still cheap enough for lavish use, such was not the reaction at the time. Coal was rapidly becoming precious, and big rooms heated by coal an unwanted extravagance. The first stage of reasoning about re-deployment of space, therefore, was to argue that one source of heat should serve for more than one space-use, and that the two most easily combined for this purpose were feeding and sitting. In the Warriston Crescent house studied this was the only stage to which the process was taken before the daughter moved away in 1948 after the death of her father and mother, to suburban quarters.

In other cases studied a second stage was reached, amounting to sub-division of the house between two families. Usually this was done by retaining basement and ground floor as one dwelling and making a second out of the first floor. Of numerous possible examples to examine, one was selected in the Edinburgh West End, in Learmonth Gardens, a street forming part of the last development made in the New Town manner. It was designed in 1880, when basements had gone out of fashion and had been succeeded by a service wing extending rearwards. The service wing was harnessed to the sub-division scheme, providing a bathroom at a place where connections to existing plumbing were easy to make, and also providing a small kitchen. This has the direct connection to a dining space which more and more people demanded as the principle of labour-saving came to be studied and applied through processes of thought which might be called simple work-study of a rule-of-thumb kind.

In Warriston Crescent, houses continue to be lived in without sub-division, occupancy being chiefly that of young professional families where the housewife does not mind climbing stairs as she goes about her work.
But these are the exception. Generally, the Edinburgh terrace house of the New Town kind has either suffered sub-division as at Learmonth Gardens or been taken over as offices as in Charlotte Square itself. Thus, with only a few lingering examples, the English Georgian house on the scale originally adopted disappears as a house-type for Scottish families, but it does this at a time when, with the Glasgow flat also in disrepute, though for other reasons, another English idea is on its way to Scotland: the garden city.

THE FIRST WORLD WAR AND ITS AFTERMATH.

The garden city idea arrived first at Rosyth. This was a large naval base established in 1903 on 1,500 acres of reclaimed land just west of the Forth bridge, to assist Lord Fisher's development of fast capital ships. It was built to service these and give them rapid access to the North Sea, a function eventually shared with Scapa Flow.

Key-workers and naval personnel had to be housed, and it was recognised that there was scarcely room for the size of development required on the remaining flat land of the dockyard area. Behind this the ground rises quickly, but then falls to form a shallow valley, the further side of which rises again to a crest three miles inland on which stands Dunfermline. Thanks to Andrew Carnegie, the steel millionaire who was born there, this old historic town had been for some decades a community-conscious place and it was the Carnegie Dunfermline Trust who had commissioned Patrick Geddes to prepare his town planning report of 1904, from which this thesis has already quoted. Interest in town planning was lively all through the years during which the naval base was being built. A Dunfermline town plan existed and a housing organisation, the
Scottish National Housing Company Ltd., had come into being to implement it. By arrangement with the Admiralty, after protracted and difficult negotiation, this company was put to work to build the necessary development, in the shallow valley, and the town plan was extended to contain it, in the form of an English garden city.

The Company was scornful about existing Scottish housing. At the inauguration of the garden city, on May 26th 1916, the chairman, John R. Findlay, an associate of Geddes, said "I am afraid that if the need had arisen thirty years ago, it would have been met by the erection of a few of those high tenements which were the contribution of the Scottish architect, the Scottish superior and the Scottish tenant to the problem of domestic architecture." He went on to praise the garden city conception and to point out its appropriateness for a development to house a population coming from England.

It had been decided to do the job thoroughly and to put development into the hands of people with experience of the garden cities of Hampstead and Letchworth. In 1915 a young architect, A. H. Mottram, who had worked with Raymond Unwin at Hampstead and also at Chepstow, was brought to Edinburgh, and his are the drawings from which Rosyth was built, from 1916 to 1925. In 1925 disarmament policy brought development to a halt, although the company made strenuous efforts to continue. Mottram had worked under great difficulties. He had had to be extracted from the ranks of the Artists' Rifles, no easy matter for him or for his superiors, even with Admiralty help, and no sooner were the Rosyth drawings done and work on the site under way, than Conscription replaced him in uniform and so bereft the project of vital supervision during its most important
year, 1918. The unconsciously schizophrenic personality of wartime
and peacetime government could hardly have acted towards the project
in a way more cruel, and it seems miraculous that anything so good as
Rosyth came out of the process. The worst result was the lack of a
town centre of the Hampstead kind, which Mottram wanted and the Dunfermline
plan contained; the best, his well contoured streets of little English
houses, straight from the Unwin repertoire, and for a fair measure
which in 1925 only God could mete out, an unfinished but majestic Ninian
Comper church, axial to one of the non-existent town centre open spaces.

Though there was every reason why Rosyth should be alien to
Scotland both in layout and in the design of houses, the interesting
decision was taken in 1917 that, while the general form of housing groups
could be that of Hampstead, they should contain a certain number of
flatted dwellings to take account of Scottish working class living traditions.
This was done, and an idea implanted which was to affect Scottish local
authority housing for the next two decades. In case-study material from
Rosyth, therefore, a "Scottish" terrace is studied, consisting of two
storeys of roughly identical flats, and an "English" terrace in which each
house is on two floors.

The "English" terraces were not blind copies of Unwin type-plans.
As the case study material shows, there was considerable adaptation in
matters of detail. In particular, the favourite Unwin device of bringing the
stair into the living room was changed to suit the colder climate.

Space standards were not high. A three-bedroom dwelling
measures 650 sq. ft., the living room amounting to 150 sq. ft., the
kitchen or scullery 70 sq. ft; the bathroom, hall and staircase account
for 120 sq. ft. and the bedrooms take up the remainder. This dimensioning, carefully adopting English ideas of room size to Scottish ideas, was of immense importance; it formed the basis for establishing space standards for Scottish local authority housing for the whole period between the wars.

Scotland was now getting into a better position, legislatively and administratively. From the 1920's, housing and town planning have been administered from Edinburgh in departments controlled by the Secretary of State for Scotland. In the formative period of the late 1920's, the 1930's and the 1940's, both functions were performed within the Department of Health for Scotland in separate administrative divisions each serviced by technical officers. Since 1962 they have been united as main functions of the Scottish Development Department set up in that year, a step which had no exact counterpart in England. The significance of this trend was little appreciated until in recent years the establishment and building of Cumbernauld demonstrated a degree of rapprochement between planners and architects, planning administrators and housing administrators, not yet common within the British Isles. Events there were a clear indication that political and administrative arrangements at central government level had begun some years previously to go in the right direction.

Housing legislation continued, of course, to be made in London, but the better briefing which an independently Scottish staff of civil servants could give their ministers was progressively in evidence, from the housing acts of the period after World War I.

These acts were the means of controlling the space standards of
all subsidised housing, and they go into increasing amounts of detail about that matter. The cubic area basis disappeared, and in most legislation the square foot, as on the Continent the square meter, is the unit of measurement.

The minimum Scottish standard of floor area for a three-room dwelling applied between the wars was about 620 square feet, slightly larger than at Rosyth, and for a three-room flat, 550 square feet. Again the Housing (Scotland) Act 1925 enabled local authorities to set a wide range of byelaw requirements for such matters as the provision of separate waterclosets for individual houses, bathrooms, larders, press accommodation and fuel stores, and clothes washing and drying facilities.

There were also maximum areas where subsidies of public money were being used, of 950 square feet for a four-bedroom house, and 880 square feet for a flat. The minimum standards for separate rooms laid down by the Department of Health for Scotland in their circular No. 76, in 1935, were as follows:

- Living room 180 sq. ft.
- First Bedroom 150 - 160 sq. ft.
- Second " 120 - 130 " "
- Third " 110 sq. ft.
- Fourth " 90 - 110 sq. ft.

These individual areas were being applied by Scottish local authorities well into the period after World War II except that the third and fourth bedrooms allowed to be smaller. That was in response to wishful thinking about occupancy, hoping for a standard of one person per room. Earlier, it was assumed that each bedroom was for two
people: the Burgh Police Act 1903 stated that two children under ten were reckoned as one person, which in practice meant four children per room or two adults.

A lingering effect of the earlier expression of standards in cubic feet was the tendency for Scottish ceiling heights to be higher than English. The 3 feet height common in cheaper 19th century housing was often raised to a minimum of 9 feet. Such things lay within the jurisdiction of that characteristically formal Scottish authority, the Dean of Guild Court. That did not affect Rosyth, where with low English ceiling heights the houses have an appearance of being better embedded into the landscape than most Scottish housing that followed.

The garden city trend spread. The Town Planning Institute had come into being and there were members in Scotland who saw it as their duty to that body’s policies to promote the garden city idea. The first important post-war garden city development was at Wardie in Edinburgh, commenced in 1922, where the tradition established at Rosyth was carried further and another Unwin-like layout was thus achieved on flat land lying above the bluff which falls to the level of the Forth at Granton Harbour. Here, as at Rosyth, is the customary formation of access roads lined with pavements and hedges, front gardens, and the divisions into lots in which semi-detached houses and some in terrace formations also divide the carefully kept fronts from the unkempt rear areas. On flat land, the layout acquired a more geometrical form than Rosyth, with interesting intersecting figures. Wardie Garden City was an immediate success. Tenants fortunate enough to obtain houses there were envied by others particularly those bound to existences in the run-down tenements
of those areas of Edinburgh developed after the New Town, which tended to draw on the experience of Glasgow and the industrial west. Even for the inhabitants of Bellevue Crescent, Wardie held attractions: the old man at No. 5 considered the possibility of moving there. The disadvantage was the small rooms. "Pokey wee rooms", was the expression many people used of them, "all right for the English". The attraction was the garden. Instead he moved to a spacious nearby main-door flat, with a garden of the walled kind much overlooked by neighbours. There was no fully satisfactory move to make.

Typical tenant reactions at Wardie were that the rooms were too small to contain the furniture, but there was enthusiasm about the "kitchenettes", as the rooms which in England at that time were called sculleries, came to be named. Housewives who hitherto had struggled with the kitchens of old Edinburgh flats, such as 5 Bellevue Crescent, with their black iron cooking ranges and primitive hot water arrangements, were delighted with the neatly planned sink and gas cooker in their new kitchenettes, as also they were with their "back boiler" behind the livingroom fireplace which, developed from the same device of more primitive form used in West of Scotland flats, produced hot water at the tap in the bathroom and in the kitchenette in quantities hitherto undreamed of. 13

In the early days of Wardie garden city, as at Rosyth, gardening became a sport. Front gardens of the houses filled with flowers, and back gardens sprouted vegetables. Hedge-clipping, until now almost an unknown art in urban Scotland were gardens had been surrounded by stone walls
where they existed at all, came into vogue and the writer remembers visiting as a boy one such garden where the owner, a clerk in a law office, who had moved to Wardie from his cramped and sunless flat in a poor part of Edinburgh, was busy on a Saturday afternoon with sunburned face clipping his hedge and cutting his lawn with every delight at having become a countryman.

Thus far the invasion of the garden city movement had succeeded as regards general idea and particular form of layout, but tradition was not to be denied. Contemporary with Wardie Garden City, the Corporation of Edinburgh began to build flatted blocks in other parts of the outskirts. It was thought that this dwelling type conformed more fully with accepted Scottish living habits. The first group of these blocks, four storeys high, was erected at Ferry Road in 1920. In the case study material, its layout and that of Wardie Garden City are compared.

The layout at Ferry Road is a curious hybrid of garden city influence and inherited tradition. The blocks stand, like those at Garbatella in Rome, in separated units of twelve flats or so served by a single entry and staircase. It is as though a knife had been taken and made to sever the traditional Glasgow housing block on the line of its chimney stacks and between each such severance a strip of garden 20 ft. wide had been inserted. It is curious to notice how very like this process is to the process used at Garbatella, where the traditional Italian city house, part of its street front not unlike that traditional in Glasgow, was sliced up in just this way. The slices and the spaces between them were, however, no more than an arbitrary adoption of an idea borrowed from the garden city planning of Unwin and his associates.
The space in question was not put to any use, for this was before the days of garages. It was there because density and the garden city idea required it, but houses were not made to face it, to draw their light from it or to use it for anything else than the property division which had been represented by the "party wall". Despite an older Scottish tradition which placed houses with their gables to the road, layout habit now decreed that the housing blocks must face the road, and the time was still to come when the Continental discovery, partly German, partly Scandinavian, that they could run at right angles to the road and so use the spaces between them as sources of sunlight, of quiet environment away from traffic, for childrens' playgrounds and other useful purposes, could be harnessed to Scottish housing practice.

This was the era of the "corridor streets", and it should be noted here that members of the Town Planning Institute working in Scotland at this period were for the most part road engineers, whose approach to town planning was apt to combine open garden city layouts with adaptations of the Continental boulevard. The first post war tenements on Ferry Road in Edinburgh are set back from the road itself by 30 ft., with their grass verge and access footpath. This is a handy enough arrangement now in the age of the automobile but at the time it is doubtful if more was involved than an emulation of the boulevard idea. To be fair, it is admitted that this was, of course, an Unwin idea too, picked up in the course of admiring German street planning of the 1890's.

At the end of World War I, whether Rosyth was to be the pattern or some other form of development, it was all a matter primarily of finding of solutions to two problems. The first was the acute shortage
of all housing for the lower and middle-class income groups. The second
was the accumulation of unsatisfactory houses in which, partly through
shortage, but also acquiescence, people were overcrowded, resulting in
aggravatedly low standards of accommodation extending not just throughout
Clydeside but far and wide throughout the Scottish nation.

Overcrowding and generally low standards had been known about
for a long time, and in 1912 a Royal Commission had investigated working-
class housing conditions in Scotland, finding them very bad indeed.
"These are the broad results of our survey:" it was stated in the Report,
"unsatisfactory sites of houses and villages, insufficient supplies of water,
unsatisfactory provision for drainage, grossly inadequate provision for the
removal of refuse, widespread absence of decent sanitary conveniences,
the persistence of the unspeakable filthy privy-midden in many of the
mining areas, badly constructed, incurably damp labourers' cottages
on farms, whole townships unfit for human occupation in the crofting
counties and islands, primitive and casual provision for many of the
seasonal workers, gross overcrowding and huddling of the sexes together
in the congested industrial villages and towns, occupation of one-room
houses by large families, groups of lightless and unventilated houses in
the older burghs, clotted masses of slums in the great cities. To these,
add the special problems symbolised by the farmed-out houses, the
model lodging houses, congested backlands and ancient closes. To these,
again, add the cottages a hundred years old in some of the rural villages,
ramshackle brick survivals of the mining outbursts of seventy years ago
in the mining fields, monotonous miners' rows flung down without a
vestige of town plan or any effort to secure modern conditions of sanitation,
ill-planned houses that must become slums in a few years, old houses converted, without the necessary sanitary appliances and proper adaptation, into tenements for many families, thus intensifying existing evils, streets of new tenements in the towns developed with the minimum regard for amenity".  

This description might be taken to match descriptions of slum conditions in Italy: the difference lies in the tone of righteous indignation. In Italy at that time an official document would not have taken that tone. Only avant garde politicians and occasionally a rebel priest, could have done so. The kind of idealism represented had to wait for expression until, as described in Chapter 4, Italian architects and others began to take the social strain, as late as the 1940’s.

It was not only, however, Scottish houses that were insanitary, badly built and falling into disrepair. In far too many cases they were too small for the families which had to live in them. In 1911, 12.8 per cent. of the houses in Scotland had only one room, 40.4 per cent. had only two, 20.3 per cent had three and only 26.5 per cent. had more than three. This meant in practice that 73 per cent. of the population lived in houses with three rooms or less, including 47.7 per cent. in housing with only one or two rooms. The contrast with England and Wales is startling; even in 1911 only 3.2 per cent. of the houses there had only one room and only 8.3 per cent. two rooms, while only 7.1 per cent. of the population lived in these abnormally small houses; the great majority of the houses, 73.8 per cent., had four or more rooms.

Overcrowding in Scotland was widespread and acute. In 1911 almost 25% of the population, 1,006,000, were overcrowded on the basis
of a standard of more than three persons per room; on the basis of the English Census standard of more than two persons per room, the total overcrowded mounted up to 2,077,000, or 45.1 per cent. These figures do not indicate the full horrors of the congestion, for a large number of the overcrowded houses were of the "single-end" kind of which an example has been given, not in any real sense of the words houses or flats at all, for they were without kitchens and individual W.C.'s, while individual piped water supplies, even in the towns, were by no means the rule.

The Commission estimated that to make any impression on this situation about 121,000 new houses were needed, half to replace houses totally unfit for human habitation and half to abolish overcrowding on the more than three persons per room standard. In order to raise space standards to any reasonable level, however, at least half of the one-roomed houses and 15 per cent. of the two-roomed houses needed replacement. This would bring the total number of new houses required to 236,000, equivalent to 21 per cent. of the houses existing in 1911. It was recommended that they should all have at least three rooms besides proper domestic and sanitary conveniences.

The Commission thought that private enterprise should not be the means of production: "We are driven to the conclusion," the Report explained, "that the sources and forces that were available for the provision of working-class houses had - and this is quite apart from the difficulties brought about by the war - failed to provide anything like a sufficiency of houses, and that in particular they had failed to provide houses of a reasonable standard of accommodation and habitability.... Private enterprise was practically the only agency that undertook the
building of houses, and most of the troubles we have been investigating are due to the failure of private enterprise to provide and maintain the necessary houses sufficient in quantity and quality.16

The Commission recommended that the state should give the local authority responsibility for seeing that sufficient houses were built, compensating them from central funds for the difference between economic rents and actual rents obtained. The Commission was opposed, taking into account the behaviour of builders, landlords and landowners in the past, to any attempt to get private enterprise to tackle the job with the aid of subsidies, 17 and it did not suggest the use of co-operatives, thus losing a chance to employ a means which was at once a native idea and a worthwhile Continental development; for, as we have seen, it was in Denmark of the same period that housing co-operatives had already been shown to pay their way and to be capable of production on the kind of scale Scotland at this stage required.

Despite differences of tradition and differences of problem between Scotland and England, housing policy as laid down after World War I in Acts of Parliament for Scotland was with a few exceptions the same as that for England and Wales. It started with the Addison subsidy on the lines recommended for dealing with the inherited arrears of bad housing, and proceeded to the Chamberlain, Wheatly and Greenwood subsidies. The Chamberlain and Greenwood Acts both supplied subsidies for slum clearance, but neither gave consideration to the urgent need both for powers and financial assistance for decrowding in Scotland. These were not made available until 1935, eighteen years after the Royal Commission's Report, whose findings about the special problems of
Scotland had been placidly ignored by the London Parliament. It must in fairness be added that the Department for Health for Scotland never became complacent. Its annual reports were full of criticisms of the progress made by local authorities. It attempted with all the means in its power to induce them to build more quickly and to deal with their slums. It did not hesitate to press home its arguments, in London and in Scotland, with descriptions of the worst types of conditions that continued to exist.

But despite improving status, the powers of the Department were still too limited. It was able, for instance, to resist only with slight success the wishes of the authorities to build two and three-roomed houses instead of four-roomed houses. Though it argued that an additional room only cost between £20 and £30 to build, and that Parliament had shown its disapproval of new houses with less than three rooms, the rent argument was too strong to be entirely overcome. In the original plans made for building with the Addison subsidy, 50.5 per cent. of the houses were to have more than three rooms, 48.2 per cent were to have three rooms and the balance two; in fact, of the houses actually built with this subsidy only 41 per cent. had more than three rooms. Finally, in 1929, the Department was obliged to agree that 25 per cent. of the houses built with the Wheatley subsidy might have only two rooms. The local authorities were always able to argue that even with the subsidies the rents for houses with more than two rooms, a fortiori those with more than three rooms, involved too large an increase over the rents of the old houses, which normally had less than three rooms.
Progress made with building was nevertheless impressive. By the spring of 1931 about 121,000 houses had been built by local authorities and private enterprise together (excluding those used for the replacement of slums), but taking into account what was required for overcoming the war shortage and keeping pace with the increase in the number of families from 1921 to 1931, there was still a shortage of about 10,000 houses at rents working class people could pay. At the beginning of World War I, there had been in Scotland as in the other countries studied an abnormally large proportion of houses standing empty because people either would not or could not afford the rents. In Glasgow alone there are believed to have been 20,000 empty dwellings, roughly 10% of the total number of dwellings in this city, which had just reached its total of 1,000,000 inhabitants. Filling up during the 1920's with young middle-class families, these relieved some of the pressure.

It was claimed that the shortage of houses had more or less disappeared by 1931, and also that the number of houses built from 1932 to 1938 averaging 12,265 a year (excluding those earmarked for replacement of slum houses), was as great as the increase in the number of families. But survey methods were sketchy until the era of serious town planning opened, introduced into Scotland by the Clyde Valley Regional Planning Advisory Committee in 1943. They themselves were excluded from survey work in Glasgow, a curious arrangement, and had to be content with guesses at real housing needs there, but their guesses were confirmed when in 1952 the city engineer of Glasgow reported that within Glasgow city boundaries there was an urgent need for 109,000 dwellings. In the same period of delayed reaction to the
appearance of scientific survey method, similar, if less horrifying confrontations with the true position of housing space were happening in the other Scottish urban areas.

It is important to record that of houses built up to 1934, the majority, 83.9 per cent. were built with the aid of a subsidy, including 61.1 per cent. provided by the local authorities. In England and Wales the corresponding figures were 48.8 per cent. and 31.0 per cent. For the difference in the importance of subsidised building north and south of the Border there appear to be several reasons. A considerable number of the more expensive Scottish local authority houses were occupied by non-working-class families. The Department of Health remarked in one of its reports that the local authorities had interpreted the term "working-class in no narrow sense". Local authority four-roomed houses were both bigger and better than some of the old middle-class houses. In this way it came about that the Wheatley subsidy, under which the local authorities built almost exclusively for ordinary purposes, benefited some Scottish families for whom it was not intended. Similarly the size of house which could be built by private enterprise with the aid of the Chamberlain subsidy (available in Scotland up to 1934), was more adequate by Scottish standards for better-off families than in England and Wales. Thus many slum dwellers who should have been moved into new houses stayed where they were, and it is significant that of the Clyde Valley report's total of houses needed, 168,000, or roughly four-fifths, were to replace "dwellings too densely developed, too small, mostly sub-standard, and by and large incapable of improvement to a suitable standard."
Much of this had been aggravated by a persistent overcrowding which would have been less severe had there been more movement out of the slums into new houses and less movement by people already tolerably housed. Overcrowding extended, of course, to new housing, especially when this was occupied by the very poor. The serious misuse of space which the situation represented was tackled by the Housing (Scotland) Act of 1935 which set a penal standard for overcrowding. The Act defined the limit beyond which an existing house could not be occupied, after a certain date, called the 'appointed day,' without a penal offence being committed. The appointment of the day, however, depended on the degree to which the Local Housing Authority had mastered its housing problems, and well into the 1950's few authorities had reached the point when the date could be fixed. On the whole, means other than penalties were resorted to. For the record, however, this penal standard of maximum occupancy was as follows:

One room house : 2 persons

Two " " : 3 persons

Three " " : 5 persons

Four " " : 7½ "

Five " " : 10 "

and for each additional room of 110 square feet, 2 extra persons were added. A person is defined for the purposes of this standard as meaning any person of either sex over 10 years of age: children under 10 were still deemed to be half persons, and infants under one year discounted.

This penal standard was intended to apply to existing housing only. However, in the course of time it became applied to new housing
in Scotland, for it was observed that a new house built by a local authority containing 4 rooms (3 bedrooms) could have been, and no doubt was, occupied by a father and mother, 2 children over 10 years, and no less than 7 children under 10 years - a total of 11 persons in all - with 3 bedrooms at their disposal. The Scottish standard of overcrowding has now, in practice, moved to 2 persons per bedroom, irrespective of age, and for the whole house a standard of 1:3 or 1:4 persons per room. A generalization might be risked that most people in Britain, in Scandinavia and Germany, would now agree that densities of two persons and more per room (taking the whole house) would constitute overcrowding, and in a new house or flat designed by responsible people who are thinking of space-use as they design, space occupied above that limit is being seriously misused.

Houses not built with subsidies in the inter-war years are an interesting category. Largely (though not exclusively) built for middle-class people, they were immune from the overcrowding menace and also unrestricted by maxima of floor area. Their creators were not, perhaps, the most enlightened as regards design, nor those most able to see, as Mottram at Rosyth could see, where standards of space-provision and the use of space should now lead. For the most part they were speculative builders, who in the 1920's and 1930's took a degree of initiative unexpected by the authorities and launched out into a programme of suburban development, chiefly using the single family house as the unit. This housing, consisting of single-storey houses called "bungalows", borrowed from the social success of the early English garden city idea. Indeed, by those who invested in it, the bungalow was
felt to be an improvement on the garden city houses they knew, not having the same cramped space indoors or outside. By adopting the lowest of all density standards of four houses per acre, each dwelling not only got its own independent existence within a garden but enough space between it and the next to accommodate the garage, which the advancing motor age now began to demand. Economical of building materials, the bungalow was erected roughly within a square of external walling. It had two main rooms flanking a front door, each with a bay window, for this Victorian feature remained a favourite with purchasers. One was the sitting-room, the other the master bedroom. At the back was a second bedroom and a kitchen with a back-door; and along the side walls, completing the enclosure of the central hallway, were a third bedroom and the bathroom. There were variations as regards the placing of rooms at the back and along the sides, and occasional invasion of the not inconsiderable pyramidical roof to make there one or more spare rooms. Space arrangement was generally unskilful, but housewives used to older, more inconvenient houses liked the easy routes between the rooms and the convenient arrangement of kitchen and bathroom side by side or opposite one another across a hallway. Their hot water supply, efficiently enough, came from a fireplace either in kitchen or living room. Space-heating, on the other hand, was inefficient, for fireplaces were on external walls, and occasional attempts to harness one or more of them to heat radiators from back boilers gave no great success. Any harnessing of so inefficient a source of heat was based on the continued cheapness and plentifulness of soft coal, and despite strikes and other difficulties in the Scottish coalfields, this continued to be the
mainstay of Scottish interior winter-time comfort. Not until the end of the 1930's was there a series of experiments which led to the much better fireplace devices which were put on the market after World War II. The precursor of these was the so-called "slow burning" fireplace of the 1930's which, according to the recollection of the writer and people whom he has interviewed in the course of this study, was remarkably unsuccessful. Its best remembered effect was to reduce the amount of hot water delivered to the taps in kitchen and bathroom to a point well below comfort and convenience.

Besides their economic plan shape, these bungalows were very cheaply built. The new cavity wall capable of being plastered "on the hard" was only one of several innovations by which traditionally heavy constructions were fined down to the limits of what were allowed under byelaws and building regulations, though it is questionable whether in Scotland the extremes of building economy practised by the "jerry building" of John Masefield's poem, written, surely in relation to southern England, were widely realised. An average price for such a bungalow in the outskirts of a Scottish city in 1938 was between £600 and £700, or roughly £1 per square foot, and both because of this low costing and a certain social success of bungalow developments as relatively happy places for ordinary families to live, considerable inroads were made on the numbers who otherwise would have been waiting for local authority housing to be provided for them. It was of course a factor in the cheapness of these dwellings that so often they were laid out as fringes along the main arterial roads which the public authorities were building as part of the developing requirements of the motor age.
Thus road costs and the cost of services were only carried by the speculative developers in a minimum degree, a practice which the Restriction of Ribbon Development Act of 1929 attempted to stop. This is not the place to review the success of that piece of legislation: Suffice it to remember that some years elapsed before the Act took effect and cheap housing of this kind, taking advantage of public authority expenditure on roads and services, continued to be built up to and even after World War II.

Space provided was generally higher in bungalows than in local authority housing and in cases where they were bespoken, not unusual, especially in the 1930's, three-bedroom houses reached as much as 1,000 square feet, well above the maximum set by government for subsidised development.

Both local authority housing and that put up by private enterprise was controlled by the local authority byelaws, which had been built up slowly and sporadically. Gradually, however, some form of uniformity began to emerge and in 1932 the Department of Health for Scotland published, for the guidance of burghs and counties, a set of Model Building Byelaws which included a consolidated body of requirements in this field.

Further editions of the Model Byelaws were published in 1934 and 1935 and a revised version, published in 1937, took into account the extended powers offered under the Housing (Scotland) Act 1935. Additional requirements in this model related to such things as the provision and maintenance of lifts in flatted blocks of more than 5 storeys. Other provisions dealt with access to houses, and protection of staircases forming part of the access. The standards set in this model were in
many cases specific: for example, every new house was required to have cupboard accommodation of an aggregate of not less than 20 cubic feet for every habitable room. This might be considered as the introduction of precise standards for the various functional requirements of housing: for the first time not only was the general provision of facilities required, but a standard was laid down which they must attain. The Model Byelaws for Counties also set requirements for the minimum cubic capacity of rooms within the house, revised the stipulated heights of ceilings, and set down requirements for artificial lighting and for the protection of stairways within houses.

Meanwhile local authority development had reached a point where the flatted tradition and that of the garden city had been combined to produce a characteristic flatted terrace or pair of semi-detached houses which, together with the bungalows, were the typical Scottish dwelling of the years leading up to 1939. This type of dwelling remained a compromise between the garden city and the flatted tradition. It was fondly thought that everything was in principle as at Welwyn or Letchworth, if less elegantly so. There were the curved roadways either following contours or, if laid out on level ground, engaging in simple geometrical evolutions. There were the front gardens with hedges, the paths leading up to doorways. But there was little tree-planting, and at the doorways a change in principle took effect, for in each block of semi-detached houses there were four such doorways: two to the ground floor flats and two at the gables of the building leading by staircases to twin flats at first floor level which otherwise repeated the plan of the flats below. This gave the blocks a singularly un-homelike appearance.
There was another difficulty, in the apportionment of garden ground; and here ingenious arrangements were adopted whereby direct access to gardens which ground floor flats enjoyed was compensated in the case of the upper flats by giving them larger areas of ground.

In practice it was generally the case that gardens attached to upper flats were on the whole neglected whereas those attached to ground floor flats were often, though not by any means always, kept as though the houses had been the terrace houses of the English prototype. 25

The true Garden City tradition survived all these attempted local adaptations, however, and most areas of Scotland have examples of the terraces or semi-detached villas of the English type on two floors built as an alternative to the flatted dwelling. It was with this accumulation of native and alien tradition that the Scottish housing authorities entered their renewed career after the 6-year hiatus of World War II.

HOUSING AFTER WORLD WAR II.

The Clyde Valley Planning Committee were, of course, right. Like other countries, Scotland faced in the first place an appalling housing shortage. There was also the problem of the greatly increased cost of building, which had the immediate effect of discouraging the kind of lower middle class citizen who before the war had embarked on the building of a bungalow from attempting that exercise. Where such a bungalow had cost £700 in 1938 it was now impossible to build for less than £2,000, even where post-war rationing by building license allowed it, and this cost change was not reflected as yet in rises in middle class
salaries. There followed, therefore, a period of serious stagnation which the central housing authority for Scotland, the Department of Health, sought to bring to an end in 1949, and 1950 with a campaign for building its so-called "low-cost" housing, a belated use of something similar to the H.B.M. standards tried in France in the years before World War II, as described in Chapter 7. But where the French chose flatted types of buildings including adventurous schemes like Drancy, the Scots now resorted in the first place to serious adaptation of the English terrace house. The first experimental example, built at Saughton in 1948, followed a plan similar to those published in the English housing manuals. There was an entrance hall and staircase, the livingroom to the right and the kitchenette through to the back, the pram store ingeniously arranged in connection with the staircase, and overhead two or else three bedrooms and a bathroom, the latter placed over the kitchen so as to share its plumbing. All of this was put under a simple roof and used a simplified form of window compared with what had hitherto been customary in Scotland where the strong liking for bay windows already mentioned had caused that expensive feature to be added wherever possible to the livingroom of each house, whether bungalow or local authority flat.

The Department's campaign was accompanied by new steps about byelaws. The 1937 models of the byelaws were found to be unsuitable to deal with the new impending diversity of designs and the wider range of buildings. In 1954 a completely new version of the byelaws was published in the form, as previously, of two models, one for burghs and one for counties. The 1954 edition not only developed existing requirements for
the standards of houses but set specific requirements for vehicular, pedestrian and refuse collection access.

The terrace house was the first of the new diversity, and it went into widespread production, on the Saughton and other models. As a favourite, however, it was far from ousting the two-floored flatted block, its rival ever since Rosyth. Both types continued to be built and, partly because of low-cost restrictions, tended to create great monotony when built in large numbers. But it was believed, not least by the Department, that anything higher, even on three floors, would be a more expensive way of building. And that was in spite of the Department's own moderately successful experiment with a three-storey block of flats at Sighthill, not far from the low-cost terrace. But it was not that the idea of building higher had been abandoned. In the 1940's, Glasgow had gone ahead with a series of slab blocks of 15 storeys which, however, did not take experience much further than the early blocks of flats in Liverpool or Leeds in England. They were expensive and encountered considerable difficulties with the exclusion of the West of Scotland's driving rain. It was now a matter for research and development to discover how best to return to storeyed housing: in what form, to what height, in what circumstances, social or physical.

It was again the Department that took the first important step, in launching a new experiment, this time using two tiers of maisonettes to make a four-storey block. This experiment took place at Muirhouse, and was connected with a programme of research into cost and construction, which proved the feasibility of storeyed development in both aspects.

The Department was now collaborating with an executive
organisation jointly working to central and to local government called Scottish Special Housing Association, commissioned particularly to build cheaply and quickly, but for its experimental work the Department's own architects designed and carried out their own work. Later this arrangement gave way to an arrangement with the Association for carrying out experimental work jointly. The Association carried out its own successful experiments with tall blocks of flats and soon there was increased general confidence in them, despite rooted opposition from garden city enthusiasts. The Scottish branch of the Town and Country Planning Association was especially vocal, using Sir Frederic Osborn's argument that tall buildings were the best way to put land out of food production, and that this while food rationing was in force was madness. Finally the Department settled the matter in favour of some tall blocks, at least, by instituting a special subsidy for that type of building where planning arguments were in support. Serious development of flats and maisonettes, however, had to wait until the 1950's when schemes mature with London experience, including those designed by Sir Robert Matthew and Sir Basil Spence, appeared on the drawing-board for the redevelopment of the famous Gorbals area of Glasgow. These are the subject of case studies, being the first flatted types in Scotland to be allowed some release from conventional designs. While they observe handbook and other standards, and are designed to satisfy requirements accumulated by local and central government experience, they nevertheless incorporate housing experience gained far afield. Both schemes have, of course, a relationship to the Corbusier blocks at Marseilles and Nantes which is of interest in the present study, for purposes of making a particular northern-
southern comparison.

With them is studied a related development by younger architects, Messrs Shaw-Stewart, Bailie and Perry, at Leith Fort.

The Saughton-Sighthill experiments enabled a start to be made on the Scottish Housing Handbook which was published in various parts from 1950 onwards:

Part 1 Sites and Layout Design
Part 2 Roads and Services
Part 3 House Design
Part 4 Equipment of Houses
Part 5 Tenders and Specification
Part 6 Economy in House Building
Part 7 Housing Procedure.

It was in Part 6 that the low cost designs were promulgated, together with plans for single people, elderly couples and others, reproduced from the Scottish Housing Advisory Committee's report of 1952: "Housing of Special Groups." But standards laid down did no more than setting minimum sizes for living room and kitchen at 180 sq. ft. and 65 sq. ft.

A set of standards appeared in 1954, setting a minimum of 305 sq. ft. for the living room plus kitchen and reducing the permitted maximum area for a 3-bedroom dwelling from 930 sq. ft., given in Part 2 of the Handbook, to 875 sq. ft.

Part 1 of the handbook was perhaps the first sign to the general public that the Department was able to relate its housing standards to its planning standards. The examples given are ready-made insets
into town planning schemes, with the precinctal idea clearly expressed, together with the gradations of access roads from the narrowest to the widest, feeding, in turn, into the main traffic routes of a development plan.

The trend shown in the selection of types of house to form housing groups is the acceptance of what was called "mixed development", in which both social and architectural advantages were to be found in avoiding exclusive adoption either of large blocks of flats or of street after street of terrace housing. Instead, it was argued, a development containing both flats and terraces would produce architectural and social variety and bring together into one community different types of families having different preferences.

In this there could be little to object to, but from the point of view of those who had been following Continental practice closely, particularly that of Scandinavia with its orientation of houses and consequent neglect of the corridor street idea, such as the Blidah scheme in Copenhagen, the layouts shown in the Handbook had a disappointingly unimaginative look, with corridor streets and houses turning in all directions. There were two reasons for this. The first was that there was still strong insistence from the client, the Scottish Local Authorities, and by the Department's public health experts, on the provision of open space for clothes drying - drying greens - and it was demanded by all concerned that these should be at the backs of houses, screened from streets and other accesses. This nearly led to the perpetuation of the hollow block arrangement, no different in essence from the hollow block of the Glasgow slums of the 1890's, however different and however much more humane (not to mention how much cleaner) it would have been in its
details. Not until the arrival in quantity of the washing machine and the spin-dryer have Scottish authorities begun to relent about this requirement, and the corridor street, with its closed block, begun in turn to fall into disrepute. The other reason for the unimaginative layouts was the supposition that housewives in their homes liked to have a view of the street and passing traffic and indeed to have this... from their main rooms. It is probably true to say that this was supposition rather than a result of serious enquiry, but in the present study not a few Scottish housewives have said that they would prefer this arrangement to other more secluded arrangements which their more modern layouts provide; perhaps there was some good guesswork in retaining a modified form of the corridor street and its kind of house in the Handbook examples. A palliative to those who criticised this arrangement was the evolution of the house type with the through-and-through living room which, however the house might be orientated, gathered a sufficiency of sun either through the front wall or the back. At Cumbernauld, where orientation has generally followed Scandinavian ideas, where indeed such ideas have been pioneered in Scotland, the earliest housing, arranged in "English" terraces with something very like corridor-street access, employed the through-and-through living room device. No doubt this house type and its handbook kind of layout will continue to be built for many years to come, but it is noteworthy that certain new experimental housing, such as Prestonpans, has turned even more decisively in the Continental direction, liquidating the sense of social distinction between front and back, and orientating houses in parallel lines to absorb sunshine rationally.

A circumstance which assisted this rejection of some of the
handbook's layout ideas was the restriction of housing costs extending from 1948 well into the 1950's. Screen walls needed to conceal views of drying-greens seen through gaps between housing blocks had to be omitted and were indeed formally disallowed. Laundry and other back-garden affronts to propriety had to remain in full view.

In matters of layout, leadership has now passed emphatically to the new towns, and it seems to be from Cumbernauld in particular that the Scottish local authorities are obtaining their main impulses.

Part 4 of the handbook, "Equipment of Houses", enters a sphere which Scottish housing has been avoiding. From the early difficulties encountered in fitting furniture into the rooms provided at Rosyth and Wardie, right through to the situation existing after World War II, it seems somehow to have become accepted that in new houses furniture does not fit or at least that it fits without beauty and that equipment is of the most rudimentary kind, virtually only a matter of sanitary ware and the provision of services. This is, of course, an over-simplification. Exercising no great sense of advancing taste, furniture stores have had on view for many years their examples of scaled-down Victorian tables and chairs, sideboards and wardrobes, more or less ready to fit into the sizes of room which housing standards have decreed. There was first of all the dining table of the 1920's in darkened oak with mock Jacobean legs which fitted against the living room wall furthest from the fireplace group of chairs, taking up a space measuring only 3 ft. 6 ins. by 3 ft. 6 ins. under normal conditions but having pull-out leaves built in under the top by which it could be expanded to 5 feet long. It had a sideboard to match. Later there were kitchen cabinets called "maids-of
all-work” which were in essence scaled-down versions of the old kitchen dresser formerly built into every Scottish kitchen, as depicted at Bellevue Crescent and at Albert Road in the records of their early occupancy. These gadgety new dressers had folding work-tops at the wrong heights, ill-fitting doors and drawers which seemed never to be able to open properly, but they could stand in the kitchenette without taking up more than a few square feet of floor area, and captured the affection of housewives who knew of no better things. A now well-to-do housewife known to the writer is about to take hers with her to a new £10,000 villa she and her husband are building. The bad, stop-gap furniture of the years between the wars, as poorly designed as the bungalows of that time, is still everywhere around, and the case study pictures all show some of it.

In the years after World War II, however, Scotland entered a period of new concern with furniture and equipment, and in the 1940’s the influx, first of Scandinavian and then of other continental ideas began to make itself felt in that sphere. In the co-operative stores and in cheap private enterprise furnishing shops, cheap replicas of Scandinavian space-saving furniture began to appear and in more expensive shops the real thing, complete with import duty. These were first of all dining-room chairs and tables, then cupboards and sideboards, neatly dimensioned beds, wardrobes, sitting-room chairs and the rest. The case study material shows a sprinkling of this, and also some application of the excellent ideas for built-in equipment which the handbook depicts. One or two of the handbook illustrations are reproduced, and are well worth comparison with similar material emanating from the housing policy leaderships of the other countries studied.
As regards standards for the house and its immediate setting, everything has now passed under the control of the Building (Scotland) Act of 1959 and its tightly knit Building Standards (Scotland) Regulations, 1963. Part XV, Housing Standards, applies alike to local authority housing and to privately built houses. Of this part the Department's Explanatory Memorandum says that it ..........

"incorporates requirements for housing standards broadly similar to those contained in the byelaws. There are, however, new provisions dealing with staircases, heating, power points, refuse disposal arrangements and windows. The major change in principle from earlier legislation is the adoption of room area as the basis of space standards instead of the total cubic capacities of rooms. The space standards for houses in burghs were laid down under the Burgh Police (Scotland) Acts, but for some time these standards have not been of any real relevance, having been generally relaxed under section 150 of the Housing (Scotland) Act 1950. In the 1954 Byelaws for Counties cubic capacities were laid down for houses containing one to five apartments but experience has shown that the byelaws did not take account of present day requirements and that the standards set were defective in several other aspects. They did not, for example, adequately regulate floor areas where ceilings were above normal height and the aggregate standards set for living and sleeping rooms in a limited range of houses did not show how the aggregate should be apportioned between the rooms. The flexibility necessary to ensure that the design of houses will meet modern requirements of comfort, amenity and economy, was consequently lacking."

The space standards stipulated are set out in Table 18 appended to the Regulations, which is therefore given in full:
TABLE 18

STANDARDS OF HOUSING ACCOMMODATION

<table>
<thead>
<tr>
<th>Size of house (other than living room)</th>
<th>Number of rooms (other than living room)</th>
<th>Minimum area in square feet of accommodation for living and eating (including kitchen)</th>
<th>Minimum capacity in cubic feet of Aggregate area of rooms other than living room</th>
<th>Larder and dry goods store</th>
<th>Linen and general store</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of rooms</td>
<td>Minimum area in square feet of kitchen</td>
<td>Minimum capacity in cubic feet of</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Aggregate area of rooms other than living room</td>
<td>Larder and dry goods store</td>
</tr>
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<td>(1)</td>
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<td>One</td>
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<td>75</td>
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<td>-</td>
<td>305</td>
<td>75</td>
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Four of the rooms shall have a minimum area equal to the appropriate area for a five room house.
In the case of a single-room house, the figure given in Column 3 includes sleeping accommodation, and it is significant that fear of overcrowding of new dwellings has subsided sufficiently to permit single and two-room houses to be built. It is understood that they are, respectively, for single persons and for childless couples, the latter being either young couples without children or old people whose children, if any, have grown up and live elsewhere.

In refraining from stipulating floor areas for each bedroom, the minimum size of any bedroom, indeed of any room other than the kitchen, is set by Regulation 183, Paragraph 2, at 75 sq. ft., but allowing a built-in wardrobe to be subtracted. This is interesting to compare with the 65 sq. ft. permitted in Denmark and Germany and found in France, though not in Italy. Scottish architects are finding this limit irksome, for it seems to many that the Scandinavian attitude, which demands an approved space arrangement with correct placing of furniture, is the better approach, allowing volume to develop from that.

The Scottish regulations approach this three-dimensional matter but do so rather cautiously, through stipulations of ceiling height. This is set at a minimum of 7 ft. 6 ins. for all rooms, but allows two relaxations: first that this height may drop to 7 ft. over any part of a living room extending beyond its stipulated floor area; secondly, that in any other room it is enough to achieve 7 ft. 6 ins over half the stipulated floor area if there is a height of 6 ft. 3 ins. over at least three-quarters and 5 ft. where a sloping ceiling meets the wall. That allows attic bedrooms to be formed, with a minimum cubic content of 525 cu. ft.

Architects trying to reduce kitchen space for middle class
clients who, for various reasons, ask for that, find the stipulated larder space irksome, though some have arrived at the neat solution of obtaining the cubic footage required by simply ventilating the whole array of lower and upper-tier kitchen cupboards irrespective of their probable contents. But that applies only to the more expensively fitted houses. The point at issue with the authorities is, of course, the high incidence of refrigerators, which to a considerable extent reduces the need for larders. On the other hand architects have welcomed the release from having to include in every house a washing tub. Regulation 190 permits this to be omitted where there are pipes and cables for the fitting of a washing machine. This affects middle-class housing most.

Out-of-doors, for all classes of housing, there are standards for road and footpath access and distances from refuse collection points. For example, footpath access less than 10 ft. wide to the front door of a house, or to the bottom step of a common stairway, must not exceed 150 ft. from the nearest roadway which is at least 10 ft. wide. There are also regulations about daylighting which in their application, using calculations based on sky component, external reflective component and internal reflective component, affect space about buildings. Here it is left to the architect to achieve a required standard of daylight factor for each kind of room, according to a given table, within certain angles subtended from the site boundary if that is not a street frontage. Open space for drying clothes is stipulated on a scale of 30 to 45 sq. ft. per dwelling, depending on size of dwelling, on land adjacent to it. This applies to everything up to five storeys, but above that height the stipulation is that the equivalent space be provided in the form of balcony,
flat roof or drying room.

From the space standards enforced by regulations, it will be seen that space about buildings is prescribed for daylighting purposes and for the drying of clothes. Since the regulations go very far into matters of detail within the house, it may be a pity that in addition to such rudimentary outdoor matters nothing is laid down about landscape provision. Such might have put Scotland ahead of the other European countries, and would have renewed a pride in landscape gardening for which Scottish gardeners as a profession were once famous.

Landscape provision has not had a very fortunate history in Scottish housing despite a promising start at Rosyth and at Wardie where tree and grass verges, besides hedges and the gardens of the houses themselves, were planted and are still there as evidence of early good intentions carried into effect. Despite traditional Scottish gardening skill, several factors seem to have played a part in neglect of landscape which resulted in the typical Scottish housing scheme of the 1930's and the 1940's being entirely devoid of tree planting and indeed of any other planting except what tenants themselves did within their own garden plots. One factor undoubtedly was the high degree of economic restraint which local authority members were forced by their constituent ratepayers and encouraged by central authority, to apply to housing expenditure, particularly expenditure on what might be called "frills", thereunder any kind of landscape provision. The other was the fact that in Scotland there is virtually no village tradition and consequently few people engaged in producing housing schemes had before them any kind of landscape picture, such as that of the characteristic
English village green, with its grass and its mature trees framing views of houses. Indeed, there is some evidence to show that city-bred Scots have become hostile to the idea of trees growing near their homes. This is suggested not only by the lack of tree planting in housing schemes but also by the strongly engrained habit of felling whatever trees may happen to be there in the first place. Freedom to fell trees is a carefully guarded right and it is significant that, while the disparity is now disappearing, there were in 1953 in the whole of Scotland only four tree-preservation orders in force under the 1947 Town and Country Planning Act against several hundred in England and Wales. A third and important factor is the serious amount of vandalism which has been encountered, particularly in industrial and mining areas. In the Niddrie housing area south of Edinburgh, a notorious new slum of the mid-1930's, not one of over 600 trees planted in verges and various minor pieces of public open space survived their first year. Experience of this kind was reflected in criticisms made at the public enquiry into East Kilbride new town held in Glasgow in 1947 when representatives of the Department of Health for Scotland displayed plans of the new town showing a park system and a landscape policy generally. The landscape provisions were held to be unrealistic and under cross-examination made into evidence that the technical planning of the proposed new town in this and other respects had not taken account of Scottish conditions.

In fact, East Kilbride proved to be one of the pioneering efforts in the direction of landscape provision. Work began with a comprehensive tree survey of the whole new town designated area and largely as a result of this the new town as it grew up respected the existing lines of trees and
of hedges in a way which had only been attempted in one previous housing undertaking, that of Westquarter near Falkirk, a development carried out in 1937. At East Kilbride comparative freedom from vandalism but in particular stout resistance to vandalism offered by existing mature planting carefully retained, convinced many doubters that conscientious and practical efforts to preserve and create a landscape must form part of future Scottish housing policy. This change of attitude was again reflected in the proceedings of a conference of local authorities held at Dunblane in 1949 when opportunity was taken by the Department of Health to explain the proposed contents of plans for comprehensive development areas to be prepared under the 1947 Town and Country Planning Act. It was put before the conference, nemone contradicente, that the creation of landscape as part of the total environment of such areas within the town plan was proposed to become an essential ingredient.

At East Kilbride a tree nursery was established as one of the first acts of the Development Corporation. A harmonious relationship between new and existing planting in all housing areas and in the Town Centre is both a distinguishing feature of this town, and a necessary one in view of another characteristic of East Kilbride: its survival as the last representative in Scotland of the unadapted garden city idea, with a predominantly low density and large areas of public and private open space.

At Cumbernauld, with its windswept hilltop site, it was seen from the beginning that a major effort at planting both of trees and shrubs and also of ground cover would be needed as part of the development. Towards this it was encouraging that the area round the Development Corporation Headquarters at Cumbernauld House contained remains of rich 19th century
estate landscaping. A tree nursery was planted and sources for the
production of mature trees discovered in the neighbourhood and the
planting of mature trees for strategic points in the various housing
layouts established as part of the normal expenditure of the Corporation
on its projects. Here for the first time in Scotland in recent years was
seen the spectacle of 35-foot-high trees being lowered into position and
held there by guys until new root structures could take their permanent
grip in the soil.

Cumbernauld landscaping techniques have consisted, then,
partly of the retention of existing trees and hedges however few, partly
by new planting of trees in maturity, and partly by extending over much
of the town area an excellent system of ground cover, ranging from
paving to turfing and even heather. On the north side of the town, open
spaces round houses have been laid out with turf, heather, and boulders
with an occasional rhododendron bush, even using the humble rhododendron
ponticum. Bushes of this weed rhododendron were removed from the
policies of Cumbernauld House and planted as set pieces near the front
doors of houses. Experiments in ground cover have ranged from the use
of cement flagstones interspersed with granite setts, to field stones or
"boules" set in cement and used for areas where walking and climbing
is to be discouraged. Case study material from Cumbernauld displays
this landscaping.

The important example of combining new landscape with old is
the now famous pedestrian way through Seafar which runs up and down
the northern slope of the ridge on which the town centre is being built.
This pedestrian way ends at the upper terminal point with a children's
playground close to the Episcopal Church, a playground equipped with brick sculpture, a sandpit and a scrambling area consisting of granite setts laid to contours. In the present study this has been observed to be an unpopular feature with the mothers of the neighbourhood, and it has not been demonstrated to be popular with their children. The good intention was, of course, to bring a feature like this into the centre of a main pedestrian access of the town to supply a liveliness to the whole pedestrian way, at the same time not disturbing the houses by having children playing right under their windows. More is said about the problem in the comments in the case study material and it is taken into the conclusions in Chapter 9.

The inclusion of children's playgrounds in the public open space attached to Scottish housing schemes goes back to the days of Geddes but serious attention to the matter dates from 1947 when the landscape architect employed by the Department of Health for Scotland assisted in the layout of experimental play spaces at various places, chiefly in Fife. All that work has been influenced by pioneer undertakings in London by Lady Allen of Hurtwood, and in turn by Danish and Swedish experiments, particularly the information which Danes were able to supply of the kinds of play equipment which children really enjoy. Scottish housing experts visiting Sweden reported that the elaborate play sculpture which had been tried out in Stockholm was not successful to a degree which would warrant its high cost of production, and the Scottish schemes instead provided climbing areas of a simple sort with frameworks and hopping stones of concrete which were all that the age-groups concerned were likely to want. Those in Fife were highly successful and have led in turn to
the obviously simple schemes used at Cumbernauld, where equipment is of the most rudimentary kind. Cumbernauld, however, returns in part to Scandinavian tradition, for the brickwork of the climbing feature is nearly as elaborate as, though much less costly than the concrete sculpture of Stockholm. This may have been unwise.

An unexpected impetus was given to the progress of landscaping Scottish housing by the first experience of redevelopment in the Gorbals, Glasgow. Here, in 1957, the City Architect carried out a pilot scheme of a relatively unambitious kind before the Corporation embarked on the Matthew and Spence undertakings. Two blocks of four-storey flats were built, of conventional form but landscaped with paving, walls, some flowerbeds and a children's play space. It was not thought that any planting would survive but tenants quickly became zealous custodians and this little landscaping scheme, in the very heart of a city not noted for gentle behaviour, has survived. It prepared the way for the more elaborate open space provisions of the Matthew and Spence areas, studies of which are appended. Here it might be remarked that, while the Scottish Housing Handbook suggested in a broad way how landscape might be treated in a scheme of mixed development, it remained for the local authorities to work out in detail what was suitable for the Scottish climate and for Scottish social habits.

The Spence block at the Gorbals is the first in Great Britain and perhaps in the world to provide the two storeyed-flatted garden with which Corbusier experimented in the first place at Pessac after his declarations about "Garden Apartments" in his _Ville Radieuse_ manifestos.

It is especially in its landscape potential that this whole
redevelopment expresses the "ville radieuse" idea, a characteristic made particularly clear by the way in which the Matthew scheme uses the width of the river Clyde as it runs alongside the site to establish the kind of open space scale which the Corbusier drawings and models of Paris acquire in another way.

Unfortunately, though the completion of this thesis was delayed for a year in order to include a study of the two-storey flatted gardens of the Spence scheme in use by tenants, completion of the flats themselves was itself so delayed that, by the time this text had to be put into final form, occupancy had only just begun. There has been no time for tenants to tackle gardening and it will therefore remain to be seen how these interesting flatted garden areas work out in practice. Suffice it to say that the landscape consultant has not expressed himself very hopefully about climatic aspects of the design. It is likely, he thinks, that a lot of wind will blow through the gaps in the building mass which the gardens create, although they are arranged off the line of the prevailing west wind which blows up the Clyde. Areas of turbulence are certainly in evidence now and it seems as if it will take the artificial creation of luxuriant vegetation in the gardens themselves to establish the right conditions. No doubt this could be done, but the provision of plants in a state of the required maturity would be a costly matter and is not at present contemplated. It is worth noting here again that the first display of this kind of garden design, at the Pavillon de l'Esprit Nouveau at Paris in 1925, included a mature tree fortunately growing at the site itself. This may have to be remembered by whoever may attempt to
bring to reality the exciting but difficult Corbusier idea of the garden-apartment.

The intention of such efforts is, of course, to humanise in high buildings the otherwise inhuman character and aspect of flats, which however generously they may be spaced indoors, get further and further away from that direct contact with nature which the other types of development provide with comparative ease. While, therefore, it is important to notice that in the Gorbals case Glasgow's and Scotland's long experience of living in flatted development has not blinded client or architect to the need for humanising devices, the devices themselves suffer from lack of follow-through. It might have been wiser to produce the first example of house-and-garden relationships of this kind on the ground, in connection with the lower and less costly types of development. In other words, it is a pity that as a prelude to the Spence development in the Gorbals there was not somewhere else in Scotland a development like Pessac.

Housing experiments so far launched in Scotland have not been intended to test the Corbusier ideas for urban gardening but to probe possibilities of selecting and grouping varieties of dwelling types. The object has been to incorporate the advantages of flats such as compact planning, with the privacy and sense of individuality which distinguished bungalow developments of the years between the wars. Of such developments the first was the Edinburgh University experimental housing at Prestonpans, which uses the patio type of house, and it is the subject of a case study made by the writer himself in extension of the social survey carried out by the University. Low cost and high density was the
aim together with a reduction of the internal economy of the house to the simplest terms as regards circulation and the concentration in one part of the house of services and equipment.

The Department of Health for Scotland was not the only government body interested in promoting modern housing. The sister Department of Agriculture and Fisheries devoted its attention soon after the end of World War I to the provision of land settlement in smallholdings for returned war veterans. These schemes have continued to operate under their own legislation up to the present day and are still developing, though on a reduced scale. Unfortunately the house type in use has not been the subject of much progressive development. Indeed the types being built today are largely the same as those erected in the 1920's. There is therefore little interest in trying to compare them as dwellings with their equivalents in other countries, which include such outstanding achievements as those found in Italy promoted by Agraria Riforma (see chapter 4), and also with the land settlement schemes which were a mainstay of governmental housing policy under the German Third Reich. What the Scottish example has failed to do in any way is to capture or recapture a convincingly rural tradition. These smallholding cottages have more in common with the suburban bungalow than with the old Scottish country cottage. A particularly disappointing feature is that the front and back door arrangement of the suburban bungalow is copied though it must have been clear to the designers from the start that, in terms of traditional Scottish country life, the front door would seldom be used. In one example visited it was found in fact to be closed up and the front porch behind it used as
a store. There has been some failure here to understand the social usages of the people concerned and if at the outset there was no social usage to study, then the failure was to establish a dwelling type in which a suitable combination of traditional Scottish country life and a progressive reflection of the industrialised agriculture of the next few decades could be achieved.

Similarly, it was not felt that much purpose would be served by including in the Scottish case studies any private development. Scotland, of course, has its good examples of the one-off villa, carefully designed by architect and client. But the really good quality villa remains scarce. It is nothing like the institution in Scotland that it has become in Denmark; and it is not the object of strenuous ambition to acquire, as it has become in Denmark, in Germany, even in Italy. Possibly Scotland's position is nearer that of France. It is nevertheless regrettable that private enterprise, responsible for the "bungalow", the 1930's version of the villa, has not been able to produce in the 1950's an advanced version even of that form of dwelling. Of this situation, Professor Sir Robert Matthew said at the ceremony conferring on certain Scottish architects the coveted award of the influential Saltire Society for 1965:

"My view is that in Scotland the housing design standards of local authorities are well ahead of those of private enterprise - a very curious thing."
CASE STUDIES

1. HISTORICAL

The case study material begins with historical matter about Glasgow housing in the form of photographs dated 1868 from a rare publication in the writer's possession. It continues with the material already referred to which describes 5 Bellevue Crescent, Edinburgh, and includes also a sheet of photographs of Sir Patrick Geddes' development or redevelopment, Ramsay Garden, on Castle Hill. It also includes drawings of the mediaeval house at Inverkeithing referred to at the beginning of the chapter, comparative plans from Ordnance Survey sheets of the Garden City development at Wardie and the early-modern flatted development at Ferry Road, Edinburgh.

It then proceeds to a study of the Glasgow flat at 45 Albert Road, which is treated as a full case study with a plan and drawings as occupied in 1933 and plan and photographs as occupied now.

The flat is on the top floor of a four-storey block built in the 1890's as part of a development extending from the railway territory of central Glasgow to the boundaries of Queen's Park, and was studied as typical of the kind of housing provided in late 19th century Glasgow for upper working class or lower middle class occupation.
In its original use the accommodation consisted of a sitting room and bedroom to the front and a kitchen and second bedroom to the rear with bed-closet and storage, together with bathroom and entry, in the centre of the plan. The common stair gives access to two such flats per landing, the stair itself occupying a minimum space lit from windows in the rear facade.

The lavatory is lit from the stair and likewise ventilated to it. A bath is provided but no washbasin, and fed with hot water from a cast iron boiler built into the cooking range in the kitchen. From this cooking range hot water was also possible to draw by means of a tap projecting from the front of the range at a height suitable for filling buckets, and the kitchen sink has hot and cold water led to it.

The kitchen range is a cast iron construction produced by the Carron Company of Falkirk which at this time had almost a monopoly of kitchen range production for Scotland. It has a fire grate in the centre,
an oven to the right, the hot water boiler behind and to the side and an arrangement of shutters which directed the main currents of hot air to right or left according to the need for heating hot water or heating the oven for roasting or baking.

The kitchen dresser, a built-in piece of equipment, contains space for food storage and also a coal bunker, for the habit of this time was to buy coal by the bag on a scale of one or two bags of coal per week, fed to the kitchen range, for the life of the family was lived largely within the kitchen. The sitting room, used only for visitors or on special occasions, has a gas fire, designed with sloping asbestos-clay elements covered with a layer of artificial coal which glowed gently in the heat.

The occupancy in 1933 consisted of an aged mother aged 33 and a son aged 45. The son, a musician and a piano tuner, used the front bedroom for his professional purposes and also slept there, while his mother occupied the room to the rear. Earlier in the family’s history, while there were four young people growing up within the family, occupancy is stated to have been more typical of the conditions envisaged when the flat was built. The mother and two daughters occupied the bedroom to the rear, the son the bed-closet off the kitchen and two other daughters slept in the front bedroom. This was a case of an unhappy marriage in which the father of the family had fled while his children were still young, making his way to Australia and remaining there untraced. The family was brought up on the mother’s part-time earnings as a teacher employed by the Glasgow School Board and on contributions made by brothers and sisters in various employments in the city. In due time the daughters reached the age when they could earn money by part-time
teaching, all in a period before the present stringent arrangements for certificated and qualified teachers, came into force. Behind this was the happier history of emigration to Glasgow and gradually making good to reach middle-class standard.

Lighting in this house and others of this type was invariably by gas but cooking was not yet by gas, this being considered a luxury belonging to upper strata of society. Gas light in most of the rooms was by incandescent mantle but in the bathroom it was by gas jet, which served to purify the air to no little extent. It was screwed down to burn at what was called a "peep" and turned up by anyone entering the room. Gas light was also used on the staircase where it was lit by the "byepass" principle in which a tiny jet of gas burning day and night was available to ignite the burner when a switch or tap was turned by means of a chain and a ring within reach of adults, but not of children. Towards evening, this device was adjusted by one or other of the householders on the landing and the light burned brightly until bedtime.

The stair and its access at ground level were known in Glasgow in Edinburgh though not in Glasgow as a "close" and the door at the street entrance was controlled by chains and levers in such a way that visitors at street level could be admitted by the householders by pulling a sliding handle on the landing outside their flat entrance. This involved the arrangement, familiar still in the older flatted developments in Scotland, of rows of brass plates with bell pulls at each close entrance, each bell pull carrying the name of the family in whose flat a bell rings when the handle is given a sharp tug.

This was an eminently practical way of excluding unauthorised intruders. It was in many ways better than the French system of the
concierge, since each householder played his part in the maintenance of
good order within the group of dwellings, and was not in the hands of
some third impersonal agent who could use or abuse the privilege of
controlling entry. It is thought that the general sense of independence
of the Scottish family, whether middle-class or working class, of this
period would not have tolerated the concierge system. Such ideas
tasted of the "poorhouse" the colloquial name given to the poor law
institutions in which paupers were housed. The family inhabiting
45 Albert Road regarded such places with absolute horror and would
have starved rather than gone there.

A regular feature of life in these Albert Road flats was the
Cathcart railway, a circular suburban line along which trains ran at
approximately 20 minute intervals. Children rushed to kitchen
windows to watch the trains go by, particularly when the train in
question was running along the tracks on the further side of the railway
which meant that the engine and carriages were fully visible. All over
Glasgow at this period, train-watching was the subject of ardent study
for the young and the histories of the engines and their designers,
belonging in this case to the proud and famous Caledonian Railway,
were household words.

Every so often, rubbish was carried down from the flat to a
rubbish bin which stood in the back yard, an open space otherwise quite
unused, from whence it was collected by the Corporation of Glasgow
dustmen. These, with their horsedrawn vehicles, were a familiar
sight and sound in the early morning, their period of work being from
6 a.m. until 8 o'clock but never later. Waste paper was collected
separately and taken to the front door in bundles for weekly collection.

An atmosphere of thrift but of competent well-being within measurable financial resources, pervaded this kind of household which survived mainly on the excellent housekeeping and cooking of the old mother, a set of skills which she brought to the town from her country background.

This was a church-going age and on Sunday morning the mother and son walked a distance of half a mile or so to a church of their particular persuasion where the son played the organ for a small addition to his otherwise slender income.

Albert Road was not built by an industry to house its workers, but as a profit-bearing investment, by speculators, and at the time in question rent was paid once a week into a family trust at a law office situated in West George Street. Who the owners were was never made known to the tenants, but the owners were responsible for maintenance and repairs, though not redecoration, which was undertaken by the tenants themselves, on a very parsimonious scale. In the course of five years possibly one room would be cheaply redecorated with whitewash on the ceiling, cheap wallpaper on the walls and brown paint on the woodwork with varnish stain on the floor.

Only in the sitting room was there a carpet, a thin and worn affair. Other rooms had linoleum. Windows were curtained with white lace curtains, machine made, to which in winter were added dark heavy curtains capable of being drawn across the window opening and thus assisting in the preservation of heat. Padded chairs were covered in horsehair and there were occasional cushions of a home-made kind
displaying rather coarse embroidery. In the kitchen a clock known in Scotland as a "wag-a-t-wa" tick-tocked as it kept the family alive to the business or school hours of the city's life.

From the drawings produced it would be seen that all the furniture was simple in character, some of it stamped by the country origin of the family and dating from an earlier century, but most of it belonging to the Victorian age itself though entirely without the extravaganza which the name Victorian normally suggests.

The bath was of zinc painted light brown, the paint being renewed once a year by brush application. All taps and other plumbing fittings were of brass polished daily and differing little in their mechanical design from those in use today. A stock of leather washers was retained in the house for replacing worn washers, the sign of which was the tendency of the tap to drip. Dripping taps were the subject of periodic inspection by the Water Board who also levied upon the tenant a water rate with which the landlord had nothing to do. Water was in one sense a precious commodity, as was gas. Coal until the end of the first world war was a cheap expendable material and was burned in quantities which would nowadays seem extravagant.

As might be expected, this flat today looks very different inside. Its new occupancy consists of a father having an unhappily married daughter and her children living with him, and although they are separately on the list for a Corporation house, the time of waiting (in his case 25 years) has been so long and is likely to continue for years yet, that, with landlord's consent, the tenants have carried out renovations. The main renovations are in the kitchen where the old coal-fired range has given way
to an oil fired heater and the coal bunker and dresser have likewise given way to a gas cooker and a kitchen cabinet of the awkward and gadgety kind described elsewhere in this chapter. At the back of the kitchen stands a sideboard helping to give the room its dining-kitchen character, stamped on it, too, by a modern dining table which has some distant derivation from Bauhaus ideas. Comparing the present state of the kitchen with its former state, however, character appears to have been lost, if cleanliness and convenience have been gained.

This seems also to have applied to the living room where the low scale of a new fireplace is at variance with the room height of 9 ft. 6 ins. and with the scale of the windows. On the other hand, were it possible to compare photographs of the present state of things with the older state, it would undoubtedly appear that the light paintwork has made the place much less gloomy. This the present photographs, somewhat underexposed, do not quite reveal. It is worth noting in passing that the living room has a dual focus, on the fireplace and on the television set. It is also noticeable that the fireplace is supplemented by an up-to-date electric heating device with a sloping silhouette reminiscent of the gas fire which was there before.

The bathroom face-lift has been equally complete but more successful. The old painted bath is away and a gas hot water heating device has been installed, with plastic tiles covering the walls which were formerly only plastered. The old soil stack is visible in the corner and the W.C. cistern is likewise an original feature.

Although they have put effort into its modernisation, the occupants
are not very attached to their house. They are lonely, and find they are living in an unsettled part of the city. People come to live there as a stage towards getting a new house in some way and very few try to settle down to make a real home. The daughter's unhappy marriage (a matter left unprobed) may, however, be a factor in this lack of attachment.