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UNIVERSITY OF ENGINEERING AND TECHNOLOGY

THE PHYSICAL IDENTITY, GROWTH, TRANSFORMATION AND  
REVITALISATION OF RESIDENTIAL NEIGHBOURHOOD UNIT

by

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Submitted to the Department of Physical Planning  
in partial fulfilment of the requirements for the degree

of

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September, 1971

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NOTE : Work on this thesis was completed much before the emergence of independent Bangladesh. The contents of the thesis are not, however, affected by the fact of Independence except that the words 'Bangladesh' and 'Pakistan' should now replace 'Pakistan' and 'West Pakistan' respectively. The author regrets that the thesis could not be retyped due to financial and time constraints.

# THE S I S

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## ABSTRACT

Residential Neighbourhood is not an artificial creation; it is a physical concept. The purpose of this study is to conceive the residential neighbourhood simply as a sub-division of the town, seen principally in terms of service centres and service areas, with the requirements of road system enhancing its desirability, which is fully sustained by the opportunities for visual treatment afforded. In writing this thesis, a brief discussion on the historical background of the concept, origin, growth and development of neighbourhood idea has been made.

The study is conducted to present how the social homogeneity can be created and how the social activities can be fostered. The study aims to analyse the different elements of neighbourhood unit and the most efficient inter-relationship of these elements as regards their siting and scale of provision. Further analysis is made to determine the size, form and density of the residential neighbourhood for smooth and efficient functioning of the same. Finally a brief discussion on the transformation of residential areas (in Dacca City) and its possibilities for revival into neighbourhood units is made; and also a suggestion has been made for the emphasis to be put on local conditions, practical surveys and public participation in the preparation of neighbourhood plans in our country.

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## CHAPTER - 1

### INTRODUCTION

The art of living is the hallmark of civilization. Throughout history, men have grouped themselves together for safety, for the exchange of services, food and goods, for worship and social intercourse. The town is the highest expression of these mutual needs; it became the seat of administration and justice, the market and the focus of manufacture, a nursery of the arts, religion and science -- in every way a utility for collective living.

The residents of a town or a locality usually express their desire for the company of their fellows by calling one another, meeting in town-hall. The community displayed a conscious pride in building and co-operation in manufacture by simple craft methods. But the metropolis created by the industrial revolution completely dissipated whatever urban unity remained from the medieval town. Human values had dissolved within the indistinguishable mass of the industrial metropolis. The dissolution of these values has created among urban dwellers a detachment from each other.

Opinions among social scientists differ on the effectiveness of the neighbourhood principle as a means to overcome this detachment. In the larger towns and cities a different attitude often prevails. People may remain strangers with their neighbours without knowing each other for years together while they will seek their friends no matter what distances may separate them. This may be partly due to the fact that neighbours are not dependent on one another's aid and company in a city, with its readily available public services and entertainment, and the wide choice of acquaintance available. The others contend that the lack of neighbourliness is not always a willing choice of the residents and may arise rather from the lack of local facilities for social intercourse and self-expression or from the physical and financial difficulties of gaining and maintaining access to such facilities, or common pursuits.

Notwithstanding these conflicting opinions, it has become a practical necessity to employ the neighbourhood unit, or its counterpart, as a means to restore a recognisable form in the physical organisation of the city. However large or small the city may be, it is necessary to restore some semblance of human identity to the urban scene, and there must be a workable unit of human scale with which to weave the urban pattern into a workable whole.

Another major problem to-day is to find a way of communal life which reconciles our reliance on motor vehicles for personal, public, industrial and commercial use with the need for safety, privacy and quiet in our homes. The modern transportation has brought about profound changes in the city, the boundaries of the towns have been broken down, railways and roads spread out like tentacles from the central urban core, and shapes and undulating suburbs sprawl in all directions. All open lands in the environs of our larger towns have been regarded as potential building land and real estate interests have exploited it to the full. There is no systematic organization of the physical layout of the area in which people live. Most of the suburban residential areas have got no physical identity and the differentiation from the neighbouring areas is very difficult. It is merely part of a vast area occupied more or less indiscriminately by houses, shops and industry. There is no co-ordination between the siting of shopping centres, schools, parks and playing areas, churches and meeting halls. Such community facilities as exist are scattered over the area and their positions mainly determined by chance. In many cases the arterial roads slash right through the residential areas bringing its noise, its smell and its danger to life and limb. The arterial roads are often lined with shops almost end to end. In

such districts local interest or community spirit is usually at a low ebb, and such facilities for community life as exist have no organized arrangement; the residents do not view themselves as a group, have few local interests, and little opportunity for pride in common achievement.

The common objective of a neighbourhood is the maintenance of a living environment suited to the nature and desires of the people who are a part of it. Neighbourhood planning is an attempt so to plan residential areas that each neighbourhood will be a distinct physical unit. Within the neighbourhood the internal planning provides for the provision and orderly arrangement of all those facilities which are shared in common by residents. The facilities are grouped so far as possible, thereby adding to the convenience of the residents, while providing a nucleus for the development of the local social life of the neighbourhood. While neighbourliness in towns may depend largely on less tangible things than the physical shape of our communities, there is little question that neighbourhood planning can make a valuable contribution towards the creation of a community spirit, and general social development.

In the rapid and uncontrolled expansion of our towns and cities in the past, we have lost something of great value, the neighbourhood. The planner's problem is to recover its essential features



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in old-established towns, and to foster those things which  
make the good neighbourhood, when he comes to plan new towns  
and new residential estates.

## CHAPTER - 2

### THE CONCEPT, ORIGIN, GROWTH AND DEVELOPMENT OF RESIDENTIAL NEIGHBOURHOOD UNIT

#### 2.1. The Concept of Neighbourhood Unit

The concept of neighbourliness has been very aptly formulated by the following words spoken by a Chinese sage 2000 years ago: "Mencius says in his dialogue with Dunn Wan Kung that if a neighbourhood of eight families is formed, the inhabitants will work together, will keep each other company while resting in the evening, will guard their property against trespassers from outside, will look after the sick and help the weak, and attend to their private matters after the communal work is done".<sup>1</sup>

The above concept has narrated the most important characteristic features of neighbourliness, but it is controversial whether a group of eight families is the specific requirement of a neighbourhood unit. The modern social planner Dennis Chapman

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<sup>1</sup> Hans Blumenfeld: The Modern Metropolis — Its origin, Growth, Characteristics and Planning (Selected Essays) Edited by Paul D. Speirs. p. 176.

observes that "the basic and most important social intercourse is that between immediate neighbours two or three families on both sides of the dwelling, ..... mutual visiting, ..... mutual aid in every aspect of domestic life, in sickness and in the care of the children".<sup>1</sup>

Dennis Chapman rightly remarks that such groups are too small or too intangible to enter into the planners' calculations. Mr. Chapman mentions 40 to 100 families as the next level which is characterised by face to face contact. He adds a third level of 400 to 500 families which can support a local shopping centre, a day nursery school, infant school, social club, branch library, and restaurant. In such group of 400 to 500 families, there is no longer a universal face to face acquaintanceship; but such relation is still possible among the children and adolescents of each age group. Apparently this number represents about the maximum size of a group of "human scale". Once this limit is passed, it is doubtful whether there is any qualitative difference between a group of 10,000 and one of 10,000,000. The population group of 5000 to 10,000 persons required to support an elementary school is probably much too large to form social relations.

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<sup>1</sup> Hans Blumenfeld; *The Modern Metropolis -- Its Origin, Growth, Characteristics and Planning (Selected Essays)* Edited by Paul D. Speiregen. p. 177.

Arthur Gallion has said "the neighbourhood unit is not some sociological phenomenon; it embraces no particular theories of social science. It is simply a physical environment in which a mother knows that her child will have no traffic streets to cross on his way to school, a school which is within easy walking distance from the home. It is an environment in which the housewife may have an easy walk to the shopping centre where she may obtain the daily household goods, and the man of the house may find convenient transportation to and from his work. It is an environment in which a well -equipped play ground is located near the home where the children may play in safety with their friends;....."<sup>1</sup>

It is the essence of city life that every person has bonds with different groups on the basis of work, residence, religion, politics, sports and a host of other interests. Now it has been justly pointed that the term 'neighbourhood' frequently is used not to denote any functioning social unit but simply to mean a service area . A neighbourhood unit is that portion of a larger community or city which is specifically developed for the safety, health, comfort, convenience and welfare of the residents of that area. It is further suggested that each service unit of each service function- education, health, shopping, recreation etc. — be analyzed separately as to optimum size and service radius and distributed

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<sup>1</sup> Arthur B. Gallion, The Urban Pattern, City Planning and Design, (D. Van Nostrand Company Inc., Princeton, New Jersey, 1959) p. 278.

accordingly . If some such units can be grouped together for convenience, it should be done.

There is an interesting parallel to the idea of the neighbourhood unit in that of the hierarchy of settlements. Town centre not only supplies services of a high order to the whole of the town and to the service area of the town, but also supplies services of a lower order to those of the town's inhabitants who live close to it. The neighbourhood unit aims to supply these services of a lower order (lower order than town centre) to the whole of its inhabitants from the neighbourhood centre and to some of them from whatever sub-centres may be established within the neighbourhood.

It will be seen from the above that the neighbourhood unit is conceived here simply as a sub-division of the town, seen principally in terms of service centres and service area, with the requirements of road system and of political sub-division enhancing its desirability, which is further sustained by the opportunities for visual treatment afforded.

## 2.2. Origin, Growth and Development of neighbourhood idea.

The pre-historic man formed towns where they found land which would support them in relative safety and comparative permanence. Then, shortly they discovered that their shelter if near that of others, would also serve as a protection from enemies. Mutual aid in times of danger and co-operation toward a general improvement in

their living conditions encouraged the development of the city. Generally desiring the association of others man became a social entity and people with common interests assembled in groups to secure for themselves protection and the maximum amenities of life.

As the city grew in size, some areas within it assumed certain homogeneous qualities which we have identified as neighbourhood. Frequently people grouped together with those who spoke their common language, shared their particular religious tenets or stemmed from similar racial background. As the social complexities grew and some of them became richer than the rest, they moved their residences to form more exclusive neighbourhoods founded on the differences in social and economic status. Different environmental standards were established and people who desired and could afford those gathered there to secure these amenities. Some neighbourhoods developed more from compulsion than native choice; prejudicial restrictions, limitations of language, or economic pressures often forced the development of neighbourhoods identified by class distinctions. But the concept of neighbourhood unit is relatively a late comer in the field of planning.

The concept of neighbourhood unit saw its origin during the period of post-industrial revolution in nineteenth century at which time it entered little into planning thought. The degradation of

the town due to sprawling industries was not accepted as the inevitable price for material prosperity. A steady and bitter fight went on for the improvement of housing and working conditions. It was indeed a period rich in Utopias, -- among them are Robert Owens' projects for model industrial village in Scotland in 1816, Titus Salts' modest Saltaire built in 1850's and the technically more advanced "Victoria" proposed by J.S. Buckingham in 1848 which was never carried out. These paved the way for Cadbury's Bournville (1879) and Lever's Port Sunlight (1888) where benevolent industrialists reproduced the rural atmosphere for cottage and village green in housing for factory workers. And in 1898, in his book "Tomorrow", Ebenezer Howard gathered together ideas from these and other sources and gave them a compellingly romantic form.

Ebenezer Howard's "Garden City" concept suggested a cluster of self-contained towns of limited size grouped round a central city, ( so that) each inhabitant of the whole group, though in one sense living on a town of small size would be in reality living in and would enjoy all the advantages of a "great and most beautiful city" in which could be found the university, art galleries theatres and so on which no small town can afford. His model town shown in fig-1 is circular in plan ( with the provision that it must be modified to suit the condition of the site), and is bounded by a railway line linked to the main line. From the central park radiate

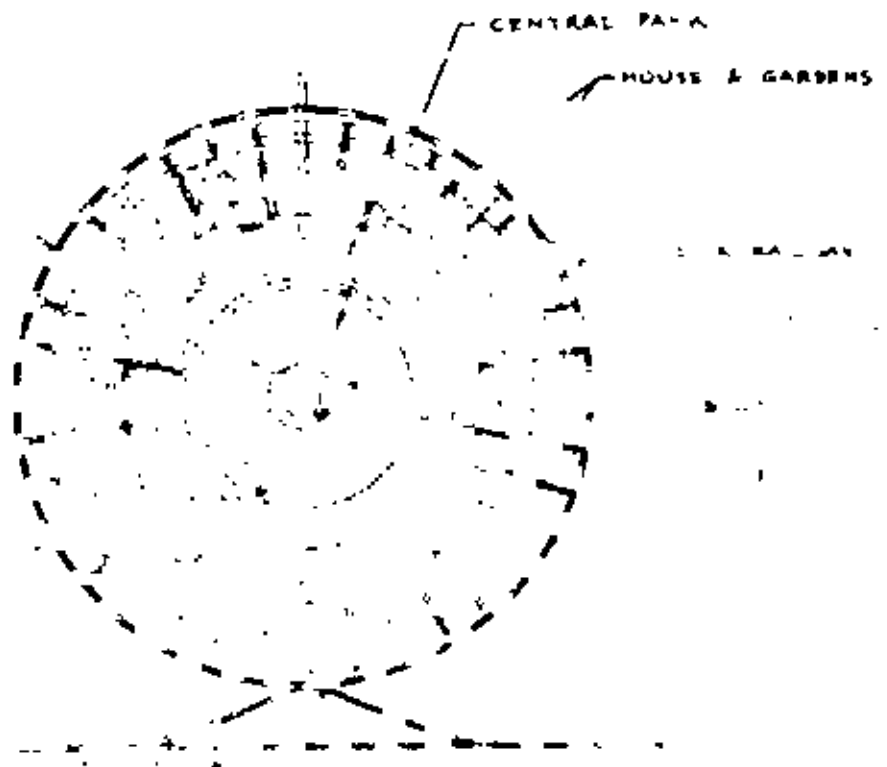


Fig.1. Diagrammatic plan of Howard's Garden City, 1898.

Source: Tetlow, John and Goss, Anthony, op. cit. P.29.



boulevards 120' wide dividing the residential zone into six sectors through which an annular ring of parkway 420' wide provides local open space and sites for schools and churches. There are several significant points here; Howard evidently felt the need to subdivide even a town of 30,000 population and arrived at a unit or ward of 5000; he said in fact that each ward should be in a sense a complete town in itself.

Howard's ideal has found wide acceptance in somewhat modified form as the satellite city each of which is a self-contained unit of definitely limited size and surrounded by a open country side. The first garden city was initiated at Letchworth in 1903 and was designed by Unwin and his partner Barry Parker, but some of the elements of Howard's proposals did not appear and there was no real attempt to sub-divide it into residential units.

One of the earliest and in many ways the best practical expression of Howard's ideas is to be found in Hampstead Garden Suburb. The Garden Suburb was started in 1907 to the design of Sir Raymond Unwin. It was not able to cater for all classes of people. It was a middle-class stronghold, but community life has been fostered by the focus provided by churches and institutes. It was a place of character and individuality, an intimate environment for children and family life and in a very real sense the pioneer example of the planned residential neighbourhood. In fact, the basic idea of the garden city as a balanced and protected community

has deeply influenced the plan for the existing cities by dividing them into a number of self-contained neighbourhood units.

In the nineteenth century when the electric street-car began to carry the city dwellers beyond the tight-packed agglomeration of the cities, Don Arturo Soria y Mata, a Spanish engineer had advanced (in 1882) the idea of "Ciudad Lineal" or the "linear city" consisting of a central spine road and tram or rail track and on either side of this would be a residential zone 200 meters wide served by transverse roads. Outside this, would be a subsidiary road and beyond was woodland and farmland (Fig-2). The linear city concept had not been evolved for the age of motor car, but it could be conveniently applied to the solution of public transport problem for the service of residential areas. 'Ciudad Lineal' has never been tried out in practice. It is true that "ribbon" development has been a too common feature, universally condemned as being extravagant in cost of services, in the appearance of purely domestic traffic on to roads intended to serve as by-passes or main routes and in denying the traveller any view of the countryside through which he passes. Ribbon development, -- one plot deep along main roads, -- is, of course, not the same thing as Soria's linear town and loses all the merit that his idea had. Soria's theory was one of the bases of the Hare Plan for London which we shall discuss later in this chapter.

The first full statement of the idea of 'neighbourhood unit' appears in Clarence Perry's monograph in Vol. 7 of the "Regional

Plate 2

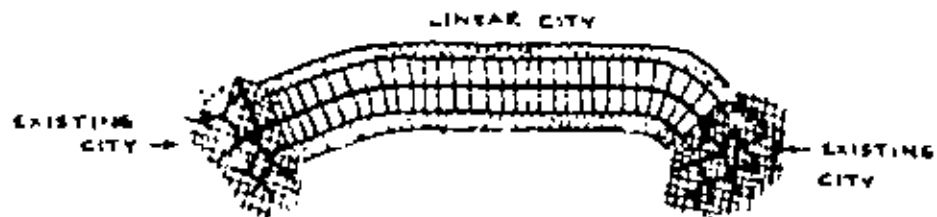


Fig.2. The Linear City pattern of Soria y Mata, 1882

Source: Tetlow, John and Goss, Anthony, op. cit. P.32

Survey of New York" published in 1929. The neighbourhood unit theory which he put forward was aimed at eliminating the shortcomings of residential communities that he observed -- e.g. lack of physical identity, lack of community centre, enough shops and open space, lack of residential streets to carry through traffic and the lack of environmental condition. The underlying principle of his scheme is that neighbourhood should be regarded both as a unit of a larger whole and as a distinct identity in itself. He laid down the functional elements and other aspects on which ( he intended) the neighbourhood unit should be based: size, boundaries, open spaces, institutional sites, local shops and internal road system.

Perry's unit shown in Fig-3 was based on the population ordinarily required for one primary school placed at the centre. The area of the unit would depend on population density but the factor of distance was considered. The neighbourhood was to be bounded on all sides by arterial roads wide enough to serve all through traffic. A system of small parks and recreation grounds was to be provided amounting to about 10 percent of the total area of the unit. Shops were to be provided on the edge of the unit, preferably at traffic junctions. Another objective was to make the local circulation easy by a special street system to eliminate through traffic and to segregate pedestrians from moving vehicles.

Closely followed by Perry's idea, Clarence Stein and Henry Wright prepared the plan for neighbourhood unit at Radburn, New

Jersey between 1924 and 1928 (Fig-4). Like that of Perry's ideas, it was based on the school as a community centre. It introduced new features aimed at solving the traffic problem and the detailed planning of the residential quarters was, however, the most striking feature. 'Through traffic was chanelized on the main roads of the town, and shopping centres were placed on these roads. The traditional grid-iron pattern of street was abandoned and a logical system of specialized one-purpose road was devised. The roads were classified as arterial roads linking with the surrounding area, main town roads" linking the arterial roads, main estate roads enclosing the superblocs ( areas of 30 to 50 acres) and access roads (cul-de-sacs) serving the individual houses. Large areas of open space were provided in the centre of the superblocs on which houses faced and through which run footpath. There was in fact, complete segregation between the pedestrian and the motor car.

The development of Radburn could not be completed because of economic depression in the United States in 1930. But the essential principles were achieved in the small segment that was built. It was a great success in serving its objective of making home and community life more reposeful, pleasant and safe → and particularly safe for children. The physical plan of central parks, superblocs without through traffic, safe walks, houses facing on gardens and parks along with the convenience of service → all these gave for the middle income folk a quality of living that could not be found elsewhere.

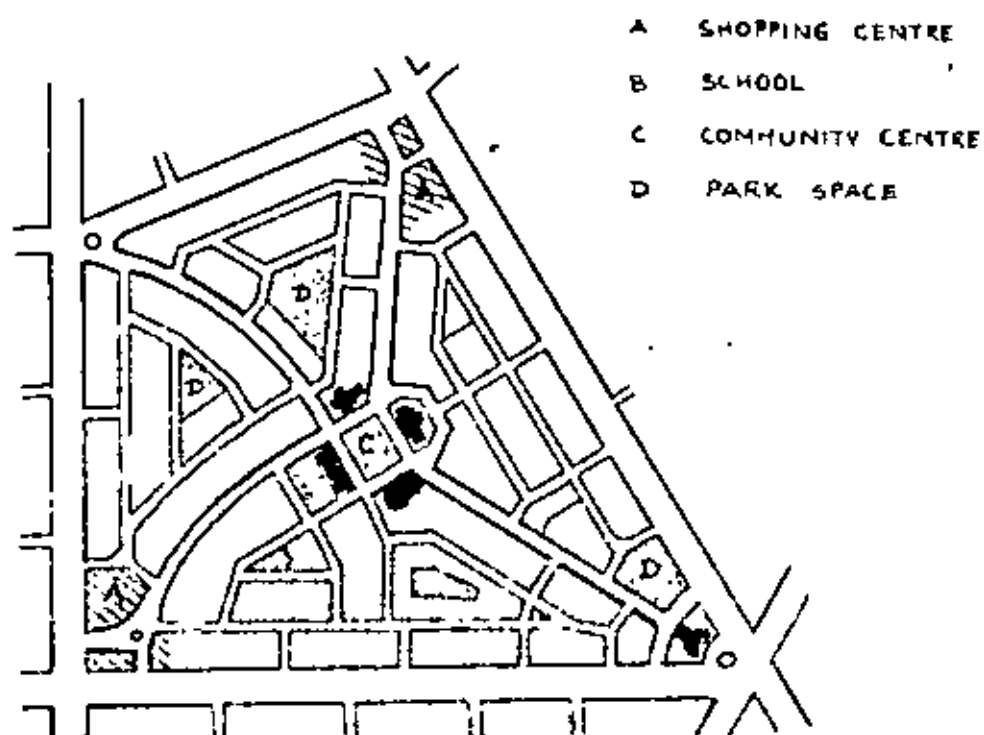


Fig. 3. The neighbourhood unit as proposed by Clarence Potty, 1929.

Source: Tetlow, John and Goss, Anthony, op.cit. P. 34



Fig. 4. Radburn Plan, New Jersey.

Source: Gallion, Arthur B. op. cit. P. 128

The growing acceptance of neighbourhood idea quickly took effect also in Russia. In 1930 there was two proposals prepared for Moscow — one was "linear city" scheme put forward by Ginsberg and the other was neighbourhood scheme put forward by Earnst May. In 1931 Goldenberg and Dalganoff advocated in a paper produce in Moscow the case for communal living on political and economic grounds, the result of which was a pattern of development closely similar to that of Perry's . The main roads were for heavy transport only and the shops, schools, restaurants etc. were planned for the needs of heirarchy of units. A group of five storey flats, housing 1000- 1200 people was to be the smallest collective. Two such collectives would be served by one junior school. The senior school would accommodate 1000 pupils. There would be provision for open spaces on the basis of 10 sq. metres per person excluding the commons and parks. Generally the aim was to make the women free for socially useful work for the whole community by caring the children in Creches and schools, and by eliminating private cooking and laundry. In Russia, the neighbourhood theory seems to have been used on a considerable scale but very little is known about the details of soviet experience.

An outstanding landmark in the history of city planning, — the "radiant city" concept ( a complete theory on city planning) was put forward by the Swiss architect Le Corbusier in 1922. He believed that the automobile in combination with express elevator makes

possible a rational solution of the modern metropolis. His "radiant city" (Fig-5) with its sky-scrappers in the centre, elevator apartment houses in an inner belt and lower houses on the periphery, is essentially a rationalization of the existing concentric pattern of the typical metropolis. Le Corbusier's Unite d' Habitation at Marseilles (started in 1945) was virtually a neighbourhood in one building. He took advantage of the modern technical resources to form vertical 'garden cities' in the form of large long slab blocks of flats. It was an eighteen-storey block of 337 flats — 'a box of homes' as Le Corbusier himself described it. Out, in fact, it was more than that. It was provided with a crèche and a Kindergarten, on the roof with a swimming bath and play grounds for children and for adults a gymnasium, running track and solarium. Within the 8½ acres site, there was a garage, swimming bath and sports ground. The Unite was not a complete success; it did not provide best opportunity for efficient socialising and community living.

A very revolutionary proposal in the design of residential areas and space organization was that of the Mars (Modern Architectural Research) Group which was prepared for the county of London during the Second World War and was made public in 1941. It made detailed proposals for the social and cultural needs of the people of the Metropolis, but is particularly notable because it boldly faced the traffic problem and based its proposals on a logical transport system.



A series of residential units have been proposed to be connected with industrial and commercial areas along the Thames River by a main railway arterial and a system of spine road through the centre. From the spine road ran parallel arteries (north and south) intended for public transport and cyclists only. The residential areas were to be about half a mile wide on either side of these arteries and between them were to be road green spaces (Fig-6). Private cars were to use intermediate roads through the green spaces. The residential pattern was based on units of 1050 people, six of which were combined to form a neighbourhood unit. Four to eight neighbourhoods were proposed to form a borough and twelve borough units would form a district. A ring of long-distance railway lines providing links with the provinces and circulation for goods traffic was proposed. The plan was not original in all its features. Obviously it can be observed that much had been borrowed from the concept of Soria y Mata, Le Corbusier and others. However, the proposal was based on rational thinking and scientific investigations, and was most original in its emphasis on communications and rationalization on public transport system.

The neighbourhood idea has been interpreted and practiced in many ways in many designs. Only a few of the typical proposals have been discussed in these pages. But it may well be pointed out that many of the preconceived planned neighbourhoods of the past have been

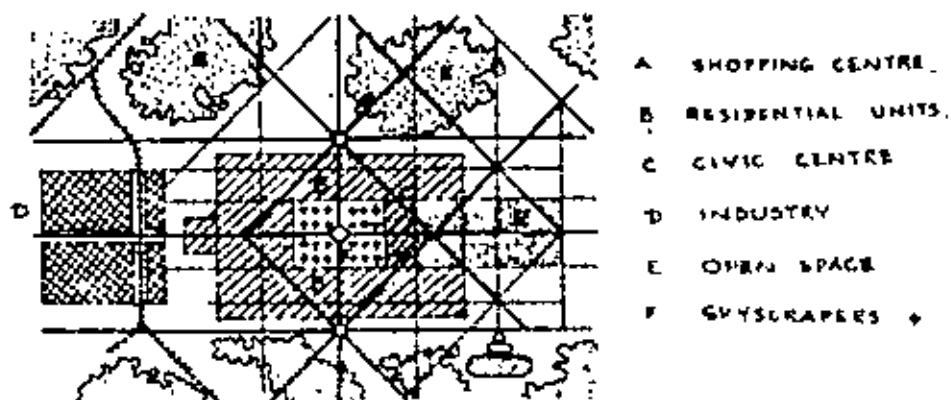


Fig. 5. Diagrammatic Plan of Le Corbusier's "radiant city"

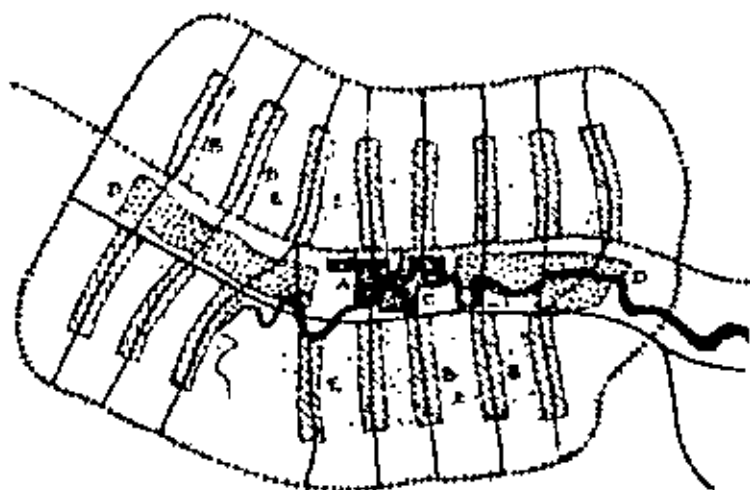


Fig. 6. The MARS Plan for London.

Source: Keeble, Lewis. op. cit. P.95

failures. It is convinced that human foresight can never prevent the evils constantly produced by the unpredictable city. Certainly a plan cannot be a definite rigid scheme such as the architect designs for an individual building. It must be based on constant observation of ever-changing trends and on anticipation of their future strength and direction.

## CHAPTER - 3

### SOCIAL ASPECTS OF NEIGHBOURHOODS

#### 3.1. Social Configuration:

To understand the neighbourhood fully, however, the social configuration of the whole urban community must be seen in order that the significance of the facts about neighbourhoods can be appraised in relation to each other.

"Horizontal mobility" or spatial movement is intimately tied up with social disorganization in the city. The frequent changes in residence, from one hotel, home or flat to another or from one city to another, are often so frequent as to make some urban areas almost pathological. A high rate of spatial mobility tends inevitably to confuse and demoralize the person. It upsets or prevents traditional controls based upon informal sanctions. It promotes individuation, in the extreme a kind of erratic behaviour, rather than social organization. In an unstable neighbourhood marked by frequent residential change, life tends to decline because

individuals and families have insufficient time to become socially established and thereby develop an interest in persons living near them. Indifference rather than intimacy or even conflict of interests becomes the standard of relationships. This is characteristic of apartment house districts and areas of unattached men in and around the central business districts. The traditional neighbourhood with its similarity of interests or common occupational and social activities must be sought out in less mobile urban districts."<sup>1</sup>

"As the community grows, there is not merely a multiplication of houses and roads, but a process of differentiation and segregation takes place as well. Residences and institutions spread out in centrifugal fashion from the central point of the community, while business concentrates more and more around the spot of highest land values."<sup>2</sup> In the process, people will divide and segregate on the basis of economic, occupational and religious as well as convenience grounds. They will cluster into areas on the basis of common trades.

When there is a relatively high rate of mobility, groups of varying economic and cultural status tend to displace one another, lower socio-economic groups generally moving toward and into areas occupied by a group of higher status. Gradually former group takes over the district occupied by the latter and brings its sub-culture

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<sup>1</sup> Erickson, E. Gordon, Urban Behaviour (New York: The Macmillan Company, 1954) P. 172

<sup>2</sup> McKenzie, R.D. "The scope of Human Ecology", The Urban Community, edited by E.W. Burgess, (Chicago: University of Chicago Press P. 179.

or unique characteristics with it. "The highest rate of horizontal mobility generally takes place in the older, deteriorating areas; but as the invasion moves toward the fringe of the city, more families move into dwellings which they own, and thus the move is accompanied by a higher rate of vertical mobility. This condition contributes to greater stability, less child dependency, fewer cases of old-age relief and less repeated juvenile delinquency. In contrast, areas of high rates of horizontal mobility are usually areas of instability, unrest, dependency and crime."<sup>1</sup>

Each residential area has a status value in the eyes of the community. The factors that affect the status value of any one area are complex; among them are the rent levels of the district, the ethnic or racial characteristics of its inhabitants, possibly by tradition that has become attached to it, the presence of prominent families in it, and so on. The introduction of any innovating element into the community may make for a complete change in the structure and organization of the territory. The introduction of a new mode of transportation, or the establishment of a new industry, for example, may transform the economic organization of a community and make for a change in population type. When light industry invades a residential area, we may predict a further deterioration of building, successively lower rental groups, until the area passes over from residence to business, and when the time is opportune, again

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<sup>1</sup>Eriksen, E. Gordon, op. cit. pp. 221-223

to a new type of residence and population ( after redevelopment). Almost any type of physical, economic or social change within a community will condition or cause a movement of the population or institutions.

### 3.2. Spatial Structure of Residential Land Use:

To obtain a realistic picture of the ecology of the urban residential Land utilization, one must remember that there is always a disequilibrium, a reshuffling of residential space due to city growth, obsolescence and technological advances. Residential areas do not develop at random but, like other kinds of urban land areas, develop historically. The automobile has functioned in great measure not only to pull the population outward from the centres of the cities but likewise has made life so unpleasant in the central areas that human life is virtually pushed away from the ecological centres. The wealthy enjoy the initial choice of residential space -- selecting the locations which please them, those of moderate means living as nearby as possible and so on down the scale of wealth, the poorest workmen taking the final leavings either adjacent to such nuisances as railroads, docks and factories, or far out of the city.

The Sector Theory of Homer Hoyt has been directed at portraying the development pattern of high-class residential district. High grade residential growth show the following general tendencies: "These tend to proceed from the point of origin along established

lines of travel or toward another nucleus of buildings or trading centres. These tend to progress toward high ground which is free from the risk of floods and to spread along lake, bay, river and ocean fronts where such water fronts are not used for industry. These tend to grow toward the section of the city which has free, open country beyond the edges and away from "dead end" sections which are limited by natural or artificial barriers to expansion. Trends of movement of office buildings, banks, and stores pull the high-priced residential neighbourhoods in the same general directions. These tend to develop along the fastest existing transportation lines which allow for easy access to the job. High rent apartment areas tend to be established near the business centre in old residential areas. These may be composed of hotel apartments."<sup>1</sup>

"Having selected a district, the wealthy make it their own by erecting attractive residences, making good street pavements, restricting against nuisances and finally, of chief importance living there themselves. They wish to select their neighbours — which means they want neighbours like themselves or neighbours who emulate them (for, prestige rises out of associations.) The wealthy enjoy the prestige of the area and nearness to the amusement and cultural institutions in the city's centre."<sup>2</sup> Of course, the large, suburban

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<sup>1</sup>Hoyt, Homer, The Structure and Growth of Residential Neighbourhoods in American Cities, Federal Housing Administration (Washington D.C. 1939) PP. 116-122.

<sup>2</sup>Harvey, W. Zorbaugh. The Gold Coast and the Slum, (Chicago: University of Chicago Press, 1929).



wealthy family finds commutation one of its most important problems, since it is time consuming and adds to the cost of living.

Whereas the wealthy enjoy first access to residential space and thus become a key group in residential succession, a larger group is the middle-income group. This group includes professional people, small businessmen and a few managerial families. This middle group seeks living areas with fair security, small amount of nuisances and reasonable access to the central business district. They want some spaciousness as well as new and modern community facilities. The upper category of this large population exhibits the bourgeois spirit and locates in the newer areas, occupying the new apartment buildings near the outer fringes of the city, territory fairly dense with apartments but loose enough spatially to satisfy the desires of this group. Those with comparable incomes are drawn to similar locations and consequently cluster together in one or two selected apartment areas within the community.<sup>1</sup>

The lower middle-income group takes its place behind the above mentioned groups in having access to choice residential property. This group is made up of mechanics, craftsmen, and the fringe of lower professional groups i.e. managerial people such as foreman and craft workers. They live in a more scattered pattern throughout the community, but locate quite near to the major industries within the city's

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<sup>1</sup>Ericksen, E. Gordon. op. cit. P. 264

centre. In older cities this group is found living in the two-and three-floor structures with fewer than four rooms.<sup>1</sup>

The people with lower incomes may be found residing in the slum areas of cities and also in the outer belt between the apartment houses and open country. Those who live on the edge of the city are people who have followed heavy industry to the outskirts and who characteristically seek to couple industrial labour with a fertile plot of land. This outer residential area is commonly described as the "cottage area".<sup>2</sup>

The study of the characteristic growth pattern of residential areas is important because this will help the planners to select the desirable trends of residential growth and to prevent any undesirable growth of residential neighbourhoods.

### 3.3 Social interactions.

The social aspect of neighbourhood planning requires a very careful consideration. The relationship between the physical environment and the state of people and the community is very complex. This is the question of the integration of races and the mixing of diverse income groups. The development on the basis of class segregation in terms of "working class areas", "middle class suburbs" etc. has got deadening effect. This destroys the balance of the community and creates isolated pocket-development.

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<sup>1</sup>Ericksen, E. Gordon. op. cit. p. 264

<sup>2</sup>Ibid. P. 265

The New Towns Committee in its Final Report said, "So far as the issue is an economic one balance can be attained by giving opportunity for many sorts of employment which will attract men and women up to a high income level. Beyond that point the problem is not economic at all, nor even a vaguely social one; it is, to be frank, one of class distinction. So far as these distinctions are based on income, taxation and high costs of living are reducing them. We realise also that there are some who would have us ignore their existence. But the problem remains and must be faced; if the community is to be truly balanced, so long as social classes exists all must be represented in it. A contribution is needed from every type and class of person; the community will be the poorer if all are not there, able and willing to make it."<sup>1</sup>

It has often been assumed by the most that each neighbourhood should include, in due proportion, representatives of all the kinds of people to be found in the town, in terms of economic status, employment or social class. Here the planner, as against a typical practice of designing large areas and protecting them for a single race or income group, may conceivably play an important role in producing integrated and mixed communities. The argument for mixing is clear; first, it reduces the prejudice of upper-income group against the lower-income

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<sup>1</sup>Keeble, Lewis., op. cit. p. 192

group, and also one ethnic group against the other; and may encourage the upper-income group to become stronger supporters of public programs to improve the condition of the poor and to overcome discrimination; second, the lower-income group and the minority race may learn from the upper-income group and the majority race new techniques and new goals which will increase educational, economic, social and political effectiveness; third, in a mixed neighbourhood, the low income group will enjoy the benefits of better public services.<sup>1</sup>

Mr. Nathan Glazer criticises on the first point, the reduction of prejudice which leads to an important conclusion. He says, "The races live in harmony when they are integrated within the same income level. There are no serious problems in 'housing projects' where every one is poor, in middle-income developments where everyone is middle income, and in good suburbs, when these are, as on occasion they are, integrated.

On the other hand, the classes are not content to live together in harmony. There is a strong tendency for the better-off, wherever they can, to separate themselves from the poorer. Certain of their objectives and values can be better pursued in a concentration of the better-off than in a mixed community. Thus,

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<sup>1</sup>Glazer, Nathan. Problems of Poverty and Race Confront the Planner; (A report of the Milwaukee Proceedings, American Institute of Planners, 46th Annual Conference, 1963) P. 147.

they can have schools in which teachers and students assume common values; they can have shopping, oriented to their income and tastes; they can enjoy a certain level of community amenities through community organisations and perhaps additional investment in some service, through voluntary group contribution or the organisation of a special government."<sup>1</sup>

The classes only live together in close proximity and in relative peace where they have very little to do with each other, where the middle class elements are either childless or their children are in private school and where the commercial and cultural facilities are so numerous that each group can find something appropriate to its needs. But the close mixing of the classes in the communities of the future is likely to make them less attractive to the middle class group — perhaps even to some of the working and lower-class groups (revealed by the survey conducted in the city of Manhattan.<sup>2</sup>) There is another point about close mixing; this means that one group is subsidized and the other is not, or is less heavily subsidized. The existence of high standard physical minimums for housing tends to produce a rather narrow range of difference in the physical facilities provided for the well-to-do and the poor in modern

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<sup>1</sup>Glazer, Nathan. op. cit. p. 148

<sup>2</sup>Ibid. P. 148

government subsidized or aided developments in which the two groups live together in close proximity. In order to make these projects attractive to the middle income group, which has more opportunities, certain highly visible amenities may be introduced on their side of the development -- such as a better sitting area or a swimming pool. But, then these amenities, which become one of the few things which make the project attractive to the middle classes, also become one of the bones of contention between them and the low-income group. "The rich in poor countries (also in developing countries) hide their glories behind high walls; oddly enough in this country (U.S.A), where our well-to-do have less to hide, the little they have is nevertheless displayed blatantly."<sup>1</sup>

The second supposed advantage of the mixing of the classes is that the poor learn from the rich, -- they learn how to advance themselves in schools, how to hold their families together, how to get services from the city and state and to use them better. But in actual practice it has been seen in American Cities (New York and Washington) that the low-income and middle-income areas divided themselves through fences or wide lawn etc. They even patronize different stores in the shopping centre. They get together to some extent only in political and community organisations,

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<sup>1</sup>Glazer, Nathan. op. cit. P. 149.

but they could do that without living close together. The integrated schools could be a clear advantage for learning. But the well-to-do in such developments have fewer children than the poor -- or when they have more children, they prefer to move to other settings. The schools in such projects tend to be occupied almost by working class and lower class."<sup>1</sup>

Lewis Keeble says, "A very fine mixture of different social groups is likely to result in friction through no fault of any of the people concerned, and it is perhaps in dealing with the upbringing of children that the greatest difficulties are encountered. People who think they have enlightened ideas about children often wish to bring them up in accordance with standards very different from those of their neighbours. Rules about bedtime, cleanliness, courtesy and even speech are difficult to enforce if neighbouring children are not expected to comply with them. It is hard, indeed, to get a child to come in to bed early on summer evening and go to sleep when the other children in the road go on playing noisily and happily for hours afterwards. This is simply an illustration of the fact that, on the whole, people with fairly similar culture and economic status tend to live together more happily than the very diverse."<sup>2</sup>

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<sup>1</sup>Glazer, Nathan. op. cit. PP. 147-149

<sup>2</sup>Keeble, Lewis. op. cit. P. 192

The above discussion refers to only different income groups. But these comments do not apply to the integration of the racial groups and professional class groups. Racial integration seems to be a clear gain. Moreover, the far reaching effect of class segregation, as has been mentioned before, is deadening. "Experience has shown conclusively that the one-class communities are the most susceptible to obsolescence, largely because they are least adaptable to change."<sup>1</sup> In aggregated type of development, the poor and the rich will have little scope to know and to understand each other intimately. As a result, the poor will gradually develop and continue to maintain an attitude of disregard and distrust towards the rich, and the rich also hold a neglected and scornful attitude towards the poor. This lead to the growth of prejudice between groups and races, and may ultimately happen to destroy the balance of the community. Total and long-range effect of learning about each other, combined with inter-group development leads to the balanced growth of the community. However, the advantages of mixed development contrary to that of segregated development is compelling and recommendable; and the disadvantages of mixed development is far outweighed by the disadvantages of segregated development.

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<sup>1</sup> Spreiregen, Paul D. Urban Design: The Architecture of Towns and Cities, (New York: McGraw-Hill Book Company, 1965) P. 147.



This discussion have obviously not covered all the possible factors which the planner might consider to alleviate the problems of social discrimination through neighbourhood planning. I think, this contribution could best come in many small professional decisions, which can be better if he is concerned about the social problems.

However, it must be remembered that only the smallest extent of control is, under condition of perfect democracy, capable of being applied for social integration. "It would, I think, be wise to consider this matter from the point of view of dwelling requirements and density rather than deliberately to seek to promote a mixture of social classes. Tendencies for class mingling and class segregation are likely to proceed quite independently of neighbourhood planning."<sup>1</sup>

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<sup>1</sup> Keeble, Lewis, op. cit. P. 192

## CHAPTER - 4

### FORM, SIZE AND DENSITY OF NEIGHBOURHOODS

#### 4.1. Form:

Most neighbourhoods are built as large or small development tracts at one time or another. They are completed in whole or in part over a period of time. They come to enjoy the feeling of a 'neighbourhood' when they possess everyday facilities at convenient locations, when the larger community facilities are accessible to them and when they possess a somewhat elusive quality called identity. The primary determining factors of the form of neighbourhood unit is the accessibility requirements and the existence of logical physical boundaries. From table - 11, it is seen that on the space standards tentatively suggested, about three hundred and seventy acres are needed for a residential neighbourhood of ten thousand persons. Now, let us consider a few typical form of neighbourhood unit from the point of accessibility standards. The figure V shows a linear form of neighbourhood unit; from the point of accessibility to service it is most unsuitable as the people

from the two farthest ends will have to go for a long travel distance to reach to the neighbourhood centre. On the other hand the circular shape provides the maximum opportunity for accessibility to various service facilities. Fig-9 shows, a circle with a radius of half a mile, which has an area of just over five hundred acres, giving a neighbourhood density of twenty persons per acre for a population of ten thousand, for which the accessibility requirements here, can almost completely be met. But theoretically it is not possible to 'integrate the whole area of a city with such circular shapes because of the very large blank areas necessarily left between adjoining circles; and in practice, a neighbourhood is seldom likely to approximate to a circle in shape because of the existence of physical barriers. Natural boundaries such as rivers and topographic barriers will frequently delimit neighbourhoods. Existing or proposed transportation routes — traffic arteries, parkways, railroads — will also act as determining factor of neighbourhood form. Industrial areas, commercial districts and landscaped parks are other elements which frequently form borders of neighbourhoods. In a town having grid-iron pattern of road net work, the neighbourhoods are likely to have either oblong or square shape (Fig-8<sub>a,b</sub>). In a town of approximately circular shape with radial road pattern, it is much more likely to take a roughly wedge-like form.

NEIGHBOURHOOD FORM



Fig. 7. Linear form.

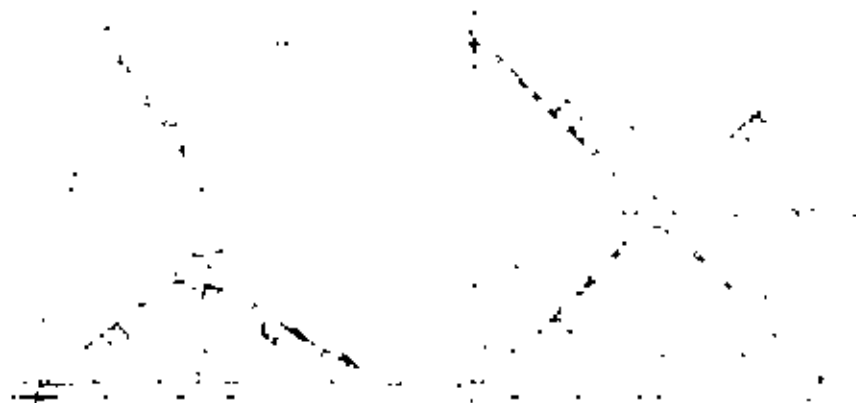


Fig. 8.a. Oblong form. Fig. 8.b. Square form.

Source: Keable, Lewis. Op. cit. P. 196

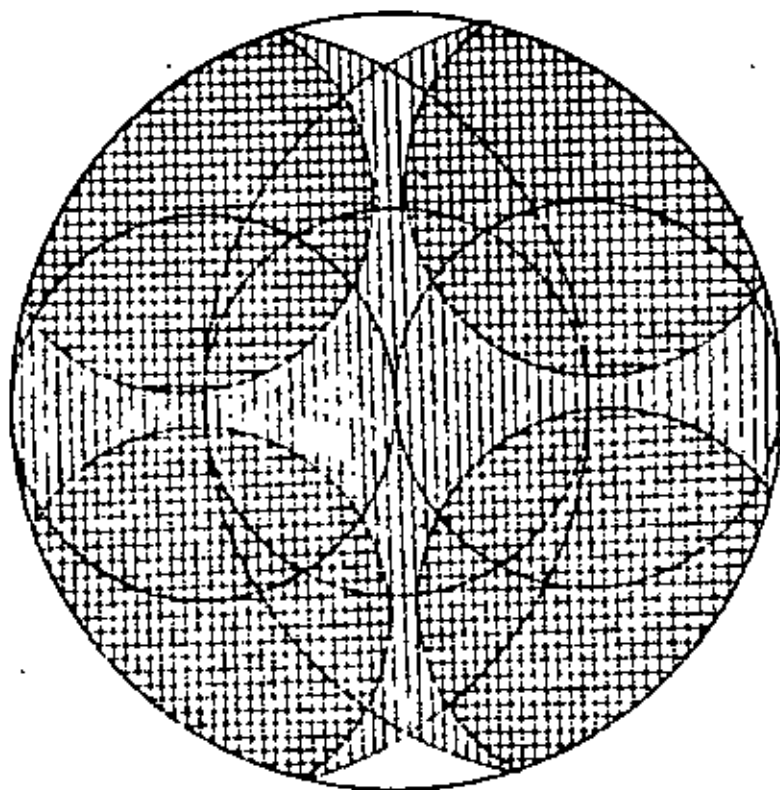


Fig. 9. Circular Neighbourhood Form.

Source: Keeble, Lewis. op. cit. P. 195

There are very few complete neighbourhoods, the design of which has not been strongly affected by unusual topography, existing development of exceptional circumstances of one kind or another. So, in my opinion, attention should be given to consider the form of neighbourhood unit in relation to the local conditions and the detail of different neighbourhood elements, their siting and scale of provision, so as to achieve the identity for the same.

### 3.2. Size:

It is difficult to prescribe an ideal size for a residential neighbourhood unit for several reasons, and much will depend on individual circumstances. For instances, varying densities of population calls for different sizes whereas the matter of distance from community facilities may dictate a completely different size. However, the size of a neighbourhood unit is governed by,--

- 1) The population required to necessary community facilities and services.
- 2) The area required for all its land use components.
- 3) The accessibility standard of all community facilities.
- and 4) The existence of suitable physical boundaries.

It is assumed that for planning purposes the extent of the neighbourhood will be determined by the service area of an

elementary (primary) school. Since, a school is present in every locality, the use of its service area as the unit (for planning) requires no introduction of new concepts. So, the service area of an elementary school is accepted (in U.K. and other western countries) as the most convenient framework for environmental standards and for various needed planning calculations. Furthermore, the school building may offer the focal point around which many common interests of families may be organized. It is recognized, however, that in practice the size of the neighbourhood may well depend on physical boundaries such as arterial ways or topographic barriers, which do not coincide with limits of the school district.

The size of the neighbourhood unit is expressed in two terms -- by the size of the population and by the extent of geographic area. The upper and lower limits for population are set by the capacity of the elementary school. In Britain, one primary school serving children from five to eleven years of age is found to be required for a population of 5000 persons.<sup>1</sup> The size of about 5000 persons probably approximates the lower limit of the range and smaller number of population may not be sufficient to support a primary school.

The neighbourhood unit envisaged on the basis of one primary school (i.e. a population of 5000 persons) is not quite sufficient

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<sup>1</sup> Brown, A.J. and Sherrard, H.M. , Town and Country Planning, 1951  
P. 229

to support a wide variety of community facilities which are essentially required to make the neighbourhood a self-contained unit. For example, the neighbourhood shopping centre is, for a considerable number of items, in competition with the town-centre shopping; and it is quite natural that certain percentage of population will visit town-centre shopping. So, a population of 5000 persons may not be able to support sufficient number of shops so as to make a competitive market within the centre. "In Britain, a neighbourhood unit of 10,000 persons (i.e. based on two primary school) is considered to be suitable to embrace a wide variety of experiences and tastes, and to support its own infant health centre, nursery school, shops, picture theatre, minor local industries, public buildings, branch library, churches, and community and youth centres". In our country, no comprehensive study has been made to set the standards by which the desirable size of the population for the neighbourhoods may be worked out. However, in our country, high school seems to offer the focal point of the neighbourhood. The study of the data available from the Census Report of Pakistan, 1961 (see table 12, Adx.-2) and other informations shows that the urban areas of East Pakistan have on an average 45 secondary school going students per 1000 population of which 62 percent (28/1000 pop.) are boys and 38% (17/1000 pop.) are girls; and the number of primary school going children per 1000 population is 40. The standard set for primary



schools by the East Pakistan Education Directorate reveals that a minimum of 250 students are required for the affiliation of primary schools.<sup>1</sup> Such standards have not been set for secondary schools. However, (on the basis of about 60 students per class per section), the average capacity of each "one-stream" (One section) secondary school is 275 to 350 nos. and that for each two-stream (two section) secondary school is 500 to 600 nos. of students. According to these figures, it requires about 6250 population to feed students for one primary school, about 10,000 population to meet the capacity of one secondary boy's school and about 17,000 population to feed one Secondary girl's school. But the number of students calculated on the basis of average population in an urban area is likely to be conservative, and the actual no. of students per thousand population of a residential area will be substantially higher. However, the desirable range of population within a neighbourhood unit is between 5000 persons to 10,000 persons. Beyond the limit of about 10,000 persons, it becomes too large for its identity and it may not retain its unity which is a strong force for the stability of the neighbourhood and for the development of individual and family life.

The geographic extent of the urban neighbourhood is limited by accessibility to the primary school. From accessibility standards (Table -6) primary schools should be within  $\frac{1}{2}$  mile

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<sup>1</sup> Information collected from D.P.I. Office (Director of Public Instruction) Segunbagicha, Dacca (E.P.)

walking distance of each dwelling so that a neighbourhood with one primary school (centrally located) should cover nearly 500 acres and a neighbourhood with two primary school should cover nearly 1000 acres. On the other hand the accessibility standard for a secondary school is 1 mile distance, so that a neighbourhood with one secondary school (centrally located) should cover nearly 2000 acres. When a neighbourhood unit is envisaged on the basis of two primary schools or one secondary school, the emphasis shifts from the "accessibility standard" of schools to the "accessibility standard of the facilities provided in the neighbourhood centre. For example, the neighbourhood shopping centre should have a maximum walking distance  $\frac{1}{2}$  mile (desirable distance  $\frac{1}{4}$  mile). So, the maximum limit of the neighbourhood area should not substantially exceed 500 acres.

"Fig.9 shows the degree of accessibility of different neighbourhood elements (or facilities). The neighbourhood has a radius of half a mile and therefore has an area of about 500 acres. The smaller circles and areas show distances of half a mile from primary schools (P.S) and of a quarter of a mile from shopping groups and nursery schools (N.S.) and the hatchings indicate the degree of accessibility enjoyed by different parts of the neighbourhood.<sup>1</sup>

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<sup>1</sup> Keeble, Lewis. op. cit. P. 195

The lower limit of the geographic extent of the neighbourhood is determined by the density desired for the development. From the consideration of density ( as is evident from table 3 & 4) the geographical extent of the neighbourhood unit may vary widely. With a development of single-family detached houses for a density of 19 persons per acre, a population of 5000 will require approximately 265 acres and population of 10,000 persons will require approximately 525 acres, which will also conform with the accessibility standards. Whereas with a development of 13-story multifamily dwellings for a density of 112 persons per acre, a population of 5000 will need only 44 acres and a population of 10,000 will need 88 acres. However, local conditions and individual judgements will play a vital role in determining the lower limit of the geographical extent of a neighbourhood unit.

### 3.3. Density:

One of the prime consideration of the planner is the densities of residential development. It is very difficult to predict what is the right density for a residential area .The acceptable conditions can be created over a wide range of densities. 'Low density American suburbs, with houses on generous lots, contain only 6 persons per acre. Typical American suburbs average densities of about 25 people to the acre.

Chandigarh was planned for 56 people per acre. The Golden Gateway redevelopment of San Francisco will have about 90 people to the acre. The proposed town of Hook, England, a landmark in design, would have had 100 people to the acre in the centre, a bordering area with 70 persons to the acre, and another area with 40 persons to the acre. Recent developments in high-density residential design would make these densities possible. Ping Yuen, in San Francisco's Chinatown, has 365 persons per acre. At the far end of the scale Le Corbusier proposed, in his vision of future cities as he foresaw them in the twenties, densities ranging from 120 'to 1200 persons to the acre'.

What density is appropriate for a particular case is determined by various factors like the location, family type, and consumer preferences etc. With poorly means of transportation and the resultant excessive concentration of population have been the main danger that planners have tried to prevent by prescription.

Residential areas of excessively low density development with 4.5 houses per acre have many disadvantages which can be summarised as follows: Very large investments for roads and utilities to serve this extensive area, long travel distance from the outer areas to the commercial, civic and cultural

facilities, and to work, since people are willing to walk a maximum of a quarter of a mile, a circular area with that radius would contain , at the low  $4\frac{1}{2}$  family per acre density, no more than 500 to 600 families, which is insufficient to support a primary school, a neighbourhood shopping centre or other community facilities. "In low density areas, the accents and community focal points which would give identity to the grouping are missing. There is too loose a relationship between building forms and open spaces. Social contact is frustrated."<sup>1</sup> "the housewives at such areas of low densities lead isolated lives resulting in lack of participation in civic, school, church social and cultural affairs. A further consequence of low density is the difficulty in finding labour for industry and commerce. Many workers have to travel long ways with adverse affects on morale and productivity. Employers are unable to recruit a full staff."<sup>2</sup> On the otherhand, very high density increases congestion, specially in transportation. High density forces high rise construction which are unsuitable for the children. "Like very low density developments, very high density developments, too, tend to exclude the poor unless of course,

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<sup>1</sup>Spreiregen, Paul D., Urban Design. The Architecture of Towns and Cities (New York, McGraw-Hill Book Company, 1965) P.147

<sup>2</sup>Blumenfeld, Hans. op. cit. P. 172

their housing is subsidized. A barrier thus exists at some line around the city beyond which the poor are excluded and within which their areas of possible dwelling continually diminish."<sup>1</sup>

Standards for density of population in residential areas differ from country to country, and according to climate and social outlook. 'The Federal Housing Administration (FHA) of U.S.A has undertaken studies of density and has emphasized the importance of considering basic amenity in relation to density. FHA standards operate within a range of from 12 persons per acre in small single houses to 850 persons per acre in twenty-four story high rise apartments (tolerable to a very few people and ill-suited to children)<sup>2</sup> .In the 1943 Forshaw-Abercrombie report for the County of London proposes densities of 75 and 100 persons per acre maximum in parts immediately adjacent to the county boundary, followed by an extensive area, 'the suburban ring', having a maximum of 50 persons per acre. For new sites, an overall 'net density' of 30 was adopted combined with a maximum net density of 50 persons per acre.<sup>3</sup> 'Hans Blumenfeld, in his brief address at the 1957 meeting of the American Society of Planning Officials (ASPO) prefaced his remarks by posing the question, "Does anybody know what the right density is?" He answered his

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<sup>1</sup> Spreiregen, Paul D. op. cit. P. 147

<sup>2</sup> Ibid. P. 147

<sup>3</sup> Brown A.J. and Sherrard, H.M. op.cit. p. 243

own question immediately by replying, "I do--it is 12000 to 60,000 persons per square mile of residential area" (20 to 100 persons per acre). The range is broad and broad enough to accommodate a great variety of consumer preferences. Yet in giving this range Blumenfeld established that there is both a lower and a upper limit of acceptable density."<sup>1</sup>

Building coverage bears an obvious relationship to population density; (Building coverage is the proportion of net or gross residential land area taken up by buildings.). It is obvious that if the buildings cover too large a percentage of the land, insufficient outdoor space will remain for various uses conducive to health, and this lack of space may also result in inadequate arrangements for circulation. The intensity of land use should not be so great as to cause congestion of buildings or to preclude the amenities of good housing. Specifically, building densities should be limited to provide adequate daylight, sunlight, air and usable open space for all dwellings; adequate space for all community facilities; a general feeling of openness and privacy." Building coverage and height are closely interrelated, and can only be established in the process of design. At the present time, 20 percent to 30 percent coverage of land within property lines appears

<sup>1</sup>Spreiregen, Paul D. op. cit. P. 146

to be practical and to permit conformity with standards for light air and open spaces. Controls which set maximum net coverages exceeding 35 percent may fail to provide sufficient open space, may lead to over-crowding of people on the land."<sup>1</sup>

It has been mentioned in Chapter 3 that the one-class communities are the most susceptible to obsolescence, largely because these are least adaptable to change. So it is desirable to have different densities to make room for different class groups. "If we could design with a broader range of density on an intimate scale, that is, if we could have a few lots of one density and a few of another and nearby still other mixtures, then we would have more stable residential communities. In this way we would both enrich our residential communities by combining a greater diversity of people in them and broaden opportunities for development. The practical features of this concept are several: public transportation could obviously be more supportable, industries located in the suburbs would have a greater availability of workers; shopping and community facilities would have a broader clientele; and certain circulation problems would be diminished, particularly the radial inflow and outflow during

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<sup>1</sup> Planning the Neighbourhood; Standards for Healthful Housing; American Public Health Association, (1960) P. 40.



peak traffic hours."<sup>1</sup> For more detail on density see appendix-1, where a further discussion on the same has been made.

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<sup>1</sup>Spreiregen, Paul D- op. cit. P. 147.

## CHAPTER - 5

### DIFFERENT ELEMENTS OF RESIDENTIAL NEIGHBOURHOOD UNIT, AND THEIR SITING AND SCALE OF PROVISION

On the basis of everyday needs which can be supported within the neighbourhood unit by a population less than that of the town as a whole, we have to consider what the neighbourhood should contain. The following are the elements other than dwellings which are likely to be required in a neighbourhood unit.

#### 5.1. Neighbourhood centre and sub-centre.

##### 5.1.1. Shops

##### 5.1.2. Community Centre

#### 5.2. Schools

#### 5.3. Open spaces

#### 5.4. Service Industry

#### 5.5. Places of Worship.

5.1. Neighbourhood centre and Sub-centre: The services to be provided by a neighbourhood centre will depend upon the size,

character and prosperity of the town and upon the accessibility of the "town centre" from different parts of the town. A typical neighbourhood centre is likely to consist of shops, bakery, petrol filling stations, public houses, library, clinic, halls for meetings and dramatic performances, a public lavatory etc. And a typical sub-centre is likely to consist of a group of shops, petrol filling station, a public house, a worship place etc.

In order to make them thrive, both the neighbourhood centre and sub-centre must be suitably located and be laid out to afford maximum of convenience and attraction. One of the most important decision in the design of neighbourhood centre is whether to conceive it in the form of a "pedestrian centre". Economically the most important component of the neighbourhood centre will be its shops. Pedestrian shopping offers advantages in terms of safety and comfort while kerbside shopping offers convenience in terms of accessibility from motor car which may often be a decisive factor. In western countries where there is heavy vehicular traffic, it has become almost impossible to provide for kerbside shopping in the "town centre"; in a neighbourhood centre it may be difficult but it is not yet impossible to provide at least for a considerable portion of shoppers if not for all at peak hours.<sup>1</sup>

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<sup>1</sup>Kesble, Lewis. op. cit. P.213.

Fig.10.a shows the natural form of the centre growing up around a road junction in the traditional way. Since such centres traditionally grow at a nodal point, the traffic movement become hazardous and inevitably results in a high accident rate. The traffic congestion which occurs, both vehicular and pedestrian, eventually in some cases reaches a point where it reacts to the prejudice of the shop keeper, as shoppers seek safer centre less crowded by vehicular traffic. This disadvantage is removed if the whole centre is placed within one of the arms of the junction as in fig-10 (b,c) and the shops are set back behind a parking area.<sup>1</sup> This may be suitably developed as a pedestrian centre. Fig. 10.d shows a centre based upon the ingenious arrangement used at Adeyfield, Hemel Hempstead. The vehicles can drive right through the centre and can park anywhere within the paved area of the square. At the same time this road is so routed that it offers no inducement to anyone to use it unless he wishes to visit the centre and gives no opportunity for speed.<sup>2</sup>

Most of the uses in the neighbourhood centre should be placed slightly away from dwellings, because, smell and noise make the shops undesirable to the neighbours if they are very close. The first need is, therefore, to ensure a slight

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<sup>1</sup>Keeble, Lewis, op. cit. P.212

<sup>2</sup>Ibid P.212.

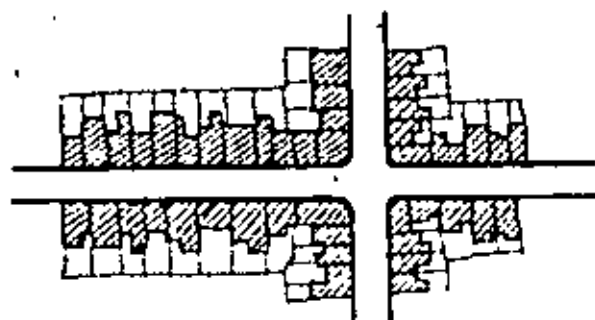


Fig. 10. a.

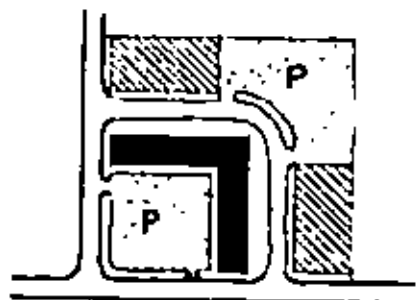


Fig. 10. b.

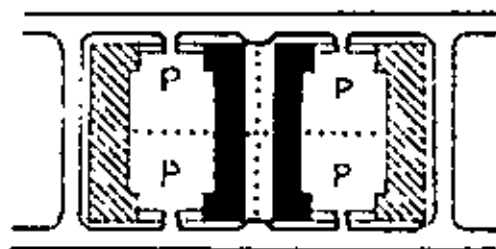


Fig. 10. c.

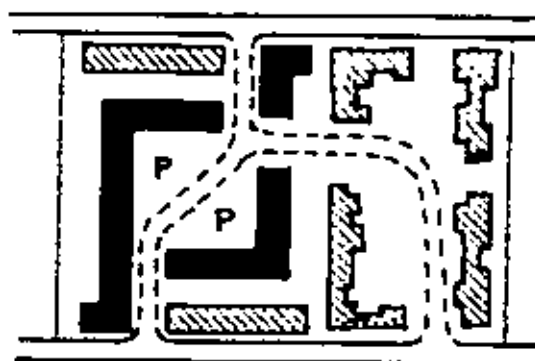


Fig. 10. d

insulation of the neighbourhood centre from adjoining residential development. The insulation may be provided by parking space, small neighbourhood park or even by spine road. The park adjacent to the centre may find a very purposeful use where the children can play and the shoppers may care to sit for a while before returning home.

As already suggested, the neighbourhood sub-centre is very much in competition with the neighbourhood centre and the sub-centres will not survive unless well-located and extremely convenient. For this reason, they should usually be placed at the junctions of spine roads. They will not, however, generate any appreciable amount of traffic and the visitors to them will not ordinarily have more than one purpose in a single visit. As such, it seems to have no objection in placing them at the junction of two spine roads. Because of their very small size, they should inevitably be close to adjoining dwellings, but the main problem is to dispose them so that they cause least possible nuisance.

5.1.1. Shops:- The group of shops is the most important element of neighbourhood centre. They represent the essential neighbourhood services and it is necessary to consider carefully their siting and scale of provision if a satisfactory neighbourhood plan is to evolve.

The siting of shops needs to be determined mainly by the accessibility factor and it has been widely accepted that a group of shops be within a quarter of a mile or a five minutes walk of every home. An additional point about the siting of shops is that they should be sited in such a way as to gather in the maximum of passing trade, and should be at or very near to the focal point in the neighbourhood. As has already been mentioned that many of the items of the neighbourhood shopping centre are to some extent in competition with the 'town centre' shopping; so the shopping group in the neighbourhood centre must be sited in such a way that they induce maximum of convenience to the shoppers.

Subsidiary shopping groups within a neighbourhood are in an even less enviable position, for they have, as their rivals, not only the 'town-centre' but also the main neighbourhood centre and each other. Therefore, they should be located at suitable points somewhat with closer spacing (than the neighbourhood shopping centre) within easy walking distance and convenient access from all homes which they serve.

The number of shops which can be supported by a neighbourhood of particular size is a matter of uncertainty and the calculations about the number are very specially difficult to make because of two particular points. Firstly in unplanned

areas there are far more shops than could possibly be provided in an area of planned development. Many of them are converted from houses as supplementary source of income. Secondly, with the increasing efficiency of transportation system more and more shopping visitors are drawn to the town centre shopping where much greater range of goods are available.<sup>1</sup>

Various estimates have been made of the number of shops required for a neighbourhood of a certain size. Such estimates are on an empirical basis and each case must be considered in the light of local circumstances. In England, the New Town Committee's Final Report suggests that one shop to 100-150 people is desirable. The Dudley Report says that there should be at least an allowance for shops in a neighbourhood at a rate of one shop per 100-150 inhabitants, or somewhere between 100 to 70 shops per neighbourhood of 10,000 population. The City of Manchester Plan, 1945, allows for 30 shops in a neighbourhood centre with reserve space for 15 more and two subsidiary groups of four shops each making a total of 53 shops for 10,000 people or one shop to about 189 people (one shop per 263 people, excluding the reserve shops).<sup>2</sup> (The tables in Appendix - 2 shows the various shopping requirements in the neighbourhood area.)

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<sup>1</sup>Keeble, Lewis, op. cit. P.213

<sup>2</sup>Ibid. P.213



The neighbourhood shopping group might reasonably be expected to consist of grocery, bakery and confectionery, dairy, fish and meat shop, greengrocery and vegetables, news-agent, stationer, tobacco, sweets, outfitters, cloths and garments, boots and shoes, hardware, hairdresser, chemist etc. Several branch banks and a branch post office can probably be economically run and will certainly be of great convenience to the inhabitants of the neighbourhood.

Grouping and general layout of shops offer scope to the town planner and architect. Attractive results can be realised from various groupings; one popular arrangement being to plan shops round a garden where children can play while their elders do the shopping. In such a case there is no roadway in front of the shops, vehicular access being only from the rear, and special parking areas, recessed from the adjacent street, are provided for shoppers.

There is also need to provide in the neighbourhood for service industries, such as laundries, motor repairs, builders, fuel merchants etc. and these may be sited in the neighbourhood centre in association with the shopping group.

5.1.2 Community Centre: For organisation of social life within the group, a common meeting place is necessary, and this can be provided by a community centre. The community centre can provide

an opportunity for the development of special interests of a social, recreative or educational nature. It provides a common meeting place for all local clubs and organizations and stimulates the development of other local activities. The facilities to be provided for community centres will vary according to local needs and is very difficult to standardise. The minimum requirements to be provided are hall, gymnasium, library, reading room, club, room for indoor games, meeting room, lavatories etc. The community centre require the similar accessibility as the shopping centre and should preferably be located in the neighbourhood centre. The facilities in the community centre should be grouped in a separate premise beside the shopping group. But economy may not always permit development of a large separate premise. In such cases a partial solution can be found by making the accommodation available at low rents for clubs and societies on upper floors of buildings above shops. Theatrical societies, chess clubs, political clubs may well wish to have permanent accommodation in the neighbourhood centre, and for them modest accommodation above shops is eminently satisfactory. The usefulness of a public lavatory needs no explanation. It can even contribute visually to the appearance of the centre.

The uses in the neighbourhood centre should be grouped in such a way that those who visit the centre for purpose other than shopping do not need to penetrate to its interior

but find their destination on the periphery. The library and clinic are placed on what is likely to be the quietest part of the site; the shops are concentrated into one mass in order to facilitate moving from one to another. A few of them should be directly accessible to kerbside parking without going into the interior of the centre.

The neighbourhood centre is certainly not an area in which monumentality is required, it is rather an adjunct to the domestic scheme. But the skilful interplay of heights and spacing between low buildings should be as effective as between high buildings.

### 5.2. Schools:

The school is an essential feature of the neighbourhood and, depending on the circumstances, one or more schools will need to be provided for in every neighbourhood plan. The number of schools that should be provided in a neighbourhood unit depends on local conditions and upon the size and character of the population. 'In England, the school needs of a neighbourhood of ten thousand population can be met by six nursery schools, each with about forty pupils, two two-stream primary schools, each with an infant's department and a junior department, and a three-stream secondary modern school for both sexes or alternatively, a boy's three-stream secondary modern

school for both sexes or alternatively, a boy's three-stream secondary modern school and a girl's three-stream secondary modern school, each shared by two adjacent neighbourhoods of ten thousand people.<sup>1</sup> Such provisions for schools will be absolutely a misfit in our country. Our requirements will be quite different from that in England. In our country, the school needs of a neighbourhood of ten thousand population can be met by two primary schools and one Secondary boy's school (each one stream), and one secondary girl's school shared by two adjacent neighbourhoods of ten thousand population.

The siting of schools needs to be determined mainly by accessibility, and the following requirements, though somewhat arbitrary, have been widely accepted: nursery schools to be within a quarter of a mile of every home and primary schools to be within half a mile of every home. Secondary schools which serve much larger population than primary school cannot, obviously, be placed with the same high degree of accessibility, and the greater age of the pupils attending them makes this unnecessary. It is obvious that higher degree of accessibility to primary schools could be secured if they were placed in the main neighbourhood centre. However, there

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<sup>1</sup> Keeble, Lewis. op. cit. P.211

are certain important factors other than accessibility which should also be considered. The secondary and technical schools if any have to be located near the neighbourhood centre since they serve the population of the whole town. Therefore, it is difficult to place a primary school as well in the neighbourhood centre without having an undue concentration of schools. Moreover, the residential development near the neighbourhood centre is usually most intense and hence, the more concentration of schools will make it difficult to have sufficient open spaces for schools near the centre. On the other hand, pushing of primary schools outward towards the periphery will make more spaces available for residential development near the centre, and has the additional advantage for the residents of adjacent neighbourhoods to have an alternative choice of primary school close at hand.

'Because school buildings are usually low and extensive, and because the majority of the site is occupied by playing fields, it is important that the sites chosen should be as flat as possible. They must also be of such a shape that the game-pitches will fit into them satisfactorily.'<sup>1</sup>

Size of site depends upon numbers of classes and numbers of pupils. As a physical planner what is most important to be known is the total number of school sites of each kind required

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<sup>1</sup>Keeble, Lewis. op. cit. P.208

and the approximate numbers of pupils to attend them, so that sites of about the right size may be tentatively allocated.

### 5.3. Open Space:

By open space, here it is included only the playing fields and parks, but not the children's small play-spaces and minor amenity greens. The open spaces cannot easily be sited with the same degree of accessibility as shops and primary schools, although it is desirable that some open space accessible to the public should be within a few minutes walk of every home.

It may be mentioned here that open spaces will not necessarily or invariably be developed on the basis of a single neighbourhood unit; rather the site characteristics of many open spaces may demand that they should cater for the town as a whole or it may be required that they be grouped in larger units, each serving more than one neighbourhood. This is specially evident when the existence of a large area of broken land incapable of being built up, suggests its use as a major park, and again, when sufficient flat land for use as playing field is not available well distributed over the whole town, it may be necessary to site a large portion of the towns playing fields within one area.

When the open spaces are sited around the edge of the neighbourhood it becomes functionally very much useful because

it acts as a cushion between main roads and dwellings and also it gives compactness to the built up area. Noise and fumes are inseparable from main roads and it is desirable that they should be appreciably separated from dwellings. Open spaces of all kinds may appropriately be used to cushion the impact of main roads on residential areas and to act as a buffer between residential areas and agricultural land in order to minimise damage to the latter.<sup>1</sup> If the open spaces are sited within the built-up areas, it will inevitably reduce their compactness, such positioning should not be followed unless the condition compels to do so. A very high degree of accessibility is neither necessary nor practicable.

From the theoretical point of view it would probably be best to split up playing fields into as many units as possible and scatter these widely over the parts of the town in which it is intended. But this proposition may not be practical, since the technical requirements of games and, the provision and maintenance of necessary buildings make it much more economical if a fairly large number of pitches are grouped into one unit. In the design of open spaces the planner is required to know the number of people the park is to serve and the general requirements as to facilities to be provided. It will be necessary to study carefully the site, in conjunction with a plan of it, including contours if not level, and all existing natural

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<sup>1</sup>Keeble, Lewis. op. cit. P.204

and artificial features. The site should be studied in relation to its immediate environment having regard to ease of access.

The combination of playing - fields and parkland can often have the happiest results and there is a greater flexibility in the use of land. Where the total amount of open space that can be supplied is limited, this is of special importance. "American planners favour the three division layout. This consists of, (a) an area reserved for active recreation and for the pavilion and other buildings, (b) a buffer area consisting of flower garden in front of the buildings and (c) parkland reserved for passive recreation. This arrangement seems to be generally satisfactory, the various parts being properly related to, but judiciously separated from one another so as to preserve the greatest amenity"<sup>1</sup>

This is obvious that sites of playing-fields should be as level as possible and well drained. Normally it will be desirable, within a neighbourhood, to have at least two separate areas of open space rather than a single one, primarily from the point of view of accessibility. "Also too large a concentration of games spaces is likely to be undesirable because of the visual dreariness produced."<sup>2</sup>

#### 5.4. Service Industry:

Service industry is a special type of element in the neighbourhood unit. This is not to be confused with light industry,

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<sup>1</sup>Brown, A.J. and Sherrard, H.M.op.cit. pp. 157, 158

<sup>2</sup>Keeble, Lewis. op. cit. P.207



the siting of which require different treatment. All manufacturing industry involves some disturbance, noise, fumes etc. and generate traffic within its vicinity. In this respect, these are incompatible to be sited in the residential neighbourhood. Moreover, in a town of medium size the greatest accessibility of labour to industry can only be secured by the concentration of industry in a few groups. These considerations, it seems, will far outweigh any advantage which may be derived by placing industry into the residential areas. On the other hand the service industries are 'quasi-commercial and quasi-industrial' undertakings of small scope which can more conveniently be provided on a neighbourhood than on a town basis. The bakery and the laundry are the classic example of service industry although some of these may be run by large concerns on a town basis. Where these are still needed on a neighbourhood basis, can very appropriately be sited in or close to the main neighbourhood centre.

There is, however, another class of user needed in the neighbourhoods and it is very difficult to find suitable location for them. They are small builders, firelog (fuel) merchants and many others who play small but essential part in the community. In most cases, such uses require quite large sites and their activities are visually indelicate.

They require some sort of screening. So they cannot be effectively provided adjacent to the main neighbourhood centre. Although, they need to be accessible, they do not need to be central in the neighbourhood.

One of the most practical solutions, though may not be an ideal one, is to provide sites for them on back land in housing areas, preferably where the housing plots are deep, so that they can be screened from sight and as far as possible from sound. The exact siting will depend upon the road pattern and upon topographical considerations. It is certain that activities of this kind will spring up in a town whether provision is made for them or not, for they represent very small scale individual enterprise and initiative which spring into being to cater for specific demands. Unless sites are made available for them on which they can operate with the minimum nuisance, they will certainly be started in back gardens and other places where their nuisance is at a maximum.<sup>1</sup>

### 5.5. Places of Worship:

As regards places of worship a special problem arises. People of different religion require different types of worship place and demand different standard for location within the town. In our country, the religious allegiance is widely spread among the muslims and the association with the places

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<sup>1</sup>Koeble, Lewis. Op. cit. P.194

of worship is still very strong. According to Islamic religion the minimum distance between two consecutive mosques should be the distance through which the sound of "Azan" (call for prayer, or "Namaz") can be heard. Normally, in calm and quiet environment, this distance is about 1/4th of a mile. But in the busy and bustling environment of the town it is very difficult to hear the sound of Azan even from a distance of 1/8th mile. Moreover, the higher density of population in the townscape demand more number of mosques. From the religious point of view a mosque is required to be attended five times a day (for prayer) and ideally it is the best place for the children to have religious education. From the consideration of physical planning, a mosque should, I think, be within 5 to 8 minutes walking distance and should be evenly distributed all over the residential area. A mosque should not ordinarily be placed in the market place or in the bustling and noisy place. The location of mosque demand calm and quiet place within the residential area. The siting and scale of provision of the places of worship require more of religious consideration than that of physical planning because it carries religious sentiment of the people.

## CHAPTER - 6

### RESIDENTIAL LAYOUT, CIRCULATION DESIGN AND AESTHETIC CONSIDERATION

#### 6.1. RESIDENTIAL LAYOUT

The design of residential layout is here taken to mean the design of any area given exclusively to residence and its ancillaries within a neighbourhood and the consideration is given principally to the creation of residential environments, grouping of houses, the arrangement of the road system and the approximate positioning of the buildings, but not the design of the buildings themselves. It is basic that a house is part of a 'housing group', a 'housing group' is part of a 'housing environment' (or superblock), a housing environment is part of a neighbourhood and a neighbourhood is part of a city (Fig-11). The success of planning residential areas will much depend on the success of planning these elementary areas

Fig. 11

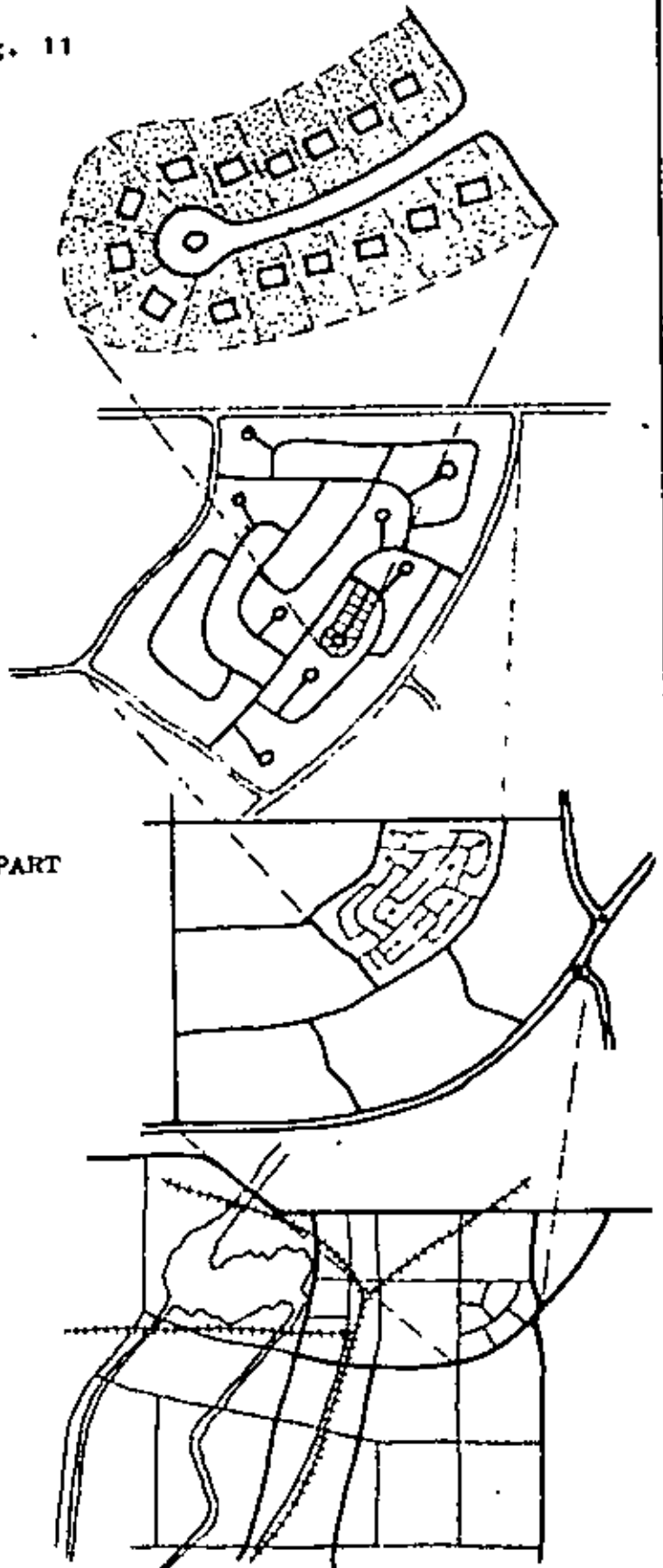
A HOUSE IS PART OF  
"HOUSING GROUP".

A "HOUSING GROUP" IS PART OF  
" HOUSING ENVIRONMENT"

A "HOUSING ENVIRONMENT" IS PART  
OF A " NEIGHBOURHOOD ".

A NEIGHBOURHOOD IS PART OF  
A CITY.

Source: Principles of House  
Grouping, Central Mortgage  
and Housing Corporation,  
Ottawa, Canada, 1954.



which are the intermediate steps within the larger process of planning the neighbourhood and the whole city.

6.1.1. 'HOUSING ENVIRONMENTS' ( OR SUPERBLOCK):-

Traffic is a function of activities. It can be generally said that all the vehicular movements that take place within the neighbourhood have an origin or a destination of one kind or other; some of the vehicles will be moving within the neighbourhood from building to building, others will be making their way from outside the neighbourhood to buildings within it, or vice-versa, while still others will merely pass through the neighbourhoods in the course of moving from one part of the city to the other. Penetration of moving vehicle within the residential areas is bringing its own peculiar penalties of accidents, anxiety, intimidation by large and fast vehicles that are out of scale with the surroundings, noise, fumes, vibration, dirt and visual intrusion on a vast scale. By the careful design of the neighbourhoods some of the nuisances may be eliminated and through traffic may be reduced considerably in some of the neighbourhoods. But the complete elimination of through traffic and nuisances may not be possible. In fact, securing high degree of accessibility and the preservation of environmental qualities are the two components of the problem -- and tend to be in conflict. The solution to this problem may

more or less be sought in the creation of "housing environments" or superblock which would be free from the danger and nuisances of vehicular traffic. Thus every neighbourhood unit would consist of a number of environments where people can live, work, shop, look about and move around on foot in reasonable freedom from the hazards of motor traffic. (Fig-12)

The environmental areas are not free of traffic, and they cannot be if they are to function; there would be complementary network of roads for affecting the primary distribution of traffic to the environmental areas. A good environment in this sense would be secured by reducing the traffic to appropriate levels; on the other hand the high degree of accessibility would certainly not be achieved without sacrificing environment; but the design would ensure that their traffic is related in character and volume to the environmental conditions being sought. According to this concept all the neighbourhoods of the town takes on a cellular structure consisting of the environmental areas set within an interlacing network of distributory roads (Fig-13) . This is a simple concept, but without it the chances of making successful neighbourhood plans remains confused.

The maintenance of a good environment is of great importance. But there is no standard to determine the desirable limit for the degree of accessibility and for the degree of environmental quality. However, the environmental areas must be free

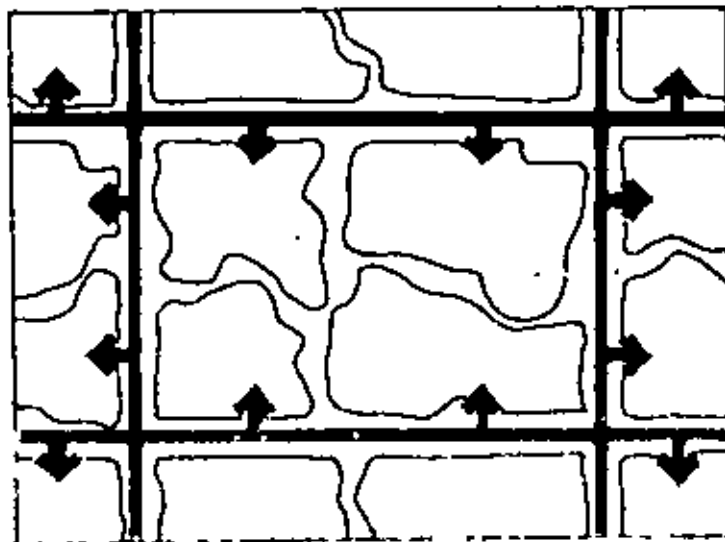


Fig. 12 The cellular concept of housing environments.

Source: Traffic in Towns Her Majesty's Stationery Office ,  
London, 1963, P. 42

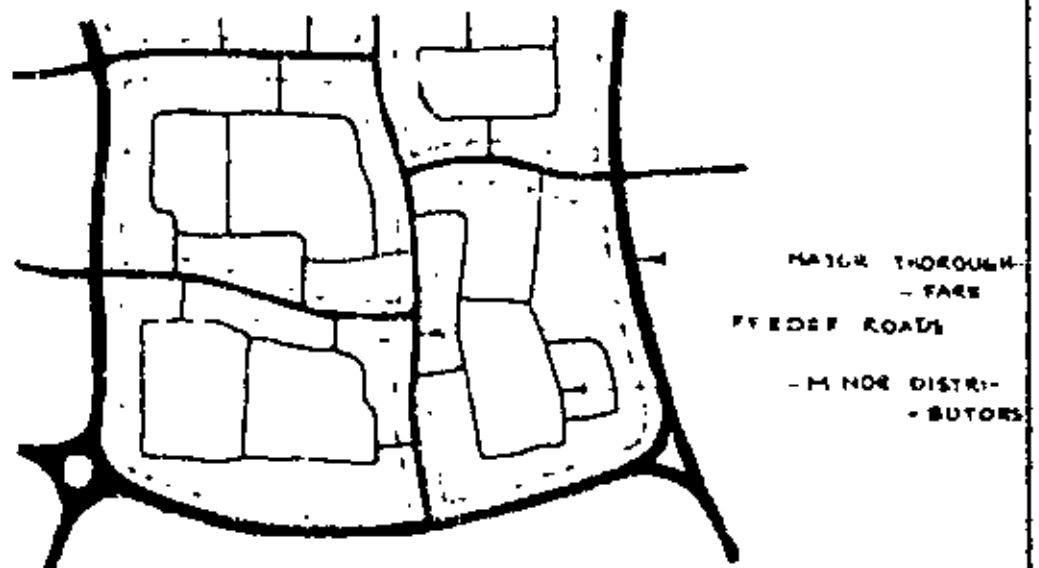


Fig. 13. The interlacing network of distributor road.

Source: Traffic in Towns. Her Majesty's Stationery Office,  
London, 1963.



from any extraneous traffic and there should be no traffic penetrating through without business in the area. The maximum size of an environmental area is governed by its own traffic building up to volume beyond which it, in effect, necessitates sub-division by the insertion of a further distributory link in the network. Thus the areas would be tied together by the interlacing network of distributory roads on to which all longer movements would be channalized. No sociological content is implied by the concept of "housing environments" ; and unlike the neighbourhood units these are not self contained units as regards daily necessities. It is simply a method of arranging buildings for vehicular traffic.

Some of the aspects of designing layouts for 'housing environment' (or superblock) may now be considered. There are three basic elements -- e.g. pattern of street layout, land division and planned open spaces -- which determine the design and layout of housing environment; There is no common method of relating these elements , rather the design and layout varies according to the position of the site, its topography and the purpose to be served.

In fig-14 is shown the layout of a superblock with simple rectilinear grid, which is the most basic configuration. Perhaps we disgain rectilinear grids for its too frequent use or for its too artless use in the past. Rectilinear grids are basically suited to flat land and particularly appropriate if

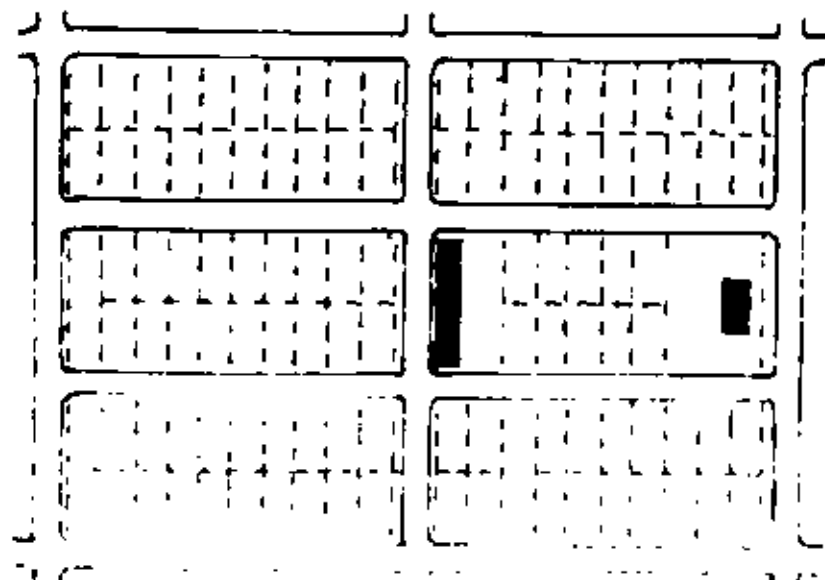


Fig. 14. Superblock with simple rectilinear grid pattern.

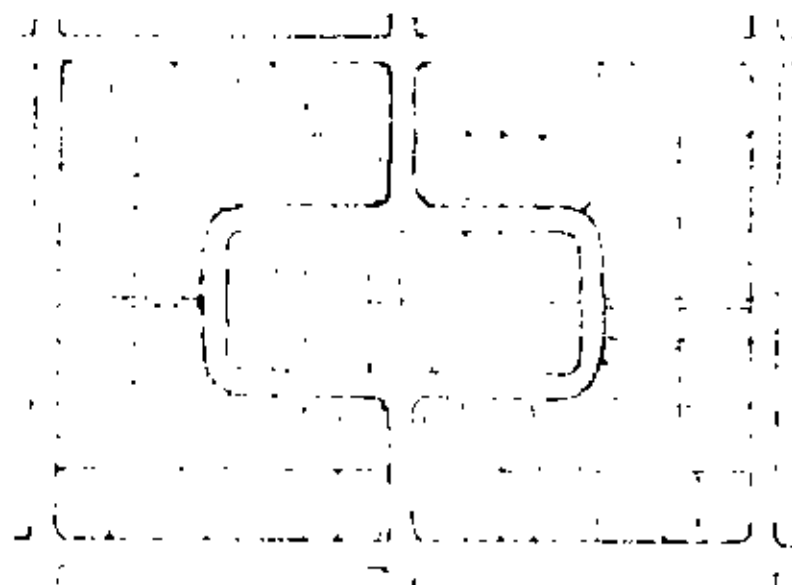


Fig. 15. Superblock with modified grids.

prominent vertical features such as range of mountains or hills, can be seen from them. Where such natural advantages are not available, art must be substituted to introduce into the geometry of the grid a completely non-geometric pattern of green space or artificial water channel, diverted or created. One disadvantage of simple grid is that it provides easy opportunity for through traffic inside the environments and its streets and access ways make frequent interpenetration with major thoroughfares resulting interruption in traffic movement. But this difficulty may be overcome by the introduction of modified grids as in figs - 15 & 16.

Fig. 17 shows a superblock with curvilinear pattern. Both a rectilinear grid or a curvilinear pattern must be designed on the basis of appropriateness and artistry.\*<sup>1</sup> The curvilinear pattern on flat land without meaningful focus, accent, sequence of revelation, relief, or surprise, is as trite and in the long run, as tiring as the rectilinear grid without complementary relief in form. A curvilinear pattern, it goes without saying, should be based on topographical rolls or the presentation of major verticals to be supplied, such as tall buildings."<sup>2</sup>

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<sup>1</sup>Spreiregen, P.D. , Urban Design, (New York: McGraw Hill Book Company, 1965) P. 149.

<sup>2</sup>Ibid. P. 149.

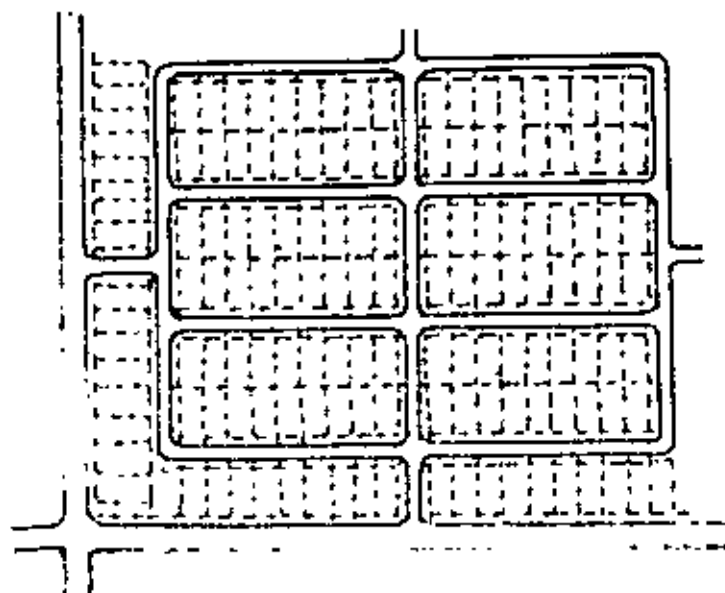


Fig. 16. Superblock with modified grids

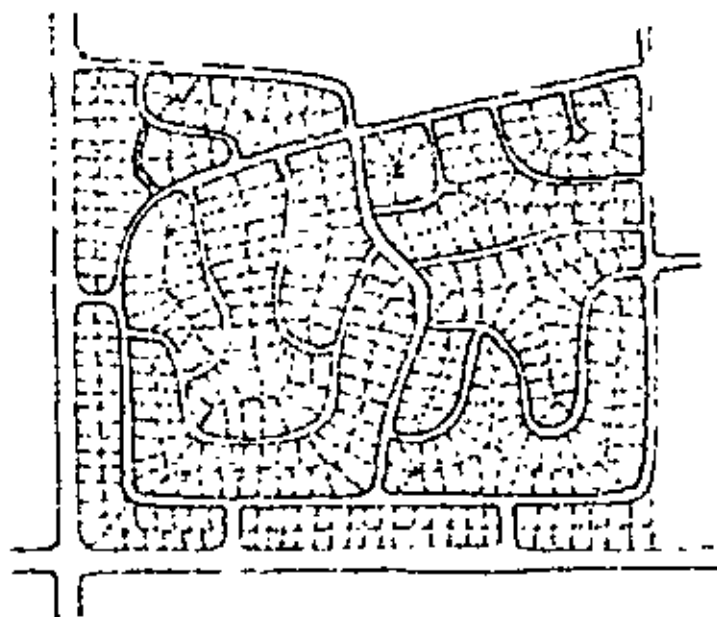


Fig. 17. Superblock with curvilinear pattern.

The minor streets in a grid layout may be arranged in a number of ways. In fig-18 (a & b) the minor streets have been arranged to form swastika intersections, with a small inner space serving as a park. If the inner space thus formed is larger, it can serve as the site of a play field, a school, allotments or formal gardens or local shopping.

The use of cul-de-sac streets is very popular now-a-days . The modest grid layout can well benefit from the introduction of these configurations in a variety of ways. In fig. 19, is shown a superblock where the through streets of the grid have been cut off to develop a finger pattern with a series of dead-end culs-de-sac. Straight streets can be offset at certain intervals to create visual closure, or to put an important public building on a sight line.

Fig 20 & 21, show the configurations of the superblocks with cluster variation in the grid. It is a great pity that cluster sub-division is a very rare sight in neighbourhoods or housing areas. Cluster variation can go a long way toward solving many of our layout problems — e.g. high development costs, lack of natural green space, and the monotony of endless rectangular lots with most of their area wasted because of archaic setback rules. The advantages of cluster layout are clear — smaller lots, better siting, shorter streets, less through traffic and more open community areas. The two



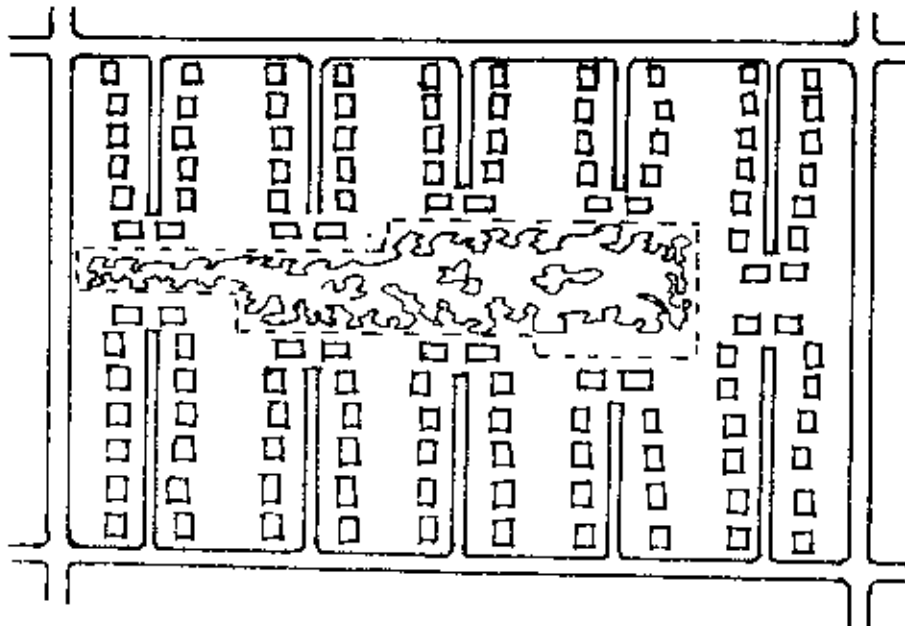


Fig. 19. Superblock with finger variation.

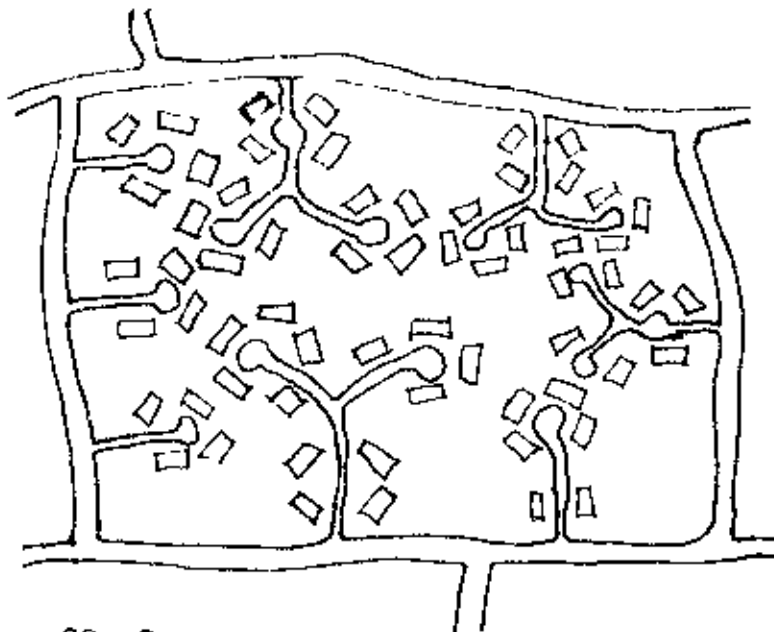


Fig. 20. Superblock with cluster variation.

Source: House and Homes, Management Magazine of the Housing Industry.

plans in figs 20 & 21 , illustrate this fact in a dramatic fashion. They compare the theoretical cluster and conventional curvilinear platting for an actual 160-acre tract (drawings are at different scale) near Denver for detached houses. They have roughly the same density of plots (368 & 366), but the cluster requires much smaller length of roads and utility lines, provides much more open space and offer better traffic conditions because all through traffic is carried by a single main loop plus five short feeder streets.

This is to be remembered that uniform type of development with a common pattern of layout may not be possible, or to be more practical, may not be desirable in all superblock or residential environments. In such cases, we may well introduce combination of different patterns as in fig-22. Here in this plan, we can see that the cluster, the finger and the conventional grids have been combined very skilfully. It is a pretty good plan and it works.

**6.1.2. HOUSING GROUPS:** Every family knows his immediate surrounding and is most conscious about that. He is a part of that smaller group of people who live along the same street. The families face one another across the street and are neighbours in the closest sense. As has been discussed in the third chapter that the basic and most important social



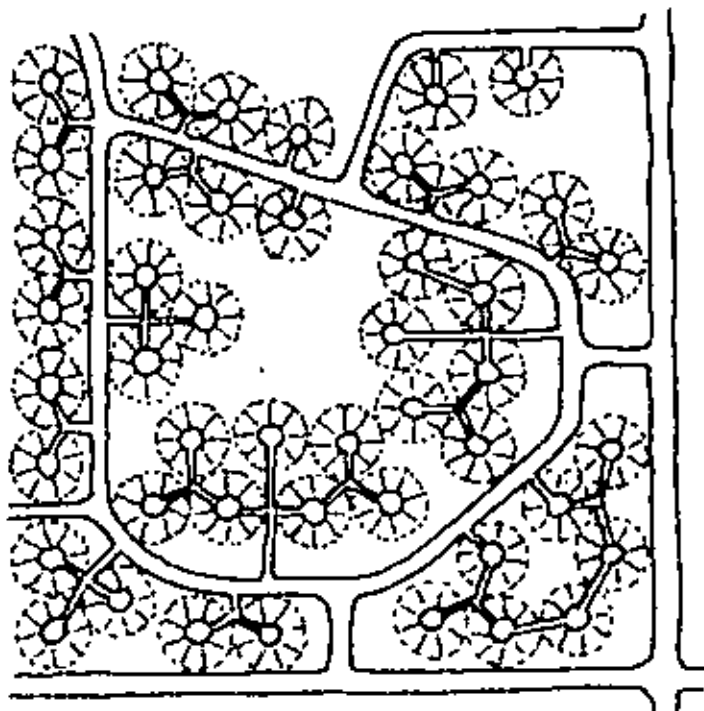


Fig. 21. Superblock with cluster variation.<sup>1</sup>

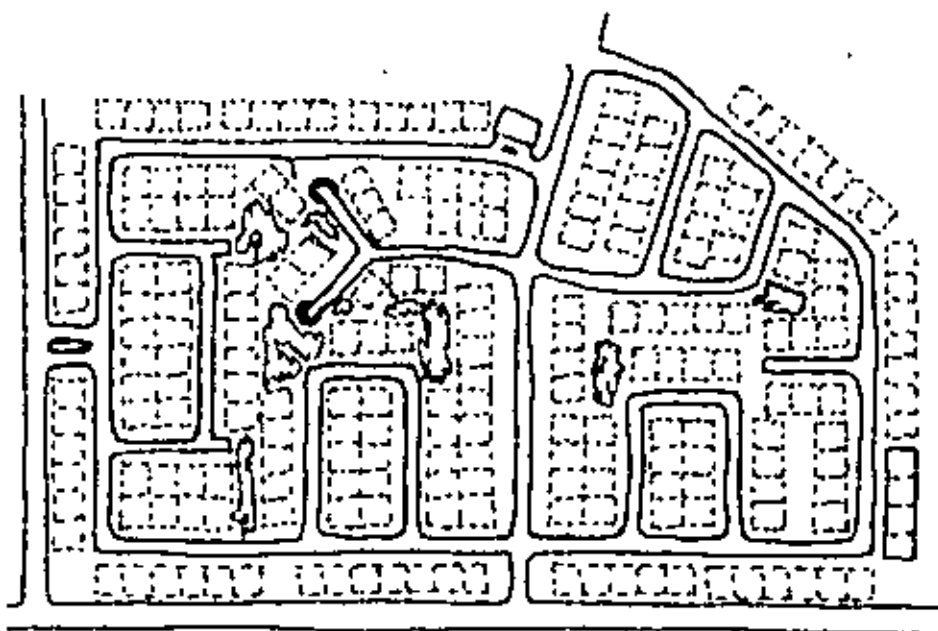


Fig. 22. Superblock with combination of cluster, finger and conventional grids.

Source: 1. House and Homes, Management Magazine of the Housing Industry.

intercourse takes place between immediate neighbours in a group of six to eight families; and a group of 40 to 100 families is only characterised by face to face acquaintance. Just as the neighbourhood, a housing unit is also a too big unit for efficient social intercourse. A housing group comprising six to forty families ( according to the type of housing development — whether detached, semi-detached or apartment houses) seems to be the most basic unit for successful social intercourse. It is only in these small groups where actual neighbourliness may exist between the families through mutual social interactions such as sitting, walking, talking about, mutual visiting and mutual aid in every aspect of domestic life, in sickness and in the care of the children.

Some of the social implications of such housing group may be discussed here. It is quite obvious that each family in such housing groups will seek families of similar status, ethnic group, or social or professional class. It has been mentioned earlier that effect of class segregation on a large scale is deadening; again, complete aggregation (ie. thorough intermixing of all classes) is also not possible since the residents will arrange themselves according to their class-groups. But it seems that segregation in small groups may not be disadvantageous, rather people would be happier and more content when they have the neighbours of similar status, culture and taste. Thus , a housing environment would consist of

of different class-groups in different housing groups; and for the housing environment such arrangement may have a coarse-texture of class-groups, but for the neighbourhood or for the whole town it would provide a uniform and fine texture. Still the problem remains for social interaction in schools, shops and community centres; the solution for this will depend on the proportion of different class-groups in the neighbourhood.

The essence of such housing group is a common courtyard (or a small open space) where the members of the families may sit, walk and talk about with reasonable privacy and free from external disturbances, and where small children can play in safety with their friends. This theory of providing such common space (or courtyard) involves more or less complete or at least partial substitution for individual gardens. Essentially, these common spaces should secure the requirements of adequate daylight and privacy for individual houses. For the sake of privacy these spaces should be planted with trees or enclosed very completely ideally by tall thick hedges which would secure visual isolation of the contrasting houses and weaken the unity of the street picture. One obvious general requirement of such common space is that it should be so designed that it provides equal opportunity and accessibility to all those whom it serves. The function of such spaces may be manifold. When these are used as children's play space, care should be taken in the design that children

cannot run out of them into carriage-way; and it should be of the minimum size necessary to secure the desired purpose. If they are too large they may encourage children to play football and cricket unsuitably close to windows; but this may be prevented by obstructive planting. Again, it will be disastrous to make such open spaces too small because it will induce the residents to use it as a dumping ground for rubbish. One may enjoy these spaces in many other ways. He may practice his golf shots there and play with the children to an extent which makes it a valuable possession. Where densities are fairly low there is often opportunity for utilising these spaces for a variety of purposes e.g. playing tennis, badminton etc. depending upon the shape and characteristics of the site. One thing must be remembered in this regard that though these spaces may often be provided by the public authority, these are not public open spaces for general use rather these are private spaces used in common by the residents in a housing group and they should have reasonable privacy and should preferably be screened from public view.

The generous introduction of common open spaces would produce living conditions which I should regard as excellent. But at the same time I must confess to grave doubt about the probable effectiveness of such proposals. The common courtyard

cannot sufficiently meet all the requirements of individual families. So the families may desire to have their own private gardens. The private garden is private; one can sit in it without the company of neighbours, which is certain to be unwelcome at times. But such advantages are not provided by common courtyard, rather it is disadvantageous in the sense that "it provides no privacy for individual families; one cannot escape from the friendly but boring neighbour; it provides no individual enclosure within which children and animals can be securely confined under the eye of their parents and owners"<sup>1</sup>. On the other hand, the private gardens are inflexible in use; these cannot be used for a variety of purposes. To make a compromise, the most usual arrangement proposed is to provide a small backyard or a "out door room" for each house. A private garden at the front may also be provided. But the depth of such private spaces should be kept to the minimum only to meet the specific requirements, so that it does not obscure the possibilities of at least one common space in the housing group. Another added advantage of such "pocket spaces" is that they considerably reduce the requirements of parks and open spaces in the neighbourhood. Provision of both type of spaces -- private and common -- may

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<sup>1</sup>Keeble, Lewis, op. cit. p.248

not be possible in all types of developments, specially in high density areas. So the housing areas should have mixed type of layout in which different requirements may be met in different areas.

A satisfactory design of "housing group" is provided when the houses can be set on comparatively short access streets (Fig 23). Then each group is removed from the main traffic circulation and has a certain amount of privacy and individuality. A few variations of such grouping have been shown in figs. 24 & 25 in which the conception of a common courtyard (or a open space) have been applied. In fig 24 & 25, it is shown that the common space have been provided at the end of the access street (cul-de-sac) and the houses are grouped around it facing the common space. When the length of the access street is comparatively larger, the houses may be arranged in two groups with two separate common space as in fig-26 . Another variation is shown in fig 27 where the common space have been completely separated from the carriageway. In this type of grouping, each house has two accesses -- one towards the carriageway and the other towards the common space. This arrangement may prove quite remarkably good in a group with a highly developed sense of neighbourliness.

The grouping around loop street provides the privacy,

HOUSING GROUP

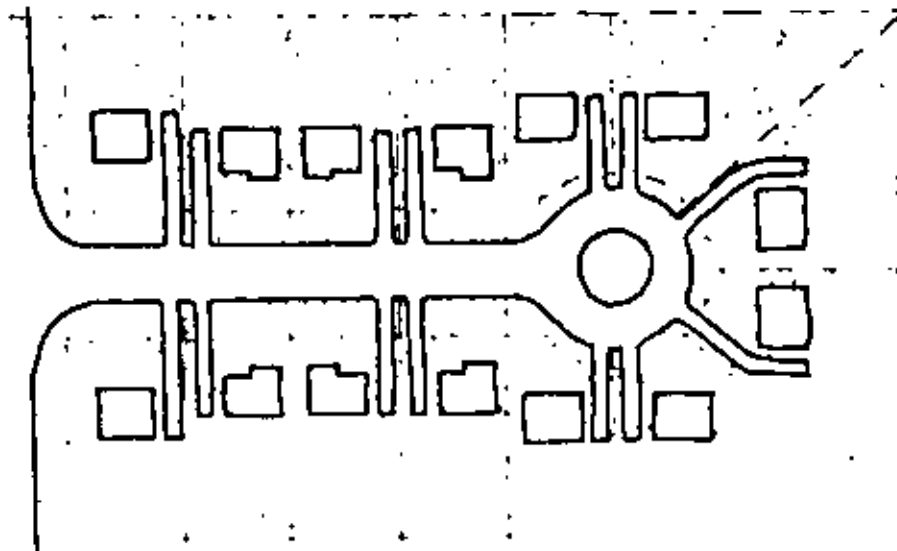


Fig. 23

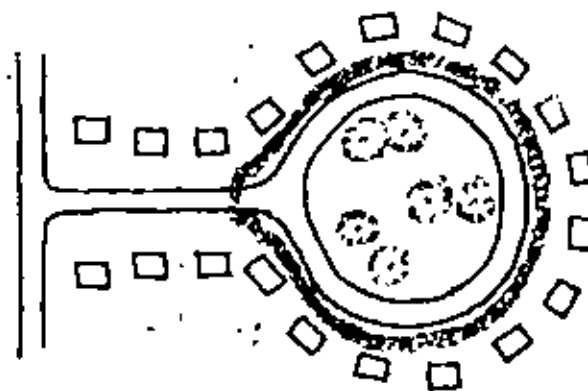


Fig. 24

HOUSING GROUP

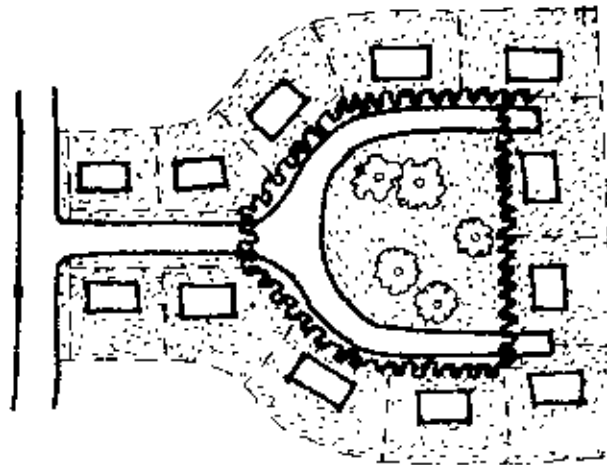


Fig. 25

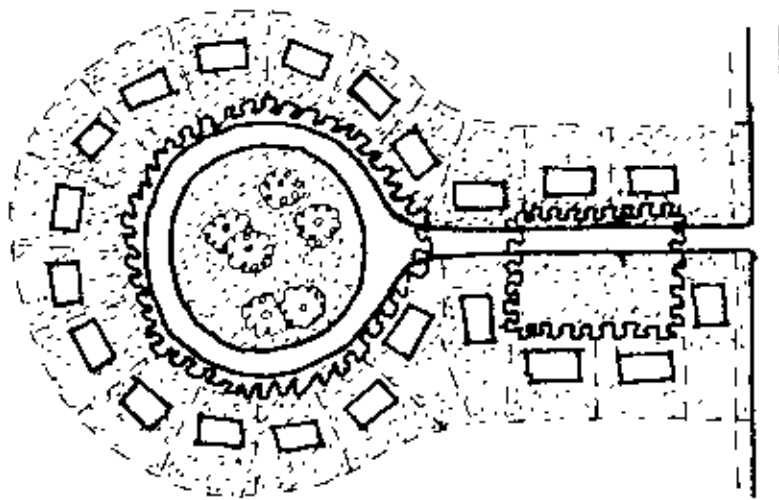


Fig. 26



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safety and economy without the difficulties of turning; traffic circulates easily to and from a minor distributor road . Several variations in the grouping around loops have been shown in figs 28, 29 & 30. Grouping on curved streets have a pleasant and natural effect, particularly when they are justified by topographical conditions (Fig 31) . But excessive use of curved streets on flat land may be both dangerous and uneconomical unless done with careful planning. The grid street plan is a handicap to effective house grouping and relief can only be obtained by occasional setbacks and the use of planting to conceal the monotony of the plan. The special hazard of the grid plan is the multiplication of cross-intersection. Grouping around a T-intersection (Fig 32) is comparatively safer than the cross-intersection because traffic on one street is brought to a halt. In fig 33, is shown a layout for row houses in which the great majority of the outdoor space have been arranged to be commonly used rather than individually. It has the novel advantage of providing close access to a carriageway for most houses. The grouping of high rise flats require different consideration. Daylighting requirements impose by far the most stringent limitations on the siting of such blocks in relation to each other so that special treatment is required in the design of common space. A few examples of the patterns formed by blocks of high flats of various shapes have been shown in fig 34. A variation of this kind of layout consists of a mixture of tightly grouped houses around small courts and the blocks of tall flats dispersed over a generally

HOUSING GROUP

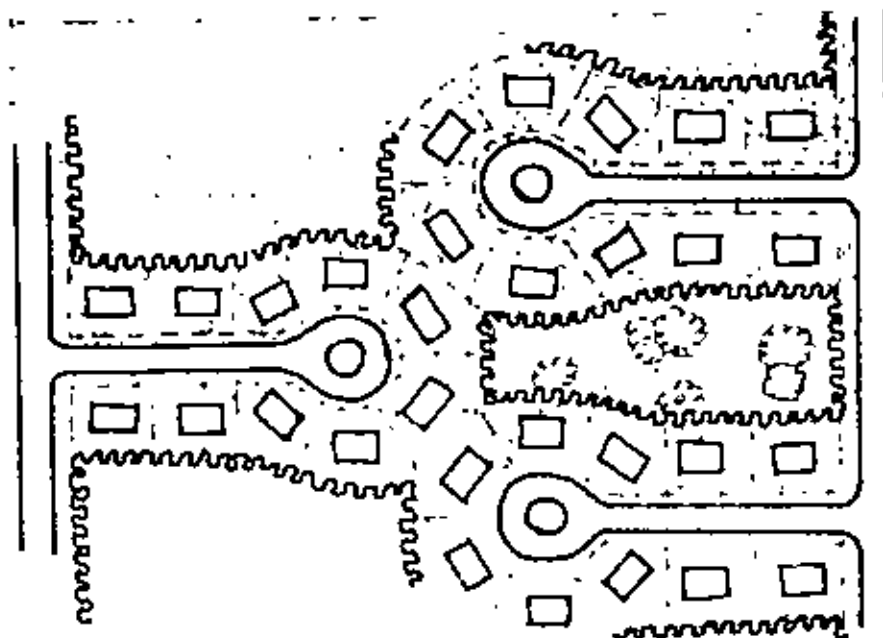


Fig. 27

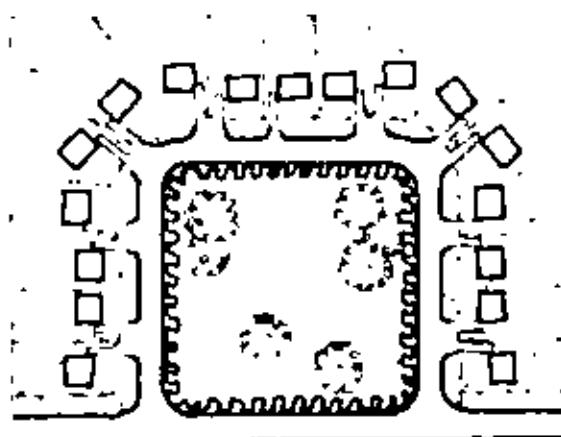


Fig. 28. Grouping around loop street.

HOUSING GROUP

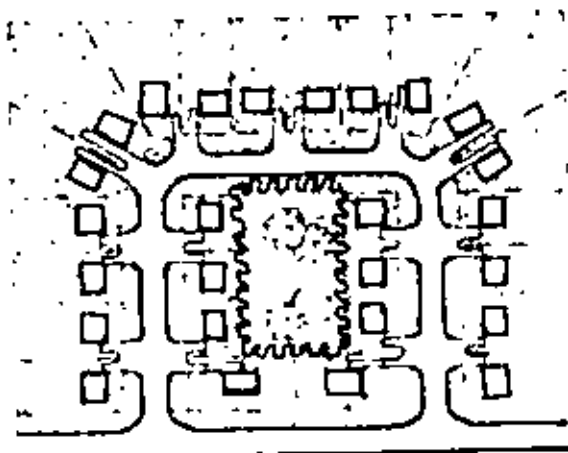


Fig. 29. Grouping around loop street.

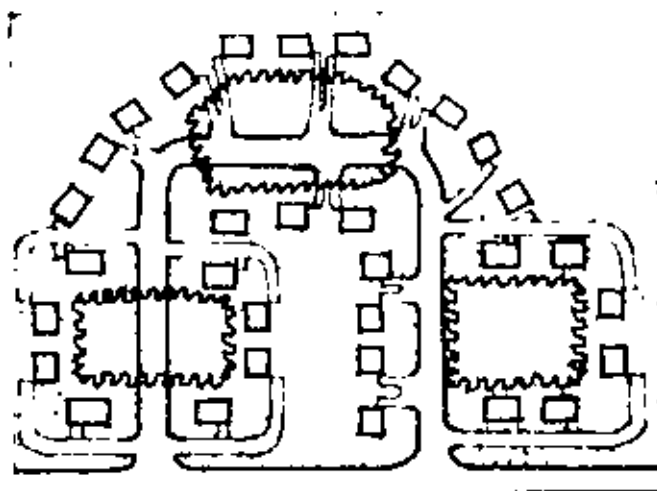


Fig. 30. Grouping around loop street.

HOUSING GROUP

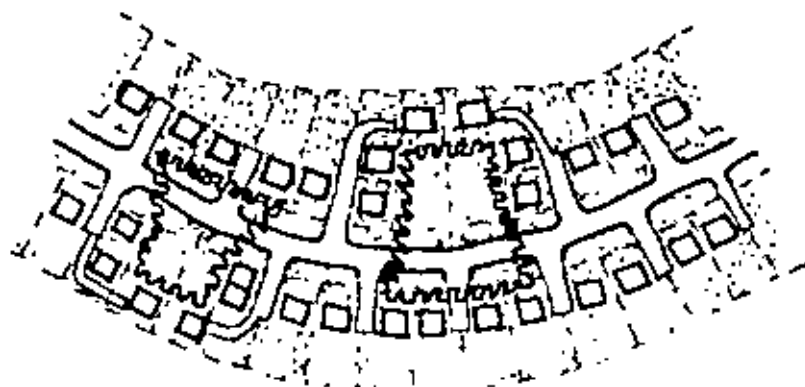


Fig. 31. Grouping on curved street.

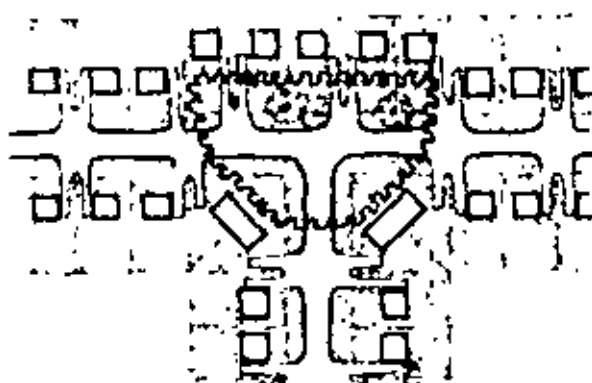


Fig. 32. Grouping around T-intersection.

HOUSING GROUP

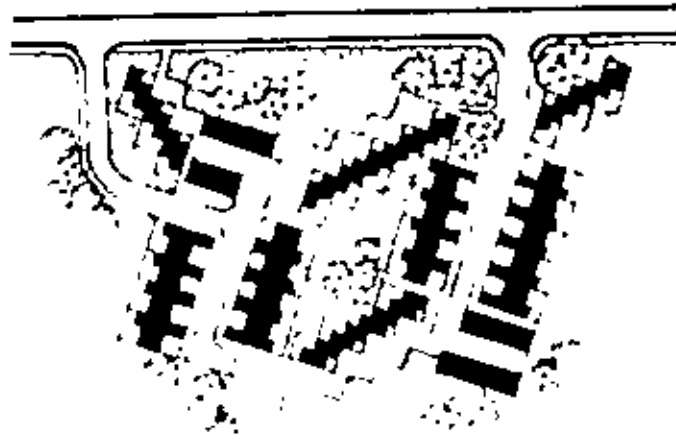


Fig. 33. Grouping of row houses.

Source: Keeble, Lewis.

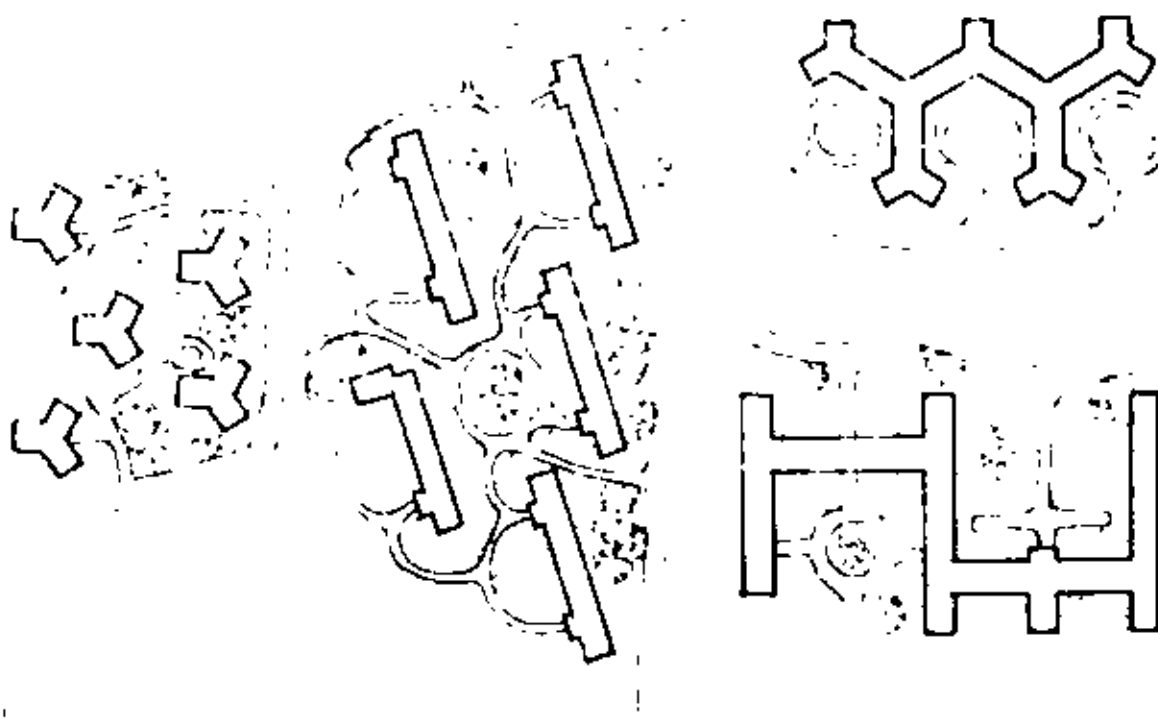


Fig. 34. Grouping high rise flats.

Source: Keeble, Lewis.

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open park-like area.

The opportunity to set out this kind of housing group is only possible when a whole neighbourhood has been carefully designed so that each successive land sub-division and street will fit into the whole scheme. Successful house grouping is therefore an outcome of sound community planning as well as a result of careful site planning and good individual house design.

6.2. CIRCULATION: The circulation system of a single development area cannot be considered as an isolated phenomenon. The volume of traffic, the usability of land, the convenience of access are all affected by the city or regional highway system. The street layout of a neighbourhood unit should be developed in consistence with the overall highway plans of the town. For good accessibility the circulation pattern of a neighbourhood should meet the following basic requirements.

Firstly, the vehicle users should be able to move from one part of a neighbourhood to another-or beyond in other parts of the town in safety and with reasonable speed, directness and pleasantness.

Secondly, on arrival in the vicinity of his destination, the driver should be able to penetrate, without delay close to his final destination.

Thirdly, there must be the smallest number of points at which local traffic enters main traffic arteries.

Fourthly, the streets within a neighbourhood should discourage traffic cutting through the area.

The roads should not wander about aimlessly as in some extremely informal kinds of layout, rather they should have a sense of direction and should be coherent with the layout; roads must be arranged so that they provide adequate access to every building for vehicles and pedestrians and form an efficient system of intercommunication between all parts of the site and its surroundings. Physically, the circulation pattern, linking residential structures to each other, residences to neighbourhood community facilities and neighbourhood to centres of business and employment results in a system which is composed of various types of streets, each designed for the character and the volume of its traffic. For the purpose of nomenclature, the following classification is recommended for the road system of a neighbourhood unit.

- 1) Major thoroughfares
- 2) Neighbourhood feeder roads or Major distributor roads
- 3) Minor distributor roads.
- 4) Access roads

1. Major thoroughfares: These are urban highways (including arterial roads, ring roads, radial roads, through roads) etc.

whose function is to channelise the longer movements from one part of the town to another. The links of the net work should therefore be designed for swift efficient movement. They should have minimum number of intersections at which local traffic enters the thoroughfares. They should not normally penetrate through the neighbourhoods and should preferably run along the boundary of the neighbourhoods.

## 2. Neighbourhood feeder roads:

They lead off from the major thoroughfares and usually feed down to minor distributor roads. The main function of feeder roads is to lead traffic either to the 'environmental areas' (or superblock) or to the neighbourhood centre or sub-centre. They cannot be used for giving direct access to individual buildings because the consequent frequency of interruptions would give rise to traffic dangers and would disturb the efficiency of the road; so they should not usually provide frontage for individual houses. The feeder roads should be so laid out that traffic is drained easily and naturally from the area in the direction which will be most convenient, but the layout should discourage movement of any through traffic within the roads and high speed cannot be permitted because of the multiplicity of road junctions. So it is required that the residential feeder roads should not be made too long or too straight because, even though a speed limit is enforced, this will encourage



dangerously fast speed . Again, the roads cannot be made too circuitous or zigzag, because for numerous reasons they should lead traffic reasonably directly from all parts to its centre. Here, there is clearly a contradiction and it is necessary to seek a compromise in between.

3. Minor distributors: They usually connect the neighbourhood feeder roads with the access roads; and their main function is to collect traffic from or distribute traffic to the 'housing groups' through the access roads.

4. Access roads: The sole function of access roads is to provide access to the houses. They usually connect the houses with the minor distributors or may sometime connect the feeder roads.

Both the minor distributors and the access roads are the roads within the 'environmental areas'. The design and layout of such roads should ensure safety and these should be free from traffic dangers, disturbances, hazards, and other nuisances. Any vehicle which has no purpose in the area should be discouraged; the opportunities for taking short-cuts, instead of using major thoroughfares and feeder roads, should be disapproved; and the temptation for driving at high speed should be restricted. Curvilinear roads devoid of long straight lengths, or the roads with dead-ends may prove suitable for the purpose. The imposition

of speed limit is, of course, essential, but the capacity of the roads must be sufficient to allow the free passage of vehicles even when other vehicles are parked outside buildings.

Pedestrian Circulation:- "The simple act of walking plays an indispensable part in the transport system of any town. It is quite obvious that the pedestrian movement should be enabled to take place in reasonable comfort and safety, and this can be said without appearing to be telling people what is good for their health. In all, it does not seem to be far from the truth that the freedom with which a person can walk about and look around is a useful guide to the civilized quality of an urban area."<sup>1</sup> This requires particularly sensitive attention to the path environment; detail is of great importance and path convenience is vital.

In a neighbourhood the main pedestrian movement take place between points of arrival by vehicle (such as bus stops, car parks, vehicle stops etc.) and the residences, neighbourhood centre, shopping centre, school, community centre, playgrounds etc. "Walks from all dwellings should provide convenient and safe access to elementary schools, shops, playgrounds and other chief pedestrian objectives.

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<sup>1</sup>Traffic in Towns, A study of the Long Term Problems of Traffic in Urban Areas; Her Majesty's Stationery Office, London, 1963. PP. 39-40.

The emphasis should be on a system of continuous main walks connected to dwellings by service walks. (Fig 35) The purpose of various walks should be clearly recognized and they should be differentiated in width, location etc. in a manner similar to the articulated treatment of streets. Walks may be classified into three general types:

- a. Entrance walks: to individual dwellings or to entrances of multiple dwellings.
- b. Service walks: Serving a group of residential structures, connecting entrance walks to major walks.
- c. Major walks: direct pedestrian connection between main parts of the neighbourhood, to neighbourhood community facilities, to public transit facilities, to main pedestrian thoroughfares outside the neighbourhood."<sup>1</sup>

The convenience of a path system depends on four factors:

- a) the walking distance, directness and identification of routes,
- b) the connection with public transport and efficiency of this,
- c) the pleasantness of the route making it an end in itself,
- d) the protection from weather, making it seem shorter.

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<sup>1</sup>Planning the Neighbourhood, American Public Health Association, op. cit. P. 57

The design of path environment is so new that the factors particularly relevant to housing need careful considerations. The shortest possible route to any goal must be the route along the footpath system; as the crow would fly towards a goal should be approximated as nearly as possible. But the "short cuts" which mean crossing of busy roads should be made a detour so that they do not tempt people. The path should be laid out to channel pedestrian movement and to force street-crossings, as far as possible, at safe regulated points. Under or over-passes may be desirable at heavy pedestrian crossings of major or minor roads. Crossings of minor roads or cul-de-sac are the most dangerous points since often there are no sightlines; and even slow vehicles would be lethal to a child running across; walking along cul-de-sac is rather less dangerous and may be used by pedestrians. Where there is one main goal at the end of a superblock, the paths ought to point towards this. If the goals are divided then the right angled junctions between branch path and main path will be the optimum.

How people select routes to take on foot is an important and little understood phenomenon. Dorek Lyddon<sup>1</sup> has listed "habit" and "danger" as determinants over and above the mere directness of any given route. The footpath system must be simple to envisage and the route must attract by its promise. The habit of

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<sup>1</sup>Ritter, Paul, Planning for Man and Motor, (London: Pergamon Press Ltd., 1964) P. 236.

use must be established at the outset of any plan. The pedestrian should be drawn to the path by the life and interest that has been planned into it. The design and careful placing of post boxes, telephone boxes, electric transformers, water boards signs, fire and police alarm boxes, advertisement boards and signs, slot machines, wall-bracket lights and lamp-posts etc. should be considered and brought into use.

In order to minimize accidents to pedestrians, it is necessary to provide thoroughly safe pedestrian ways separated from the road system. Physically it is possible to design a neighbourhood so that virtually all pedestrian movement can take place on footways independent of the road system ( as in Radburn Layout) by providing roadways on one side of a row of houses in a cul-de-sac and the footpath on the other side. But it seems very doubtful whether complete separation would be worth-doing as Lewis Keeble has pointed that "the cost of surfacing and lighting would be considerable; the cost of making pedestrian bridges and tunnels would be great; and unless fully and expensively lighted and controlled by the police they tend to be happy hunting grounds for rapists and robbers"<sup>1</sup>. The extent to which such separation

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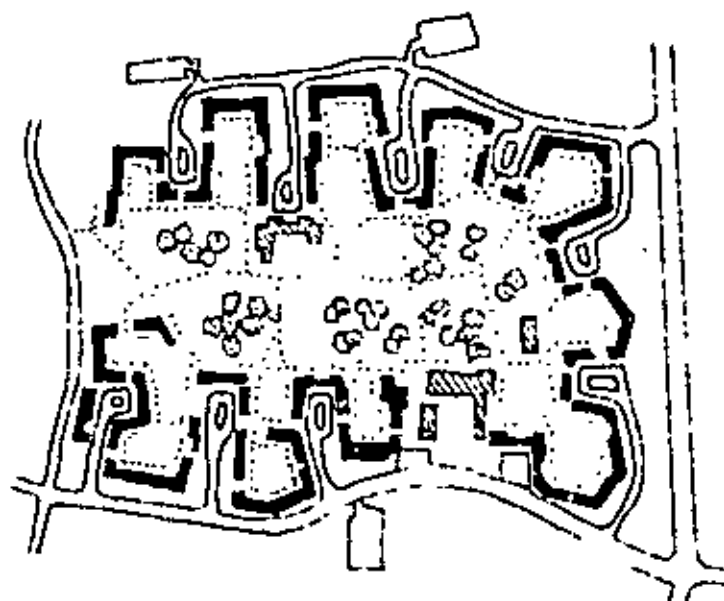
<sup>1</sup>Keeble, Lewis, op. cit. P. 200

is worthwhile is much dependent on economy, type of development and other local conditions. However, substantial extent of separation for vehicular and pedestrian traffic, especially of major walks and the neighbourhood feeder roads can be accomplished without major difficulties or serious consequences. Such separation seems to be effective when the feeder road is made circuitous (snake spine road idea) to make the pedestrian routes more direct than road routes. (Fig 36) Separate walk in the black interior do not necessarily eliminate the need for footpath along streets. Footways along the streets is permissible under favourable conditions.

This requires special mention that ideally people will want to bring their cars right upto their dwellings and to garage them inside; and the residents will want to live in conditions of maximum safety and freedom from the nuisances of moving vehicles, and to be able to send their children out to play and to school with the minimum of risk. The nearest these requirements have come to being completely satisfied is through what is known as the "Radburn Layout". The main principles of the Radburn system are:-

- a) the creation of a superblock (or an environmental area) free from through traffic, and
- b) the creation of a system of pedestrian footpaths entirely separate from vehicular routes and linking together places of generating pedestrian traffic.

Fig. 35.



Forested area .....  
 schools, shops and  
 other facilities .....  
 Flat houses .....  
 Roads & parking spaces .....

Fig. 36.



Snake Spine Road.

The practical effect is that a house has a vehicular access on one side through a service road or a cul-de-sac and on the other side pedestrian access through independent footpath system. As well as the cars, most tradesmen and visitors, and the family itself would usually approach the house from the road side; and the pedestrian approach, linking to the private gardens, would be used mainly by children or adults when not using cars. In larger layouts, the pedestrian approach gives safe access to schools, shops etc. The pedestrian-way could be either open to the public as a whole or, in certain conditions of layout, it could be private to each group of houses with gates provided to increase children's safety.

At the end of the chapter, a few figures have been shown detailing some idea of separating circulation system based on Radburn Principle. Whichever solution is adopted, there will be efficient and inefficient ways of implementing each one. But one thing must be remembered that whenever the planning of neighbourhood takes place for traffic segregation, - buildings, roads and footpaths must be combined and integrated into one environmental whole. The routes offered to people to get to work, school, shops, and recreation must all be pleasant in themselves and safe in movement.



### 6.3. AESTHETIC CONSIDERATIONS

The layout of a residential area begins with the integration of landscape, roads and building groups into one master design. Thus, the term design in connection with residential areas does mean the arrangements of the various parts, — the houses, roads, paths and so on, — not only to function properly and to be built economically but also to give pleasure to look at. The appearance of the area develops from the way it is built. The following paragraphs are therefore primarily concerned with the aesthetic problems of the design of residential areas.

There is a strong aesthetic argument for sub-dividing the neighbourhood into housing groups. An area of some two or three thousand dwellings is likely to be exceedingly dull in appearance simply because there is so little visual relief from bricks and mortar. Even a variety of dwellings will not help matters, because a general impression of same kind of development will remain. If on the other hand, the area is sub-divided into a series of areas, each designed to have its own characteristics (so that it is distinguished from others), and if all of them are held together by the structure of the neighbourhood plan, there will be variety through the contrasts between each area and unit within the neighbourhood as a whole.

This discussion is not concerned with the design of individual dwellings, but it is necessary to have an approximate idea of the proportion of dwellings of different types (such as detached, semi detached, apartments and so on), because the successful design can only be achieved when the form and pattern of the building is related to a particular environment. The forms of buildings react on one another and on the landscape.

A neighbourhood will gain variety through the contrast between the building groups and the landscape, but in the housing units themselves (i.e. superblocks) the environment will be largely dominated by the dwellings. In consequence, variety is needed in their forms if the appearance of the area is to be interesting. Most of the dwellings will be houses with private gardens in blocks two storeys high. However skillfully such blocks are arranged and however much variety may be introduced into the design of the individual dwellings, the development will tend to be dull because of its sameness of character and sameness of the building masses. Building with quite different formal qualities such as blocks of flats, maisonettes and bungalows are needed to provide contrast. Carried to its logical conclusion, mixed development means planning a whole series of compositions with variety in each and unity with the whole. It is not just a question of stopping one kind of development

and starting another, but of mixing the building types together in such a way that each is related to its neighbour and to the scheme as a whole. The form, colour and texture of each building do not belong to it alone, but to the group as a whole.

The first principle in relating houses in a row to one another is that the greater the similarity of their forms, the greater will be the cohesion between them. The human eye delights in recognizing a repeated form. If the forms are identical, the buildings will have more affinity to each other. There is also some affinity if the houses have their masses much the same, but nothing like as much as in a row where each house is identical. The visual relationship between identical houses in an even row is not only due to their similarity of form, but also to the similarity of the spaces between them. Both the forms and the gaps set up a rhythm which leads the eye in an even progression along the row. This relationship depends on the treatment of the gaps, which must be so wide that the eye will not easily bridge them. On the other hand, the buildings must not be so near to each other that only a narrow glimpse is obtained of their end elevations, as this tends to give the appearance of a terrace with deep gashes in it.

The architectural composition and general effect of a housing group may be enriched by the judicious use of colour.

Through colour and texture the surfaces of houses obtain life and vitality. It is essential that a colour scheme is devised for a group as a whole. A house generally looks more satisfactory when the roof is a neutral colour. Dark greys give more definition to the silhouette and a feeling of repose and solidarity. While each house should have some individuality it should not be sufficiently different from its neighbours to disturb the harmony of the whole group.

In the arrangement of houses to form a street picture, there are two chief elements -- the horizontal plane formed by the carriageway and pavement, and the vertical planes formed by the house facades. It is an obvious and simple principle that these two planes are likely to be more completely united, the closer they are together. The two planes are scarcely united at all when the house stands back from the road and is separated from it by the visual barriers of hedge and front garden. When the view of the facade is only obstructed by a low wall the plans are much better united; and if all the front walls and fences are swept away and the space between the pavement and the house is designed as a communal front lawn, the composition will be even more complete. Innumerable objections are made to the communal front garden, but its problems have been solved in many housing schemes in America and Canada. However,

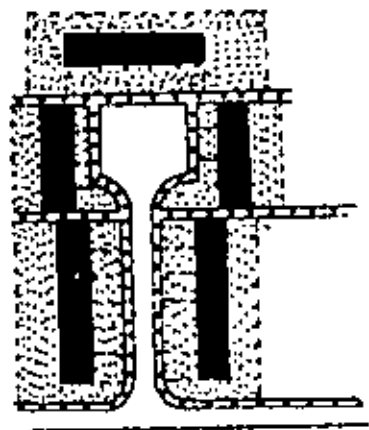
no one can doubt that its appearance is immensely superior to that of the enclosed front garden and it is to be hoped that more authorities will adopt the form of development.

Many attempts have been made to avoid monotony and to introduce variety into long streets of small houses by varying the building line i.e. by creating recessions through the introduction of set-backs; the visual interest in a varying building line is created by the view of the return facade of the projecting building, and it is obvious that the set-back must be large enough for this facade to be seen properly. A small set-back only confuses the design. Again, a chain of small loosely defined spaces formed by similar such set-backs may easily become monotonous, particularly on a long street. Where the sequence of houses is uniform and continuous for some distance — say as far as one can see — there is a need for interrupting accents which relieve the continuity in order to avoid oppressive monotony. This problem occurs when we unthinkingly apply the methods of mass house construction over large tracts. On the other hand, where there is a lack of continuity and where building forms are mixed and varied in shape, size and appearance, we need some elements of continuity or stability to tie the whole together. Accents, — a focal point of stores, a church, a tower, or a vista, — are points of visual reference as much as visual relief. One of the requirements in designing with

straight streets is to stop the view at the end where the eye might otherwise be led on to infinity. This can be done by placing a large building mass at the end of the street.

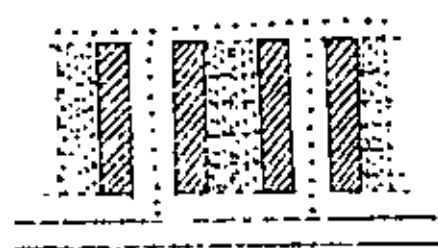
To achieve a sense of intimacy in our environmental architecture, in general, the building masses should be kept small and generally low, — digestible to the eye and to our comprehension as a series of intimate pieces. In the lower ranges of density, this can be accomplished rather directly. In higher ranges of density we must turn to more artful techniques. If, for reasons of high density, economics, or other factors of site design, we find that our buildings must be very long, we can step a facade back and forth, breaking it down into smaller sections visually. Where tall buildings are required they can be brought into the range of intimate visual scale appropriate to residences by introducing small foreground elements to act as a foil to the large-scale masses. Groups of low buildings interwoven with the high, and seen in front of the high buildings, establish an intimate foreground scale which does much to obscure the scale of the giants. Indeed, it should be designed as a sequence of architectural experiences of changing scale, gradually unfolding to our comprehension — the principle of processional experiences of a cathedral transposed and adjusted as a method of design for residential groups.

Plato 22

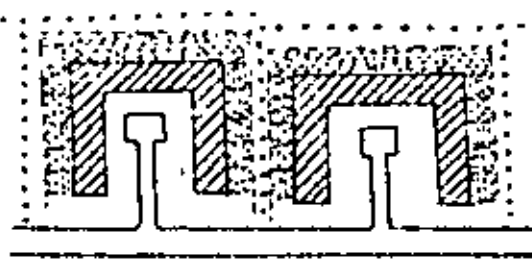


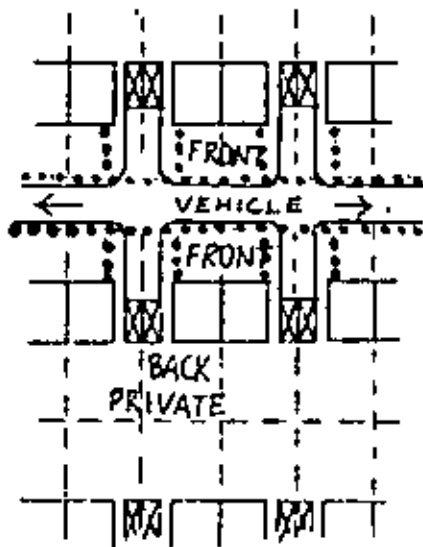
PATHS AND PAVED AREAS .....  
 CARRIAGEWAY .....  
 ROW HOUSES ■■■■

The paths are openly related to the house; enclosed garden at the back. The paths lead to a main path and to goals on one side as well as to the service road on the other.



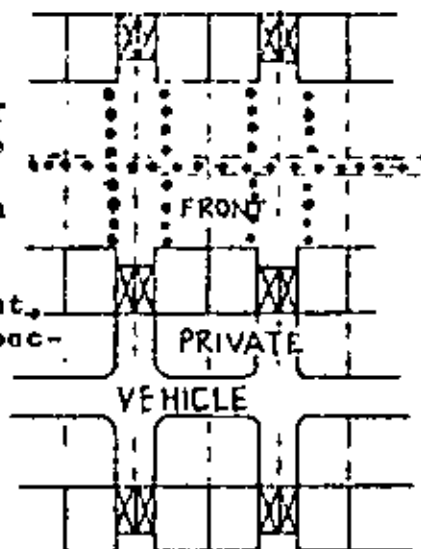
The street side is openly related to the house. Private gardens face to the pedestrian side making it narrow. The segregation of children and cars becomes a complicated but still essential consideration.





Shows a diagrammatic form of the traditional road-frontage housing layout which the great majority of house purchasers prefer. The vehicle road is either a through route, or a cul-de-sac with a pedestrian pavement on either side. There is a clear, unambiguous front door and access into the back garden without passing through the house. If the road is a cul-de-sac, with the pavements linked to a main pedestrian route at that end, the resulting layout approach is the compromise pedestrian/vehicle separation now becoming increasingly used.

Shows in contrast, the same houses arranged according to the dictates of a dual-access layout, with the vehicle route on one side, and the pedestrian path system on the other. In addition to the confusion resulting from the loss of the traditional "front" door relationship to both road and pavement, for car and pedestrian arrivals respectively, the "private" garden area is greatly reduced in extent and is in part taken up by the drive to the garage.





## CHAPTER - 7

### RESIDENTIAL AREAS OF DACCA CITY ITS TRANSFORMATION AND REVITALISATION

The urban community is subject to constant transformation and reconstruction. Unlike a mechanical system, it does not stop if one element ( structure, activities, functions, locations, networks and linkages) is eliminated or functionally destroyed; instead adjustments are made among the remaining elements.

Urban growth, change and decay emerge from competition and conflicts in which space is a direct or indirect object of desire. Ray Pahl asserts, "the built environment is the result of conflicts, in the past and the present, between those with different degrees of power in society — landowners, planners, developers, estate agents, local authorities, pressure groups of all kinds etc. As the balance of power changes

and ideologies rise and fall, so the built environment is affected. It is a continuing situation, with the past constraining the present and together binding and limiting the future."<sup>1</sup>

Deterioration may begin as a result of residential, personal and social mobility. The residential mobility may occur due to the reduction of the value of accommodation spatially tied to central facilities. If the central facilities are shifted, the residential values also shift. The personal mobility occur due to the reduction of respect for buildings that have been aesthetically discarded. The economic condition of the residents also may be responsible for deterioration of residential areas. The "owner obsolescence" is associated with the heaviest accumulation of maintenance, repair and inconvenience costs, which the poorest families are least able to afford."<sup>2</sup> They have not been able to deduct earnings to a sinking fund for modernisation and replacement. "The viruses of physical decay-- such as scattered, defective, mismanaged or closed property, the unchecked traffic in residential streets and the long delays between demolition and

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<sup>1</sup> Pahl, R.E. Spatial Structure and Social Structure, CES-WP-10, Centre for Environmental Studies, London, July 1968, P.13

<sup>2</sup> Official Architecture and Planning, (The Case for Rehabilitation by J.B. Tring.) Vol.32, No.11, London, November 1969, P.1339.

replacement endanger the condition of adjacent dwellings".<sup>1</sup> Changes in land use, slow creeping in of trade, commerce and light industries causes deterioration of residential areas. Structural deterioration of buildings, fragmentation of properties, overcrowding, inadequacy of utilities and facilities, unhygienic conditions, traffic congestions, noise, fumes and a general neglect often causes residential slums. The slum condition may also be caused due to the growth of temporary shacks and jhugies on vacant spaces and fringes of a community or a town.

Dacca, the capital of East Pakistan, is a historic town. The residential areas of Dacca city have undergone long transformation in different periods under different rulers due to political, economic and social changes. 'During the Mughal period Dacca became the capital of Bengal under the Mughal Viceroy, Islam Khan . (1608-1613). The Afghan Fort located at the present central jail was the administrative headquarters of the Mughals.'<sup>2</sup> The business areas were located at the two distinct centres — one at Chauk and the other at Banglabazar. The lower class residential areas were extended between these

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<sup>1</sup>Official Architecture and Planning, op. cit. P. 1339.

<sup>2</sup>Oriental Geographer, (High Class Residential Areas of Dacca City by P. Karim Khan and Nazrul Islam) Vol. VIII, No.1, The East Pakistan Geographical Society, Dacca, January, 1964, P.5

two centres and also around them. Sankhari Bazar, Kumartoli, Potuatuli, Sutrapur, Tanti Bazar, Bania Nagar, Churi Hatta and Sanchi Bander used to house the major part of city's low class population comprised of artisans and labourers. These localities were almost segregated from the high class residential areas. Besides these Peelkhana and Mahut Tuli used to be the other low class areas of the time. The Fort formed the nucleus around which the upper crust of the society used to live. "Bakshi Bazar housed the residences of provincial ministers and secretaries. The Fort itself housed a palace."<sup>1</sup> Other upper class residential areas were Becharam Dewri, Aga Sadek Dewri, Ali Naqui Dewri and Amanat Khan Dewri; — these areas housed the local rich people and were in close proximity to the low class residences and thus they formed a barrier between the Mughal nobilities and poor artisans and labourers. "The most prized residential area was the river front. "The Princes, Nawabs and Ameers all coveted to have a house near the riverside and had built palaces along the river front for about six miles westward from Chotakatra."<sup>2</sup> During the Mughal days , the roads of Dacca city were not well developed. The city was divided into a number of mohallas (neighbourhoods, — not according to modern concept) which was a cluster of houses

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<sup>1</sup>Oriental Geographer, January 1964, op.cit. P.9

<sup>2</sup>Ibid P.9

webbed with intricate narrow lanes. There was very little vehicular traffic in the city and the traffic mainly consisted of pedestrians.

With the advent of British power around 1765 Dacca began to decline in importance and contract in size. Calcutta was growing at the cost of Dacca. The Fort, which was the administrative nucleus during the Mughal period, was turned into the jail by the British. The administrative centre was shifted to the Victoria Park. The educational institutions also were located there. The central business district inherited from the Mughal was in the Chauk which later became the centre of wholesale trade. The retail trade area was extended in Islampur and Nawabpur. Bangla Bazar also was redeveloped as a retail trading centre during the later part of the British rule. "The low class residential areas of the Mughal times continued to be low class and expanded to swallow some parts of the surrounding areas. Some high class areas like Nawabganj also deteriorated to low class."<sup>1</sup> The emergence of middle class social stratum and with that of middle class residential area was 19th century phenomenon. Bakshi Bazar, Dewan Bazar, Nawab Kutra, Aga Sadeq Road, Begum Bazar, Armanitola, Bangla Bazar, and Lakshmi Bazar transformed into middle class residential areas. Later on Gopibagh area was also added to the middle

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<sup>1</sup>Oriental Geographer, January 1964, op. cit. P. 18

class areas."<sup>1</sup> The charm of the river front, which was a prized location for high class residences, continued upto the begining of the present century and the most important high class residential areas stretched at the bank of the Burhiganga River for half a mile from Northbrook Hall to the Ahsan Manzil. British high officials and also the Nawabs used to live there. The area also enjoyed the advantage of nearness to the main administrative centre at Victoria Park. In 1906 when Dacca became the capital of East Bengal and Assam, the administrative centre was shifted to Ramna Area. The Europeans moved from the river side to the new residential areas in Ramna, and the river-front was gradually invaded by commercial uses and light industries. At that time Gandaria, Wari and Purana Paltan were the upper class residential areas for the local elites.

Since the creation of Pakistan (in 1947) the landscape of Dacca city has been undergoing a rapid change. Tejgaon, Postagola and Hazaribagh turned into industrial areas, Chauk, Mitford road and Farashganj became wholesale trade centre. The retail trade area extends from Islampur, Potnatuli, Bangla Bazar, Nawabpur Road to Jinnah Avenue became the commercial

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<sup>1</sup> Oriental Geographer, January, 1964, op.cit. P.18

heart of Dacca city. The offices and administrative buildings have been located mainly in Ramna Area. The major educational institutions also are located in Ramna Area.

The low class residential areas of the past periods continued to remain as low class and more areas were included as the population and the density of houses increased. Major low class residential areas lie in old Dacca area. Some portion of old Dacca became blighted areas. A slum area had developed on either side of the railway line from Gandaria upto Tejgaon, with only small gaps at places. In new Dacca, Rayer Bazar is occupied by lower class people. In old Dacca, only a few areas remained as middle class stronghold. Bakshi Bazar is one such area which could retain its middle class standard until today. Gandaria, Wari and Purana Paltan, which were once upper class areas, became middle class localities.

The city is expanding northward and the high class residential areas are constantly endeavouring to keep themselves at the periphery (northorn) of the city. At present there are three high class residential areas in Daccat Ramna, Dhanmandi and Gulsan. It was north of Bayely Road, where the extension of high class residential district of Ramna took place.

"The growth and expansion of the high class residential areas take place along a sector unless impeded by some natural

or artificial barrier. During the Mughal times, the growth took place along a sector from Chauk to Sarai Jafraabad. During British times and later in post partition period, the high class residential areas extended in Wari, Purana Paltan, Sogun-Bagicha, Ramna and Ekaton-Magh Bazar. The northward extension along this sector was stopped by a lowland and the Tejgaon industrial area. But after skipping these two impediments, it is developing along the same sector in Gulshan. Dhanmandi would have also followed a sector growth northward but the Muhammadpur Housing Estate has throttled its growth."<sup>1</sup>

All these transformations took place without formal planning. It is only a recent phenomenon that the government has entered little into planning thought with a few piecemeal developments. But no attempt has yet been made to evaluate the future growth of the city and no land use survey has been conducted to find the available land, their present use and their future utilization. For example, the growth of Dhanmandi Residential Area has not been properly guided with planning principles. Though it is a residential area, its development was not based on the principles of neighbourhood planning. It is just a vast area subdivided into residential plots for the

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<sup>1</sup>The Oriental Geographer, January 1964, op. cit. PP. 38-39



construction of dwelling houses. No attention was given to the provision of community facilities. The area does not have planned shopping centre, corner stores, play ground, community centre, clubs etc. No well-defined boundary has been delimited and no focal point has been developed for the identity of the area. The Dhanmandi Lake lying in the middle of the area has not been properly integrated to the area for which the unity of the entire development has been lost. Due to the absence of any logical boundary, unity and identity, the community bond is not strong enough to guard against undesirable developments within the area. As a result, invasion has already started on the New Market side and Rayer Bazar side by the slow creeping of offices, hotels, restaurants and shops. More offices and shops are likely to come up along the Mirpur Road. The area is gradually losing its sanctity and importance as a first class residential area.

The revitalisation of the residential areas of Dacca City is a tremendous task. The problem is rooted not only in physical make up but also in socio-economic platform. So, the problem cannot be effectively solved purely by physical planning and it is not possible to discuss the subject within the limited scope of this work. Here we shall discuss simply a general guide line on the effectiveness of neighbourhood principles on the existing towns.

The application of neighbourhood principle to the existing towns must be attempted with great caution. For a unit to be a real neighbourhood it must have sensible boundaries. In many towns there are large quantities of developments where the boundaries of residential units may enclose areas far too large or too small for them to be properly termed as neighbourhoods. In such cases arbitrary division on paper into neighbourhoods is likely to be meaningless or even misleading. Boundaries, if they are to live up to their name, must be marked by physical barriers so that the local interests turn towards different foci. Sometimes, the radial roads bearing considerable traffic and running in between residential areas cannot effectively make any division of interest because the inhabitants treat them as residential roads. The real neighbourhood boundary may be a park some two/three hundred yards wide.

In many old established areas the neighbourhood service facilities are either not provided at all or provided with insufficient numbers and with inefficient distribution. The re-distribution of the services required may, for lack of sites available in the best places, have to be greatly changed from the ideal. In such cases the adoption of an unreal boundary

based on the existing services, may result in dislocation, some services being over-strained and others not fully used. Survey informations relating to service catchment areas should be carefully studied to prevent errors of this kind. In areas where no coherent neighbourhood system is possible, the aim should be to site the new services where they can best supplement existing ones in relation both to existing and proposed areas of dwellings.

In many established areas there is no focal point which is too vital for the identity and for a unit to be appreciated as a neighbourhood. In such areas, the existing service institutes together with their areas of influence and the existing or proposed boundary should be carefully studied with view to establish a focal point for the community of the area.

Socio-spatial relations are not randomly distributed across the city; there are definable clusters of building types, social classes and environments, each of which reflects a status position within the urban community. Price mechanisms, fads and fashions, social values and discrimination demarcate certain areas for use by particular social classes. In delimiting the boundary it should be noticed that people perceive, organize and react to their physical and social environment.

The institutions generally associated with the neighbourhood (e.g. the centre, school, shops) may not co-incide with or be included in the residents image of his neighbourhood."When dislocation or relocation become unavoidable, increased opportunities are necessary for maintaining a sense of social continuity perhaps by 'social unit' relocation plans. The human consequences of urban physical change require careful consideration since the socio-spatial environment is central to the lives of low-income people."<sup>1</sup>

In any event, the whole process of planning or replanning an existing area is to give it a character of its own, and to guard it against possible deterioration. It is to be remembered that planning should be done for the people, not for the planner, and planning is the creation of a physical pattern so designed that personal, family, social and economic life can flourish within it. The classical concept of neighbourhood has reportedly been a failure in U.S. and as such rejected these days. In the face of a vacuum, experiments are being attempted. "Plan with the people and plan by the people" is a very popular slogan in U.S.A. and a great deal of experiment is in progress in this line.

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<sup>1</sup>Ekistics, (Social Perception of the Ecological Neighbourhood by Henry Sanoff.) Vol. 30, No.177, Athens, August 1970, P. 132.

We live in a world of change, in a fluid political-social situation as well as in a phase of rapid technological development. Apparently, today the transportation and communications technology can substitute locational proximity; and the deepest complexities for the field of neighbourhood planning lie in these possibilities of substitution. We are not at all well informed about the full scope of peoples needs and preferences for their living environment. Planners and sociologists have no objective standards to measure how well a community functions and how adequately it meets the needs and demands of its residents. Satisfaction may result from a large number of tangible and intangible factors, both related and unrelated, depending upon the perception of the individual who himself is influenced by many variables, such as his level of income and education, his psychological mood and so on. The degree of community satisfaction will also vary according to the needs, demands and life-styles of many different groups of people. These needs may not always coincide with the opinions of the inhabitants.

To bring about a satisfactory solution to the problems of neighbourhood planning it requires a new collective conscience within the planning profession and a comprehensive view of urban society and its social, spatial and environmental

relationships. Increasing public participation in collaboration with the planners will help to evolve new concept, new techniques and new theories on the subject. Because of the practical utility of a reasonably sensitive 'index of satisfactoriness' , more work should be encouraged in this field, specially in our country. It is recommended that work should begin in correlating this index with the objective conditions existing in the communities, such as the number and range of functions, amount of open space and so on. A more intensive survey spread over a large number of communities would be necessary to measure the precise magnitude of their effects upon the objectivity of the inhabitant's judgements.

It may be explored, how close people would like to have various activities and facilities to their homes, what are the amenities they like to be provided in the shopping centres and community centres, how the people rate the spaciousness and greenery around the house with other open space in urbanized areas and so on. Another thing that should be explored is the attitude about the place in which they work, their preference about mode of transportation etc. which will help to establish goals related to the work trip, and which will help to determine the variety of housing types to be provided near major employment areas so that it will permit people to live close to their

place of employment and at the same time the housing choice they need.

I hope that there are lot of things that we can learn from such attitudinal surveys which will assist us in goal formulation and we have a long way to go with the work before pointing to some general conclusions. But I am convinced such goals are essential if we are to build an urban area that will provide the living environment that people want. It appears that the only way to open the door to these problems is with a wider use of living patterns and attitude surveys. In fact, this should be a continuing part of a sound planning program. We must know the desires of the people if we are going to plan adequately for their environment. The virtues of collaborating Planning Philosophy ( where 'plan with the people' is stressed rather than 'plan for the people' ) must be recognized now before we fail in our efforts as planners. To be successful in our informatory role, we should work with the conception of our beneficiary/client and should never pretend to know the whole truth; instead we should only act as a mirror for our beneficiary's own ideas.

## APPENDIX - 1

### Density of Residential Development

Density standards are useful as a guide for preliminary design schemes, and for estimating population loads and required areas of land. Density measurements provide a uniform and objective method of comparison of site plans for general openness, amenity and livability.

The intensity of residential use can be expressed by different types of density calculations, showing mathematical relationships, between the area of a given piece of land and the population load or building bulk. Area measurements are usually given in acres, population load as number of persons or families and building bulk in terms of ground area covered or total floor area. The following are the measures of residential density in the neighbourhood area.

Net dwelling density : The number of dwelling units per acre of net residential land (land devoted to residential buildings and accessory uses on the same lots, such as informal open



space, drives and service areas, but excluding land for streets, public parking, playgrounds and nonresidential buildings).

Gross dwelling density: The number of dwellings per acre of gross residential land (land as described above, plus bordering streets up to limited distances -- ordinarily to the centre of the street).

Building Coverage:- The proportion of net or gross residential land taken up by buildings.

Building bulk (Floor Area Ratio): The total floor area of all stories used for residential purposes, divided by the area of residential land.

Neighbourhood density: The number of dwelling units per acre of total neighbourhood land (net residential land plus streets and land used for schools, recreation, shopping and other neighbourhood community purposes). The lot area for dwelling unit is derived from its component parts : (1) area covered by buildings, (2) outdoor living space, (3) area for service, laundry drying, walks and setbacks, (4) off-street residential parking areas. These together constitute the net residential land area. (vide table -1 ). Off-street parking is calculated at 240 square feet per car with  $\frac{1}{2}$  to  $\frac{2}{3}$  car per family (in multiple dwellings).

Gross floor area per family is assumed to increase as height increases, because of the need for added interior service and circulation space.

Table - 2 translates the above lot sizes and other net residential area requirements into recommended net dwelling densities for one --, two -- and multifamily dwellings. "Although the above dwelling densities are approved as standard, lower densities should be the goal, specially in an unfavourable location. They will permit flexibility in site layout where poor topography reduces the amount of usable space attached to the house, or where larger than normal setbacks are needed for noise reduction. Lower densities are also desirable to permit increased lot widths for privacy".<sup>1</sup>

Apartment layout makes possible the shared use of service areas, approaches, play lots and other residential land by a number of families and thereby permits some reduction of area allowances per family as compared to layouts in individual lots. Greater sharing of outdoor areas is possible as the number of families increases. Therefore, space allowances per family can be decreased somewhat for taller apartment housing a more concentrated population, without impairing livability. It should

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<sup>1</sup>Planning the Neighbourhood, (APHA) op. cit. P.37

also be remembered that, the more stories a building has, the less ground area per family is covered by the building.

The committee on the Hygiene of Housing (APHA)<sup>1</sup> believes that densities of multifamily buildings should be kept within the desirable range of the table-2: from 25 units per net residential acre for two-story apartments to 85 dwellings per net residential acre for thirteen-story elevator apartments. Although somewhat higher densities may be attainable, it is doubtful whether satisfactory site layouts meeting all standards can be devised except under especially favourable conditions. In no case should net dwelling densities exceed the maximum figures shown in Table -2<sup>2</sup>.

Dwelling densities have the limitation that they do not measure the exact population load on residential land. The number of persons will vary with dwelling sizes and with occupancy conditions. Population densities should under no circumstances be so higher that the outdoor residential space requirements cannot be met.

The building coverage bears an obvious relationship to population density. Even if, by using low buildings, a low

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<sup>1</sup>Planning the Neighbourhood (APHA) op.cit. PP 38-39

<sup>2</sup>Ibid. P. 39

density is maintained, it is obvious that if these buildings cover too large a percentage of the land, insufficient outdoor space will remain for various uses conducive to health, and this lack of space may also result in inadequate arrangements for circulation.

The figures for building coverage are more tangible standards than those which it has described for light and air, and for other criteria that would affect building spacing, and therefore recognizes their usefulness in municipal regulation.

Coverage and height are closely interrelated, and can only be established in the process of design. "At the present time, 20 percent to 30 percent coverage of land within property lines appears to be practical and to permit conformity with standards for light, air and open spaces. Controls which set maximum net coverages exceeding 35 percent may fail to provide sufficient open space and may lead to overcrowding of people on the land."<sup>1</sup>

"The measurement of building bulk in terms of "floor area ratios" has been found very useful as a density control. Because floor area ratio establishes a mathematical relation between the land area, the floor area of the building and its height, it is considered among the most accurate indices for adequacy of light and air. This becomes clear when floor area ratio is related to the spacing of buildings and their height.

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<sup>1</sup>Planning the Neighbourhood (APHA) , op.cit. P. 40.

If, for instance, parallel rows of six-story buildings are spaced two and half times their height to permit proper sunlight admission, the floor area ratio must be approximately 1.14 with normal story height and depth of building. Based on similar computations, floor area ratios required to enable rows of buildings of different height to be spaced two and one-half times their height will range from 0.86 for three story apartments to 1.27 for nine-story elevator apartments. Apartments of thirteen stories will require a floor area ratio of 1.34.

If the above floor area ratios are used as density controls, they will generally assure adequate admission of sunshine, daylight and air to dwellings.

The mathematical relationship of floor area ratio to building coverage and height is expressed by the following formula:

$$F = \frac{G \times S}{L} = B \times S$$

F = Floor Area Ratio.

G = Ground Area of Building.

S = Number of Stories.

L = Area of Land.

B = Building coverage (ground area of building divided by area of land)<sup>1</sup>

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<sup>1</sup>Planning the Neighbourhood (APHA) op. cit. P. 40

Table - 1

Density of residential development.  
(American Standard)

Table - 1 below gives recommended area (net residential land) allowances per family with the various dwelling types. Off street parking is calculated at 240 sq ft per car, with  $\frac{1}{4}$  to  $\frac{2}{3}$  car per family ( in multi-family dwellings)

Table - 1<sup>1</sup>:- Allocation of net residential land to major dwelling uses.

Recommended allowance per family, by dwelling type and by component uses.

Dwelling type	Land area in sq ft per family.				
	Covered by buildings	Outdoor living	Service walks and setbacks	Off street parking	Total
<u>One &amp; two family:</u> (individual Access and services)					
1- family detached	varies	within	lot	area	6000
1- family Semidetached or	}		"		4000
2- family detached					
1- family attached or					
2- family semidetached					
			"		2400
<u>Multi-family</u> (common access and services)					
2-story	435	415	455	160	1465
3-story	290	315	220	160	985
6-story	145	215	50	160	570
9-story	105	215	35	160	515
13-story	75	215	35	125	430

<sup>1</sup> Planning the Neighbourhood, (APHA) op. cit. p. 38

Table - 2

Table - 2 recommends the net dwelling densities for one - , two - and multi-family dwellings based on the lot sizes shown in table -3. From the consideration of light and air higher densities may be attained but it is doubtful whether the densities beyond the maxima (shown in the table) will permit sufficient flexibility in design to insure privacy and other amenities<sup>1</sup>. (a) In addition to meeting the standards of this table plans for a development must comply with neighbourhood density standards for streets and community facilities as specified in tables 3 & 4 .

Table -2<sup>1</sup> Net dwelling densities and building coverage.

Recommended standard values, by dwelling type.

Dwelling type	net dwelling density (units per acre of net residential land)		Net building coverage. (Per- cent of net residential land built over) standard Maximum.
	Standard desirable	Standard maximum	
<u>One &amp; two - family</u>			
1 - family detached	5	7	30
1 - family semidetached	10	12	30
or 2 - family detached			
1 - family attached (row)	16	19	30
or 2 - family semi detached			
<u>Multi-family</u>			
2 - story	25	30	30
3 - story	40	45	30
6 - story	65	75	25
9 - story	75	85	20
12 - story	85	95	17

<sup>1</sup> Planning the Neighbourhood (APHA) op. cit. p. 39

Table - 3

Table 3 & 4 derive a range of what may reasonably be considered as maximum permissible neighbourhood densities subject to certain limitations, e.g. unusable land or land devoted to non-neighbourhood uses has been excluded from the computations. For irregular and steep land, densities must be lowered. The proposed neighbourhood densities cannot be considered as mandatory standards but can serve only as a guide.

Table -3 Land area per family for a neighbourhood of 5000 persons (1375 families)  
(Assumed family size 3.6 persons)

Dwelling type	<u>Land area in sft per family and percent of total</u>				
	Net resi- dential	Streets serving dwellings	Community facilities	Streets serving com.fa- cilities	Total land, requi remen
<u>One-or Two-family dwellings</u>					
1-family detached	6000(71%)	1800(22%)	530(6%)	110(1%)	8440(100%)
1-family semidetached, or 2-family detached	4000(68%)	1200(21%)	530(9%)	110(2%)	5840(100%)
1-family attached (row) or 2-family semidetached	2400(64%)	700(9%)	530(14%)	110(3%)	3740(100%)
<u>Multi family dwellings</u>					
2 - story	1465(53%)	600(21%)	610(22%)	120(4%)	2795(100%)
3 - story	985(45%)	480(21%)	610(28%)	120(6%)	2195(100%)
6 - story	570(36%)	280(18%)	610(39%)	120(7%)	1580(100%)
9 - story	515(35%)	220(15%)	610(42%)	120(8%)	1465(100%)
13- story	450(32%)	220(15%)	610(44%)	120(9%)	1400(100%)

Planning the Neighbourhood, (APHA) op. cit. p. 64



Table - 4

Table -4 : Neighbourhood densities by families per acre and persons per acre for a neighbourhood of 5000 persons (1375 families).

(Modified)		
Dwelling types	Families per acre <sup>a</sup>	Persons per acre <sup>b</sup>
<u>One-or two-family dwellings</u>		
1 - family detached	3.2	19
1 - family semidetached or	7.5	27
2 - family detached		
1 - family attached (row) or	11.7	42
2 - family semi detached		
<u>Multi-family dwellings</u>		
2 - story	13.6	56
3 - story	19.9	72
6 - story	27.6	99
9 - story	29.8	107
13-story	32.2	112

a/ Calculated from land area allowances ( sq ft per family) table-3.

b/ Assumed average family size 3.6 persons.

Planning the neighbourhood (APHA) op. cit. p. 65

Table - 5

Neighbourhood area and density for a development of mixed dwelling types

Table - 5 illustrates the method by which total land area and resultant density is calculated for a neighbourhood of 5000 persons (1,375 families) with diversified dwelling types. It has been assumed that 52% of house holds would be families with minor children and 48% would consist of adults only, in various combinations. It seems desirable to provide the families with children in one- and two-family dwellings, while apartments would be suitable for households consisting of adults. It is proposed that half of the dwellings for families with children (i.e. 26%) will be housed in one-family detached houses and the half (26%) in one-family row houses. For families without children it is proposed that 20% of the dwellings would be 3-story walk-up apartments and the remaining 28% of the dwellings would be in 6-story elevator apartments.

Table 5: Land area and density for a neighbourhood of 5000 persons (1375 families) with diversified dwelling types.

Type of family	Percent Proposed of fami- lies. type	Dwelling units (families)	Required N.H. land area			
			per- cent	Number	sft.per family	Total acres
Families with minor children	52%	1- family detached	26	357	8440	69.0
		1- family row	26	357	3740	30.3
Childless couples, single adults and other adult house- holds	48%	3- story apartment	20	275	2195	13.8
		6- story apartments	28	386	1580	14.00
Total	100%		100.0	1375		127.1

resultant N.H. Density: 10.8 families per acre.

9. 12. 1964

APPENDIX - 2

Table - 6

In table - 6, access standards are given separately for each type of facility, ranging from 1/4 to 1/2 mile. The former one is the desirable walking distance and the latter is generally accepted as the maximum suitable walking distance, for numerous studies have indicated that people tend to use vehicles if they must go further (American standard).

Table - 6<sup>1</sup>: Access standards for community facilities within the neighbourhood.

Recommended distance with maximum limit.

Neighbourhood facility	Walking distance from farthest dwelling (one way)
1. Nursery School	1/4 mile
2. Kindergarten	1/4 to 1/2 mile
3. Elementary School	1/4 to 1/2 mile
4. Playground	1/4 to 1/2 mile
5. Park	1/4 to 1/2 mile
6. Shopping Centre	1/4 to 1/2 mile
7. Indoor, social, cultural and recreational centre	1/2 mile.
8. Health Centre	1/2 mile.

1/ Planning the Neighbourhood, (APHA), op. cit. P. 44.

Table - 7

Illustrated time-distance standard for selected uses in urban area of 100,000 population <sup>1</sup>.

Use of facility	Controlling standards.
1. Employment centres	20 to 30 min.
2. Central business district	30 to 45 min.
3. Local shopping centre	1/2 mile or 10 min.
4. Elementary school	1/2 mile
5. Junior high school	1 mile or 20 min.
6. Senior high school	20 to 30 min.
7. Playground and local park	1/2 mile
8. Playfield and recreation centres	1 mile or 20 min.
9. Public park or conservation	30 to 60 min.

<sup>1/</sup> Chapin, F. Stuart, Jr. , Urban Land Use Planning (Urban, U.S.A.: University of Illinois Press). P.377.

APPENDIX - 2

Table - 8

The table below shows the comparative space requirements for different types of shops as suggested in the City of Manchester Plan.<sup>1</sup>

Trade	No. of shops in N.H. Centre	No. of shops in N.H. sub centre	Total No. of shops.
Grocery, Greengrocery and provisions	3	4	7
Baker & Confectioner	2	2	4
Butcher	3	2	5
Dairy	1	-	1
Fishmonger, fish & Chips	1	-	1
Newsagent, stationery, tobacco & Sweets	3	-	3
Outfitters & garments	3	-	3
Boots & shoes (sale & repairs)	3	-	3
Hardware	1	-	1
Hairdresser	1	-	1
Chemist	1	-	1
Banks	2	-	2
Post Office	1	-	1
	25	8	33

<sup>1</sup> Keeble, Lewis, op. cit. P. 214

Table - 9

The table below summarises the scale of provision, in terms of areas, which might be appropriate in a neighbourhood of 10,000 population.

Table 9<sup>1</sup> : Theoretical Neighbourhood centre and sub-centres  
(Approximate areas devoted to each use)

	N.H. centre (Acres)	N-H.sub- Centre-1 (Acres)	N.H. Sub- Centre-2 (Acres)	N.H. Sub- Centre-3 (Acres)	Total (Acres)
Shops	3.5	0.45	0.60	0.45	5.00
Public houses	1.00	0.25	0.25	0.21	1.72
Petrol filling station	0.25	0.42	0.25	0.49	1.41
Workshops	0.25	-	-	-	0.25
Library	0.50	-	-	-	0.50
Clinic	0.50	-	-	-	0.50
Places of worship -		0.39	0.40	0.475	1.265
Lavatory and unallocated public parking space	0.75	-	-	-	0.75
Total	7.5	1.52	1.50	1.625	12.145

<sup>1</sup> Keeble, Lewis, op. cit. P. 218

Table - 10

Table - 10<sup>1</sup> Land area requirements of various neighbourhood community facilities for 5000 persons or 1375 families. (American standard)

Type of Development	Area in Acres	
	One-or Two-family development <sup>a</sup>	Multifamily development <sup>b</sup>
1. Schools	2.20	2.20
2. Play ground	6.00	6.00
3. Park	3.50	6.00
4. Shopping Centre	3.00	3.00
5. General Community facilities	1.90	1.90
Total	16.60	19.10
Acres per 100 persons	3.32	3.82
Sft. per family	530	610

<sup>a</sup>/ With private lot area of less than 1/4 acre per family (for private lots of 1/4 acre or more, park area may be omitted.

<sup>b</sup>/ Or other development predominantly without private yards.

<sup>c</sup>/ General community facilities included indoor social and cultural facilities, church, assembly hall, health centre, nursery school etc. Need will vary locally.

<sup>1</sup>Planning the Neighbourhood, (APHA) op.cit. P.53

Table - 11

Space allocations made in the plan for the theoretical New Town neighbourhood<sup>1</sup>.

	<u>Acres</u>	<u>Percentage</u>
Residential	250	67.4
Centre & sub-centres	12	3.2
Service industry	6	1.6
Primary schools	11½	3.1
Nursery schools	1½	0.4
Large establishments	20	5.4
Open Space	70	18.9
	<hr/>	<hr/>
Total	371	100.00

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<sup>1</sup>Keeble, Lewis, op. cit. P.203



Table - 12

The table below shows the number of school students in some of the important urban centres of East Pakistan, Compiled from the Census Report of Pakistan, 1961.

Urban areas	Popula- tion	Primary students 5-9 yrs.	Secondary Students, (10-14 years)					
			Total	Male		Female		
				No	No	No	No	No
			Total	1000	Total	1000	Total	1000
Urban areas of East Pakistan (1961)	26,40,726	106000	40	118000	45	73500	28	44500
Dacca City(Urban Areas 1961)	5,56,712	17354	31	23656	43	14386	26	9270
Rajshahi Town	56,885	2248	40	2956	52	1671	29	1285
Comilla town	59,412	2393	40	3129	52	1927	32	1202
Chittagong town	3,64,205	15669	43	14311	40	9325	26	4986
Pabna town	52,358	1670	32	2653	50	1587	30	1066
Mymensingh town	61,914	3138	51	4085	66	2435	39	1650

Table - 13

The table below shows the approximate site requirements for different schools in English neighbourhoods as suggested by Lewis Keeble.

	No. of stu. per 1000 pop.	Total stu. in a N.E. of 10,000 pop.	No. of schools reqd.	Space reqd. per school	Total space reqd.
Nursery (3-5 years)	42	420	6 nos.	1/4 acre	1½ acres.
Primary (6-10 years)	62	620	2 nos. (two-stream)	5½ acre	11½ acres.
Secondary (11-15 years)	One boy's and one girls school for two neighbourhoods				
	For boy's school			12 acres	23½ acres
	For girl's school			11½ acres	

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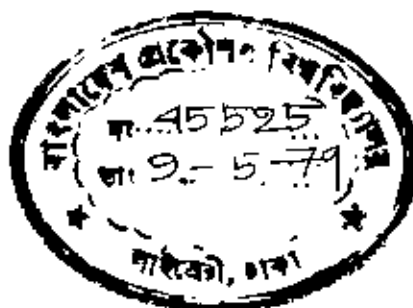
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