

**CULTURE, ARCHITECTURE AND THE URBAN FORM
WITH SPECIAL REFERENCE TO PRIVACY
OMDURMAN - SUDAN**

VOL. I

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ABSTRACT

The study is primarily concerned with privacy and socio-cultural factors and their relation to the urban residential environment. The main objectives are to test three working hypotheses; first, that the maintenance of perceived privacy, as a socio-cultural variant and a behavioural factor, is a major determinant in setting boundaries and forming of human residential environment; and secondly, that socio-cultural and behavioural factors, generally, are major elements as form determinants, especially where the public has maximum freedom in the making of their settlement; thirdly, that intimate relationships such as neighbouring and friendship formation determine to a large extent the ultimate satisfaction of the population with the relevant residential environment. It is also assumed that privacy is a basic need for human autonomy and dignity and its loss can cause mental and physical distress. The final objective is to develop a framework which can act as a guide for creative design and planning policy in relation to social, culture and behavioural variables.

The results obtained from the field work on four urban communities in Omduramn, Sudan, suggested that the three hypotheses held true.

The residents were found to have a high awareness of privacy. The main problem seemed to be an interactional and visual one. In this respect the physical structure of the dwellings revealed both syntactic and mathematical form. The obtained results indicated that the social relationships and cultural values were mapped into the spatial and physical structure of the dwelling, especially with regard to segregation between the sexes.

On the other hand, the high satisfaction with localities assumed that social relationships compensate for

deterioration in the physical environment.

Finally, it is concluded that, through understanding and working in harmony with socio-cultural factors a better design and planning of the residential environment can be produced. In this respect, some guide lines for creative design and planning have been suggested by the author in relation to communities in question.

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GENERAL INTRODUCTION

The theme of this study is social-culture, architecture, and the urban form, promoted by the desire to provide guidelines for the identification of dwelling systems, provide a reference for understanding and evaluating the urban residential environment and to orient decision makers in optimising urban housing improvement. Accordingly the development of effective polices that help produce design, standards and technologies for shelter and infrastructure which are evolutionary, realistic and sufficiently adaptable to local culture and conditions are proposed. The research has been done with special reference to the city of Omdurman, Sudan.

The study is primarily concerned with privacy and socio-cultural factors and their relation to the urban residential environment. The main objectives are to test three working hypotheses; first, that the maintenance of perceived privacy, as a socio-cultural variant and a behavioural factor, is a major determinant in setting boundaries and forming of human residential environment; and secondly, that socio-cultural and behavioural factors are major elements as form determinants, especially where the public has maximum freedom in the making of their settlement; thirdly, that intimate relationships such as neighbouring and friendship formation determine to a large extent the ultimate satisfaction of the population with the relevant residential environment. It is also assumed that privacy is a basic need for human autonomy and dignity and its loss can cause mental and physical distress. The final objective is to develop a framework which can act as a guide for creative design and planning policy in relation to social, culture and behavioural variables.

Thus, the research investigates; (a) the relationship between socio-cultural variables and the physical aspects of urban residential environment; (b) whether/or in what ways these variables are important as determinants of built environment; (c) the limitations that residential environment would exert to affect the development of social interaction in the way the people wish; (d) assess to what extent the behavioural variables, especially privacy, are of particular importance to the public under study and finally; (e) to assess the importance of privacy and socio-cultural variables in the tenants' adaptation and satisfaction with their residential environment.

This study will give an overview of other factors that affect the form of the residential environment, but it will give special reference to socio-cultural aspects and deal in detail with the problem of privacy.

To attain the objective mentioned above the study is divided into four parts:

- (1) Relevant facts about Sudan; demographic and urbanisation trends, geographic features, economic and development characteristics displayed as a necessary background to the research.
- (2) The identification of socio-cultural variables and privacy.
- (3) Case study and testing of hypotheses; a field work survey carried out in the city of Omdurman for four communities in third class areas with different life time, level of income, social structure, and urban texture to test the validity of the hypotheses.

(4) Development of a framework; as a result of part (3) an attempt is made to establish design and planning criteria specially for urban residential environments in Sudan and ways of implementation are suggested. This will act as a basis for creative design and planning. Finally conclusions and recommendations for further investigation are stated.

Due to the considerable amount of tables used in this study and for practical considerations, a supplementary volume, (VOLUME II), have been provided to contain the appendices for Chapters 6 and 7 and the bibliography. In this respect all tables, unless stated, will be found in the mentioned volume.

PART ONE

CHAPTER 1

1. THE REPUBLIC OF THE SUDAN

Introduction:

The Republic of the Sudan is the largest country in Africa. With an area of over 2.5 millions square kilometres it is larger than Western Europe (excluding Scandinavia) and more than twice the size of all the Scandinavian countries put together. It is a vast plain lying between latitude 4° N and 22° S which stretches from sandy desert in the north to tropical rain forests in the south. It is inhabited by a variety of peoples of differing origin, religion, language, and life style.

Enough of the inhabitants are Arabs or Arabic-speaking to put the country firmly within the Arab world, and yet non-Arabs make up the majority of the population. Some of the ethnic groups extend beyond the boarders of the state. The Sudan straddles a number of significant cultural frontiers: it is a bridge between Muslim, Christian and pagan Africa, between Nile valley civilisations and Sudanic cultures, between Arabic-, English-, Swahili-, and French-speaking Africa between West Africa and East Africa, and between the Arabian peninsula and Africa. Connecting a number of frontiers and encompassing a variety of elements, Sudanese society has emerged with strong links to other societies and yet it has created a special character of its own¹.

1.1 GEOGRAPHY

In medieval Muslim literature the name "El-Sudan" was applied generally to Africa south of the Sahara. In modern times, the name has been confined to the area stretching from the Atlantic to the Red Sea and lying between the Sahara and the forest areas. In addition, the African

territories ruled by the Ottoman governor of Egypt were also known as Sudan. The term is likewise used in a still more restricted sense to mean the territories south of Egypt which formed the Anglo-Egyptian Sudan and the present-day Republic of the Sudan, which was declared independent state in 1956.

As mentioned earlier, the Sudan covers an area of 967,500 square miles or about 2.5 million square kilometres. It extends almost 1300 miles from north to south and 1100 from east to west. It shares borders with Egypt, Libya, Chad, Central Africa, Zaire, Uganda, Kenya and Ethiopia, and has a coastal frontier on the Red Sea (Fig. 1.1).

The Sudan is an area of diverse geographical features. Its climate includes the desert of the north, where it hardly ever rains a semi-arid belt in the central plains, and an area of increasing rainfall to the south. The vegetation tends to match this pattern of climatic distribution.

The Nile and its tributaries are the most dominant single feature of the physical landscape. The river system cuts across the climatic and vegetation belts, providing water for irrigation, and is an important means of transportation, and the focus for most of the settled agricultural life and economy of the country. The Nile itself is formed by two great rivers, the Blue and White Niles, which join together at Khartoum. The only major tributary north of Khartoum is the Atbara River.

Satakopan divided Sudan into four climatic zones. These are: (1) The arid zone: areas to the east of longitude 24° E and north of latitude 12° N. In this zone areas south of latitude 14° N (and the Red Sea Hills) have relatively higher moisture indices and are, therefore, comparatively less arid. (2) The semi-arid zone: comprising western

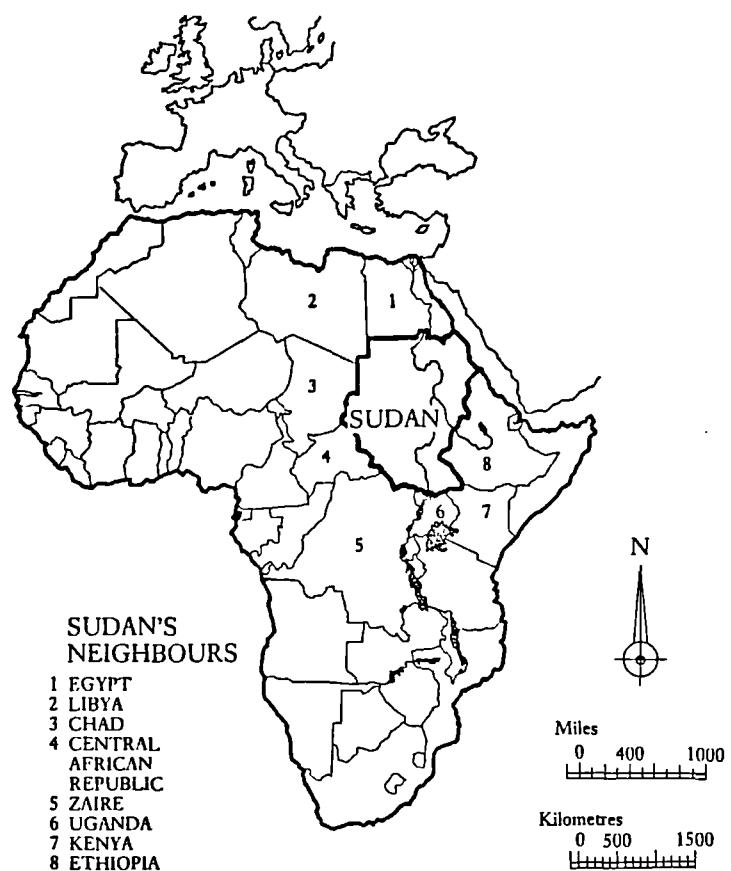


FIG. (1.1): LOCATION OF THE CONTEMPORARY SUDAN.

Darfur, the plains in Bahr El-Gazal, Kordofan and Upper Nile provinces and parts of the Blue Nile province. (3) The dry sub-humid zone: comprising south western Darfur, areas in Equatoria and western Bahr El-Gazal provinces where the land is more than 500 metres above sea level. (4) The moist, sub-humid zone: confined to a narrow belt along the southern border of the country in the Equatoria province.

In geological terms one can see the dominant topological features as (1) the Nile drainage system, (2) the great eroded region of the Red Sea mountains, (3) vast plains with occasional high hills, (4) volcanic uplands in Darfur and (5) the southern and south-eastern highlands.

Another classification singles out the Nile Valley in the north and central parts, where most people farm with the aid of irrigation; the western Sudan, which is an area of mixed nomadism and peasant agriculture; the eastern Sudan -primarily a nomadic area but with some irrigated agricultural areas, and the southern region with its complex tribal and agricultural societies.

Certain areas also have been classified on a historical basis as much as by geographical features. The Nile Valley in northern Sudan and southern Egypt is Nubia. South of Nubia was the central area of the Kingdom of Cush around the city of Meroe. Further up the river valley, the area between the Blue and White Niles came to be called "The Island" or "El-Gezira." Finally, the southern third of the country has in the 20th century come to be spoken of as "The South" (see Fig. 1.2)².

1.2 PEOPLE

According to the 1983 census the total population of the Sudan is 20.416 million which is increasing each year on average by 2.5-3.0%. The composition of the Sudanese

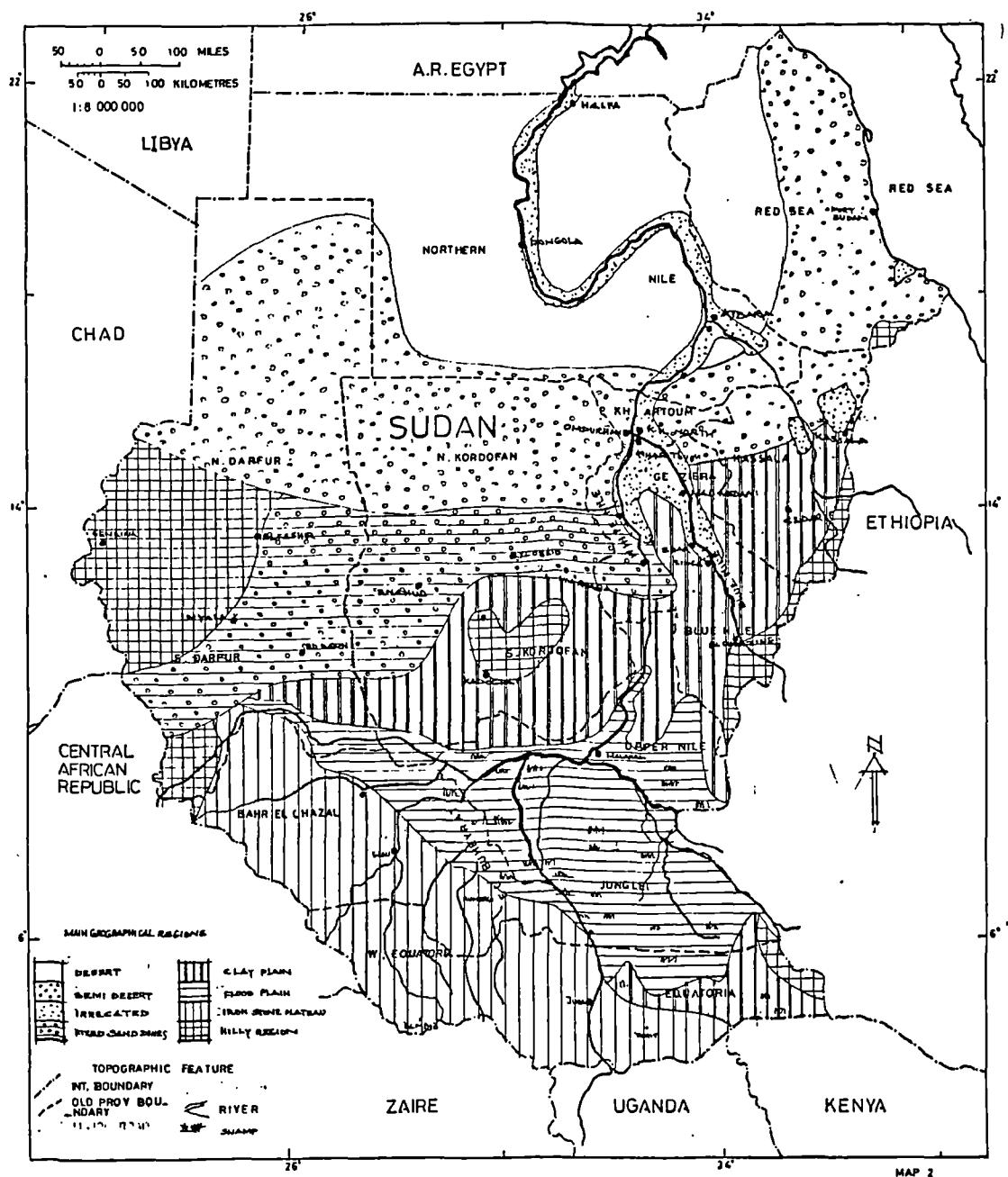


FIG. (1.2): SUDAN: MAIN GEOGRAPHICAL REGIONS.
(Source: Survey Department).

population is complex in its diversity. The 1955/56 census listed 56 ethnic or major tribal groupings and 597 significant sub-groupings. The Arabs make up the largest single group. In this same census 39% of the Sudanese identified themselves as members of Arab tribes. The Arab tribes, who are Muslim, mainly inhabit the Northern, Central and Western provinces of the country.

On the other hand, there are also a number of non-Arab groups. The Beja tribes, although they are Muslim now, have maintained a special cultural character. They amount to about 6% of the total population and live mostly in the Eastern and Red Sea provinces. The Nubians are found in the Northern province; some groups have kept their traditional language while others have become Arabized. The census identified about 3% of the population as Nubian. Another group is the Nuba or inhabitants of the Nuba Mountains of Southern Kordofan. Isolated and gaining their livelihood from cultivation the land they form a culturally distinct group and make up almost 6% of the Sudanese population. In addition, there are many distinctive smaller groups such as the Fur and Zaghawa of Darfur. The largest non-Arab group in the Northern, Eastern, Central and Western provinces is made up of those who have migrated relatively recently from West Africa, who represent at least 13% of the total population.

The provinces in the south similarly display a complex tribal mix. Even the definition of major groupings has been the subject of dispute. Perhaps the simplest is the division into the Nilotc and the Sudanic tribes. The largest of the Nilotc tribes are the Dinka (over 12% of the total population), Nuer, Shilluk and Anuak. Some tribes, like the Bari, are called Nilo-Hamitic rather than Nilotc. The largest of the Sudanic groups is the Azande in the south-west.

1.2.1 Language:

The diversity of language which is found in the Sudan is closely related to the ethnic and tribal patterns of Sudanese society. Arabic is the official language and over half of the population declared Arabic to be their native tongue in the 1955/56 census. The census also indicated, however, that 115 different languages, including 26 major ones, are spoken. The major languages other than Arabic are Beja, Nubian, Nuban, Darfurian, West African, Funj, Dinka, Nuer and Azande.

1.2.2 Religion:

There have been no reliable figures in recent years showing the population structure in relation to religion. From observation it can be estimated that more than two-thirds of the population of the Sudan are Muslim. These are concentrated in the Northern, Eastern, Western and Central regions, which are almost completely Muslim.

There are an estimated half million Christians in the Sudan. Most of these are found in the south and they are mainly divided between Roman Catholic and Protestant, a result of the missionary activity of the previous century.

The majority of Sudanese in the southern provinces subscribe to local traditional religions which are tied to the beliefs and customs of their ethnic unit.

In general terms, religion, along with ethnic group and language, has been an important factor as far as individual and cultural identity in the Sudan is concerned³.

1.3 EARLY HISTORY

The History of the region is as diversified as its climate and population structure. Unfortunately, at present much of the Sudan's history is unknown. Most of the research has been of the central and northern areas in the Nile Valley, but even here much remains to be discovered. Recently a lot of data has come from archaeological work in Nubia. Elsewhere in the Sudan many important sites still await excavation.

1.3.1 The Period Before Christ

Archaeological evidence has revealed traces of early human activity scattered throughout the Sudan. According to some scholars, early stone Age Palaeolithic sites date from as early as a quarter of a million years B.C. A series of cultures has been unearthed in the area around Wadi Halfa dating as far back as 50000 Years.

The Shaheinab or Khartoum Neolithic culture in the central Sudan had emerged by 4000 to 3000 B.C. These groups may have had contacts with many cultures in north and north-east Africa. The subsequent ancient history of the Sudan is closely tied to the ancient history of Egypt.

Nubia has been the scene of most of the modern archaeological investigations. The Nubian cultural history has been classified into different stages. The earliest one, related to pre-dynastic and early dynastic Egypt, is called the A-Group and dates roughly from around 3100-2600 B.C.

Although independent, the A-group was influenced by Egyptian civilisation. Then around 2500 B.C., the Egyptians conquered some of northern Nubia and local Sudanese culture changed and the era of the B-Group emerged. Around 2160 B.C. Sudanese Nubia flourished. The C-Group and Kerma cultures

were born. This era came to an end with the revival of Egypt around 1500 B.C., the time of the C-Group (the province of C

Sudanese states re-emerged after 1100 B.C. By 950 B.C. a distinctive Egyptian-Cushite culture had evolved. Napata became the capital of Kush and its king even conquered Egypt for a time, forming the 25th Dynasty after 750 B.C. When the Assyrians conquered Egypt in 656 B.C., the Cushite were driven back but maintained their independent state. The destruction of Napata by the Egyptian invaders in 591 B.C. caused the capital to move south to Meroe but did not destroy the state.

Meroe was influenced by Greek and Roman as well as ancient Egyptian ideas. However, it developed its own cultural traits and may have been the gateway for Middle Eastern ideas and technologies into Africa. Meroe came to an end around 350 B.C.⁴.

1.3.2 Medieval History

Little is known about Sudanese history in the period following the collapse of Meroe. This is the time of the X-Group or the Ballana culture, which was a post-Meroetic mixture of Roman, Cushite and new elements. Out of the confusion, three states emerged: Nobatia, Makuria and Alawa. Their rulers were converted to Christianity between AD. 543 and 580 and Nobatia and Makuria merged to form the kingdom of Dongola by the year 700.

The best-known aspect of the history of these states is their relationship with Egypt, which became a part of the Islamic empire in 640. According to traditions says that the first Muslim became king of Dongola in 1315 and that Soba the last Christian kingdom, Alawa, fell in 1504. Scholars now think that this may even have happened earlier. Arab Muslim tribes, merchants, and teachers gradually moved into

the Sudan. They intermarried, settled and became Sudanese. As a result the end of the medieval Sudan was a gradual transition rather than a process of conversion^{5,6}.

1.3.3 Post-Medieval/Pre-Modern Era

The three centuries following the fall of Soba and the Turco-Egyptian conquest of the Sudan in 1820/21 are of great importance in the Sudanese history. The movement of the new tribes and the consolidation of institutions consolidated both the Islamization and the Arabization of much of the Sudan. During this time the modern pattern of tribal societies in the southern regions was also being formed.

During this period it is possible to trace with more certainty the main outlines of the history of the entire country. The best-known features relate to the emergence of a number of larger, regional states within the modern Sudan.

At the beginning of the 16th century the Funj sultanate in central and northern Sudan with its capital at Sennar. The political system witnessed a gradual evolution, coupled with a process of Islamization. The Sultanate dominated the Nile Valley and extended its control on occasion both eastwards into the Red Sea hills and westwards into Kordofan. Later internal conflicts divided the Sultanate into small tribal Kingdoms. It was a divided and anarchic Sudan which the Turco-Egyptian forces conquered in 1820.

In Darfur in the western Sudan other sultanates were also emerging. Many small states were created in medieval times of whose history little is known. The Daju gained control over part of the area before 1200 and were followed by the Tunjur. The latter were succeeded in turn by the Keira dynasty which created a sultanate which controlled most of Darfur from the middle of the 17th century until 1916. From the time of Sulayman Solong in the late 17th century the

Keira state was Islamic. The last of the Keira sultans was Ali Dinar, who was defeated by the British during World War 1.

Islam was firmly established in northern, central, eastern and western Sudan during the Funj and Keira periods. Travelling merchants and teachers opened the regions to the rest of the Islamic world. Local schools were created and the great Islamic orders gained a firm foothold. The religious brotherhood joined the tribe and the family as the primary basis for identity.

The period from the 15th to the 19th century was also of crucial importance in the development of the southern part of the Sudan. It is in these centuries that tribal migrations brought the major groups to modern locations and institutional structures were established. The largest state to emerge in the south during this period was created by the Azande. They began to enter the southern Sudan in the 16th century. However, in the 18th century the Avungara came on the scene as a new invaders. They created a well organised and expanding state system. Their pattern of monarchy remained until the late arrival of the British invaders in the region in this century⁷.

1.4 RECENT HISTORY

1.4.1 Turco-Egyptian Rule 1820-1881

During the 19th century a number of new factors began to bring the people and the regions together into a single unit called the Sudan. Economic, religious and political organisation at times broadened to country-wide activity and provided an element of integration.

In politics a dramatic change was brought about by the conquest of much of the Sudan by Turco-Egyptian forces. The

Ottoman army moved into Sudan in 1820 and the central and northern areas were conquered.

In 1872 Ismail, the commander of the Turco-Egyptian forces was murdered in Shendi and a widespread revolt followed. The opposition was crushed and the new governors were not faced with another major local threat until the Mahadist movement in 1881. A civil and military administration was established with the capital in Khartoum. A bureaucracy grew up with the provincial and district officers. In this way a centralised, non-tribal governmental system was established and the modern political framework of the Sudan took root.

The Turco-Egyptian rulers expanded the area under their control. By 1840 nominal control was won over the Red Sea hills and the ports on the coast. An expedition to the south created eventually a military presence, if not control, in much of that area. The final expansion was completed in 1874 with the conquest of Darfur.

Many local religious leaders and tribes opposed Egyptian rule, though generally through non-cooperation rather than by open revolt. However, growing discontent reached a climax in the late 1870s⁸.

1.4.2 The Mahadiyyah, 1881-1898

Among the Sudanese distressed by what they believed to be the impiety of the Turco-Egyptian rulers was an extremely ascetic and religious individual, Muhammad Ahmad ibn Abdallah, who was later known as the Mahadi. He toured the Sudan and then publicly proclaimed his mission in 1881, which was to restore the purity of Islamic society.

As victory followed victory, he soon controlled all of northern Sudan except for Wadi Halfa and the Red Sea port of

Suakin. Later Khartoum fell in 1885 after a long siege in which General Gordon, the governor, was killed.

The Mahadi tried to recreate the structure of the earliest Islamic society. His followers were drawn from many different groups and they came to be called the Ansar.

Soon after the fall of Khartoum the Mahadi died. He was succeeded by the Khalifah Abdullahi, who faced the new task of protecting the new state, consolidating the organisation of the Mahadist movement and keeping the diverse factions of the movement unified. Between 1885 and 1898 the Khalifa managed to defeat local revolts. He made use of some of the administrative structures of the Egyptian government and by the 1890s a relatively stable state was beginning to emerge. As Africa was partitioned among European powers, Italy, France and Britain looked to the Sudan with interest. The British invaded the Mahadist state with an Anglo-Egyptian army which faced fierce opposition, but won through its technological superiority. The last major battle was fought outside Omdurman in 1898.

During the Mahadist era the country-wide organisation of politics and economics had been continued and the Islamization was further consolidated. At the same time the special identity of the Sudan as a separate country had been emphasised. As a result, the Mahadi has been called by some "the first Sudanese nationalist"⁹.

1.4.3 The Anglo-Egyptian Sudan, 1899-1955

In 1899 an Anglo-Egyptian agreement defined the new regime for the Sudan. It provided for Anglo-Egyptian control. In practice, the Sudan was ruled by the British. The organisation of the new government relied on the 19th-century Turco-Egyptian precedents for central and provincial organisation.

The early years of the British rule were spent establishing control and maintaining order. In the north religious movements continued to appear. In the south there was also resistance with many tribal revolts and local discontent. In all, more than 170 military patrols were needed in the first three decades to establish control.

In economic terms the integration of the country continued. By the time of Independence there was considerable modern economic culture, particularly in Central Sudan, while little had been done in the south.

The 1920s were important years of transition. By then the educated Sudanese, resistance to British rule and local aspirations began to shift toward national goals. The theatre of action of these themes was primarily the northern Sudan. Increasingly contact between the north and the south of the country was made more difficult by formal and informal British policies. At the end of World War 2, Sudanese journalism emerged as a force independent of the government. Literature and literary criticism prospered. The paradoxical nature of Sudanese culture with both its profound ties to outside societies and its distinctive character was debated.

In international terms, the Anglo-Egyptian stalemate over the British role in Egypt made agreement on the Sudan impossible. The decision to leave came after the Egyptian revolution in 1952. An agreement was signed in 1953 defining the transition towards Sudanese self-government and self-determination. Elections for a new parliament were held late in 1953.

Ismail al-Azhari became the first prime minister and under his leadership the Sudanization of the administration was rapidly completed. On January 1, 1956 the British withdrew and the Sudan became an independent state¹⁰.

1.4.4 Independence

The Sudan inherited a parliamentary structure from the Anglo-Egyptian regime with independence new problems emerged during the first two years the economic situation was difficult.

After new elections in 1958 failed to clarify the political situation and the economic state-of-affairs grew worse, the army chief of staff, Ibrahim Abboud, took control of the government through a military coup in November 1958.

Repression, lack of imagination, inability to handle the southern problem, and other factors created widespread discontent with Abboud regime. In October 1964 public resistance forced the removal of the military regime. It was replaced by a transitional civilian government. However, as elections and parliamentary government developed, the older parties regained control.

By May 1969 the feeling of unrest paved the way for another military coup led by Ja'far Numayri. The Numayri government has worked to create a new political structure. In May 1971 the Sudanese Socialist Union (SSU) was formed as a mass organisation with the aim of replacing the political parties. The provinces were reorganised into smaller ones, and a broader decentralisation of government took place. In economical terms there was the nationalisation of banks, cotton marketing, and all news papers (1970). In political terms the government was seen initially as a radical regime of the left. It was challenged by the conservative forces, the Ansar and Muslim Brothers. In July 1971 a coup led by leftist officers took control of Khartoum for three days, but Numayri regained control and crushed the opposition on the left. In the next years which followed Numayri did all he could to avoid moving to the left.

Owing to the economic crisis, local political opposition to the Numayri regime and the unrest, the army led a coup and took power in April 1985. A transitional government was formed and the first elections took place in April 1986. Once again the traditional parties won the elections with the emergence of the new Islamic National Front as the opposition. Again the political system, faced with the serious problems of economic hardship, the famine and civil war in the south, could not make much progress. Due to instability and the widespread dissatisfaction and unrest the government fell to a military coup in 1989.

To give a comprehensive picture about the country, the next Chapter will try to display and discuss the general characteristics of contemporary settlements in the Sudan.

REFERENCES (1):

1. Legum, C. (ed.), African Handbook to the Continent, Anthony Blond Ltd., U.K., 1961, PP. 463-470.
2. Ibrahim, S. A. A., Thermal Installation of Buildings in a Hot Dry Climate with Special Reference to the Sudan, Ph.D thesis, Univ. of Edinburgh, 1968, P. 3.2.
3. Africa South of the Sahara, 1977-78, Europa Publications Ltd., 1977, PP. 68-73, 889.
4. Cambridge History of Africa, Vol. 1, Cambridge Univ. Press, 1982, PP. 422-427.
5. Cambridge History of Africa, Vol. 2, Cambridge Univ. Press, 1978, PP. 210-265.
6. Cambridge History of Africa, Vol. 3, Cambridge Univ. Press, 1977, PP. 69-81.
7. Mahadia, M., Short History of the Sudan, Oxford Univ. Press, 1965, PP. 21-60.
8. Mahadia, M., Ibid, PP. 61-86.
9. Wingate, F. R., Mahadism in the Egyptian Sudan, 1881-1898, Oxford Univ. Press, 1958.
10. Mahadia, M., Ibid, PP. 116-142.

CHAPTER 2

2.0 CHARACTERISTICS OF CONTEMPORARY SETTLEMENTS IN THE SUDAN

2.1 GENERAL DEMOGRAPHIC AND URBANISATION TRENDS:

The population of Sudan in 1983 was only roughly estimated at 20.416×10^6 inhabitants and more appropriately established at 21.436750 million¹ with an average annual growth rate of between 2.5 to 3% per annum (see Table 2.1, Fig. 2.1 and 2.2). The average density is 6.5 inh/km² but is unequally distributed for the following reasons:

- (a) Only 19% of the arable land is cultivated
- (b) 11% of the population is nomadic and breed cattle, sheep, goats and camels².
- (c) 21% of the population is urban³.
- (d) There are three main towns of large population (over 300,000 in 1983)⁴.

Agriculture is the main economic activity accounting for 40% of the GDP and 90% of Foreign exchange revenue. Cotton is the most important cash crop. Other crops include wheat, ground nuts, sugar cane, tobacco and rice. Irrigation schemes play an important part with water from the White and Blue Niles. There are several irrigation projects with foreign financing such as The Gezira, the Khashim El Griba, and the Rahad. The damming of the water however has resulted in the high rate of evaporation. Industrial investment includes various schemes and also the expansion of the textile and sugar industries. An oil pipeline runs between Port Sudan and Khartoum and a 1190 km highway links the two cities between 1978 and 1979.

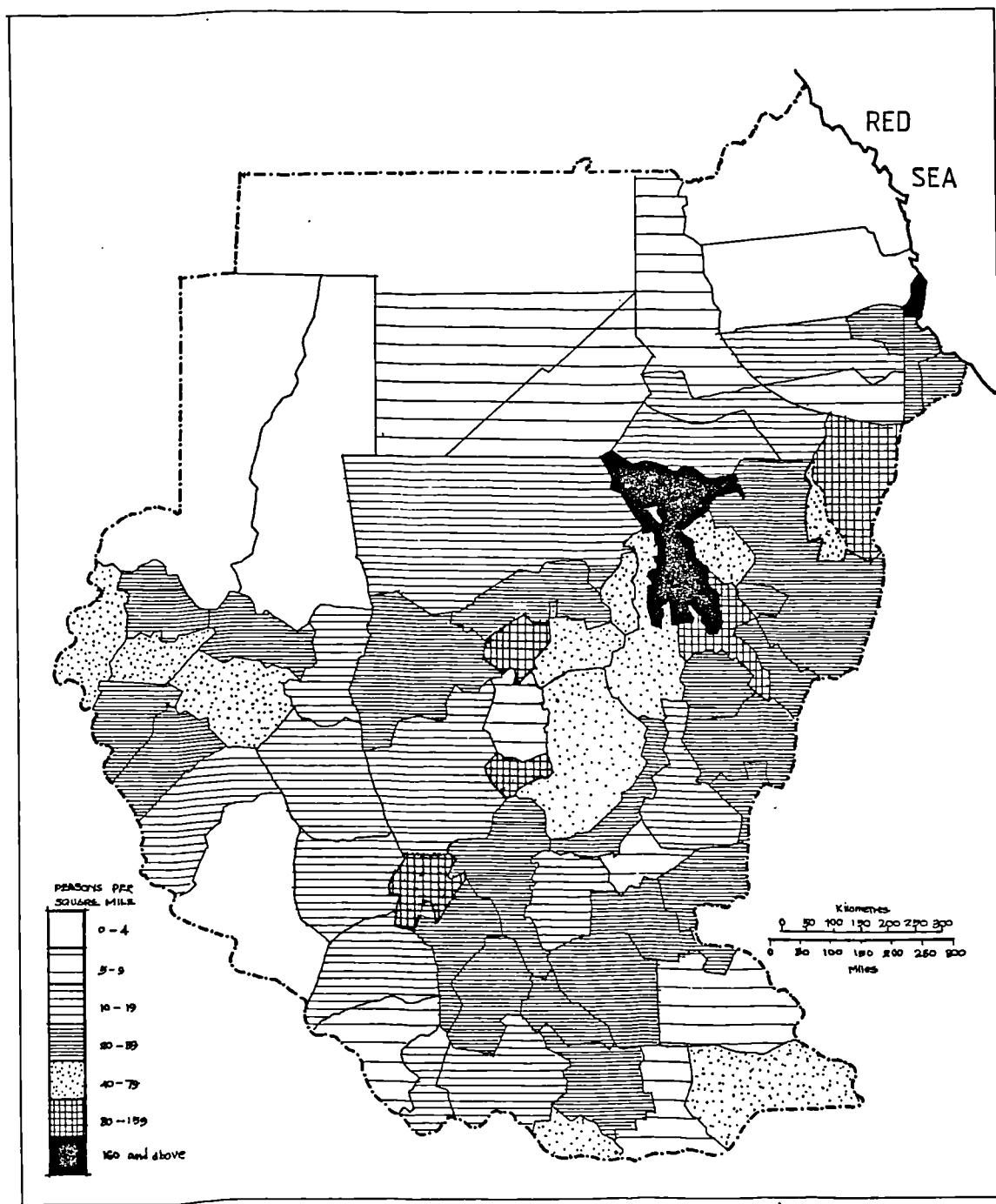


FIG. (2.1): SUDAN: POPULATION DENSITY (1983).
(Source: University of Gezira, Sudan).

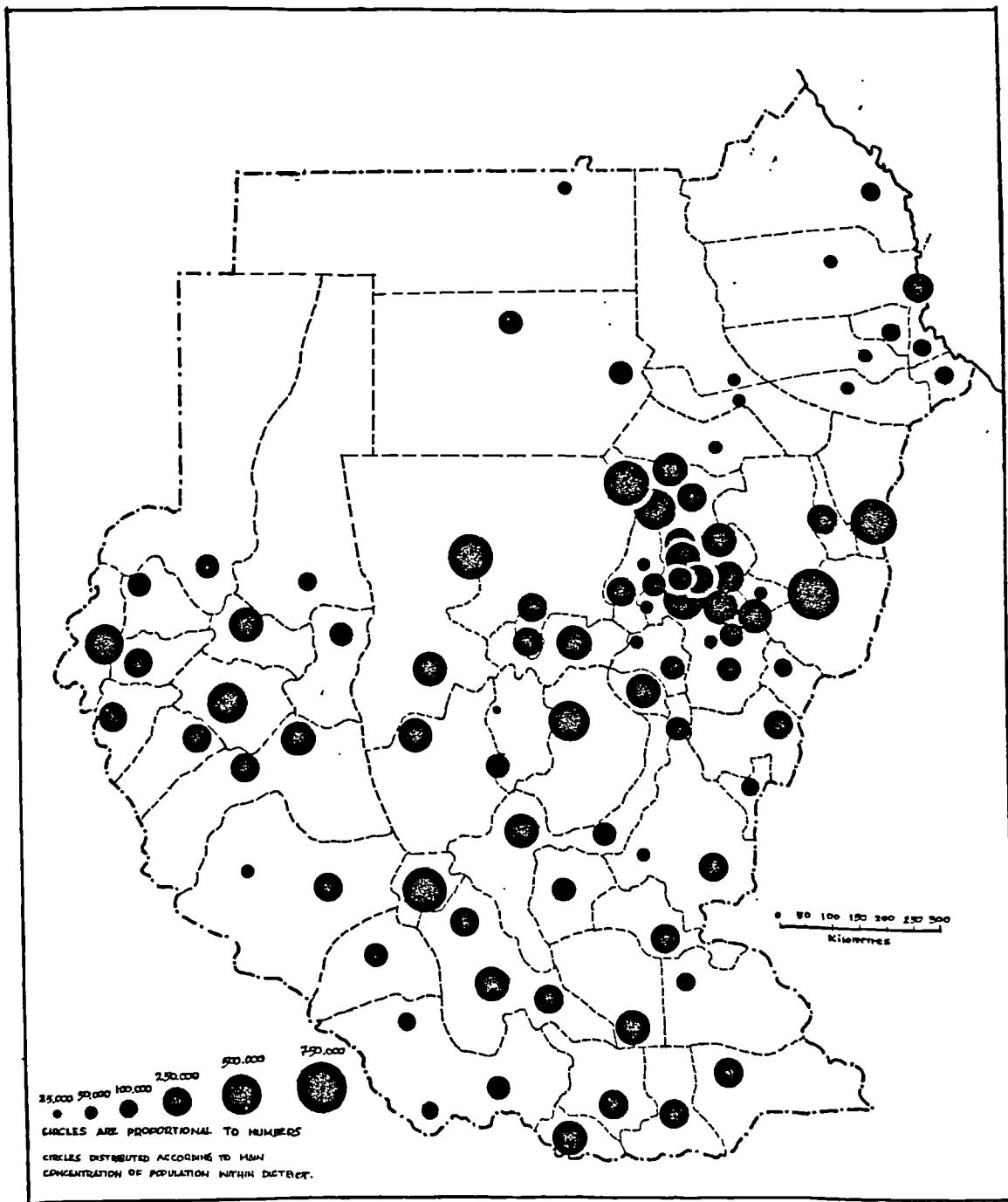


FIG. (2.2): Sudan: population by district (circles are proportional to the population of districts). [Source: 1983 census, University of Gezira, 1985].

TABLE (2.1): SUDAN: POPULATION BY PROVINCE

REGION	PROVINCE	POPULATION
NORTHERN	NORTHERN	424,391
	NILE	624,707
KHARTOUM	KHARTOUM	1,802,299
EASTERN	RED SEA	695,874
	KASSALA	1,512,325
CENTRAL	GEZRIA	2,025,215
	WHITE NILE	944,140
	BLUE NILE	1,057,313
KORDUFAN	SOUTHERN KORDUFAN	1,287,525
	NORTHERN KORDUFAN	1,787,272
DARFUR	NORTHERN DARFUR	1,327,947
	SOUTHERN DARFUR	1,765,713
REGION	PROVINCE	POPULATION
BAHR EL GHAZAL	BAHR EL GHAZAL	1,492,597
	BOHEIRAT	772,913
UPPER NILE	UPPER NILE	674,289
	JONGOLI	797,251
EQUATORIA	EASTERN EQUATORIA	1,047,125
	WESTERN EQUATORIA	359,056
TOTAL		20,415,952*

* Preliminary data from the census Office showed a total national population figure inflated by 5% to compensate for underenumeration. For the figures listed here this would produce a national of 21,436,750.

Source: Third Population Census (1983). University of Gezira, Sudan.

About 1/4 of the Government Expenditure goes for the financing of foreign debt and the country has a trade deficit.

80% of the population depends on Agriculture with very low income (see Table 2.2 and Fig. 2.3). There is a Rural-Urban Migration trend with the population of the Urban centres growing very rapidly. Furthermore, Sudan suffers from a shortage of skilled workers and professionals, who pick up jobs from the richer Arab neighbours. The rural settlements are of very thin population and are largely lacking in services because of the diseconomies in investment.

The location and small size of the settlements influences decisions on investment in Rural Infrastructure. Basic services such as good water, access roads, and electricity are missing in most rural areas.

The capital city sprawls unnecessarily because of the large building plots and single storey one-off housing. Traffic flow is restricted especially by the lack of adequate bridges over the rivers.

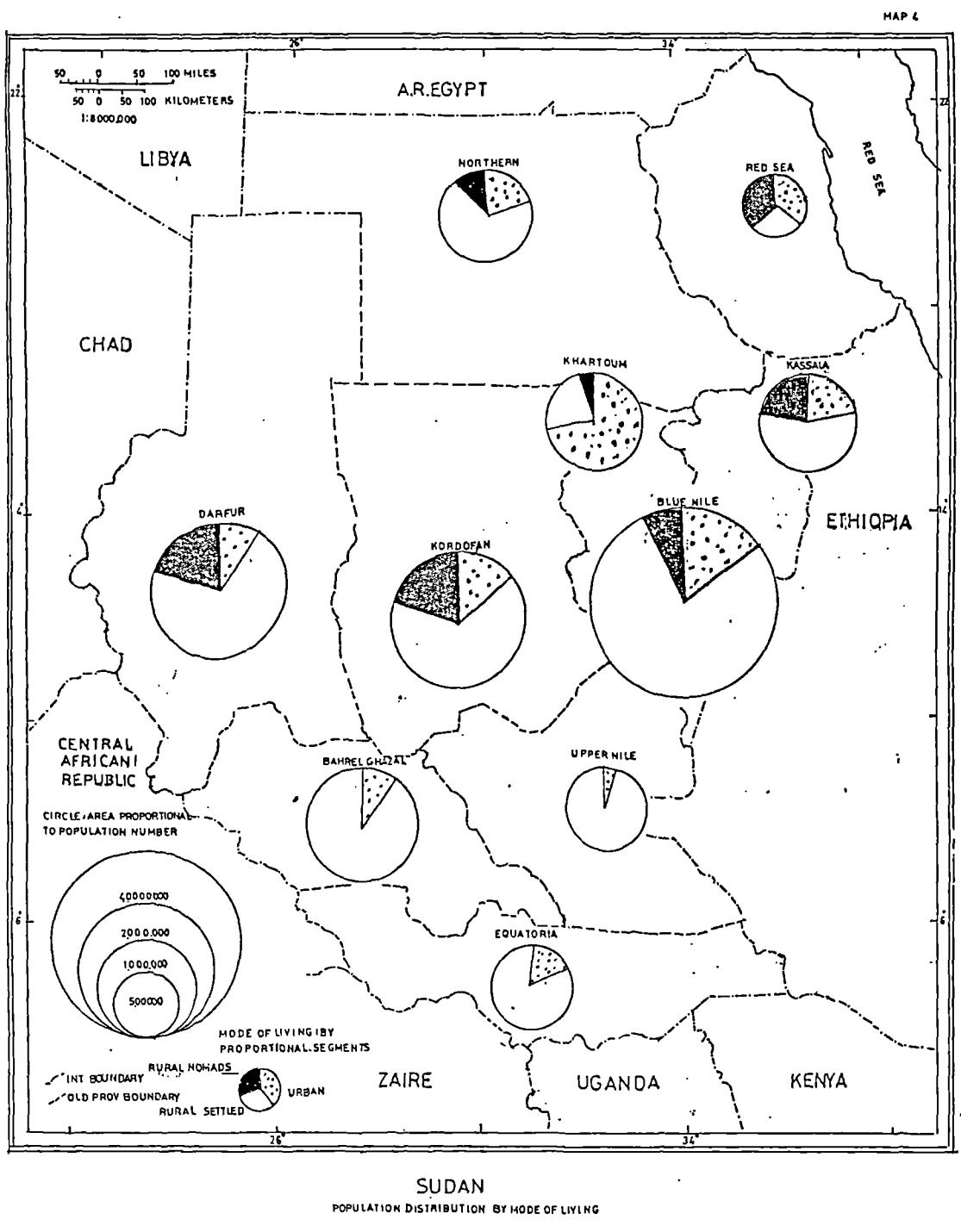


FIG. (2.3): SUDAN: POPULATION DISTRIBUTION BY MODE OF LIVING (1973).
 (Source: Sudan Survey Department).

TABLE (2.2): AVERAGE ANNUAL INCOMES FOR VARIOUS INCOME GROUPS IN THE SUDAN.

Net Income Income Source	Year	LS/Year
A. Traditional Agriculture		
A.1 - Western Sudan	1975/76	126
A.2 - Northern Sudan	1977/78	228
B. Gezira Tenancy (Joint Account)		
C. Mechanised Rainfed Farming		
D. Sudan Gezira Board (SGB) (SGB) Employees		
D.1 - Unskilled Labour (e.g. Office boys)	1981	600
D.2 - Skilled Labour (e.g. Carpenters)	1981	1,625
D.3 - Clerks, Storekeepers	1981	2,070
D.4 - Field Staff (e.g. Engineers, Inspectors)	1981	2,668

Note: The GNP per capita was 290 US Dollars for the Sudan (equal to same in LS at the time) in 1977.

(Source: AL-Agraa, O., and others, Ibid)

Housing poses problems. It was estimated that by 1985 a total of 300,000 new housing units would be required while 65,000 units would require maintenance, an estimate far too serious for the Government⁵.

2.2 NATIONAL SETTLEMENT POLICIES AND STRATEGIES

The six Year Plan 1977/78 - 1982/83 laid emphasis on the expansion of Agriculture and Industry, and improvements on Transport and Communication. On Urban Development it sought to decentralise the planning of the country through local Governments and the involvement of popular participation in the development of human settlements, through the promotion of the productive sector over the social services. Though this policy was expected to result in a more even spatial distribution of benefits, no clear settlement strategies were evolved except in the provision of basic services such as health, education, water, electricity etc. The Urban Centres will have priority over the rural areas. This however seems to be only a narrower view of the problems of human settlement in Sudan. The comprehensive view of the problems both for the excessive urban sprawl the shortages and inefficiency of Services in the urban areas, and unemployment on the one hand, and the much closer and stable relationship of population interaction in the rural areas on the other ought to be viewed by the concerned authorities on their own merits and demerits.

The new decentralisation policy aims at giving more participatory opportunity at lower levels in the preparation of Development Plans, while the implementation will be supervised at regional level.

The objective of this plan which ought to be the development of all regions in the country could seriously be undermined by less attention being given to social problems, and less concern for the Rural population and nomads and peasants who make up about 80% of the total population.

Although new master plans for towns were being prepared in that plan period, the intention of revising them only after they fall short seemed to be unsuitable as this too would render them almost inflexible to socio-economic development.

2.3 LAND

Almost 100% of all land in Sudan is publicly owned and is either leased or rented out depending on whether it is for Agriculture or other form of development and the location. The lease periods for urban lands supposedly through public auctions are forty, seventy and eighty years respectively for the third, second and the first class area. The classification is based on the durability of the expected construction, which is directly related to the social classification of the society. The beneficiary pays the nominal cost of the land plus the cost of services provided. Land laws existing presently as separate directions are to be compiled to become comprehensive physical planning laws. The future development of the country would tend towards the expansion of agricultural land from its present eighty million hectares, and the expansion and maintenance of game reserves, and woodlands, all at the cost of grazing land presently estimated at 200 million hectares.

Old town centres are to be re-planned and provided with the services, with the illegal squatters areas upgraded to third class, urban settlements and legalised.

All the proposals and plans for land physical development are commendable except for a few observations:

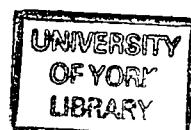
- (a) Funds need to be provided for the implementation of the plans.
- (b) There is need for quick decisions so that plans do not take too long to implement.
- (c) The classification of land into classes seems rather to stratify social disparity in society rather than narrowing the gap.

2.4 SHELTER

The six Year Plan 1977/78 - 1982/83 recognised the lack of proper studies in Housing in Sudan, and the inadequacy in education, Health and transportation. All along, the design and building of houses has been left to the owners with only minor control by the building regulations.

The housing policy has objectives which include:-

- (a) The satisfaction of new housing needs for all citizens
- (b) The inclusion of housing as part of new Development Schemes
- (c) The general improvement of existing housing
- (d) The provision of loans and technical assistance for housing
- (e) The preparation of Master Plans for towns



The programme for achieving these objectives was divided into 2 phases:

Phase 1 running through 1982/83 concerned settlements of 20,000 and above.

Phase 2 starting after phase 1 concerned settlements of less than 20,000 inhabitants. Also, it was foreseen to adopt a sites and services approach in urban housing. Under this approach 53,000 low income units, 13,800 medium income units, and 7,030 high income units were to be provided. The Sudanese Building regulations specify minimum standards for health, safety, heights, building lines, etc., which vary according to the classification of the area. No building regulations exist for rural areas whose building goes almost completely uncontrolled⁶.

Building materials are scarce and in short supply (cement, steel etc.) with even a thriving black market for them. This constitutes a major handicap in the private sector's contribution to housing.

In the overall assessment the following deficient points are noted:

- (a) The housing programme relies more on estimates than on actual studies.
- (b) Rural areas with almost 80% of the populations should have more attention and are not considered when calculating housing needs.
- (c) The programme suffers from strict centralisation of the formulation of housing policy, and the lack of good understanding of the quantitative and qualitative needs.

- (d) The freedom to design and build their own houses currently given to citizens has the disadvantage in that many people tend to build beyond their means with the resultant uncompleted houses over long periods.
- (e) The Government's Estates Bank, the only source of financing of the housing programme is not adequately financed and satisfies more the needs of high rather than of low income groups and often restricts its services in the capital.
- (f) Many sites are provided with services long after the houses are constructed and the owners paying for them in advance.
- (g) Some of the Building Regulations are outdated and should be upgraded because some tend to be wasteful on space and materials.
- (h) The ambiguity of some of the regulations gives rise to various interpretations and leads to such vices as bribery and corruption.
- (i) The emphasis on the financing of high income building which are of imported materials has negative impact on a country with problems of hard currency and economic difficulties.

2.5 RESOURCES AND TECHNOLOGY FOR PLANNING AND CONSTRUCTION OF HUMAN SETTLEMENTS

Timber, stone, sand, clay and asbestos are plentiful in Sudan but located in widely scattered areas. Their use is handicapped by transportation problems, and hence shortages and the consequent reliance on imported cement, timber products, sanitary and glass equipment.

In the 1977/78 - 1982/83 Plan, 20% of the total costs were allocated to the production of electricity. the power stations to be developed included the EL Roseires Dam, the power thermal Station, the Port Sudan Electricity Project, and the necessary transmission lines. Oil has already been discovered but its exploitation is hindered by political problems.

The water supplies for 33 towns were to be increased through the boring of new wells. The Arbaat Dam was to be constructed to improve the water supply of Port Sudan, and seven other towns were to benefit from the water schemes, while Khartoum was to have a new water purification station. There is plenty of water in the southern regions but seriously in shortage in the north⁷.

Development and production of local materials is the most obvious solution to the shortage of building materials, but this requires intensive research which presently does not exist. Transportation also needs to be improved upon. Energy production lags behind in the development of Sudan. Exploitation and use of available natural gas is highly recommended while exploration of oil deposits should be intensified.

Water supply for towns as well as villages should be given equal attention. The nomadic population should receive some attention in the supply of water. Rain-water drainage in dwelling areas other than the first and second classes should receive closer attention as surface flooding is a general nuisance in those areas.

2.6 INSTITUTION MANAGEMENT AND PUBLIC PARTICIPATION

Co-ordination is lacking in the work of the different organisations responsible for physical planning of human settlements especially in the socio-economic aspects. The United Nations Development Programme (UNDP) provides only very limited help in the use of local materials for building construction, and financing.

Foreign aid on projects in Sudan is associated with the engagement of foreign consultants.

Research is officially the responsibility of the Sudanese Building and Road Research Institute and the National Council for Research with very small contributions from the University of Khartoum.

The authorities are well aware of this chaotic situation and attempted to narrow the gap through the regrouping of the Departments of Town Planning, Housing Policy, Government Houses, and the Ministry of Construction and Public Works.

Because of the limited funds available and the shortage of qualified Personnel, research in the field of human settlements is virtually non existent. Interdiscipliniry views on social factors need to be introduced in training those to take up the tasks concerning human settlements.

In the previous Chapter the historical background and contemporary situation in the country in general was reviewed. The forthcoming Chapter will concentrate on The Three Towns settlement Khartoum, Omdurman, Khartoum North in Sudan, the area of the field work, and give a brief picture about its early and recent developments.

REFERENCES (2):

- 1 Population of the Sudan and its Regions. Population Studies Centre University of Gezira, Sudan, 1985, P. 4.
2. Population Census (1973), Department of Statistics, Population Census Office, Sudan.
3. World Development Report 1986, Oxford University Press, 1986, P. 240.
4. Preliminary Results of 1983 Population Census, Department of Statistics, Sudan, 1983, P. 1.
5. El-Agraa, O., and Ahmed, A. M., Human Settlements in Arab Countries, Khartoum University Press, undated, PP. 60-61.
6. The National Committee for Housing Final Report (in Arabic). Department of Housing, Sudan, undated, PP. 17-24, 110.
7. El-Agraa, O. M., and Ahmed, A. M., Ibid, PP. 112-113.

CHAPTER 3

03 KHARTOUM CONURBATION

Introduction

The national capital of the Sudan, embraces the three cities of Khartoum, Khartoum North, and Omdurman. The Three Towns Capital, as usually referred to by the locals, is located at the confluence of the White Nile and Blue Nile (Fig. 3.1).

This area is part of the Sudan belt which runs between latitudes 11° N. and 16° N. and it is dominated by simple relief. Archaeological evidence has revealed that this zone has been the home of man since prehistoric periods. Since quite early times the confluence area has been characterised by its activity in commerce and trade with the Mediterranean lands.

Within The Sudan, Khartoum conurbation is situated at the apex of the Gezira, which is the most productive region in the country. The site of the national capital, Khartoum, is situated within the most fertile and populated area. The Nile was an essential route for trade, supplied water for domestic and agricultural uses and provides a strategic location for settlements. The availability of such positive factors encouraged the growth of settlements in this area, especially during the Turko-Egyptian rule (1821-1885). (3.1)

3.1 PHYSICAL SETTING

The cities of Khartoum, Khartoum North and Omdurman are situated around the confluence of the Blue and White Niles at latitude 15 36° N. and longitude 32 31° E. on mostly flat terrain with an altitude of 380 metres above sea level. Khartoum is situated between the Blue and White Niles, Khartoum North on the eastern bank of the River and Blue

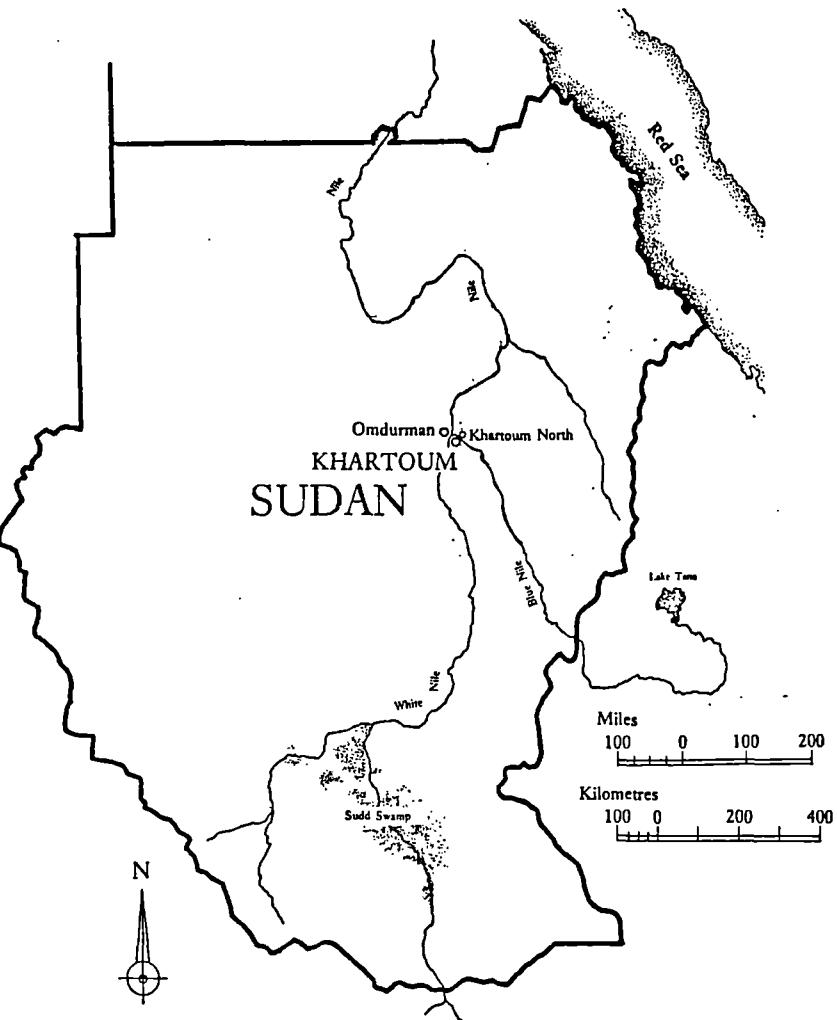


FIG. (3.1): LOCATION OF THE THREE TOWNS.

Niles, whereas Omdurman on the western bank of the River and White Niles (Fig. 3.2).

3.1.1 Geology

In Khartoum and Khartoum North a thick layer of Gezira clay, sometimes 30 metres deep, forms the top soil and causing a considerable difficulty for building operations. On the other hand, Omdurman rests on a firm strata of the Nubian Sandstone. Except for Markhiat hills on the west side of Omdurman, the flat terrain has given rise to serious drainage problems during the rainy season which cause a considerable damage to the settlement infrastructure.

The River Nile and its tributaries, White and Blue Niles, are the most significant physiographic feature in the area. Problems of floods are caused annually by the Blue and White Niles especially on the west of Khartoum restricting expansion in that direction¹.

3.1.2 Climate

The prevailing climate in Khartoum province is of a tropical continental type characterised by maximum temperature in May, and a short rainy season from July to September. The mean annual rain fall is 167 mm. (1941-1970). Temperature of 32° C to 38° C are common through the year, with extremes of 48° C and 6° C which are usually recorded in June and December respectively. During the winter season the area witnesses a cool, dry weather, with a mean daily temperature of 24° C in January, the coolest month in the year. In winter the temperature may rise as high as 32° C by day and drop to as low as 13° C by night, giving rise to a high range of temperature (Fig. 3.3). This season is also characterised by low humidity. Temperature starts to rise from February onwards until the month of July.

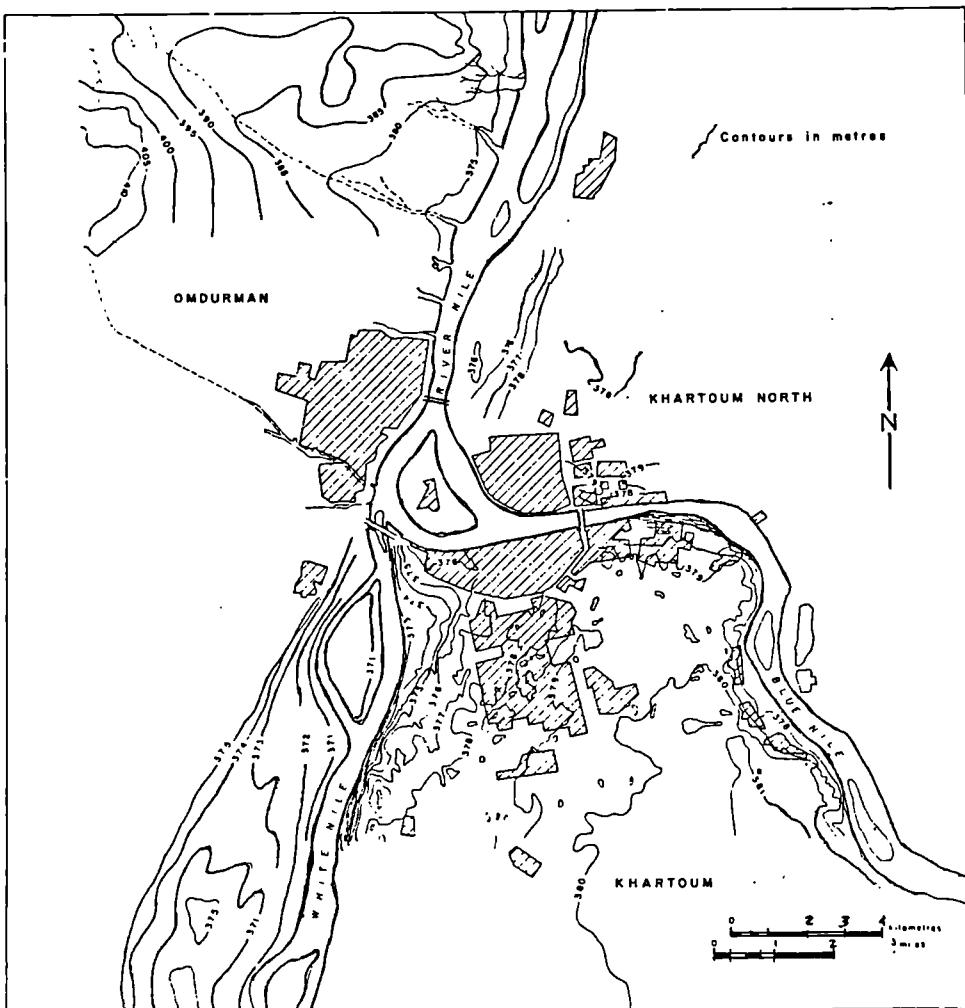
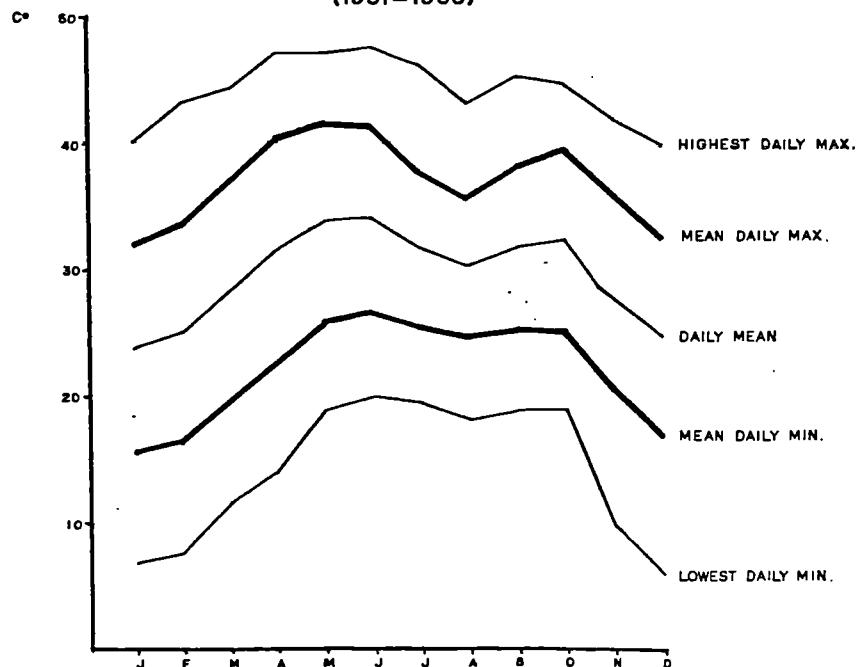


FIG. (3.2): THE PHYSICAL SETTING OF THE THREE TOWNS.
(Source: El-Bushra, S., I bid).

MEAN, MEAN MAXIMUM, MEAN MINIMUM AND ABSOLUTE EXTREME
MONTHLY AIR TEMPERATURES AT KHARTOUM
(1931-1960)



MONTHLY RAINFALL AT KHARTOUM IN MILLIMETRES
(1931-1960)

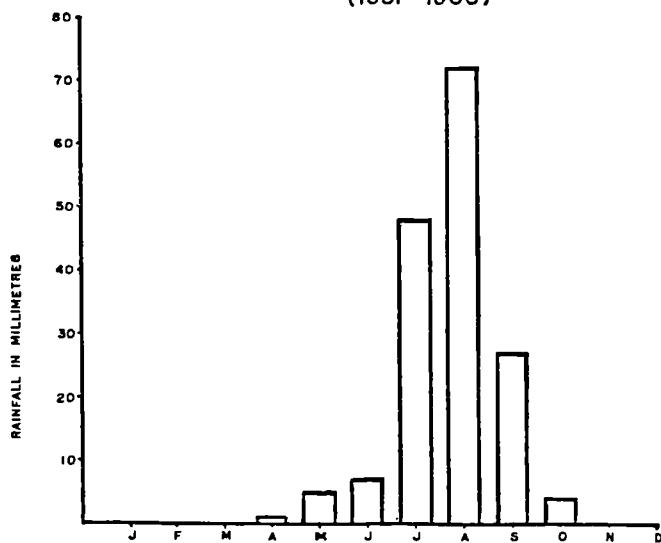


FIG. (3.3): Mean, mean maximum, mean minimum and absolute extreme monthly air temperatures and monthly rainfall at Khartoum.
(Source: Al-Bushra, S., Khartoum Conurbation).

The hot, dry summer conditions becomes dominant from March and continue up to July. In this season intensive heating usually takes place between 10.00 and 16.00 hours. Also, the relative humidity becomes very low, not exceeding 13% at 14.00 hours local time (Fig. 3.4). Summer season intensive heating conditions often leads to atmospheric instability and cause the widespread dust-storms, or haboobs, in the area. Dust-storms generally approach the Three Towns from south-east making the situation uncomfortable. However as rainfall begins to increase from July onwards, temperatures begin to decline, and haboobs become less frequent (Figs. 3.3 and 3.5).

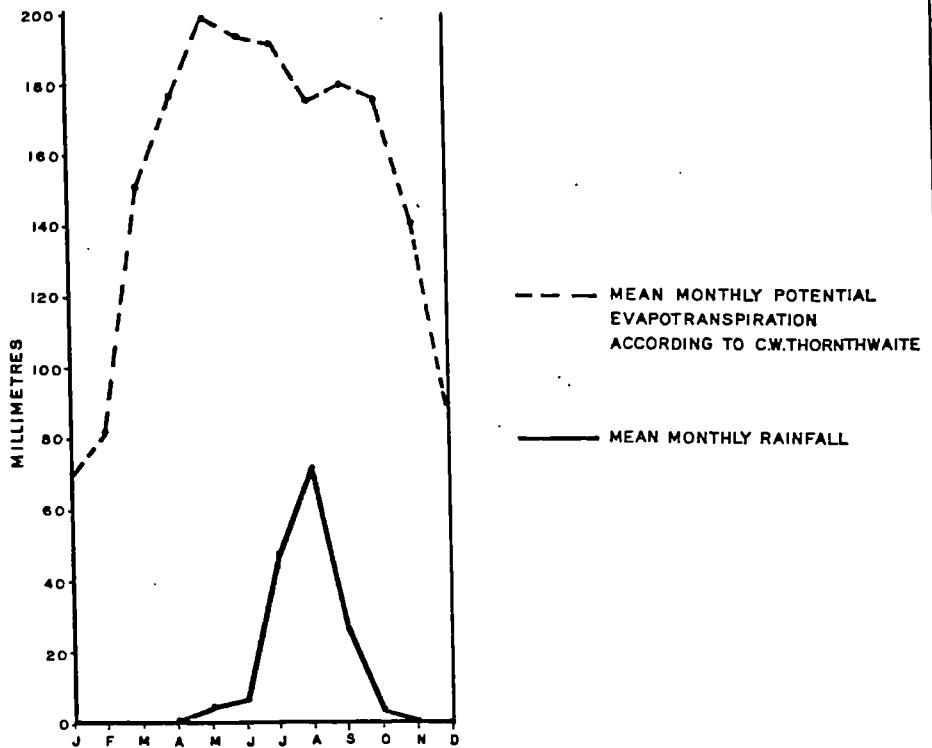
Although there may be occasional showers during the period April, May, and October, the rainy season, autumn, proper extends between mid-July and mid-September. About 90% of the total annual rainfall is received in the months of July, August and September, with 45% falling during August alone (Fig. 3.3). The amount of relative humidity attained during the rainy season, rises to a maximum of 68% in August 8.00 hours local time. The relative humidity is reduced significantly in August at 14.00 hours to 41% (Fig. 3.4). The most comfortable temperature conditions usually prevail during the rainy season. The daily mean of temperature recorded for July and August is 32° C and 30° C respectively. By the end of the rainy season in October, the dry, hot weather conditions begin to start to prevail again till the mid of November (Fig. 3.3)².

3.2 RISE AND GROWTH

3.2.1 The Prehistoric Period

The archaeological excavations carried out on the site of the present Khartoum in 1944/45 showed the existence of a settlement dating from about 4000 B.C. On the same site remains dating from the Napatan (750-300 B.C.), Meroitic (300

RAINFALL AND EVAPOTRANSPIRATION AT KHARTOUM



MEAN RELATIVE HUMIDITIES AT KHARTOUM (1931-60) LOCAL TIME

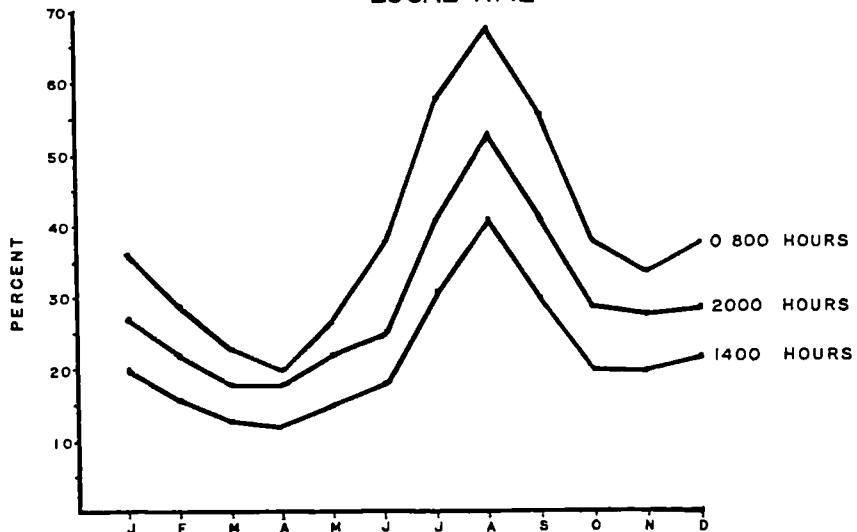


FIG. (3.4): RAINFALL, EVAPORATION AND RELATIVE HUMIDITIES AT KHARTOUM. (Source: El-Bushra, S., I bid).

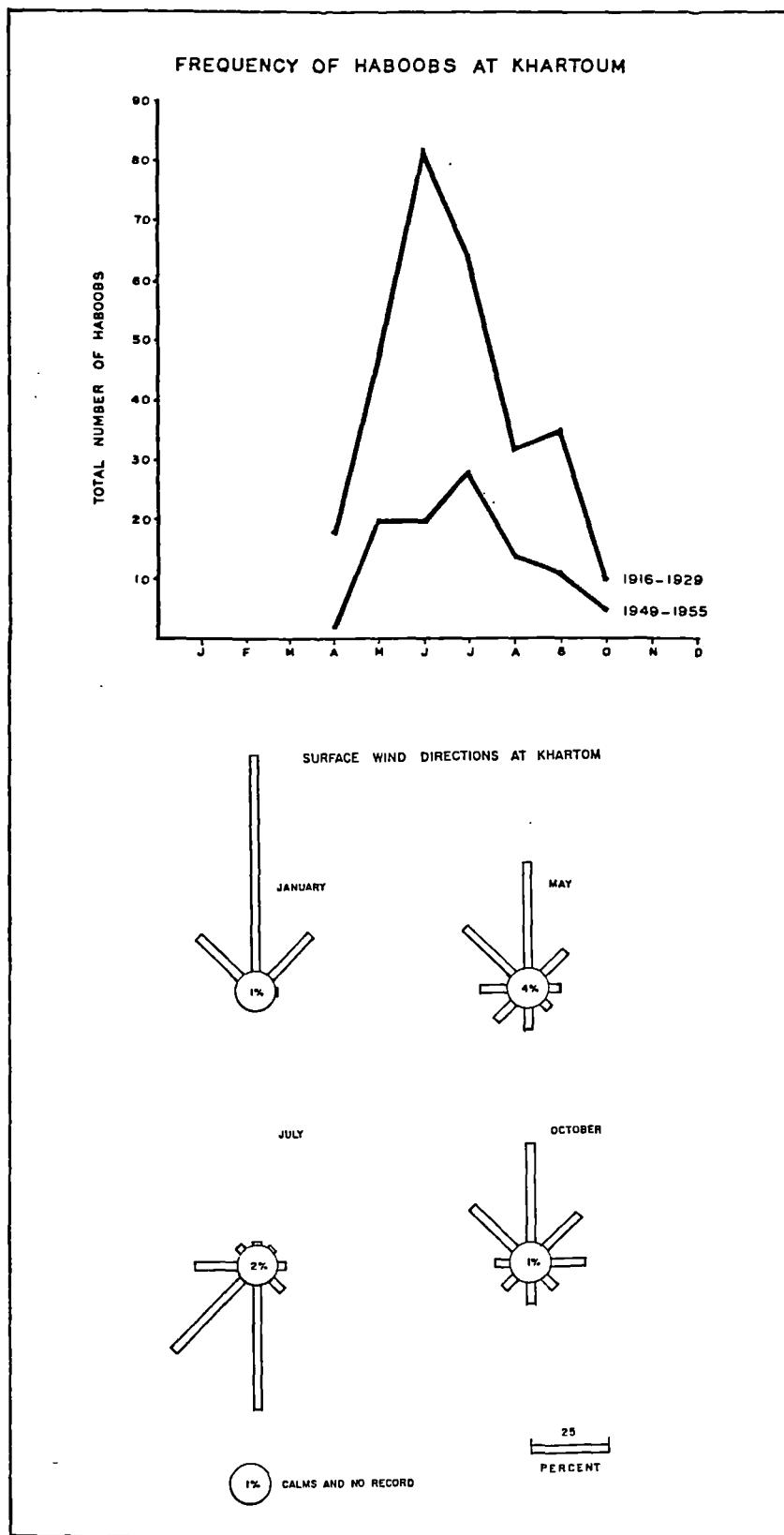


FIG. (3.5): FREQUENCY OF HABOOBS AND SURFACE WIND DIRECTIONS AT KHARTOUM. (Source: El-Bushra, S., I bid).

B.C - AD 350), and Christian (AD. 540-1504) periods were also recovered. At Omdurman palaeolithic tools were found dating about 3000 B.C. Although archaeological evidence suggests the existence of early settlements in this area, the information about their size and character is generally lacking even well into the beginning of the 19th century

(3.2.2) The Christian Period (AD 540-1504):

Soba, the capital of the Christian Kingdom at Alawa (AD. 540-1504), is assumed to be the most important settlement to develop at the confluence of the two Niles, White and Blue Niles, until as late as AD. 540 was. The settlement was situated about 20 km. south east of the present site of Khartoum on the east bank of the Blue Nile. Soba assumed a significant role as a religious, administrative, and commercial centre during the Christian era. The remains showed that red bricks were used to build a large number of important buildings. Many other Christian settlements were to be found in vicinity of the present site. Soba settlement continued to be the focus of power throughout the period until its destruction by the Muslim Fungs in 1504³.

3.2.3 The Fung Period (AD 1504-1821)

After the destruction of Soba in 1504, the Fungs established their centre of power at Sennar about 290 km. south of Khartoum on the west bank of the Blue Nile. During the Fungs rule small settlements persisted in the vicinity of the blue and White Niles' confluence.

A settlement at Tuti island at the confluence of the two Niles was already established by AD. 1500. Some assume it was from Tuti that settlements were re-established during the late seventeenth and early eighteenth centuries, into the neighbouring sites of present Khartoum, Khartoum North, and Omdurman. Since their emergence the three settlements

gradually started to play a religious, commercial, and administrative role.

3.2.4 The Turco-Egyptian Period (1821-1885)

During the early years of the nineteenth century (1830), the village of Khartoum was chosen to be the seat of power for the Turco-Egyptian regime. Shortly thereafter, Khartoum began to develop at a remarkable rate. It was in the period of (1826-1834) the burning of bricks was encouraged to erect government buildings with some of the building material being transported from Soba ruins. The construction of the town improved and expanded and the settlement developed into an important administrative and commercial centre.

The creation of better facilities, services, and jobs generated population movement from the countryside into the capital city, so that by 1840 the population stood at 30,000. Throughout the Turco-Egyptian period Omdurman and Khartoum North continued as small villages. By the end of 1884, before the capture of Khartoum by the Mahadi, the population of the city dropped to 14,000. By this time many people apparently left Khartoum to join the Mahadi at Omdurman. The following period was crucial to the settlement history of this area, particularly of Omdurman⁴⁻⁵.

3.2.5 The Mahadiya Period (1885-1898)

After a victorious advance, the Mahadi and his supporters captured Khartoum on 26 January 1885 (Fig. 3.6). Omdurman became the new capital of the Mahadists Islamic state. Al-Khalifa Abdullahi Al-Ta`aishi succeeded the Mahadi after his death on 22 June 1885.

Late in 1886 the Mahadists destroyed most of Khartoum, i.e. the profane city, and the building materials were again transferred from its ruins to build Omdurman, i.e. the

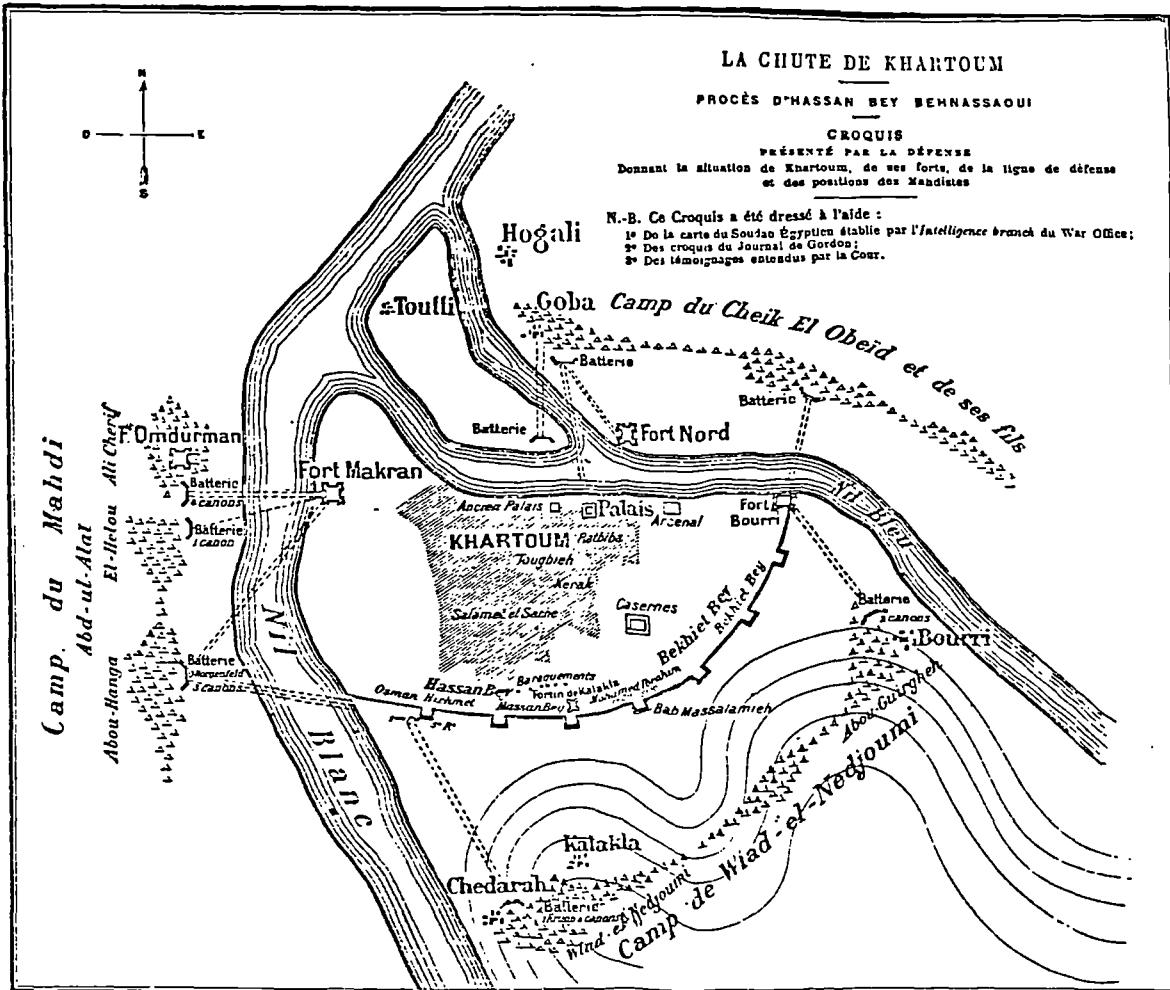


FIG. (3.6): THE FALL OF KHARTOUM, JANUARY 1885.
 (Source: El-Bushra, S., I bid).

sacred city. The town began to take a permanent appearance by 1888. Omdurman developed into one of the most important towns in Africa and was for the first time recognised as the capital of the newly independent Sudan. The settlement grew from a fort of 240 persons in 1884 to a large city of 150,000 by 1886 (Fig. 3.7). The destruction of Khartoum forced a large evacuation to Omdurman. During the Mahadists era, the city continued to receive an influx of people from other regions.

The characteristics of the Mahadist city are still reflected in the city of today. Buildings were close to each other and streets generally narrow and winding. Moreover, there was a segregation of the population along tribal and religious lines. Each tribe or religious group lived as a community by itself. Although this is not exactly the case in present-day Omdurman, some of the physical and demographic features may still be recognised.

The political and commercial importance of Omdurman was unchallenged until 1898, when the seat of power moved to Khartoum after the Anglo-Egyptian invasion. As the battle of Omdurman was over the population of the city dropped sharply to about 60000, because the majority of inhabitants moved into the countryside thereafter. The following period (1898-1956), referred to as the Condominium, was significant in the history of the settlement, particularly that of Khartoum⁶.

3.2.6 The Condominium Period (1898-1956)

The governor who came to Khartoum in 1898, played an important role in the rebuilding of the new capital. He made the plan on a system of diagonal streets, a system of union-jacks, believed to be for military purposes. The pattern can be traced even in the city of today. By 1904 Khartoum began to assume its form and character, providing

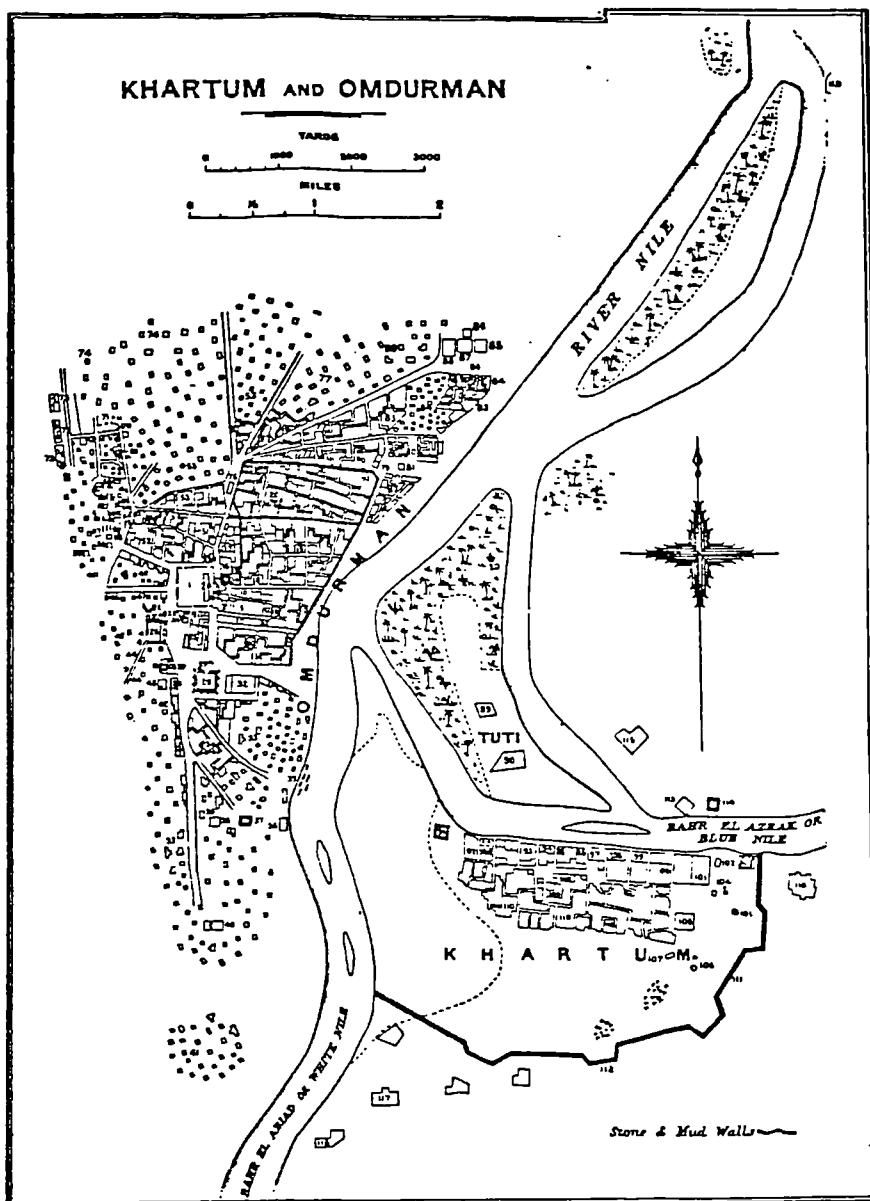


FIG. (3.7): KHARTOUM AND OMDURMAN (1895).
(Source: El-Bushra, S., I bid).

for administrative, commercial, and cultural functions. By 1913 the population of the city reached 25,000 inhabitants.

The diagonal streets gave rise to wedge-shaped plots and became problematic with regard to motor traffic. By 1912 the gridiron system was introduced to modify the previous pattern.

The new regime introduced planning and zoning regulations and three classes of residential areas were recognised according to size of plot and type of building material. The zoning and classification of residential areas was adopted, according to the British conception. By time the residential classes, which was meant to provide for different social strata, has become indicative of social status. During this era the majority of the locals lived in Omdurman and Khartoum North, while Khartoum developed into an 'European town'. Those Sudanese who lived in Khartoum were accommodated outside the city proper in the old Deims, a low-class residential area, to the south of the old fortification, probably for security reasons. The city of Khartoum was confined to the area north of the railway loop up to 1945 (Fig. 3.8).

The Codominium rule gave Khartoum the priority in development and accordingly it emerged as the most important administrative, commercial, and educational centre in the country. During this period, the population of Khartoum increased significantly so that by Independence (1956) it had embraced 93,000 inhabitants.

After Independence, as during the colonial rule, the concentration of commercial and industrial development has generated a continual flow of people into the capital. This lead to a considerable growth of the population and expansion in the residential complex, e.g. Khartoum New

Extension. The population of Khartoum grew from 93,000 in 1956 to 350,000 in 1973.

On the other hand, the population of Omdurman fell drastically during the early years of the Condominium rule and it was not until 1965 that the population of the city exceeded that of the Mahadiya period. The population grew from 60,000 in 1898 to 300,000 in 1973. Because of neglect, conditions of congestion and lack of a sound infrastructure were common in Omdurman during the Condominium regime, i.e. as a profane city.

Khartoum North, as the smallest city in the vicinity, unlike Khartoum or Omdurman, grew from 39,000 in 1956 to 150,000 in 1973. The Three Towns, with a population of about 800,000 in 1973, account for 40% the city-dwellers in the country. In 1973 the built up area almost covered over 100 km.2 (Fig. 3.9)⁷.

3.3 LAND USE

The historical development has affected very much location, form, and land use of the Three Towns, especially Khartoum and Omdurman. Khartoum had been chosen and developed by the colonisers as a strategic and defensive city guarded by the two Niles. On the other hand, Omdurman, with its collage tribal structure, was established by the Mahadists to the west of the Niles with its strategic and psychological attachment to where most of the supporters came. The conurbation forms the most extensive and the most urbanised in Sudan. Khartoum, Khartoum North, and Omdurman present a high degree of functional differentiation. Because of their rapid expansion, magnitude, and multi-functional character, they present some of the most difficult problems of land use in the country.

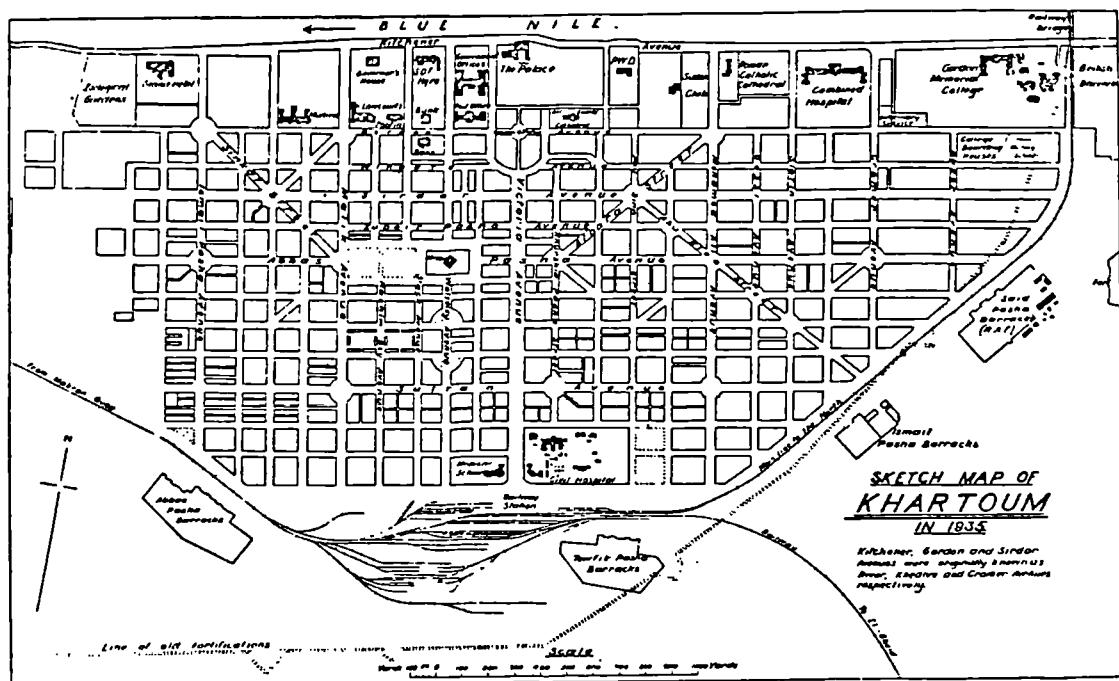


Fig. 14

FIG. (3.8): MAP OF KHARTOUM (1935).
 (Source: El-Bushra, S., I bid).

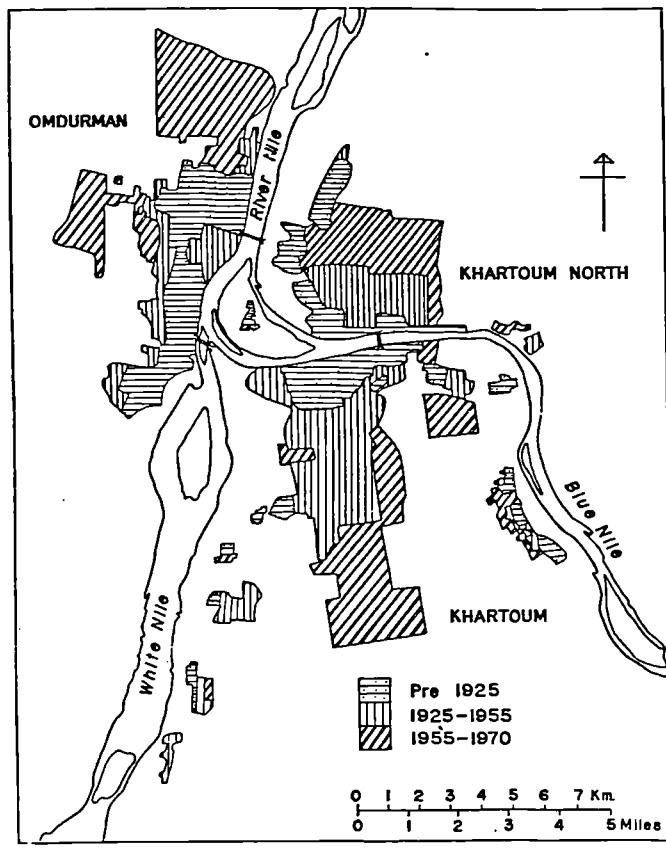


FIG. (3.9): STAGES IN THE GROWTH OF THE THREE TOWNS.
 (Source: El-Bushra, S., I bid).

3.3.1 Existing Functional Areas

Although in 1980 the policy of decentralisation has been adopted, most of the administrative centres are still located in Khartoum.

(a) Administrative Areas

In Khartoum, the area allocated to administrative use, closely related to the Blue Nile since the colonial era, occupies about 1km². After Independence, in 1956, almost all the houses facing the Blue Nile once belonging to the British administrators were converted to governmental departments. With the development of the political system, more administrative departments were established and new areas outside the old part of the city were exploited. On the other hand, Omdurman and Khartoum North enjoyed less administrative character and accordingly rather limited are those devoted to such a purpose (Fig. 3.10).

(b) Commercial Areas

Commercial area in the Three Towns are mainly composed of shops, banks, cinemas, offices, hotels, parking and other subsidiary activities. The commercial and business areas (CBD) covered about 2km² in 1976. The lack of mixed use in the CBDs of the Three Towns, has created a situation of high density use during the day and very low density during the night.

(c) Industrial Areas

Industrial areas in the Three Towns are separated from other types of land use by zoning regulations. Since the 1950s industrial areas have developed to the west of both Khartoum and Omdurman, and to the east of Khartoum North. Although these industrial estates were separated from other

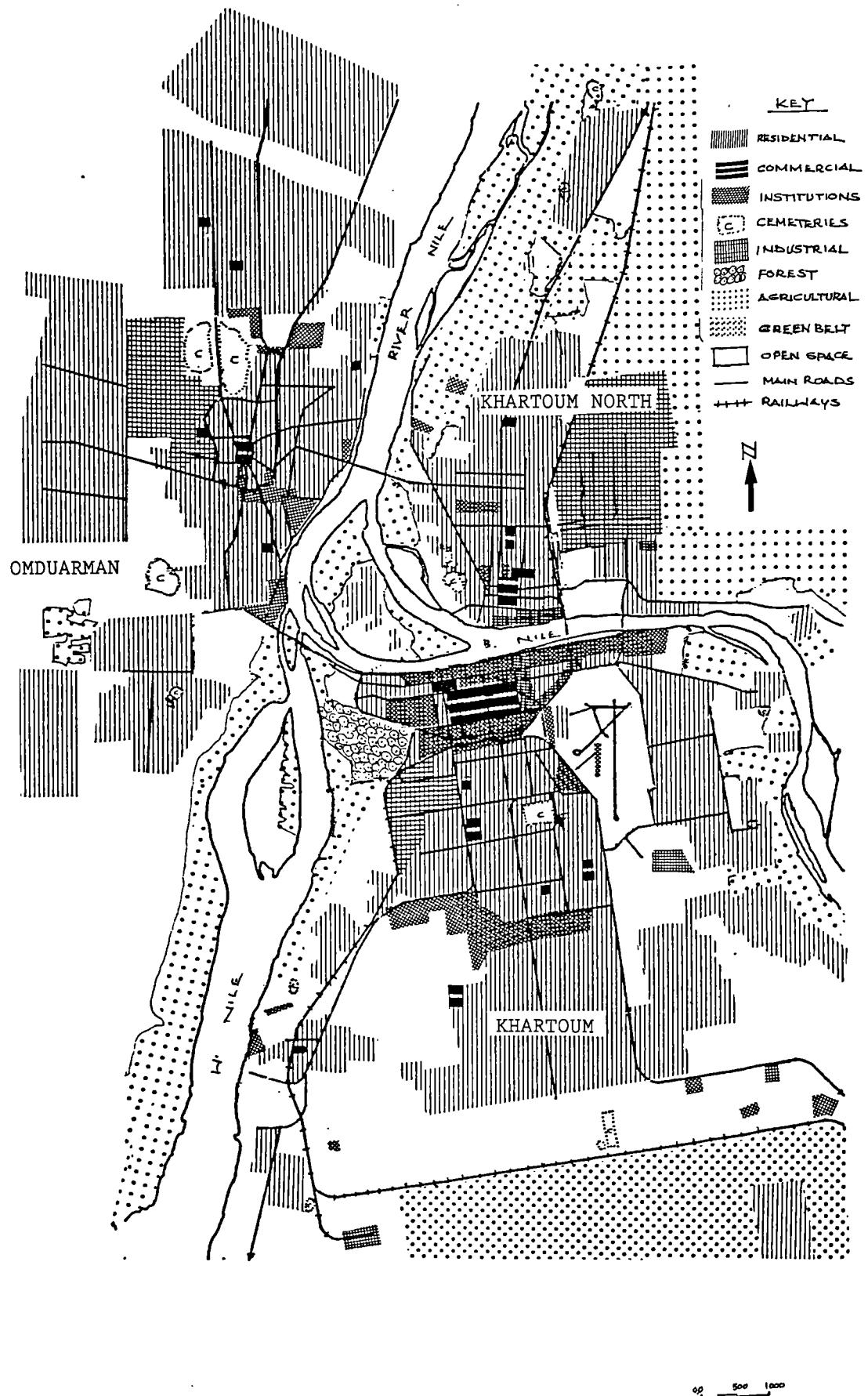


FIG. (3.10): THE THREE TOWNS LAND USE PLAN.
 (Source: adapted by author from different maps
 provided by Sudan Survey Department and MUFIT).

parts of the cities by zoning regulations, they are now almost encircled by residential developments. The Three Towns embrace more than 70% of the country's industry, occupy about 8km², from which 4km². are in Khartoum North alone.

(d) Residential Areas

Residential complexes dominate the urban texture of the Three Towns with more than 80% of land allocated to residential use. The remarkable sprawl of the national capital has been attributed, by some, to the generous plot area which ranges from 200m² to over 1000m², depending on class of locality, and the dominant pattern of one-storey courtyard dwellings. Since the early years of Condominium rule, the urban land is classified into first, second, and third class according to area, building material and level of income. The continuous exodus to the capital with the critical shortage in housing added to the worsening condition of the crowded accommodation, whereby, in 1973 one third of the population of the Three Towns was living as squatters or in slums.

(e) Other Functional Areas

Small areas of urban land are allocated to public facilities, such as medical, educational, religious, recreational, parks and cemeteries. Most of the open space within the residential quarters is under used, lack greenery and proper maintenance. In contrast with the old urban pattern of Omdurman, the adoption of the gridiron pattern gave a lot of space to roads which contributed to the extensive sprawl of the Three Towns. Also, some of the agricultural land and military developments occupy part of the conurbation.

3.3.2 Land Use Problems

Khartoum, Khartoum North and Omdurman, has inherited some of its problems from the colonial period. For the sake of security and efficiency, it was appropriate for the colonisers to concentrate the administrative activities in Khartoum and locate some departments of an industrial nature and military barracks within the populated areas. Today these features are giving rise to problems of traffic, environment, security and homogeneous urban expansion respectively. On the other hand, the agricultural land and the seasonal flood by the White Nile are, also, some of the barriers to the growth of the three towns. The urban contexts have been growing outwards from their original nuclei with more expansion towards the north and south directions.

Although the Three Towns form have an economic and social entity, there is no evidence to indicate a positive relationship between their functional areas. Furthermore, homogeneous land uses within do not show any cohesion, their commercial districts are disconnected and as disoriented as their industrial areas. The Three Towns conurbation suffers from the inadequate relation of work places to residential areas, and the haphazard distribution of social facilities and services.

3.4 POPULATION

3.4.1 Population Growth

Population studies usually deal with the phenomena of natural increase and internal migration. In the Three Towns, the latter is more pronounced. Many factors brought about rural population exodus to the Khartoum conurbation. With developing industries, social facilities and economic development, the Three Towns have a cumulative causation to

attract a large number of migrants. The population of the Three Towns grew from about 50,000 in 1900 to about 1,000,000 in 1975, thereby multiplying 20 times during the 75-year period. By the year 1983 the population was almost 1,550,000 (see Table 2.1 and Fig. 3.11). The concentration of commercial and industrial development at both Khartoum and Khartoum North has made these cities grow much faster than Omdurman. However, between 1965 and 1975 Khartoum, Khartoum North, Omdurman grew by over 100%, 85%, and 60% respectively. The migration of young males from the countryside into the conurbation has disrupted both the sex balance and the age composition of the population.

3.4.2 Population Structure

Age and sex are significant factors in all matters relating to education, marriage, child bearing, employment, retirement and death, and such as they are of great demographic and economic importance. The distribution of population between the sexes is affected by such factors as the excess of male birth, the variation in the death rate of the sexes, and migration.

However, migration into the urban area has had a greater impact on the age and sex composition of the population. Male migration into the conurbation has dominated that of female. In the 1973 census, the man/woman ratio for Khartoum North, Khartoum, and Omdurman was 139, 137, 119 respectively. This indicated that Omdurman received less migrants, and was therefore more stable demographically than the other two towns.

With 40% of the population in the age-group under 15 years, the Three Towns has an exceptionally 'young' population. A high proportion of children means the working population has to support a large number of dependents. A young population also suggests a high level of fertility and

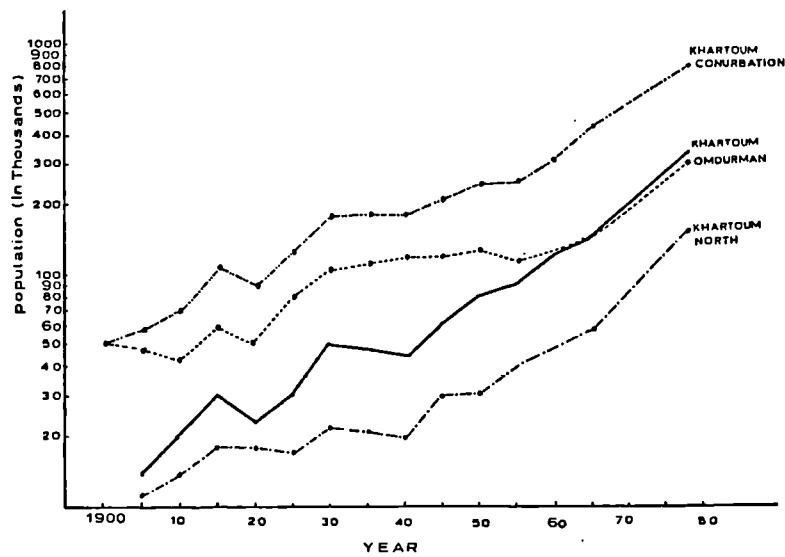
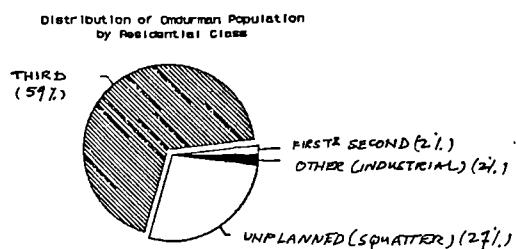
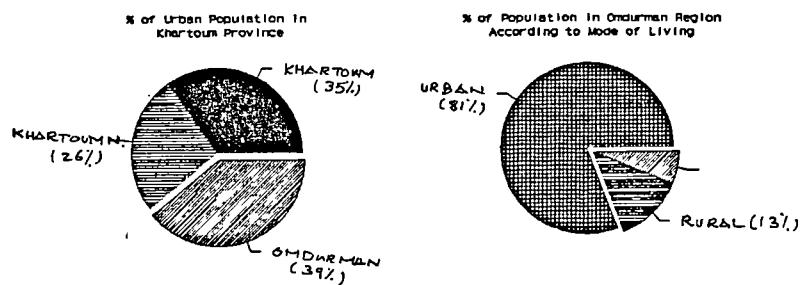
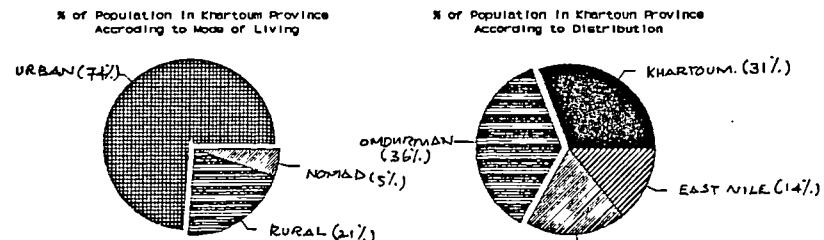


FIG. (3.11): KHARTOUM CONURBATION POPULATION.

[Source: (above El-Bushra, S., I bid, (below) worked out from preliminary results of 1983 census, Sudan Survey Department].



mortality. The low proportion of aged persons is indicative of a short expectation of life.

3.4.3 Population Distribution and Density

The population distribution varies significantly between the Three Towns, and within each individual town. The contrast in densities is well marked in Khartoum as compared with the other two towns. In this case densities ranged from less than 500 persons per km². in high-class areas to about 27,000 persons per km². in low-class housing quarters. Omdurman, on the other hand, displays a more even distribution of population, and has on average a higher density than the other two towns. In 1965, the average population density was 11000, 6500, 5500 persons per km². in Omdurman, Khartoum, and Khartoum North respectively.

An outstanding demographic feature is the close relationship that exists between the residential class and the pattern of population distribution and density. Invariably throughout the main built-up area, the lower the residential class, the higher is the density of population and vice versa. The lower the residential class the smaller is the size of plot devoted to buildings. Moreover, as a result of sharing and subletting in the low class housing area, congestion and overcrowding has developed.

The Three Towns had (1965) an average density of 2.6 persons per room, while specific areas within the low-class housing showed densities of 4 persons per room. By contrast, a high-class housing areas showed densities of 1.0 person per room.

The purpose of the previous 3 Chapters was to give a brief review of the historical and contemporary development of the Sudan, in general, and the settlement of Khartoum in particular. This was meant to form a basis for the intended

study on the Sudanese urban residential environment. The following Chapter will investigate the forces involved in the creation of the built form.

REFERENCES (3):

1. El-Bushra, E., An Atlas of Khartoum Conurbation, Khartoum University Press, 1976, PP. 15-22.
2. Ibrahim, S. A. A., Thermal Installation of Buildings in Hot Dry Climate with Special Reference to the Sudan, Ph.D Thesis, University of Edinburgh, 1968, PP. 3.1-3.8.
3. Mahadi, M., Short History of the Sudan, Oxford University Press, 1977, PP. 1-27.
4. El-Bushra, E., Ibid, PP. 31-33.
5. El-Bushra, E., (ed.) Urbanization in the Sudan, Philosophical Society of the Sudan, 1972, PP. 1-3.
6. Wingate, F. R., Mahadism in the Egyptian Sudan 1881-1898, Oxford University Press, 1958.
7. El-Bushra, E., Ibid, PP. 35-43.

PART TWO

CHAPTER 4

4. SOCIO-CULTURAL ASPECTS AND THE BUILT FORM

4.1 IDENTIFICATION OF THE PROBLEM:

Man has always tried to exploit nature for his own well-being. Thus it did not act only as a means for his physical and economical needs, but also it penetrated the world of his belief, attitude, and behaviour.

So many scholars thought about what man did in the sense of physical determinism, i.e. climate, topography, material, economy, as the decisive element for man's built forms and developments. Culture as religion, world view, feeling, moods, attitude, privacy and preference was either neglected or given a minor importance in the explanation of what man did and desired.

Recently the evidence revealed that socio-cultural forces have the primacy, in shaping the built environment. People in the same place, at the same time, and under the same physical conditions displayed different solutions and forms. Some of the solutions demonstrated clearly the priority of religion, taboos, and taste and led to anti-climatic solutions and topographically contradictory layouts. This means that physical constraints determine what is not possible and within the parameters of possibilities lie a whole range of choices for problem solving. These variations in choices are culturally determined. What is of economic value in some societies is useless in others, and what is considered as private in this may not be private in the other, e.g. public. This means that understanding the cultural issue is critical towards a successful development.

Man in the early stages of his life used to master all the skills needed to construct his physical environment. He built, added, and modulated according to his needs which he understood very well. The technology was simple and learned

as part of the general life practices. There was a close relation between the forms and the culture in which they were embedded.

With the introduction of new technology and specialisation, the possibility of the user participating in the building process of the physical context has become less. The intention of physical determinism has widened the gap between developers and the understanding of people's cultural needs, i.e. religion, traditions, preferences, privacy, and behavioural attitudes in general.

The control and proper management of the physical environment can be seen as an important focus of government policy. This social, economic, and political management, is always planned and pursued with the desire to promote a better development, and environment.

The person and his physical surroundings are inseparable, complicated and composed of many mediating variables. People's perception and performance are usually influenced by the features and quality experience of their built milieu. That is to say changing the physical environment is changing people, it is both a context and a means to an end.

In the beginning of this decade many urban developments had been carried out. Physical, and economical factors "the hardware of the problem" were stressed greatly and the socio-cultural dimension "the software of the problem" was underestimated. Examples of such shortsighted developments had been established during the industrial revolution in England, U.S.A., and in many other European countries. No significance was given to socio-cultural needs, e.g. privacy and pattern of relationship, partly due to the quick expansion of industry, the movement of people to the urban areas, prevailing conditions of poor housing and the desire to house as great a number as possible. Later many of such

developments were criticised for causing family disintegration, delinquency, and vandalism. There was obvious social dissatisfaction and in the recent years of this century many projects, built particularly in the 1950s, 60s, and 70s have been abandoned and demolished because of both technical and social problems, due often to the reaction of the communities to the projects, and to lack of thought, originally, on the part of the designers.

It is clear that when urban environs cease to function effectively, they cause considerable socio-cultural and material sacrifices. For all these reasons together some scholars realised that urban structure was not just an artificial physical mechanism, and started to develop ideas about more effective community policies.

Here we can recognise that the evaluation of habitat could only be through a successive and a continuous type of a study. The understanding of social cultural norms, attitudes, values, traditions and their relation to the spatial behaviour could be an effective guidance to the maintenance of existing and developments of future community settings. These problems and issues exist equally in Sudan as in other places, and for this study emphasis will be given to the city of Omdurman in the Sudan.

The central part of Sudan where the Three Towns Capital Khartoum, Khartoum North, and Omdurman lies, is almost entirely Muslim except for the big urban centres where there are minorities of other religious groups, mainly of Christians. The life style in the capital is mainly shaped by such a religious culture. The question of 'privacy' is taking a central part in the lives of the people, it is part of their belief, personality, self esteem, and pride. Intrusion to this privacy would not be acceptable. In the past the community was homogeneous to some extent and the change was slow. Recently, the scale of change in the

residential environment increased and more constraints became apparent, raising many problems for which solutions are now needed.

In the Sudan there is a considerable lack of extensive documented knowledge about local privacy system, socio-spatial behaviour, traditions, attitudes and preferences and cultural differences. One can say that it is partly due to the economical and educational conditions. Shortage of funds is still affecting the carrying out, publishing, and application of substantial research. High education, career training, and technological implementation are demonstrated with western tools to mostly western standards. The result of such 'unlocalized heritage' development in former periods did not respond satisfactorily to the inhabitants local needs and aspirations.

For an architect facing some of these problems it is quickly realised that no effort had been made to look at urban environment from the standpoint of the user observing for his/her socio-cultural needs, e.g. social relationships, religion, morals, values, traditions, attitudes, and desires. To highlight some of the contradictions, planning polices, building by-laws and the new architectural features do not match the needs of the Sudanese life style. There is no scientific realisation by design professionals of the problem of privacy. It is generally handled intuitively and either underemphasized or totally neglected. For instance the problem of over-look between multi-storey buildings and single storey building based upon the courtyard concept, intruded upon the privacy of the traditional Sudanese house.

All the above obviously suggests the critical need for comprehensive studies on how the Sudanese people live, experience, and handle their urban environment in order to help produce a framework which can act as a guide to creative design and planning.

4.2 THE PHYSICAL DETERMINISM AND FORM:

"... man was a symbol-making animal before he was a tool-making animal, that he reached specialisation in myth, religion and ritual before he did in material aspects of culture, and that ritual exactitude came before exactitude in work; man put his energy into symbolic rather than utilitarian forms even when he was barely starting¹."

Many studies have been carried out about house form, especially in primitive and vernacular building, but most of that was classification, listing and description of features. Little attempt has been made to relate such forms to life patterns, beliefs and desires, although form is difficult to comprehend outside the context of its cultural and physical setting². The attempts to list and classify house types and forms have not given clear justification into the way in which determinants affect creation of the form. Many other theoreticians tried to take a critical approach to discover the forces underlying the creation of form but they, also, fell short of giving a genuine explanation. The shortcomings of this later work were that it mainly followed a physical determinist approach attributing the form to a single cause³. Hence, this approach ignores the fact that building form manifests the complex interaction of many factors⁴, and that the manipulation of these factors as a result of human selection is a social phenomenon in itself.

4.2.1 Climate and the Need for Shelter

One physical determinism approach is climatic determinism which has been widely accepted in architecture as well as in cultural geography, although cultural geography has seen a movement away from physical determinism. This view states that the primitive person is mainly concerned with shelter, and accordingly the form of his buildings is determined by the prevailing constraints of climate conditions.

Although, one need not deny the importance of climate, the extreme varieties in urban pattern and house types found within one area suggests that these must be more related to cultural influences than to climatic pressures. For example, the differences of built forms found in places such as, the Colonial City in Africa Old and New Delhi, the Old and New Khartoum or certain Latin American and European cities (see Plates 4.1 ,4.2 and Figs. 4.1 ,4.2). The evidence, also, indicates the number of house types found in areas of similar climate are more numerous than the variation among micro-climatic types, as in parts of the South Seas and the Arctic⁵ (see Fig. 4.3).

Although the importance of shelter as an aspect of the house and as a human need in itself can not be ignored, it has been suggested that house building is 'not' a natural act and is not universal, since a number of tribes of the world are without houses, even under harsh climatic conditions. An example of this is the Ona of Tierra del Fuego, who showed good building skills and created elaborate huts for ritual performance, but possess only Windbreakers to protect living spaces⁶. Similarly, the aborigines in Tasmania, with conditions of hostile weather, did not develop their dwellings beyond the windbreak.

Moreover, a number of activities which necessitate protection from weather, such as cooking, child birth and dying, are performed in some societies in the open air⁷. This suggests that religious implications and taboos has the primacy over climatic constraints in such situations⁸. In addition, there are cases in which the life style leads to almost anti-climatic solutions, with the dwelling form related to economic activity, religious beliefs, prestige, status and so on, rather than climate⁹.

A good example, is the urban Chinese house in Malaya, which was imported from a very different area, yet is



PLATE (4.1): (Rear) mass housing and terrace housing (front) in Sheffield, U.K... Different forms of housing within an area of the same climate. (Photograph by the author).

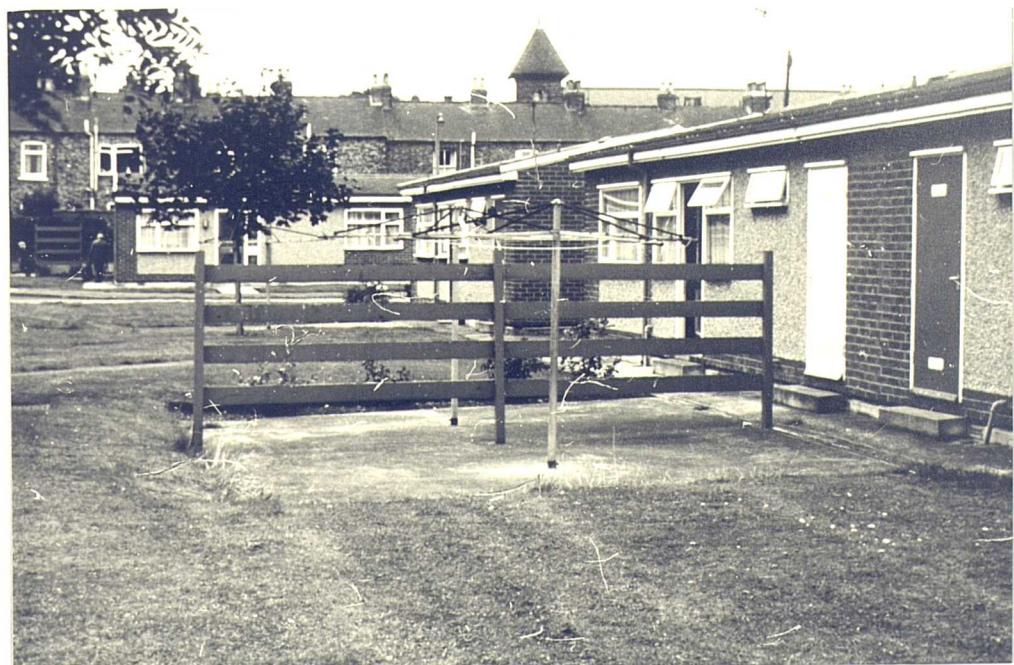


PLATE (4.2): (Rear) terrace houses and old-age semidetached houses (front) in York, U.K... (Photograph by the author).

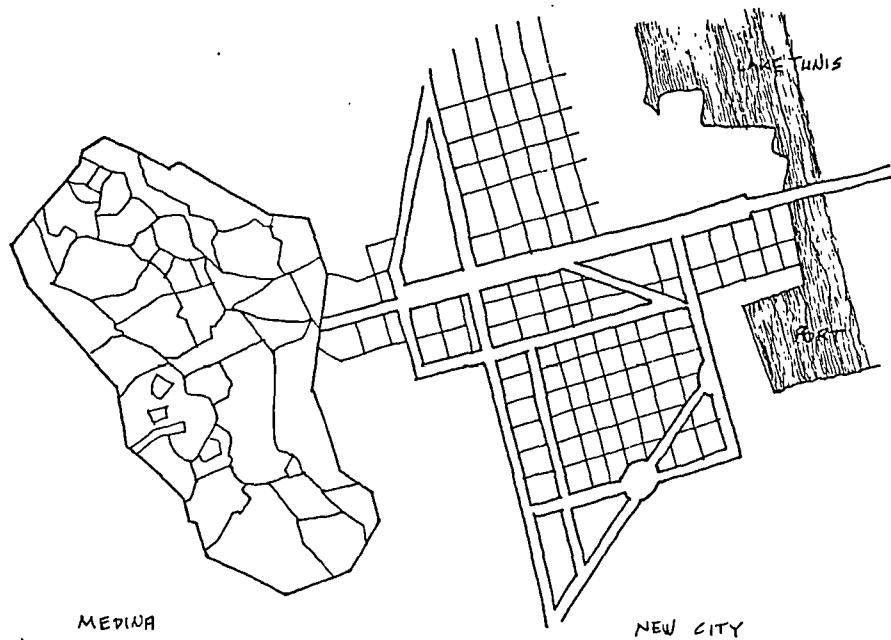


FIG. (4.1): The Colonial City in North Africa (Tunis) showing contrast between indigenous and new cities (diagrammatic: road patterns approximate only) (after Rapoport, A., Human Aspects of Urban Form).

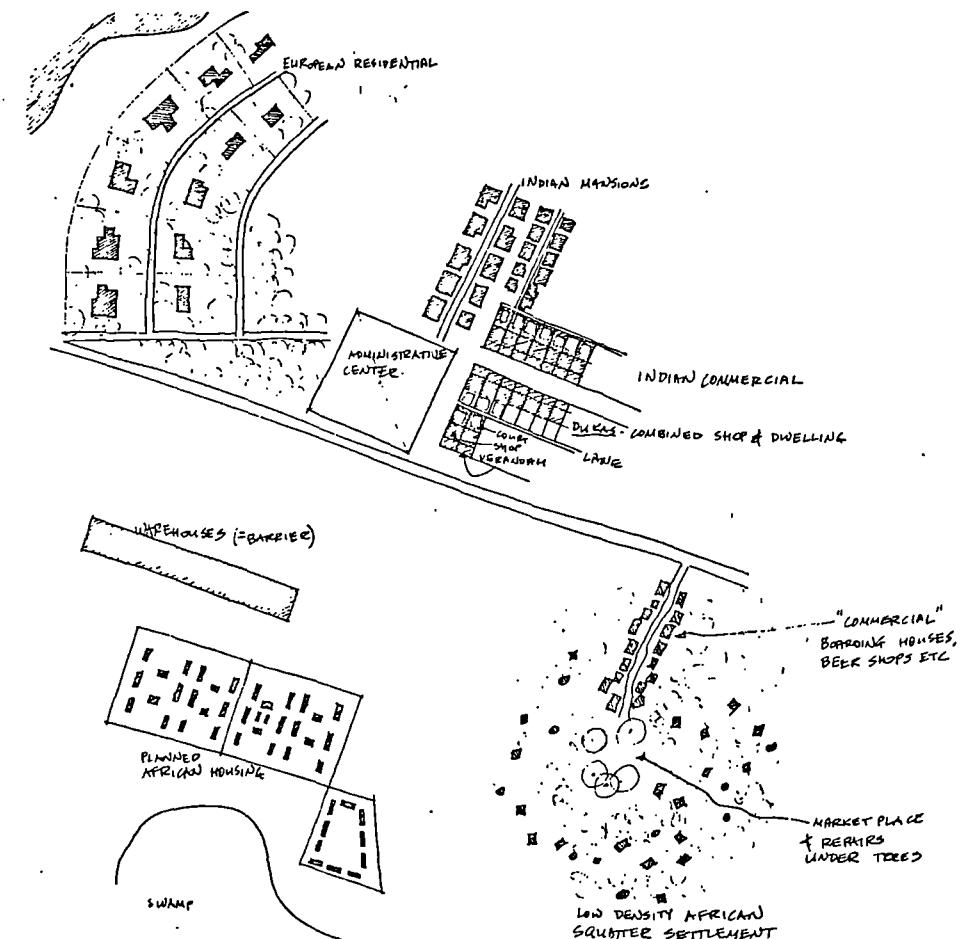


FIG. (4.2): Different cultural landscapes in Ugandan town (after Rapoport, A., Human Aspects of Urban Form).

erected side by side with the Malaya indigenous rural dwelling, which achieves more climatic comfort. The courtyard and heavy masonry construction that characterise the Chinese house make it uncomfortable in such hot humid areas. Also, the impact of status oriented housing can be followed in North Africa, where Europeans and some natives insist on living in western style dwellings. Under such climatic conditions the courtyard house would be more suitable but the status and modernity are of supreme priority for some dwellers. Also, it has been sensibly suggested that westerners have been unable to use such courtyard houses because of the scale and arrangement of spaces, which do not fit their 'cultural' requirements¹⁰. On the other hand, locals have had to brick up openings in western dwellings so as to achieve a sense of privacy¹¹.

In Sudan, the symbol of modernity and prestige can be easily traced in central urban areas of the country, where some of the relatively comfortable traditional houses are now being replaced with galvanised iron roofed houses which are less practical in both heat and cold. Similarly, the effect of religion and taboos can be found as in Cambodia, where lack of shade trees on streets and in near houses is a result of the belief, that it is unlucky for roots to find their way under the dwelling¹².

Although, climate significance can not be ignored in the making of the built environment, in general, the existence of anti-climatic solutions cast doubt on the extreme climatic deterministic view, and suggests that other forces must be at work.

4.2.2 Materials, Construction, and Technology

The physical deterministic view, also, argues that building 'materials' determine the character of buildings, especially in societies of limited 'technology'. In other

words, forms of buildings develop in accordance with technical knowledge advancement in a series of almost 'inevitable' steps¹³.

From the previous example of Tierra del Fuego where the windbreak is used for shelter, while more elaborate forms are used for ritual buildings, it becomes obvious that the form is at least partly independent of the materials and structural means, and that progress in the use of improved technology is not inescapable. Such a notion is also manifested in architectural forms made by the Kabala Tribe in New Guinea (see Fig. 4.4). The idea that a person can do something does not necessarily imply that he will. For example, despite the fact that the ancient Egyptians knew how to construct a vault, they rarely used it, and when that happened it was concealed from view, since it did not satisfy their image of the building¹⁴.

The fact that some building forms are easier to roof than others need not be denied in relation to building skills. While some areas had both rectangular and round house forms, as in Nicobar Islands, some had only rectangular houses, as in China, Egypt and Mesopotamia, regardless of the type of material used in construction¹⁵.

Materials in themselves do not seem to determine form. There is an abundance of examples where the same material has been used for different forms of buildings¹⁶⁻¹⁷ (see Plates 4.3-4.4 and Figs 4.5-4.7). In Sudan, thatch takes on many forms, sizes and slopes. On the other hand, change of material does not necessarily change the form of the dwelling. For example in many parts of Sudan, plans of huts whether built of thatch or mud both take a circular shape.

Structural techniques and materials by themselves do not seem to fully explain the nature and variety of the building forms. Materials, construction and technology, are best



PLATE (4.3): An Afghan village consists of houses with domed mud-brick chambers grouped around courtyards, in which are pitched the tents of nomadic relatives, constructed of felts tied around collapsible wooden frames. The same form of tents can be made of thatch indicating that buildings made of different materials can take similar forms (after Grube, E. J., Architecture of the Islamic World).

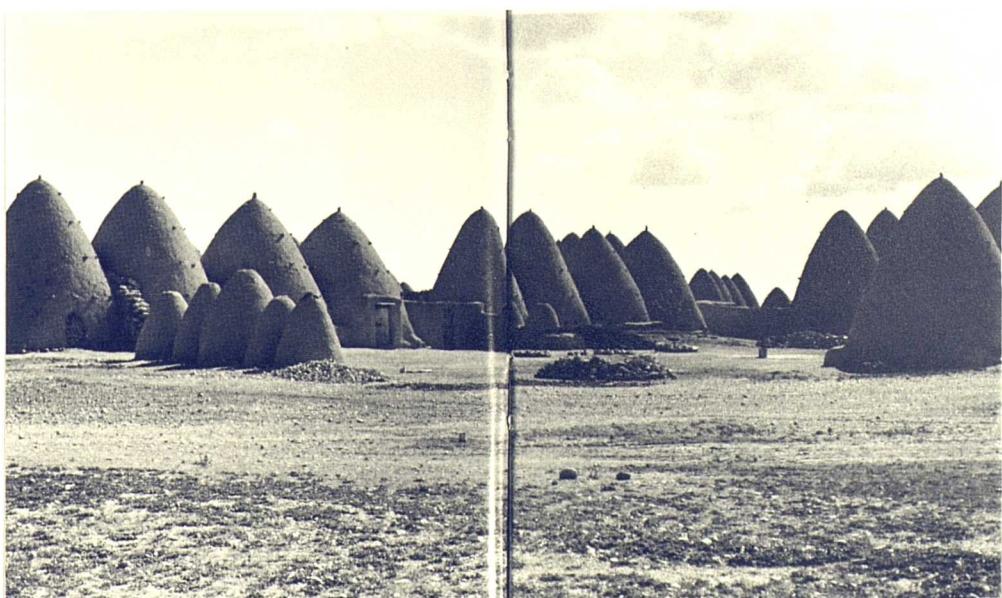


PLATE (4.4) On the border if Turkey and northern Syria, houses consist of clusters of beehive domed chambers made of mud-brick. Notice the difference between this form and the one in Fig. (4.3) showing that the same material has been used for different forms of buildings (after Grube, E. J., Architecture of the Islamic World).

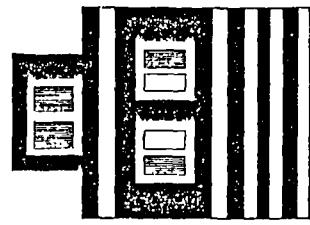
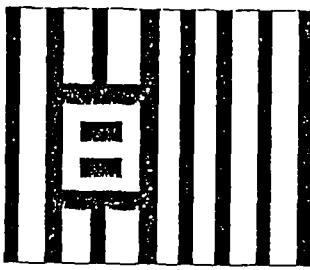
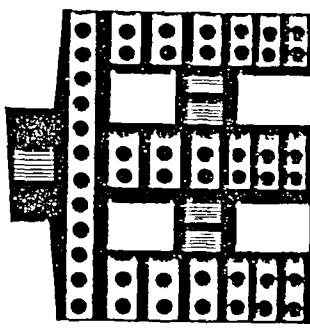
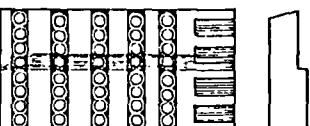
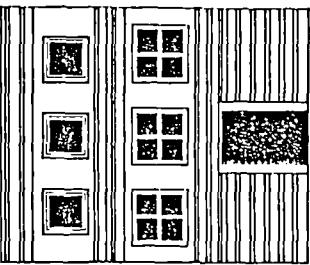
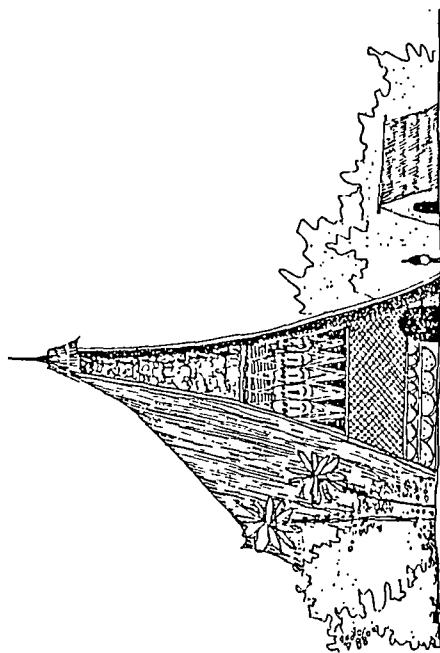


FIG. (4.3) : A series of small faience tablets in the archeological museum in Heraklion show the variety of facades in Cretan domestic architecture. They varied in structure as well as the ornament. Some of the houses seem to have had a tower on above, some had very few windows, some had quite a lot; some windows were large, some small, and a few seem to be double windows (after Gomesaca, E., History of the House).

FIG. (4.4) : Men's ceremonial greakhouse and woman's dwelling, Kalaba tribe, New Guinea. Each area has a different type of greakhouse - all are different but equally grand. The relation between the greakhouse and women's dwelling indicates that form is at least "partly" independent of material and structural means, and that progress in the use of improved technology is not inescapable (after Rapoport, A., Human Aspects of Urban Form).



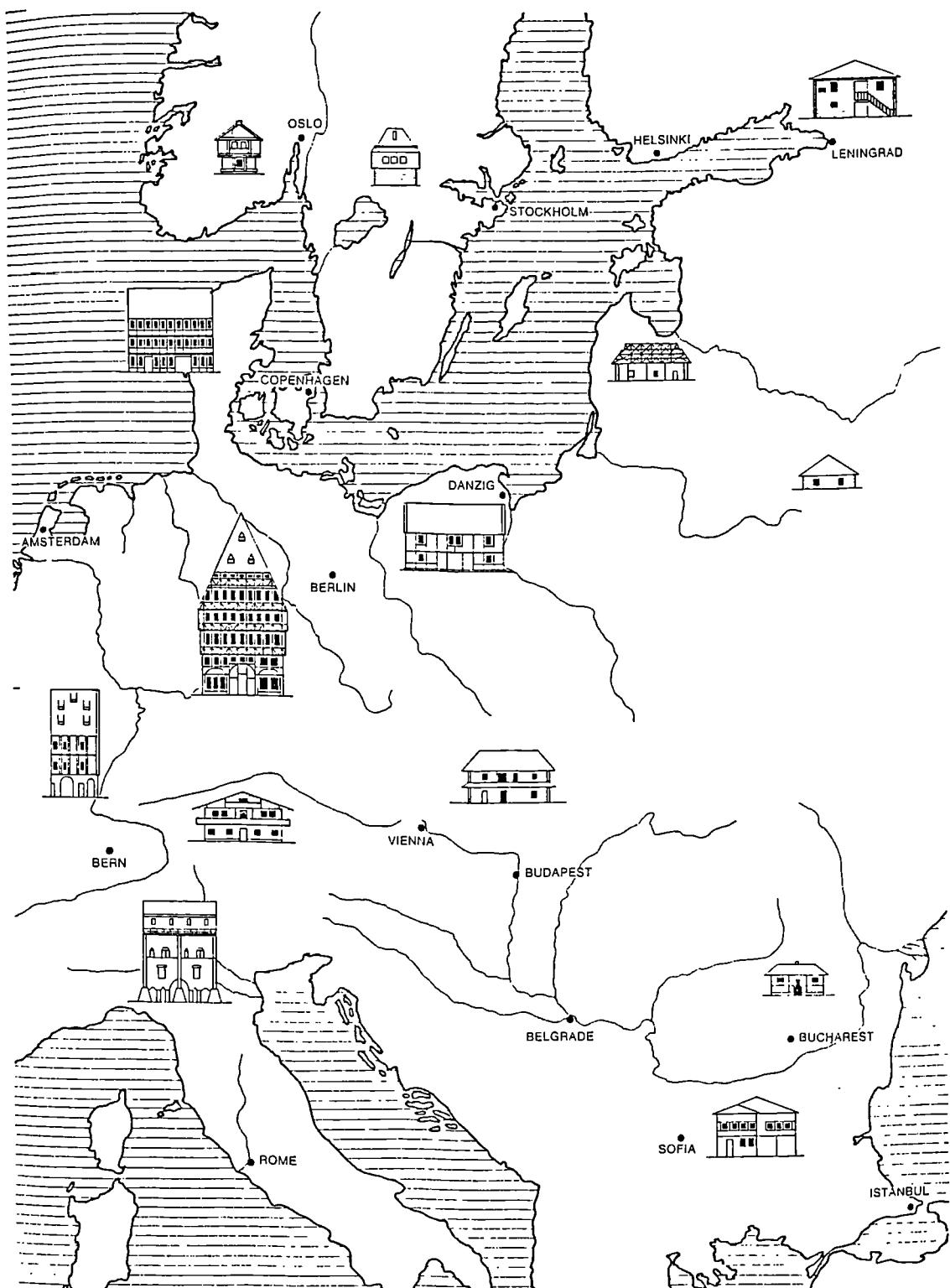


FIG. (4.5): Examples of wooden houses in parts of Europe. However, local conditions have produced a variety of types. In Scandinavia and the Alps, the living-rooms are raised above the ground level. In central Europe we find the tall, complex, houses of Germany; in south-east Europe, the shuttered houses, divided internally into public rooms and women's quarters (after Camesaca, E., History of the House).

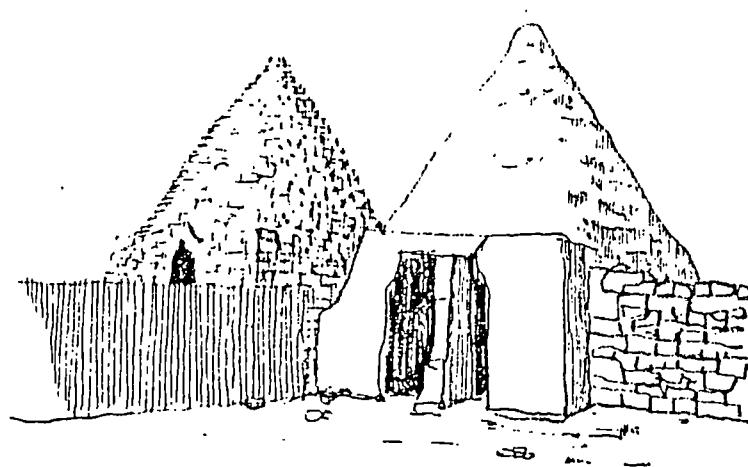


FIG. (4.6): Huts with walls of small stones on a base of larger stones, in the Taca region of Peru. In some cases, Sun-dried brick is used instead of stone (after Camesaca, E., History of the House).

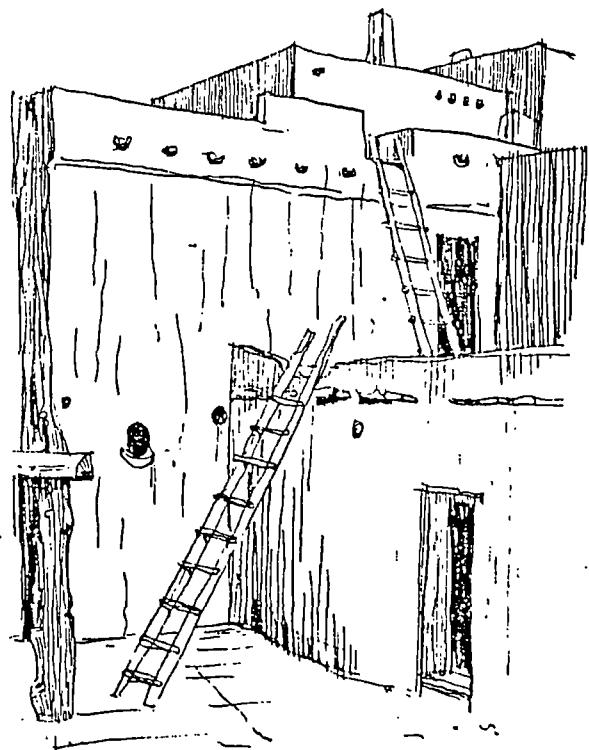


FIG. (4.7): Houses of the Pueblo Indians in New Mexico. The cubical buildings are, for the most part, set in rows against a rock sun-dried mud brick, each consist of a single room, often with an inner courtyard (after Camesaca, E., History of the House).

viewed as 'modifying' elements. They determine neither 'what' is to be built nor its form, but they facilitate and make possible or impossible certain decisions.

"Even in economics of scarcity there are many examples of herders living among agricultural people and not only failing to accept the economy available, but despising it and the people who practice it¹⁸."

The same argument can be applied to the determination of any single factor as site¹⁹, where settlements organisation, for example in many Muslim Cities, was the same regardless of the characteristics of the site; defence²⁰, where different societies show different priorities and value system for things to be defended; economics, where societies with similar economic bases erected houses and settlement with different forms²¹ (see Plates 4.5-4.6 and Figs. 4.8-4.10).

On the other hand, there is, also, an 'anti-physical' determinism which ignores a whole range influential material elements and relates the form of dwellings to religion²². One can not deny that spiritual values can be seen as affecting the form, plan, spatial arrangements and orientation of the house in many parts of the world, as in ancient China where the house was regarded as a temple. Although this view provides insights which seem more significant than physical determinism, its weakness lies in its regard for only a single factor as a determinant of form²³. Religion alone may not account for this, as we can see even today there are differences in the house form in many areas of the Islamic World. Take for example, Algeria, Egypt, Saudi Arabia and Nigeria (see Fig. 4.11). The house, like everything, can assume symbolic significance. Since the selection of a symbol involves 'choice', hence religion as an explanation of house form is more 'possibilist' than as a 'determinist', i.e. a spiritual symbol other than the house can be chosen. Even built forms erected by people of the

same faith, for purely religious purposes varied enormously (see Plates 4.7-4.10).

The great variety of forms indicates that it is not site, climate or materials which determine either the way of life or the habitat. Since examples from all over the world show that the house and settlement form changes in areas of the same physical milieu, hence there can be no physical determinism.

The factor that might be involved in all these variations is some aspect of different ways in which people visualise the building and its setting for life²⁴. It is man, not site or climate, that decides, and the physical setting only provides possibilities.

4.3 SOCIO-CULTURAL FORCES AND FORMS

4.3.1 Introduction

"It's a relative idea. Shoes are not dirty in themselves, but it is dirty to place them on the dining-table; food is not dirty in itself, but it is dirty to leave cooking utensils in the bedroom, or food bespattered on clothing: similarly bathroom equipment in the drawing room; clothing lying on chairs; outdoor things indoorgs; upstairs things downstairs; under-clothing appear where over-clothing should be, and so on. In short, our pollution behaviour is the reaction which condemns any object or idea likely to confuse or contradict cherished classification²⁵."

Theorists on culture remain divided on how best to define culture and what aspects of it to emphasise. A common view in contemporary social science, is that culture consists primarily of thoughts, moods, feelings, beliefs and values. The human world has been divided in two, objective social structure on the one hand, subjective thoughts and perceptions on the other, and the cultural part is defined as the most fluid, constrained, and least variable category

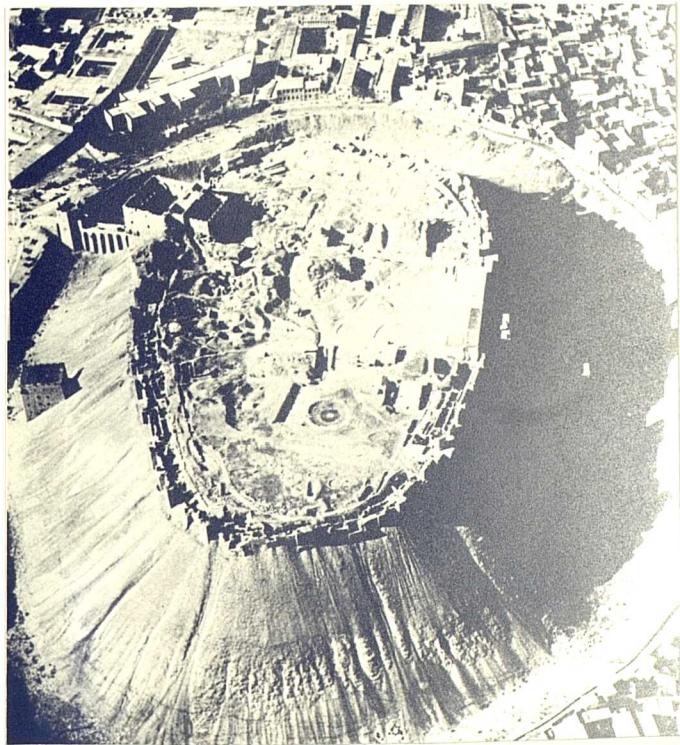
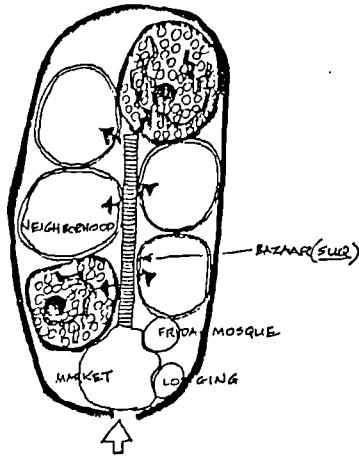


PLATE (4.5): Aleppo citadel was built on a partly "artificial" mound in the centre of the city. The site was "modified" to suit the function of defence (after Grube, E. J., Architecture of the Islamic World).



PLATE (4.6): Tower-houses are characteristic of the uplands of the western Arabian peninsula, such as these in the city of Marib, central Yemen. The settlement is unprotected by walls, "each" house becoming a "fortress" in times of trouble (after Grube, E. J., Architecture of the Islamic World).



MOSLEM CITY : CONTROLLED ACCESS, LIMITED
MOBILITY, ACCESSIBLE AREAS : MARKET, SQR,
FRIDAY MOSQUE, LODGING
(BASED ON BROWN 1973; DELAVAL 1974)

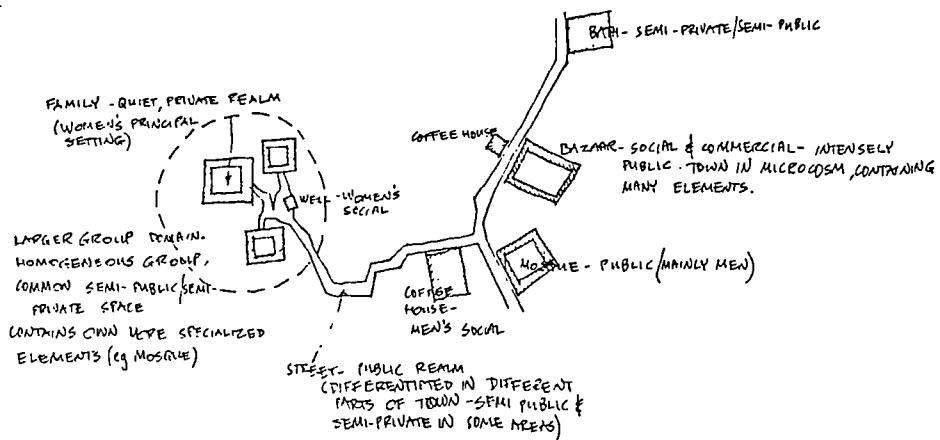


FIG. (4.8): Many of the Muslim cities, regardless of the site, displayed similar forms. The different zones and varied degrees of accessibility were a common feature in Muslim settlements (after Rapoport, A., Human Aspects of Urban Form).

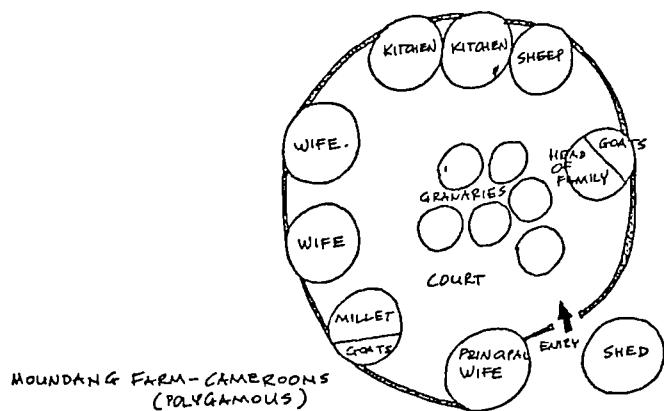
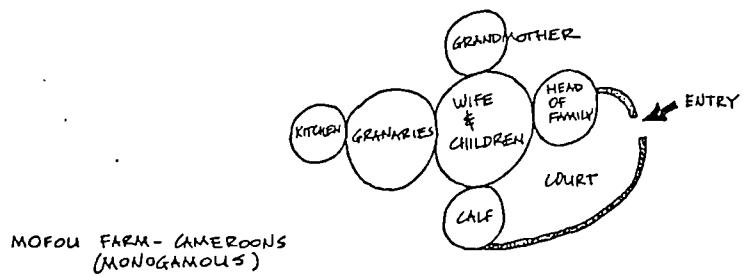
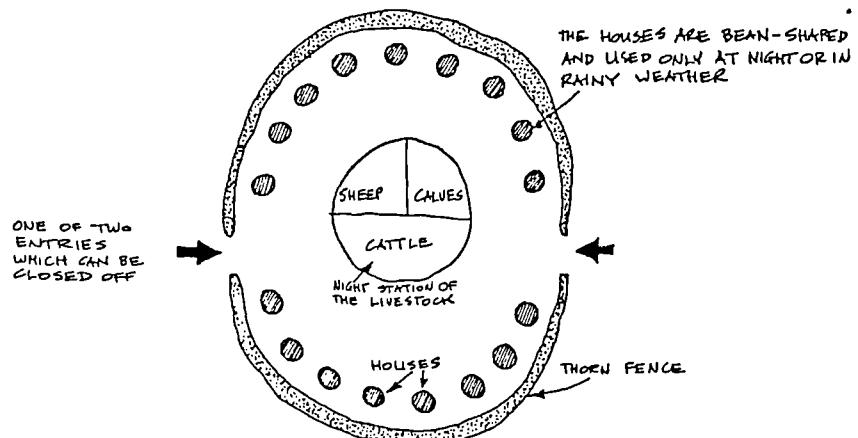
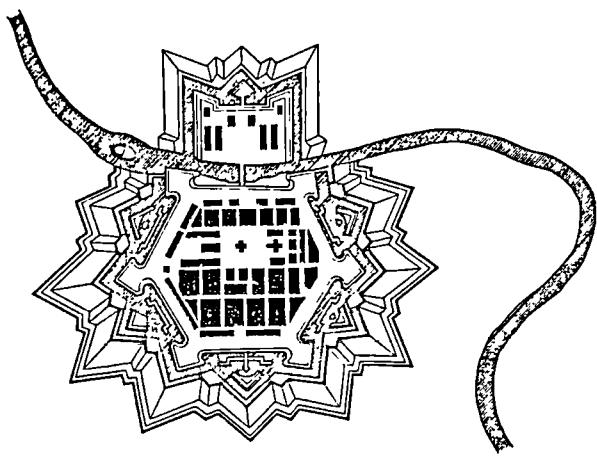


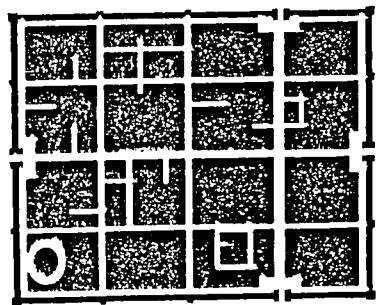
FIG. (4.9): (Above) example of Cameroon houses, both drawn to the same scale, showing the effect of monogamous and polygamous family systems. (Lower) a Masai compound (diameter approximately 130 ft.). The central position of castles reflects their high value, compared to that of granaries in Cameroon compound (after Rapoport, A., Human Aspects of Urban Form).



Fortified Town, Naarden



Roman Camp, Aosta



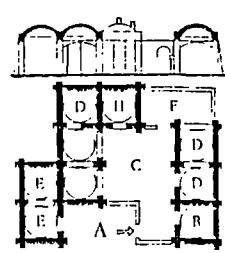
Nördlingen



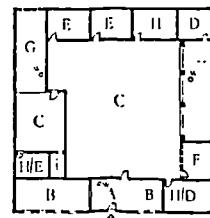
Amsterdam



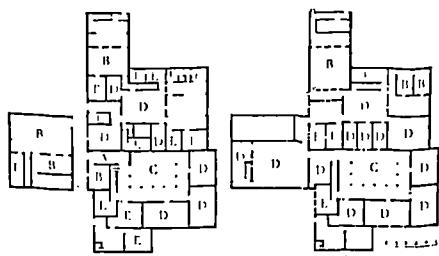
FIG. (4.10): Examples showing the effect of fortification on the settlement form. Many fortified settlements took "different" forms (after Chermayeff, S.. Community and Privacy).



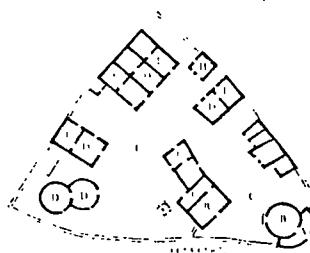
Courtyard house in the Souf.
Algeria. (2)



Courtyard house at
Qustul, Nubia. (3)



Courtyard house at Al-Majma'ah, Saudi Arabia, showing the ground
floor (a) and upper storey (b). (4)



Compound of a West African family house in Zaria, Nigeria.

FIG. (4.11): These plans of interior and exterior courtyard houses, are from widely separated areas of the Islamic world, show how privacy needs are met with different forms of buildings. Nevertheless, they share common principles of planning, which reflect patterns of social organisation. A, Entrance placed so that the passer-by cannot see directly into the harem; B, men's reception room/s situated on the periphery of the family quarters; C, courtyard; D, living/sleeping area; E, storage/service area; F, stable; G, room for celebration of major family occasions; H, kitchen; I, latrine; W, well (after Grube, E. J., Architecture of the Islamic World).



PLATE (4.7): The mosque of Sultan Ahmed in Stanbul. It is covered by a dome and buttressed by semi-domes and has six minarets (after Grube, E. J., Architecture of the Islamic World).

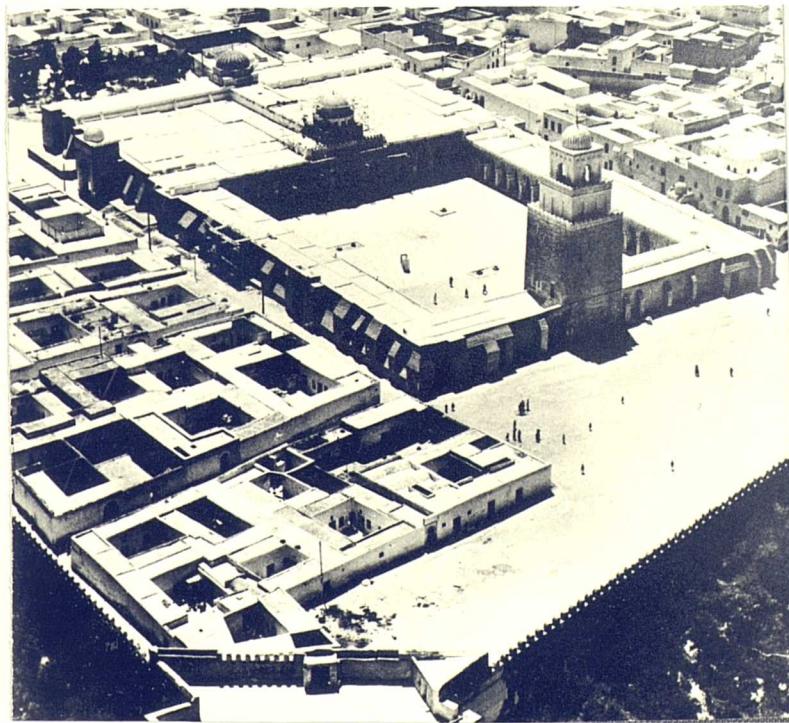


PLATE (4.8): The Great Mosque at Qairouan, in Tunisia, with its bulky rectangular minaret. This type of mosque is found in North Africa and Spain. It consists of a vast rectangular hall and the interior is divided by rows of columns (after Grube, E. J., Architecture of the Islamic World).

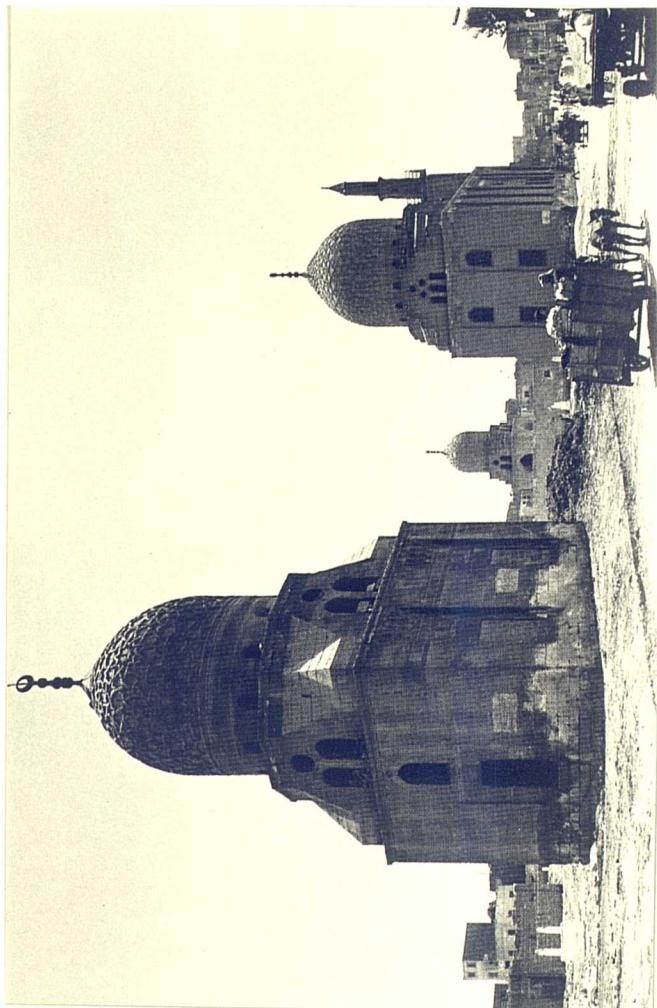
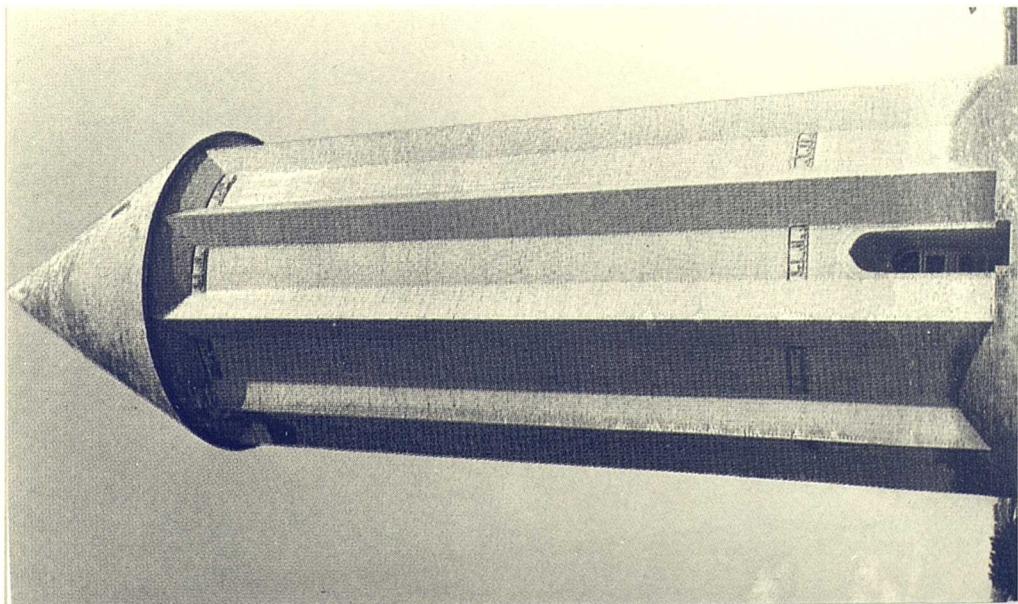


PLATE (4.9) : (Above) the Qarafa cemetery, in Cairo (after Grube, E. J., Architecture of the Islamic World).

PLATE (4.10) : (Left) the Gunbad-i Qabus, near Gorgan in Iran (after Grube, E. J., Architecture of the Islamic World).



of non-behaviour. Over the past quarter century, four approaches to the study of culture, largely outside the mainstream of social science have been pursued with growing interest. These approaches have been oriented primarily toward the realms of meaning, symbolism, language and discourse. The first, is phenomenology; the second, cultural anthropology; the third, structuralism; and the fourth, critical theory. In contrast to the previous classical approach which emphasises the subjective moods and intentions of the actor, each has come increasingly to stress the more observable, objective, shared aspects of culture and to seek patterns among them. In other words, culture is understood as a behavioural phenomenon instead of having only subjective meanings. In this sense, the study of culture includes the meaning of symbols, conditions, patterns and rules of use which render the symbols meaningful²⁶. Although this study will conduct some investigation into abstract cultural meanings, most of it will rely on the latest approach, i.e. the objective one.

4.3.2 Society Ideals as A Generative of Forms

"Very early in recorded time the house became more than shelter for primitive man, and almost from the beginning "function" was much more than a physical or utilitarian concept. Religious ceremonial has always preceded and accompanied its foundation, erection and occupation. If provision of shelter is the passive function of the house, then its positive purpose is the creation of an environment best suited to the way of life of people - in other words, a social unit of space²⁷."

As was mentioned in the previous section, the variety of forms displayed in dwellings can not be attributed to a single factor. People with different attitudes and ideals respond to varied physical environment situations²⁸. The responses differ from area to area due to changes and variations in interaction of socio-cultural, economic and physical constraints. These constraints and responses may also be subjected to gradual change with passage of time²⁹.

Building a dwelling seems to be a cultural phenomenon. It is an institution, not just a physical structure, created to serve a complex set of demands. The cultural setting in which it is created has a significant influence on its form³⁰⁻³¹. Under certain constraints of climate, material and technology what finally governs the built form and shape the spaces and their relationships is the image that a society has of the ideal life. In building and maintaining their residential environment, people seek to satisfy many socio-cultural forces, including belief, family and kinship structure, social organisation, economic behaviour and social relations between people. Thus buildings and settlements can be seen as the visible manifestation of the relative significance related to different aspects of life and the varying ways in which life is seen.

The dwelling form is not simply an outcome of a single factor, but it is a result of a whole spectrum of socio-cultural and physical forces. People select the tool (materials and the technology) and exploit the possibilities available in the physical environment (climate) to shape and establish their buildings. In other words the physical setting provides the possibilities among which choices are made through the taboos, customs and traditional ways of culture. The complexity of factors involved in the shaping of the built form suggest the need to consider both socio-cultural and physical aspects, the first as primary and the second as secondary or modifying. Since socio-cultural forces affect housing and settlement form, they need to be considered.

The term 'genre de vie' used by Max Sorre include all the cultural, spiritual, material and social aspects which affect form. Hence, it could be said that houses and settlements are the 'physical' expression of the genre vie, and this makes their 'symbolic' character. Amos Rapoport has further suggested that the socio-cultural component of the genre vie

is the sum of the concepts culture, ethos, world view, and national character, which he defines as follows:

- | | |
|--------------------|---|
| Culture | - the total equipment of idea and institutions and conventionalised activities of a people |
| Ethos | - the organised conception of Ought (i.e. expressing rightness or duty). |
| World view | - the way people characteristically look out upon the world. |
| National Character | - the personality type of people, the kind of human being which, generally, occur in this society ³⁴ . |

All the last three elements of the genre vie seems to be affected strongly by culture.

Different ways to explain forms through physical and technical needs and constraints miss the fact that even these factors, restraints, and capabilities are themselves shaped by culture as man's skill as a symbol maker preceded his skill as a tool maker³³. The form of a dwelling or settlement is a 'human fact', and even with the most critical physical and technological limitations man has produced a variety of built forms that can be related only to 'choice', which is conditioned by cultural forces. Under various environmental conditions and human states there are always a variety of choices available. Hence, socio-cultural factors hold significance in relating people's way of life to the environment.

(... education can be regarded as reflecting cultural attitudes and helping to mould the ideal man, the family as a device to transmit and guard the ethos and form national character through the ideal man, and religion as defining the ethos. In the same way, the settlement may serve to perpetuate and facilitate the genre vie³⁴."

This view points to the fact that the house and the

settlement are intended to be a physical embodiment of an ideal environment reflecting different world views and ways of life. In other words, an ideal environment made visible. It is basically non-physical in the beginning and is given expression through building form. Thus, the creation of the ideal environment is manifested through the specific organisation of space³⁵. Since the forms of dwellings are not 'determined' by purely physical factors, they can thus display a wide variety because of the comparatively low 'criticality' of buildings, e.g. compared to the design of an aeroplane. A degree of freedom and 'choice' 'prevails even under the most severe constraints.

"... house form is the result of choice among existing possibilities - the greater the number of possibilities, the greater the choice - but there is never any inevitability, because man can live in many kinds of structures³⁶."

As the 'criticality' of climate, economy, technology, or material increases, the degree of 'choice', although decreased, never diminishes. People may erect buildings to 'control' their environment, but in fact it is as much the psychological, religious, and social forces as the physical one that they are controlling to create their ideal 'cultural environment'. They behave the way they like and manipulate tools as much as the constraints will allow to come as close as possible to their 'ideal model'. The degree of influence of any factor is dependent on the people's attitudes to the environment, i.e. the nature of their goals and values, as by the limitations of the factor itself. Therefore, to comprehend and identify the character of a dwelling or a city we must find the 'taste' of a culture's genuine essence and beliefs, as the nature of man's environment seems to be more symbolic.

Although, the overall concept of the 'genre vie', i.e. world view, ethos, national character, and culture, is useful in general terms, it does not help assess how it

influences the built form. So, it is essential to break it down into more identifiable and solid aspects because the symbolic nature of man's environment can be met in different ways as the physical criticality of dwellings is relatively low. As Rapoport suggested, the following are some of the more important terms of the 'genre vie' which influence the form of the human built environment:

- (a) Some basic needs
- (b) The family structure
- (c) Position of women
- (d) Privacy needs
- (e) Social intercourse³⁷.

What is significant in relation to built form is the 'culturally' defined way in which these aspects are managed. As was mentioned earlier, the definition, relative dominance, and forms made to satisfy these terms are dependent on the goals and values of the related culture or sub-culture. Hence, one needs to be specific to identify the character and effect of such elements.

The five aspects of the 'genre vie' all involve the problem of 'privacy', (as will be explained in the following Chapters). Accordingly they will be investigated under the rubric of privacy in relation to Sudanese urban residential environment, how the concept of privacy as a cultural variable affects and is affected by these needs and how both are provided for in the dwelling and its immediate environment, and how such a cultural character can best be used to improve the related environment. Before starting such an investigation it is necessary to comprehend the nature of privacy in the first place. The next Chapter will explore and conclude on the theoretical aspects underlying the concept of privacy.

Serge Chermayeff and Christopher Alexander have suggested a model of six domains for a hierarchical organisation of

urban space. The progression is:

1. Urban public - the places and facilities in public ownership (e.g. roads, paths, etc...).
2. Urban semi-public - the special areas of public use under government and institutional controls (e.g. public schools, post offices, etc...).
3. Group public - the meeting ground between public services and utilities and private property requiring joint access and responsibility, (e.g. garbage collection, utilities control, etc...).
4. Group private - residential components under control of management acting on behalf of private or public interest for the benefit of tenants or other legal occupants (e.g. community gardens, playgrounds, etc...).
5. Family private - the spaces within the private domain controlled by a single family that are devoted to communal family activities such as eating, entertainment, hygiene, and maintenance.
6. Individual private - the "room of one's own", to which individuals may withdraw from other family members.

This study will be restricted to the residential Group-private, Family-private, and Individual-Private domains, and, within this restriction, only certain components will be discussed in detail. Reference to other urban domains may be made where appropriate.

REFERENCES (4)

1. Rapoport, A., House Form and Culture, Prentice-Hall, Inc., 1969, p. 42.
2. Taylor, C. W., Architectural Psychology: A Pioneering Program (Pamphlet), 1972, PP. 1-8.
3. Hall, P., Urban and Regional Planning, Penguin Education, 1982, PP. 80-81.
4. Tuan, Y., Space and Place, University of Minnesota, 1981, PP. 34, 119-120.
5. Carpenter, E., Image making in Arctic Art, in Sign, Image, Symbol, (ed.) Gyorgy Kepes, George Braziller, 1966, PP. 206-221.
6. Steward, J. H., (ed.), Handbook of South American Indians, Vol. 1, Washington U.S. Government Printing Office, 1964, PP. 110-137.
7. Raglan, L., The Temple and the House W. W. Norton and Company, Inc. 1964, Chapters 5-8, U.S.A.
8. Tuan, Y., Ibid, PP. 5, 119.
9. Price, W., The Amazing Amazon, The John Day Co., U.S.A., 1952, p. 180.
10. Hall, E. T., The Hidden Dimension Doubleday & Co., 1966, PP. 144-152.
11. Gottmann, J., Locale and Architecture, Landscape, VII, No. 1 (Autumn 1957), P. 20.
12. Rapoport, A., Ibid., PP. 22.
13. Allsopp, B., Towards a Humane Architecture, Frederick Muller, 1974, P. 5.
14. Giedion, S., The Eternal Present, Vol. 2, The beginnings of Architecture, Pantheon Books, U.S.A., 1964, PP. 514-515.
15. Camesaca, E. (ed.), History of the House, Collins, U.K., 1971, PP. 32-62.
16. Grube, E. J., and Others, Architecture of the Islamic World, Thames and Hudson, 1978, PP. 179-200, 275-277.
17. Camesaca, E., (ed.), Ibid, PP. 14-15.
18. Rapoport, A., Ibid, P. 22.

19. Gamesaca, E., (ed.), *Ibid*, PP. 56-231.
20. Gamesaca, E., (ed.), *Ibid*, PP. 91-96.
21. Chermayeff, S., and Alexander, C., *Community and Privacy*, Doubleday and Co., Inc., U.S.A., 1963, PP. 56-58, 130-131.
22. Raglan, L., *The Temple and the House*, *Ibid*, Chapter 1.
23. Grube, E. J., and Others, *Ibid*, PP. 18-19.
24. Moore, G. T., and Golledge, R. G. (eds.), *Environmental Knowing: Theories, Research, and Methods*, Dowden, Hutchinson and Ross, Inc., U.S.A., 1976, PP. 4-5, 15-17.
25. Wuthnow, R., and others, *Cultural Analysis*, Routledge and Kegan Paul, U.S.A., 1984, P. 86.
26. Wuthnow, R., *Ibid*, PP. 3-7, 247.
27. Rapoport, A., *Ibid*, p. 46.
28. Insel, P. M., and Lindgern, H. C., *Too Close for Comfort*, Prentice-Hall, Inc., U.K., 1978, P. 146.
29. Sachs, I., *Culture, Ecology and Development: Redefining Planning Approaches*, in Altman, I., and Others (eds.), *Human Behaviour and Environment*, Plenum Press, U.S.A., 1980, P. 322.
30. Allsopp, B., *Ibid*, P. 37.
31. Duncan, J. S., *Housing and Identity*, Billing and Sons, Ltd., U.K., 1981, PP. 28-29.
32. Rapoport, A., *Ibid*, P. 47-48.
33. Taylor, E. B., *The Origins of Culture*, Harper Torchbooks, U.S.A., 1958, P. 274.
34. Rapoport, A., *Ibid*, PP. 48-49.
35. Lagner, S., *Feeling and Form*, Charles Scribner's Sons, U.S.A., 1953, PP. 92-95.
36. Rapoport, A., *Ibid*, P. 59.
37. Rapoport, A., *Ibid*, P. 61.

ISLAM, PRIVACY AND THE BUILT FORM:

(In the name of God, Most Gracious, Most Merciful.

Say: He is God, The One and Only; He begetteth not, Nor is He begotten; And there is none like unto Him.¹⁾

As was mentioned previously, religion, ritual and myth exactitude in man's life came before he did in material aspects of culture. Also, the impact of religion on man-made environment was briefly stated. This study is concerned with socio-cultural-behavioural factors, with special reference to privacy, as major factors involved in the shaping of the built environment. The proposed hypothesis related to this issue (in Chapter 6) will be tested on almost an entirely Muslim community. Hence it would be beneficial to shed some light on the system of Islam and its implications on privacy and the residential environment in particular.

(a) Islam and Muslims:

The Arabic word Islam means peace, submission and obedience. the religion of Islam is the complete acceptance of the teachings and guidance of God as revealed to His prophet Muhammad (PBUH). A Muslim is one who believes in God and strives for total recognition of his life according to his revealed guidance and the sayings of the prophet. He also works for the building of a human society on the same basis.

The word 'Allah' is the proper name of God in Arabic. It is a unique term because it has no plural or feminine gender. There are five pillars of Islam:

- (1) The declaration of faith.
- (2) Prayers: Daily prayers are offered five times a day.
- (3) Fasting the month of Ramadhan.
- (4) Zakat: To pay annually 2.5% of one's savings on which a year has passed as a religious duty and to purify sum to be spent on the poorer sections of the community.

(5) Pilgrimage to Makkah: it is to be performed once in a lifetime if one can afford it financially and physically^{2,3}.

(b) Concept of Worship in Islam:

The traditional definition of worship in Islam is a comprehensive definition that includes almost everything in any of the individual's activities. The definition goes something like this: "worship is an inclusive term for all that God loves of external and internal sayings and actions of a person". Islam regulates the human life on all levels: the individual, the social, the economic, the political and the spiritual. Thus the Muslim's activities are considered by God as acts of worship. There is always the supervisor who knows everything namely, Allah⁴.

(c) Concept of God in Islam:

In Islam, Allah is the personal name of the true God. Nothing else can be called Allah. The term has neither plural nor gender. To a Muslim, Allah is the Almighty, Creator and sustainer of the universe who is similar to nothing and nothing is comparable to Him. The Creator is eternal and everlasting and his attributes are also eternal, everlasting and absolute. God is loving and kind but He is also just. Hence evildoers and sinners must have their share of punishment and the virtuous His bounties and favours. The following Qur'anic verses are clear in this respect:

(Verily for the Righteous Are Gardens of Delight, In the Presence Of their Lord.
Shall We then treat The People of Faith like the People of Sin? What is the matter With you? How judge ye?⁵)

(d) Moral system of Islam:

Islam has laid down some universal fundamental rights for humanity as a whole, which are to be observed and respected under all circumstances. To achieve these rights Islam provides not only legal safeguards but also a very effective moral system. Thus, whatever leads to the welfare of the

'individual' or the 'society' is morally good in Islam and whatever is injurious is morally bad. Islam attaches so much importance to the love of God and love of man.

Hence a Muslim is supposed to be:

- (1) His faith should be true and sincere.
- (2) He must be prepared to show it in needs of charity to his fellow-men.
- (3) He must be a good citizen, supporting social organisations and
- (4) His soul must be firm and unshaken in all circumstances.

This is the standard by which a particular mode of conduct is judged and classified as good or bad. Islam seeks to firmly implant in man's heart the conviction that his dealings are with God who sees him at all times and all places. It provides a 'sanction' to morality in the love and fear of God⁶.

(e) Islamic Principles of Privacy:

From the previous explanation of some of the Islamic principles it can be realised that the concept of purity and pollution, good and wrong, sacred and profane or cleanliness and dirt has been used to distinguish between what is good and what is bad. God represents purity and sacredness, whereas guilt and sin represent pollution, profane and dirt.

Since God is the absolute and the sole master of men and the universe, it follows that no creature can hide from Him, whereas He has the privacy of Oneness (being unique). On the other hand, those who respond to the call of Allah are gathered together into a community and given the name Muslims. And the single object underlying the formation of this community (Ummah) is that it should make an organised effort to establish and enforce goodness and suppress and eradicate evil. Accordingly, such community establishes its private character.

In Islam, man's life is a wholesome, integrated unit and not a collection of fragmented, competitive parts. The

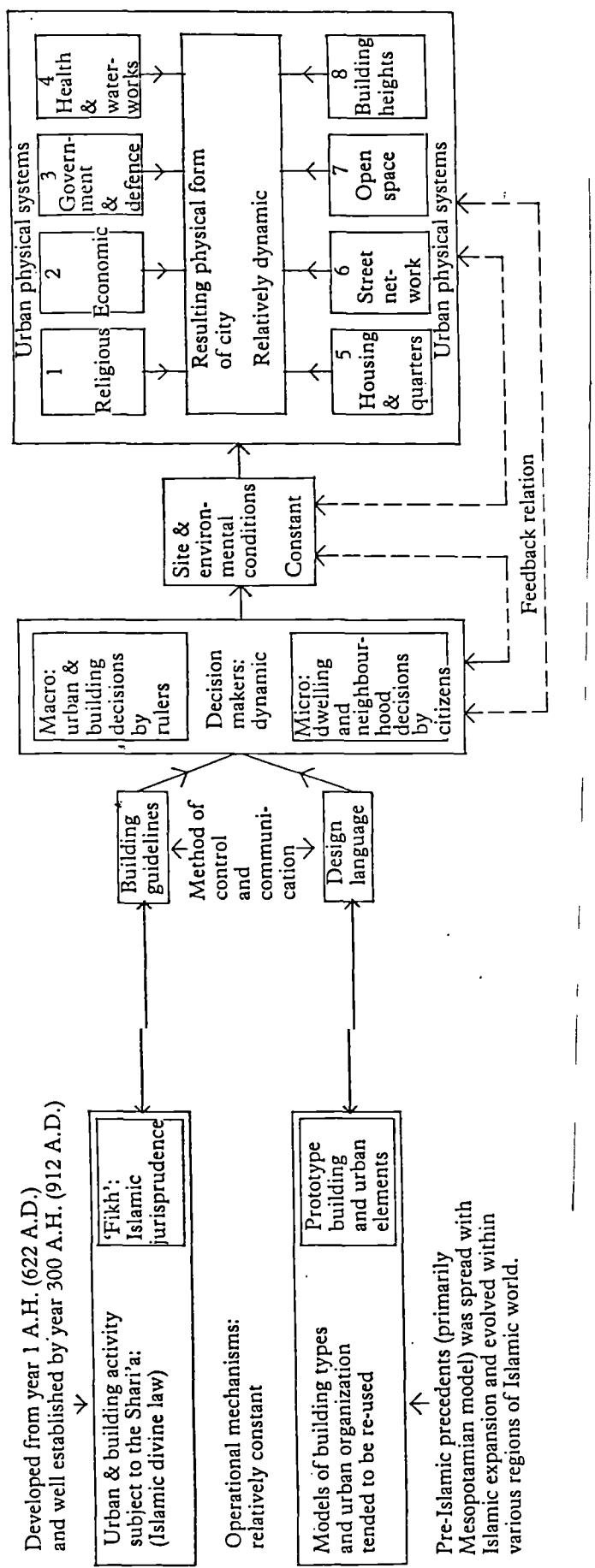


FIG. (A.1): CONCEPTUAL MODEL OF SELECTED FACTORS THAT SHAPED THE TRADITIONAL ARABIC - ISLAMIC CITY. (Source: Hakim, B. S., Arabic Islamic-Cities).

sacred and secular are not separated parts of man; they are united in the nature of being a human⁷. In this respect the sphere of private and the public although independent are integrated in a biological delicate manner. While the sphere of the individual is highly respected, there is a mutual responsibility between the public and the individual. The freedom of intrusion and privacy is governed by the notion of good or bad in relation criteria set by the Islamic norms of morality.

The teachings of Islam concerning social responsibilities are based on kindness and consideration of others. Since a broad injunction to be kind is likely to be ignored in specific situations (i.e. creating an atmosphere of privacy). Islam lays emphasis on specific acts of kindness and defines the rights of various relationships. In a widening circle of relationships, then, first obligation is to our immediate family (parents, husband or wife and children), then to the other relatives, neighbours, friends and acquaintances, orphans and widows, the needy of the community , fellow Muslims, fellow human beings and then animals. Accordingly, these responsibilities establish a hierarchy of intimacy and privacy^{8,9}.

Islam recognises the oneness of humanity and the brotherhood of mankind. apart from their other human attributes, men are substantially the same and no tangible and actual distinction can be made among them, on account of their accidental differences such as nationality, colour or race¹⁰. Islam has laid down some universal fundamental rights for humanity as a whole. They are a part and parcel of Islamic faith. The human rights in an Islamic state are;

- (1) The security of life and property;
- (2) The protection of honour;
- (3) Sanctity and security of private life;
- (4) The security of personal freedom;
- (5) The right to protest against tyranny; In Islam, all power and authority belong to God.
- (6) Freedom of expression: The right should be used only for propagation of virtue and truth.
- (7) Freedom of association.
- (8) Freedom of conscience.

- (9) Protection of religious sentiments.
- (10) Protection from arbitrary imprisonment.
- (11) The right of basic necessities of life.
- (12) equality before law.
- (13) Rulers not above the law.
- (14) The right to participate in the affairs of state^{11,12,13}.

(f) Islam and the Manmade Environment:

The moral system of Islam has affected tremendously the built environment within which the Muslim lived. With the spread of Islam the world has witnessed special system of settlements that resemble the Muslim way of life.

The basic principles and guidelines of the building process and its framework were derived from the spirit of Islam (see Fig. A.1). The development of building and urban design principles centred primarily around housing and access. New designed elements were added to suit the values and social requirements of an Islamic community¹⁴.

Islamic urban organisation is the physical manifestation of the equilibrium between social homogeneity and heterogeneity, in a social system requiring both segregation of domestic life and participation in the economic and religious life of the community. the system of urban settlements is characterised by a tripartite system of 'public', 'semi-public' and 'private' spaces with varying degrees of accessibility and enclosure.

The public areas (bazaars, workshops, major mosques, caravanserais, cafes and hammams) with its free accessibility and contacts is the domain for men. Off the bazaar's wider street branch the central streets of the different quarters; off these streets branch the narrow alleys and culs-de-sac onto which open the doorways of individual dwellings.

The quarters are formed by relatively small, usually, homogeneous communities bound by shared religious, ethnic or occupational ties. Residential quarters are not divided according to status with rich and poor living along side one another and sharing facilities, as the concept of equality

of human race is a basic principle in Islam¹⁵. Although the quarter has its own social identity, there is always a balance maintained between such isolation and participation in the communal and economic affairs of the settlement as a whole.

However intimately the individual is associated with the life of his quarter, He also belongs to another unit: the family. the 'right' and 'obligation' of the family to live 'enclosed' in its dwelling has led to a clear separation between 'public' and 'private' life which is one of the most significant social characteristics of Islamic communities. The Arabic name 'sakan' to define the house is related to the word 'sakina' (peaceful and holly), and the word for women 'harim' is in turn related to 'haram' (sacred area) "i.e. harem" which specifies the family domestic area of the house. the dwelling is primarily the domain of women.

The concept of the 'veil' or 'higab' performs many of the privacy functions as expressed in Islamic domestic architecture. The segregation between the inside and the outside of the dwelling and between the two sexes is physically manifested in the various forms of barriers through which woman can see but not seen, for example the use of 'mushrabiyya' or timber lattices.

The Islamic House is an 'introverted' form, with emphasis on the decoration of the interior elements. External walls must be built to a height that insures that the domestic interior can not be overlooked. The windows must not overlook neighbouring courtyards or terraces. The importance of the house entrance is usually highly elaborated, sometimes by decorations, to symbolise the beginning if the family private realm.

The main gateway of the house usually managed in a way to avoid the visual exposure of the interior domestic space from outside. In case of two entrances one may be used exclusively by the womenfolk^{16,17,18}.

In the present century, when building styles, techniques and materials though out the Islamic world are are

increasingly drawn from alien cultural and technological traditions, it is necessary to comprehend what traditional Islamic society itself sees as important in its architecture, domestic or otherwise. This can help to learn its priorities in the function built form and their symbolic and social implication. Accordingly, better planning and design can be achieved for such communities.

REFERENCES (ANNEX) :

- 1 Ali, A. Y., The Holy Quor'an (112:1-4): English Translation and Commentary, Islamic Propagation Centre International, 1934, p. 1806.
- 2 WAMY Series on Islam, No. 1, Riyadh, Saudi Arabia, (not dated).
- 3 Al-Mawdudi, A., Ibid, PP. 65-77.
- 4 WAMY Series on Islam, No. 8, Riyadh, Saudi Arabia, (not dated).
- 5 Ali, A. Y., The Holy Qur'an (68:34-36), Ibid, p. 1591.
- 6 WAMY Series on Islam, No. 5, Riyadh, Saudi Arabia, (not dated).
- 7 WAMY Series on Islam, No. 1, Ibid.
- 8 WAMY Series on Islam, No. 5, Ibid.
- 9 Al-Mawdudi, A., Ibid, PP. 44-48.
- 10 Al-Mawdudi, A., Ibid, 21-34.
- 11 WAMY Series on Islam, No. 10, Riyadh, Saudi Arabia, (not dated).
- 12 Al-Mawdudi, A., Islamic Way of Life (in Arabic), Al-Risalah Est., (not Dated), PP. 21-34, 49-63.
- 13 Zeidan, A., The Individual and the State in the Islamic Shari'a (in Arabic), Dar Al-Kor'an Al-Kareem, Beirut, 1975.
- 14 Hakim, B. S., Arabic-Islamic Cities: Building and Planning Principles, KPI Limited, U.K., 1986, PP. 15,55.
- 15 Al-Mawdudi, A., Ibid.
- 16 Grube, E. J., and others, Architecture of the Islamic World: Its History and Social Meaning, Thames and Hudson Ltd., U.K., 1978, PP. 193-198.
- 17 Hyland, A. D. C., and Al-Shahi, A. (eds.), The Arabic House, CARDO, U. of Newcastle upon Tyne, 1986, PP. 20-24, 41-42, 69-71, 75-79.
- 18 Serageldin, I., and El-Sadek, S. (eds.), The Arab City: Its Character and Islamic Cultural Heritage, The Arab Urban Development Institute, 1981, PP. 40-52, 198-202.

CHAPTER 5

5. PRIVACY: A THEORETICAL APPROACH

5.1 THE DEFINITION OF PRIVACY

(There has been little empirical research on the topic of privacy in the social and behavioural sciences. Until very recently no major textbook in experimental psychology even referred to the topic in its table of contents or contained the word privacy in its index¹.

In this section an attempt is made to highlight the different understanding of the nature of privacy. It will also, be shown how privacy is or can be related to the physical architectural environment. Later a conclusion will be drawn out of the general statements.

Privacy has been understood by some as refusing access by other persons in special specified situations, and as private rights against holders of authority or other members of the same society². Personal privacy and private rights are linked by the notion of intrusion³. The social and psychological process revealed by observations of Briggs on an Eskimo community with evidence from other societies showed that the need for privacy appears as one segment of the range of human "fight or flight" responses to stress and danger⁴. As Barrington Moore pointed when the individual fails to carry out social obligations he escapes to privacy.

"We may posit its most probable occurrence as a response to a painful but socially approved obligation where the individual feels unable to carry out the obligation⁵."

Briggs found that it is only with their "real family" that the Utku Eskimo appear to feel completely comfortable. They enjoy independence of thought and action. They displayed "an extremely strong sense of privacy with regard to their thoughts, their feelings, and motivations; and I feared to offend it." From Briggs account privacy thus

appears as an escape from demands and burdens of social interaction⁶.

Moore thinks that the drawing of a social boundary and self-limiting aspect is an essential element in the whole psychological and social process⁷. The economy of time and energy defeat the possibility to be on intimate terms with a large number of people. Also he described privacy as a group of masks each of them being dropped or added to control information filtration depending on the type of intimacy involved (e.g., control of affection, hostilities and anxiety over one's acceptance and status in the group). The mask act as a defensive seclusion against social pressure⁸.

Amos Rapoport defined privacy as the control of unwanted interaction. He saw experience as vital to the control of unwanted information⁹⁻¹⁰ and privacy as the ability to control such experiences at will¹¹. To explain this, it is obvious that density and crowding (the negative perception of density) are related to experience of interaction with other people. Density and crowding are both related to information. Crowding can be understood as an unwanted interaction leading to overload of sensory modalities and privacy as the ability to avoid unwanted interaction. But density per unit area is not meaningful and it is perceived density as a function of relationships that is necessary to the control of such experiences (include or exclude)

"Perceived density is tested against certain norms expectations and adaptations levels and evaluated as either too high (crowding), too low (isolation) or just right. Thus crowding is equivalent to the inability to handle certain levels of information." . . . With a given space per capita an increase in the size of the group, or reduction in space have different effects and so does the nature and meaning of the group¹²."

Interaction between people results in an information flow in a two-way manner: there is an awareness of others and also knowing that others are aware of oneself¹³ (see Plates

5.1-5.3). This latter leads to behavioural constraints and may be the major problem in housing and urban situations. For example, in large-scale French housing projects the main problem lay not in meeting people in the building and grounds but rather the inability to be unaware of people in the dwelling itself (the place of withdrawal par excellence), i.e., the unwanted perception of others which interfered with personal and family independence (see Plate 5.4). The non-acceptance of apartment living also indicates a multi sensory definition of privacy with one "modality" being merely the awareness of the physical sharing of an area or facility and knowing that some one might be there. Similarly excessive openness of site layout and the absence of vegetation can inhibit people feel on display¹⁴. Thus privacy seems to be an element in the use of space and can be understood in terms of sensory awareness of other people even if there are barriers (awareness of others through perception).

Controlling interaction at will also involves environmental information flows (e.g., people and their environmental symbols). It is unwanted interaction that is the problem and the critical factor in all this is choice that safeguards voluntary control¹⁵. Privacy involves controlling all information about people and requires a set of defences_ physical, spatial, temporal, social and psychological which will be discussed later in privacy Controllers Section.

A person's life oscillates between community and different forms of withdrawal, various barriers and various ways of interaction, seeking complexity and avoiding deprivation and information overload¹⁶ (i.e., avoiding boredom).

The different forms of cities_ Muslim, African, Chinese or Japanese, and preference for different patterning and



PLATE (5.1): The presence of society is the major element in realisation of privacy. There becomes an awareness of others and also knowing that others are aware of oneself - a social gathering at the University of York (photograph by the author).

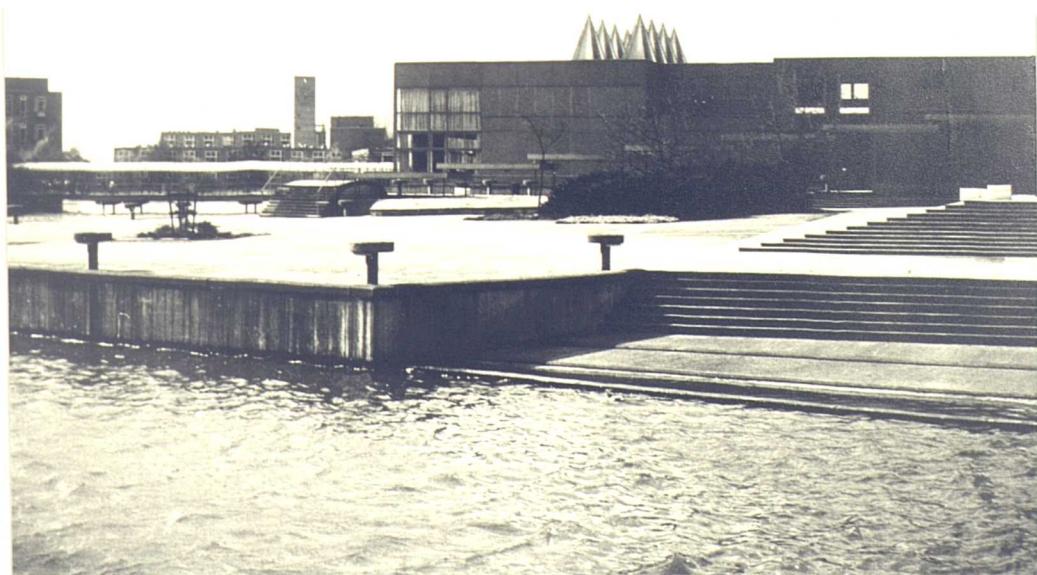


PLATE (5.2): The same space, previously busy, without people. The flow of environmental information was significantly reduced (photograph by the author).



PLATE (5.3):

Interaction between people results in an information flow between the actor and the receiver - the older approaching the young for help (photograph by the author).



PLATE (5.4):

Towers with a "hundred eyes": 'all' sense of privacy destroyed. In high rise housing arises the problem of the inability to be unaware of people in the dwelling itself, Leeds. (Photograph by the author).

structuring of residential contexts by different people in modern cities can be seen as ways of coping with overload_cognitive, cultural, social or physical. The desire to control unwanted interaction, environmental information and social communication is either because the amount is excessive or because one wants to avoid particular types of interaction, or interactions at particular times and situations. The control devices also enable unavoidable unwanted interaction to be structured. From this one can say that privacy deals with the control and structuring of communication.

Many writers, who have tried to discover whether the esteem with which privacy is held is culturally relative, found that there are cultural, personal differences between societies, persons in stages in life cycle¹⁷. Not only was privacy held by some to be socially feasible, but it was also thought by some to be at least desirable. Also, many theorists see privacy as increased human vulnerability through increased sensitivity to shame and embarrassment.

Ferdinand Shoeman saw privacy as a culturally conditioned sensitivity that makes people more vulnerable than they would otherwise be to selective disclosures and to the sense of comparative inferiority and abject shame _ a sense engendered by ignorance about the inner lives of others. He also proposed that the only criterion of the private domain is that it is marked off by those aspects of life that do not, or tend not to, affect the significant interests of others¹⁸.

Some scholars have identified privacy as a claim, entitlement, or right of a person to control information about himself (or herself). Privacy has been defined also as the measure of control a person has over: (a) information about himself (or herself); (b) intimacies of personal identity; or (c) those who have sensory access to him (or

her). Privacy has been identified also as a state or condition of limited access to an individual¹⁹⁻²¹.

Benn and Gaus have argued that the notion of privacy constitutes a central social concept which infects our way of experiencing the social world, and which affects the social life in profound and subtle ways. It controls what people feel they have legitimate access to and in this way fosters both possibilities and limitations²².

On the other hand, some theoreticians think that there are inherently private aspects of people's lives. Having a point of view under conditions of his choosing, what is most intimately connected with qualities of a person that give respect is inherently private. The intimate connection between a concept of self and one's body categorise bodies as inherently private²³⁻²⁴.

Jeffrey Reinman, in his essay "Privacy, Intimacy, and Personhood", regards privacy as a social ritual by means of which an individual's moral title is given²⁵. In his treatise on the work of Charles Fried's "Privacy", Schoeman in a way defined privacy as controlling access to one's inner aspects²⁶.

Also, privacy has been related to private life which is characterises as a commonly shared conception of those aspects of life that most immediately identify with the self and that could not exist under strictures of formal roles²⁷. While Charles recognise privacy as the means by which we can differentiate between different intimacies of relationships, James Rachels, in "Why Privacy Is Important," argues that privacy is a means of managing different kinds of relationships, regardless of their intimacy. In this context he recognises privacy as an aspect of liberty²⁸.

Some theorists argue that there is nothing distinctive, or morally or legally illuminating about privacy interests.

These sceptics argue that in each category of privacy claims there are diverse values of the sort common to many other social issues and that these values exhaust privacy claims (i.e., we can defend our concerns in standard moral and legal categories e.g., privacy invasion can fall either under emotional distress, misappropriation, or trespass²⁹ etc.).

Sceptical about privacy Judith Jarvis Thomson, in "The Right to Privacy", regards privacy as entirely derivative in its importance and justification³⁰. Also, it can be concluded that in both the sceptical essays of Richard Wasser, in "Privacy: Some Arguments and Assumptions", and Richard Posner, in "An Economic Theory of Privacy" and "The Right of Privacy," what we are private about relates to the matters we wish to conceal because of the different images that would be projected of us through such disclosure of³¹. More detail will be shown in the next section , Function of privacy.

Other philosophers have the view that there is something fundamental, distinctive and coherent about the privacy cases³²⁻³³. Supporting this view is the attitude that something special about human moral or social character is lost in reductive accounts. Among these philosophers there is considerable disagreement as to what constitute the feature of privacy. Some argue that privacy issues possess in common their position as key components in structuring the very possibility of diverse social relationships. Others argue that the concerns of human dignity are reflected in the seemingly diverse privacy claims. While others see privacy issues as sharing a role in protecting "private life"³⁴ (i.e., the individual's intimate self).

Schoeman suggested that one way of arguing that there is something distinctive about the right to privacy is to show that we are unable to justify some of our clear intuitions

about legitimate and illegitimate behaviour without the reference to privacy interests³⁵. Also Edward Bloustein proposed that the values at stake in privacy intrusions are noble, coherent and fundamental human values. He also argues that as we can not avoid mention of privacy in certain cases without the loss of moral vision, meaning that there is something distinctive about it³⁶.

Robert Murphy's observations in "Social Distance and the Veil" showed that some of a person's public role may conflict with other public roles of the individual, and that privacy may be necessary to the maintenance of the public roles of an individual³⁷. Thus in this light privacy may be a precondition of public roles and not always just the simple difference of action in the public realm.

Other very important remarks have been made by the English jurist and philosopher James Fitzjames Stephen in his work *Liberty, Equality and Faternity*:

To define the province of privacy distinctly is impossible, but it can be described in general terms. All the more intimate and delicate relations of life are of such a nature that to submit them to unsympathetic observation, or to observation which is sympathetic in the wrong way, inflicts great pain, and may inflict lasting moral injury. Privacy may be violated by compelling or persuading a person to direct too much attention to his own feelings and to attach too much importance to their analysis there is sphere, nonetheless real because it is impossible to define its limits, within which the law and public opinion are intruders likely to do more harm than good³⁸.

This passage emphasises several points:

- (a) privacy is central to the intimate aspects of an individual's life.
- (b) Privacy is central to the subtle aspects of social relationships.

- (c) People care that the information about them be understood under certain light or with a particular appreciation.
- (d) Disrespect for a person's sensibilities can be seen as intrusion to his or her privacy.

The above points have been developed in subsequent literature and regarded by many writers as a central insight into work of privacy. Also Stephen made clear that to be a moral creature makes important the existence of certain areas of life that are inherently private.

In his ideas first advanced on self-revaluation and self-restraint, George Simmel described privacy as the control of knowledge between actors. The amount of knowledge available of each other to actors can never approximate completeness. The actors self-revaluations are filtered to produce what he called "a teleologically determined non-knowledge of one another". An area of privacy then is maintained by all³⁹.

Following the same view George Herbert Mead, in "Mind, Self and Society", Robert K. Marton, In "Social Theory and Social Practice" and Erving Goffman, in "The Nature of Difference and Demeanor", see the reserve as an aspect of self distance in social interaction⁴⁰.

Robert Murphy, following Simmel, in "Social Distance and the Veil" draw a similar to the display of 'social distance' in human relationships. The more common usage of the term sees it as a spacing between individuals and groups and he described the manifestaion of such a distance as privacy and reserve in small interaction settings. Also he noted that the veil provide the Twareg males with the idiom of privacy which is neither isolation nor anonymity and give facelessness to its wearer and allows him to stand somewhat

distant from the danger of social interaction while remaining a part of it. Murphy has argued that privacy pervades all social relationships and as much as social conduct implies limitations, the actor must insulate large portions of social existence. This is done through withholding knowledge of his course and commitment in the action situation. The use of "reserve and restraint" provides "an area of privacy" a "common though not constant" factor "in all social relationships⁴¹".

Murphy has classified the kinds of social distance into two categories:

- (a) the role specific distance; is displayed at certain nodal points in any social system and obtains between certain categories of role players and which is part of expected behaviour in specific interaction settings (e.g., joking, reserve, avoidance or antipathy).
- (b) the generalised distance; it is the requirement of social system as a whole and relates not only to a series of specific social relationships but tends to pervade social interaction in its entirety (e.g., Twareg tribes of North Africa, where men veil their faces and constantly adjust the veil to changing interpersonal relations⁴²).

CONCLUSION:

Generally, the theory on privacy revealed conflicting views on the status of privacy. The sceptics argue that in each category of privacy claims there are diverse values of the sort common to many other social issues and that these values exhaust privacy claims. On the other hand, other philosophers have the view that there is something fundamental, distinctive and coherent about privacy cases. Among these philosophers there is considerable disagreement on what constitute privacy.

Although, contradicting views exist, the formulation of a supporting theory on privacy, nevertheless, assumes itself to be useful and promising, especially in the field of human interaction and communication. Such a theory would likely seem to pave the way for a better understanding of the nature, value and controllers of privacy. This would, undoubtedly, be beneficial to architectural and urban design and planning as generators for a better humane environment with a higher level of satisfaction.

The anthropological evidence revealed that most societies, if not all, displayed, in one way or another, some forms of privacy. Many writers found that not only was the esteem of privacy held by some to be socially feasible, but it was also thought by some to be at least desirable.

To define the province of privacy distinctly is difficult, if not impossible, but it can be described in general terms. The prevailing definitions cover a wide range of overlapping categories. It has been defined as a claim, entitlement or right to control information about oneself information, intimacies and sensory access. Also, it is defined as the control of legitimacy of access, information filtration, ability to avoid or escape social interaction at will, control and structuring of communication and as a right against authorities. Moreover, some referred to privacy as a manifestation of self or social distance, state or condition of limited access, sensory awareness of sharing, cultural conditioned sensitivity, increased vulnerability to shame and embarrassment, social ritual by which a moral title is given, and neither isolation nor anonymity.

To conclude this, it could be said that most of the supportive definitions to privacy, if not all, involve the notions of intrusion, control of access, communication,

interaction and cultural sensitivity. In other words, privacy is the control of information filtration, as general. Also, it involves both of the socio-cultural and physical environments.

In order to understand how privacy affect, and is affected by, the physical and socio-cultural environment, it is necessary to understand its functions. The following section investigates privacy functions and importance, if there are any at all.

5.2 THE FUNCTION OF PRIVACY:

"I could not help seeing them as an invasion of privacy. I felt trapped by my visitors⁴³.)"

In this section an attempt is made to identify the functions of privacy, if there are any at all. In order to do so it would be helpful to ask the following questions: (a) Is there such a thing as the need for privacy? (b) In seeking privacy what precisely does a person want, and why does he or she want it? (c) What social interests, if any, privacy may serve?

To answer these questions one can say if there is a need for privacy it can hardly be compelling like the need for air food or sleep.

Article 12 of the 'Universal Declaration of Human Rights' and Article 17 of the United Nations Covenant on Civil and Political Right of December 1966 provide that: "No-one shall be subjected to arbitrary interference with his privacy... , and that every one has the right to the protection of the law against such interference...⁴⁴". This indicates that the right to privacy is recognised as one of the fundamental human rights.

The need for privacy seems to be a socially created need and without society there is no need for privacy⁴⁵. For survival reasons human beings have to come together and live in a society. Although life in human society on occasions is a source of happiness, sometimes it imposes frustration and pain.

The desire or need for privacy varies historically from one society to another and among different groups in the same society. From historical and archaeological evidence, by and large, privacy appears to be much less of social necessity as much as of less social possibility, in non-literate societies (i.e., simple societies) than those of written language (i.e., civilised societies).

Among the Ikung bushmen, the Eskimo, or the Mbuti it is hard to imagine any person demanding rights against society, since the main problem is to preserve forms of co-operation that are a matter of life and death for every body. It is only in civilised societies that the need for private rights against the social order can take a clear form. The need can exist without being satisfied goes without saying.

Among the odd examples of simple societies, Siriono seems to be among the most irritable of living together, while at the same time they display the least concern about the social threat from quarrelling. On the other hand Eskimo and the Ikung bushmen, seem to live in intermittent fear of explosive quarrels threatening the whole social order⁴⁶.

Human activities are usually carried out somewhere in the company of other people but human-beings do not always want to do things that way. When the presence of others has become overly demanding, oppressive or boring, a person seeks privacy for at least temporary escape from contact (interaction). The victim feels trapped and is unable or

unwilling to continue the communication. This seems that it can happen in any society or culture.

Behind the desire to escape from unwelcomed intimacy or to avoid a threatening obligation we can generally see a resentment against intrusion and the threat of offensive exposure. Following Moore, it is possible to say the basic element in a violation of privacy is intrusion and the need for privacy is a need for protection against intrusion.

The study of Briggs on the Utku Eskimo society showed that the heavy emphasis on privacy prevents unseemly curiosity and thus the code of politeness and social harmony helps to control aggression arising from intermittent failure in the system of reciprocal obligations. The rules and circuit breakers (i.e., controllers) prevent social and psychological overloads and provide occasions for intimate relaxations away from social pressures. Considerations such as modesty that control the visibility of physiological functions, have an important influence on many of the physiological needs. The Utku strictly avoid the exposure of genitalia. Sexual arousal and excretion had to be controlled in a way to minimise discomfort and inconvenience of all concerned⁴⁷.

Privacy can also be seen as providing a sense of security⁴⁸⁻⁴⁹. An example of this is the Hopi Indians of North America who live in crowded garrisons (i.e., Pueblos) with a minimum of inter-family privacy, but the garrison can be recognised as providing a group privacy against their enemies (see Fig. 5.1).

Also, Barrington Moore has pointed out the existence of small intimate groups in very many societies that provide the individual with privacy for protection and relief from demands and obligations of the larger society. Within such groups, the emotional atmosphere is warm, supportive.

encouraging trust and relaxation. There is no need to maintain the kind of self-control required "in public" by the larger society.

Such a thing is found in the Fulani of Upper Volta community, where their "public" behaviour requires that one put forth an image of stronger self-mastery that amounts to a denial of emotional and physiological needs. There are situations when such behaviour is not required. In front of his mother or mother's brother a man has no need for shame. In general mother-son and father-daughter can be seen as forms of intimate escape that combines affection, protection and meeting of personal needs.

Also, one of the safety valves in Fulani society is the transhumance or taking the cattle to the salt licks. This choice is available to young men only. The solitude of transhumance is a form of private self-realisation in the service of a public necessity⁵⁰ (i.e., an opportunity for self reliance and self expression).

Following the Moore argument that public sex can be exciting, the reason for privacy may be to control explosive and socially dangerous impulses. Another source for preference of privacy is jealousy, which he defined as sexual possessiveness. Sexual passion may be inherently threatening to co-operative human relationships and therefore be kept out of sight⁵¹.

The need for privacy or protection against intrusion seems to drive from the perceived difference between benefits driven from the social order, such as protection and supply of food, and the costs of maintaining the social order in the form of social obligation like sharing food and performing labour⁵².

With the advancement of technology privacy is becoming increasingly precious. It is becoming essential for free and

frank communication. Information exchanged confidentially is probably to be more accurate and serviceable of which the society gains as a whole. Hence any threat to privacy of communication is a matter of serious social concern.

Modern societies have developed a social interest in privacy for another reason. They demand intellectual talent to a degree that has no precedent in earlier times. One needs privacy, both to acquire professional skills and exercise them. Privacy becomes a social necessity.

Since most societies and perhaps all, have some rules against intrusive inquiry, it may be possible to suggest that the greater the social control over human curiosity, the less will be the felt need for controllers of privacy (or the forms of privacy as called by some) familiar to us: walls, houses, individual rights, etc... In this case the control of curiosity would be a substitute for privacy. If nobody wants to know secrets, which of course would be an extreme case and unlikely one, there is little sense in keeping secrets.

Privacy can not be prior to the dominance of social concerns in any society. The human being has to live in a community, and social concerns have to take precedence. The civilisations of Ancient Greece, Ancient China, Ancient Hebrew and Islam all displayed the priority of social concerns, but not all social concerns always take precedence⁵³.

With regard to the built environment, privacy seems to be an element in the use of space and can be understood in terms of the sensory awareness of people. The role of controllers such as space organisation and barriers seems general. Together with controllers and meaning it affects the organisation of communication and behaviour (see privacy definition). It also affects perceived density, in relation

to the person's experience and intimacy, which is an important element in planning and design. In urban environments, the presence of different people with high perceived density lead to feeling of threat and stress⁵⁴.

Environment can be seen as a form of communication, as well as a medium for facilitating and controlling communication and interaction. In effect various ways of patterning and structuring the physical and social environment are all ways of reducing overload and enabling people to relax and get ready for the more stressful encounters. Different mechanisms for privacy (i.e., controllers) also help to control excessive unwanted interaction and social communication⁵⁵. Moreover they enable unavoidable unwanted interaction to be structured.

As one gets to an area which provide security and retreat, interaction elsewhere becomes more likely. as they form two elements of a single system (i.e., privacy oscillates between retreat and interaction. Thus controlling interaction for specific groups is an important element of the use of space and can be useful in urban design.

The control of interaction and information flows (i.e., privacy) occur through many major mechanisms to reduce stress. As a matter of fact crowding is handled, by both people and animals, by controlling interaction. Generally information levels are controlled by particular groups to make them congruent with their information needs and abilities⁵⁶. These levels and the ways of control used to reach them, need to be understood in order to understand and organise, structure and design urban forms.

Cultural devices used to control the appropriate amount of information and interaction, such as rules are vital to the use of space. They affect territorial and domain divisions, proximity and sex roles. Following Rapoport, one

can argue that cultural survival may often depend on setting up group territories so that group identity is affirmed and reinforced⁵⁷.

Privacy has been identified by contemporary philosophers as a key aspect of human dignity, a key component in structuring the social relationships and sharing a role in protecting⁵⁸ "private life". Although the form it takes may vary, privacy appears to be a cultural value, recognised and institutionalised in almost all known societies⁵⁹.

The institutions of privacy are psychologically necessary for the development of personality and the sense of self. Respect for privacy relates to the respect of individual dignity⁶⁰⁻⁶¹. The respect for an individual's right to be left alone, and the respect due an individual inviolate personality relates to a person's estimate of himself and to others' estimate of that person's feelings. This relates to the moral and spiritual integrity of individuals (i.e., thoughts, sentiments, emotions, and production – independent of their commercial and artistic value).

Privacy can also be seen as representing a social ritual by means of which an individual moral title is given. It is an essential part of a social practice by which a society recognises and communicates to the individual that his existence is rightfully his own. The moral title involves being able to determine how and within what limits one may act, the capacity to determine which things about our thoughts and body is experienced by others⁶².

One can say that values at stake in privacy intrusion are fundamental human values such as individual dignity and personal integrity, personal uniqueness, and personal autonomy (i.e., social personality).

Intrusion upon a person's seclusion, solitude or private affairs into an area which would be offensive or objectionable may cause emotional distress⁶³. Public disclosure of private embarrassing facts also may discredit reputation⁶⁴.

The privacy issue also provides people with the emotional and intellectual space to review unpopular ideas and deliberate upon them without the pressure of social sanctions. It alleviates the tension between individual standards and social norms (i.e., for norms that are only controversially applicable to a situation).

Without reference to privacy rights we shall not be able to account for wrongness of certain acts consistent with the innocence of certain others. Without reference to privacy, we will not be able to draw moral distinctions that are important to describe (in order to acknowledge any ownership rights in such situation, we must establish that a privacy right has been violated⁶⁵.

Political and social recognition of privacy interests function to provide individuals with a part of their life unregulated and unobserved by persons with objective and external perspectives. Respecting privacy allows two principles to govern our interaction: (a) realising that others have a point of view on the basis of which they make choices (b) respect the choices of others when morally feasible⁶⁶.

Equally fundamental to an individual's moral and social personality is the capacity to form important, intimate relationships involving love, friendship and trust. Privacy and the sense of self and the title to the self it genders, thus constitute necessary conditions for love friendship and ability do modulate important but less intimate relationships. Without the control of access to one's inner

aspects, important personal relationships could not emerge. Trust, love, and friendship could not evolve out of other interactions⁶⁷.

CONCLUSION:-

The need for privacy seems to be socially created and the mere existence of community where human activities are usually carried out make people to resent unwelcomed intimacy and seek privacy to avoid conflict, overload and stress. The basic element in violation of privacy is intrusion and the need for privacy can be seen as a need for protection against intrusion.

Privacy provides a sense of security by controlling territories against enemies and intruders. It also supports social harmony by controlling explosive and dangerous impulses. Privacy affects the organisation of communication and behaviour. It helps cultural survival by affirming and supporting group identity. Confidentiality helps free and frank communication and make information more accurate and serviceable . One needs privacy to acquire intellectual talent and professional skills.

Respect for privacy is a key component in the more general regard for human dignity. This concerned with such conditions as moral integrity, individuality, consciousness of oneself as a being with moral character and worth, and consciousness of oneself as a being with point of view, searching for meaning in life.

Furthermore, respect for privacy is integral to our understanding of ourselves as social beings with kinds of relationships, each in its way important to a meaningful life. Privacy and the sense of self and the title to the self it genders constitute necessary conditions for love, friendship and the ability to modulate relationships. Beside

its provision for emotional space, it makes it possible to draw important moral distinctions such as ownership rights. Values at stake in privacy intrusion are fundamental human values.

Environment can be seen as a form of communication as well as a medium for facilitating and controlling communication and interaction. In effect various ways of patterning and structuring the physical and social environment are all ways of reducing overload. Hence privacy as a mean of controlling communication is an element in the use of space and can be useful in planning, urban and architectural design.

Understanding how communication and interaction is controlled is essential towards the achievement of such a goal. The following section will explore and conclude upon the nature of privacy defences.

5.3 PRIVACY CONTROLLERS:

As was stated previously if privacy is the ability to control unwanted interaction at will then this also involves environmental information flows. In other words, controlling mechanisms used for privacy can be understood in terms of controlling unwanted social communication and environmental information. This may be either because the amount is excessive, or one wants to avoid particular types of interaction, or interaction at particular times and circumstances.

Privacy involves controlling all information about people and needs a set of defences. Ideal preferred environments seem to provide the possibility of controlling such information in all sense modalities while allowing sociability and sensory information when desired. There is an interplay of various ways of interacting, withdrawal and

community, with a preferred level in each. Desired levels are controlled by selecting contacts and relationships.

There are five principal devices used to control unwanted interaction in human settlements possible. These defence mechanisms are: (a) social, (b) psychological, (c) temporal, (d) spatial and (e) physical⁶⁸⁻⁶⁹.

(a) Social Controlling Devices:

These involve cultural devices which are extremely numerous and varied. Rules, manners and all the behavioural non verbal aspects (e.g., habits and routines in behaviour and expectations.) relate to this.

(a.1) Rules:

These are a specific cultural devices and control the appropriate amounts of information, habits and ways of controlling, reducing or increasing interaction and information. Examples would be unwritten rules about the relationship of proximity and neighbouring rights and obligations, use of space for various activities, proxemic rules, sex roles and behaviours, language and many others. Some of these have environmental indicators such as territorial and domain divisions. Such rules also apply to time.

(a.2) Symbolic Devices:

These are a cultural device which indicate status and group membership, and the various rules which apply to environments, the various degrees of control and their congruence with behaviour. The symbolism of areas is also used to establish group territoriality, so that symbols indicate which group "owns" an area and whether one is welcome or not (see Plates 5.5 & 5.6).

(a.3) Clustering:

This is a cultural device, of assuring sharing rules, apparently used in pluralistic urban environments. This is clear in colonial situations since such cities were, almost by definition, culturally pluralistic. People try to live in areas which are havens of like people as one way of avoiding unfamiliar overload. Rules for private and public behaviour, roles and norms are understood and the symbolic and non-verbal expression of all these in physical terms is clear. In effect the whole residential area then becomes a back stage region communicated through physical and social cues. Clustering may have its environmental indicators such as enclaves that reflect group territories. These enclaves affirm and reinforce group identity and establish social distance to other groups. They provide additional control by intermediate protective filters (see Fig. 5.2).

(b) Psychological Means:

A common defence against overload is to ignore the physical and social environments. With large numbers per unit area the number of people known by name drops and anonymity increases as a defence mechanism⁷⁰. Other forms are internal withdrawal, "turning off", dreaming, drugs, depersonalisation etc. Psychological means are the last defensive device and retreated to only after all controlling mechanisms fail to cope with interaction and information overload.

(c) Temporal Means:

Although people seem to spend similar amount of time in the dwelling they spend different periods in the street and other places, such as cafes, shops, restaurants, clubs, cinemas and so on. People usually control interaction and information flows through structuring activities in time so

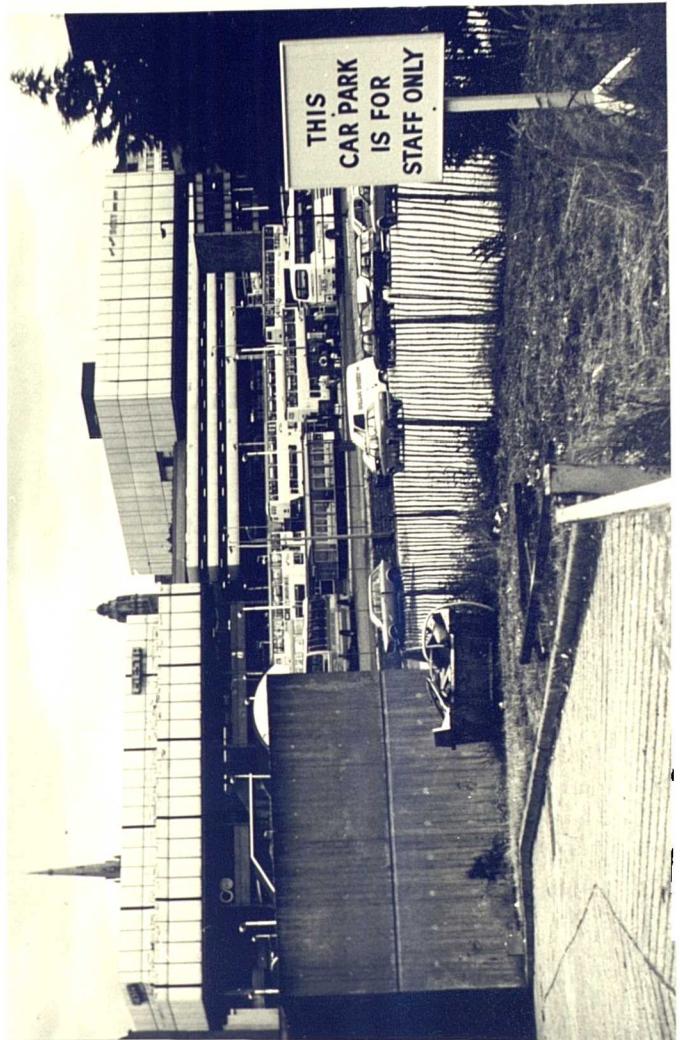


PLATE (5.6):

The 'staff-only' sign establishes and limits access to a group territory, Sheffield. (Photograph by the author).

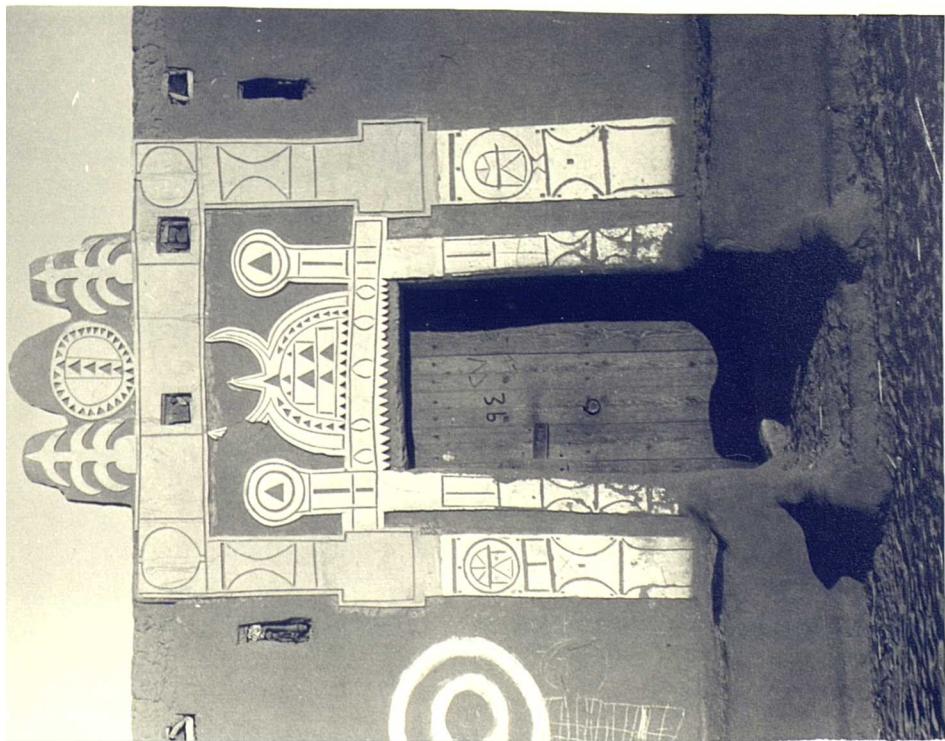


PLATE (5.5):

Coloured mud-relief decorations and the raised threshold symbolically define the entry to a muslim family dwelling, Old Halfa, Sudan. (Reprinted from Grube, E. J., and others, Architecture of the Islamic World).



FIG. (5.1): The crowded garrison of pueblos, North America (after Rpoort, A., Human Aspects of Urban Form).

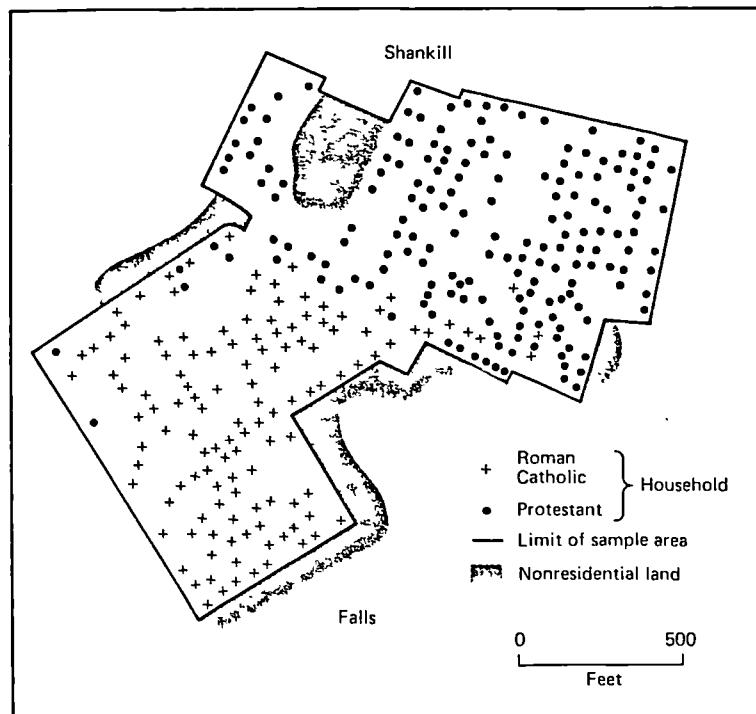


FIG. (5.2): Religious ghettoization at the Shankill-Falls Divide , West Belfast, Northern Ireland (after Portoues).

that particular individuals and groups do not meet. Time rules and time allocation also relate to space use and activities through jurisdiction, so that activity systems in urban areas are intimately related to temporal rules. Such rules can sometimes substitute for spatial and physical defences but can also cause problems in heterogeneous environments. Jurisdiction as "ownership" or control of an urban area which a particular group may use when certain circumstances exist but which they may not when these circumstances cease is quite common. An example of this would be the use of a street, especially in wedding and funeral occasions, in Sudanese towns. The numbers and distribution of people in different places at different times is variable and could be a useful tool in providing important information about the relative importance of private and public spaces.

(d) Spatial Separation and Distance:

The spatial organisation of human settlements in itself is one of the mechanisms which controls the amount of information and interaction. For animals as for people, social and spatial organisation and structure are closely related and one can be read from the other. The distance among groups emerges as a compromise between attraction and repulsion. Space is in short, everywhere a function of the forms of social solidarity, and these are in turn a product of the structure of society. Through its ordering of space the man-made physical world is already a social behaviour. It constitutes a form of order in itself: one which is created for social purposes, and through which society is both constrained and recognisable. Among animals and people distance and communication are related: fixed and recognised relationships in space are a common defence against conflict. Once boundaries are fixed, formalised and predictable movement follows⁷¹.

(An individual lives in an extremely complex set of spatial units personal space, individual territory, territories of various groups, complex sets of core areas, jurisdiction and overlapping home ranges. These are reflected in the built environment and its use⁷².)

The control of space is related to territory and the rules which go with it. While some observers see territorial behaviour as primitive way of controlling interaction, it does so effectively through establishing an order of a consistent spatial patterning among individuals and groups. Territory is a particular area or areas which are owned and defended whether physically or through rules and symbols which identify an area as belonging to an individual or group. Generally symbols and rules are the most important ways of defining territory in humans. One way of controlling territory, i.e., controlling information and interaction, is through space and distance, among houses and groups, different areas and uses. In modern cities this is represented by the suburban order. This is also clear in colonial situations where their pattern was one of separation stressing physical and social distance among various groups involved. An example are Indian cities of the British colonial period where environmental differences were used quite clearly to stress and insure social and ethnic segregation and where culture specific urban forms were used in the different areas. The cities were built removed from the indigenous city, and there were three separate settlements: the native city, civil lines and cantonment. In the colonial settlement generally ample space expressing social distance was used, so that the native population would find the open spaces difficult to traverse, uncomfortable climatically, and very monotonous, as well as becoming very visible and hence easy to control (Fig. 5.3). Another possible form of controlling unwanted information and unwanted social interaction, i.e., control of territory, is through physical barriers⁷³.

(e) Physical Barriers:

As was stated previously that patterning of the built environment is a way of reducing environmental information overload. Forms of cities, such as Muslim, African, Chinese or Japanese, can be seen as ways of coping with such stress cultural, social and physical. However, the ordering of space in buildings is really about ordering the relationship between people. Space organisation and mass: the "inside-out city", the use of walls, courtyards and clear and strong transitions is one way of expressing domains and to filter information and control unwanted social interaction (see Fig. 5.4). An example of this is the traditional Chinese city which was a defended and sanctified group territory with walled wards for various groups: market wards, high status wards and low status ones. Also, in modern American city, developments such as walled housing estates, and those with moats, bridges and guards can be understood in terms of a clear physical definition of group territories for the sake of safety and assertion of group identity and status⁷⁴⁻⁷⁵.

CONCLUSIONS:

There are five principal devices used to control the flow of information and unwanted interaction in the built environment. These controllers involve socio-cultural devices, psychological means, temporal rhythms, spatial separation and distance and physical barriers. Clustering, space organisation, social rules, walls, doors, curtains, private gardens and backyards, courtyards and so on are all ways of controlling unwanted interaction. All these devices reduce social distance within the group and increase it to other groups. The ordering of space in human settlements and buildings is really about ordering the relationship between people. Because this is so, society enters into the very nature and forms of buildings. However, space is a function

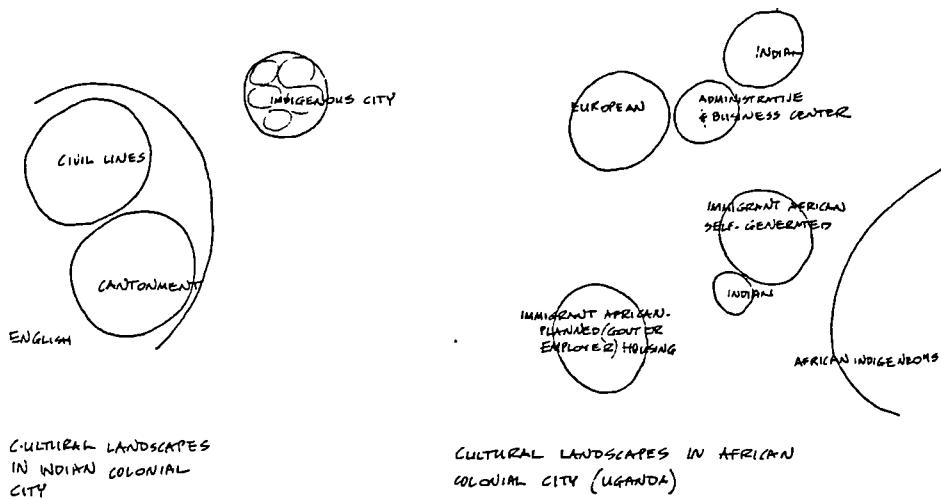


FIG. (5.3): The manifestaion of spatial separation and distance in Indian and African Colonial cities (after Rpoort, A., Human Aspects of Urban Form).

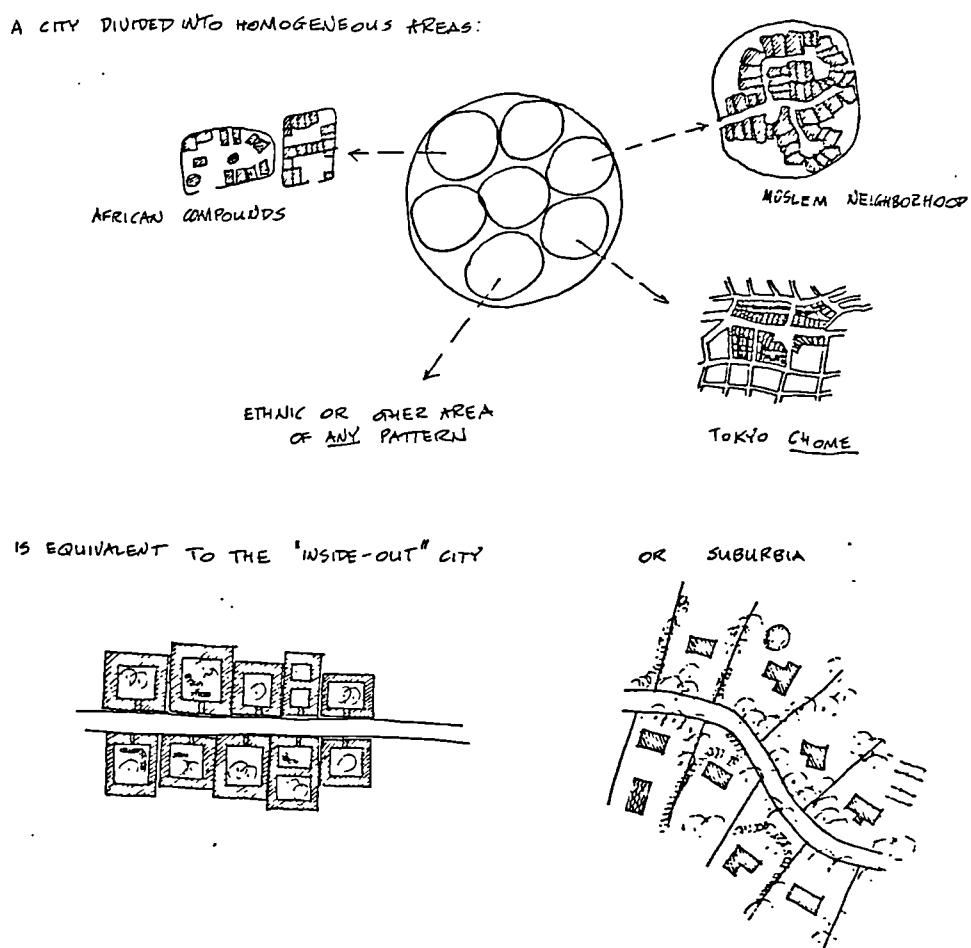


FIG. (5.4): The use of physical barriers, e.g. space organisation and mass, of walls, courtyards and clear strong transition, is one way of expressing domains and to filter information and control unwanted social interaction (after Rpoort, A., Human Aspects of Urban Form).

of the forms of social solidarity, and these are in turn a product of the structure of the society. The control of space is related to territoriality. Generally symbols and rules are the most important ways of defining territory in humans. An individual lives in a complex set of spatial units reflected in the built environment. In these spatial units three characteristics are present: a sense of exclusiveness and the control of communication in space and time. From the concept of clustering and the presence of privacy controlling devices, it is possible to suggest that the environment communicates the preferred separation of people from people and people from objects, i.e., especially objects which are a social product, to avoid stress and cope with overload. Through its ordering of space architecture is already a social behaviour. It constitutes a form of order through which society is both constrained and recognisable. One of its major purposes is to reduce social and environmental overloads.

If the manifestation of privacy is culturally specific, its impact on the built form would be culturally specific too. A field study was conducted in three residential areas in Omdurman-Sudan, to explore the significance of privacy and its relation to the built form in communities in question. The next Chapter will concern the derivation of hypothesis, research methodology, design of the questionnaire and description of communities involved.

REFERENCES (5)

1. Berscheid, E., Privacy: A Hidden Variable in Experimental Social Psychology, *Journal of Social Issues*, Vol. 33, No. 3, 1977, PP. 85.
2. Sommer, R., Personal Space: The Behavioural Basic of Design, Prentice-Hall, Inc., USA, 1969, P. 39.
3. Magwick, D., and Smythe, T., The Invasion of Privacy, Pitman Publishing, 1974, PP. 4-7.
4. Rule, J. B., Private Lives and Public Surveillance, Allen Lane, 1973, P. 341.
5. Moore, B., Privacy: Studies in Social and Cultural History, M. E. Sharpe, Inc., U.S.A., 1984, PP. 11-12.
6. Moore, B., Ibid, PP. 7-14.
7. Insel, P. M., and Lindgren, H. C., Too Close for Comfort: The Psychology of Crowding, Prentice-Hall, Inc., Englewood Cliffs, U.S.A., 1978, PP. 143-145.
8. Moore, B., Ibid, PP. 49-50, 58.
9. Lee, T., Psychology and the Environment, Menthuen & Co. Ltd., U.K., 1976, P. 48.
10. Moore, B., Ibid, P. 15.
11. Rapoport, A., Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form and Design, Pergamon Press, U.K., 1980, P. 201.
12. Rapoport, A., Ibid, P. 202.
13. Magwick, D., and Smythe, T., Ibid, PP. 4-7.
14. Rapoport, A., Ibid, PP. 203-204, 207.
15. Littman, M., and Carter-Ruck, P., Privacy and the Law: A Report by Justice, 1970, P. 4.
16. Mercer, C., Living in Cities: Psychology and the Urban Environment, Penguin Books, U.K., 1975, P. 191.
17. Madge, J., Privacy and Social Interaction, *Transactions of Bartlett Society*, Vol. 3, 1964-65, Bartlett School of Architecture, U.K., 1965, P. 123.
18. Shoeman, F. D., Philosophical Dimensions of Privacy: An Anthology, Cambridge University Press, 1984, P. 1.
19. Insel, P. M., and Lindgren, H. C., Ibid, P. 143.

20. Rapoport, A., *Ibid*, PP. 2-3.
21. Derlaga, V. J., and Chaiken, A. L., Privacy and Self-Disclosure in Social Relationships, *Journal of Social Issues*, Vol. 33, No. 3, 1977, PP. 102-113.
22. Shoeman, F. D., *Ibid*, P. 4.
23. Benn, I. S., Privacy, Freedom, and Respect for Persons, in Shoeman, F. D., *Ibid*, PP. 207-308.
24. Westin, A. F., Privacy and Freedom, Lowe & Brydone, U.K., P. 8.
25. Reinman, H. J., Intimacy and Personhood, in Shoeman, F. D., *Ibid*, PP. 207-308.
27. Robertson, A. H., Privacy and Human Rights, Manchester University Press, 1973, P. 425.
28. Rachels, J., Why Privacy is Important, in Shoeman, F. D., *Ibid*, PP. 295-296.
29. Shoeman, F. D., *Ibid*, P. 5.
30. Thomson, J. J., The Right to Privacy, in Shoeman, F. D., *Ibid*, PP. 286-287.
31. Posner, A. R., An Economic Theory of Privacy, in Shoeman, F. D., *Ibid*, PP. 334-335.
32. Hixon, R. F., Privacy in a Public Society: Human Rights in Conflict, Oxford University Press, 1987, P. xv.
33. Pennock, J. R., and Chapman, J. W., *Ibid*, P. 14.
34. Rachels, J., *Ibid*, P. 298.
35. Shoeman, F. D., *Ibid*, PP. 6, 17-18.
36. Bloustein, E. J., in Shoeman, F. D., *Ibid*, PP. 159-160, 187.
37. Murphy, R. F., The Social Distance and the Veil, in Shoeman, F. D., *Ibid*, PP. 51-52.
38. Shoeman, F. D., *Ibid*, P. 11.
39. Murphy, R. F., *Ibid*, PP. 34-35.
40. Murphy, R. F., *Ibid*, P. 36.
41. Murphy, R. F., *Ibid*, PP. 34, 37-38, 51, 56.
42. Murphy, R. F., *Ibid*, PP. 53-54, 62.

43. The words of Briggs, J. L., in Moore, B., *Ibid*, P. 4.
44. Littman, M., and Canter-Ruck, *Ibid*, P. 1.
45. Hixon, R. F., *Ibid*, P. Xiii.
46. Moore, B., *Ibid*, PP. 73-74.
47. Moore, B., *Ibid*, PP. 9-10.
48. Jones, M. (ed.), *Privacy*, David & Charles Inc., U.S.A., 1974, P. 14.
49. Magwick, D., *Ibid*, P. 176.
50. Moore, B., *Ibid*, PP. 42, 45.
51. Moore, B., *Ibid*, P. 71.
52. Klopfer, P. H., and Rubenstein D. I., *The Concept Privacy and Its Biological Basis*, *Journal of Social Issues*, Vol. 33, No. 3, 1977, PP. 52-64.
53. Moore, B., *Ibid*, P. 276.
54. Rapoport, A., *Ibid*, PP. 202, 204.
55. Margulis, S., T., *Conceptions of Privacy: Current Status and Next Steps*, *Journal of Social Issues*, Vol. 33, No. 3, 1977 PP. 5-21.
56. Rapoport, A., *Ibid*, PP. 233-234, 340-341.
57. Rapoport, A., *Ibid*, P. 343.
58. Magwick, D., *Ibid*.
59. Murphy, R. F., *Ibid*, PP. 35, 44-45, 48, 52-54.
60. Littman, M., and Canter-Ruck, *Ibid*, P. 4.
61. Jones, M., *Ibid*, P. 14.
62. Reinman, H. J., *Ibid*, PP. 307-308.
63. Bloustein, E. J., *Ibid*, PP. 163, 179, 287, 191.
64. National Council for Civil Liberties, *Privacy*, Robendene Ltd., U.K., 1977, P. 1.
65. Shoeman, F. D., *Ibid*, P. 28.
66. Gavison, R., *Privacy and the Limits of Law*, in Shoeman, F. D., *Ibid*, PP. 369-370.
67. Freid, C., *Ibid*, P. 205.

68. Rapoport, A., *Ibid*, PP. 290-293.
69. Ittelson, W. H., and others, *An Introduction to Environmental Psychology*, Holt, Rinhart and Winston, Inc., U.S.A., 1974, P. 154.
70. Rapoport, A., *Ibid*, PP. 205, 290, 343.
71. Hillier, B., and Hanson, J., *Social Logic of Space*, Cambridge University Press, 1984, PP. 9, 22.
72. Rapoport, A., *Ibid*, P. 284.
73. Rapoport, A., *Ibid*, PP. 278-279, 344.
74. Hillier, B., and Hanson, J., *Ibid*, P. 2.
75. Rapoport, A., *Ibid*, PP. 288, 333-334.

PART THREE

CHAPTER 6

6. THE DESIGN OF THE FIELD STUDY

This Chapter states and defines briefly the main objectives of the present research. It also clarifies and evaluates the related methodology that had been adopted in carrying out the present field work. Furthermore, the positive uses, drawbacks of methods' techniques involved in the study and how they supplement each other are examined.

The Chapter also describes the types of sampling, sample frame, procedure, their problems that may arise in the field work and how biased sampling can lead to misinformation and misinterpretation. Finally, it explains the design of the questionnaire that had been used and the characteristics of communities under study.

6.1 AIMS OF THE STUDY :

".... The degree to which, if at all, the conceptualisation which a person holds of himself overlaps with the conceptual system he has of the place The structure of the patterns of environmental experience have direct relevance for those people involved in making decisions about their surroundings..... the crucial patterns they must uncover are composed of the places which they wish the users of the environment to experience, the qualities of those places (revealed through expected actions, evaluations, and differentiation) and the ways in which places relate to one another1."

'Socio-cultural' and 'behavioural' variables such as the way a certain society conceives its basic needs in terms of space and the manner in which space is divided, arranged and used, attitudes, values, social interaction and satisfaction with the surrounding environment were believed to have a significant role in shaping the man-made environment.

One of the objectives of architectural design is to create spatial layout which satisfies user needs and requirements². In addition to providing shelter from

elements a dwelling should also provide a secure environment in which to perform not only the activities which society ordains should be done in 'private' but also those which a person does not want outsiders to know about. The secure environment allows intimate relationships to be developed and provide an "off stage" area where a person can rehearse and review various roles he plays with others around him³. All Housing in order to be successful it needs to be socially and culturally valid. In this study primary attention is given to this objective.

"Privacy" as a psycho-social and cultural requirement arising from communal life plays an important role on the housing design. This study seeks to explore how people use the residential environment as a means of social control, particularly with respect to achieving individual and interactional privacy. The effects of privacy and its reflections on space organisation and utilisation pattern in the dwelling were investigated with special reference to Omdurman-Sudan.

As it was stated in the previous Chapter, privacy involves the existence of social setting and the manipulation of the physical environment. It is concerned primarily with the way in which people interact with each other. People have a wide spectrum of levels of interaction, ranging from cold formality to the most complete self-disclosure. Such interaction involves the control of unwanted perceptual relations. These unwanted perceptual relations can be visual or acoustic and their level can be public, social or personal⁴.

"Our expectations are a result of patterns of commonly occurring actions, and in turn give rise to actions which fit in with those patterns. This is the reason why the conceptual system, on one hand are so powerful, and on the other hand are so intertwined with concepts of actions⁵."

The maintenance of privacy requires a set of defences. Because residential architecture is goal-oriented it was seen as a system for controlling interaction and communication between people separating the "private realm" from "others". It is an element that affects the maintenance of privacy and at the same time being affected by privacy experience.

Because this study is primarily concerned with the way in which people interact with each other within the general framework of the residential environment it was thought that it is necessary to investigate the factors that would influence the privacy requirements of the Sudanese families in adapting to their dwellings. These factors are:

- (1) Socio-Cultural factors;
- (2) Physical factors;
- (3) Economic factors.

In this study the main emphasis was given to the first and second factors, whereas the third factor will be mentioned where appropriate.

The privacy issue was analysed in two levels : social and personal. In other words, the family privacy in relation to the people that come from outside, and the privacy of each person in the family in relation with the other members of the family. The research is primarily concerned with privacy and socio-cultural factors and their relation to the urban residential environment of communities under study while other factors affecting the provision, use and layout of space were briefly discussed where necessary.

The main objectives of the study can be stated briefly as follows :

- (a) to examine the relationship between privacy as the maintenance of social interaction and communication,

and the physical aspects of urban residential environment;

- (b) to see whether or in what ways the aspects of privacy and other socio-cultural variables are important as determinants of the form of built environment in the communities under study;
- (c) to investigate access and exposure as spatial attributes and their effect on the form of the dwelling (i.e., measure of integration of spatial elements);
- (d) to explore to what extent privacy is of particular importance to the social groups under study;
- (e) to examine the limitations that urban residential environments have on the development of social interaction; and
- (f) to assess the importance of socio-cultural variables in the tenants' adaptation and satisfaction with their residential environment.

The data base for this study is derived from four residential environments in the city of Omdurman-Sudan. There were many reasons behind this selection. They vary from planned to non-planned urban texture, and from mixed income to low-income groups. Also, they have different life span and embrace many other similar and varying features. The physical and socio-cultural characteristics are shared, or approximately, among the majority of the Sudanese urban population, especially in central and northern Sudan. Urban population in the country, generally, suffers from critical housing shortage and lack of adequate services and facilities. Such features has become quite apparent in third class and low-income groups areas which are usually the

dominant population of any urban settlement in Sudan. It is believed that kinship relations and cultural values are deeply rooted in these communities especially for the recent migrants from rural areas, and would likely compensate for deficiencies in the physical environment. Furthermore, it is thought that handling of the physical environment has a considerable effect on the performance and development of privacy and social interaction and vice versa.

At present planners and housing practitioners in the country tend to underestimate the importance of socio-cultural and behavioural variables in policy making, planning and design process. The residential areas under study would provide a valuable opportunity for the exploration of such variables.

However, an investigation of these communities would provide guidelines for the identification of dwelling systems, provide a reference for understanding and evaluating the urban residential environment and provide a reference to orient decision makers in optimising urban housing improvement.

Finally,to sum up the following below working hypotheses can be tested:

- (a) the maintenance of perceived privacy is a major determinant in setting boundaries and forming of human residential environment;
- (b) socio-cultural and behavioural variables, i.e., social interaction, life-style etc..., are major elements as form determinants of the urban residential environments;
- (c) intimate relationship, as friendship and neighbourliness,affect to a great deal the ultimate satisfaction with the residential environment.

6.2 THE RESEARCH METHODOLOGY

The study of people and their physical environment may involve a variety of research methods. Different techniques have evolved in carrying out field work such as participant and non-participant observation, informal interviewing, standardised interviewing, the use of informants and many others⁶.

These techniques sometimes are used in a variety of multitudes and combinations in a way to supplement each other. They are generally used to gather data on different aspects of the way people live and how they handle their environment⁷. In the present study, many of the research methods were employed to investigate the complex situation, of the residential areas, that had been presented. The idea was to integrate the diverse data collected so as to come out with a clear view about the cases under study. The methods that have been used in this field work can be clarified as follows.

(a) The use of informants

The need for orientative information, especially in early stages of the research, sometimes necessitates the involvement of informants. The role of the informant can be of diverse nature. In the present study it was decided to use local institutions and organisations as informants (Ministry of Public Works and Housing, Survey Department, Department of Census, University of Khartoum, National Council for Scientific and Technical Research, local councils and local residents). They were contacted to obtain the necessary historical and statistical data, lists and maps from which the sample was selected. Informants from the areas under study were used to get introductory information about tenants and to act as a bridge with them⁸.

(b) Observation

The aim behind observation is to capture a picture of the elements involved in shaping the physical and socio-cultural environments in the corresponding residential areas. In other words, the shape and extent of the physical constructs, attitudes, life style and social relations. Observation helps in clarifying the general situation and hence what to concentrate on to find valuable information⁹. Hence observation can play a significant role in distorting the findings. This can be avoided by having the prior experience of the concerned issue and/or critical observation. Having such a sensitivity in selecting strategic data would help to promote significant results.

During the present field study, however, many contacts were made with community leaders and local informed figures. Informal meetings and casual tours around districts were made. Observations made during these meetings and tours highlighted various aspects of the community life and gave useful introduction to attitudes of some residents and the common problems being faced within those areas. Also observations of the internal layout of dwellings had been carried out by interviewers. However, the validity of observation methods are subject to criticism. Observations are also subject to personal bias, also the subjects who have been observed were not exactly a representative sample of the whole enumeration of areas under study. Due to these factors the absolute reliability of observation techniques becomes questionable. To avoid the shortcomings of these techniques, they must be supplemented by more effective and assuring methods.

(c) Interviewing

In order to access and test the proposed hypothesis, the acquisition of accurate and adequate information is vital.

But the two data collection techniques mentioned earlier cannot be recognised as the most systematic and adequate ways to address the problems under consideration, i.e. the study of the community. It was therefore important to supplement these techniques with a more reliable method. The present study involves collecting data about peoples' social process, attitudes and opinions.

In the field, interviewing has long been used as a systematic way of gathering information from large social groups. It is also used in obtaining objective and quantitative data as well as securing information about attitudes, behaviour, wishes and personal experiences. Furthermore, interviewing enables the researcher to check his observations and allow him to study motivations, emotional responses, uncover memories of the past and plans of the future¹⁰.

Interviewing technique, has limitations that may undermine its nature. For example, the interviewer may approach his respondents with a preconceived idea as to what the answers would be like or he develops such expectations on the basis of an incomplete response. On the other hand, subjects may lack reason, right or ability to articulate, suffer faulty memory and faulty perception. The interview bias may lead to considerable distortion of information and hence, jeopardise the whole final results. However, the interview limitations can be solved by clarifying aims of the study and the hypothesis to be tested before starting the field work, constructing a well designed questionnaire, using non-directive methods in approaching respondents and standardising the recording of the collected information¹¹.

(d) Sampling Technique

Interviewing methods are usually used to collect data from a sample of population. A sample from a population is a

selection taken from a population. To define this notion in a precise fashion, the sample is supposed to yield information about the corresponding population. Because it would be too expensive or time-consuming or even impossible to examine or observe the entire population in order for information of this type to be obtained, the sample must be a random selection. By this it is meant that each element of the population must have a known probability of being drawn, that is, of being taken into the sample. In other words, every individual element of the population _ also for individuals whose value are represented more than once_ must have an equal chance of being chosen at a given point in the sampling process. If and only if this requirement is satisfied (at least approximately), will the methods to be considered yield sensible results. Otherwise the whole variety of methods would be completely useless¹².

A single sample x is a randomly chosen value from a population

$$X = \{x_i\}, i = 1, 2, 3 \dots \text{ (finite or infinite).}$$

x_s is random when at a given stage in sampling process

$$P(x_s = x_i) = P(x_s = x_j) \text{ for all } i, j \in X.$$

Generally speaking a "sample" is always regarded as being randomly chosen in the statistical sense. When n single samples are chosen in order to build a set

$$\{x_{si}\}, i = 1, 2, \dots, n,$$

the set x_{si} is said to be a sample of size n from the population X . Random samples (of any size) can be selected using the "ticket in the hat" method, random number tables or random number generators on a computer.

There are two ways (modes) of selecting samples from a finite population:

- (a) with replacement.
- (b) without replacement.

When the sampled population is infinite or very large the theory associated with these two modes is the same; i.e. the probabilities are the same with or without replacement¹³. If the sample space is infinite, the sample values will be independent, that is, the result of n performances of a random experiment made for obtaining n sample values will not influence each other. This applies to samples from a normal population. If the sample space is finite, the sample values will still be independent if we sample with replacement, and they will be particularly independent if we sample without replacement and the size of the sample is small compared with size of the population (for example, in the case of samples of 5 or 10 values from a population of 1000). However, for large samples, the dependence in the case of sampling without replacement from a finite population will matter considerably.

It should be noted that a sample only has a good meaning on the concept which provided the motivation for performing the sample. When a population is extremely homogeneous, it makes little difference which part is selected for the sample.

However, in cases involving people such homogeneity can never be taken for granted. Therefore, when designing a survey sample it is best to assume that individuals and social groups are different from one another in attitudes and behaviour. However, the number of observations play an important role. An estimate of a random sample statistic is not as accurate as that of a complete enumeration. In a process of repeated selection of samples of the same size

from the same population, the estimate of a given variable in each sample would be different. This variation is due to the chance probability of each sample selection. Such differences of estimates between various samples and the complete population value is usually defined as 'sampling error' or as the 'standard error'. In this sense, the standard error measures how far and with what probability an estimate based on a sample deviates from that of a complete enumeration. It is the key measurement of the reliability of the estimate of a population statistic¹⁴.

It has been proven that the distribution of the mean X with various sample n levels shows that even when the samples are taken from a normal population, the distribution of X becomes less and less normally shaped as n decreases below 30. But it is possible to work with small samples because theory gives knowledge of the distribution of X when $n < 30$. However, the larger n , the better the approximation is¹⁵. In this respect the absolute size of the sample can be seen as a major determinant in reducing the standard error. Also, as it has been statistically proven, increases in the absolute size of the sample are more effective in reducing the standard error than do comparable increases in the proportion¹⁶. Therefore, it should be noted that the best effort should be made to select as big a sample as possible in order to get more accurate and representative results.

(e) The Procedure

Of course, carrying out the survey plan has faced many problems. The country was facing economical hardship that affected negatively all modes of Communication and Transportation.

It was difficult and time-consuming to contact and/or move between institutions and departments to get information that would facilitate the construction of a schedule on the guidance of which the field work could be carried out.

Means of transportation within the Capital-Khartoum, Omdurman and Khartoum North was scarce and irregular while such constraints made it difficult to recruit interviewers, some of them withdrew after accepting the job.

The nation-wide elections were due in 4 months time after the start of the field work, the political atmosphere was tense and people were suspicious about political informants. On the other hand, the work involved the use of English Language beside a translated copy of Arabic. Also, there was a need for architectural sketches of the dwellings' plans. This necessitated the acquisition of a certain level of education. Accordingly, higher education students and graduates were acquired. Also, the realm of dwelling in communities under study seemed to enjoy a high level of privacy in addition to the common norm of avoidance between men and women. While it was easier and informal for other ladies to enter the family realm, 'other' men were formal and hesitant to do so. To overcome this problem and to minimise families refusal to receive interviewers, groups of pairs of a female and a male were formed. Such a way was thought to allow females interviewers to talk to households females, whereas males interviewers could approach household males. It would also encourage the groups mutual support and improve their security. Due to all the previous reasons and many other constraints, it was tedious and time-consuming to carry out the field work as a whole.

At the beginning, the city of Omdurman was divided into functional zones i.e. shopping, industrial, residential etc.. The residential towns were then stratified according to the criteria stated previously. All names of towns were written separately on pieces of paper and put together in a box. The box was closed and shaken before and after each a random sample selection. A total of four towns (Medina) were

selected to yield another sample of neighbourhoods (i.e. Hara or hay).

These neighbourhoods were: (1) Al-Busta Ganoub, (2) Al-Ardha Wasat, (3) Al-Umda Sharque, (4) Al-Mahadia Hara-2. For the sake of easy reference, the terms NH1, NH2, NH3 and NH4 OR Hara-1, Hara-2, Hara-3 and Hara-4 will be used in the context corresponding to the above neighbourhoods respectively.

Maps of the selected neighbourhoods showing plots of land were used to draw a random sample of blocks. Numbers were given to blocks on the map then using the same box technique, as previously, the random sample was drawn. Starting at a random point ,with a pace equal to the total number of plots in the selected block divided by 20, a total of 20 representative sample plots of each neighbourhood were selected. An empty plot or that was used for a function other than residential was replaced by the next one. But for refusal there was no replacement. The total of 80 plots , as selected sample size, was thought to be adequate to yield effective representative data analysis results. It could also keep the sampling error deviation within reasonable limits.

Although the third class areas under study cannot be regarded as a comprehensive sample, they in fact resemble a wide range of residential environment experience as in most of the big cities in the Sudan. The procedure steps followed in drawing a representative sample of households is shown in (Fig. 6.1), whereas (Fig. 6.2) shows the location of the selected neighbourhoods in relation to the city and in relation to each other. Furthermore, (Figs. 6.3 to 6.18) show the structure of each neighbourhood separately.

6.3 THE DESIGN OF THE QUESTIONNAIRE

The science of survey research has witnessed an uneven development in its various fields. While in survey sampling the problem of error deal with fractions of percentage points, the principles of questionnaire design and interviewing are much less precise and systematic. Sensitive or vague opinion/questions may involve error ranging from twenty to thirty percentage points. While survey research still functions as an important tool in collecting information, there remains more room for improvement in the questionnaire than in the sample.

6.3.1 Basic Goals In Questionnaire Design

The questionnaire is usually designed to satisfy the goals of relevance and accuracy. The aim is to : (a) obtain the information relevant to the purpose of the survey and (b) to collect this information with maximal reliability and validity. In order to make information relevant, the researcher must ensure clarity about the exact kind of data needed in the study. Furthermore, the know how of the related coding and analysis will help the purpose. On the other hand, accuracy can be achieved when the motivation of the respondent is taken into consideration. This should be realised in the design of wording and the sequence of questions. To ensure co-operation of respondents and avoid distortion of answers, the questionnaire should be easy to answer, time-saving, not embarrassing, and maintaining personal privacy.

It is quite common experience that the design of the questionnaire is easier than to execute. A common and a major problem that faces carrying out the survey is the respondents' fear of loss of privacy and dignity. There are many ways of approaching the subjects for example by telephone, by post, self-administered questionnaire or by

face-to-face interview, as appropriate depending on the prevailing circumstances. For complex long questions, it is advantageous to use a questionnaire administered by an interviewer in the presence of the respondent.

The method of face-to-face interview gives opportunity to motivate the subject's interest and create a permissive atmosphere for discussion and hence the interviewer can get accurate and complete answers. Face-to-face interview, also, permits flexibility and can improve the quality of data by asking for added information when a response is ambiguous, irrelevant, or incomplete. Furthermore, a well designed schedule of such an interview can be used to collect information from a wide social strata regardless of their literacy, educational level, or visual acuity.

In the present survey, the study deals with communities where illiteracy, low level of education and high care for privacy were expected to be present. It was necessary, therefore, that the questionnaire should be designed with care and should be simple, clear, familiar and specific as possible.

The interview was ordered in a way so that the opening questions should motivate the respondents' interest and give rise to his desire to answer. Also, questions about sensitive issues that deal with unpleasant or embarrassing topics, and yet are vital to the research, were not put at the beginning of the interview. They were to be introduced gradually at a time when familiarity and trust for the interviewer and the study was developed by the subject. This was aimed at so as to get the most accurate information possible.

A sample pilot survey had been carried out for pretesting the validity of questions and prior experience of interviewee and interviewer. Because of unfamiliarity and

the weak knowledge of English Language among most of the subjects, a translation of the questionnaire into Arabic, the common language, had been supplied to help both the respondent and interviewer. For words that have no familiar equivalent in classical Arabic, local Arabic had been used.

The questionnaire had been structured in a way that it contains close-ended and a combination of both open and close-ended questions. In the closed-ended interview, which was the most employed type, some ready-made answers were stated. The subject was then asked to select the answer that matched his opinion. Such a type of an interview is easier to answer, requires less skill and effort of the interviewer. Furthermore, it has the advantages of shortening the numbers of answers, is economic in time, the responses are standardised, can be easily compared, an simpler to code and analyse.

Open-ended questions, on the other hand, provide the subject with more opportunity for full opinion expression. Although this type of interview frees the respondent from constraints, it can result in a wide range of various answers. This in turn may make coding and analysis of data more difficult. Such questions were used as a change of pace or in situations when more detail was needed and/or the type of response could not be predicted, such as in privacy definition. These answers, later, were standardised, coded and analysed. The combined structure of open and closed-ended questions was used when more detail was acquired or other answers than those in the schedule were expected. Check ups of indirect questions were embodied in the interview to produce comparable answers. In turn, this was used to evaluate the validity and consistency of the resulted data. It was necessary to make it clear for interviewers and state the significant importance of non-directive phrases in getting accurate response. In that sense, each subject was asked to make and/or explain his

choice. The outcome data, after completion of standardisation and coding, was then quantitatively analysed.

Later, a qualitative analysis and evaluation was sought to provide more information, assess the validity of responses and whether they support or differ from the hypotheses introduced previously. Finally, the interpretation of findings was investigated.

6.3.2 The Questionnaire:

The physical, socio-cultural, and behavioural aspects were taken into consideration in the design of the questionnaire. In this respect, four basic elements were recognised:

- (a) Basic Information: covering age, income, education and social status.
- (b) Form and Layout of the Space: It considers the layout with respect to subdivisions and specialisation of space within and without the dwelling.
- (c) Pattern of Space Usage: considers the general social behaviour of space usage with respect to each spatial element taking into account the type and nature of user, time, way of use and the reason for usage.
- (d) Measurement of Attitude, Opinion and Satisfaction: deals with satisfaction with the dwelling space, intensity of interaction and environment within and without the family realm. Also measurements on opinion on how would the resident feel under certain environmental constraints were investigated.

Furthermore, the four basic elements were classified into four main groups to structure the questionnaire.

(a) GROUP ONE

(a.1) Basic Information:

As was mentioned previously, this deals with such information as the head's of household background, e.g. age, marital status, place of origin, income, education, etc..... and structure of the household.

(b) GROUP TWO

(b.1) Dwelling Characteristics:

This includes type of tenure, services, utilities, period spent in the present dwelling and mobility. Part of the investigation on physical characteristics related to dwelling and locality is included in the observation schedule.

(c) GROUP THREE

(c.1) Socio-cultural Characteristics:

(c.1.1) Attitude towards basic needs:

Here, the questions investigated household interaction with visitors and neighbours, cooking, eating, sleeping, body hygiene, beautification and ceremonial organisation and the use of space within and without the family realm in relation to such activities. Also, the conceptual meaning of privacy held by communities in question and attitude towards visual privacy and noise was investigated.

(c.1.2) Religion, tradition and women's position: These questions investigated the impact of religion, tradition, and women's position on the socio-spatial organisation.

(c.1.3) Attitude measurement of neighbouring, friendship and kin relationship:

This part investigates magnitude, cases, behaviour and attitude towards neighbouring, friendship and kin relationships.

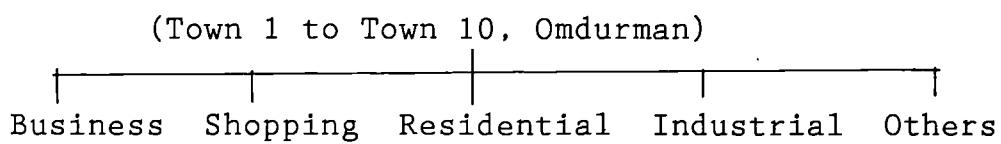
(d) GROUP FOUR

(d.1) Attitude, Responses and Satisfaction Measurement: Here satisfaction with neighbour, dwelling and locality opinion on territoriality and priorities of basic needs were explored.

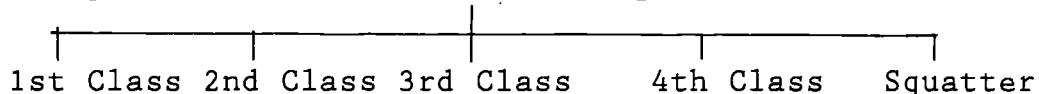
A copy of the interviews and observation schedule is produced in Appendix 6. The type and specificity of data analyses that had been sought, was multitude, critical and time consuming to be done manually. For these reasons the opportunity was taken to use the VAX computer facilities available at the university of York. The standard Statistical Package for Social Science (SPSSx) was used to provide most of the statistical analysis needed for testing the hypotheses.

In the following section the location, development and physical characteristics of localities under study, AL-Busta Ganoub, AL-Ardah Wasat, AL-Umda sharque and AL-Mehadia Hara-2, will be described to pave the way for the analysis and evaluation of the field work results. Also, the economic and educational status will be discussed briefly.

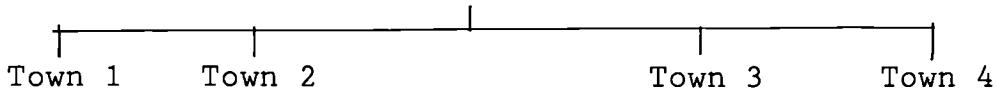
Stage 1: Divide Omdurman city into functional zones:
residential; business; shopping; industrial and;
others.



Stage 2: Group residential areas according to their class.



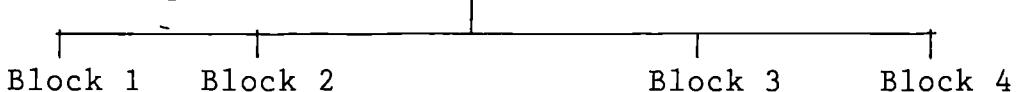
Stage 3: Select a random sample of four towns from the third class areas according the criteria stated previously



Stage 4: Select a random sample of a neighbourhood from each residential town.



Stage 5: Select a random sample of a residential block from each neighbourhood.



Stage 6: Select a representative sample of 20 plots from each residential block.

Fig. (6.1): Stages in drawing a representative sample of households in third class residential areas.

6.4 DESCRIPTION OF LOCALITIES

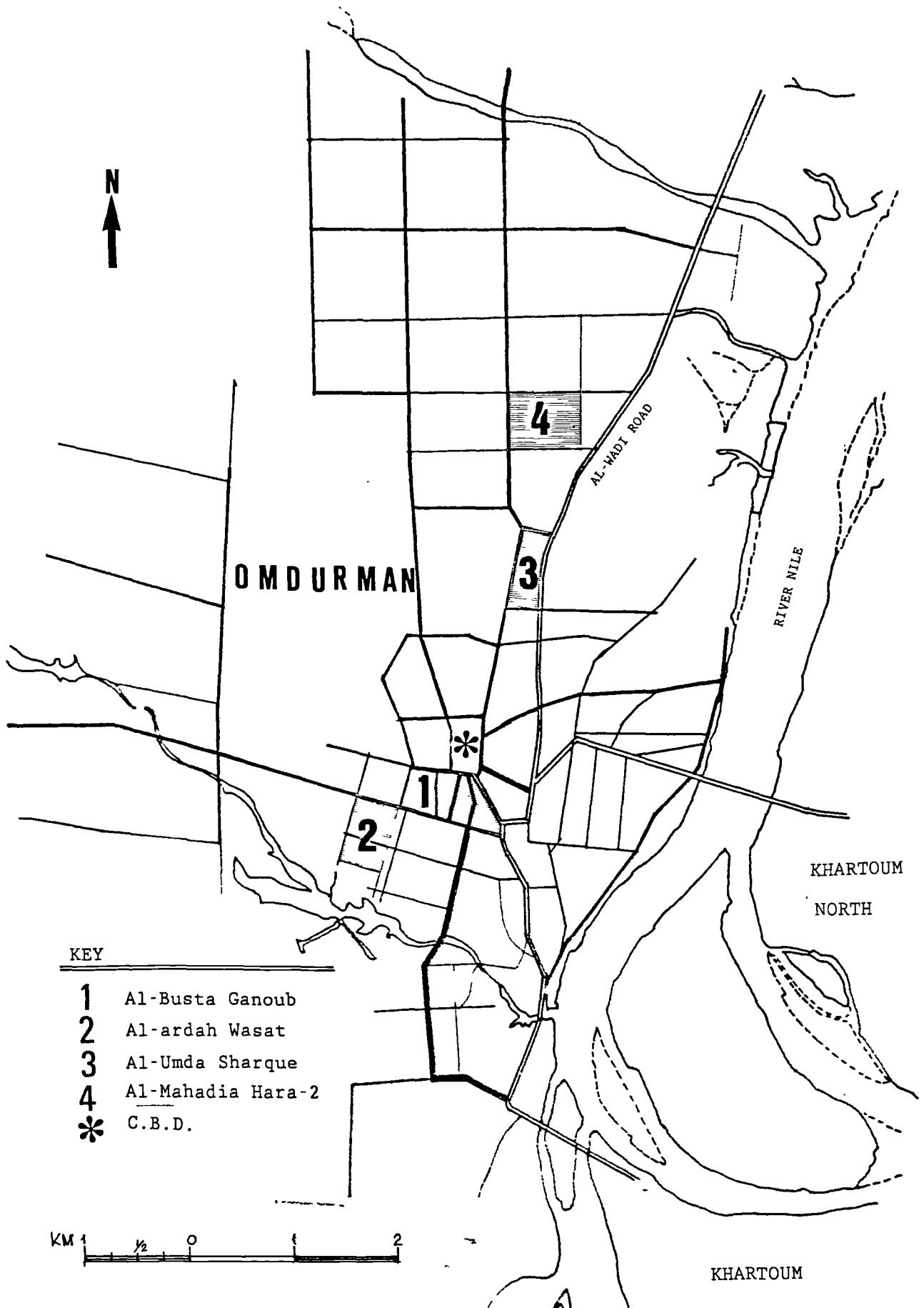
6.4.1 Introduction

The general purpose of this section is to provide factual bases to facilitate the analysis and evaluation of the existing urban residential environment in Omdurman - Sudan to satisfy the objectives stated previously.

This work is the result of studies based on tenants' interviews and field observations in the localities undertaken by the author in the winter of 1986 as well as other information provided by the government authorities and private sources.

Altogether, 4 localities (Al-Busta Ganoub, Al-Ardah Wasat, Al-Umda Sharque and Al-Mahadiya Hara-2) were visited from which 4 blocks were selected (see Fig. 6.2). In the following subsection the physical characteristics of these contexts will be described and discussed briefly, while the socio-cultural aspects and physical syntax of the dwelling will follow later.

The term 'SUDANESE' unless stated, will be used to mean the communities in question or those who share similar socio-cultural characteristics. Also, all tables related to this section will be found in Appendix (6) in Volume (II).



(6.2): Different localities locations in relation to the city and in relation to each other.

6.4.2 Al-Busta Ganoub:

(a) Location and Development:

This area is located immediately on the periphery to the south of Omdurman city central business district. The fabric extends mainly towards the east and west directions. It is bounded to the north by the city centre and AL-Busta Shmal, to the east by El-Isbitalia, to the south by the municipality and Hay Al-Umara and to the west by Al- Ardah Shmal (see Fig. 6.3 and plates 6.1 & 6.2).

The development of this area occurred during Mahadia period when the Mahadi chose Omdurman to be the capital of his state in 1885 AD. The supporters of the Mahadi gradually settled and developed their quarters on tribal lines. Because of incremental additions over time, the locality developed an irregular shape with narrow and of various widths streets. Being next to the city business district, many new roads were cut through the old fabric to facilitate vehicular traffic. In recent years, the area's physical texture which was characterised by a low profile of one-floor buildings has witnessed some change. New multi-floor structures, ranging from 2-6 floors, started to develop within the locality (see Fig. 6.4). As we shall see later, such change raised worries in the minds of some residents about the problem of overlooking.

Although the locality occupies a central position in the city, its general physical appearance was dilapidated. As in many of the third and fourth class areas in Sudan, most of the streets were rough, dusty and with very little greenery, if not absent at all in many of them. In this respect the area condition was the worst in relation to other communities under study. Probably due to problems of



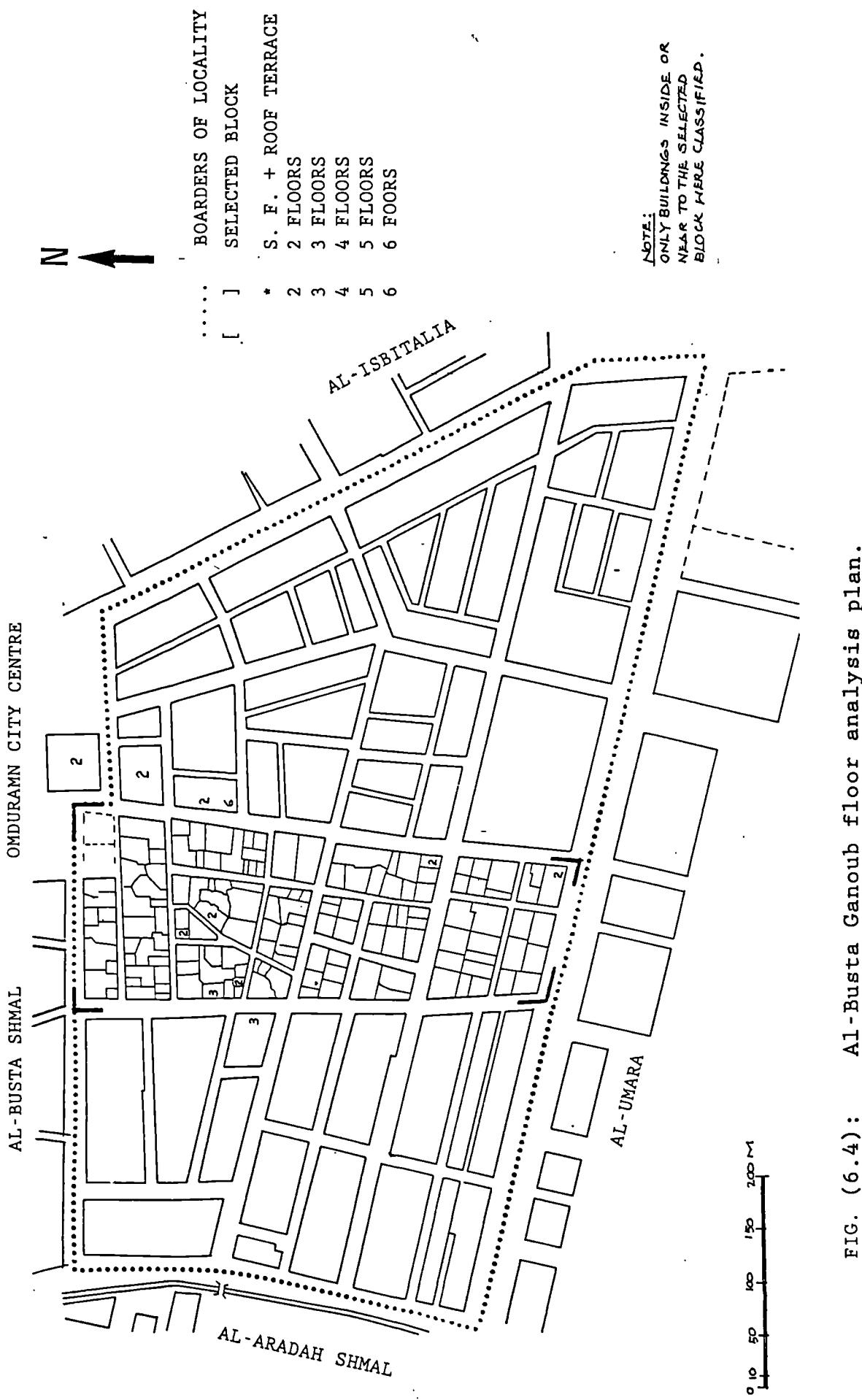


FIG. (6.4): Al-Busta Ganoub floor analysis plan.

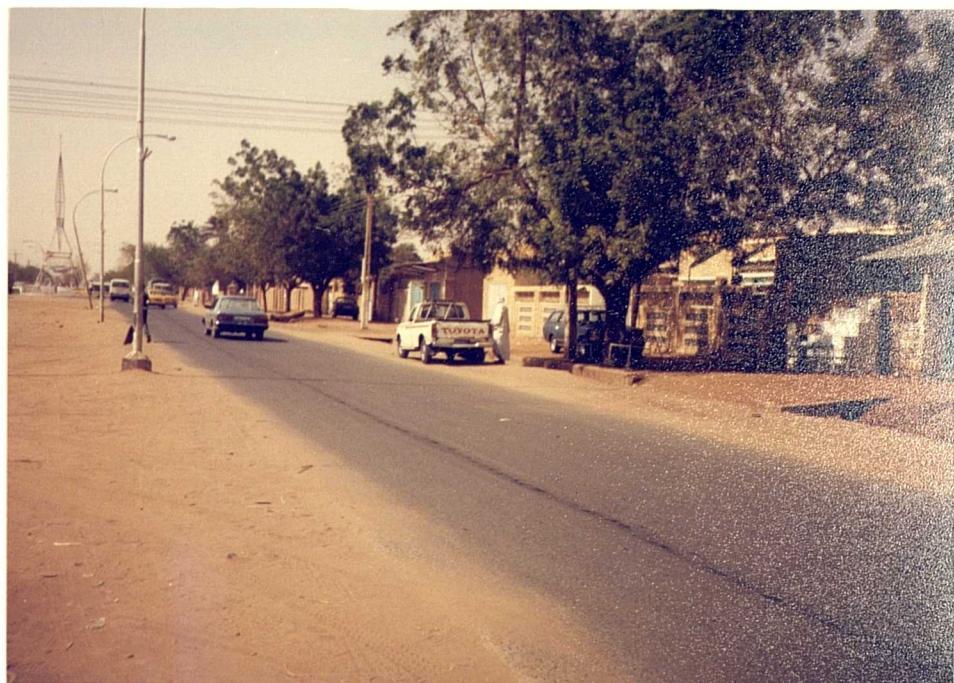


PLATE (6.1): Al-Ardah road, the main artery that connects the western part of the city to its centre, bordering Al-Busta Ganoub from the south.



PLATE (6.2): Omdurman busy centre, to the north of Al-Busta Ganoub.

inheritance or change in function, many of the buildings were left to become slums.

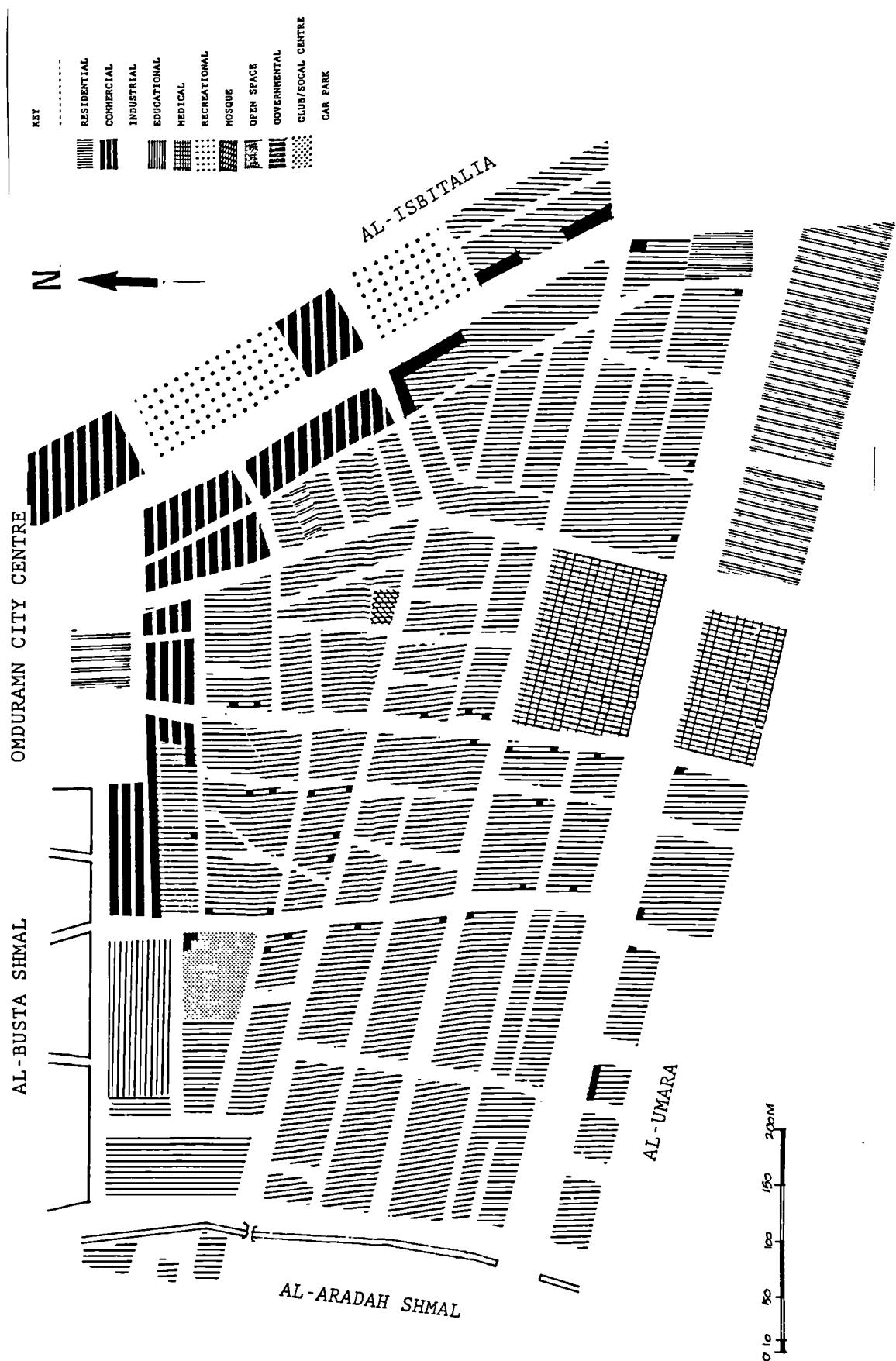
(b) Land Use:

As was mentioned earlier, the area was mainly occupied by residential development. With the increase of mercantile activities in the central business district, many of the adjacent houses were turned into shops. A Christian missionary hospital was established on the northern side during the late co-colonization era. One mosque was located inside the locality whereas elementary schools for boys and girls were to north west side. The only open space, in front of the schools was turned into a bus terminal. Also, there was the city municipality library on the eastern section. Some governmental buildings, a court and nationality department, and a petrol service station occupied the south east corner of the site. Many small shops were scattered throughout the area. The main post office, bus terminal, cinemas, police, child health centre and other institutional facilities lie across surrounding roads (see Fig. 6.5).

(c) Circulation:

Although all roads surrounding Al-Busta Ganoub were paved, only two internal streets were asphalted. These two streets were of heavy traffic leading buses to the city centre and out of it. Al-Murradah and Al-Ardah were the most important and crowded roads in the vicinity. While Al-Murradah route is a primary connection between Omdurman and Khartoum city centres, Al-Ardah road absorbed the traffic coming from Um Baddah town, Al-Arbeien (a primary connection between Omdurman and Khartoum), and partially from Al-Murradah artery.

Except for one unpaved street, used by buses, running north south, the traffic on other internal lanes was

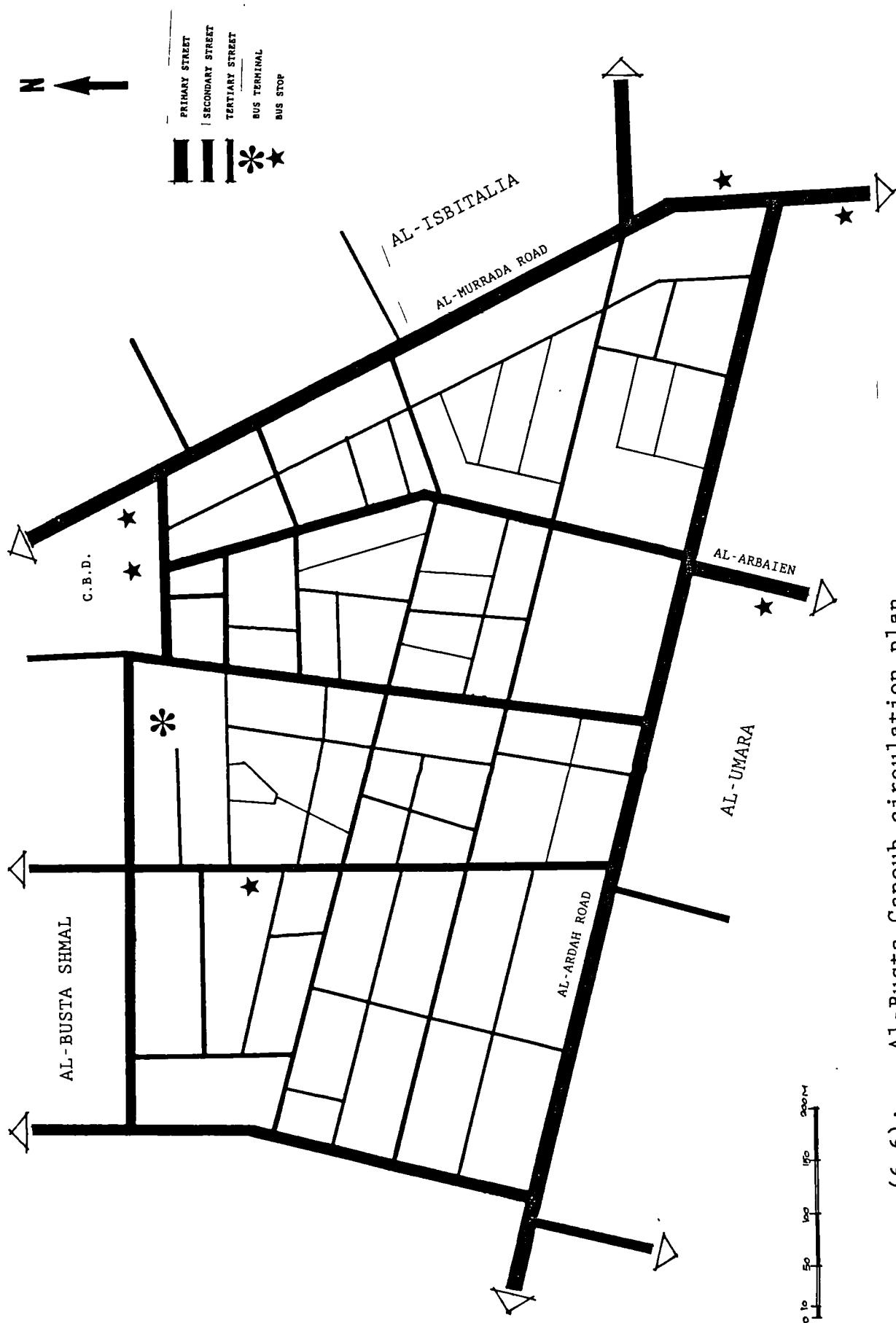


(6.5) : Al-Busta Ganoub land use pattern.

comparatively low. While the physical conditions of many was very rough, due to lack of proper drainage and maintenance, some were very narrow that hardly two cars can pass through them. Considerable pedestrian traffic was observed in Al-Murradah road, Esh Sheikh Dafullah street and on the northern side of the locality, especially in the morning and during evening. The frequent and high traffic in and around the area caused the problem of noise and gave rise to dust. All main roads, and many of the internal streets, were lighted by the municipality, and sometimes residents provided lighting in front of their doors (see Fig. 6.6 and plates 6.1, 6.3 & 6.4).

(d) Land Utilisation:

Al-Busta Ganoub locality covered an area of about 36.4352 ha. On the other hand, public areas (i.e. street, walkways, open spaces, bus terminal) comprised 11.4048 ha. (31.30% of the total area) whereas semi-public areas (i.e. schools, mosque, hospital, library, court, open space) was only 3.0592 ha. (8.4%). While the private spaces (i.e. dwellings, lots, shops, service stations) was 21.9712 ha. (60.3%), semi-private space (Cluster courts) did not exist in the area. On the other hand, the network efficiency (i.e. network length/ area served) showed a value of 251.4 m/ha.



(6.6) : Al-Busta Ganoub circulation plan.



PLATE (6.3): Many of Al-Busta Ganoub streets were full of pot-holes trapping rotten water, especially during the rainy season, a situation that was neither safe for people nor for cars. (Note the tree-less/street in the picture shaded by the dwellings along its left side. Also, the neat dwellings to the right of the picture and the rough street. assentuting the difference between the private and the public domains.



PLATE (6.4): Roses and Pot-holes on a littered narrow street, the contractions of Al-Busta Ganoub.

6.4.3 Al-Ardah Wasat:

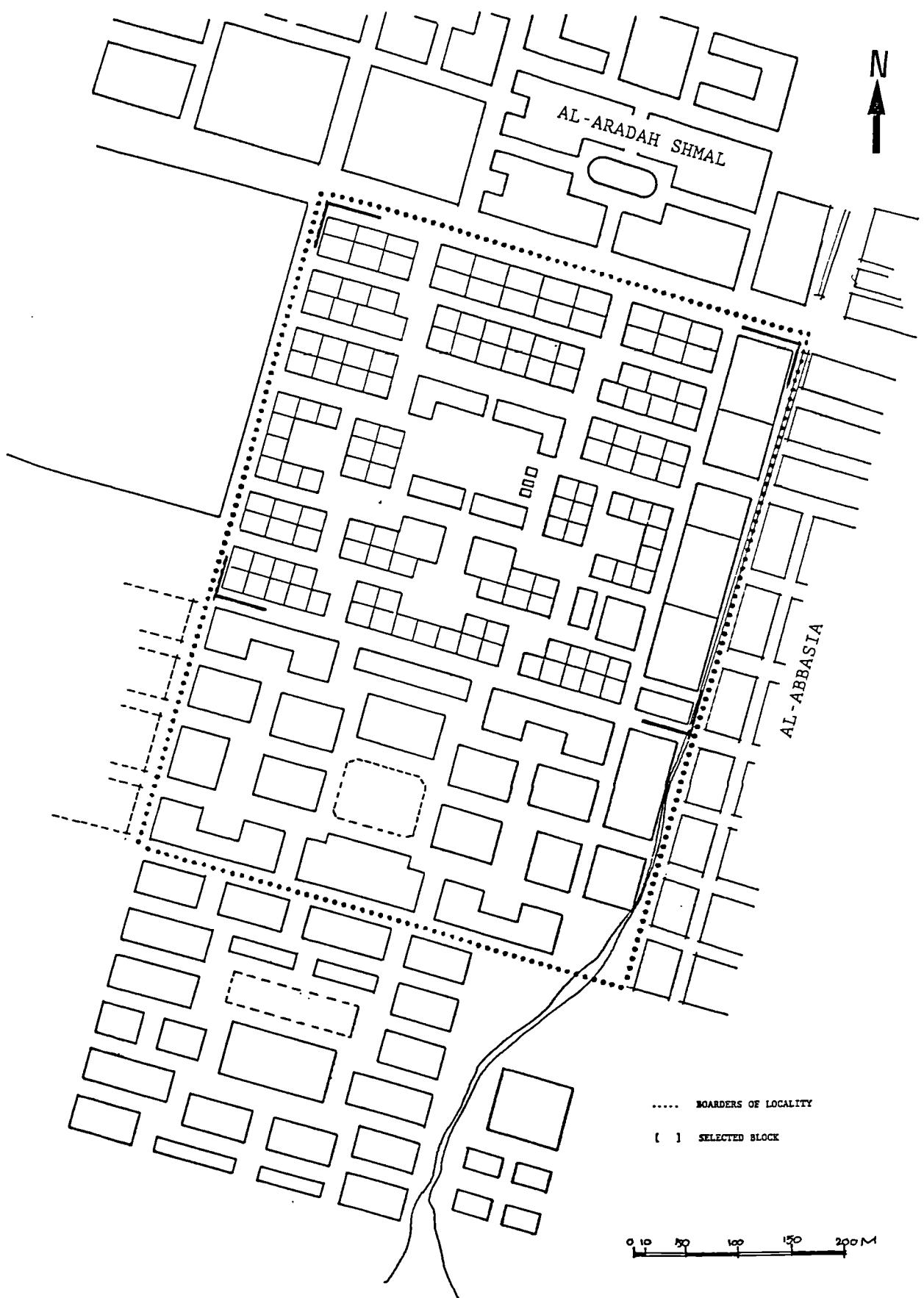
(a) Location and Development:

This locality occupies a location of approximately one km radius from Omdurman city centre. On its boundaries is Hay Al-Abbasia to the east, Al-Ardah Shmal to the north and Al-Ardah Ganoub to the south, as third class areas. In addition, Al-Mariekh stadium and Bait Al-Mal Over Spill, as a first class area, is to the western side (see Fig. 6.7).

The locality started to develop and take its shape during the years 1925-55 when plots of land were sold to tenants during the Condominium rule, on freehold ownership. Al-Ardah is a third class area characterised by its unique shape in the city. Although the residential blocks had a regular geometrical form, they varied in size and shape. Similarly plots of land were of various areas, 700, 600, 500 and 400 m². From evidence of the field work it was found that some plots had developed further divisions. Also, some multi-floor buildings, ranging from 2-3 floors, started to appear in the area (see Fig. 6.8 and plate 6.5). Such a change in the context form can be attributed to similar reasons as mentioned previously. Except for few streets and the market space, the physical appearance of the locality was comparatively good.

(b) Land Use:

Hay Al-Ardah Wasat is a third class residential area. The area was dominated by the single-floor courtyard dwelling. Although there was a central market approachable to most of the residents, small shops were scattered all over the site, especially on the street facing schools and the cinema (see plates 6.7 & 6.8). The extensive existence of shops could be as a result of the occasional availability of football fans,



(6.7): Al-Ardah Wasat physical pattern and land subdivisions.

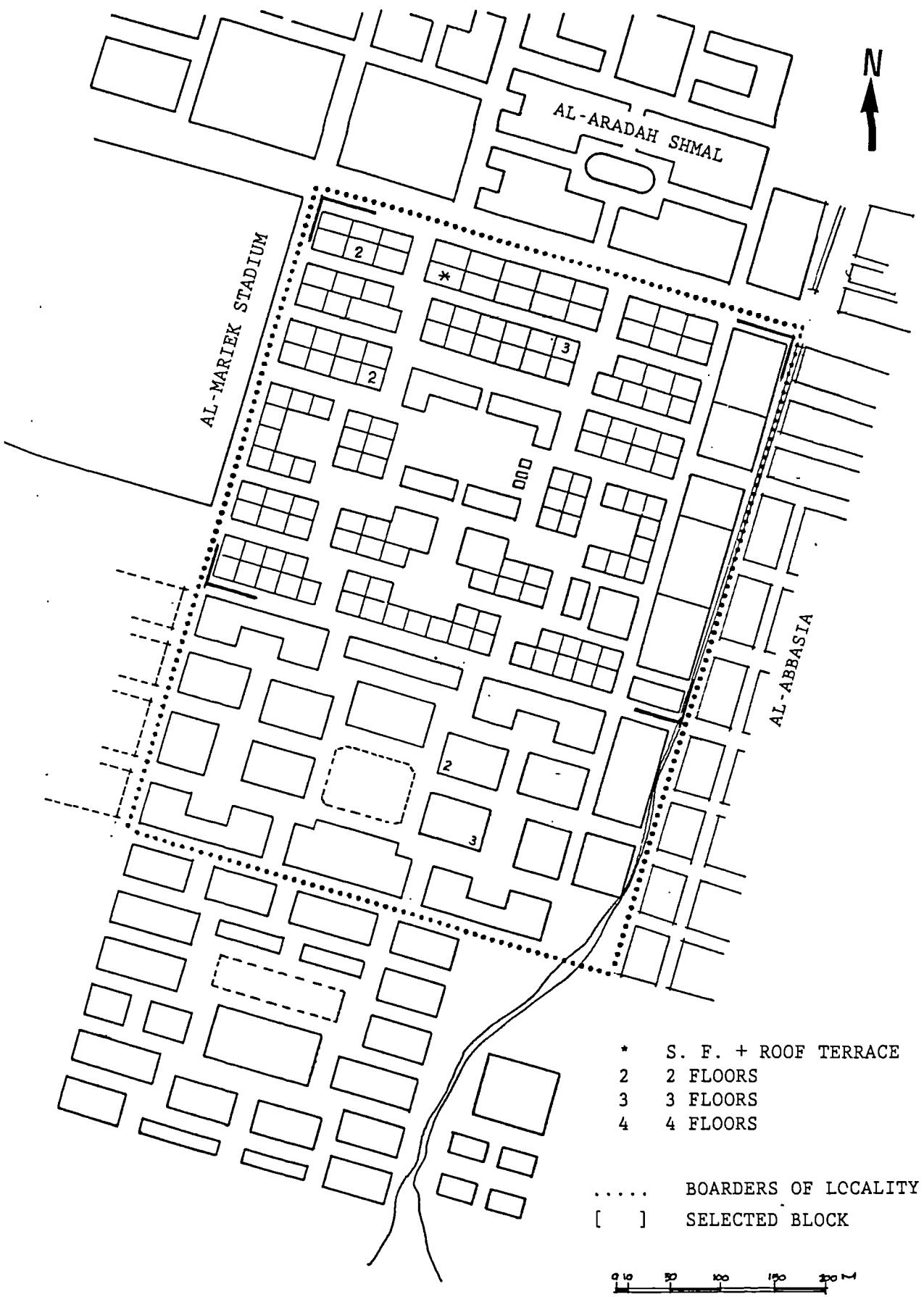


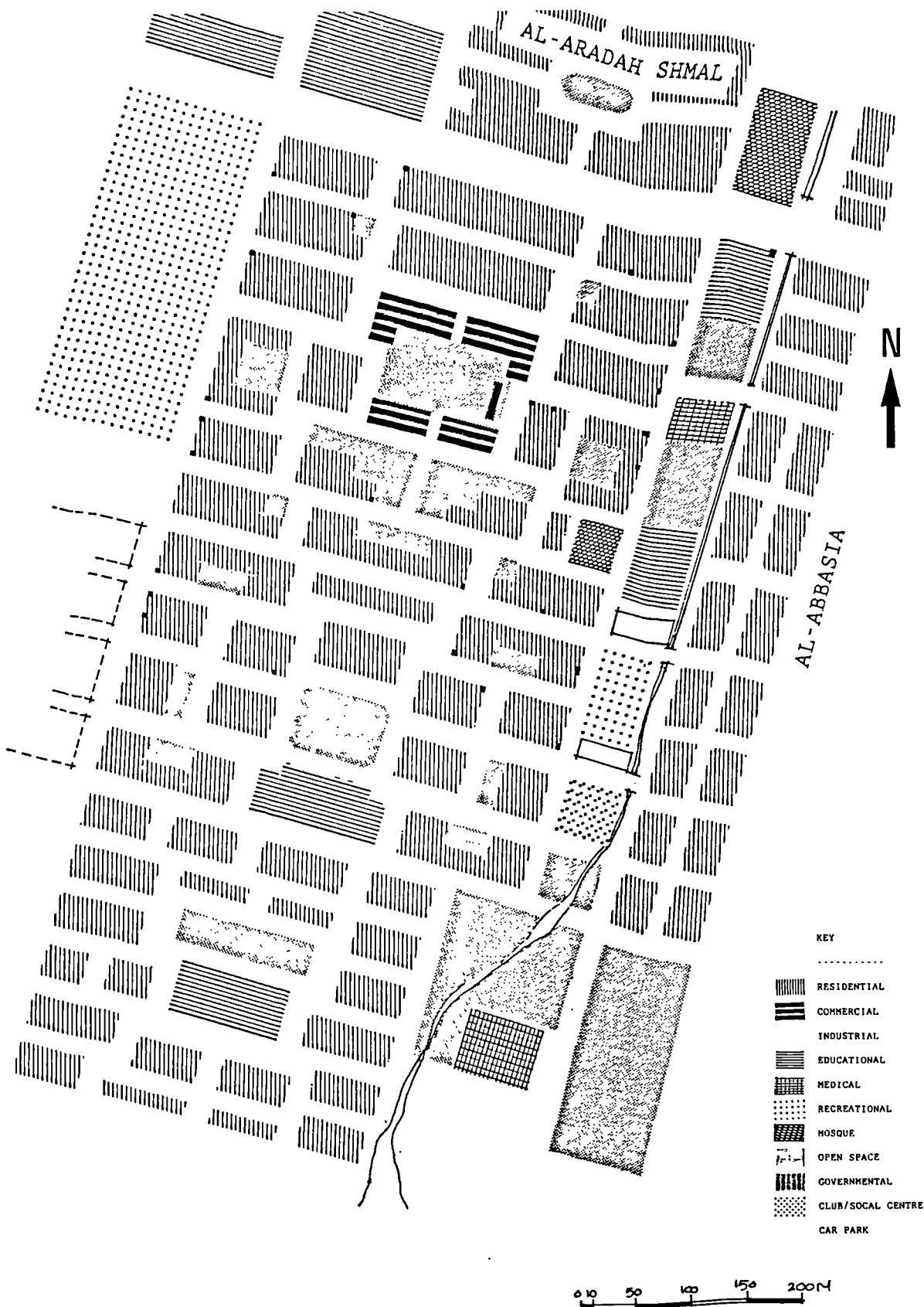
FIG.(6.8): Al-Ardah Wasat floor analysis plan.

students and those who come to the cinema and theatre. In addition, the prevailing economic hardship might have motivated many residents to acquire an extra income through such a means. On the other hand, there was small and medium sized cluster courts. Moreover, there were 2 elementary schools, for girls and boys, with their open spaces, a health centre, cinema with its car parks and a theatre to the east along the road separating Al-Ardah from Al-Abbasia. Also, there was another girls' elementary school with its open space to the south, the locality market was clustered around a big courtyard where children usually preferred to play (see plate 6.6). Other higher education facilities were to the north west across Al-Ardah road (see Fig. 6.9).

(c) Circulation:

Al-Ardah, as the main artery connecting the city to its western part, was the only surfaced traffic route of those surrounding the locality (see Plate 6.1). It is a 40m road marked with its frequent and heavy traffic. Second to it were the streets between the area, Al-Marick stadium and Al-Abbasia settlement (see Plates 7 and 8). Also, the one that passes east west right through the locality market was occasionally busy with traffic during football matches days. On the other hand, all other internal streets were unpaved and with little traffic, quite scarce in some. As for pedestrians movement it was mostly along routes surrounding schools, health centre, market, mosque, cinema and theatre areas. During football matches Al-Ardah Wasat witnesses a large influx of pedestrians on the northern and eastern sides, especially during late afternoon and early evening. Such a presence of 'strangers' had caused annoyance to some residents who raised complaints about noise made by fans.

In general, the pattern of streets and open spaces was variable. Except for one, all internal streets heading north south were zigzagging. Main traffic routes were lit by the



(6.9) : Al-Ardah Wasat land use pattern.

municipality. Also, people provide lighting in front of their entrances. On the other hand, most of circulation routes and open spaces were left without greenery. Except for few lanes and part of the market square, the physical appearance of locality was comparatively good (see Fig. 6.10 and Plates 6.5 to 6.9).

(d) Land Utilisation:

Al-Ardah Wasat spreads over an area of 29.52 ha. The area covered by public space (i.e. streets, walkways and open spaces) was 6.512 ha. (22.06%), whereas semi-public one (i.e. open spaces, schools, health centre and mosque) was 2.688 ha. (9.12%). On the other hand, there was 18.016 ha. (61.03%) as private use (i.e. lots, dwellings, cinema and shops) and 2.304 ha. (7.81%) as semi-private (i.e. cluster courts and theatre). Unlike Al-Busta Ganoub, this locality embraced all the four categories of space. The network efficiency (i.e. network/area served) revealed a value of 295.8 m/ha.

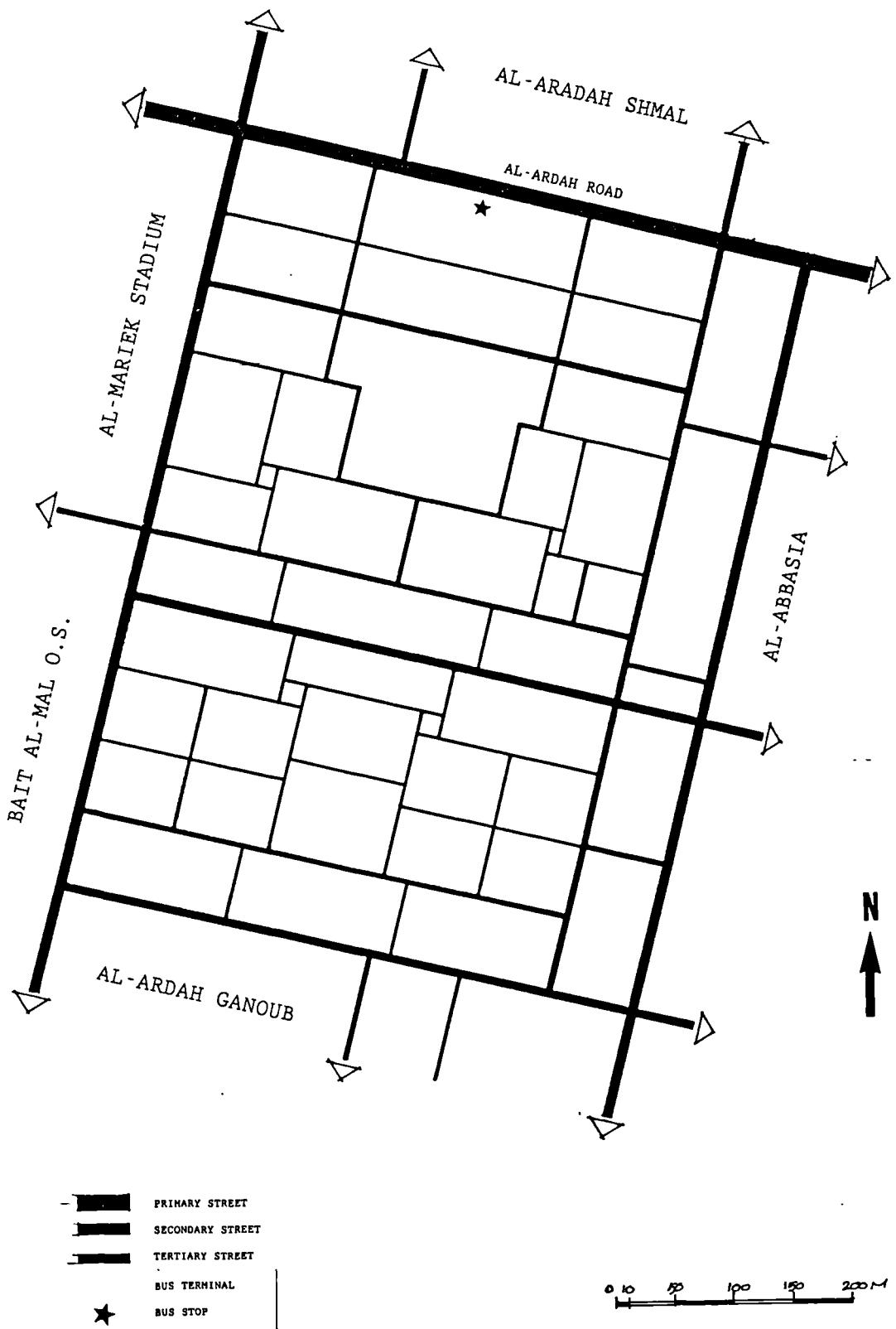


FIG. (6.10): Al-Ardah Wasat circulation plan.



PLATE (6.5): A wide street and a rubbish container waiting for occasional removal by the municipality, just at the north east corner of the Al-Ardah central market and a three-floors dwelling. Note, the one-floor dwelling at the foot of the multi-floor building. Also, note the addition that was added to the balcony to avoid overlooking. This behaviour still remains voluntary to the 'rich'.



PLATE (6.6): Al-Ardah Wasat central market place, characterised by its abundant space and the comparatively little mercantile activity. This space was preferred by youngsters to play football. Also, football fans and transportation cars cross right through the centre of the market to and from Al-Mariek stadium during football matches.



PLATE (6.7): The street separating Al-Ardah Wasat from Al-Abbasia. This was one of the busiest routes, where schools, health and entertainment facilities were located. Note the development of shops to the right and left of the street, lack of greenery and the open trench for storm drainage.



PLATE (6.8): The dusty bare street separating Al-Ardah Wasat from Al-Mariek stadium and Bait Al-Mal Spill Over. It was usually full of vehicular and pedestrian traffic during football matches. Note the open trench to the left, for storm water drainage.

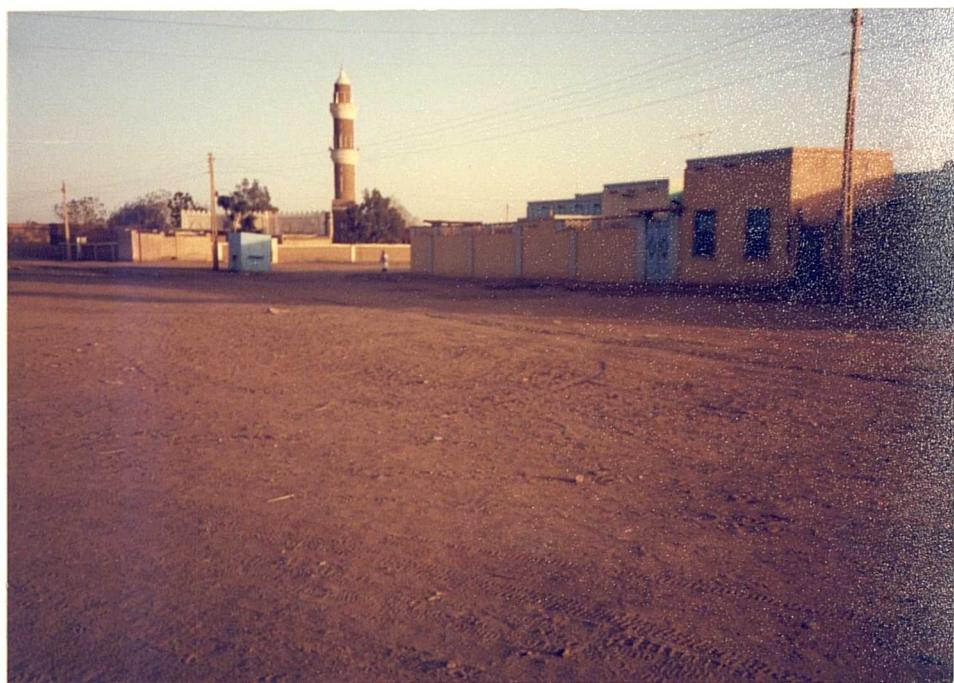


PLATE (6.9): Some of Al-Ardah Wasat internal streets were as big as open spaces, left bare and dusty. Note the mosque at the rear, the highest of all, most landscaped and one of the neatest buildings in the area, which represent the symbolic cultural-spiritual significance, hence its effect on the general form of the area, as a dominating element. Also, note the only windows opening to the street were of the males guests reception room (saloon) of which the lower part was treated with mashrabia to prevent overlooking by passers-by.

6.4.4 Al-Umda Sharque

(a) Location and development:

The site is located within a 1| km radius from the city central business district along Karari road and Al-Wadi through route. It extends longitudinally from Hay Er-Rikabiya on the south to the police and Islamic University complexes on the north. While Hay Wad Nubbawi lies on the eastern side, Hay Al-Umda Garb occupies the western side (see Fig. 6.11).

The development of Al-Umda Sharque started during the late colonial period, 1925-55, when plots of land were given to settlers on freehold ownership. In the last 3 decades plots of land, with their irregular shapes, seemed to have undergone a process of further subdivision. Such a change, usually, happens due to the increase in the number of household members who start to occupy parts of the main plot when they get married or due to inheritance. Also, this can happen when some owners sell portions of their land to other settlers. On the other hand, the locality showed a numerous pattern of streets, with different widths, lengths and direction. In general, the area seemed to yield no standard pattern of planning.

(b) Land Use:

The locality has been originally developed for residential purpose. Many plots, especially those facing Karari and Al-Wadi main roads, had shops. They covered different types of business such as groceries, pharmacies, video, small restaurants, fruits, spare parts and car repair. Also, a few plots had been turned into private clinics, working mainly during the evening. There was a kindergarten and an elementary girls' school to the south

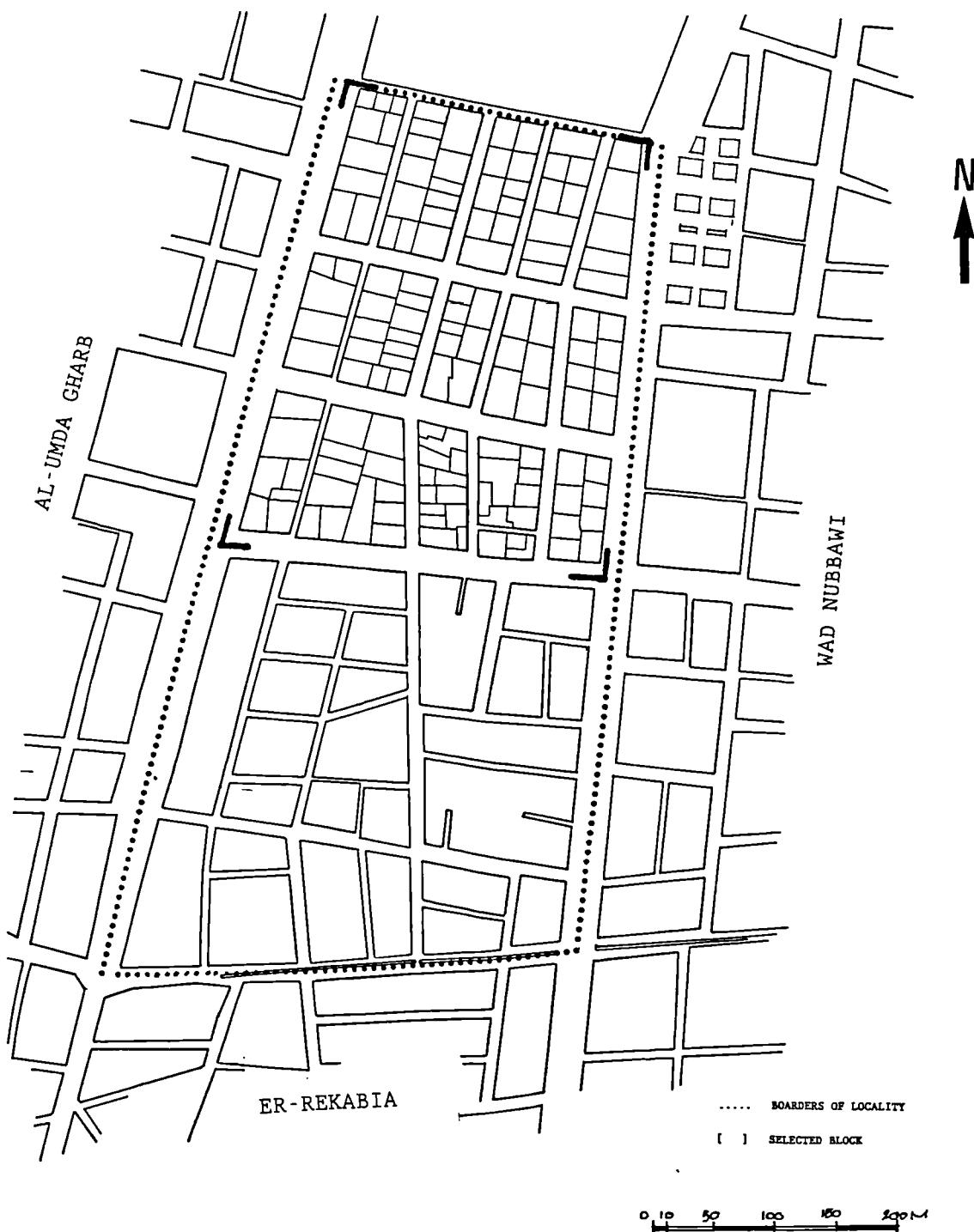


FIG. (6.11): Al-Umda Sharque physical pattern and land subdivisions.

west side. On the other hand, there was a social club to the north east corner. Moreover, the site included a petrol service station. As in many parts of the old city, there was no open space inside the locality. While young children play in the adjacent streets, mature residents had to go across Karari road to areas facing Al-Bakri and Ahmed Sharfi Cemeteries. Similarly, the nearest mosque was in Er-Rikabiya on the vicinity to the south. Many other facilities such as petrol service stations, Wad Nubbawi market, small park, health centre and police station lay just across the surrounding roads. Generally, this area had undergone some sort of change in its texture. As some of its single-floor dwellings started to make roof terraces, many rose to as high as 4 floors (see Fig. 6.12 and Plates 6.13, 6.15 & 6.16). Again, this gave rise to worries about problems of overlooking and privacy. The change in number of floors can be attributed to the central position of locality, availability of many facilities in the vicinity, high income of some residents, and difficulty in finding cheap land somewhere else (see Fig. 6.13).

(c) Circulation:

All roads surrounding the site but one, to the north, were paved. Except for two streets, running east west, all the internal lanes were not asphalted. Al-Wadi and Karari roads characterised by their heavy and frequent traffic, especially during the morning and early evening, were the most important routes in the area (see Plates 6.10 & 6.11). While Al-Wadi is a through route that crosses the three cities of the capital connecting them to suburbs and other regions, Karari is the major road that connects Omdurman city centre to Al-Mahadiya town. Although these two roads were beneficial to the area for the availability of buses, taxis and surfaced routes, they were a source of dust and noise to the adjacent dwellings. Al-Doma road, which divides the locality into halves, was becoming busier and busier.

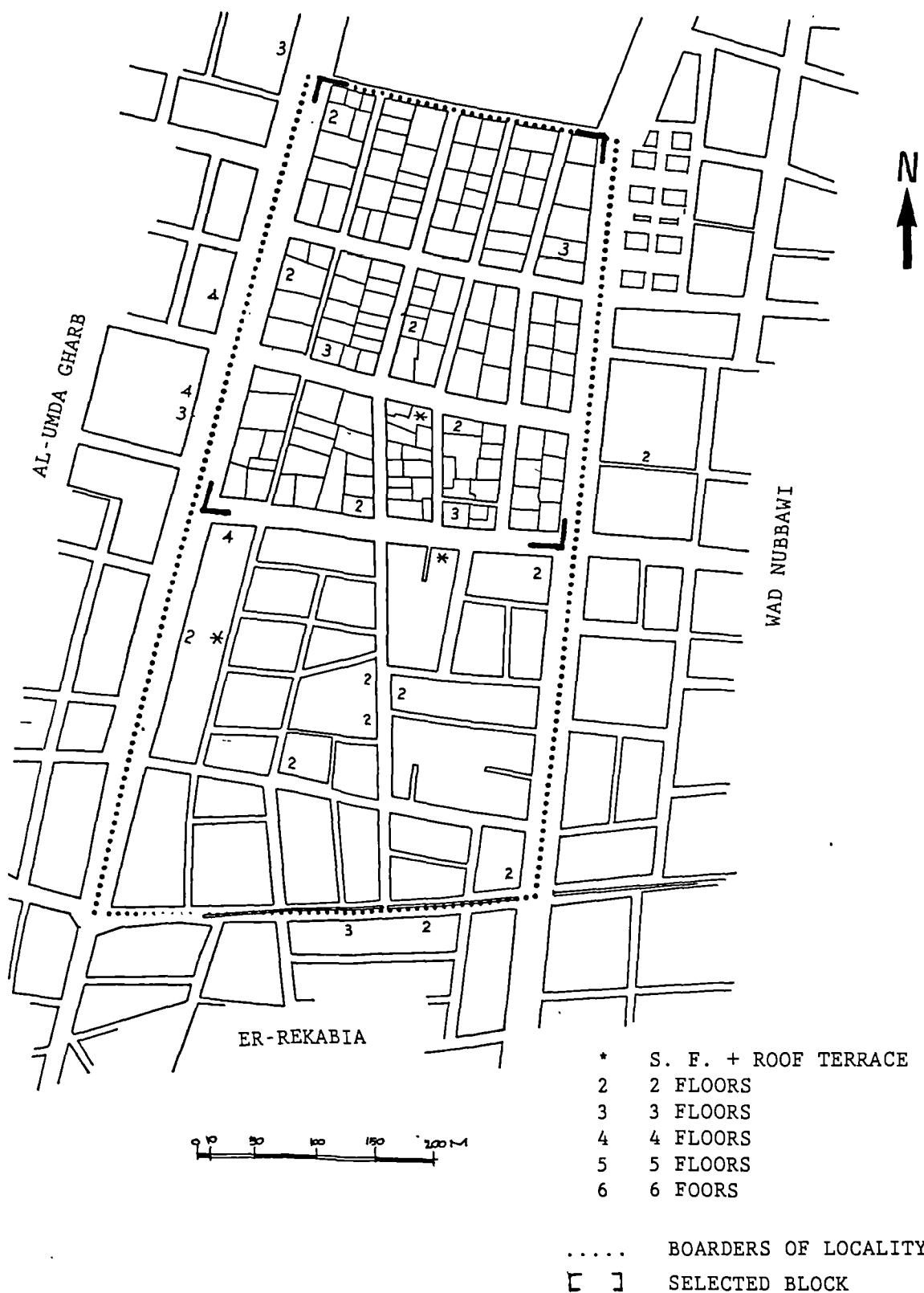


FIG. (6.12): Al-Umda Sharque floor analysis plan.



FIG. (6.13): Al-Umda Sharque land use pattern.

threatening the safety of children and the integrity of the community (see Plate 6.13). Generally, the condition of the unpaved streets was comparatively moderate. Some of them were very narrow. While all the main routes were lit by the municipality, residents provided lighting in front of their doors in many of the internal lanes (see Fig. 6.14 and Plates 6.10 to 6.19).

(d) Land Utilisation:

The locality spreads over an area of 29.2816 ha. The area of public space (i.e. streets and walkways) was 9.9728 ha (34.06%), whereas semi-public space (i.e. school and kindergarten) was 0.5824 ha (1.99%). On the other hand, the space allocated for private use (i.e. dwellings, lots, shops, and petrol service stations) was 18.7264 ha (63.95%). Like Al-Busta Ganoub, there was no space such as semi-private (i.e. cluster courts and clubs). The network efficiency was 218.3 m/ha.

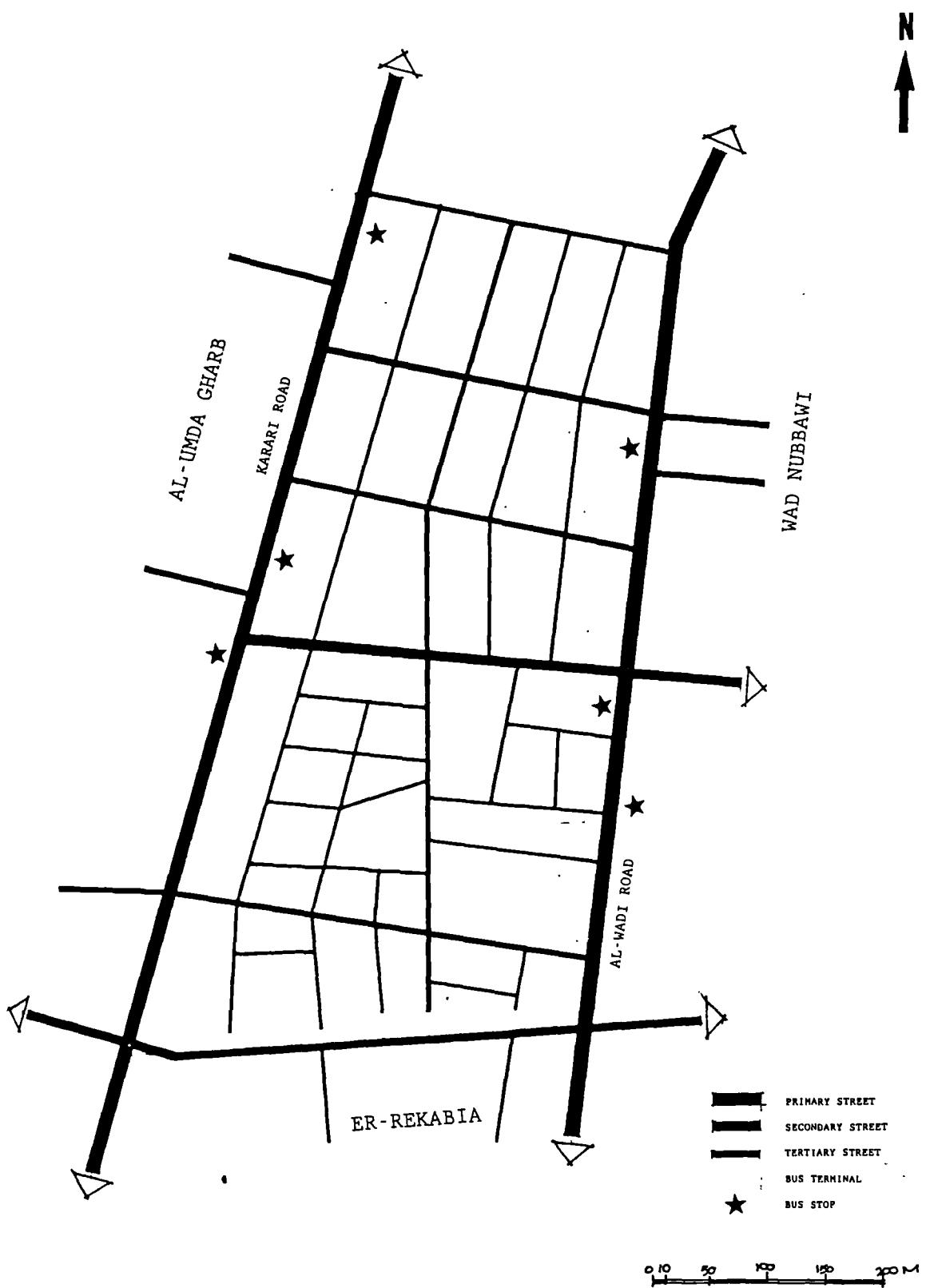


FIG. (6.14): Al-Umda Sharque circulation plan.



PLATE (6.10): Al-Wadi main traffic artery bordering Al-Umda Sharque from the east.



PLATE (6.11): Karari road that borders Al-Umda Sharque, to the right, from the west. It is a main transportation route on which buses and taxis (the yellow cars) were available. Note the difference between the single-floor courtyard dwelling dominant pattern (to the right) and the new multi-floor buildings to the left. Also, note the petrol service station to the rights and the only, small, public garden in the area, to the left across the road.



PLATE (6.12): The asphalted road bordering Al-Umda Sharque from the southern side. See the half buried trench, meant to be as a main storm drainage, was of the ugliest physical feature in the vicinity. Also, note the multi-floor building (the rich overlooking the poor'.)

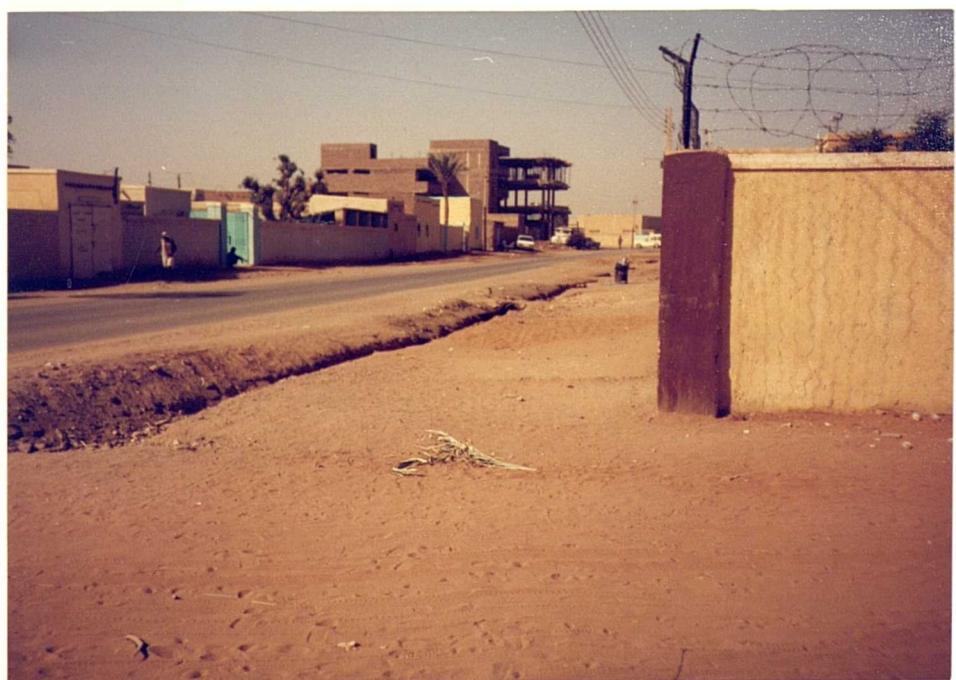


PLATE (6.13): A Eddoma asphalted road that divides Al-Umda Sharque into north and south halves. No greenery nor pavement on the sides. Note the untidy storm water trench.



PLATE (6.14): A main street on the southern side of Al-Umda Sharque. The leftover building materials on the left side represent the poor control and maintenance of such as a public property. Note, the height of the boundary wall and the two-level type windows that benefit residents from being overlooked by passers-by. Also, note the only thing added to the street were the electricity poles.



PLATE (6.15): A well maintained single-floor courtyard dwelling and a dirt road in Al-Umda Sharque locality. See the lights on the main gate and the boundary wall and the additional treatment of the roof terrace to avoid overlooking.



PLATE (6.16): Another well maintained single-floor courtyard dwelling in the Al-Umda Sharque locality, that looked smarter than the two-floor building at the rear with curtains drawn on its balconies. Also, see the two entrances of the boundary wall, one for men and the other for women. Due to lack of open space in this locality, the street in front was usually used by children to play football.



PLATE (6.17): Eddoma asphalted road and a street running north south in Al-Umda Sharque. See the two green entrances, one for men and the other for women, representing the effect privacy. Also, note the tiny high level window of the kitchen, to the left facing the road, where extreme privacy was needed in such space.



PLATE (6.18): A subsidiary street in Al-Umdah Sharque. While the private premises of dwellings enjoyed some sort of greenery, the street was left bare and dusty. See the trench meant for storm water drainage (to the left) was completely buried and has to be dug again and again during every rainy season. Also, note the Siwan (tent for wedding ceremony) at the rear.

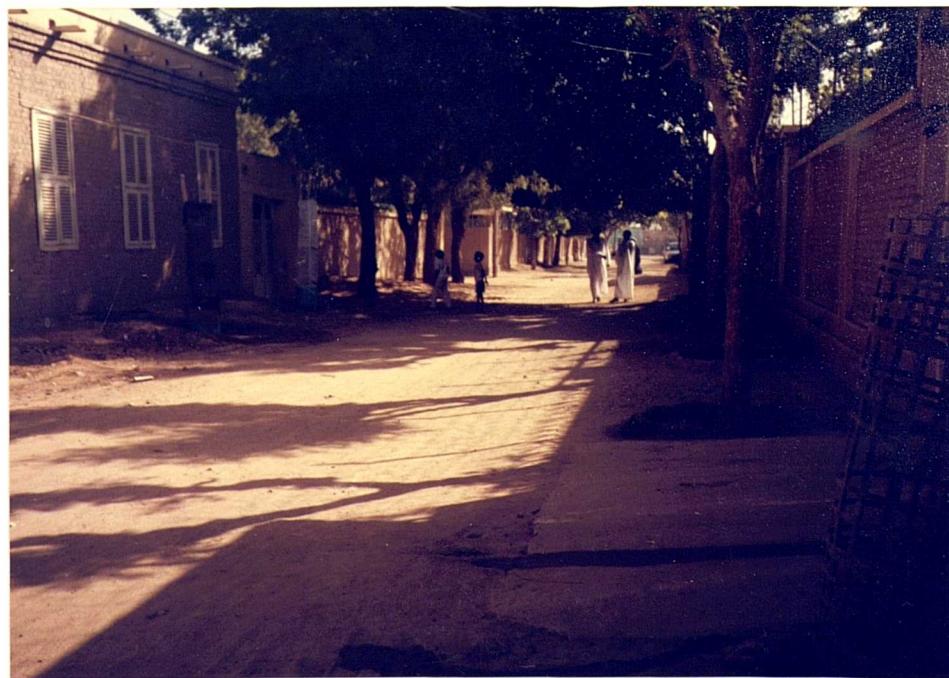


PLATE (6.19): One of the rare streets in Al-Umdah Sharque that had plenty of greenery, a pleasant place for children to play and outdoor sitting, i.e. as a shaded and of very low traffic space. Note the closed louvered saloon windows, to the left, with its four leaves system that facilitate the regulation of visual privacy and ventilation at the same time.

6.4.5 Al-Mahadiya Hara-2

(a) Location and Development:

This area, approached from Omdurman centre, is situated at the entrance of Al-Mahadiya town and of, approximately, 3 km from the central business district. It is bounded by Hara-3 (second class extension) and Hara-5 to the north, Hara-1 to the west (third class areas) and Ahmed Sharfi cemetery (see Fig. 6.15).

Al-Mahadia town, where the locality was started in the late 1950s, after Independence (1956), during Aboud military regime [1]. The town as general took its proper shape in the late 1960s. Al-Mahadiya Hara-2, as a third class area, was originally offered to low-income qualified tenants on leasehold ownership. The settlement was based on a grid iron pattern with plots of 300-350 m² and residential blocks and main roads running east west. Only one case in the sample was found to have subdivided the tenancy into two for the purpose of rent after the death of the spouse. Also, few multi-floor dwellings, 2-4 floors, appeared in the area (see Fig. 6.16). Generally, there was not too much change in the shape of the original structure of locality.

(b) Land Use:

As was mentioned earlier, the locality was planned for residential use by low-income groups and categorised as a third class area. The overwhelming majority of the development was the stereotype of one-floor courtyard dwelling. Although there was a central market for the locality, small shops appeared, especially on Karari road (the main transportation route for Al-Mahadiya town) (see Plates 6.22 & 6.23). The area had a central core which included 2 primary and one secondary schools for girls, one

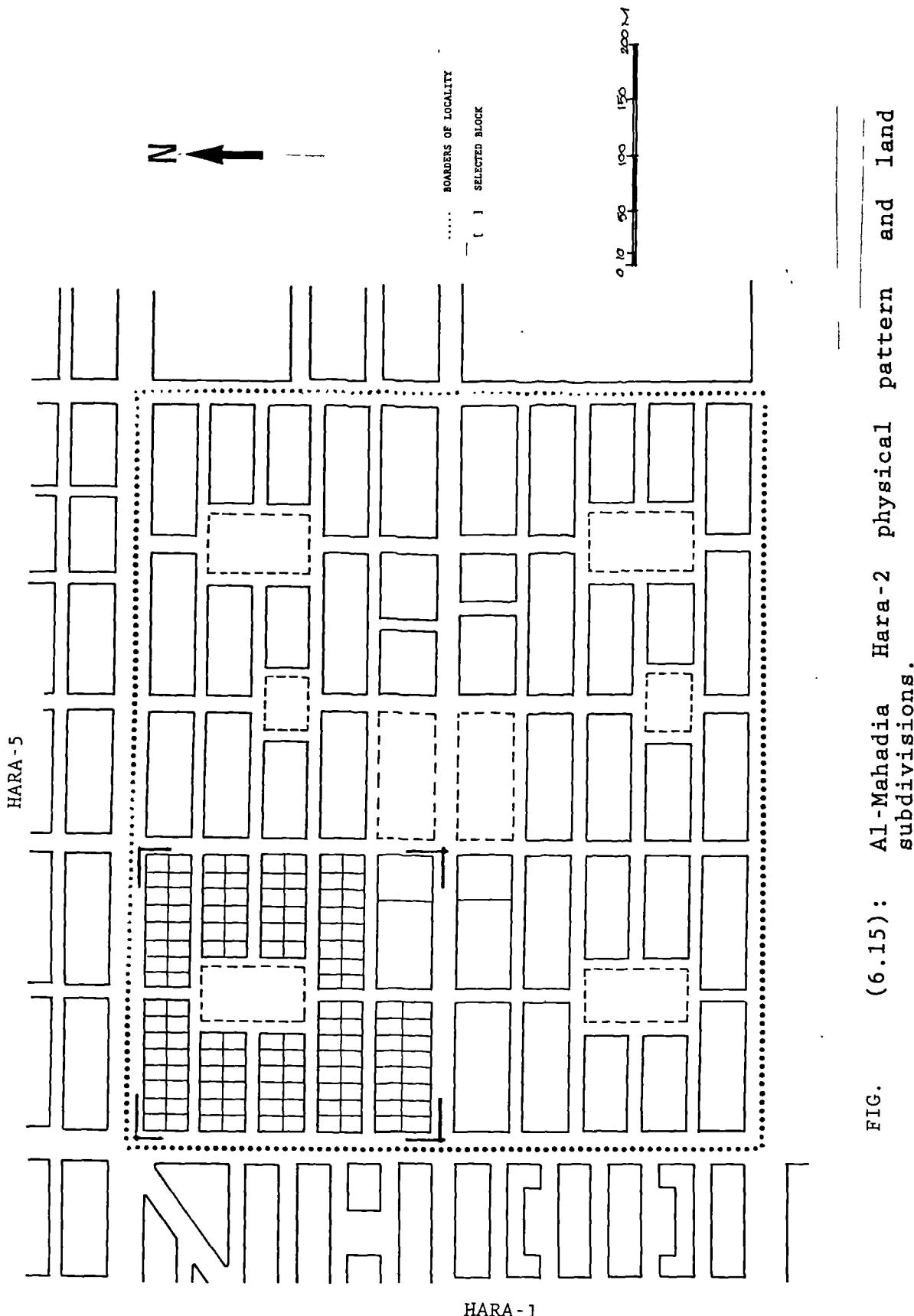


FIG. (6.15): Al-Mahadia Hara-2 physical pattern and land subdivisions.

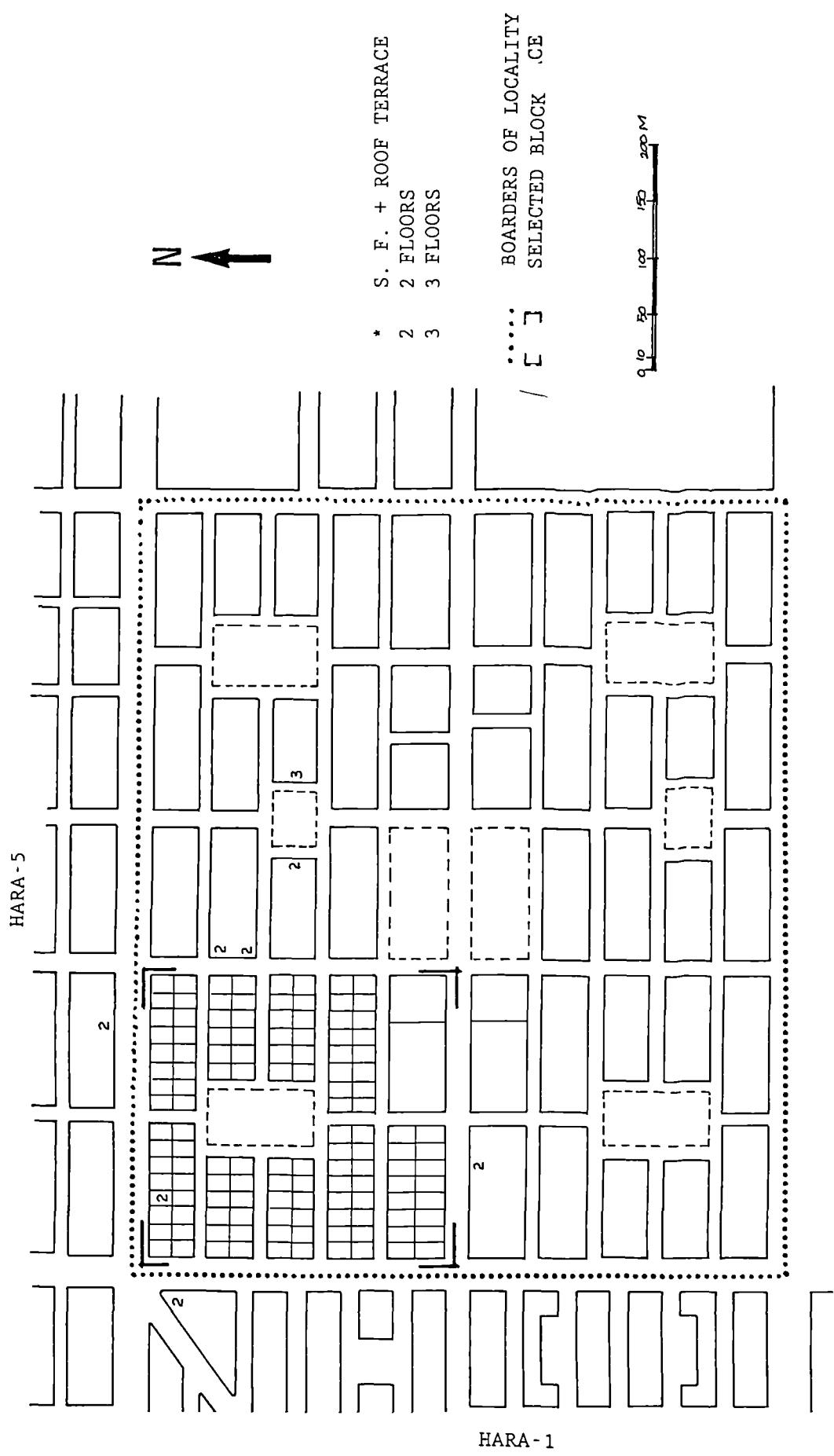


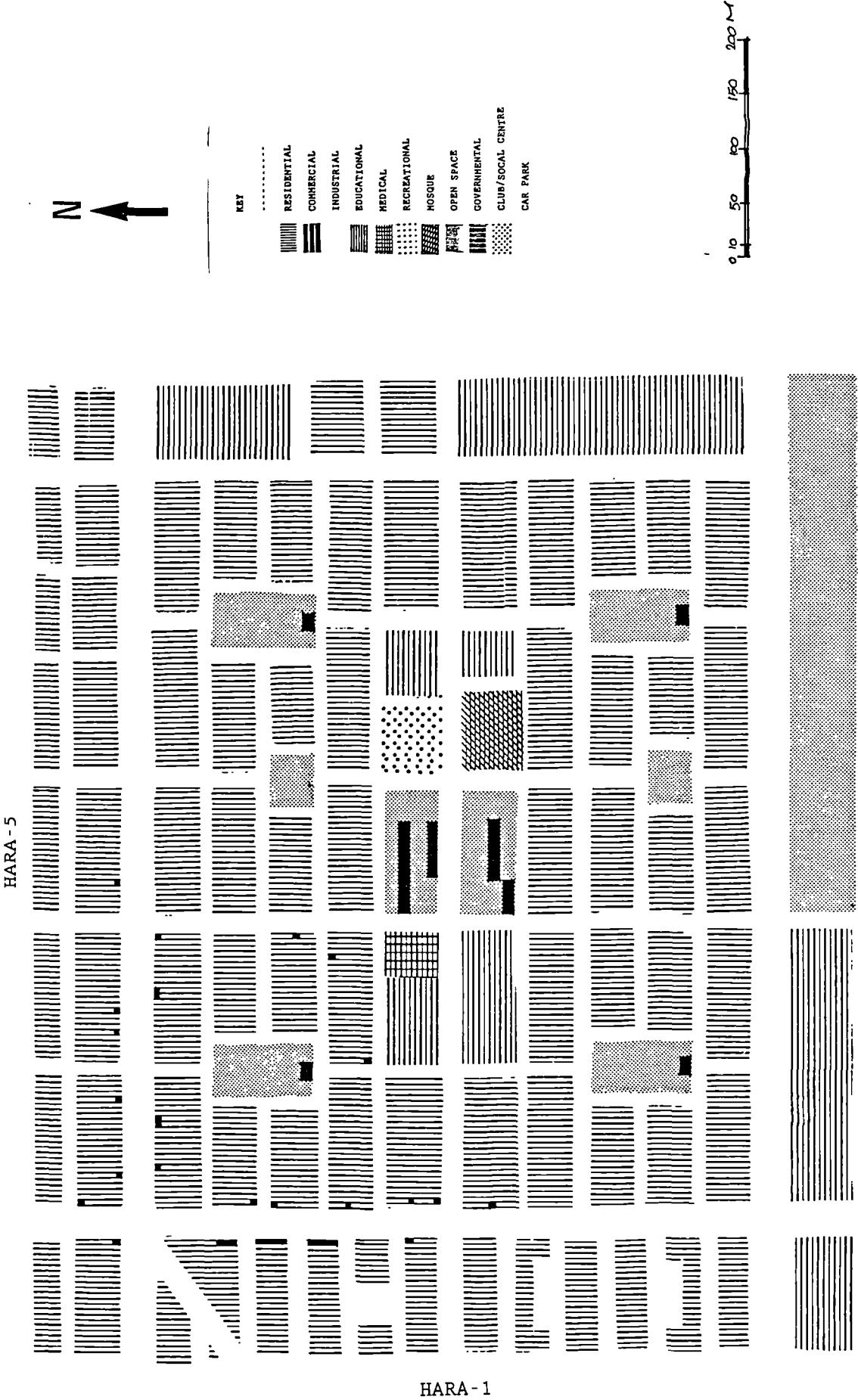
FIG. (6.16): Al-Mahadia Hara-2 floor analysis plan.

elementary school for boys, small market, mosque, health centre and a social club. Moreover, there were four major spaces and two smaller ones around which groups of residential blocks were clustered. In addition, a large open space existed between the locality and Ahmed Sharfi cemetery, where sometimes young and mature children play. Many other facilities such as higher education institutions, private clinics, hospital, petrol service station and cinema were available either on Karari road or in adjacent localities (see Fig. 6.17).

(c) Circulation:

Karari road, to the west, was the only surfaced route of those surrounding the locality. No one of the internal streets was asphalted. Karari road was characterised by its busy and frequent traffic, especially during mornings and evenings of working days. Second to it was the one that separated Hara-2 from Hara-5 and the street which ran east west right through the centre of the area (see Plate 6.20). On the other hand, there was considerably low traffic on other internal streets. Also, frequent pedestrian movement was obvious on Karri road, where people wait for buses and taxis, and the street that divided the locality into north and south halves, where people go to schools, health centre, market and mosque (see Plate 6.21).

The pattern of traffic routes was variable. They were of different lengths and widths and some of them ran right through clusters open spaces, destroying their integrity and threatening the safety of youngsters (see Plate 6.24). All main roads were lit by the municipality and in many of the internal streets residents provided lighting in front of their doors. The ditch along the road separating Hara-2 from Hara-5, meant to be for storm drainage, was made by the locals as a rubbish dump. Many internal streets and cluster courts were left bare and dusty. Compared to other



HARA - 1

HARA - 5

FIG. (6.17): Al-Mahadia Hara-2 land use pattern.

localities, the area was quiet and the physical environment was moderate (see Fig. 6.18 and Plates 6.20 to 6.25).

(d) Land Utilisation:

Hara-2 development covered an area of 2.546 ha. Public space (i.e. streets, walkways and open spaces) occupied 0.769 ha (30.21%), whereas semi-public areas (i.e. open spaces, schools, health centre and mosque) covered 0.07 ha (2.75%). On the other hand, there was 0.212 ha (8.33%) given to private use (i.e. lots, dwellings and shops) and 1.5 ha (58.71%) as semi-public (i.e. cluster courts and club). Like Al-Ardah Wasat this locality embraced all the 4 types of space. The network efficiency (network length, i.e. traffic routes/ area served, i.e. area of locality) revealed a value of 3628.3 m/ha.

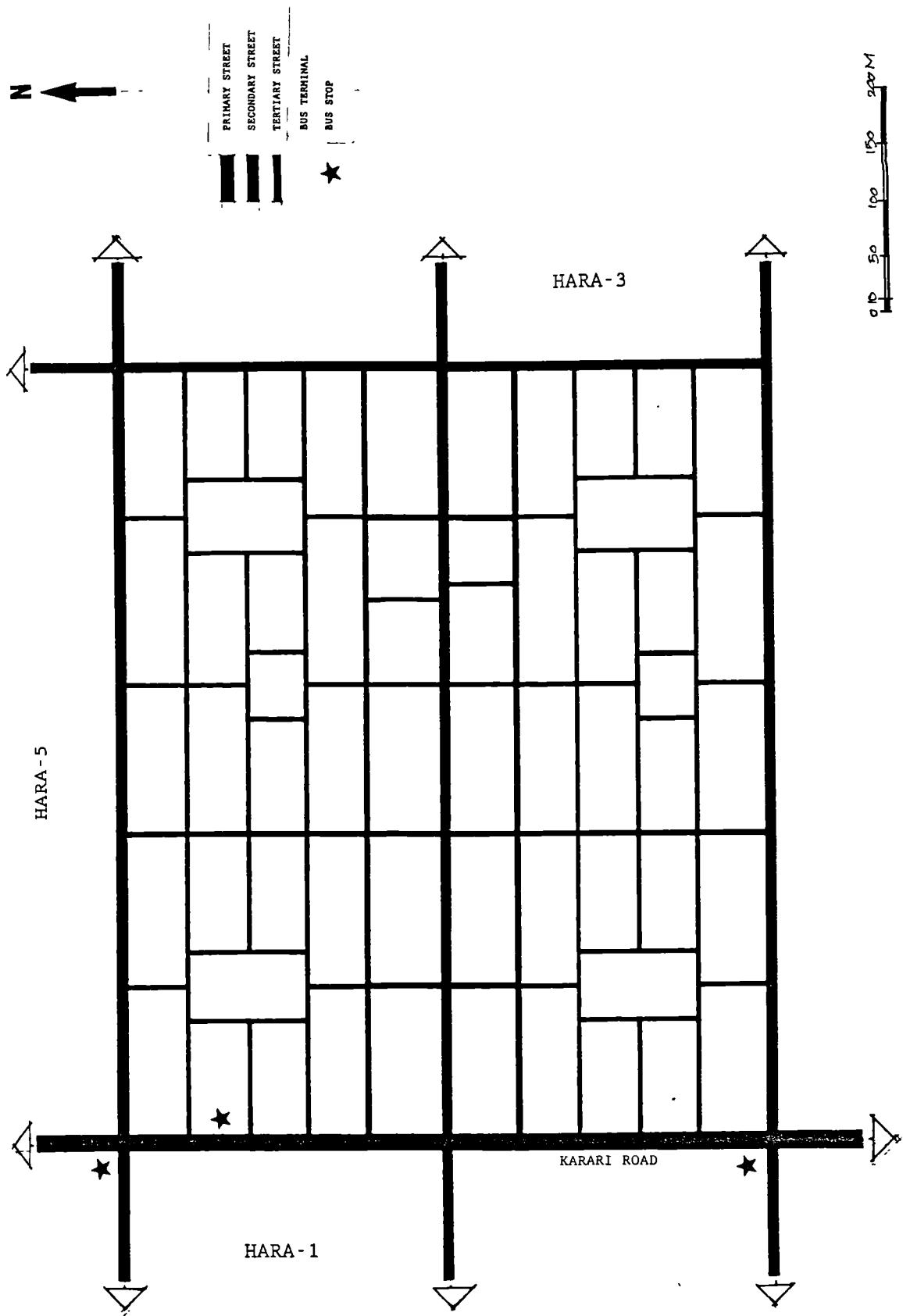


FIG. (6.18) : Al-Mahadia Hara-2 circulation plan.



PLATE (6.20): The road separating Al-Mahadia Hara-2 from Hara-5. Note the rubbish accumulating in the storm water trench. It was the dirtiest road in the area.



PLATE (6.21): Al-Mahadia Hara-2 main central street, heading east west, that leads to the central market and schools. See the dominance of single-floor courtyard dwellings, on its sides.



PLATE (6.22): The northern part of the Al-Mahadia Hara-2 central market with plenty of space in between.



PLATE (6.23): The southern part of Al-Mahadia Hara-2 market. Note the mosque at the rear dominating the locality with its height and, comparatively, fine finishes.



PLATE (6.24): One of Al-Mahadia Hara-2 small-sized spaces, with cars running right through its centre defeating the purpose of making it a semiprivate one. Except for some trees planted by residents in front of their houses, the open space was left bare and dusty.



PLATE (6.25): The right side view of the open space mentioned earlier. Note, the multi-floor buildings that started to develop in the area.

6.4.6 The Social Background of Communities

The information gained from interviews for localities under study revealed that the overwhelming majority of heads of households were from Northern Sudan, of whom 70% and 14.3% were from Khartoum and Northern provinces, respectively, alone (see Table 6.1 and Fig. 6.19). The population was almost a muslim one. Also, the results showed that more than 2/3 of the respondents were born in the capital, i.e. Khartoum, Omdurman and Khartoum North. While about 88.4% of heads were originally from urban centres, only 11.6% were of rural background. Unexpectedly, the migration from civic centres seemed to be as nearly double that from rural areas, 18.8% compared to 11.6%, respectively (see Table 6.2 and Fig. 6.20).

As for heads of households, a significant majority of their fathers were originally from northern Sudan, 94.2%, of whom 47.1% were from Khartoum province. Approximately, about 3/4 of fathers were of urban origin, whereas 25.7% were from a rural background. In addition, nearly the half of them were born in the capital, 45.7% (see Table 6.3 & 6.4). This shows that there were more migrants of fathers from other towns and rural areas than of respondents. While most fathers of heads were from other areas than the capital, most mothers came from Khartoum province, 47.1% compared to 61.4%, respectively. Also, the second majority of mothers was from Northern, Kordofan and Gezira provinces, 21.4%, 7.1%, and 7.1% respectively. Moreover, most of them were of urban background, 82.9%, of whom almost 2/3 were born in the capital alone (see Tables 6.5 & 6.6).

On the other hand, all respondents were found to have stayed in the capital for periods more than 10 years, whereas 90% of them spent more than 20 years and 50% more than 45 years (see Table 6.7). Also, the results revealed

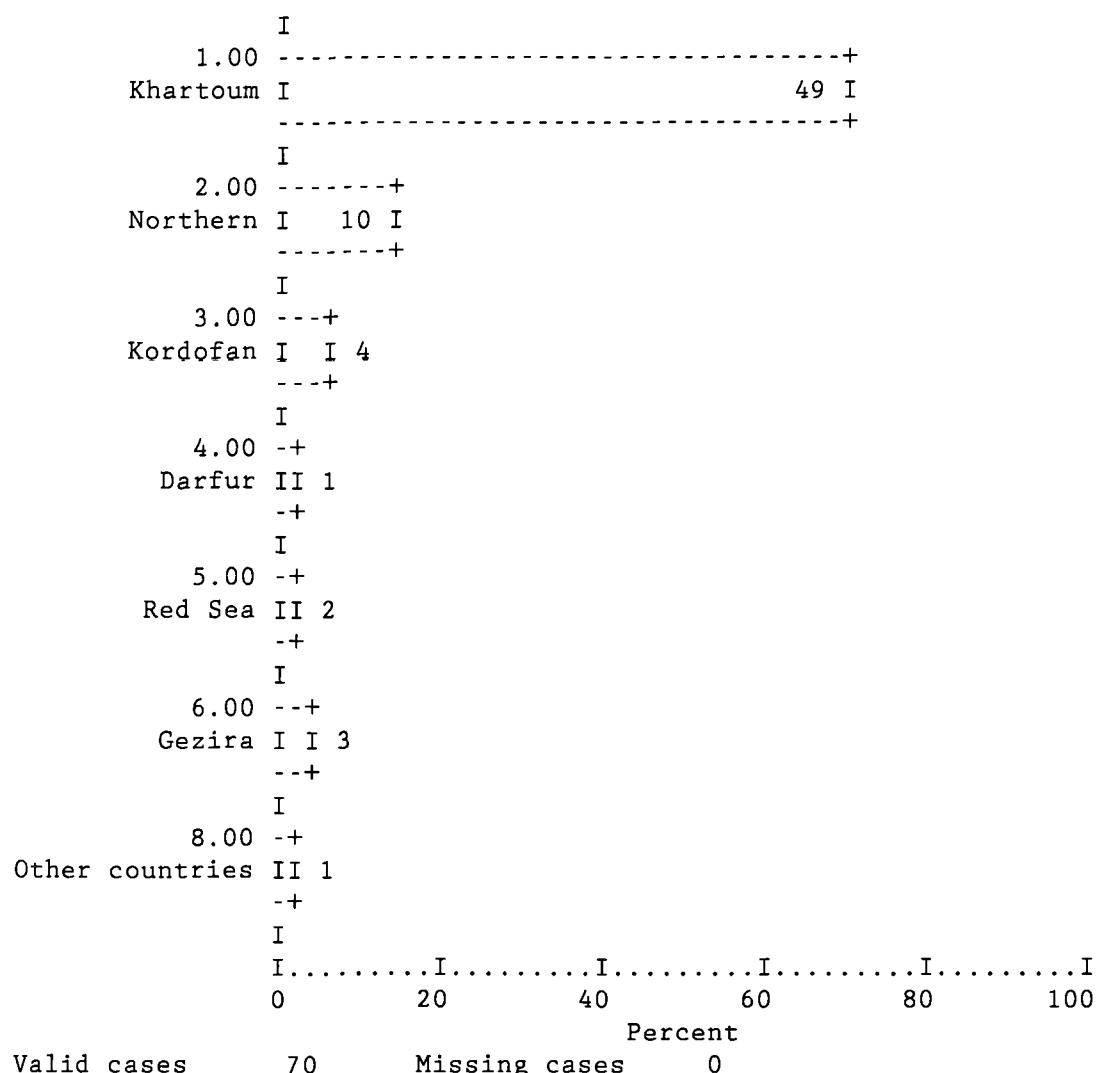


FIG. (6.19): Region of Head.

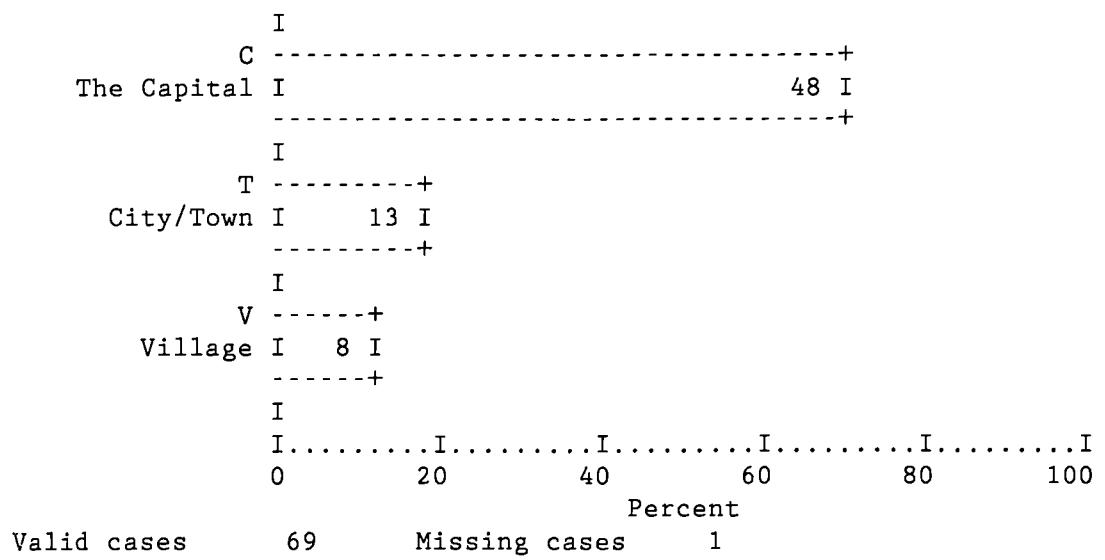


FIG. (6.20) Origin of Head

that, only 50% of heads of household fathers lived in the capital, of whom 94.3% spent periods ranging from 25 years and over, and 74.3% spent more than 50 years (see Table 6.8).

Unexpectedly, the percentage of literacy was found to be, comparatively, very high between respondents, 95.7%, of whom 77.1% entered regular schooling. Also, those who achieved higher education were relatively high, 20% and 15.7%, as high secondary school and university graduates, respectively (see Table 6.9, 6.26 and fig. 6.21).

6.4.7 Occupation and Income Levels [2].

The obtained information suggested that, almost 1/4 of the respondents was out of work. Those were either old aged people or women between whom the employment, mostly for social reasons, was relatively low. While, 68.1% of heads of households were employed as full-time workers, 7.2% held part-time jobs (see Table 6.10 and Fig. 6.22). Most of those who were employed were absorbed by the free enterprise business and the civil service, 40.5% and 34.9%, of the respondents, respectively. Unexpectedly, those who worked as skilled labour and in education were, comparatively few, 5.8% and 2.9%, respectively. Also, those who worked as engineers and scientists were comparatively high, even higher than the skilled labour, 7.3% compared to 5.8% respectively (see Table 6.11). This can be attributed to the high level of education in these areas.

As was expected, the analysis of income levels of respondents indicated there was 'different' income groups in communities under study. Moreover, the 'distribution' of income levels was contrary to what was expected. While, the results showed, generally, there was only 8.1% of respondents as low-income earners, the high income earners were as high as 62.9%. On the other hand, there was 37.1% as

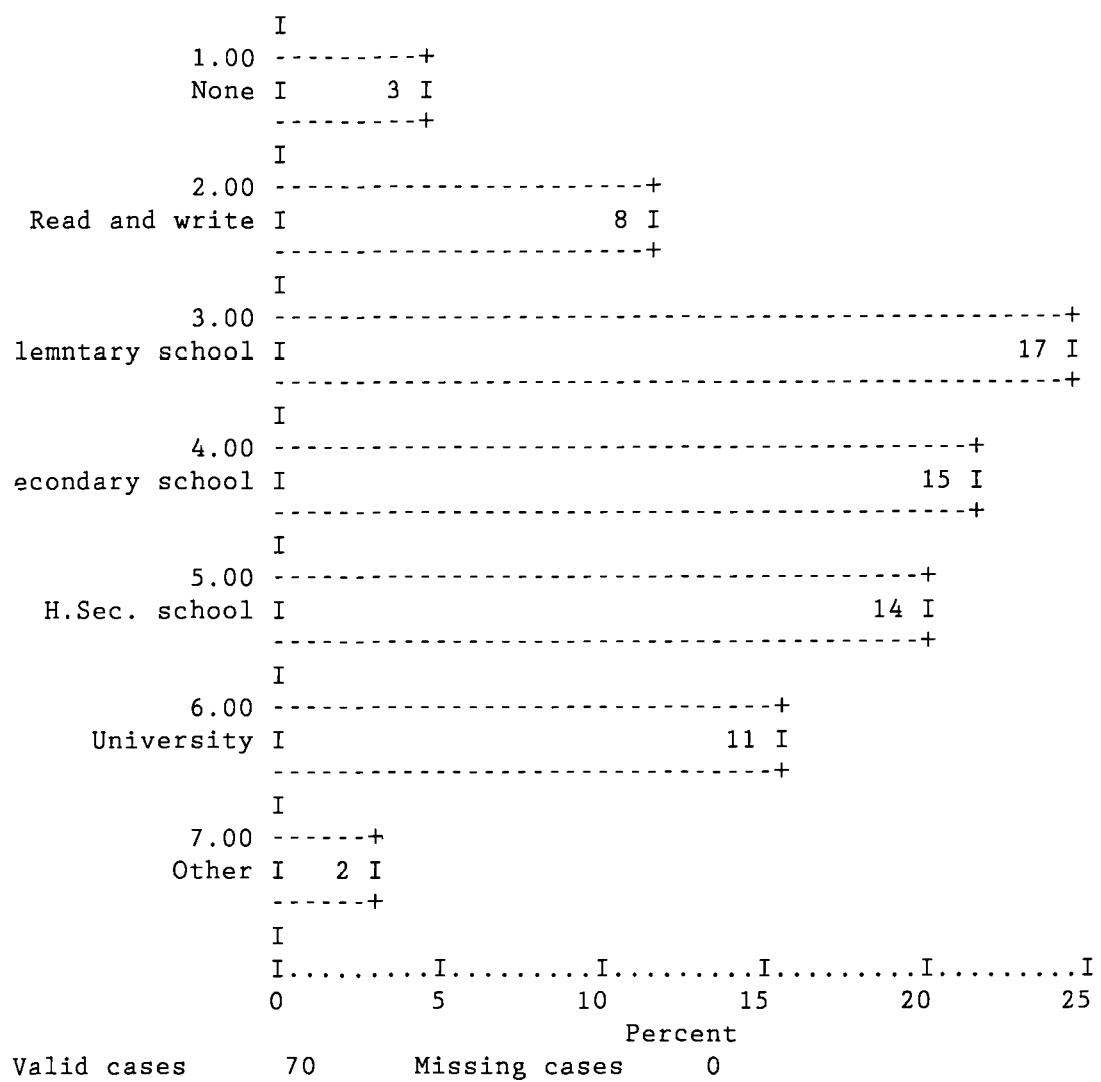


FIG. (6.21): Highest Education Obtained by Head

middle income earners (see Table 6.12 and fig. 6.23).

When the result was examined against different localities it manifested some deferences. The significant variation was in Al-Umda Sharque, where it revealed the highest level of middle-income earners and the lowest of high-income earners, 43.8% and 50%, respectively. In addition, Al-Busta Ganoub reflected the highest percentage of low-income group, 12.5%, whereas Al-Ardha Wasat and Al-Mahadia shared the same levels of income distribution, 6.6%, 26.7%, 66.7%, for low middle and high-income levels, respectively. On the other hand, expect for Al-Busta Ganoub, the localities revealed minor deferences for low-income earners (see Tables 6.13 to 6.16)

Although these figures can not be taken as critically accurate, as some respondents might be hesitant to disclose the right level of their income for the fear of taxation, still it can shed some light on the character of economic prosperity in communities in question. The unexpected high level of income in these areas could be attributed to the, comparatively, high level of education and those who worked in business enterprise. Also, the people in these localities enjoyed better opportunities for getting better jobs than those as new residents of the capital. The figures showed that, even some of those who were not employed had other sources of income e.g. as some might be on pension others might receive money from children and relatives to levels even sometimes higher than the normal wages. The different levels of income-groups in Al-Mahadia, as an area distributed to low-income earners in the past, implies that the normal structure of a community in Omdurman city was a mixture of different income-levels. Accordingly, it could be said that the purpose of zoning residential areas into classes based primarily on economic levels contradict with such pattern of living.

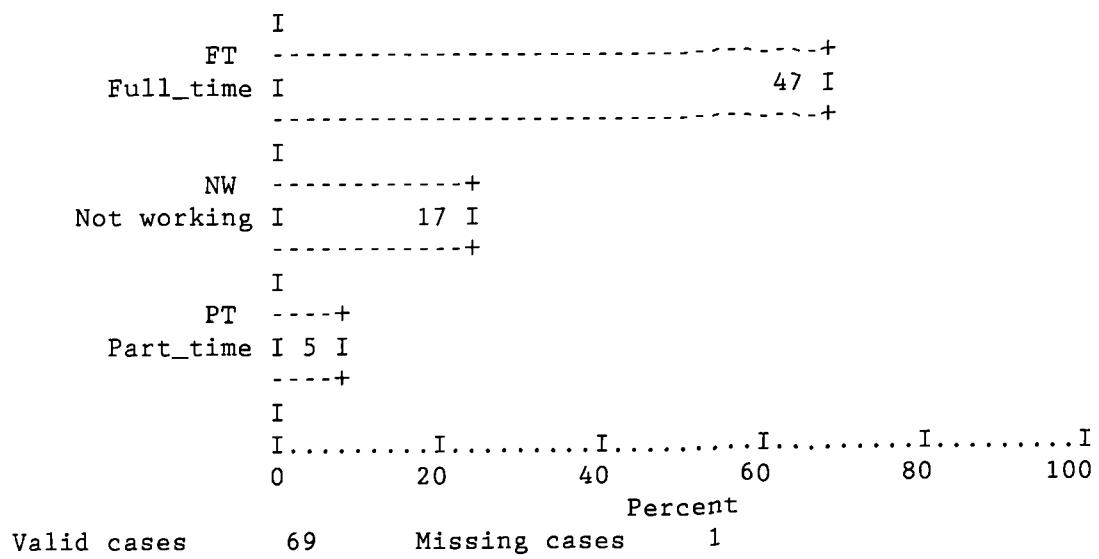


FIG. (6.22): Working Status of Head

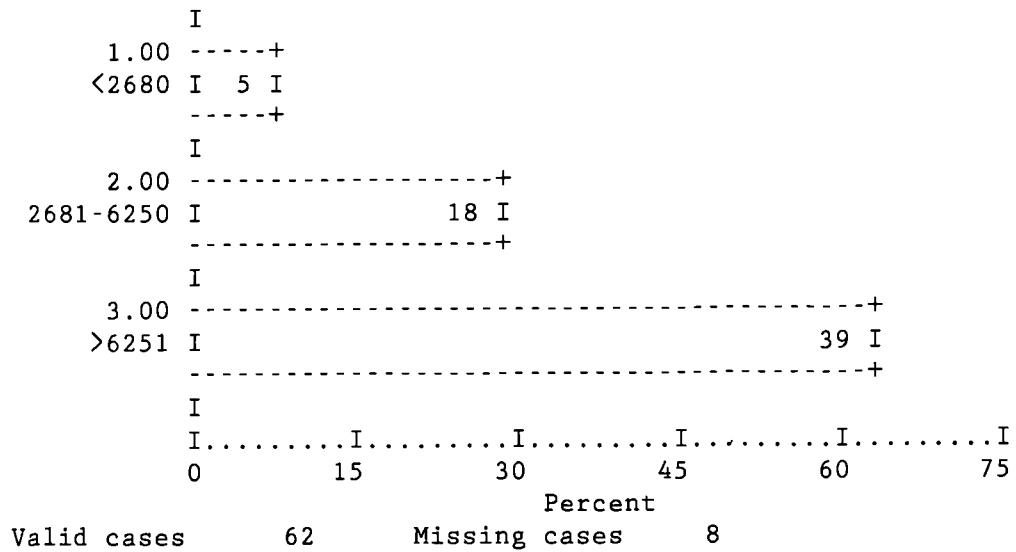


FIG. (6.23): General Level of Annual Income in Sudanese Ls.

Note: the high number of missing cases was due to the refusal of some respondents to reveal their income level added to interviewers missing values.

6.4.8 Type of Dwelling and Tenure.

The evidence from observations on Omdurman urban areas under study suggested that, generally, the overwhelming majority of the dwellings where the respondents lived were of the traditional 'one-floor courtyard' type, 94.3%. Furthermore, 4.3% were found to live in a 'part' of a courtyard dwelling, whereas only 1.4% abode in a multi-floor house (see Table 6.17 & Fig. 6.24). Although 'sharing' of living with close relatives was common, sharing of a house by 'independent' households was a quite rare practice due to 'privacy' problem, as it will be explained in the next chapter.

On the other hand, the analysis of type of tenure reflected that, more than 1/2 of dwellings in the sample were owner occupied, 55.7%. Also, there was only 11.4% as rented ones, whereas there was as much as 32.9% of other forms of occupancy, i.e. usually rent free, from inheritance and relatives (see Table 6.18 & Fig. 6.25). The last form of tenure indicated its considerable impact on accessibility in these communities, which would be useful if taken into account when making planning and policies for housing.

Although this description can not satisfy explaining fully the character of the dwelling without reference to its socio-cultural context, it is meant here to give a preparatory idea for the critical analysis that will follow in the next Chapters. The following section will examine the social structure of the household and its implications on privacy and the spatial syntax of the dwelling.

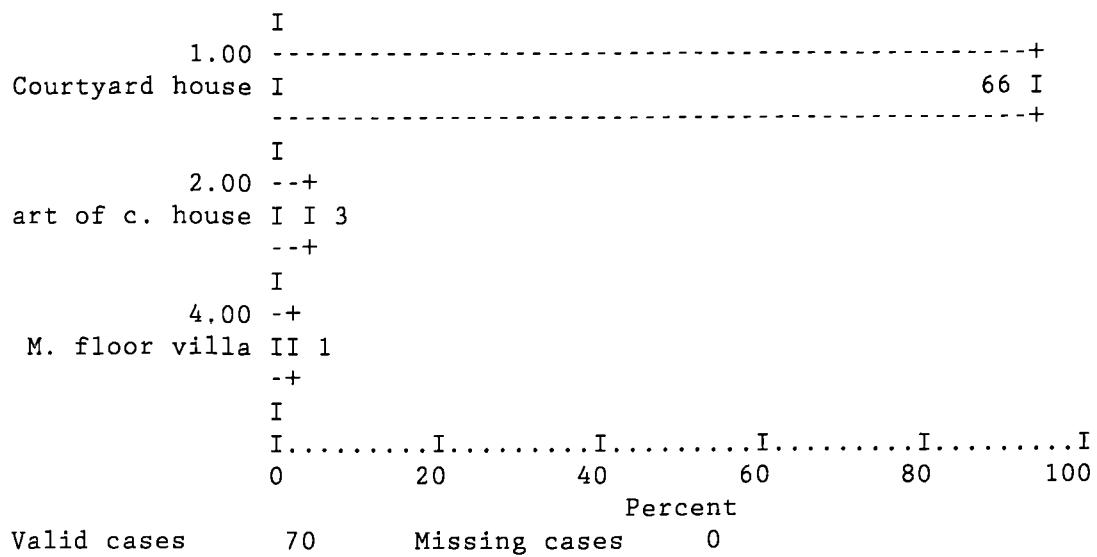


FIG. (6.24): Type of dwelling

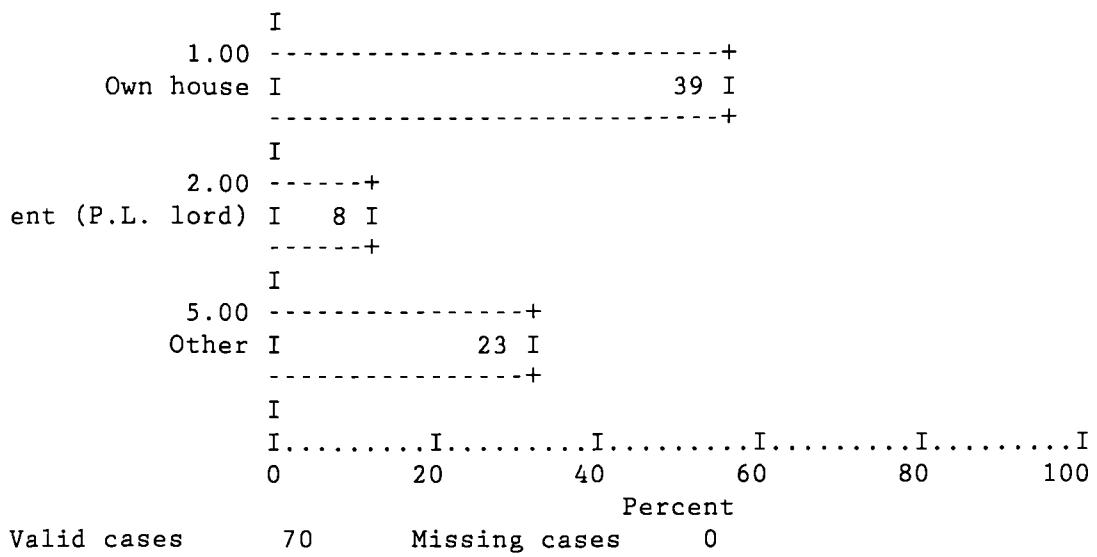


FIG. (6.25): Type of Tenure

REFERENCE NOTE (6):

- [1]. That is why it is famous for being called, sometimes, Al-Thawra town or the revolution town
- [2]. The definition of economic levels has been based on information gained from Sudan Estate Bank Officials. (see Table 6.27).

REFERENCES (6):

1. Canter, D., *The Psychology of Place*. The Architectural Press Ltd., U.K., 1977, PP. 123-125.
2. Bindal, M., Privacy Requirement and its Effect on Housing Design, *Housing Science*, Vol. 6., No. 4, U.S.A., 1982, P. 301.
3. Finighan, W. R., Some Empirical Observations on the Role of Privacy in the Residential Environment, *Man-Environment Systems*, No. 10, 1980, P. 154.
4. Bindal, M., *Ibid.*
5. Canter, D., *Ibid.* P. 121.
6. Abdul-Rahim, R. H., *Introduction to Descriptive Statistics* (in Arabic), Dar Wahdan Printing Press, Egypt, P. 25.
7. Burgess, R. G., (ed.), *Field Research: A Source Book and Field Manual*, George Allen & Unwin, 1982, PP. 111, 163, 177-179.
8. EL-Sayad, G., and Samara, A., *Fundamentals of Statistics* (in Arabic), Tihama, Saudi Arabia, 1983, P. 15.
9. Johnson, J. M., *Doing Field Research*, The Free Press, 1975, PP. 50-51.
10. Abdul-Rahim, R. H., *Ibid.*, PP. 30-33.
11. Jhonson, J. M., *Ibid.* PP. 50-51, 111-114.
12. Abdul-Rahim, R. H., *Ibid.*, P. 43.
13. Gee, C., and others, *Social Statistics: Notes for Infrastructure Planning Course*, University of Stuttgart, West Germany, 1975, P. 46.

14. Abdul-Rahim, R. H., *Ibid.*, PP. 30-33, 42.
15. Gee, C., and others, *Ibid.*, PP. 46-50.
16. Abdul-Rahim, R. H., *Ibid.*, PP. 45-46.

CHAPTER 7

7. OMDURMAN SOCIO-CULTURAL BEHAVIOURAL ASPECTS AND HOUSING FORM

The purpose of this Chapter is to analyse, discuss and evaluate the results obtained from the field study. Accordingly, the hypothesis stated in the previous Chapter would be clarified to hold either true or false. The Chapter examines the effect of social and cultural factors in communities as major attributes in shaping the residential environment in communities under study. This study was mainly geared to explore the significance of privacy as hypothesised previously.

In this respect the Chapter examines the social structure of the household, perception of privacy, some cultural values, some basic needs, social intercourse, position of women, the physical syntax of the Dwelling and the effect of new architectural development. All tables, unless stated, shall be referred to in Appendix (7).

7.1 THE SOCIAL STRUCTURE OF THE HOUSEHOLD

7.1.1 Introduction:

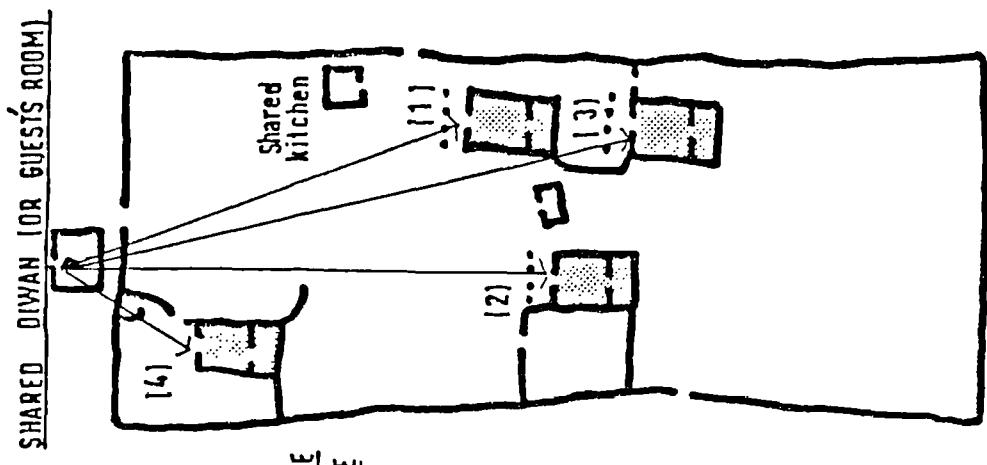
As in many countries of the world, studies have shown that with the process of urbanisation and the exodus of people from rural areas to urban centres a considerable change in the family structure and life style has taken place. Consequently, the household size has become smaller and smaller leading to more independent nucleus families¹.

This Chapter examines the structure of households involved in the sample and the type of changes that have emerged. The consequences of social structure of the households on privacy organisation and use of space in the residence will be shown in the following Chapters.

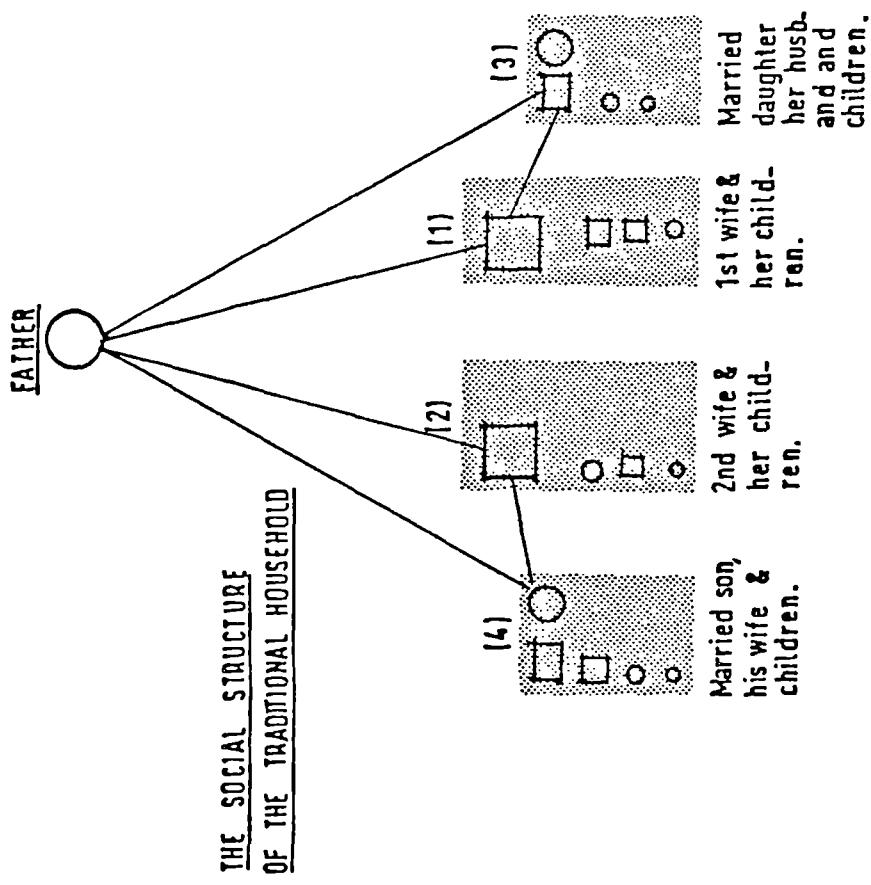
For the sake of discussion it is important to clarify the difference between definitions given to elementary family and the household. While the first one is constituted from the parents and their children, the second is composed of a person living on his own or a group of persons, irrespective of whether related or not sharing the same dwelling, with a common pool of incomes, and having arrangements in the sense of partly or wholly sharing other household expenses. Household members were considered all persons comprising the household [1].

7.1.2 The Traditional Household

The traditional Sudanese social life is based on kinship pattern with stronger emphasis in rural areas. Traditionally, people used to live in a household type composed of elementary families occupying the same house or different parts of it. Sons and daughters after marriage may stay with either the parents or a new addition to the house is built for them. Families in such a compound usually share facilities like male guest room (ALDIWAN/SALOON), kitchen, conveniences and sometimes meals. This pattern of living is encouraged by the strong family ties and shared loyalties between relatives. In rural areas of Northern and Central Sudan, the social structure of the traditional household can easily be read from the physical structure of the compound (see Fig. 7.1) [2]. Such a phenomenon was also prevailing in urban centres, especially in the city of Omdurman. Recently, with the process of urbanisation and the influx of many migrants from rural areas to the city, a sort of an independent elementary family started to emerge. In addition, this is encouraged by overcrowding of the existing households and the ballot system used to distribute plots, which forced many relatives to scatter around the city.



THE PHYSICAL STRUCTURE
OF THE TRADITIONAL HOUSE



THE SOCIAL STRUCTURE
OF THE TRADITIONAL HOUSEHOLD

FIG. (7.1): Early studies in the Gezira area (central Sudan) showed such a composition of extended households. See how the social structure of the household is reflected in the dwelling form (after Elias, O. E.).

7.1.3 Types of Households in the Sample

The households in the representative sample were classified, in relation to the occupation of the dwelling, into seven categories.

these were:-

1. Elementary family (father, mother and children)
2. Elementary family with a close relative single lodger [3]
3. Elementary family with a branch family unit [4]
4. Elementary family with a branch family unit and a close relative single lodger
5. Elementary family with a close kin family unit [5]
6. Elementary family unit with a close kin family unit and a close relative single lodger
7. An independent household sharing with another independent household [6].

Most of the families in the sample were found to share the dwelling with either a single lodger, a family or another independent household. more than 2/3 of the families, 70.6%, shared residence and only 29.4% were elementary families living alone. The low percentage of independent elementary families was apparent in the four localities where 37.5%, 21.1%, 29.4%, 31.3% were found in Hara-1, Hara-2, Hara-3 and Hara-4 respectively.

In general 17.7% of the sharing families included a single lodger, 25% a branch family unit, 11.8% a branch family unit and a single lodger, 8.8% a close kin family unit, 4.4% a close kin family unit and a single lodger, and 2.9% as two independent households.

Although a new type of independent elementary families emerged in urban areas, still the traditional pattern of sharing seemed to be dominant in communities under study. This result of high residence sharing, explained earlier, was not striking. This could be partially related to the critical shortage of housing, high cost of rent, sharp rise in expenses of living and the strong social relations between close relatives. Unexpectedly, the result revealed a very low percentage, 2.9%, of independent families or households sharing the same dwelling. Such independence was either because the sharing families did not have any type of blood relation, or a branch or a close kin family claiming its independence, usually by the wife, from the main household. The first type involves the problem of privacy, especially between the different sexes, because the two families are 'strangers' to each other. Such families only acquire such sharing under critical social and economical hardship. The second type of independence is usually faced with social disapproval, especially with regard to sharing food. On the other hand, unexpectedly the results did not show any household of bachelors. generally families treat bachelors as 'strangers' and privacy intruders, especially to women folk, and resist renting to them. Also the dominance of big households and lack of residence for rent in areas under study curbed the emergence of such households (see Table 7.1.1).

The dominance of dwelling sharing was encouraged by the constraints mentioned before. Due to lack of ample space and appropriate physical privacy controllers, (rooms, courts, doors, etc...), accompanied by a high number of family

members, such sharing was sometimes accompanied by crowding and privacy problems. As we shall see later this result showed that other privacy mechanisms were used to supplement the physical privacy controllers.

TABLE (7.1.1):

DISTRIBUTION OF DWELLINGS ACCORDING TO TYPE OF HOUSEHOLD

TYPE OF HOUSEHOLD	HARA 1 No	HARA 1 %	HARA 2 No	HARA 2 %	HARA 3 No	HARA 3 %	HARA 4 No	HARA 4 %	total %
<hr/>									
ELEMENTARY FAMILY									
ALONE	6	37.5	4	21.1	5	29.4	5	31.3	29.4
E.FAMILY & SINGLE									
LODGER (close kin)	2	12.5	4	2.1	2	11.8	4	25.0	17.7
E.FAMILY & BRANCH									
FAMILY UNIT	4	25.0	6	31.6	3	17.7	4	25.0	25.0
E.FAMILY & B.FAMILY									
& SINGLE LODGER									
(close kin)	3	18.8	3	15.8	1	5.9	1	6.3	11.8
E.FAMILY & CLOSE									
KIN FAMILY	1	6.3	1	5.3	3	17.7	1	6.3	8.8
E.FAMILY & K.FAMILY									
& SINGLE LODGER									
(close kin)	0	0.0	1	5.3	1	5.9	1	6.3	4.4
TWO INDEPENDENT									
HOUSEHOLDS	0	0.0	0	0.0	2	11.8	0	0.0	2.9
<hr/>									
TOTAL	16		19		17		16		68 houses 100%
<hr/>									

HARA = Locality

Source: statistical data analysis of field study.

7.1.4 The Family and the Household Life Cycle

There are four phases common in the development of the Sudanese family [7].

These are:

- (a) The pre-child phase: immediately after marriage to one or two years before the first child is born.
- (b) The growing-family phase: the family gradually grows as more children are born.
- (c) The grown-up (or adult) family phase: when the family reaches ultimate growth and no more children are to be expected.
- (d) The household phase: when the family enters its household cycle.

(a) The Pre-Child Phase:

In this stage the couple's financial status is not good and all or most of their spare money has been spent in wedding expenditure. Sometimes they are offered a section of the parents' or in-laws' house for their privacy, and otherwise share expenses and amenities. When they feel that they can afford to build, rent a house, or being forced by overcrowding, they leave for new lodgings [8].

(b) Growing Family Phase:

The family enters this phase with the increase in the number of children. The feeling of the need for future security becomes stronger. For this reason and sometimes forced by the household crowding, the parents start to look

for a land to build their own house otherwise rent an independent lodging.

(c) Adult Family Phase

As children grow up and become mature the family enters this phase. Modulation in the dwelling space use need to occur. The parents, girls, and boys each require their own private space, especially during the night. If the house is big enough and flexible, it can accommodate these changes, otherwise crowding and privacy problems would take place. Another element which adds to the complexity is that most of the sons and daughters may only leave the house after marriage.

(d) The Household Phase [9]:

This stage is entered in different ways; the most familiar one is that adults get married and stay in their parents' or in-laws' house. Alternatively a family head may take the responsibility of a family unit when a close relative dies or when he re-marries after his first wife dies. In many cases the household phase is associated with overcrowding. Shortage of space and lack of privacy compel some of the household members to leave. In cases, where the dwelling has ample private spaces, the children may stay permanently and gradually take over as the parents become older.

As was mentioned before the age of parents affect their fertility, the number of children and stage in the family development, (i.e. older parents are likely to have older families or already have entered the household stage). In other words age affects the family life cycle.

Consequently the stage of family development was categorised in relation to the age of the head of household

to whether young, middle, late middle or old in relation to the age group: 30, 31-40, 41-50 or over 50 years respectively. When families were cross-tabulated against the different localities the analysis showed the dominance of old families in sharing of dwelling. Generally, more than half, 61.2%, of the total number of sharing families in the sample fell under the category of old age. This high percentage was also shown in each of the areas under study. For example, there was 66.7%, 80%, 42.9% and 54.5% in Hara-1, Hara-2, Hara-3 and Hara-4 respectively. There was, generally, only 8.2% as young families half of which were single heads taking care of families after the death of their primary guardians (see Tables 7.1.2 & 7.1.3).

This result was very much affected by the high headship rate among the old age group, which in turn reflects the high rate of old families in the sample [10]. Nevertheless, the old age of the urban complex under study compared to other parts of the capital, could have its effect on the development of extended families. Also, the traditional respect for elders might have contributed to the dominance of old families over the young ones in the same household [11].

7.1.5 The Composition of Households

The range of the household size in the sample revealed wide variation with a minimum size of 2 persons and a maximum of 14 persons. In the first type the family was either a young nuclear one claiming its independence from the original household while sharing the same house, or an old family that couldn't produce children. As we shall see later, the second family size pointed to the phenomenon of complex households. These two extremes, which were present in Hara-3 and Hara-4, represented only 5.8% for the total households in the sample (see Table 7.1.4).

TABLE (7.1.2):

DISTRIBUTION OF SHARING FAMILIES ACCORDING TO STAGE IN
FAMILY DEVELOPMENT

STAGE IN FAMILY DEVELOPMENT	AGE OF HEAD	FREQUENCY	VALID PERCENT	CUM PERCENT
YOUNG	< 30	4	8.2	8.2
MIDDLE	31-40	8	16.3	24.5
LATE MIDDLE	41-50	7	14.3	38.8
OLD	> 50	30	61.2	100.0
	TOTAL	49	100.0	

Note:

(Age in years)

Source: statistical analysis of field study.

TABLE (7.1.3):

DISTRIBUTION OF SHARING FAMILIES ACCORDING TO STAGE IN
FAMILY DEVELOPMENT

STAGE IN FAMILY DEVELOPMENT	HARA-1		HARA-2		HARA-3		HARA-4	
	NO	%	NO	%	NO	%	NO	%
30 years	0	0.0	1	6.7	2	14.3	1	9.1
31-40 years	3	33.3	0	0.0	2	14.3	3	27.3
41-50 years	0	0.0	2	13.3	4	28.6	1	9.1
over 50 years	6	66.7	12	80.0	6	42.9	6	54.5
TOTAL (49)	9	100%	15	100%	14	100%	11	100%
Valid Cases	49		Missing Cases				2	

Note: % from the Hara sample (each separately).

Source: statistical analysis of field study.

The analysis of the entire population showed a mean of 7.8 persons per household and 8.1 persons per dwelling. This difference in the average size of the household and the number of occupants in the dwelling was because of house sharing between independent households. Such a phenomenon was mainly found in Hara-3.

Further analysis of the average size of household and occupants of dwelling also showed some sort of differences between communities under study. There was 7.6, 8.3, 7.9 and 7.4 persons per household for Hara-1, Hara-2, Hara-3 and Hara-4 respectively. As for the reasons explained before, in Hara-3, the mean for number of occupants in residence, 8.8, was higher than for other localities and the entire population (see Table 7.1.5 and Fig. 7.2). These figures

reflected that the average size of the household or residents in the dwelling in the three older areas was more than that in comparatively recent government Housing, Hara-4. Because the size of plot in Hara-4, approximately 350-300 m², generally was smaller than of other localities under study could also have hindered the absorption of more occupants in this area.

TABLE (7.1.4):

THE COMPOSITION OF COMMUNITIES ACCORDING
TO SIZE OF HOUSEHOLD

VALUE	FREQUENCY	VALID PERCENT	CUM PERCENT
2.00	2	2.9	2.9
3.00	3	4.3	7.1
4.00	5	7.1	14.3
5.00	3	4.3	18.6
6.00	12	17.1	35.7
7.00	10	14.3	50.0
8.00	7	10.0	60.0
9.00	9	12.9	72.9
10.00	3	4.3	77.1
11.00	7	10.0	87.1
12.00	5	7.1	94.3
13.00	2	2.9	97.1
14.00	2	2.9	100.0
TOTAL	70	100.0	

Note:

(Criterion Variable = PEOPLE)

Source: statistical analysis of field study.

TABLE (7.1.5):

THE COMPOSITION OF SAMPLE HOUSEHOLDS BROKEN BY
(HARA) LOCALITY.

VARIABLE	VALUE	LABEL	MEAN	STD DEV	CASES
		For Entire Population	7.83	2.94	70
HARA	1.00	Al-Busta Ganoub	7.56	2.56	16
HARA	2.00	Al-Ardha Wasat	8.32	2.66	19
HARA	3.00	Al-Umda Sharque	7.89	3.40	19
HARA	4.00	Mahadia Hara-2	7.44	3.16	16

Total Cases = 70 Households

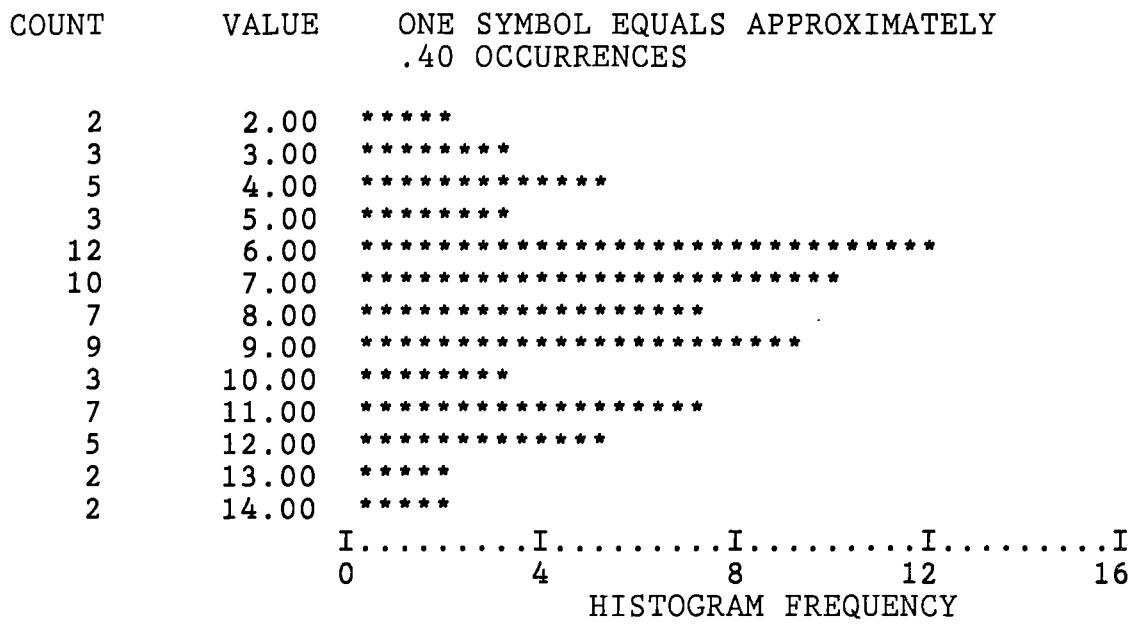
Note:

Criterion Variable = PEOPLE).

Mean for dwelling for entire population = 8.06

Total number of dwellings = 68 = (70 households).

Source: statistical analysis of field study.



VALID CASES 70 MISSING CASES 0

FIG. (7.2):
THE COMPOSITION OF COMMUNITIES ACCORDING TO SIZE
OF HOUSEHOLD

Although Hara-1 was older than Hara-2, unexpectedly, population means for the first one were less than for the second one. Such result could be attributed to physical and environmental differences in these localities. The plot size, area around the house, existence of 'strangers', traffic problems and the physical environment was far better in Hara-2. Due to the old age of Hara-1, the strong family ties might have been weakened by the development of many generations which in turn give rise to privacy and inheritance problems that lead some families to divide the house or look for residence somewhere else.

The age structure was classified to match with the education system in the country. It was then found to be dominated by the mature population, 14-60 years old. The young and old age groups, under 14 and over 60 years respectively, were found to represent only 28.1% of the

total representative sample (see Table 7.1.6 and Fig. 7.3). This might give a picture of a newly migrant society, where it could be found in other parts of the city, in which the working adults are in a majority, except that in the communities under study the females and males populations were approximately balanced, 49.5% and 50.5% respectively. Although the inhabitants in the sample or their parents were originally migrants, the long period lived in the city together with other factors resulted in the development of households and consequently kept the balance of the sex structure [12]. Unlike women in villages, the main task of traditional town women is child rearing which means that, approximately, only half of the adult population could be involved in active work outside the home [13].

So as to examine age and sex in relation to composition of the occupant household, five broad categories were introduced:

1. children under 8 years
2. children 8-13 years
3. females 14 years and over (i.e., adolescents and adults)
4. males 14 years and over (i.e., adolescents and adults)
5. Females or males over 60 years (i.e., old people)

TABLE (7.1.6):

THE COMPOSITION OF HOUSEHOLDS ACCORDING TO AGE GROUPS

AGE GROUP VALUE LABEL	VALUE	FREQUENCY	VALID PERCENT	CUM PERCENT
<2	1.00	16	3.0	3.0
3-7	2.00	44	8.3	11.3
8-13	3.00	45	8.4	19.7
14-20	4.00	84	15.8	35.5
21-25	5.00	65	12.2	47.7
26-30	6.00	84	15.8	63.4
31-40	7.00	78	14.6	78.0
41-50	8.00	38	7.1	85.2
51-60	9.00	34	6.4	91.6
>60	10.00	45	8.4	100.0
	.	15	MISSING	
	TOTAL	548	100.0	

Note:

(Age in years).

Source: statistical analysis of case study.

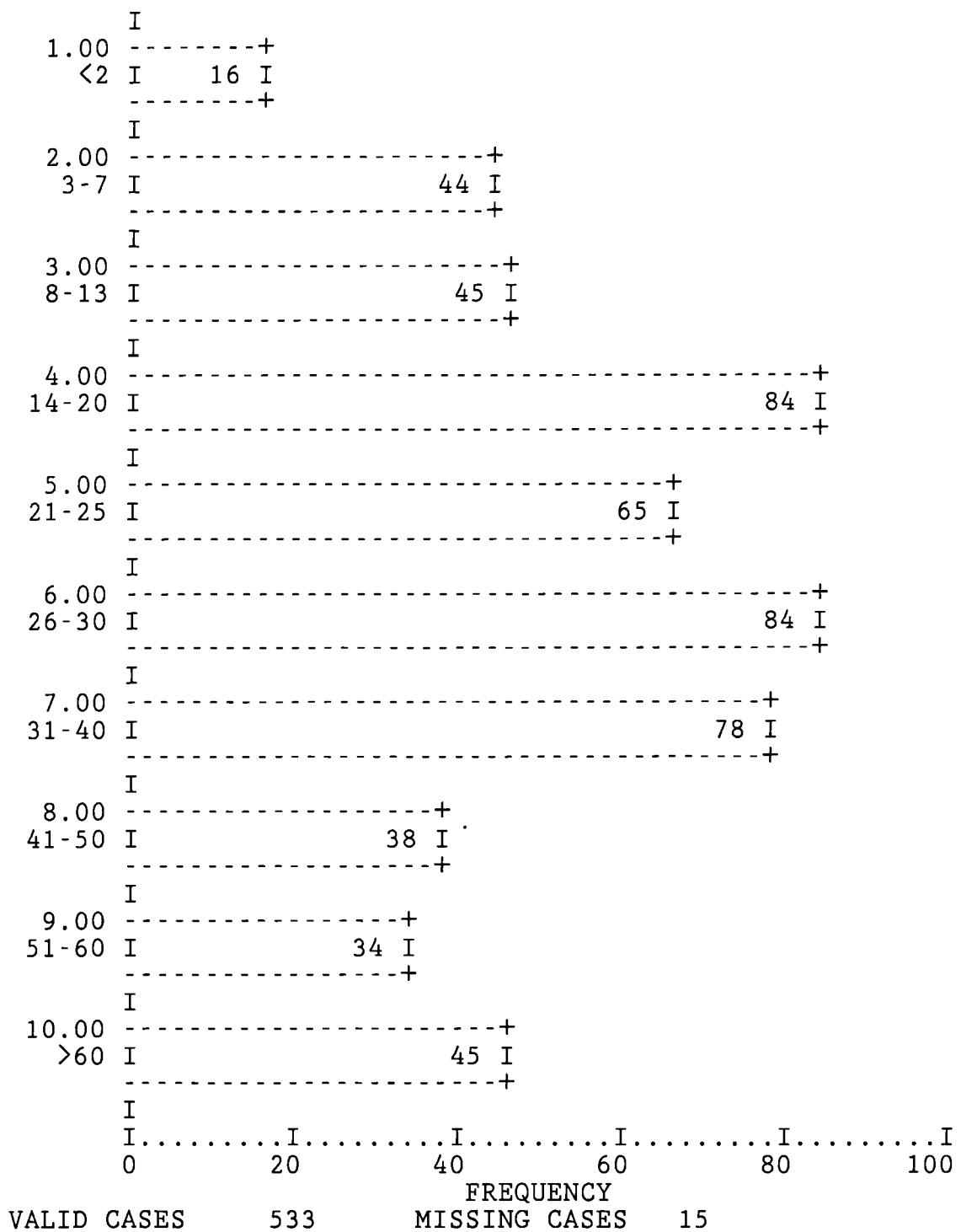


FIG. (7.3): COMPOSITION OF HOUSEHOLDS ACCORDING TO AGE GROUP

This classification was made to accommodate the possible differences in acquisition and right to privacy of family members and accordingly their use and organisation of space.

It was assumed that young children under school age would be offered and required the least privacy. On the other hand, children aged 8-13 years and old people over 60 years would need and enjoy less privacy opportunities whereas adult females and males were likely to pursue the most intensive use of controllers and occasional retreat to privacy, especially against the opposite sex. consequently, people aged 14-60 years would need more specified space within the home.

The results of analysis indicated that the composition of households in the sample was complex. The evidence showed that in all households which included females and male adults of age less than 60 years there was a high need for privacy considerations, especially physical ones. This problem was aggravated by the fact that there was 44.8% of households which included 8-14 years old children. Although such children are not considered as adults, they can be a considerable source of adults privacy intrusion because they do not yet comprehend or stick to the conventional cultural norms. In addition, there was 10.5%, 74.6%, 46.3 of households with all age groups, old people plus 8-14 years old children and old people respectively. Moreover, there was only 1.5% identified as households with females exclusively (see Fig. 7.4). This low percentage corresponds to Sudanese, Islamic, tradition that men are expected to take social and economic guardianship over women relatives.

7.1.6 Heads of Households [14]

The general ratio of heads to the total population was 12.85% only. This low percentage was reflected by the large

DISTRIBUTION OF DEWELLINGS ACCORDING TO COMPOSITION OF OCCUPANT HOUSEHOLDS

[Sample : 67 Dewellings = 69 Households]

HOUSEHOLD COMPOSITION :

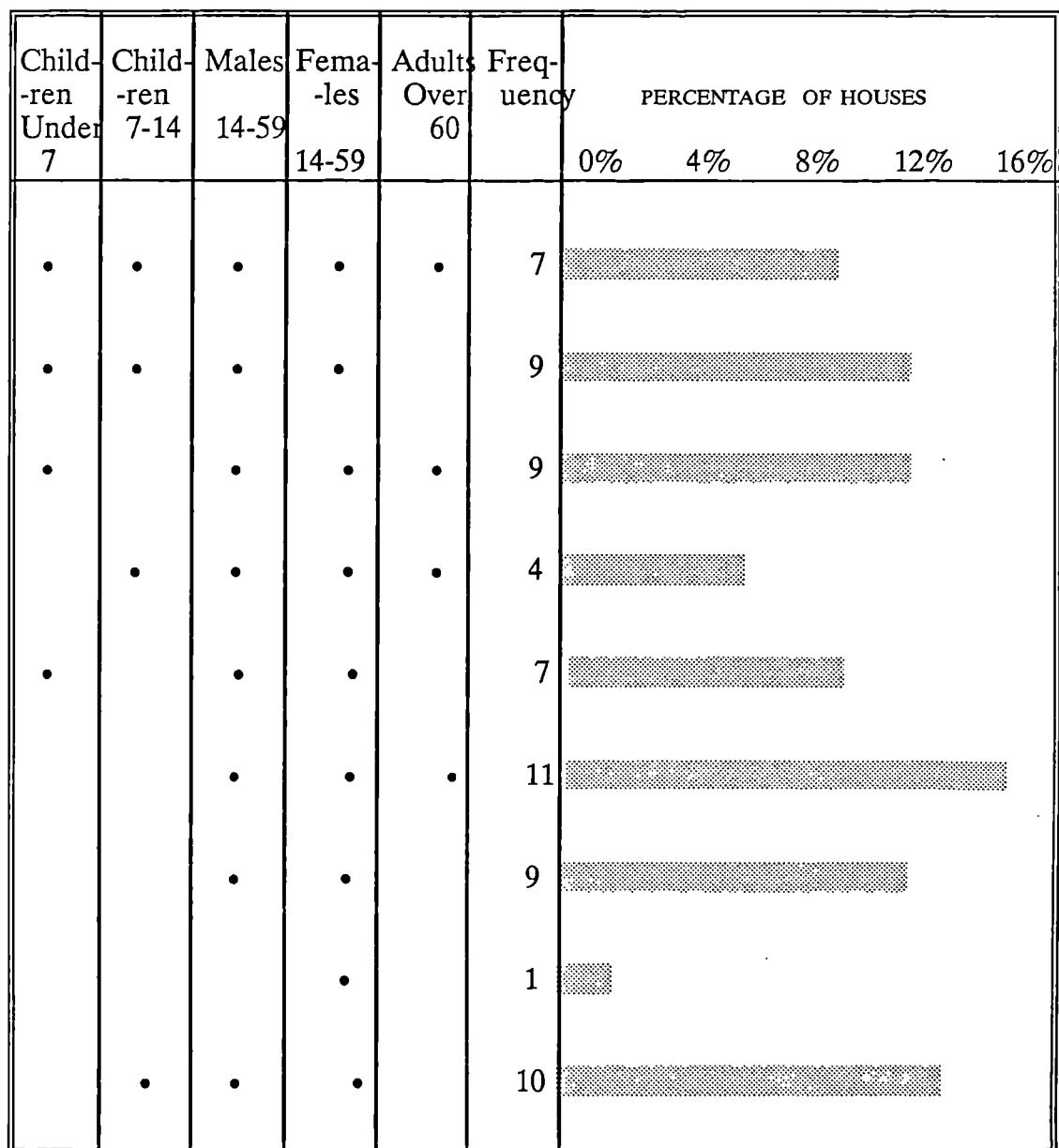


Figure (7.4)

Source : Case study statistical data analysis :

size of households in the representative sample, where the mean for the entire population was 7.83 persons/household. It could also point to the dilemma of the critical shortage in housing.

The headship between men was overwhelmingly higher than that between women. While on one hand, about 88.57% of the entire number of heads were men, there was only 11.43% as women. This differential result in favour of men was due to the Islamic tradition that fathers or close male kin are expected to be heads and bread earners of their families, except for one case, those women as heads of households were either widows or without a close relative who could afford to carry the responsibilities of the family.

Using the criteria of age and sex, the results generally showed that the heads of households were mainly concentrated in late middle and old age groups. For example, while there was 76.5% of the total number of heads in over 40 years age group, there was only 5.9% in the young age group, under 30 years (see Table 7.1.7). This phenomenon was because of the fact that the number of children was considered as an important factor used by the government for offering houses. Furthermore, in sharing families the headship is usually for the fathers over their children, where this was likely to be dominant in extended households.

When the headship was tested against different sex groups it was, also, found to be higher in the late middle and old age groups. As for men it was 0.81%, 5.71%, 22.92%, 75.00%, 86.67% and 72.00% for the age groups: 20, 26-30, 31-40, 41-50, 51-60 and over 60 years respectively. While for women it was 2.04%, 3.33%, 15.79% and 15.00% for the age groups 26-30, 31-4-, 51-60 and over 60 years respectively (see Tables 7.1.7 and 7.1.8) beside the other factors mentioned earlier, the dominance of the old age group in women could be related to the fact that all of them, except for one

case, were widows. Also, for men this result was due to the corresponding reasons mentioned before [15].

TABLE (7.1.7):

DISTRIBUTION OF MALES HEADS OF HOUSEHOLDS ACCORDING
TO AGE GROUP

AGE OF HEAD (Years)	FREQUENCY OF MALES (1)	FREQUENCY OF HEADS (2)	HEADSHIP PERCENT [(2)X100/(1)]
< 20	124	1	0.81
26-30	35	2	5.71
31-40	48	11	22.92
41-50	20	15	75.0
51-60	15	13	86.67
>60	25	18	72.0
TOTAL	267	60	

Note:

Percentage of males heads for the entire
males population = 22.47%.

Source: statistical analysis of field study.

TABLE (7.1.8):

DISTRIBUTION OF FEMALE HEADS OF HOUSEHOLDS
ACCORDING TO AGE GROUP

AGE OF HEAD (Years)	FREQUENCY OF FEMALES (1)	FREQUENCY OF HEADS (2)	HEADSHIP PERCENT [(2)X100/(1)]
< 20	126	0	0.0
26 - 30	49	1	2.04
31 - 40	30	1	3.33
41 - 50	18	0	0.0
51 - 60	19	3	15.79
>60	20	3	15.0
TOTAL	262	8	

Note:

Percentage of females heads for the entire females population = 3.05%.

Source: statistical analysis of field study.

7.1.7 Summary

The traditional pattern of sharing living expenses and accommodation can still be seen for over 2/3 of the sample population. The critical shortage of housing, high cost of rent, sharp rise in expenses and the strong social relations between relatives might have hindered the increase of elementary families. The analysis also showed that, even with the existence of many housing constraints, sharing with a "strange" family was not favoured due to privacy problems. This reflected the fact that house sharing followed a

certain social logic which was kinship and intimacy. Consequently occupying a certain 'privacy-space', i.e., the house, would fit with a certain social logic and vice versa. Although overcrowding was apparent in some dwellings, other privacy mechanisms were used to supplement the physical privacy controllers, as we shall see later.

The range of the household size revealed a considerable variation, 2 to 14 persons, with a large mean of 7.8 persons per household and 8.1 per dwelling. The analysis also indicated that the average size of household in the 3 older The age structure of the sample was dominated by adult population, 71.9%. Because of the long period lived in the city by parents or their fathers, the sex structure was kept in balance.

The examination of sex and age together revealed that the composition of households in the sample was complex. All households included female and male adults of age less than 60 years. Consequently, there was expected to be a high need for privacy considerations in the home, especially physical ones. On the other hand, the headship between men was considerably higher than between women, 88.57% and 11.43% respectively.

It can be concluded that a new form of an independent family with more demands for privacy and hence space has emerged. From the evidence, this sort of family is believed to increase with time.

Although a sort of change has happened still the traditional pattern of living and house sharing was dominant. With the continuation of existing constraints, it is also believed such patterns will continue to dominate the communities in question. The structure of these households is usually complex with large numbers of residents and

different age groups. Such social complexity implies further complexity of privacy acquisition and regulation and hence layout, use of space and physical controllers.

The first pattern of living for the elementary family could mean a large numbers of houses of a smaller size. On the other hand, the second pattern of the extended household may require a small number of houses with a larger size. In other words, the second pattern of living could mean more economy in housing than the first one.

As was mentioned before, privacy is important for the development of personality, dignity and morality. As a consequence, the appropriate housing available in urban environments can be considered as a vital basic need for the development of a healthy society. It is only through the availability of choice between the different living patterns that such a goal can be achieved.

7.2 THE PERCEPTUAL DEFINITION OF PRIVACY

It was pointed out in Chapter (5) that privacy is a basic need and a necessity for the recognition of the self and personal autonomy. But the definition of privacy remains culturally variable. The objective of this section is to describe the conceptual definition of privacy that was obtained from the response of communities under study and to interpret the results in the perspective of the influence exerted by the socio-cultural and physical environment.

In an open-ended question the respondent was asked of what did privacy mean to him/her. This was done in order to avoid biased answering and to give full freedom to the respondent to display his/her opinion. Since there was no a common shared knowledge in communities under study of a clear and definite term such as the 'English' word 'privacy' the 'Arabic' term 'KHUSUSIYA' and the commonly known word 'SUTRA' were used together to substitute for 'privacy'. Later the response was categorised to whether it fell under positive or negative meaning of privacy. It should be noted that the negative and positive nature, here, relates to, the criteria of the definition rather than to of being a good or bad perception, (as it is usually categorised by some scholars). On the other hand, in the following analysis the sign of correlation whether positive or negative, relates to the direction of relation rather than to the strength of such a relation. In positive correlation the related elements behave in the same direction and in negative correlation they behave in different directions (see Fig. 7.6). The order of analysis is shown in (Fig. 7.5).

7.2.1 The General Awareness of Privacy

The respondents revealed both negative and positive perception for privacy. The negative meaning was expressed as exclusion of others in the sense of keeping it for the

THE CONCEPTUAL DEFINITION OF PRIVACY

(THE ORDER OF ANALYSIS)

THE GENERAL CONCEPTUAL
MEANING OF PRIVACY

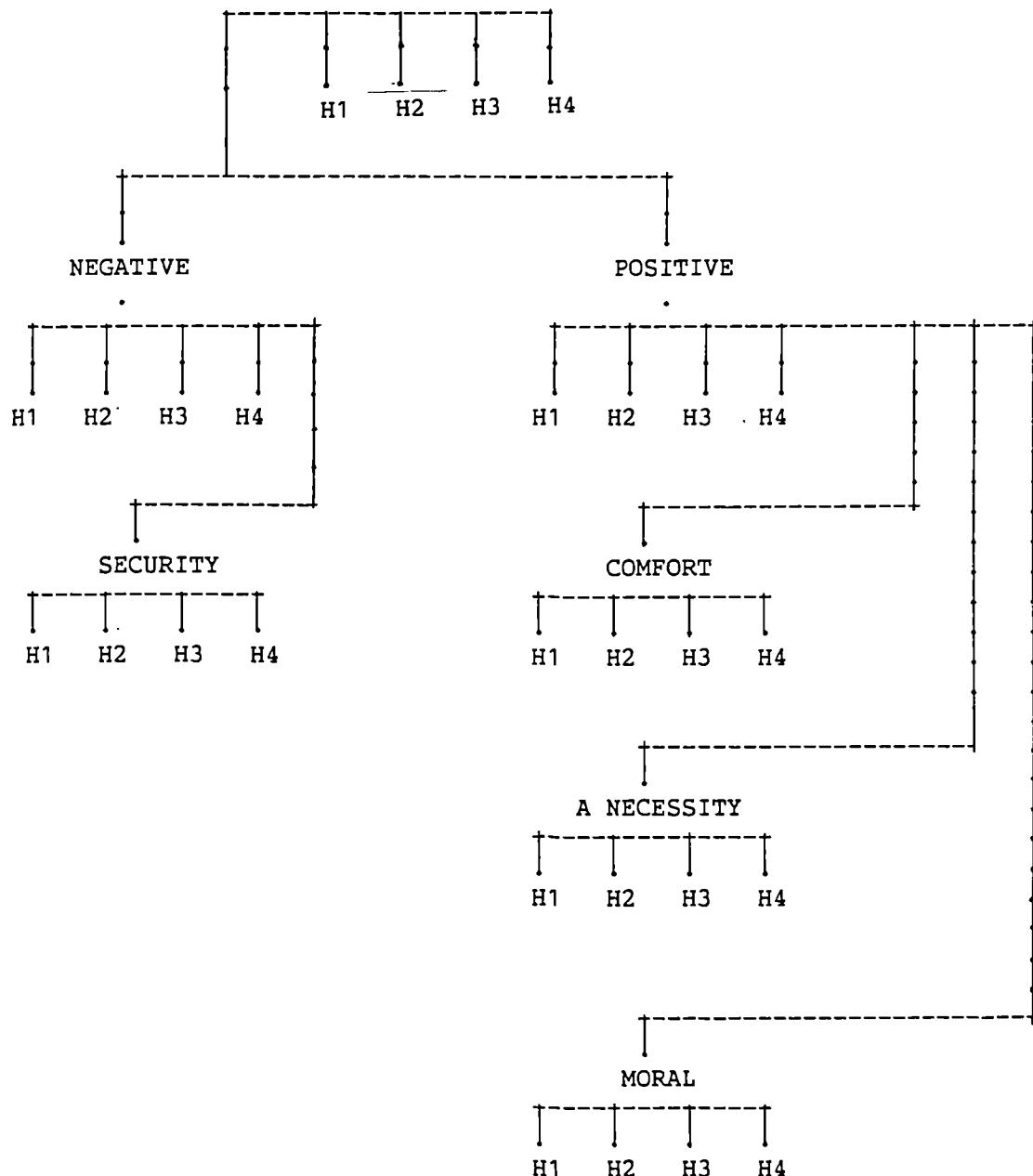


FIG. (7.5): THE CONCEPTUAL DEFINITION OF PRIVACY: THE ORDER OF ANALYSIS.

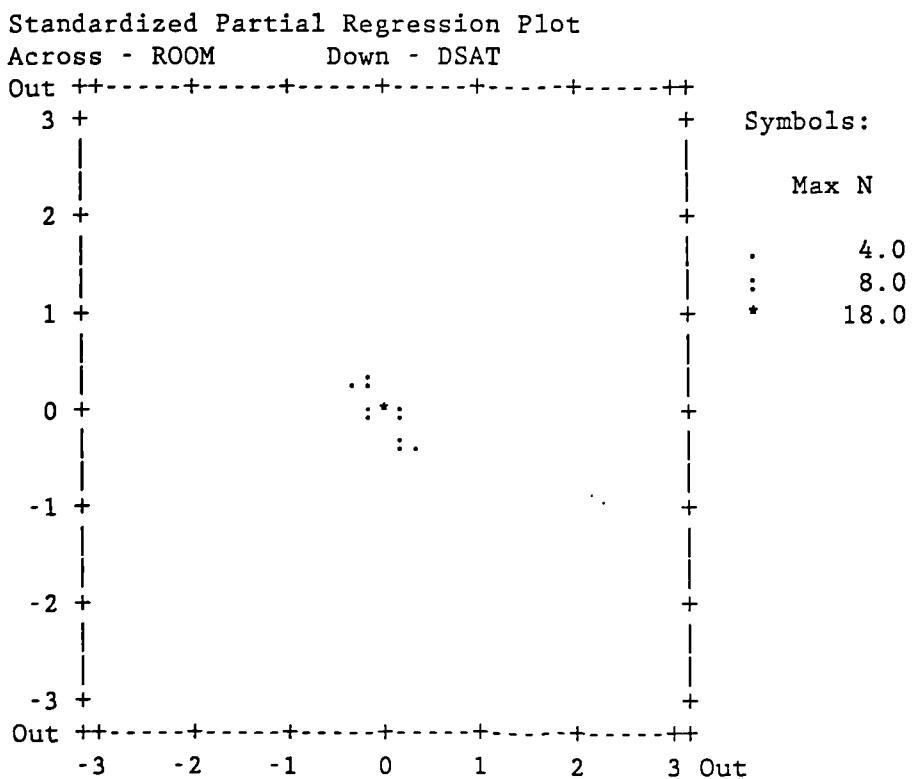


FIG. (7.6.a): Standardised partial regression plot across the availability of ample space and satisfaction with the dwelling.

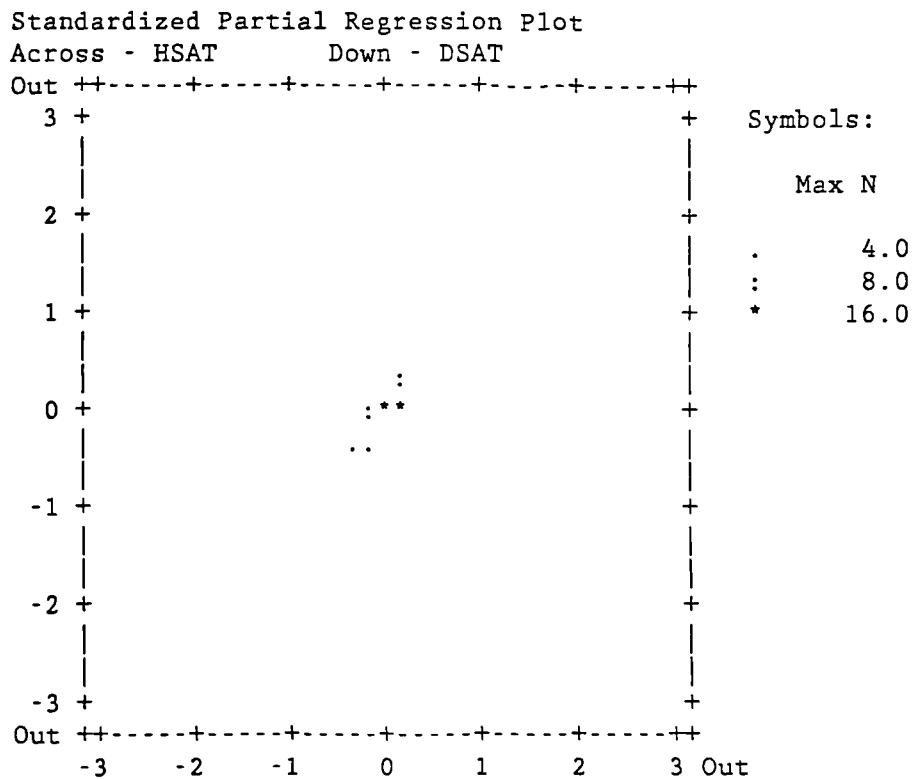


FIG. (7.6.b): Standardised partial regression plot across satisfaction with locality and satisfaction with the dwelling.

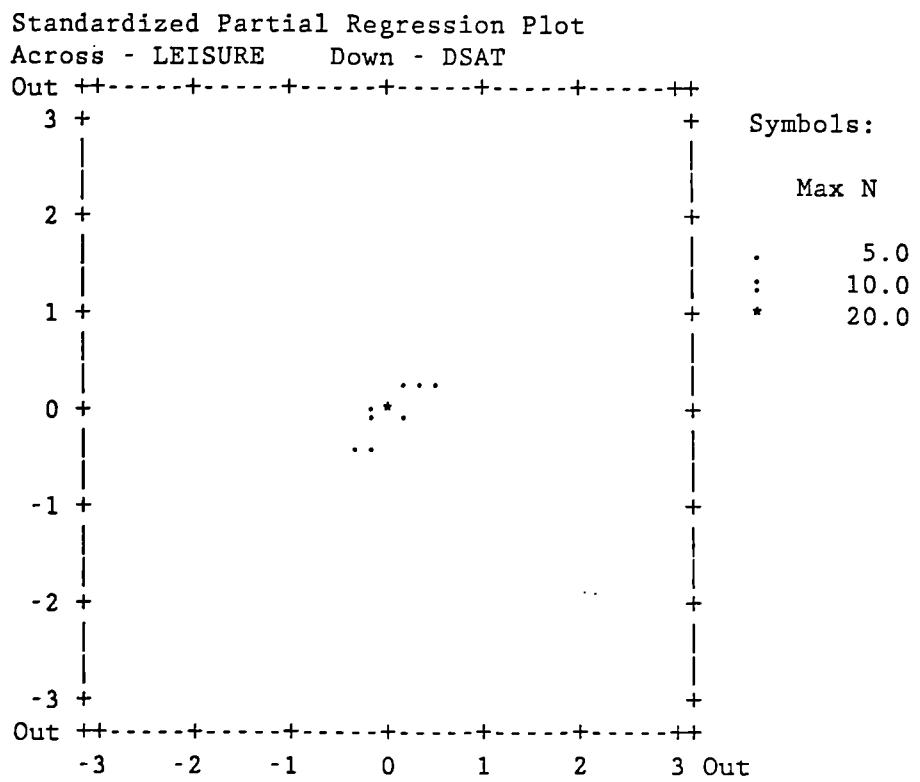


FIG. (7.6.c): Standardised partial regression plot across the availability of leisure time and satisfaction with the dwelling.

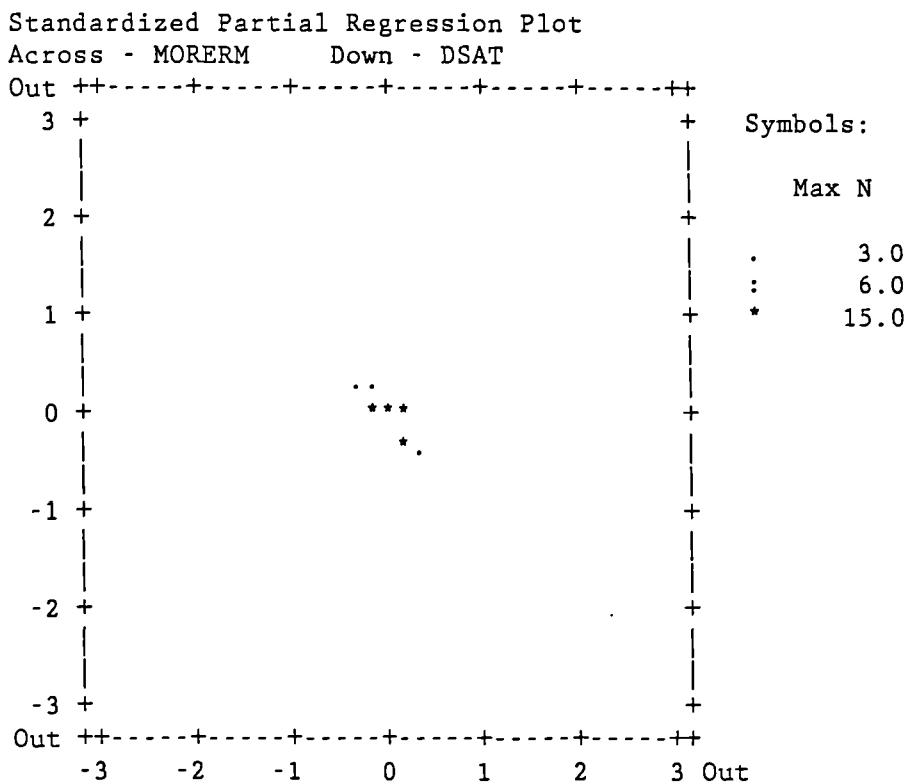


FIG. (7.6.d): Standardised partial regression plot across the need for more space and satisfaction with the dwelling.

self 'concerns me alone', visual privacy of the house and children, not to expose to others what is supposed to be concealed, selective disclosure 'what you can not tell to all people', not to expose what concerns others, secrecy, ownership, territory 'a zone that I will not permit a relative or a stranger to intrude upon it, my private sanctuary, the area that I occupy'.

The positive perception, on the other hand, was expressed in terms of physical and psychological comfort, relaxation, settlement and spaciousness of rooms, security, and as a necessity. whereby many respondents thought of it as a moral issue, a good thing, a must, provide dignity, prestige and a sense of personal respect.

Some of the respondents definitions fell under more than one of the mentioned privacy categories. In general, approximately half of the total respondents (52.9%) gave privacy a negative meaning. While 44.3% defined it in a positive way. On the other hand, only 2.9% said that they did not know what it exactly meant (see Table 7.2.1 in Appendix 7).

As mentioned above, the residents defined privacy in an overlapping manner. Their definitions showed that it meant many things to them at the same time. Such response sometimes involved meanings of both negative and positive nature.

The meaning of privacy demonstrated differential results. whereby in Haral and Hara3 results showed that more than half of the sample, 62.5% and 73.7% respectively, in favour of the negative perception, in Hara2 and Hara4 only 42.1% and 31.3% respectively were in favour of the same understanding for privacy. this could be related to the different effects of the differential impacts that were existing in any of the four residential settings. Haral and

Hara3 are close to the city centre, with more vehicular and pedestrian traffic, more congested residential fabric and more multi-floor buildings, on the other hand, Hara2 and Hara4 have a plenty of open space and far less vehicular and pedestrian presence (see Table 7.2.2). Also, the temporal rhythm of the mobile 'strangers' or 'others' was more continuous in Haral and Hara3 than of that in Hara2 and Hara4.

In relation to the positive meaning of privacy, in general, 41% of total sample referred directly to it as moral and a good thing, 15.9% as comfort, 2.3% as security and 22.7% as a necessity and an important need (see Table 7.2.3). Although these figures of the detailed response of the communities under study seem to be low, they overlap with each other and sometimes embrace meanings classified under another category of privacy conception. For example, exclusion of others under certain conditions, moral things, comfort and security many people would consider them as a necessity. In real life these meanings, sometimes, are complementary and inseparable, and it is done here for the sake of understandable analyses.

The awareness of privacy as it was expected was very high, about 97.1% of the total representative sample (see Table 7.2.4). The obtained definitions pointed to the realm of the "self", "others" or "strangers", the notion of "intrusion", personal autonomy and the concept of morality.

The general awareness of privacy when correlated with other different factors, it was found to have some sort of a positive correlation with the number of people living in the dwelling, the desire for more room/space, proximity to relatives and, unexpectedly, the external appearance. On the other hand, the general awareness of privacy showed a negative relation with the opportunity for segregation between men and women in the dwelling (see Table 7.2.5).

This result was expected, except for the the relation of external appearance. The family life as small community always involves different types of communication and interaction. the role and sex of a member in the Sudanese family affect the individual right to privacy. The number of people in a residence would in turn affect the amount and type of available space for each member, and hence shape the opportunity for retreat to privacy.

As for space availability in the residence, in relation to cultural norms, values and rules, it determines how much and what type of space is available for each member of the household for retreat. In other words, it affects how privacy can be physically controlled within the family realm. Although preference for more space did not depend absolutely on lack of space, as some of those in the localities said they had enough of it, such a preference can also be related to the need for future extension to accommodate more family members. that is to say, the need to facilitate for future privacy requirements of the household.

In relation to segregation between men and women, it is a socio-cultural value that carries with it its rules and sanctions which are taught and learned by the society in concern, thus feeding and transmitting the system of privacy experience. The segregation mechanism is used to control privacy with different sorts of defences. The physical nature and layout of a residential context is one of these controllers. the satisfaction with opportunities available for such a segregation derives from the cultural background and privacy experience of a person/family. So the dwelling is part of the overlapping relation.

On the other hand, proximity to relatives would affect how much a person/family is exposed to 'strangers'. In the traditional Sudanese society, people used to live in a

kinship group system. Due to urbanisation and other factors, people were split from their relatives which seem to make many feel vulnerable and sensitive to privacy. With regard to the appearance of the dwelling it could be suggested that it related to the concept of the 'self' and/or the 'world's view' of a person/family.

When the general awareness of privacy was correlated against different localities under study, it also yielded a further, and sometimes different, relations. In Hara1 the awareness showed a positive relation with the degree of satisfaction with neighbours and, unexpectedly, with external and internal appearance of the recent dwelling. It, also, showed a negative relation with the period stayed by the head of household in the capital (see Table 7.2.6).

As for the degree of neighbouring it involves a course of communication and social interaction which is controlled by rules and norms of the society, in other words, controlled by the 'indigenous' privacy system. in relation to the period stayed in the capital, it is a factor in establishing friendship and group territory, whereby tribal lines can still be seen in the older part of the city, especially within this area. It, also, affects the sense of familiarity with a place and feeling of 'exposure' to 'strangers', magnitude and desire for interaction, hence the experience of privacy. With respect to internal appearance it could hold the same reasons as for the external appearance.

In Hara2 the general awareness yielded a positive relation with attachment to the locality, feeling about being overlooked by 'strangers' or 'others', satisfaction with neighbour, and noise trouble made by passers-by. Also, there was a negative relation with satisfaction with the size of available space in the dwelling, satisfaction with the level of rent, and separation between men and women when there were visitors (see Table 7.2.7).

As for attachment to Hara, living in any area would involve interaction with socio-physical environmental factors. the success or failure of such a communication and interaction would affect to a great deal the satisfaction with that environment. In turn, as it was found to be true, that it would shape considerably the degree of attachment to that area. The elements that related to attachment with Hara, such as satisfaction with the dwelling, neighbour and Hara, involve themselves a considerable privacy mechanisms. The visual exposure of the family realm by 'strangers' is usually not welcomed in the Sudanese society. This is supposed to dictate a sort of a negative response to any sort of unwelcomed visual intrusion to the privacy of people and their families. With regard to other factors they can be related to similar corresponding reasons mentioned earlier.

In Hara3 the general awareness of privacy, also, correlated positively with noise trouble made by passers-by or 'strangers'. On the other hand, unexpectedly, in one way or another it correlated negatively with proximity to public facilities, such as shops and schools, and the need for improvement in the family realm (see Table 7.2.8). The noise trouble made by passers-by is a common intruder to privacy in busy urban areas. The annoyance it caused can be related to similar reasons as for feeling about being overlooked by 'strangers' mentioned previously in Hara2. In relation to improvement in the dwelling, it may involve either or both structural and aesthetical elements which relate to safety, security and the 'world's view' which all relate the general conception of privacy as defined by the local residents.

In Hara4 the general awareness revealed a positive relation with the level of satisfaction with locality and income of head of household. Furthermore, it showed a negative correlation with preference for more space, satisfaction with segregation between men and women that the

dwelling offered and, unexpectedly, the intention to move from the recent residence (see Table 7.2.9).

The relation between privacy and the locality was expected since it was believed that social interaction would have a significant impact on the satisfaction with the area. Although such a direct relation did not appear in other localities, nevertheless, an indirect sort of relation still existed as would be shown later. As for level of income the relation could be due to the same reasons in the cost of rent mentioned earlier, beside its effect on quality and satisfaction with life which in turn had some sort of relation to privacy. Further to the reasons of preference of more space and segregation between men and women mentioned before, this locality is characterised by smaller plot size than that in the other three areas.

7.2.2 The Positive and Negative Meanings of Privacy

As it was mentioned previously, response to privacy revealed both negative and positive meanings. The negative meaning of privacy yielded a strong relation with the availability of ample space in the dwelling, level of satisfaction with the residence and neighbour and the availability of leisure time for the head of household, unexpectedly, thermal comfort and proximity to basic amenities. On the other hand, the negative meaning showed a negative relation with income, satisfaction with rent (see Table 7.2.10) .

Although some factors, such as the availability of space, satisfaction with neighbour, income, cost of rent, and proximity to basic amenities did not show a direct relation with the general conception of privacy, this result revealed that they still held an indirect one. As for satisfaction with neighbour, it could be related to similar reasons as

for the degree of neighbouring mentioned in the general conception of privacy in Hara2. Other factors, also, could be related to same reasons corresponding to each of them as mentioned before.

The negative meaning of privacy when correlated against each of the different localities it, also, showed both positive and negative relation with further factors. In Haral it yielded a positive correlation with the availability of ample space in the dwelling, feeling about being overlooked and ,unexpectedly, family problems, work, education and cost as factors preventing movement from the recent residence. Also, there was a negative correlation with the level of satisfaction with neighbour (see Table 7.2.11).

The effect of environmental impact on privacy is clear in this area where complaints of being overlooked from multi-floor buildings were raised by some respondents. As for other factors they could hold the same corresponding reasons explained previously.

In Hara2 the negative meaning of privacy related positively to the level of attachment to locality, feeling about being overlooked and the noise trouble caused by the passers-by or 'strangers' and satisfaction with neighbour. It, also, correlated negatively to satisfaction with the available space and separation between men and women when there were visitors in the dwelling, and satisfaction with rent (see Table 7.2.12).

The effect of noise was expected in this locality for the reason that the respondents made many complaints about the occasional disturbance made by football fans during and after matches in Almriekh stadium which lies just on the vicinity of the neighbourhood.

This showed clearly how a privacy response can be affected by special environmental impact. On the other hand, other factors relate to similar reasons as mentioned in the general conception of privacy.

In Hara3 the negative meaning revealed entirely positive correlation with attachment to locality, satisfaction with neighbour and the availability of leisure time for the head of household and thermal comfort of the dwelling. Similarly, the relation of privacy to these factors enjoy the same corresponding explanation mentioned earlier (see Table 7.2.13).

In Hara4 the negative meaning yielded a positive relation with satisfaction with dwelling and neighbour, feeling about noise and, unexpectedly, thermal comfort of residence. It, also, related negatively to the age of head of household (see Table 7.2.14).

Although age always has a considerable relation to the type and amount of privacy one is entitled to in a society, here the age of the respondents was not much of that variation. But, still this Hara enjoyed a sort of relation in one way or another between age and privacy. The fact that this community was the latest to be established, might have its impact on this special relation. On the other hand, this area enjoyed the least problem of noise which explain why the feeling about noise held this unique relation. For the other factors they can be related to corresponding reasons explained before.

(a) The Positive Meaning of Privacy

The general positive meaning of privacy when correlated with different factors appeared to have a positive relation with the general perception of privacy, availability of enough rooms/space, satisfaction with neighbour,

unexpectedly, thermal comfort of residence and cost, work and education as factors preventing movement from the recent dwelling (see Table 7.2.15). Similarly all these factors can be related to the previous corresponding explanations.

When the positive meaning of privacy was tested against each of the four localities, it showed in all of them a positive correlation with respect to the general awareness of privacy. On the other hand, in Haral it revealed a further positive relationship with work, family problems, education and cost as factors preventing movement from the dwelling and availability of ample space. It also correlated negativity with noise trouble made by neighbours and passers-by, satisfaction with neighbour, opportunity for segregation between men and women when there were visitors in the residence and leisure time available for the head of household (see Table 7.2.16) These factors could hold the same reasons explained previously.

While in Hara2 the positive meaning yielded a positive relation with attachment to locality, noise trouble made by passers-by or 'strangers', and cost as a factor preventing movement from the relevant dwelling. It also related negatively to the standard of education of the head of household, separation between men and women when there were visitors, and satisfaction with the amount of space and rent (see Table 7.2.17). The relation of all these factors was clarified earlier.

In Hara3 the positive meaning of privacy showed a positive relation with the satisfaction with neighbour and, unexpectedly, the physical comfort of the residence (see Table 7.2.18). Similarly the relation of these factors was explained as before.

On the other hand, in Hara4 It correlated positively with satisfaction with dwelling, and neighbour, and feeling about

noise. Also, it correlated negativity with the age of the head of household, the need for more space and improvement needed in the household realm, the intention to move, cost, as a factors preventing movement form the recent residence noise trouble made by neighbour, and satisfaction with the available space (see Table 7.2.19).

Furthermore, the meaning of privacy was divided into its components, moral, comfort and security, and correlated with different factors to see whether they involved any further relationships.

(b) Privacy as Psychological and Physical Comfort

The response to the meaning of privacy as physical and psychological comfort yielded a positive relationship, with the noise trouble made by passers-by, thermal comfort of the dwelling, and feeling of being overlooked. There was, also, a negative correlation with the attachment to locality, proximity to relatives and amenities, and income of the head of household (see Table 7.2.20).

Privacy as comfort when correlated against different localities, showed in Haral a positive relationship with satisfaction with life and a negative one with the attachment to locality and number of people living in the dwelling (see Table 7.2.21). In Hara2 it correlated positively with the attachment to locality, feeling about being overlooked and noise trouble made by passers-by or 'strangers', and satisfaction with neighbour it also correlated negatively with separation between men and women in the dwelling when there were no visitors, satisfaction with the size of rooms/space and level of rent (see Table 7.2.22). On the other hand, in Hara3 privacy as comfort yielded a positive relation with satisfaction with neighbour, noise trouble made by passers-by, the intention to move from the recent residence, availability of leisure

time for head of household, unexpectedly, thermal comfort of residence and satisfaction with proximity to work place. It, also, showed a negative relation with the period stayed in the capital by the head of household (see Table 7.2.23). In Hara4 it related positively to the number of children, age of the head of household, opportunity for segregation between men and women and, unexpectedly, with improvement needed in the residence. Furthermore, it related negatively with the attachment to locality (see Table 7.2.24).

(c) Privacy as Security

Privacy as security when correlated for all localities together, showed a positive correlation with the noise trouble made by neighbour and a negative one with the level of income of head of household, satisfaction with the available space in the dwelling, and proximity to public amenities and family problems as factor preventing movement from the recent dwelling (see Table 7.2.25). But when correlated against the four different areas it revealed further relations.

In Haral it related positively to satisfaction with life and negatively with the number of people living in the residence and attachment to locality (see Table 7.2.26). On the other hand, in Hara2 it yielded a positive relation with feeling about being overlooked and noise trouble made by passers-by or 'strangers', and satisfaction with neighbour. Further to that, there was a negative relation with separation between men and women when there were visitors, and satisfaction with the size of rooms/space and rent (see Table 7.2.27). Also, in Hara3 privacy as security showed a positive correlation with satisfaction with neighbour, physical comfort of the dwelling, and availability of leisure time for the head of household (see Table 7.2.28). While in Hara4 it related positively to satisfaction with life, availability of leisure time, type of tenure and the

intention to move from the recent dwelling. It related negatively to satisfaction and attachment to locality, and the availability of enough rooms/space (see Table 7.2.29).

(d) Privacy as a necessity

Privacy as a necessity when correlated for all localities together, yielded a positive correlation with the noise trouble made by neighbour, feeling about noise, and proximity to work place. Also, it correlated negatively with the attachment to locality, and age of the head of household (see Table 7.2.30). When privacy as a necessity correlated against each of the four localities it showed further relations.

In Hara1 it related positively to the availability of ample space/room and unexpectedly, thermal comfort of the dwelling. Also, it negatively to the number of children, attachment to locality, satisfaction with the size of rooms, and need for more space (see Table 7.2.31). On the other hand, in Hara2 there was a positive correlation with the attachment to Hara, satisfaction with neighbour, feeling about being overlooked and noise trouble made by passers-by or 'strangers'. There was, also, a negative one with separation between men and women when there were visitors, size of rooms/space and, unexpectedly, level of rent (see Table 7.2.32). Privacy as a necessity in Hara3 related positively to availability of leisure time and thermal comfort of residence (see Table 7.2.33). On the other hand, In Hara4 it yielded a positive relation with age of head, the intention to move from the dwelling, and the need for physical improvement. A further negative relation was yielded with feeling about being overlooked and satisfaction with locality and the available rooms (see Table 7.2.34).

(e) Privacy as A moral Meaning

The moral meaning when correlated for all localities together, it showed a positive relation with the general conception of privacy, availability of ample rooms/space, feeling about being overlooked and availability of leisure time for the head of household. on the other hand, it related negatively to the need for more space and, unexpectedly the lack of basic amenities (see Table 7.2.35).

The moral meaning when correlated against each locality, it revealed in Hara1 a positive relation with feeling about being overlooked, and thermal comfort of the dwelling (see Table 7.2.36) While in Hara2 a positive relation appeared with family problems and cost as factors preventing movement from the recent lodging, and thermal comfort of residence. Also, there was a negative one with separation between men and women when there were visitors, satisfaction with the size of rooms/space and, unexpectedly, proximity to work place (see Table 7.2.37). In Hara3 the moral meaning correlated positively with feeling of being overlooked and positively with satisfaction with size of rooms, proximity to public amenities, and unexpectedly, the thermal comfort of residence (see Table 7.2.38). In Hara4 It yielded a positive relation with satisfaction with residence and leisure time available to the head of household. A further negative relation was found with, unexpectedly, the external appearance of the dwelling (see Table 7.2.39).

(f) Summary

To conclude this, as was expected the general awareness of privacy was very high. The definition of privacy as it was seen by the respondents in communities under study, pointed to 'territoriality', the 'realm of self', 'others' or 'strangers', the notion of 'intrusion', dignity and the

concept of 'morality'. All these aspects affect the autonomy of personality.

On the other hand, the definition revealed both positive and negative meanings. Privacy meant for some respondents both negative and positive conceptions. the positive meaning included psychological and physical comfort, a necessity and privacy as a moral issue and a good thing. On the other hand, the negative meaning was expressed as exclusion of other from oneself.

In general, privacy seemed to relate, directly or indirectly and in one way or another, to social factors, such as the number of people living in the dwelling, income, etc.,....cultural factors, as segregation between men and women when there were visitors, physical factors, like thermal comfort, environmental factors, like noise trouble made by passers-by, architectural and planning factors, such as the opportunity for separation between men and women in the dwelling, availability of internal and external space, exposure from multi-floor buildings and availability of public amenities. Thus it could be realised that privacy is a socio-cultural and environmental concept. It shares a mutual interaction with these forces, i.e. affect and being affected by them. It is assumed that individual perception of privacy affects his attitude towards environmental elements, especially those involving people. The following sections will explore such a relation.

7.3 ATTITUDE TOWARDS THE EXPOSURE OF SOME ELEMENTS OF THE URBAN ENVIRONMENT

The aim of this section is to investigate and evaluate the results of the 'psycho-cultural' attitude towards the exposure of some environmental elements in the urban complex, i.e. the attitude to privacy. Furthermore, to assess from the obtained results the position of the dwelling in relation to these elements with respect to privacy. The order of analysis was broken down into three levels, all localities together, each locality and each sex

group, to see their differential effect on the response of sample.

On a scale from 1, as very good, to 7, as very bad respondents were asked to rate how would they feel if they had to overlook the corresponding environmental element from inside their dwellings.

7.3.1 Exposure of Passers-by

The view of passers-by from inside the dwelling was considered by the majority of residents in the sample as bad. While 72.9% did not favour such a view, only 15.7% felt that it was good. In addition 11.4% showed a neutral response (see Table 7.3.1 and Fig. 7.7).

When the result was cross-tabulated against different localities it showed no significant preference to such a view, with some sort of differences. In Hara-2 the residents revealed the least discontent whereas in Hara-1, Hara-3 and Hara-4 there was the maximum of it, 42.1%, 75%, 89.5% and 87.5% respectively. On the other hand, the preference to overlook passers-by from inside the dwelling in Hara-1, Hara-2, Hara-3 and Hara-4 was considerably low, 12.5%, 26.3%, 10.5% and 12.5% respectively (see Table 7.3.2).

The differential results could be partially attributed to environmental differences between areas under study. Although in Hara-2 passers-by were available in large numbers during football matches, the locality enjoyed the least presence of 'strangers' on other days.

As was expected, women did not show any sort of eagerness towards passers-by view. On the other hand, the little preference found was mainly amongst men, 17.7%. This is because the social traditions consider it as deviant behaviour if women overlook passers-by from inside the dwelling. Moreover, women in communities in question were mainly house oriented, i.e., spent most of their time inside

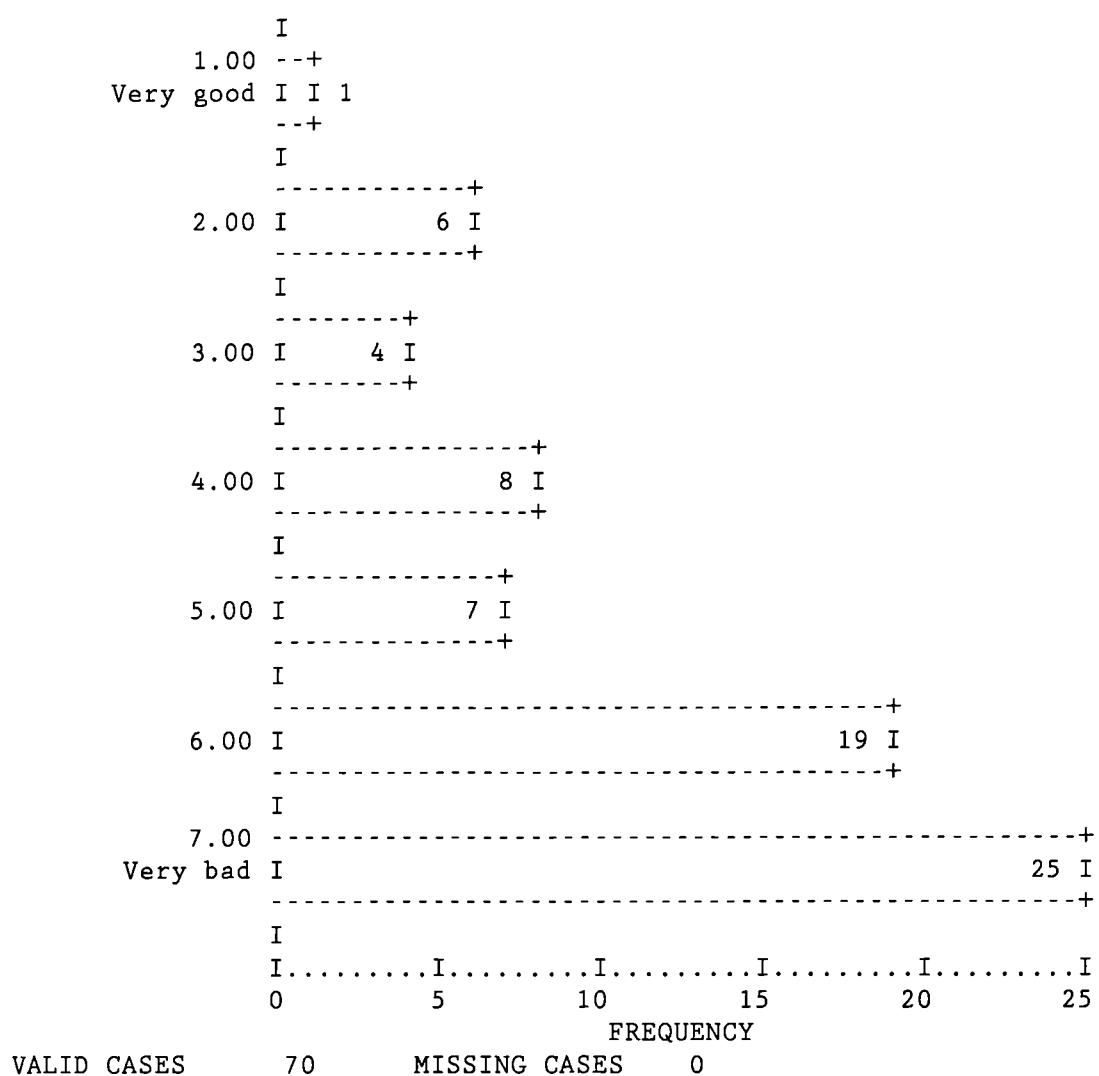


FIG. (7.7): (VIEWFL8) PREFERENCE TO SEE PASSERS-BY CLUB FROM INSIDE THE DWELLING

the dwelling, which might make such exposure uncomfortable for them (see Table 7.3.3).

7.3.2 Exposure of a Street

The neighbourhood street view, in general, enjoyed more appreciation by the sample. The majority, 65.7%, regarded it as good, 12.9% as neutral and 21.4% as bad. The dominance of the positive response could be related to the tendency to use such a space for their children to play, ceremonial gatherings and every day contacts between acquaintances and friends. In other words, the neighbourhood street could be seen as an 'extension' to the 'family realm'. Moreover, such space is usually not busy with 'strangers' for most time of the day (see Table 7.3.4 & Fig. 7.8).

When the responses of the different communities under study were compared, there appeared to be a difference of preference to overlook street space. Hara-2 and Hara-4 revealed the maximum appreciation whereas Hara-1 and Hara-3 showed the least of it, 68.4%, 87.5%, 50% and 57.9% respectively (see Table 7.3.5). As clarified earlier, these figures were compatible with the environmental differences existing in the various areas.

The results of women and men indicated a similar attitude towards street view. Approximately 2/3 of women and men categorised it as a favourite view, 62.5% and 66.1% respectively (see Table 7.3.6).

7.3.3 Exposure of an Open Space

The general response of the interview sample towards overlooking a view of an open space from inside the residence, attributed to the same reasons, indicated a similar high appreciation as for the street. 65.7% of the

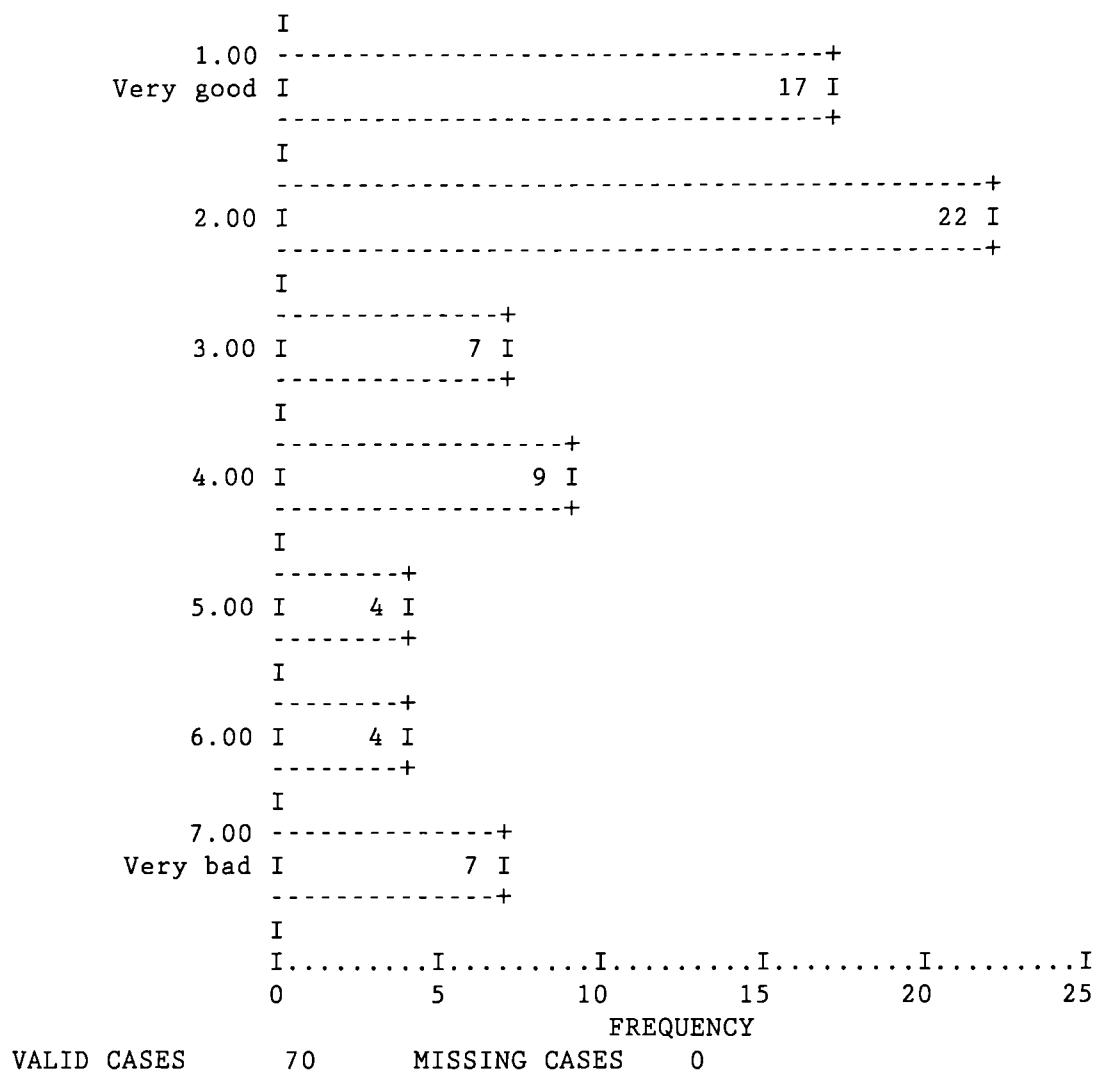


FIG. (7.8): (VIEWFL3) PREFERENCE TO SEE A STREET FROM
INSIDE THE DWELLING

population liked such a view, 17.1% as neutral and 17.1% disliked it (see Table 7.3.7 and Fig. 7.9).

The respondents of different localities also favoured to overlook an open space, 75%, 63.2%, 52.6% and 75% as for Hara-1, 2, 3 and Hara-4 respectively. Hara-2 and, unexpectedly, Hara-3 indicated the highest discontent with the view whereas Hara-1 and unexpectedly Hara-4 reflected the least of it, 21.1%, 26.3%, 12.5% and 6.25% respectively (see Table 7.3.8). It is possible to visualise that the differences of environmental impacts in related areas could have contributed to this differential response.

As was mentioned before, except for streets, there was a considerable lack of open space in Hara-1 and Hara-3. In Hara-3 the only open space was an unbuilt plot of land converted by the users to a rubbish dumping area. Together with lack of maintenance, it was a source of odours, flies and ugly appearance. Later it was converted to a community centre. The other area in the vicinity which looked like an open space was a graveyard. The accentuation of such a negative experience in everyday life seemed to have affected some of the respondents attitude towards open space. On the other hand, in Hara-2 there was an excess of outside space where many houses are encircled by three or two sides with an open space and/or roads.

Moreover, most of the houses have direct access to open space. Such abundance of space could have contributed to the difficulty of control, problem of security and feeling of loneliness. In Hara-4 also there was plenty of open space but not directly related to many of the dwellings.

Both sexes in the sample preferred the view of an open space. Women showed a higher degree of appreciation than men, 75% and 64.5% respectively, whereas men indicated a lesser discontent than women, 16.1%, and 25% respectively.

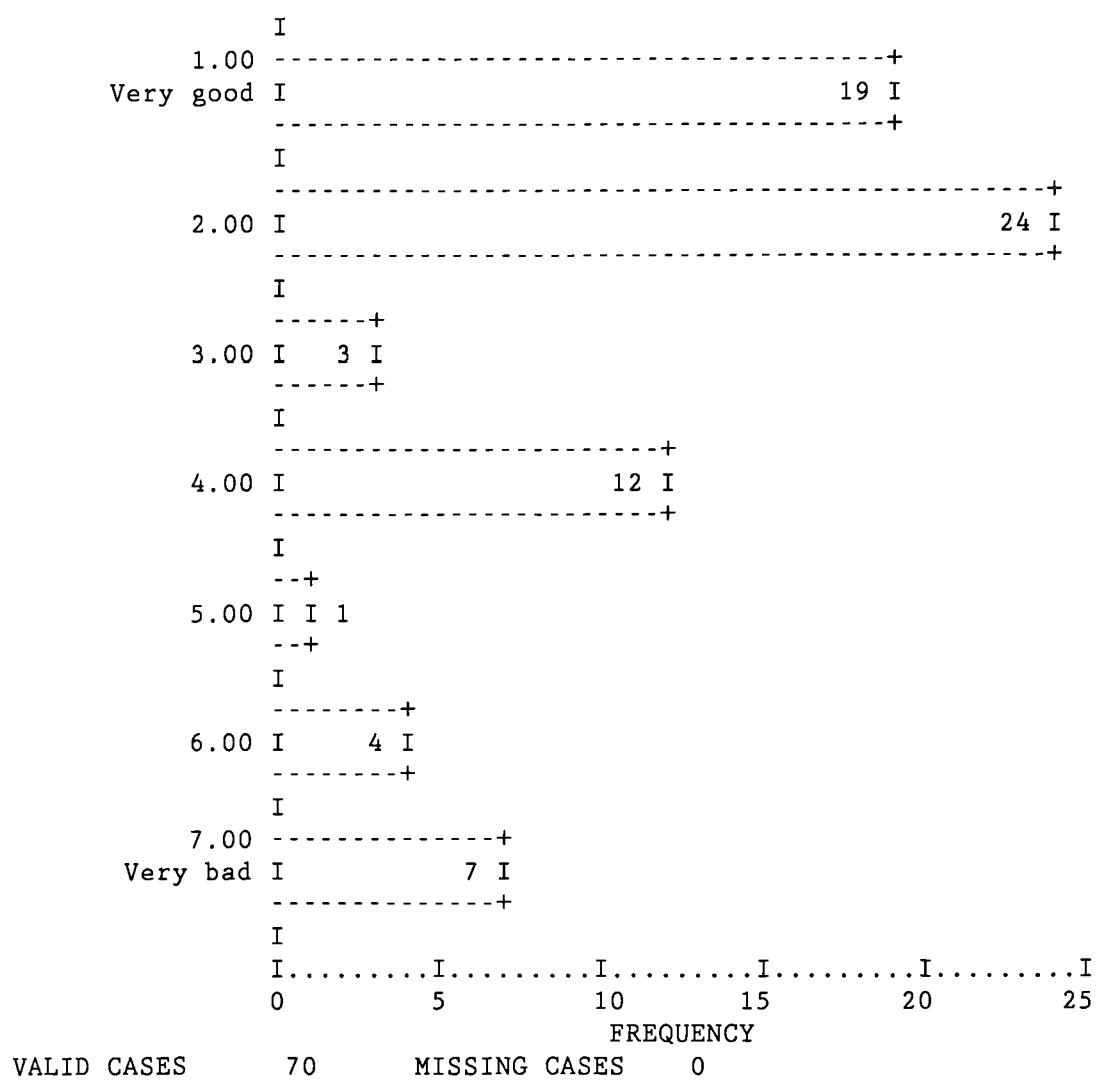


FIG. (7.9): (VIEWFL4) PREFERENCE TO SEE AN OPEN SPACE
FROM INSIDE THE DWELLING

Furthermore, 16.8% of men felt neutral about such a view (see Table 7.3.9).

7.3.4 Exposure of a Public Park

The representative sample favoured the view of a public park more than other elements in question. A majority of 79.7% regarded it as good, 5.8% as neutral and 14.5% as bad (see Table 7.3.10 and Fig. 7.10). This could be because of the apparent scarcity of public parks and greenery in most of the streets and open space in the localities under study. The lack of proper drainage, expense, use of building materials that might be affected by irrigation water and sometimes lack of space all must have contributed to the rarity of greenery. Due to the fact that, parks are usually considered as places for pleasure, planting reduce heat and has a pleasant appearance could also be behind this high appreciation.

Except for Hara-4, the results showed more appreciation than as to open space in relation to different communities in question. Hara-1 and Hara-3 revealed the highest preference to public parks, whereas Hara-2 and Hara-4 also showed high preference to it, 93.75%, 88.9%, 73.7% and 62.5% respectively. In addition, Hara-4 reflected the maximum discontent to the exposure of public park, 37.5% (see Table 7.3.11). This result could assume similar reasons as for differential preference to open space in the different localities.

The effect of sex on response indicated a very high appreciation between women 100%. On the other hand, 77.1% of men liked the view, 6.6% as neutral and 16.4% disliked it (see Table 7.3.12). Such a difference of response might be partially related to the fact that men enjoy more opportunities to 'escape' social and family pressures, especially by going outside the house.

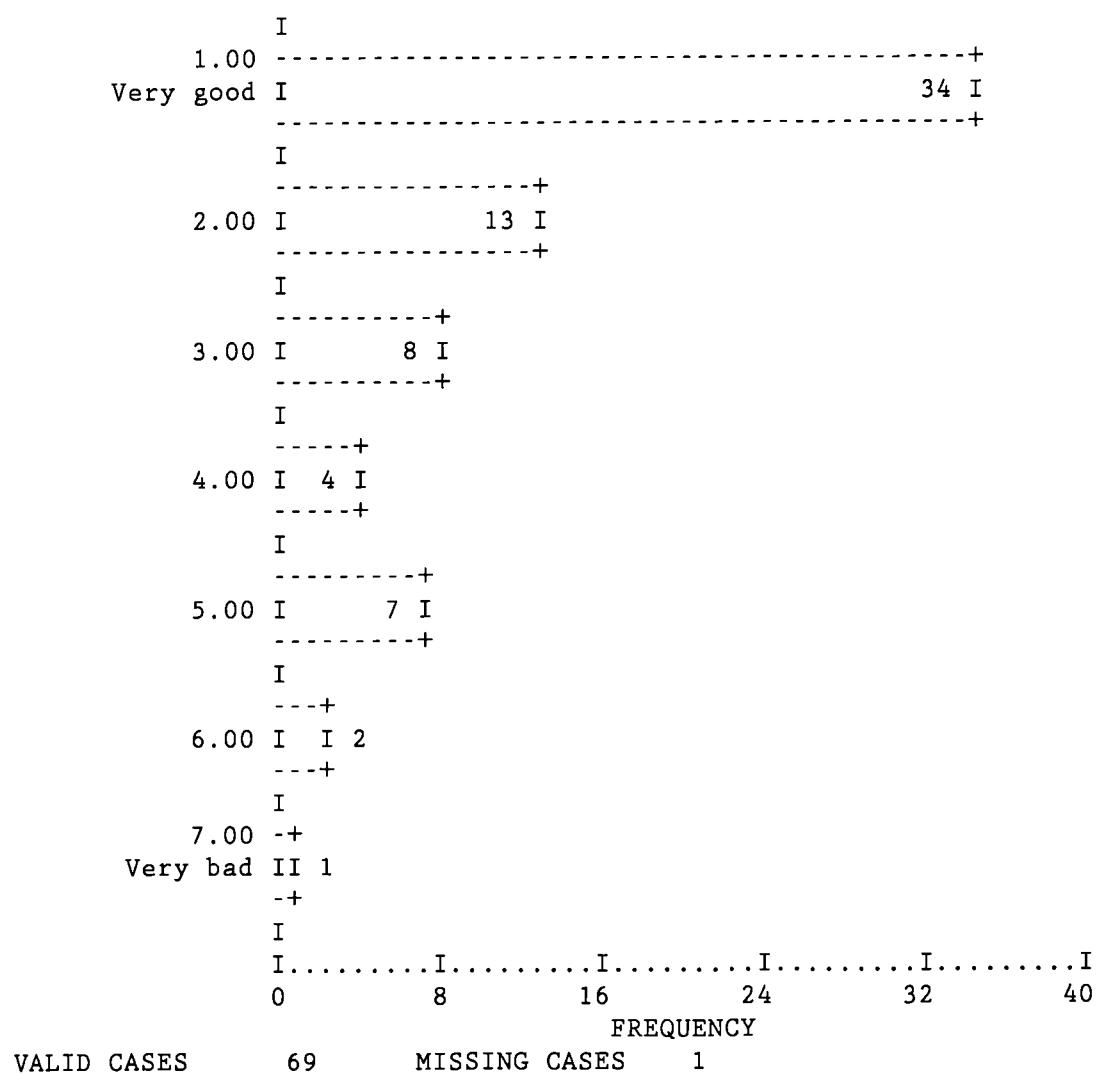


FIG. (7.10): (VIEWFL5) PREFERENCE TO SEE A PUBLIC PARK
FROM INSIDE THE DWELLING

7.3.5 Exposure of a School

Generally, the exposure of school from inside the dwelling was less favoured by respondents than as to street, open space and public park. There was also more discontent about it. 61.4% categorised the view as good, 8.6% as neutral and 30% as bad (see Table 7.3.13 and Fig. 7.11).

When the result was cross-tabulated against the different areas, again it showed the same nature as for public park. Hara-1, 2 and Hara-3 revealed a high appreciation to the exposure of school whereas Hara-4 indicated comparatively a very low preference to it, 87.5%, 63.2%, 68.4% and 25% respectively. Moreover, Hara-4 and Hara-2 showed the highest discontent with the view whereas Hara-3 and Hara-1 the least of it, 68.8%, 26.3%, 21.1% and 6.25% respectively (see Table 7.3.14).

This considerable variation of response also could be attributed to differential environmental experience in localities in question. In Hara-1, 2 and Hara-3 there are elementary schools, i.e. for young children, whereas in and around Hara-4 there are schools of all types, i.e. for children and adults of both sexes. In other words, the presence of students from other parts of the city 'strangers' in Hara- 4 was higher than that in other localities.

On the other hand, women showed less preference to the view of school than as for men, 37.5% and 64.5% respectively (see Table 7.3.15). As was mentioned before, the sensitivity of Sudanese women to exposure by a 'stranger' could have contributed to this variation.

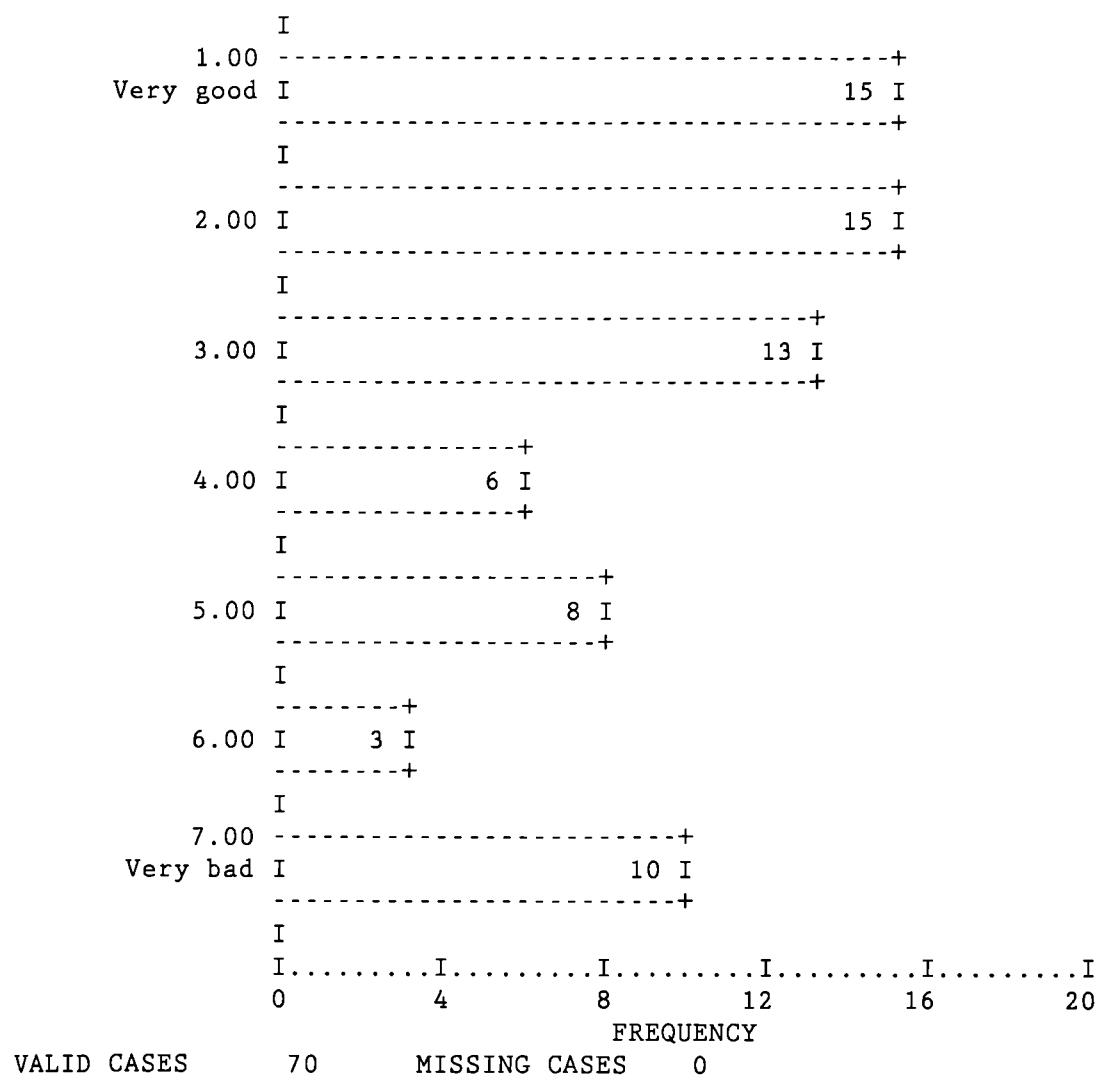


FIG. (7.11): (VIEWFL6) PREFERENCE TO SEE A SCHOOL
FROM INSIDE THE DWELLING

7.3.6 Exposure of a Social Club

The total response of the sample reflected less appreciation to the view of a social club than as to that of a school, 52.9%. Moreover, 29.4% was classified as discontent and 17.7% as neutral (see Table 7.3.16 and Fig. 7.12).

When the results for localities under study were compared, it, approximately, revealed similar differential pattern as for the view of school. Hara-1 and Hara-3 showed higher preferences to the exposure of a social club, whereas Hara-2 and Hara-4 indicated the least of it, 68.8%, 66.7%, 38.9% and 37.5% respectively. There was also a higher discontent in Hara-2 and Hara-4, 38.9% and 50% respectively (see Table 7.3.17).

There was no social club in Hara-1, whereas in Hara-3 the only social centre was relocated in another place after one year of its establishment. On the other hand, there was a social club and a stadium in the vicinity of Hara-2 and one social club in Hara-4. All these variations would lead to differences of environmental experiences and accordingly would affect peoples response to different environmental elements. In addition, the activities in social clubs are usually practised in the evening and at night mainly by adult males when families need most privacy. The availability of adults schools in corresponding areas also might have affected the result.

As for the effect of sex on response, women were less pleased with the social club view than men, 37.5% and 55% respectively. There was also more discontent between women than between men, 62.5% and 25% respectively (see Table 7.3.18). As was mentioned earlier, the fact that social clubs are mainly used by adult males might have caused the high dislike by women.

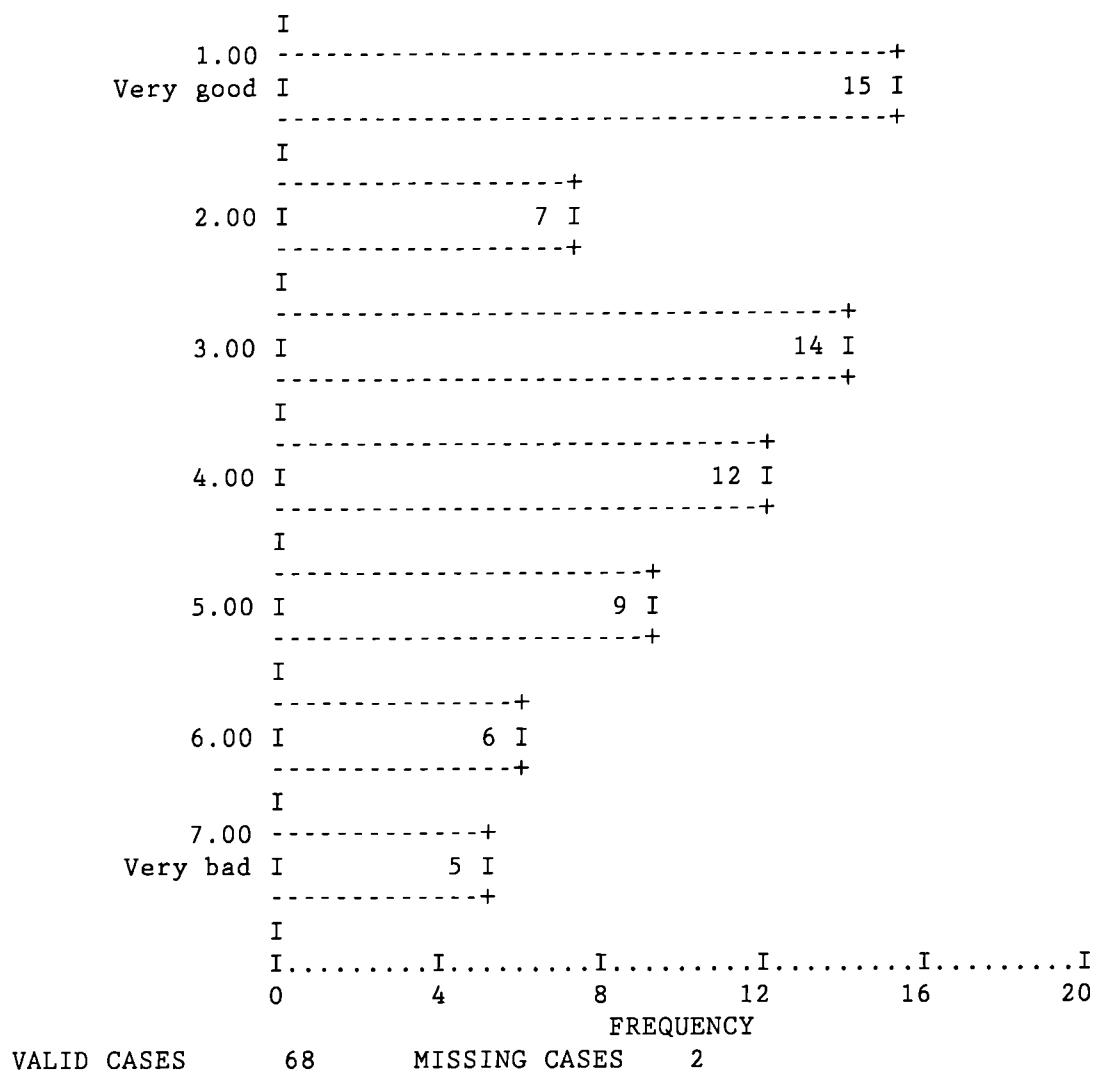


FIG. (7.12): (VIEWFL7) PREFERENCE TO SEE A SOCIAL CLUB FROM INSIDE THE DWELLING

7.3.7 External View of a House

The external view of a house seen from inside the dwelling was preferred by the respondents more than as to passers-by and social club. The response was approximately similar to that as for the view of a school. There was 61.5% who categorised the view as a good one, 7.1% as neutral and 31.4% did not like it (see Table 7.3.19 and Fig. 7.13). Although, as we shall see later, the attitude towards the internal view of a house was opposite to that of its external view, this result was higher than what was expected. In general, there were not too many multi-floor buildings in the localities under study. Accordingly this might have reduced the problems of overlooking and the absence of such experience could have caused the high preference to the external view of a house.

An examination of the sample response yielded different results in areas in question. Hara-1 and, unexpectedly, Hara-2 showed a moderate appreciation whereas Hara-4 and, unexpectedly, Hara-3 reflected a higher one, 56.3%, 57.9%, 68.8% and 63.2% respectively (see Table 7.3.20). The highest preference in Hara-4 could be because of the presence of multi-floor buildings in and around Hara-1, 2 and 3 was more than in Hara-4. As was explained before, also other environmental differences might have contributed to this result.

Contrary to what was expected, women and men held, approximately the same degree of appreciation to the external view of a house from inside the dwelling, 60% and 61.2% respectively. In addition, there was 20% of women who disliked the view and 32.7% of men who disliked it (see Table 7.3.21).

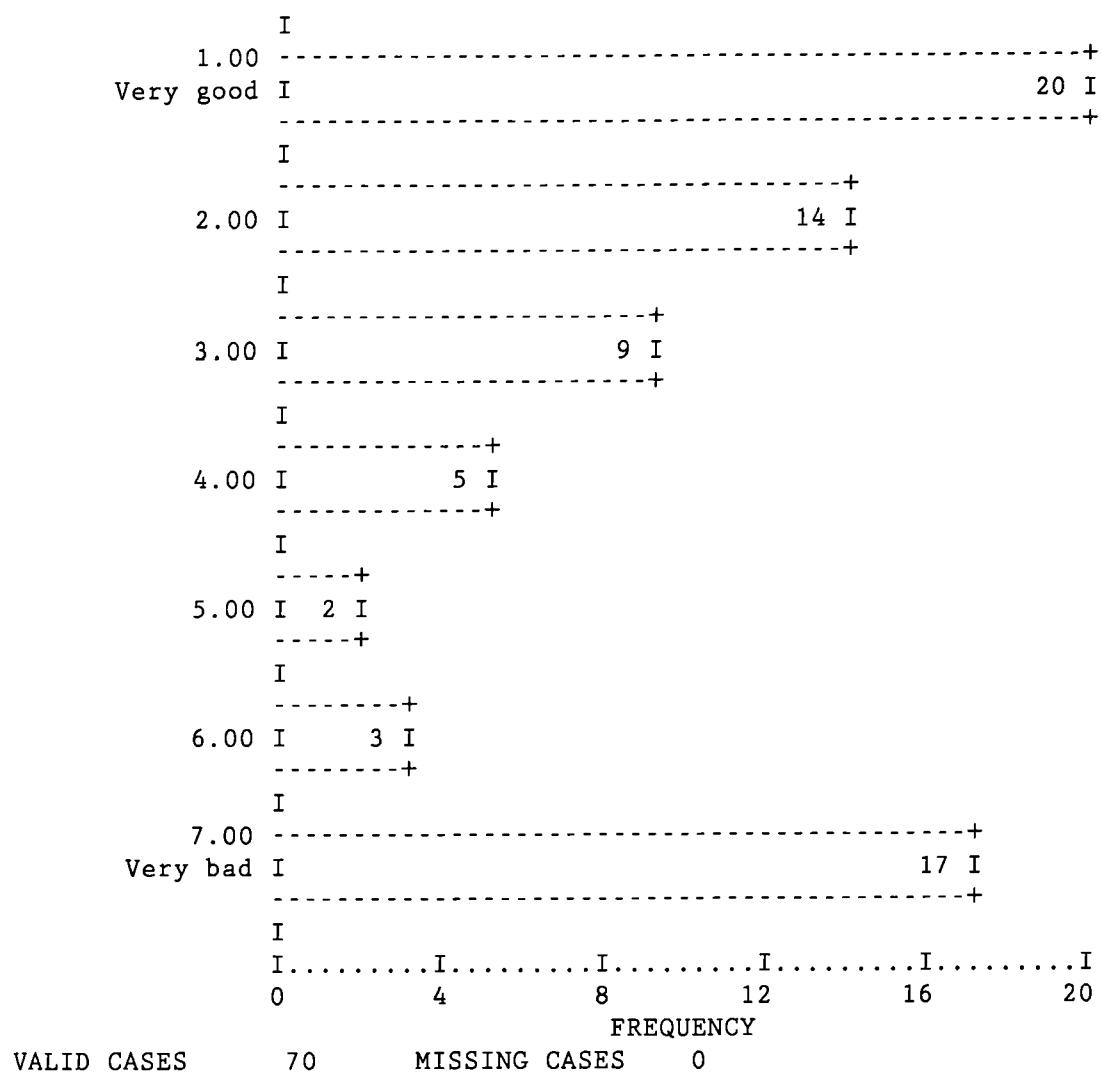


FIG. (7.13): (VIEWFL1) PREFERENCE TO SEE AN EXTERNAL VIEW
OF ANOTHER HOUSE FROM INSIDE THE DWELLING

7.3.8 Internal View of a House

The attitude of the sample towards the exposure of the inside of a house, approximately, matches conversely with that as towards its external view. It also reflected a similar criticality of rejection as of the exposure of passers-by from inside the dwelling. Although the disapproval of such a view was comparatively high, 72.9%, it appeared to be lower than was expected. This is because those who categorised the view as good or felt neutral towards it, 15.7% and 11.4% respectively, was higher than was expected (see Table 7.3.22 Fig. 7.14). The high disliking to expose the inside of another dwelling was a consequence of the fact that the Sudanese are inclined to identify it as a 'very private' realm, i.e. 'family private' or 'others territory'.

A comparison of response of communities under study revealed, approximately, a similar high disapproval of such a view in Hara-1, 3 and Hara-4 whereas in Hara-2 for one reason or another there was less of it, 75%, 78.9%, 75% and 63.2% respectively (see Table 7.3.23).

As was expected there was an exclusive discontent with the exposure of the inside of another dwelling between women, 100%. On the other hand, men showed a high disliking of such exposure, 71%, but it was less than was expected (see Table 7.3.24).

The attitude towards different functional spaces in the dwelling will be discussed in detail in the following section.

7.3.9 Summary and Conclusions

The general pattern of response reflected that a 'hierarchy' of 'intimacy' system i.e. privacy, existed

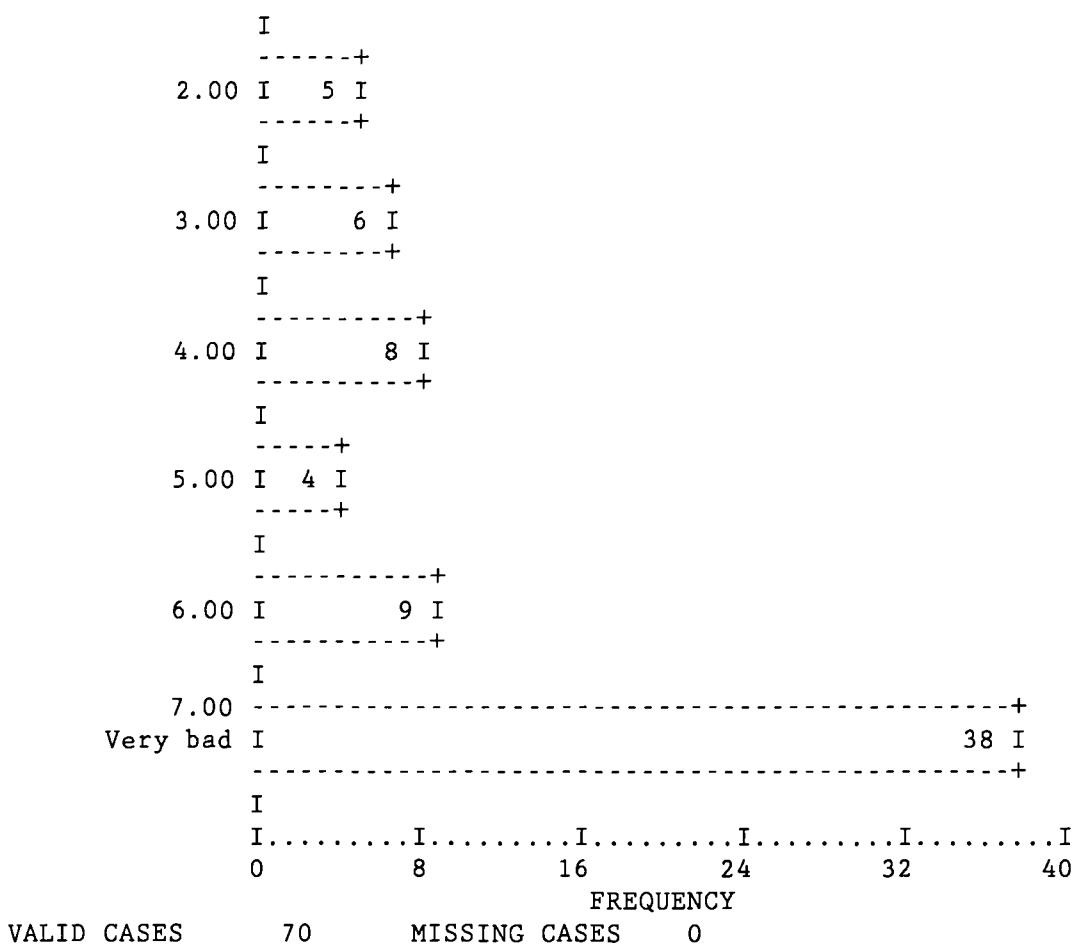


FIG. (7.14): (VIEWFL2) PREFERENCE TO SEE AN INTERNAL VIEW
OF ANOTHER HOUSE FROM INSIDE THE DWELLING

between the different mentioned environmental elements and the user of the dwelling. The respondents regarded passers-by as the least intimate, i.e., 'strangers' or 'others' or 'public' than the social club, external view of another dwelling and school, neighbourhood street and open space and, unexpectedly public park as the most intimate one [16]. Moreover, the results showed there were two 'worlds' of privacy: (a) the 'envelope' and (b) 'inside the envelope'. For example there was a sort of preference to see the 'envelope', e.g. outside view of another house, whereas there was a considerable discontent to expose the 'inside the envelope', e.g. the inside of another house. In other words, it is possible to conclude that the 'inside the envelope' was regarded as more 'private' than the 'envelope'. Inside the 'envelope' usually exist people who make the real essence of privacy.

An examination of response in different communities in question suggested the effect of environmental 'experience' and the 'quality' of physical environment on the obtained differential results [17]. For example, areas with more passers-by and traffic showed more resentment to the street exposure than those with less environmental impact of that sort. In addition, localities with more schools, especially for adults, were less attracted to their exposure than those with less number of them.

On the other hand, the results indicated that, sometimes, there was a difference of attitude between men and women. Except for the public park and open space, women disliked to overlook the corresponding environmental elements more than men.

In order to design and plan for more 'humane' and habitable urban residential environment the previous factors should be taken into consideration. The provision of environmental elements should, at least, meet 'user's needs'

and 'basic expectations'. The problem of 'privacy' and its 'hierarchy' should be tackled carefully and with reasonable sensitivity. The effect of 'environmental experience' and the physical quality of the urban complex should not be overlooked. Environmental experience can be a useful feedback tool to judge the attitude towards the urban environment hence to evaluate the 'fitness' of that environment to its inhabitants. To 'improve' or to 'produce' habitable residential complexes can be through responding to peoples 'shared' pattern of preference, i.e. like vs. dislike, taking into consideration the differential effect of sex and environmental experience.

7.3.10 Attitude Towards Exposure of the Dwelling Functional Spaces

This section attempts to evaluate the sample psycho-cultural attitude towards the exposure of the dwelling functional spaces. The aim behind this was to find the 'psycho-cultural' syntax of the Sudanese House, i.e. privacy, and later to test it against the 'socio-cultural' and 'spatial' syntax. Accordingly, a final picture of how the dwelling privacy system operates will be reached.

The spaces were categorised 'symbolically' to contain most of the probable activities that might take place in the dwelling. In other words, it was not necessary that every dwelling should have the categories as independent rooms and such separation was done for the sake of analysis. On a scale from 1, as very good, to 7, as very bad, respondents were asked to rate how would they feel if they had to overlook spaces inside another dwelling.

As was expected, the general response of the sample revealed a high discontent with the exposure of women's bedrooms, 85.7%, whereas 11.4% felt it was good and 2.9% as neutral. On the other hand, mens' bedrooms enjoyed a high

disapproval, 72.1%, but less than as for women's bedrooms (see Tables 7.3.25, 7.3.26, Figs. 7.15 & 7.16). There was also 82.9% who categorised the overlooking of women's sitting rooms as bad, 11.4% as good and 5.7% as neutral (see Table 7.3.27 and Fig. 7.17). The results of mens' sitting room was, approximately, similar to that of mens' bedrooms, 75.7% didn't like the view, 21.4% liked it and 2.9% felt as neutral (see Table 7.3.28 and Fig. 7.18).

This response reflects the fact that activities which take place in the bedroom as general, i.e. sleeping and intimate relations, were recognised as more private than those in the sitting room. Also, the majority of respondents did not appreciate the exposure of women's dining room, 83.6%, whereas unexpectedly only 65.7% had the same feeling towards mens' dining room (see Tables 7.3.29 & 7.3.30, Figs. 7.19 & 7.20). Such a difference of preference indicates that women's activities areas were visualised as more private than that for men. As was expected, the sample showed a considerable disliking to the exposure of the kitchen, 85.8% (See Table 7.3.31 and Fig. 7.21). This was because the kitchen, i.e. the cooking area, in the Sudanese urban house is usually a 'female domain'.

As for women's and men's bathrooms, both enjoyed a similar high disapproval, 88.6% (see Tables 7.3.32 & 7.3.33, Figs. 7.22 & 7.23). The similarity of results could be attributed to the fact that the activity of bathing in general is recognised as critically private. Similarly the analysis revealed a quite considerable discontent by the sample towards the exposure of both women's and men's WC/PL, i.e. convenience areas, 92.9% (see Tables 7.3.34 & 7.3.35, Figs. 7.24 & 7.25). Such significant avoidance of exposure could be related to the fact the activities of body hygiene in the Sudanese urban society are seen as extremely private. On the other hand, 77.1% of the respondents disliked to overlook the women's courtyard of another

dwelling whereas, unexpectedly, only 66.1% reflected the same feeling if it was the men's courtyard (see Tables 7.3.36 & 7.3.37, Figs. 7.26 & 7.27).

Again, the reason behind the difference of response was because the activities in the women's courtyard, i.e. mainly for family members and female guests sleeping and entertainment, are considered as more 'family private' than those which usually take place in the men's courtyard, i.e., mainly for family males and male guests sleeping and entertainment. Moreover, as was mentioned previously 'female's domain' in the Sudanese urban 'family dwelling' is usually recognised as more private than the 'males' domain'.

To conclude this, the analysis revealed a 'hierarchy' of attitude towards the exposure of another dwelling's 'functional spaces'. Accordingly, the 'conceptual attitude to exposure', i.e., attitude towards privacy, supported the idea that there is a notion of 'hierarchy' of privacy system in relation to the 'socio-spatial' structure of the Sudanese 'urban family dwelling'. This hierarchy poses on three poles, sex, activity and space. The results indicated that women enjoyed more privacy than as for men. Moreover, the activities of body hygiene were considered as more private than cooking, eating, sleeping and socialisation. In addition, the conveniences, i.e. bathroom and W.C., and kitchen were seen as more private than other spaces in the dwelling. In reality sex, activity and space cannot be separated in the family realm. By joining the three elements together it is also possible to conclude that the 'family and female guests domain' was recognised as more private than the 'family males and males' guest domain, as this can be seen later in the analysis of the physical syntax of the dwelling.

In order to make a successful definition of the 'functional space' the elements of sex, activity and space

must be co-ordinated together. Accordingly, a reasonable and meaningful architecture, urban design and planning can be achieved.

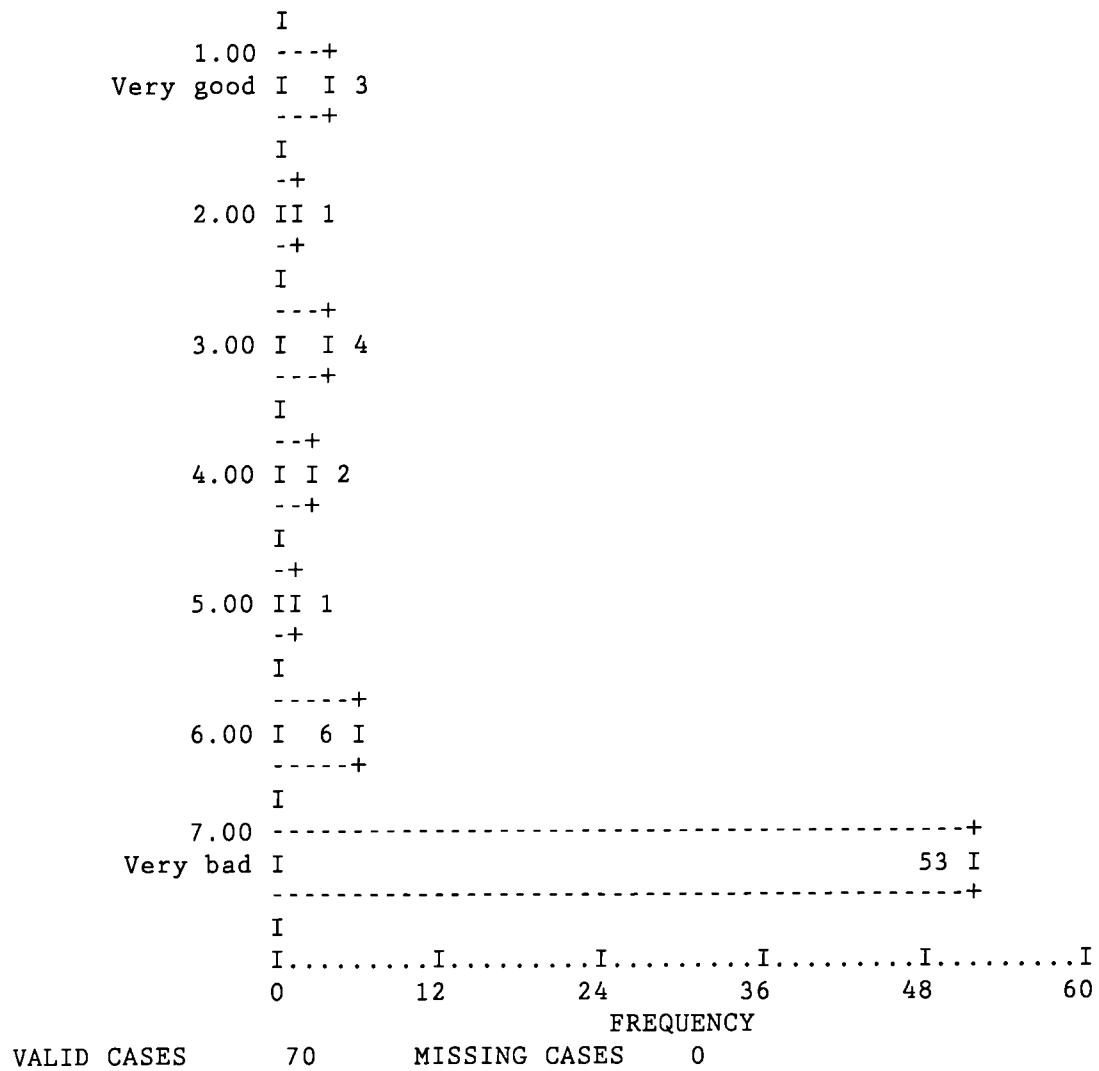


FIG. (7.15): (INSVFL1) PREFERENCE TO OVERLOOK WOMEN'S BEDROOM OF ANOTHER HOUSE

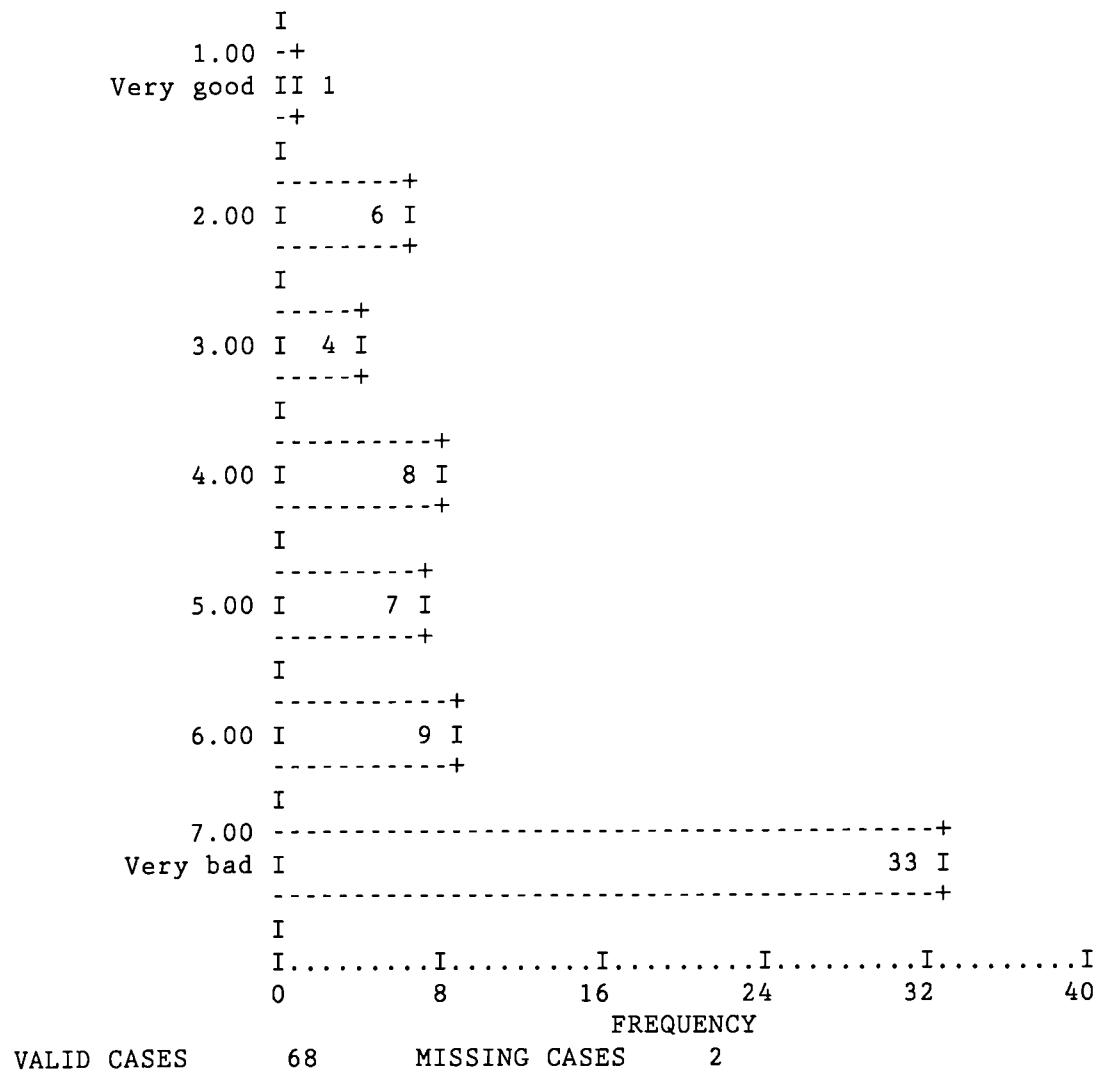


FIG. (7.16): (INSVFL2) PREFERENCE TO OVERLOOK MEN'S BEDROOM
OF ANOTHER HOUSE

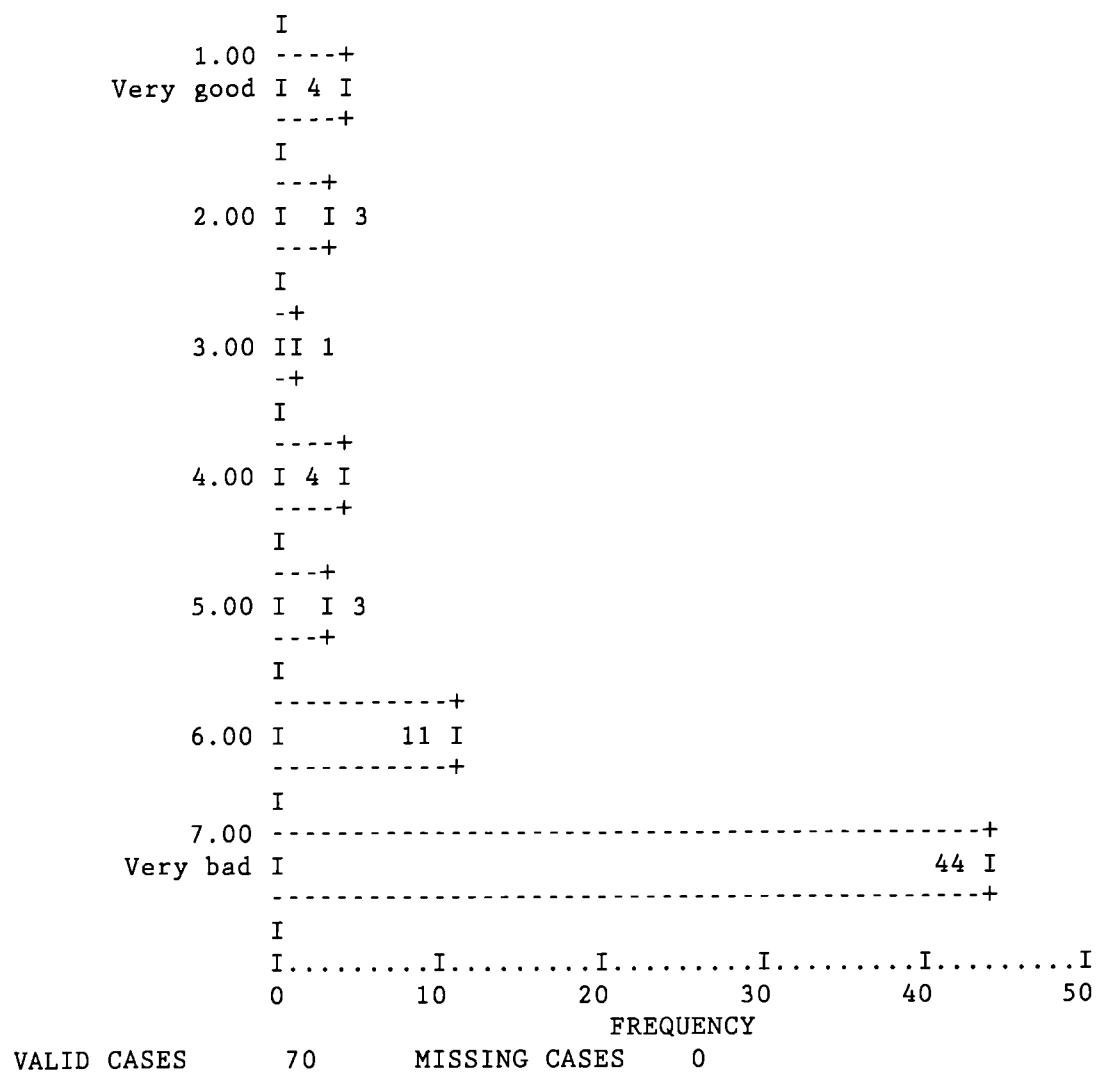


FIG. (7.17): (INSVFL3) PREFERENCE TO OVERLOOK WOMEN'S SITTING ROOM OF ANOTHER HOUSE

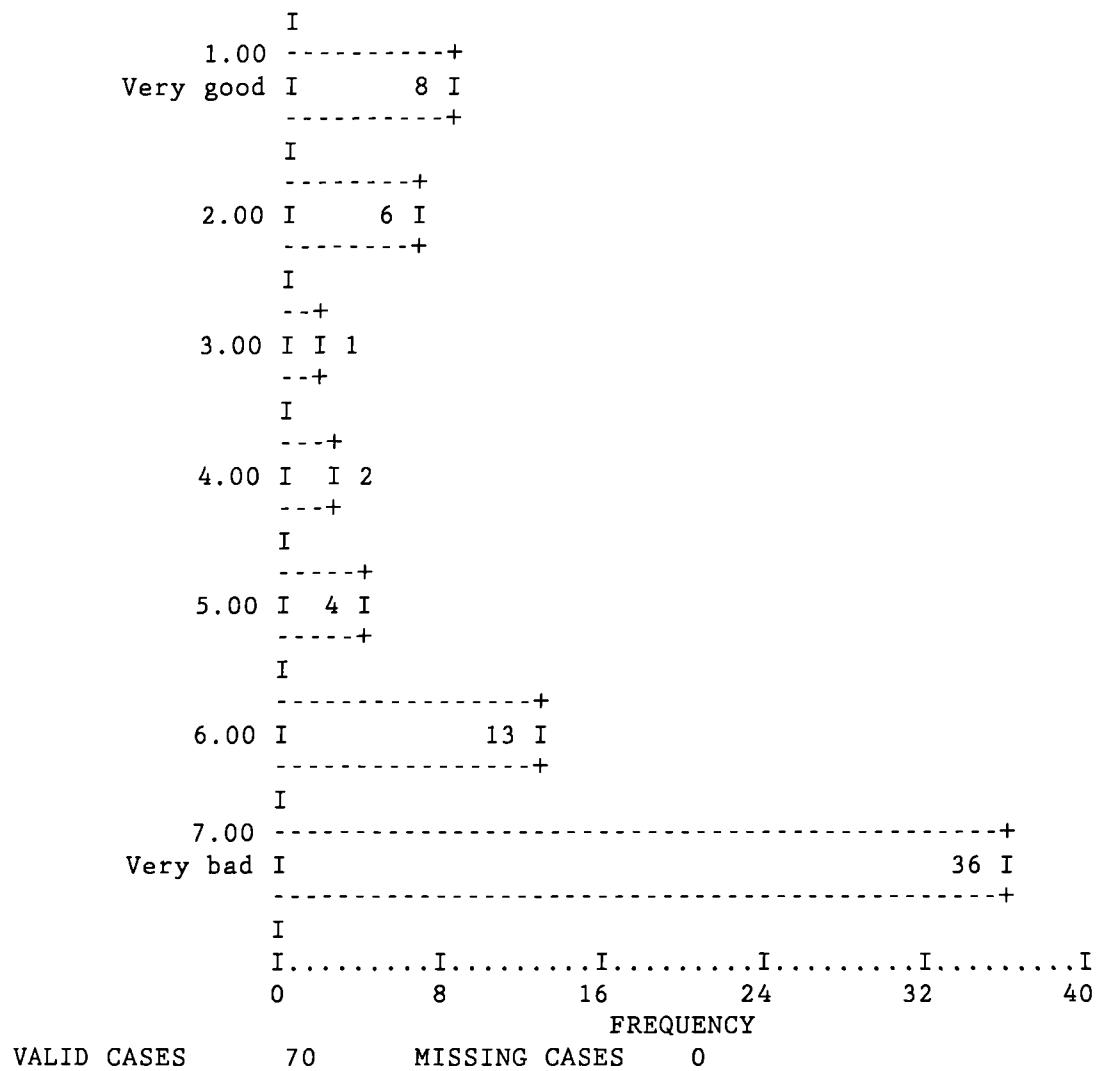


FIG. (7.18): (INSVFL4) PREFERENCE TO OVERLOOK MEN'S SITTING ROOM OF ANOTHER HOUSE

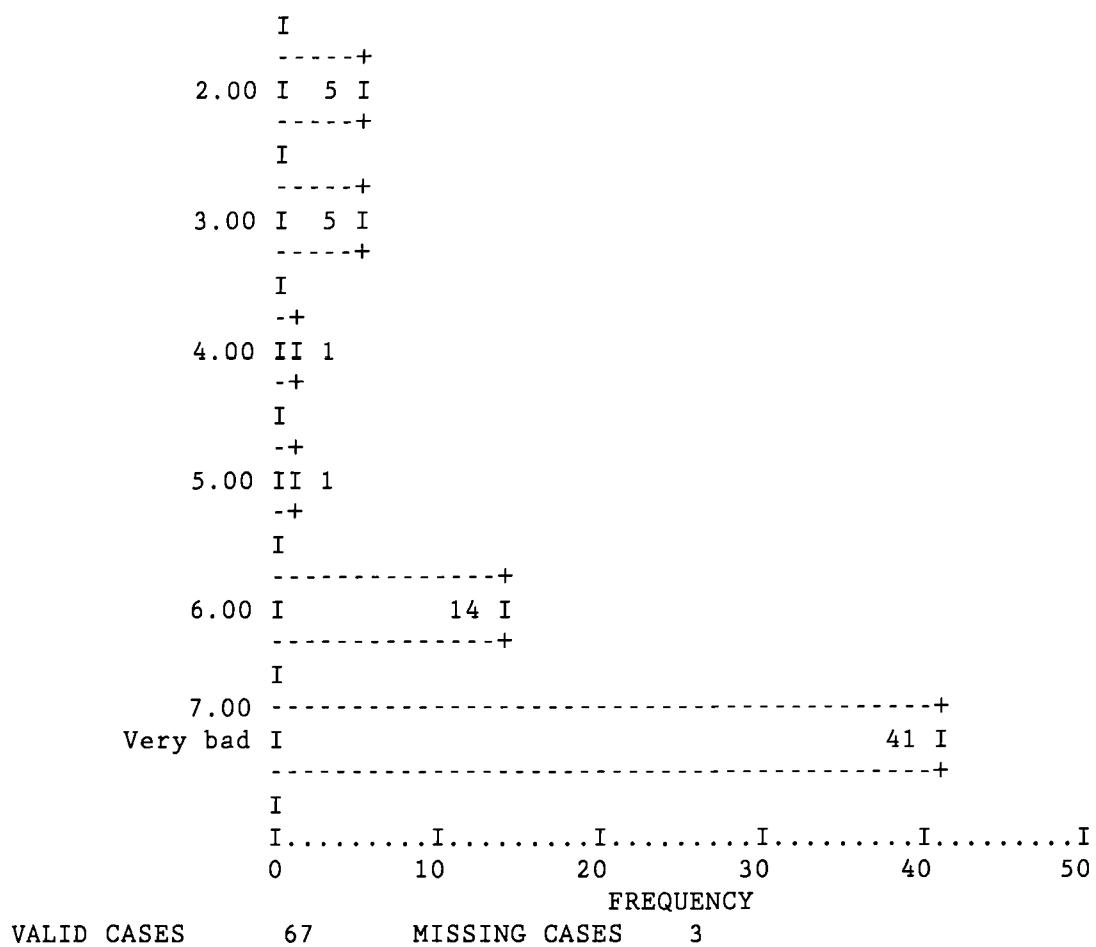


FIG. (7.19): (INSVFL5) PREFERENCE TO OVERLOOK WOMEN'S DINING ROOM
OF ANOTHER HOUSE

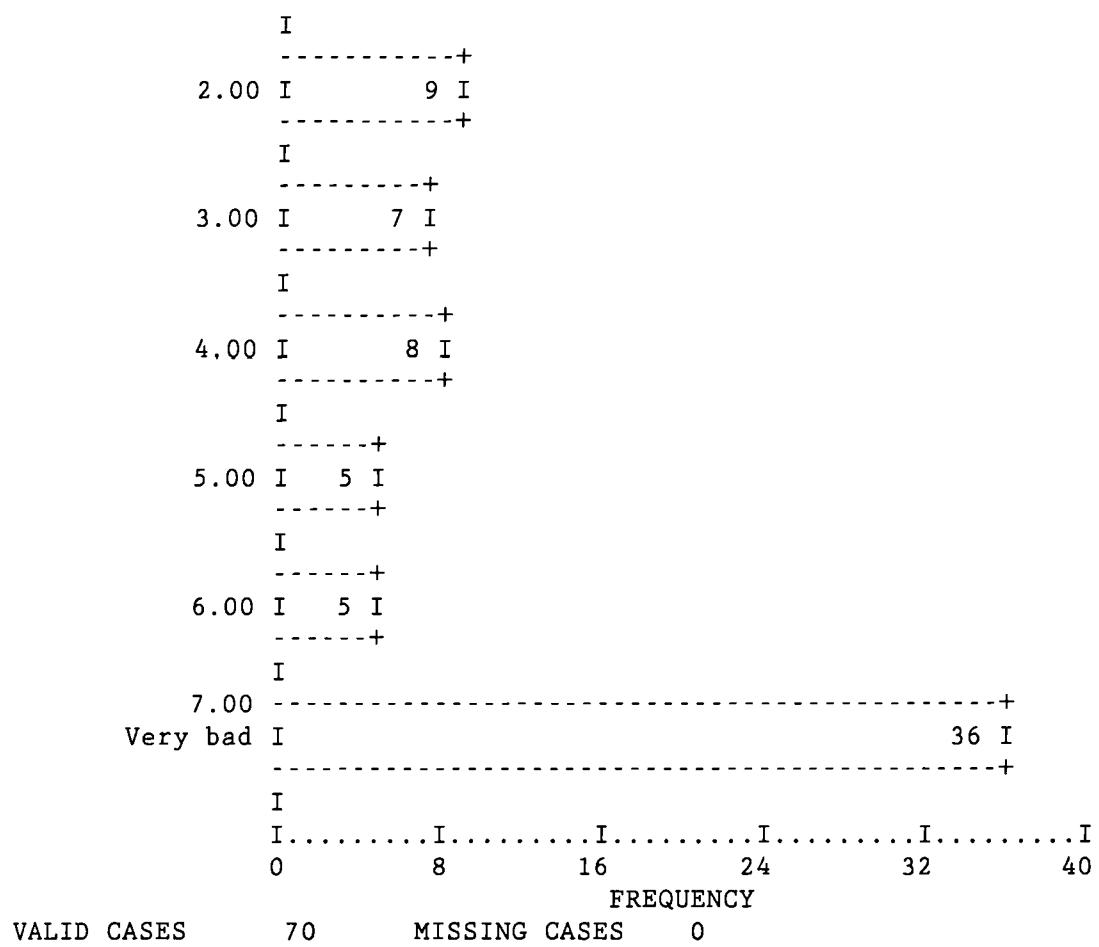


FIG. (7.20): (INSVFL6) PREFERENCE TO OVERLOOK MEN'S DINING ROOM OF ANOTHER HOUSE

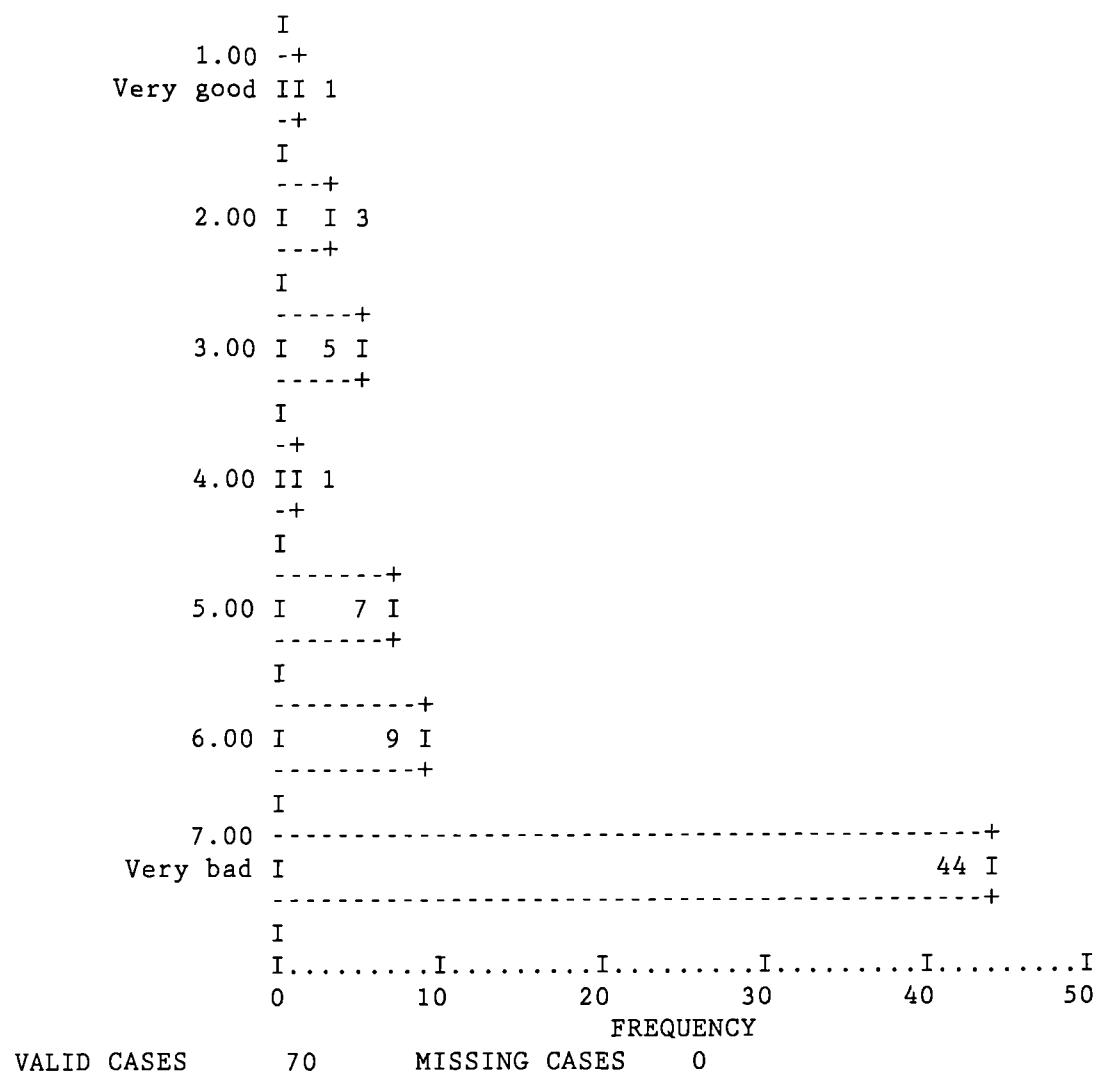


FIG. (7.21): (INSVFL8) PREFERENCE TO OVERLOOK THE KITCHEN
OF ANOTHER HOUSE

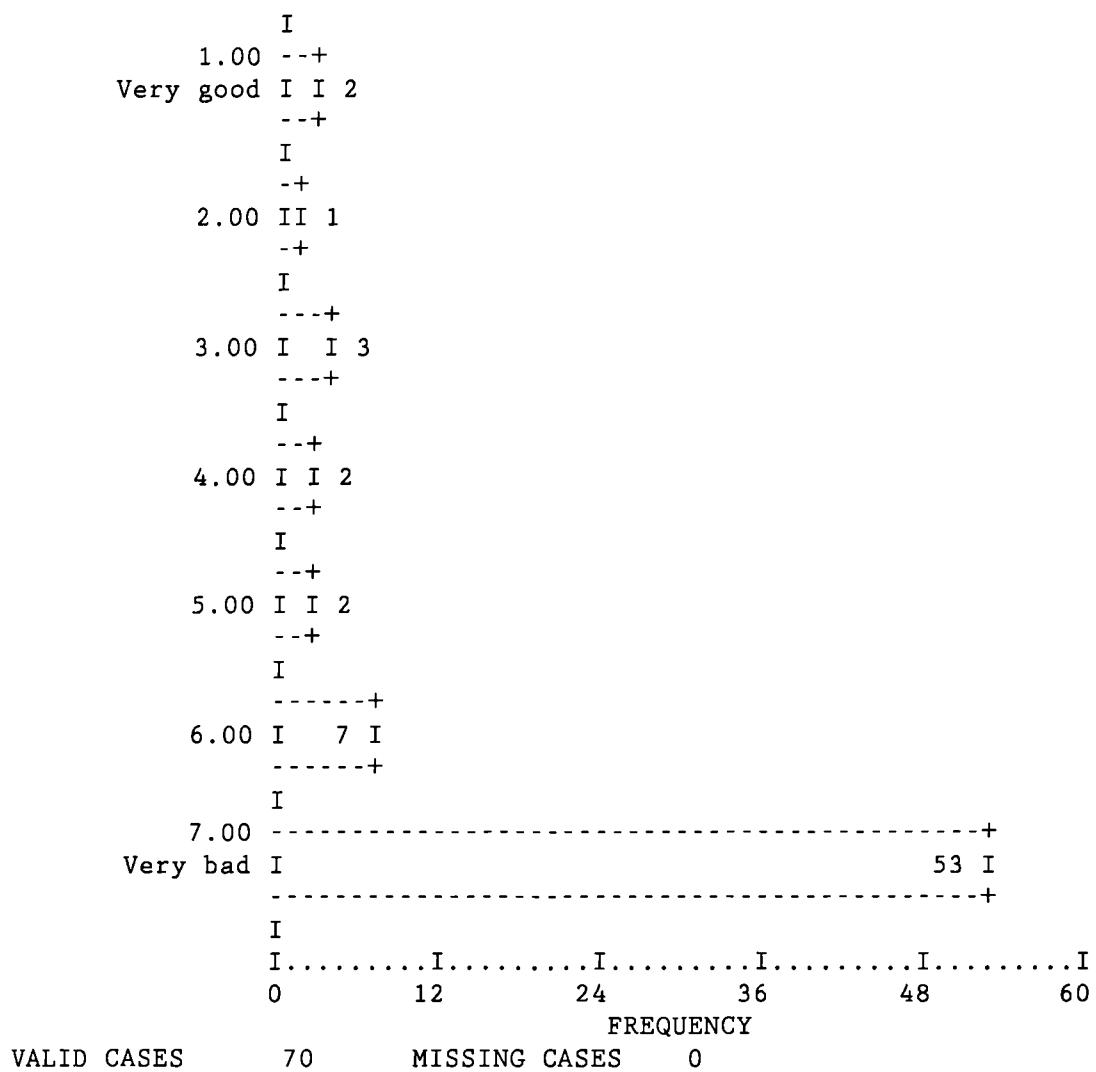


FIG. (7.22): (INSVFL9) PREFERENCE TO OVERLOOK WOMEN'S BATHROOM OF ANOTHER HOUSE

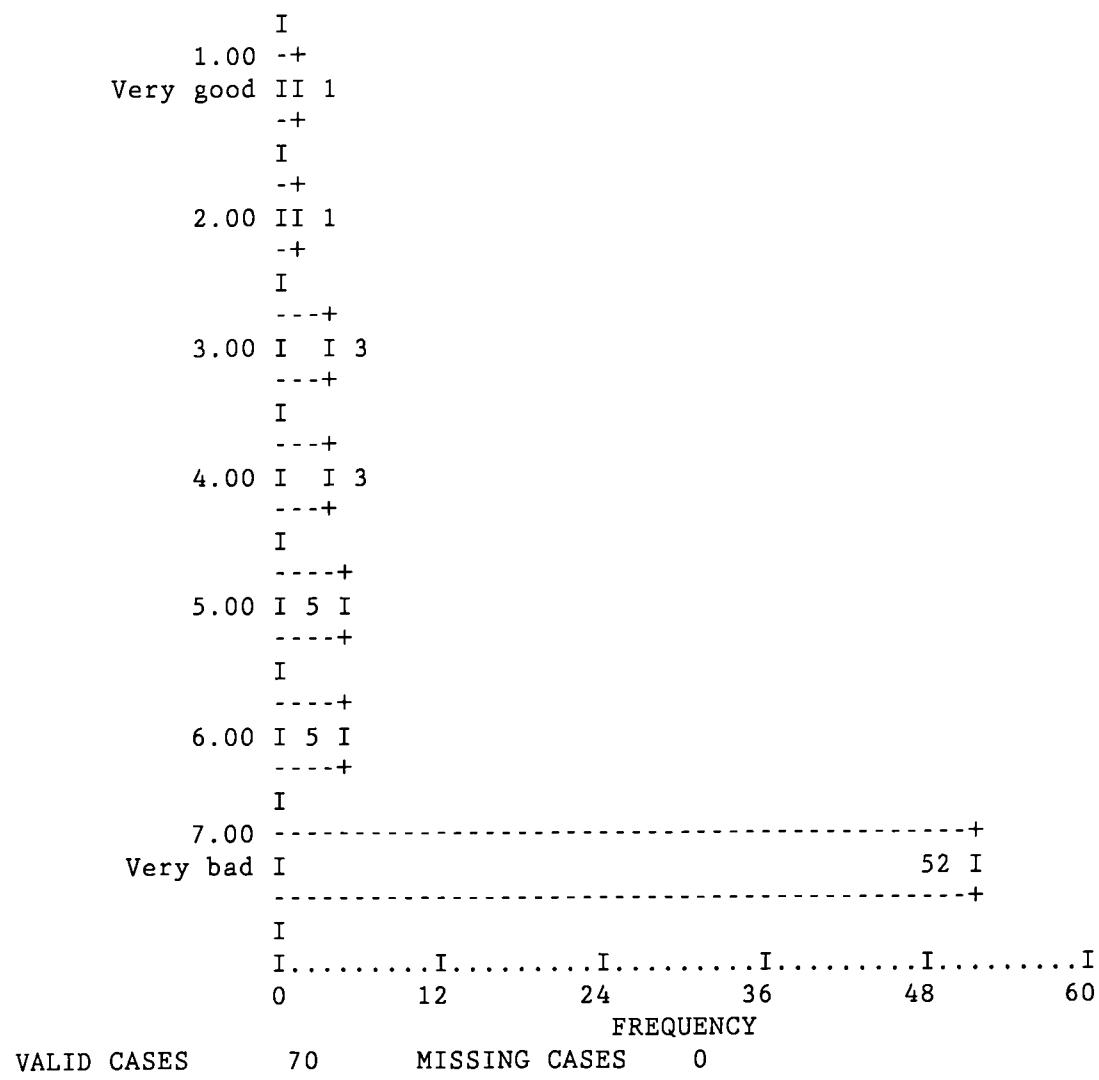


FIG. (7.23): (INSVFL10) PREFERENCE TO OVERLOOK MEN'S BATHROOM OF ANOTHER HOUSE

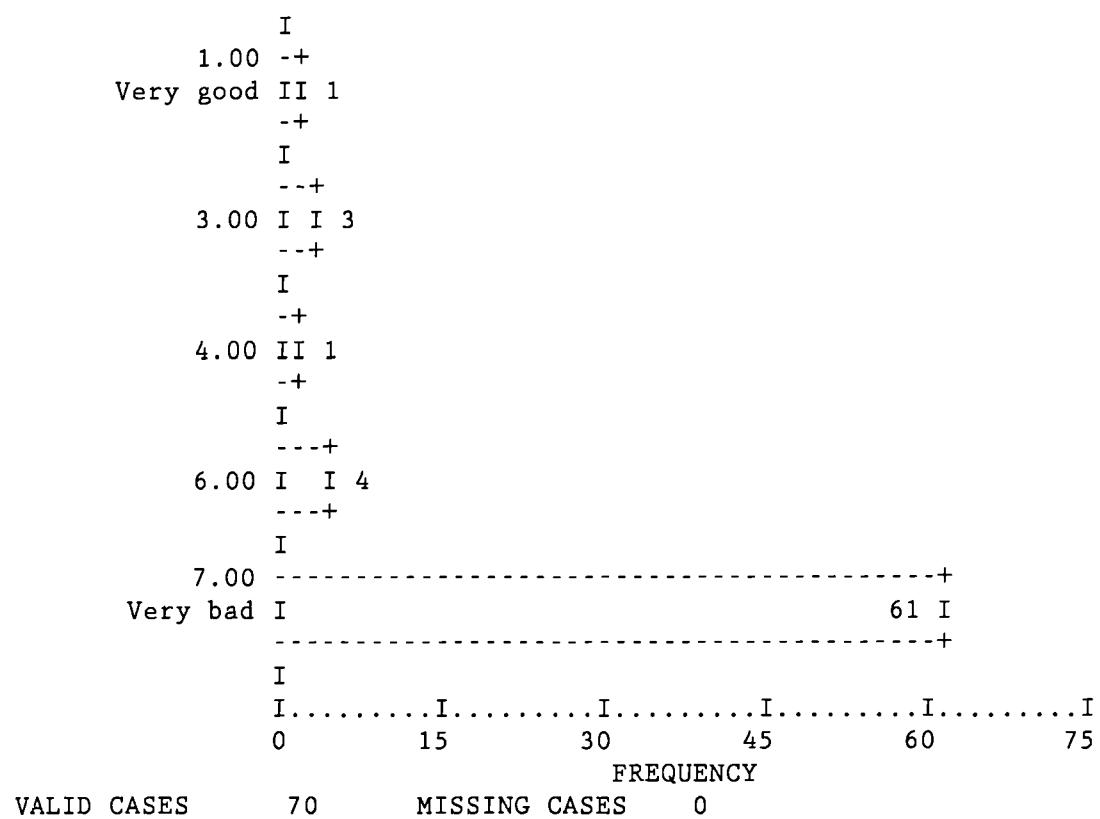


FIG. (7.24): (INSVFL11) PREFERENCE TO OVERLOOK WOMEN'S WC/PL OF ANOTHER HOUSE

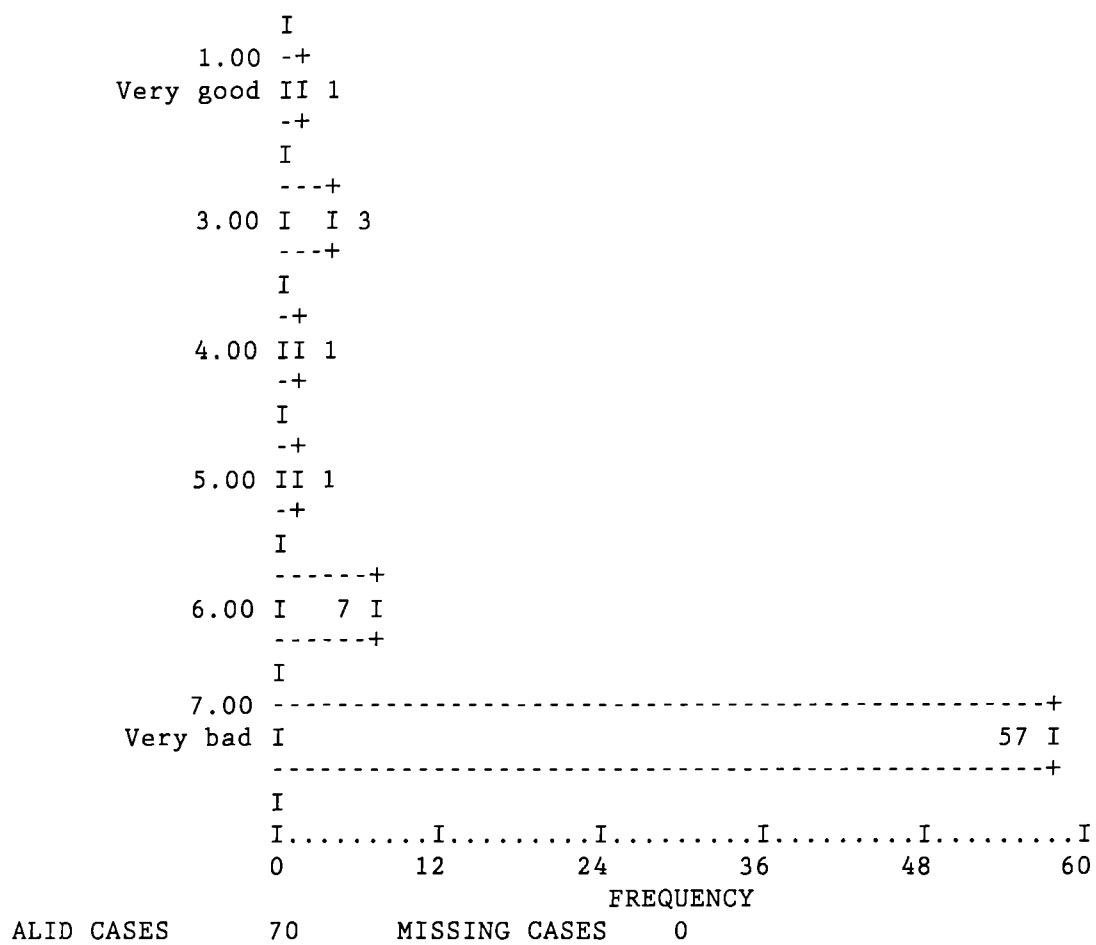


FIG. (7.25): (INSVFL12) PREFERENCE TO OVERLOOK MEN'S WC/PL
OF ANOTHER HOUSE

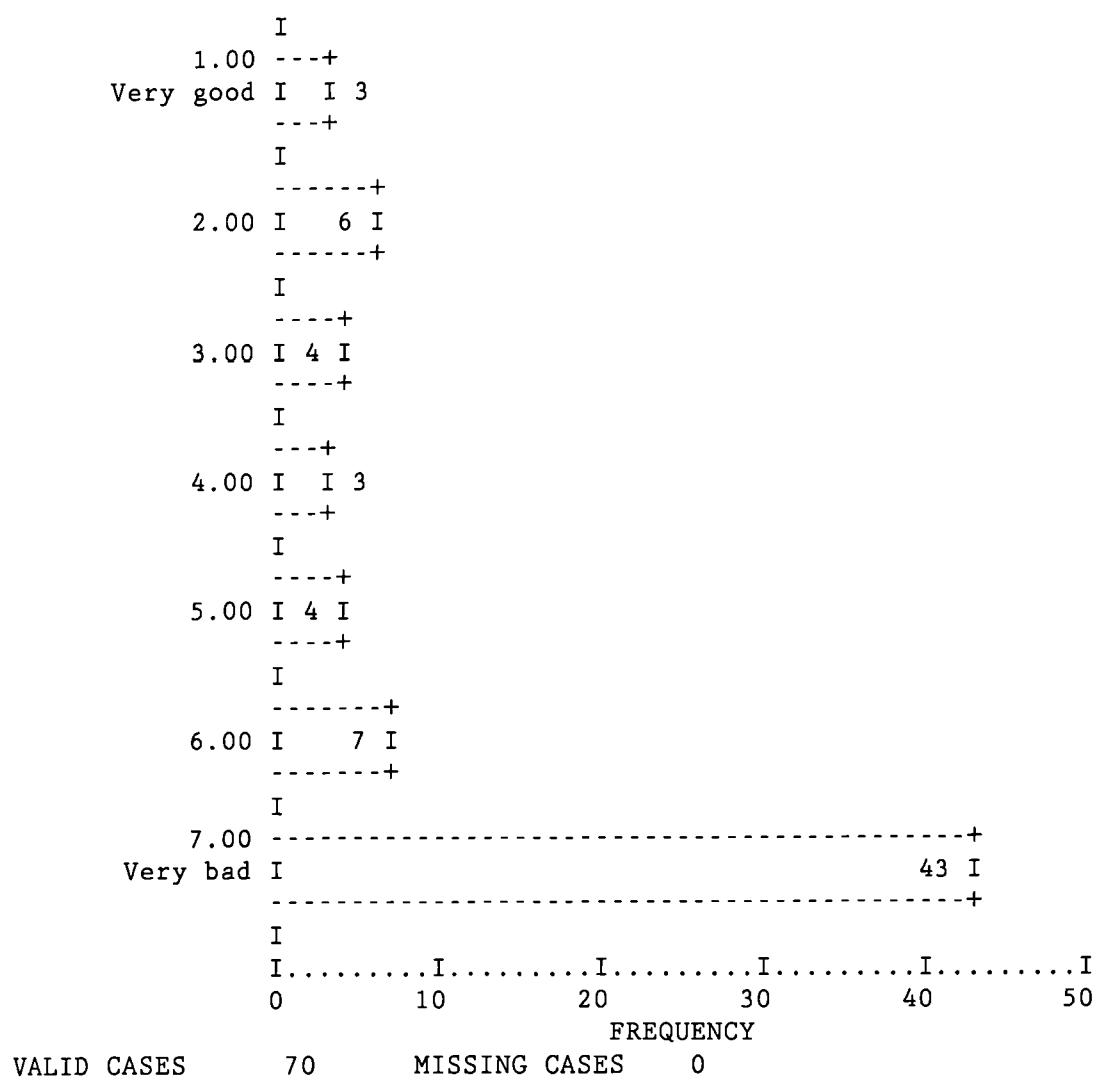


FIG. (7.26): (INSVFL13) PREFERENCE TO OVERLOOK THE WOMEN'S COURTYARD OF ANOTHER HOUSE

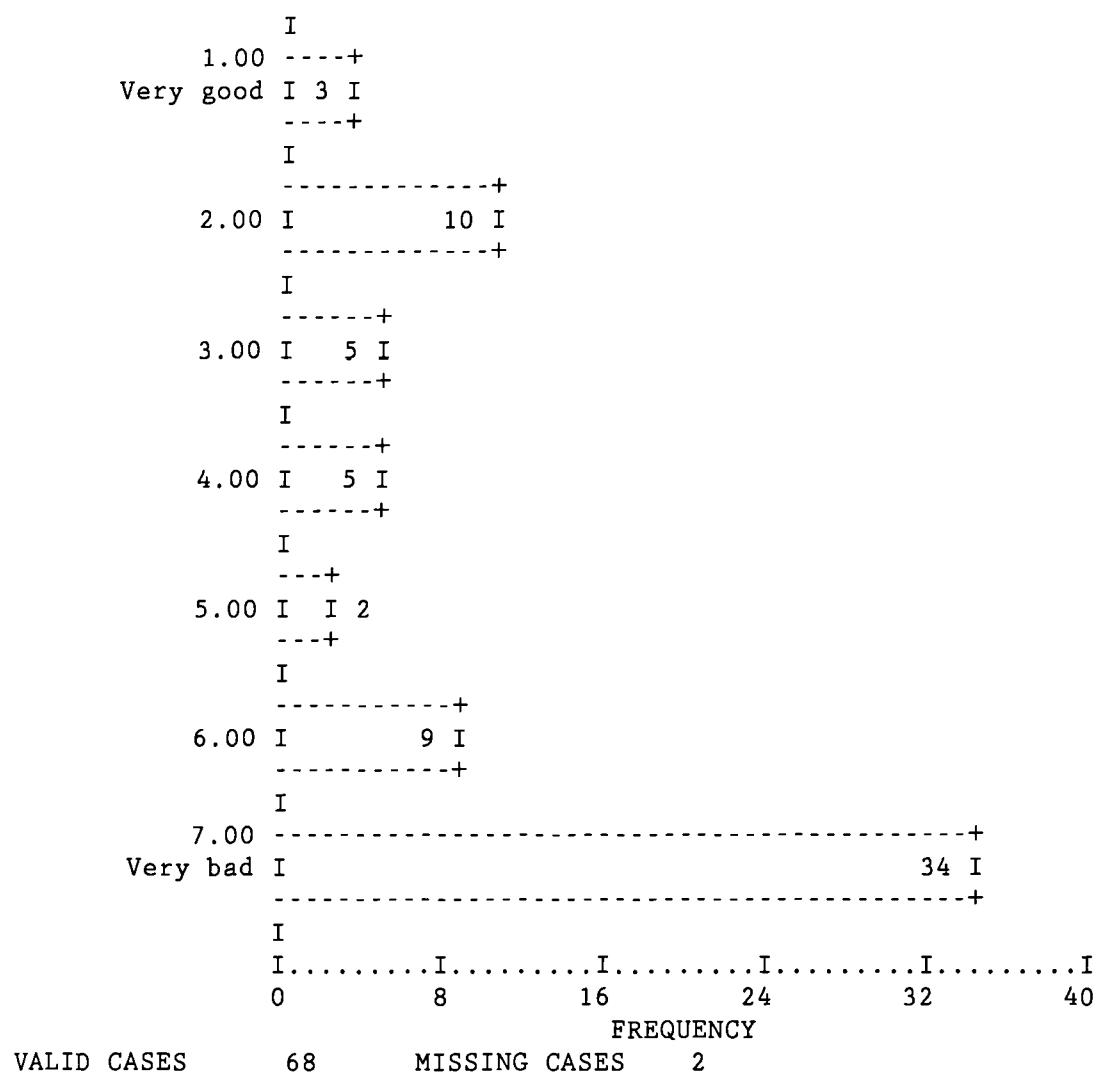


FIG. (7.27): (INSVFL14) PREFERENCE TO OVERLOOK THE MEN'S COURTYARD OF ANOTHER HOUSE

7.4 Some Basic Needs, Privacy and Housing Form

7.4.1 Introduction:

As from the previous discussion it becomes obvious that the concept of basic needs, while useful in general terms, is not efficient in determining how such needs affect the form of dwellings and settlements. The lack of criticality in dwelling form in different parts of the world, means that the same objective can be met in many different ways. Activities that are important in certain communities may be of minor value or do not exist at all in others. Similarly, those which may be performed indoors in some societies, may take place in the open air in others. Moreover, 'how' an activity is done may be more important than 'what' is done. For this reason it is necessary to break the concept of basic needs into more specific concepts such as the cultural character, coupled with the physical factors².

Basic needs can be described in terms of the need to cook, eat, drink, sleep, wash, defecate and socialise. The definition and handling of these needs, according to their effect on the built form, is culturally varied.

For example, the attitude towards sleeping and the rules of privacy related to it has a considerable impact on space arrangement and housing form. It makes a great difference, with respect to whether one sleeps alone in a separate room or all the family members sleep together; whether there is segregation between men and women or not. Similarly, the form of WC/bathroom is the result of attitudes about body and privacy, which are largely cultural. Accordingly, the

same can apply to the attitude towards every other basic need.

As privacy is involved in most sorts of communication and interaction, if not all, and as attitude towards basic needs is largely affected by such communication and interaction, the role of privacy therefore becomes an important element in understanding the effect of activities on the built form.

Things considered as private include bathing, body hygiene, sexual life, beautification, sleeping, eating, sometimes reading, and socialisation. The body hygiene and sexual life are considered as extremely critically private matters. Physical controllers like walls, doors, curtains, and regulators like knocking on the door, clapping, calling, or coughing, are used to achieve privacy. Also social convention which is known to all the community members, or developed in a certain family or a group, play an important role in facilitating the desired privacy.

Degrees of privacy vary according to the situational conditions, e.g.. type of activity and person who is seeking access whether a man or a woman. In certain cases persons require less privacy with close relatives and friends, same sex group, and children. This could be considered an 'INTIMATE-GROUP' requiring less privacy, and alternatively a 'NO-INTIMACY-GROUP' for those who require more privacy. The care for privacy and the stressful effect of intrusion for things like eating and while going to the toilet, is less during childhood, stronger in adolescence, and declines after marriage and increase of age. On the other hand, young married people require more privacy for their territories in a family sense, especially for sleeping activity.

The following section includes discussions about some basic needs that were important in shaping the built form in areas under study. Daily activities of household, cooking,

eating, and sleeping habits, use of space, attitude towards visitors and privacy were all considered as socio-cultural elements that play a major role in determining the form of the dwelling and settlement as general.

7.4.2 The Pattern of Household Activities:

In order to comprehend the nature of the household 'premises', it is essential to describe the common pattern of activities performed in daily life and subdivision of spaces. Although, these two elements can not be separated in real life, such separation is done here for convenience of analysis.

This section discusses some of the household activities in communities under study and tries to examine the effect of attitude towards privacy on the use of space and its layout, i.e. its form. Although, the study of climate was not the main theme of this work, reference would be made wherever appropriate.

(a) Cooking:

Cooking behaviour is affected by many interrelated factors that determine what is cooked, how, by whom and where. The normal pattern of cooking is preparation of morning tea (6-7 am), breakfast (7-10 am), lunch (9-11 am), and supper meal (6-8 pm.). In normal occasions, the result showed that such activity was mainly carried out by housewives and household men rarely participated; 100% and 2.9%, respectively. This explains why the kitchen was mostly located in the women's section. On the other hand, cooking is affected significantly by some ceremonial occasions, whereby the amount of food cooked increases, the people who cook and the spatial behaviour differ. While household women were the main organisers of meals preparations in all occasions, 'other' women (mostly relatives and friends), and

'other' men (i.e. cooks) participated actively during child births and funerals, 77.8% and 53.8%, 28.6% and 43.1%, 15.9% and 40%, respectively. While males dominated the preparation of food in weddings, 74.6%, household and 'other' women share was only 25.4% and 34.9%, respectively (see Tables 7.4.1-7.4.25).

As ceremonial occasions in the Sudanese urban communities, usually involves a large number of people, (the result showed an average of 1488, 1481 (people) for wedding and funeral, respectively, large quantities of food are normally cooked. The availability of space in the dwelling affects where the cooking should take place. It can be done inside the kitchen, dwelling courtyard(s), a tent or even in the neighbour's house. It can happen over a range of deferent spaces, depending on the amount of food and adequacy of space used. Because of crowding in such situations the system of privacy is often relaxed to facilitate for easy communication and interaction.

Climate, also, affects cooking behaviour. In the early mornings or evenings of summer days, when it is reasonably cool, preparation of meals can be carried out under the shadow of rooms in the open courtyard. When the heat becomes unbearable, the activity can shift into the kitchen or verandah, if available. Similarly, in case of cold weather, dust or rain the food is cooked inside the kitchen or a closed verandah.

As in normal occasions cooking in the Sudanese society is usually carried on by women, the space in which it is done is customarily recognised as a 'female domain'. During hot summer plus heat generated from stoves, women wear light clothes, take comfortable poseurs and become sensitive to privacy, especially exposure by males 'strangers' (see Figs. 7.28, 7.29 and 7.42).

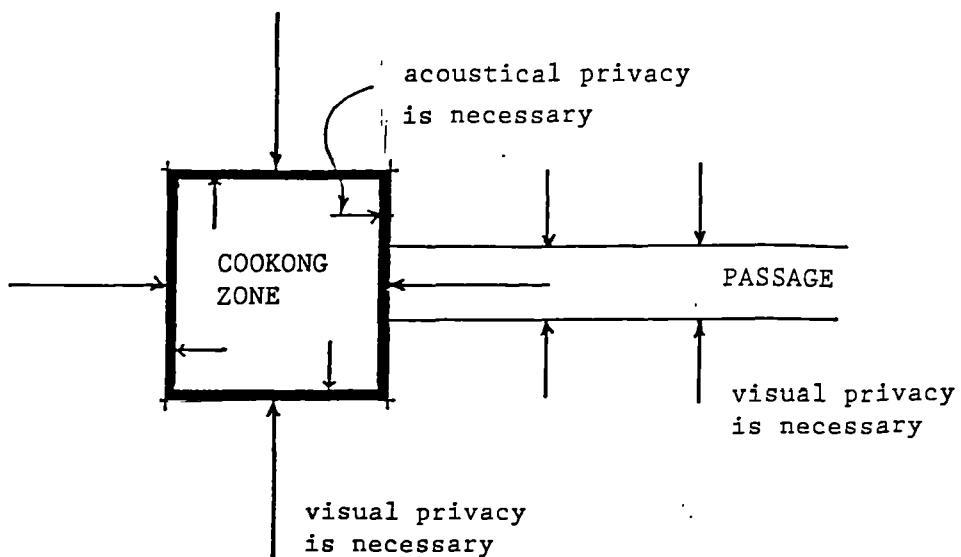


FIG. (7.28): Cooking zone privacy system against the opposite sex (other than relatives) in normal occasions.

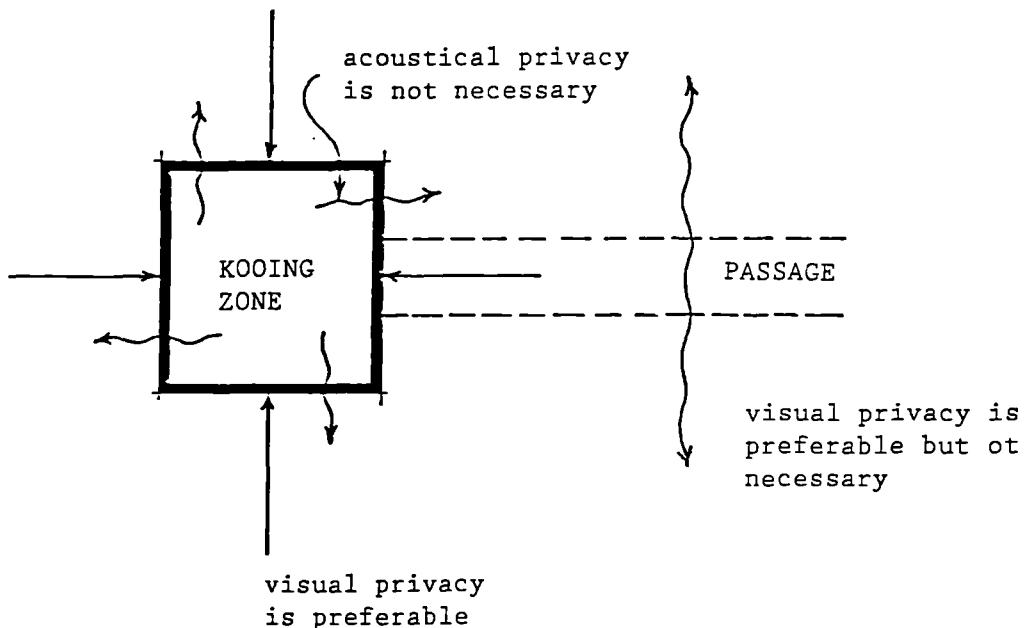


FIG. (7.29): Cooking zone privacy system against the same sex (other than relatives) in normal occasions.

(b) Eating and Privacy

As it was mentioned before, it is not what is done that affects the use of space as much as how and where that happens. In this respect the eating behaviour in the Sudanese urban society is affected by both socio-cultural, situational and climatic factors.

There are normally three meals, breakfast 8-10 am, lunch 1-3 pm. and supper 7-9 pm. On normal occasions when the family members are alone or with close relatives they usually have meals collectively while they are seated on chairs or beds around a table. Those who are working have their breakfast at their work place. If a visitor arrives then the conventional segregation between men and women takes place. Under comfortable weather conditions of summer mornings, late evenings and nights, the food can be taken in the open courtyard, otherwise verandahs, if available, or rooms are used.

Food is normally prepared for either normal meals, feasts and small or big ceremonial occasions. For feasts and small ceremonial occasions men and women eat separately each in their domain. At weddings food is served outside in the adjacent space for men while women stay inside the dwelling. On some occasions women are also served outside in a separate tent (SIWAN). Neighbours houses may be used if there is a lack of space. The same pattern takes place at funerals, except that women mostly stay inside the dwelling and food is taken while people are seated on mats, especially men. During Ramadan, the month of fasting, men used to have their breakfast collectively with neighbours outside the dwelling in the adjacent space, but this habit is in the way of changing. Already, many people have retreated into their houses.

Except on ceremonial occasions, the Sudanese usually seek privacy when having their meals. It is a rare practice to see someone eating while walking in the street. Still the majority of the urban population have their meals at home. Women, in general, are sensitive to visual exposure by male strangers while they are eating (see Figs. 7.30, 7.31 & 7.42). In the old generations, it was the convention that women never ate with their in-laws, but this habit is now dying away. Although this activity is a very basic need, it does not seem to affect the form of the dwelling as much as the norm of segregation, reception of visitors and climate.

(c) Sleeping and Privacy

The activity of sleeping is strongly affected by complex and interrelated factors like privacy rules, religion, traditions, values, morals, sex group, age, income, marital status, kinship, social organisation, time, climate, health, and others. In general, privacy is a dominant constituent of the inseparable interweave which affects the Sudanese sleeping behaviour. The normal pattern of sleeping is the after-noon siesta from 2:00/3:00 pm. to 4:00/5:00 pm. and during the night from 10:00/12:00 pm. to 5:00/7:00 am. During ceremonial occasions such as weddings and funerals, the house is usually crowded by short-term and long-term visitors. Since there is too much crowding, excitement, and fatigue, somehow, the general privacy system is relaxed, i.e. some of the normal restrictions on behaviour are ignored.

The time of the day does affect the spatial behaviour of those who want to sleep. During the day male family members can manoeuvre between the interior family/women's and the male guests' sections depending on the available space and the possible achievable privacy. On the other hand, women, whether guests or family members, sleep in the family/women's section. At night the activity is confined to

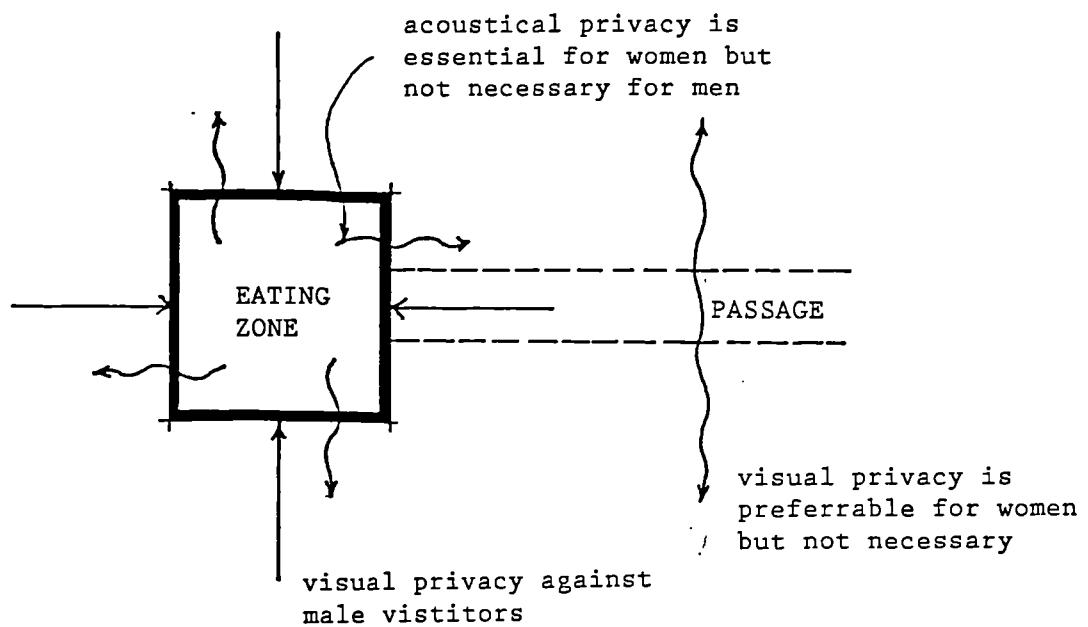


FIG. (7.30): Eating zone privacy system against the opposite sex (other than relatives) in normal occasions.

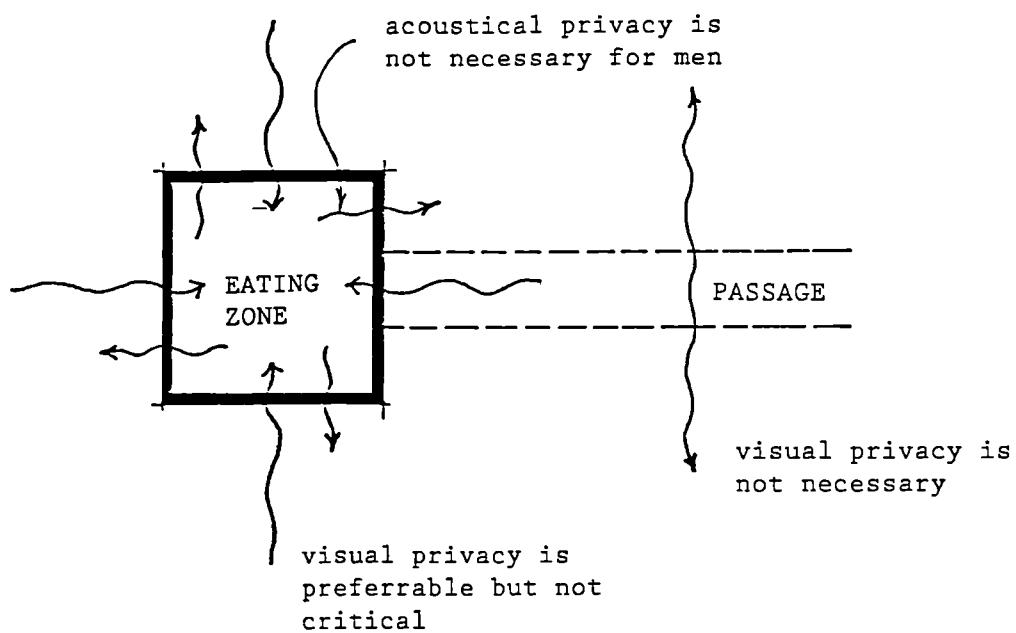


FIG. (7.31): Eating zone privacy system against the same sex (other than relatives) in normal occasions.

certain zones with respect to age, sex, and marital status. The married son/daughter's section which may be intruded during the day by children, women, and close relatives becomes more private and is avoided during the late night. Parents and young children, mature sons, and grown up daughters plus women guests, retreat to their own sections, if available. With scarcity of private space mature sons usually sleep in the male guests section. Old parents or relatives may have their own section where they can sleep, eat, and maintain their body hygiene privately. Their privacy is considered as the family privacy so they are offered a zone where their space could be made tidy before a visitor enters it.

Sudanese people, especially women, avoid sleeping in a place where there are 'strangers'. In such situations, both males and females require visual, auditory, and olfactory privacy against such exposure, i.e. sounds made when sleeping, body odours, nature and type of clothes they wear. In the house women, usually, do not sleep in the presence of the father, uncle, old brother, or a recent visitor and doing so is considered as disrespectful. The attendance of the mother, sisters, aunts, and children do not harm the privacy. If a guest women is sleeping in the family/women's section, the male members of the family are made aware not to intrude upon her privacy. Also male family members avoid sleeping in the presence of women guests, only if they are close relatives (see Figs. 7.32, 7.33 & 7.42). Pregnant women, the old and sick wherever they visit are usually advised to be comfortable and the feeling of disrespect does not apply to them. Under normal situations children can sleep wherever they want and at any time but during special occasions they are mostly confined to the family/women section.

On the other hand, climate affects the sleeping behaviour greatly especially with regard to privacy and guests. Summer

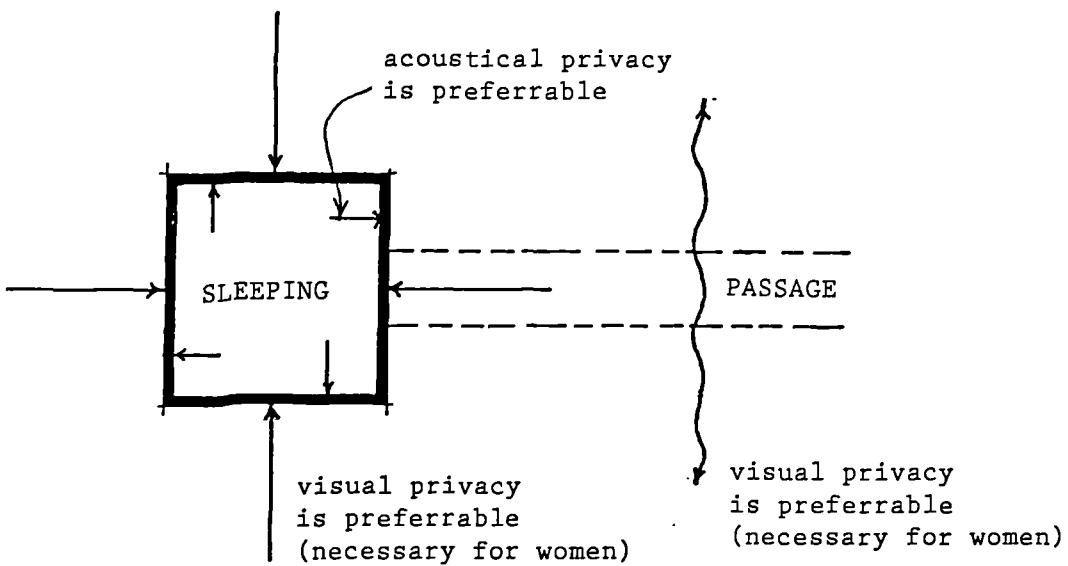


FIG. (7.32): Sleeping zone privacy system against the opposite sex (other than relatives) in normal occasions.

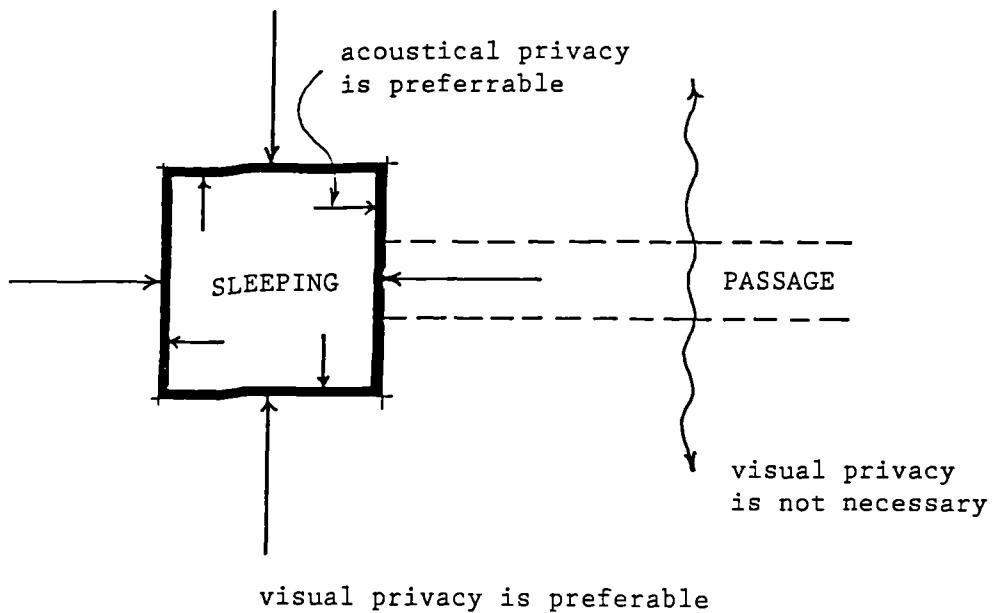


FIG. (7.33): Sleeping zone privacy system against the same sex (other than relatives) in normal occasions.

is the critical season and the weather becomes very hot especially for the overwhelming majority who can not afford mechanical cooling. During the day, normally, people sleep in verandahs and achieve cooling by damping the floor and the open courtyard. They dress in light short clothes which means greater degree of body exposure and hence more privacy sensitivity. A person who feels tired where disturbed by visitors, may withdraw to an uncomfortable space for the sake of privacy, i.e. to mainly body privacy.

So many of the houses in the capital are crowded which reduces the opportunity for choice of space by household members. This leads to the sacrifice of some privacy desires between the family members, but still they share the image of privacy criticality between men and women who are not close relatives. The evidence shows that some of the family members modulate their privacy system to a more comfortable one whenever they have a chance to do so, i.e. when building or renting a new house.

(d) Body Hygiene and Privacy

As was mentioned previously bodily hygiene is one of the most sensitive private activities. No bodily exposure is permitted other than for young children, during child delivery, severe illness, and for the elderly. Any intended or unintended intrusion will make both the victim and the intruder embarrassed and may give rise to objection. The objection may take the form of a gaze, shouting, and/or crying. The Sudanese in the capital normally avoid going to the WC/Pit Latrine, especially women, in the presence of the opposite sex, except for very intimate persons like the son/daughter, brother/sister, and/or father/mother. This becomes more clear when visiting another house, where the privacy mechanism and spatial organisation is different from ones own home. The problems of over-look and presence of men

near to female toilets and vice-versa create personal embarrassment and difficulties.

In the city of Omdurman urban houses there are usually two WCs/PLs. one for men and the other for women, or one WC/PL to be used by both sexes (the result showed that only 29.9% of the sample had shared WC/PL). The WC/PL is, usually located in a way to be easily accessed by the opposite sex, especially guests (see Figs. 7.34-7.37 and 7.43). For the NO-INTIMACY-GROUP the location of the toilet is critical and it must have visual and acoustic privacy. Where access has no visual privacy for women the user may join an INTIMACY group for cover to compensate for lack of privacy. For example. During the attendance of NO-INTIMACY-GROUP, if a woman is in desperate need to go to the toilet, she tries to make a cover by joining another group of women or take a child with her. The same sort of behaviour may take place if exposure to a NO-INTIMACY-GROUP is expected to happen while going to or coming from the toilet . Such situations usually happens in institutional buildings and while travelling.

Since the majority of the citizens are living in third and fourth class areas, they do not have modern sewerage systems neither can they afford to build their own conventional modern systems, i.e. septic tank and soak away well. So the WC/PL is normally squeezed away from other inhabited spaces to avoid as much as possible smell.

Also in each dwelling is found two bathrooms one for men and the other for women or a shared one (the result showed that there was 22.4%, 23.9% and 41.8%, respectively). What applies to the toilet applies to the bathroom with respect to privacy mechanisms and regulations except that the criticality is less for the bath. The users of the bathroom are the family members and long-term guests. Men usually do not care very much for the access and acoustical privacy of the bath room. On the other hand, women care more than men

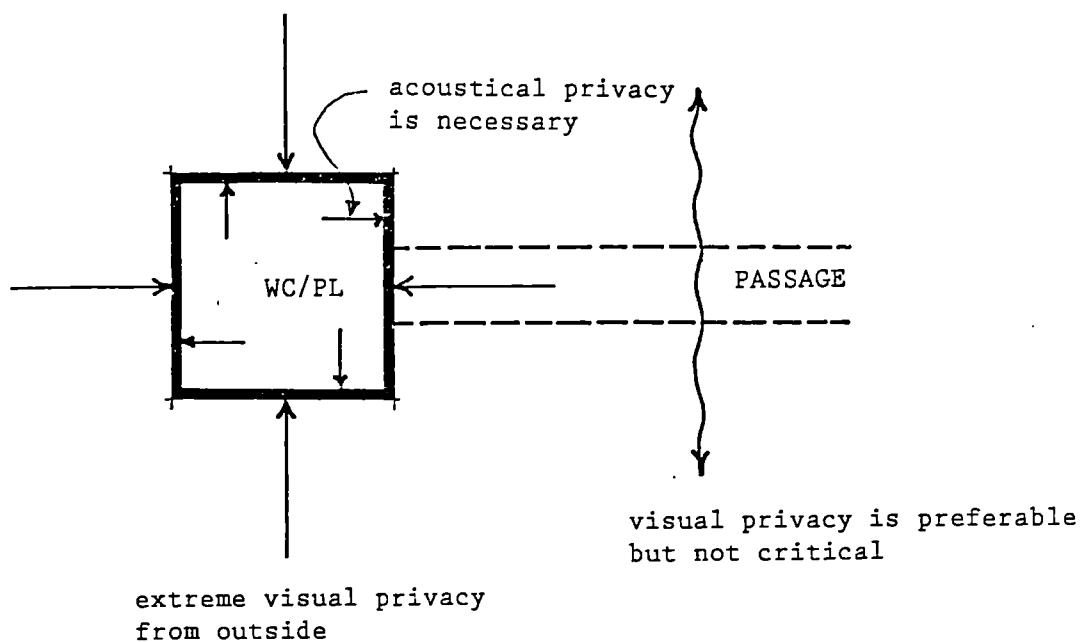


FIG. (7.34): WC/PL privacy system for men.

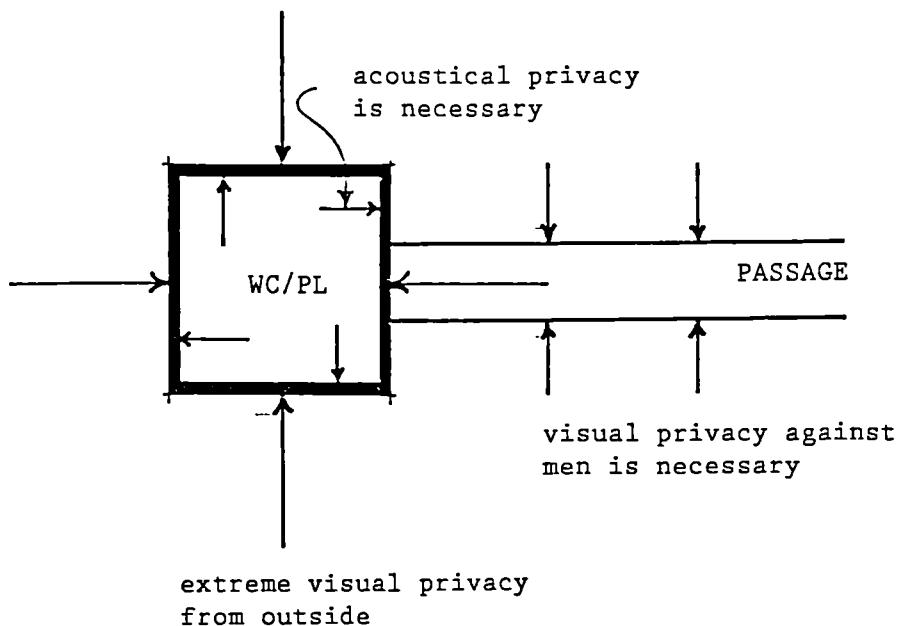


FIG. (7.35): WC/PL privacy system for women.

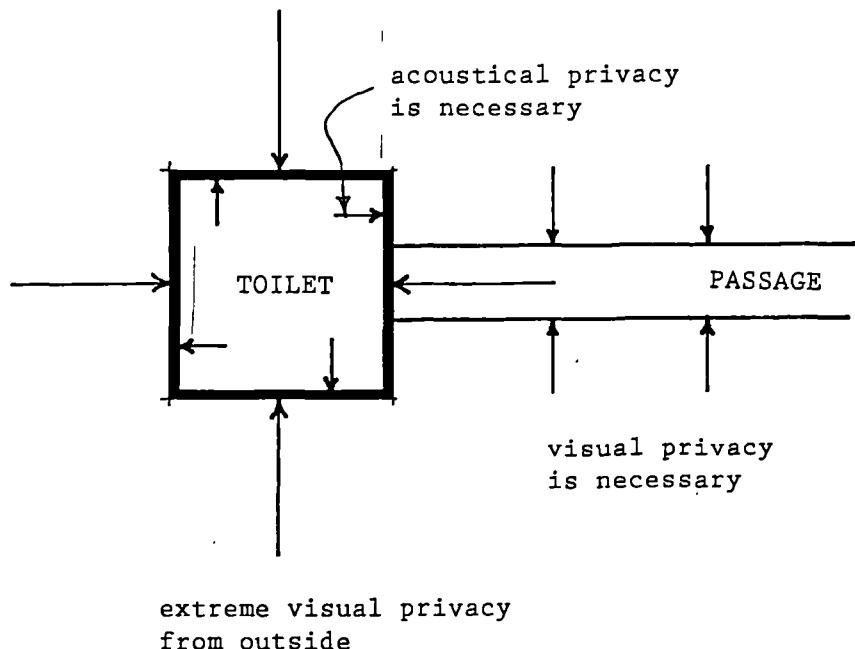


FIG. (7.36): Toilet privacy system against opposite sex
(where the toilet is inside the bathroom).

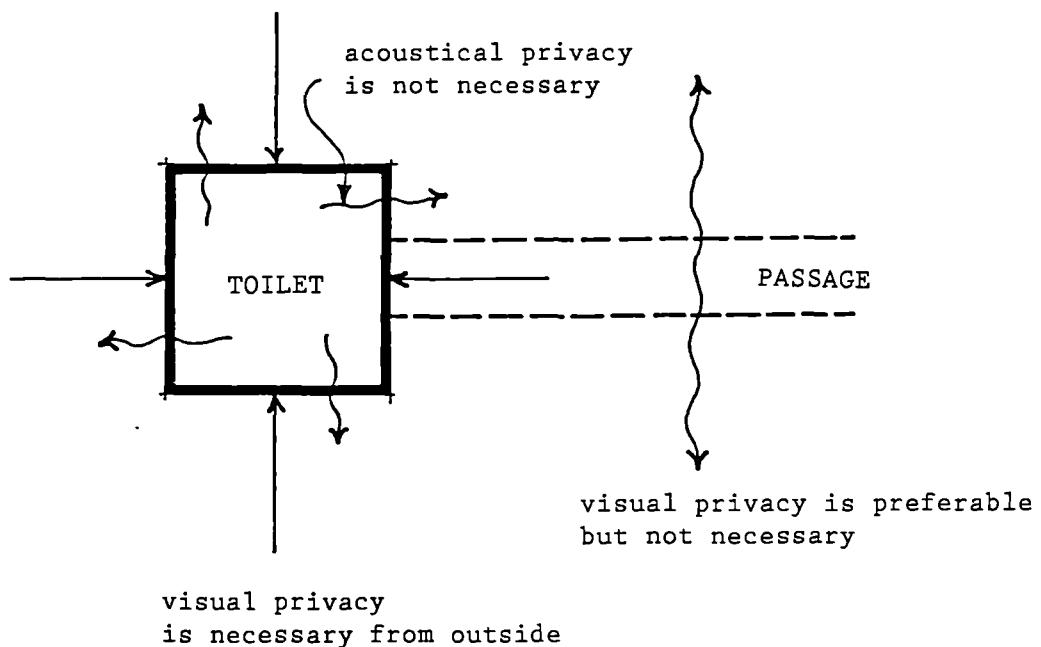


FIG. (7.37): Toilet privacy system against same sex group
(where the toilet is inside the bathroom).

for access, especially being observed by the male group, and to a lesser degree for acoustical privacy (see Figs. 7.38-7.39).

(e) Sexual Life and Privacy

If we accept that sex plays an important role in the majority of the people's lives, and that it is essential for the survival of the human race, psychological and physical well-being, then the significance of privacy is predominantly needed by people for the best performance in their sexual life.

In the Sudanese capital's society sexual life is regarded as a pole around which religion, values, traditions, morals, pride, mystery, dignity of the person, his relatives, and hence the society relates all interweave. Privacy is the basic need that guards and glorifies the status of social behaviour in this respect. Intrusion to this privacy can involve immediate harsh reaction by the victim, a passer-by and/or a relative. The reaction may be a gaze, police case, or fighting which, sometimes, may result in loss of life. In minor cases the victim prefers social punishment instead of taking the offender to court for the fear of publicity which may lead to more loss of privacy.

The sexual life system is mainly related to the Islamic religion where marriage and sex between partners is considered as worship. Sexual practice is not allowed other than between married couples. Prostitution was prohibited by the civil law in the 1970s. Later in 1983 the Islamic law was adopted and thereafter any sexual abuse would be faced with severe punishment.

A woman's virginity is valuable and she resembles the decency and dignity of her family. Any intrusion to her privacy is socially unrespectable moreso than for a man.

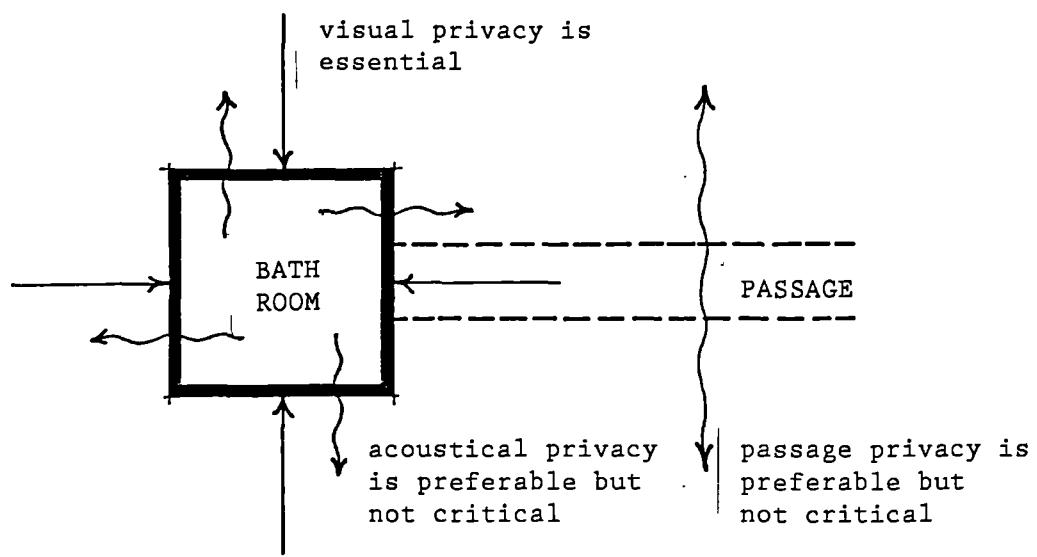


FIG. (7.38): Bathroom privacy system for men.

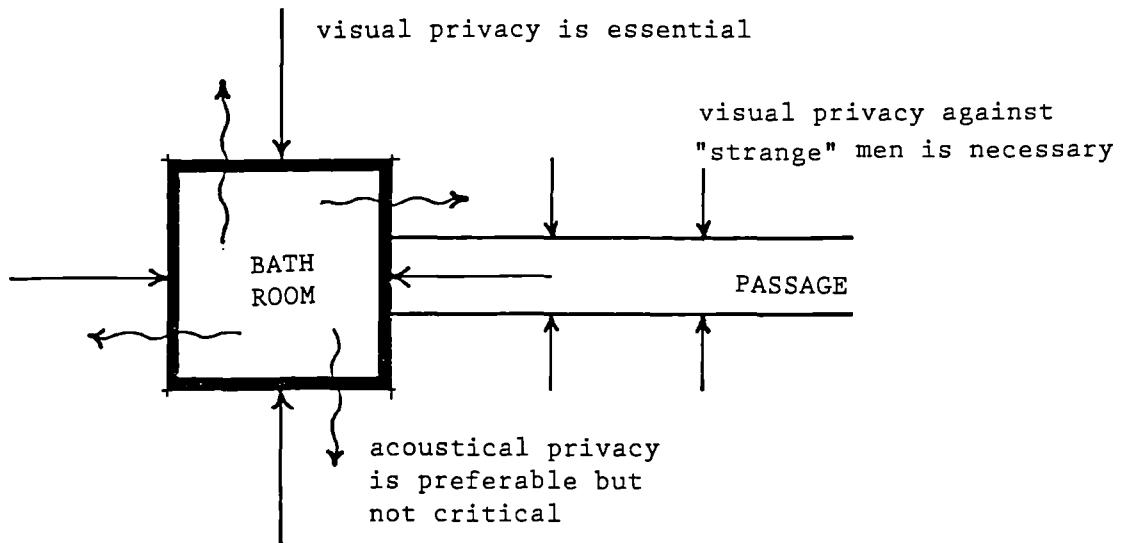


FIG. (7.39): Bathroom privacy system for women.

Winking, whistling, or smiling to a 'strange' young lady is seen as a misbehaviour. No sexual cues like kissing, cuddling, etc. are expected to be seen in public or by close relatives other than the husband. Sexual attraction is very high between the two sexes and clothing is the conventional controller of the body privacy within and without the family realm.

Sudanese people has developed their own national dress, the garment and turban (GALLABIYA and IMMA) for men, and (FUSTAN) and (THOB) for women. Western style, i.e. trousers and shirts, are also used by men for official work and entertainment, but seldom used by mature ladies. In prayers, religious and funeral occasions, the national dress is dominantly preferred. Going outside the house with tight and/or transparent clothes is impolite.

Since sexual life is considered as extremely private, any subjection to exposure will cause embarrassment, both to the actor and the viewer. In other words, privacy of the others represents privacy of the self, so voluntary bodily exposure is avoided. The only acceptance is in emergency cases, like physical treatment, operations, etc. Women, customarily, suffer the stress of shyness and shame more than men. Religious, scientific, and eventual functional discussions about sex are acceptable but may cause shyness between unfamiliar different sex groups.

From the above it is clear that the individual, the family, and the public behaviour is very interrelated and is of concern to each of them. Generally speaking, the social convention that helps towards the satisfaction of sexual life, is the respect of the family realm, i.e. the physical and social organisation of the family territory. Each married couple has their private sleeping space, a room, sometimes with a verandah, and a courtyard. These spaces are likely to be intruded by children and other family members

during the day, but they are quite respected during the night and early morning. For a crowded household, the movement of family members around the space to carry on their activities, does not support the existence of strongly defined privacy realms. In such a case the only way is the comprehensive understanding of family members behaviour and to use the time factor as a regulator to achieve the desired privacy. Since the exposure of sexual cues to others is shameful and not expected, therefore, no such cues can help to regulate privacy, except those developed between couples. It is possible to say that extreme crowding within a household may confuse the privacy system, and hence may lead to sexual deprivation or behaviour modulation, i.e. acceptance of less privacy.

(f) Sitting and Privacy

Sitting is a basic human need and the manner in which it is done can affect dwelling form. Also, the introduction of new elements, e.g. the introduction of the chair, and their acceptance can change living habits and have major social consequences. Different postures and level of sitting would affect form, look and character of furniture and the placement and type of openings³.

It can be said that, Omdurman urban society sitting behaviour is governed by many socio-cultural and climatic variables. On normal occasions family members gather together in the family/women's section to entertain, eat, drink or discuss serious family matters. On the other hand, some may retreat to their private domains to study, read or practice a hobby. In this situation individuals, usually sit on chairs, beds and rarely on the floor. If a guest, who is not a close relative, arrives each sex group has to retreat to its own realm. Also, sometimes, during later afternoons family males may sit outside in front of the dwelling to chat with friends and to look at the outside world. In such

a situation, they usually sit on chairs, mats or squat on the ground.

In weddings, people gather in large numbers (see special social occasions) and sit on chairs in the adjacent semiprivate space or on chair and beds inside the family's and neighbour's dwelling. It has to be noted that in such a situation, usually, women occupy the most private spaces of the family realm. Similar behaviour takes place during funerals, except that people may also sit on mats, especially the wife of the deceased and her close relatives and friends [18]. Between men, priority is given to elders to be seated on a chair or bed.

Like for other basic needs, sitting behaviour is also affected by climatical conditions. During comfortable weather conditions, e.g. summer mornings and late afternoons, sitting can take place in the dwelling open courtyard(s) or on the adjacent outside semiprivate space, otherwise verandahs or rooms have to be used. In general, it could be said that sitting behaviour is greatly affected by the convention of segregation between the different sexes, attitude towards strangers, age, situation, availability of space, tools used and climatic conditions.

(g) Beautification and Privacy

The two traditional beautification processes, DUKHAN and HENNA, are still practiced by most of the Sudanese urban women. The DUKHAN, which means smoke, gives a colour to the skin, fragrance, and acts like the sauna in encouraging sweat and blood circulation. It is generally practiced by young and middle aged married women as a body care in normal situations as well as for wedding ceremonial occasions. A hole is dug into the ground and special local wood is burnt inside the pit to give DUKHAN. Where it is difficult to dig or for the scarcity of the space, an incombustible container

might be used to prepare for the same purpose. Normally the DUKHAN activity takes place in the family/women's section at a corner of the open courtyard, inside a verandah, a room, or the kitchen. A number of the neighbouring women friends may gather together to make the activity in one of their houses. Although in this case exposure to all men from the family, except the husband, and visitors from both sexes is avoided, it is considered as very critical for males who are not close relatives. For the purpose of privacy, the activity takes place in the morning, early after-noon, or after 10:00 pm., the preferred time, when no more visitors are expected (see Fig. 7.40).

The HENNA is a deep-rooted traditional act and of the most popular beautifying elements admired by both sexes. Normally it is practiced extensively by young married women and to a lesser extent by the middle aged ones to prettify their hands and feet. Also, it is done at weddings for both the bride and the bridegroom. The minced HENNA is mixed with water and applied to the skin for one or two hours then taken off and thereafter the skin is treated with oil and perfume to take a colour ranging from orange to pitch black. Sometimes further ornamentation is applied later, and the whole process may continue for three hours. HENNA is either done by the woman herself, a relative, a friend, or professional women. Normally women make HENNA every week or a fortnight, but for a bridegroom it may be done every three days. Since HENNA is primarily a female practice, it is made in the family/women's section in a room, a verandah, or the open courtyard. Due to the lengthy time that HENNA takes and the use of oil which needs special clothes, it is done at times when no visitors are expected, especially if the woman is alone and there is no one else to serve a guest. Exposure of women is not critical as in the case of DUKHAN but it is avoided against male visitors (see Figs. 7.41-7.42). The factor of climate has its obvious impact on the frequency of practicing the activity and the selection of space to be

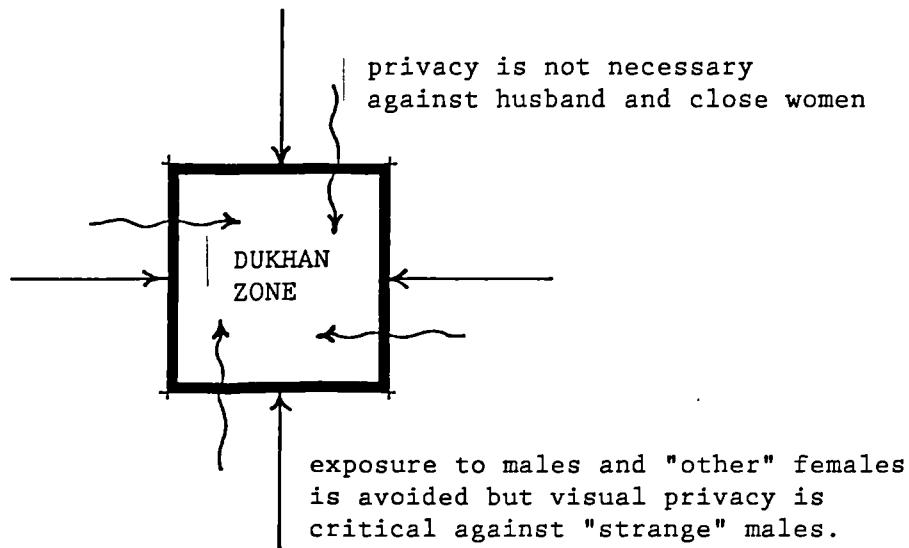


FIG. (7.40): Privacy of women in Dukhan zone (when the activity is taking place).

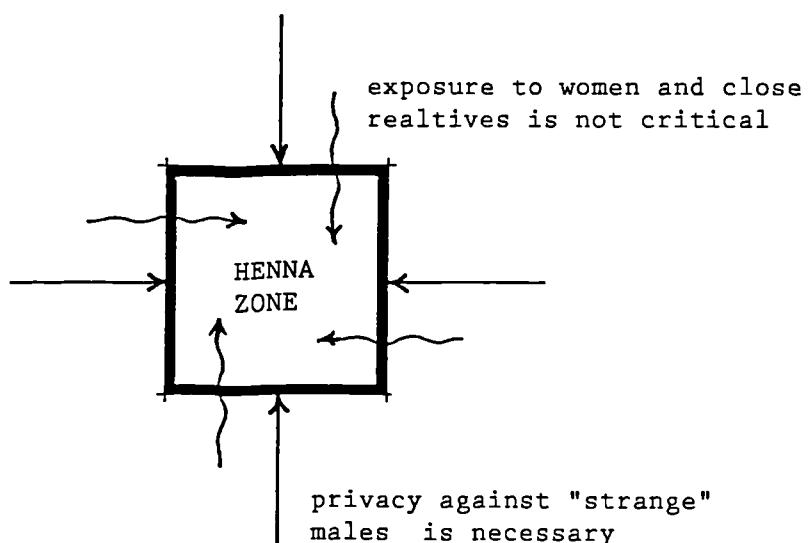


FIG. (7.41): Privacy of women in Henna zone (when the activity is taking place).

OCCASION \ TYPE OF SPACE	FAMILY / WOMEN'S SECTION	MALES' SECTION	SPACE IN FRONT OF THE HOUSE	OTHER SPACES	ACTIVITY
ORDINARY	○				
WEDDING	○ ★	○ ★	★	★	
FUNERAL	○ □ ◇	★	★	*	
ORDINARY	○ ○ □ ◇	● ■ ◆		●	
WEDDING	○ ○ □ ◇	● ■ ◆	● ■ ◆	● ■ ◆	
FUNERAL	○ ○ □ ◇	● ■ ◆	● ■ ◆	● ■ ◆	
ORDINARY	● ○ □ ◇	● ■ ◆			
WEDDING	○ □ ◇	● ■ ◆		● ■ ◆	
FUNERAL		● ■ ◆	● ■ ◆	● ■ ◆	
ORDINARY	● ○ □ ◇	● ■ ◆	● ■	● ■	
WEDDING	○ □ ◇	● ■ ◆	○ □ ◇	○ □ ◇	
FUNERAL					
ORDINARY	● ○ □ ◇	● ■ ◆	● ■ ◆	● ■ ◆	ENTERTAINMENT
WEDDING	○ □ ◇	● ■ ◆	○ □ ◇	○ □ ◇	
FUNERAL	● ○	●	○	○	
ORDINARY	○ □			○ □	
WEDDING	○ □			○ □	
FUNERAL					

	INHABITANT	RELATIVE	VISITORS	OTHER
MALE	●	■	◆	★
FEMALE	○	□	◊	*

FIG. (7.42): DYNAMICS OF SPACE USE: PEOPLE, ACTIVITIES AND OCCASIONS.

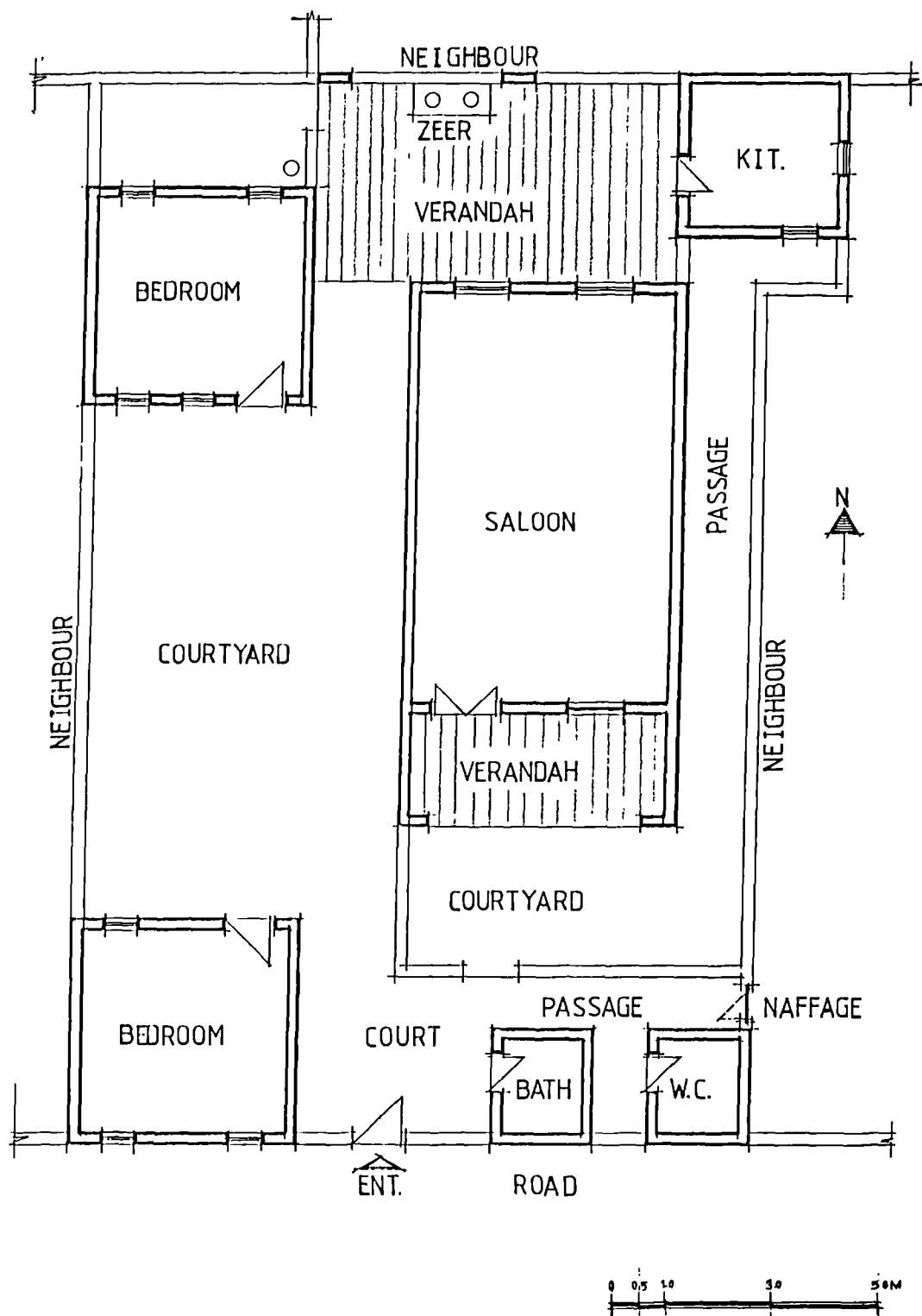


FIG. (7.43): Dwelling plan showing location of shared WC where it can only be approached through a passage with its door hidden behind the bathroom (source: Al-Ardhah sample survey).

used. HENNA is less practiced in winter and more in summer.

7.4.3 Special Social Occasions:

Weddings, religious celebrations (ID-UL-FITR and ID-UL-ADHA), funerals and the birth of a child are considered as very important occasions which need preparation. Visiting friends and relatives in the above mentioned first three occasions is regarded as crucial and any delay without a reasonable excuse may lead to misunderstanding between families.

(a) Weddings:

After a marriage is approved the bridegroom makes a feast and invites his relatives and friends. This is usually done in the evening, during which participants offer money and/or gifts, and later followed by a party. In the evening of another day the bridegroom, his relations, and friends take cars and move towards the bride's family house. They are then received, offered food, and soft drinks. After that a party starts and, sometimes, continues till the early hours of the next morning. When the party stops guests depart to their homes. Close relatives and friends coming from far areas may sleep in either the bride's or the bridegroom's family house. Celebrations may continue for one, two, or three days. When it ends the bridegroom may take his lady to an hotel, another town, or travel abroad. After coming back they either stay with parents, in-laws, or go to their own house.

During celebrations women are received in the family/women's section or the males guests' section may be used too where there is scarcity of space. They also offer the bride gifts and/or money. Preparation of food is carried by a cook and/or done by women. On this occasion usually many sheep are slaughtered for feeding the guests. A big

tent (or SIWAN) is erected outside in front of the house to accommodate men and later used for the party, in which young women traditionally participate (see Plate 6.18). Relatives, neighbours, and friends houses may be used to accommodate long-term guests. Since this occasion brings many people to the family realm (the sample revealed an average of 1488 guests per wedding), somehow, the privacy system is usually relaxed to allow for smooth communication and social interaction (see Fig. 7.42). Nowadays some few families perform such occasion at other areas like clubs.

(b) Funerals

This is one of the occasions that brings people together even those who are not regular visitors and the occasion is regarded as having great importance. When somebody dies all relatives are informed. Men carry the dead to the cemetery and pray to it before burial. Women usually do not go with men but they might step a few yards in front of the house to pay their last respects [19]. During this time a big tent is erected outside in front of the house for men, whereas women are received inside the family domain. Moreover, 'intimate' neighbours' houses may also be used for reception of guests. People then start coming from in and outside the city to offer condolences to the deceased's relatives.

Water and tea are served to the guests and during meal times some neighbours may bring food but mainly it is provided by the deceased's household. As this occasion can create confusion in the house, especially in the women's section, close friends and relatives often help in services and sympathy. This occasion may continue for three or seven days after which the tent is dismantled and each person goes back to his home. The deceased's wife, if she exists, should only leave the house in emergencies or if she has no one to look after her, and this is normally for 4 months and 10

days [20]. As for wedding, the privacy system is also relaxed during such an occasion. These two occasions show clearly how the family activities, sometimes, extend beyond the physical boundaries of the dwelling to the adjacent space (see Fig. 7.42).

Generally, the mutual relationship between activities performance and social intercourse can not be undermined. The following section analyses and concludes upon some of the social relationships that took place within the residential environments under study.

7.5 SOCIAL RELATIONSHIPS, PRIVACY AND HOUSING FORM

7.5.1 Introduction

Social intercourse is also a basic need, since man has been defined as a social animal. It is not the fact of meeting itself that is significant, but the specific 'how' and 'where' of the meeting, whether in the house, the cafe, the club, or the street that affects the form of the habitat⁴. On the other hand, residential environments with characteristics that hinder or facilitate orientation and social interaction with the course of time can affect the meeting behaviour and attitudes of their residents.

Without understanding such a behaviour and attitudes, it would be difficult, if not impossible, to provide a 'fit' residential environment that is 'liveable' and enjoyable for its users. With this objective in mind, how, where and when people in the communities under study manage to interact is discussed in this section. Moreover, the availability of relatives and friends in the locality and the reasons underlying the socialisation process are analysed.

The general Sudanese social life is based on the kinship pattern with stronger emphasis in rural areas. They are very

social and have a strong feeling of community. It is part of the Islamic belief that orders its followers to help, visit relatives, neighbours, and be kind to guests. Relationship between relatives is very strong and moral and financial responsibility towards close kinship is obligatory. They share expenses of events like wedding, funerals, illness, etc. Also the community ties are strengthened by marriage, and work relations.

In the capital people used to live in a household type composed of elementary families. They usually share facilities like male guests' room (AL-DEWAN/SALOON) and services like kitchen and toilet/s and sometimes meals. Recently with the process of urbanisation, a sort of independence of some elementary families in their affairs and facilities is becoming apparent. Overcrowding of households and the ballot system used to distribute plots, forced relatives to scatter around the city. But still many hold the deep-rooted tradition of visiting, solving problems and taking care of their relatives, friends, and neighbours.

Citizens pay each other casual visits without the need for invitation. Closing the door in the face of a guest brings shame to the family. In normal days visits are mainly in the evening but during religious celebrations; IDUL-FITR and IDUL-ADHA, weddings, and funerals the house remains open for the guests throughout the day. Guests offer gifts for wedding and money for funerals to subsidise for expenses. So many of the residents have relations from different parts of the country. They come occasionally to the capital for official work, to buy goods, or to find a job. Normally they stay with relations who provide them with lodging, food, and the possible help free of charge. Invitation is expected to be offered to any known person whenever passes in front of the house. Greeting familiar people, clutching hands, and warm reception for visitors is essential. Relations between

men and women who are not relatives, family friends, or colleagues, socially is conceived as misbehaviour.

7.5.2 Manipulation of Social Intercourse

When the respondents were asked whether there was a sibling in the area where they live, the result revealed that the majority said 'yes', 75.8%, while only 24.2% said 'no' (see Table 7.5.1). This was, somehow, compatible with the fact that the majority of residents in question were originally from Omdurman, beside the housing distribution system that favours those who are born in the area.

On the other hand, the general friendship formation within the local community was very high, 88.7%, who made friends compared to only 11.4% who had none (see Table 7.5.2). Although other factors might have contributed to this result, still it could be said that the availability of relatives in the same neighbourhood did not hinder the development of other forms of relationships within similar proximity, on the contrary it might have encouraged it. This could be contradicting to the view that friendship formation does compensate for the absence of relatives. But it could be said that a relative and a friend are special relationships each of its own character and each type of contact is acquired for its own sake, at least for the people in question.

The respondents were, also, asked about the places where they normally meet others. The analysis showed that, generally, 100%, 49.3%, 46.4%, 21.7%, 18.8%, 10.1% and 29.4% of the respondent used to meet relations at home, in the street, at the mosque, bus station, club, cafe and at other places, respectively (see Tables 7.5.3-7.5.9). Thus, it is made obvious that, the family domain acted as a major station for such interaction. Next to its was the street and the mosque.

On the other hand, the classification of data reflected that, generally, 89.7%, 57.4%, 50%, 36.8%, 29.4%, 13.2% and 33.8% (see Tables 7.5.10-7.5.16), of those who were asked used to see friends at the family dwelling, mosque, in the street, at the club, bus station, cafe and at other places, respectively. As for the interaction with kin group, it could also be understood that the house, mosque and the street were the dominant realms where such sort of socialisation took place. There, also, seems to be an identifiable effect of clubs on this behaviour.

For the interaction with neighbours there were 94%, 68.7%, 58.2%, 35.8, 32.8%, 14.9% and 23.9% of those who were interviewed met them at the dwelling, in the street, at the mosque, bus station, club, cafe and at other places (see Tables 7.5.17-7.5.23). Again, the outcome manifested the residence, street and the mosque were the major spheres where respondents met their neighbours.

From the evidence displayed it could be concluded that the household private dwelling was, overwhelmingly, dominating any other space in the city as the territory where the previous types of social interaction took place. In other words, such socialisation was maintained in the 'privacy of the home'. Although many other factors, like the inefficiency of the transportation system and lack of attractive entertainment facilities, might contribute to this result, still the very high percentage in favour of the house, above 89%, suggests that the urban Sudanese socialisation was home oriented. Also, the other spaces that played an important role were the mosque and the street. Although, the result was generally approximately similar for the two territories, the mosque was more important for meeting friends. Generally, the bus station and the club showed some effect whereas the cafe indicated very low importance for the development of socialisation behaviour.

Unlike Egypt, the scarcity of coffee shops in the Sudanese urban residential quarters can be attributed to such patterns of living and the negative attitude towards coffee shops as general in the past which obviously must have affected the form of the city as a whole.

Since social intercourse is vital to the development of the individual as a social being and the development of community spirit, hence the understanding of such behaviour, in what spaces it is carried out, when, and why is the first step towards the provision and maintenance of residential environments that are liveable and enjoyable to their inhabitants. So, it is necessary to give special care to the dwelling, the mosque and the street to back the goal towards a better environment.

In the next section further investigation will be done on the frequency of socialisation and why did it happen.

7.5.3 Motivation and Frequency of Social Intercourse

The manipulation of the man-made environment depends to a great deal on the meaning attached to the activities performed within and their frequency. This section investigates the causation underlying the acquisition of interaction with relatives, friends and neighbours and the degree of such behaviour occurrence in localities surveyed.

The respondents were asked what were the reasons that made them acquire the type of interactions mentioned above. The answers, generally, displayed that seeking to meet relatives and neighbours was mainly religiously motivated, 92.6%, 89.6%, respectively, whereas meeting with friends was mainly intrigued by social reasons, 85.3%. Second to this in importance was social factors as generators of interaction with relatives and neighbours, 72.1%, 73.1%, respectively, and religious ones as for socialisation with friends, 72.1%.

Other factors displayed comparatively a weak effect on the development of social intercourse with such categories, 13.2%, 16.2% and 13.4% for relatives, friends and neighbours, respectively (see Tables 7.5.24-7.5.32).

This result, again, displays the difference between relationships with relatives and neighbours, which are influenced by the religious obligations in the Islamic culture, and those with friends which, also, do not escape the clear religious motivation. It is worth saying that in Islamic culture, the performance of social relationships is, somehow, religiously shaped, so it is difficult to separate in reality between social and religious factors, and it is done here only for the convenience of analysis.

Since the former relationships categories are of the major functions performed in a residential context, at least in communities under study, and since the man built environment is made to serve these functions, thus the evidence certify the significant effect of socio-cultural factors on the form and performance of the residential environment. Neglecting these factors will not provide a meaningful built environment, but by understanding and working in harmony with them success could be achieved, other things being equal.

When respondents were asked on what occasions do they perform such types of social interaction, the result generally showed that relatives, friends and neighbours were seen mainly in religious, i.e. Id-Ulfitr and Al-Adha, and ceremonial occasions, such as weddings, child birth, circumcision and funerals. On the other hand, contacts in normal situations generally were mainly performed on more than once a week, once a week, or monthly basis.

The type of contact revealed, approximately, similar pattern of distribution along the different occasions and

periods of time. In ceremonies contact with relatives came first, second neighbours, then friends. While contact in periods less than one week was in favour of neighbours, the relative dominated the ones that happened within a period of one month, second to it was neighbour then friend. The outcome for meeting was very high in major ceremonial occasions, above 81%, above 74%, and above 72%, for relatives, neighbours and friends, respectively, while, except for friends, it was relatively high for secondary ceremonial occasions, i.e. child birth and circumcision, above 69%, above 65% and above 51%, for relatives, neighbours and friends, respectively (see Tables 7.5.33-7.5.65). While the contact with neighbours was more frequent, meeting with relatives and friends was distributed through a longer period of time. Although, deterioration of transportation services, economic hardship beside other factors might have affected this result negatively, still the general level of interaction that happened within the residential context in normal situations taken together with religious and ceremonial occasions was comparatively intense.

This analysis demonstrates the effect of physical proximity, in case of a neighbour, and its creation for a new type of relationship that is conditioned by the prevailing socio-cultural factors manifested by ceremonial occasions and rules of privacy in day to day social intercourse. The effect of proximity was obvious on increasing the rate of frequency of contact and in shorter periods. Also, the availability of many relatives in the area might have contributed positively to the obtained figures. In other words, what man decides to build for himself through his intellectual choice, affects the manifestation of social intercourse being carried within its premises through the possibilities and choices that it displays for its users. The useful options are those which create the 'right' atmosphere where social relationships can

be acquired and controlled successfully, that is to say an atmosphere of privacy.

7.5.4 Attitude toward Socialisation Behaviour

Further statistical analysis of the attitudes towards more social contact revealed that the majority of respondents would like to see more of their relatives, friends and neighbours, 77.6%, 62.7%, and 59.7%, respectively. On the other hand, 20.9%, 28.4% and 25.4%, preferred the existing situation, respectively, whereas, 1.5%, 9 and 14.9%, liked to have less contact, respectively (see Tables 7.5.66-7.5.68). The pattern of these figures is compatible with the notion that people usually require more privacy against individuals other than relatives. From the result, it is evident that different levels of relationships were acquired for different types of social categories. Also, their degree of involvement was, sometimes, subject to control, or at least the desire to do so, or putting an end to them. Moreover, it could be said that people, sometimes, require more privacy against the neighbour than against relatives and friends, because the relation with neighbour can, sometimes, be just a result of physical proximity rather than a qualitative one.

If the residential environment is to provide the right setting for the management of activities done by people, then it should facilitate the control of social intercourse to the desired level, i.e. keep stable, increase or decrease. The residential locale that forces the sensory exposure to/of others would likely beat the very purpose of providing a private liveable realm.

The following subsection will discuss in detail the formation of neighbouring, the type of contact and the intensity that was generated.

7.5.5 Interaction with Neighbour:

The 'form' and 'intensity' of interaction with neighbour, i.e., neighbouring, reflect how a 'culture' of a society handles such behaviour. 'neighbouring' was believed to compensate for deficiency in the physical environment and raise the level of satisfaction with the residential complex in question. It was also thought that the 'position' of neighbour, i.e., dwelling proximity, would affect the form and intensity of interaction. As for any form of 'socialisation', interaction with neighbour involves the use of many privacy mechanisms and controllers. Neighbours were classified into A, B, C and D for those to the right, left, back and across the road, respectively. In addition, neighbours A, B, C were assumed to share a wall with the respondent's dwelling. It should be noted that all respondents' plots had neighbour A but not necessarily to have B, C and D. Contact with neighbour was categorised as through 'naffag', i.e., a door or a window in the party-wall, over the party-wall from inside the dwelling, , over the boundary wall from the street, by going to neighbour's residence, sending children or other sort of contact. Also, it should be realised that the response was of an overlapping manner, i.e., there could be more than one way of communication.

The analysis, generally, indicated that there was 16.9%, 37.1%, 14.3%, 74.3%, 30% and 5.7% corresponding to the above mentioned categories of interaction with neighbour A, respectively. Similarly there was 20%, 38.5%, 4.6%, 72.3%, 32.3% and 3.1% in relation to neighbour B, respectively. In addition, there was 12.1%, 19.5%, 4.8%, 65.9%, 21.9% and 7.3% in relation to neighbour C, respectively. Moreover, there was 4.8%, 77.4%, 21% and 3.2% corresponding to categories third, fourth, fifth and the sixth one respectively in relation to neighbour D (see Tables 7.5.69-7.5.90).

As was expected, the response showed there was a high interaction with neighbour, i.e., neighbouring, average, over 70%. The long period lived in localities by most of the sample, the Islamic tradition of taking care of neighbour and Sudanese easy going way of socialisation, might all have contributed to this high response. This high 'neighbouring' seemed to conform with the high satisfaction with neighbour. Satisfaction with neighbour revealed a correlation with satisfaction with locality, feeling about being overlooked, opportunity of separation between men and women when having visitors and factors preventing movement from the existing residence. Accordingly, it related indirectly to attachment to Hara and satisfaction with the dwelling (see Tables 7.5.92-7.5.94).

Also, the analysis made it clear that 'going to neighbour's house' was the most common means of interaction with neighbour, average 72.5%. On the second place came the contact over the party-wall, sending children and the use of naffag whereas calling over the boundary wall from street and other forms of communication, e.g., by telephone, were the least means used to contact neighbour. From this it could be seen that interaction through the common predictable 'privacy regulators', i.e., doors, was more than the other ones. On the other hand, contact from inside the dwelling, i.e., through naffag and over the party-wall, was more than from outside it, i.e., calling from street. This was because the street is usually considered as 'others domain' where such a behaviour is not normally appreciated. It was also obvious that contact over the party-wall was, approximately, double as much as through naffag, average 31.7% and 16.3% respectively. The existence of a naffag would normally mean a strong relation between neighbouring families, i.e., marriage and/or kinship, which was expected to be more in rural community. The type of technology involved might have affected the intensity and the means of

socialisation with neighbour, e.g. availability of telephones.

When the response was tested against the effect of sex, it revealed that contact through naffag, over party-wall, and from the street was mainly carried out by women, 63.5%, 67.8% and 61.5% respectively whereas men performed only 36.5%, 32.2% and 38.5 of the corresponding categories. On the other hand, going to neighbour's residence was practised, approximately, equally by both women and men. 46.4 and 53.6% respectively. Similarly, sending children was done, approximately, equally by both sexes, 52.6% and 47.4% respectively (see Table 7.5.91).

Except for going to neighbour's house and sending children, the response of men was higher than was expected. In addition contact by women from the street was likely to happen when the presence of men was scarce, i.e. at work. Moreover, the dominance of women in contact through naffag and over walls could mean that the 'neighbour's dwelling privacy' was more 'relaxed' to them than to men. Beside normal socialisation, such a contact is usually carried out by housewives to exchange utensils and food stuff. Except for 'visiting families', most contacts were likely to happen with the same sex group which might, generally, have contributed to raise the result. It is also necessary to mention that contacts through naffag and over the party-wall were absent for the neighbour across the road.

In conclusion, it is possible to say that there was, generally, a high neighbouring in communities in question. The high neighbouring seemed to compensate for the apparent deterioration of the physical environment and raise satisfaction with localities under study. On the other hand, contact through the normal predictable 'privacy controllers', i.e., doors, was the main means of interaction. Except for going to neighbour's dwelling, women

were the dominant sex in carrying other forms of communication. Beside normal socialisation, such contacts were necessary for housewives to perform household tasks. The effect of 'proximity' was clear in that the neighbour across the road lacked interaction through naffag and over the party-wall but, unexpectedly it did not modulate the intensity of other type of contacts significantly.

In order to produce a meaningful residential environment high neighbouring should be aimed at. Such neighbouring can improve users' satisfaction with their localities and create a sense of attachment and community spirit. As part of the social intercourse, reception of visitors will be discussed in the following section.

7.5.6 Reception of Visitors:

It was believed that behaviour towards visitors is a factor of the society's general 'culture' and the family 'sub-culture'. Furthermore, it was thought that reception of visitors is a genuine element in shaping the Sudanese dwelling architecture, i.e., physical barriers and spatial layout. On the other hand, socialisation with visitors involves communication and interaction. Accordingly, many of the privacy mechanisms has to be adopted to achieve the intended goal. In other words, reception of visitors involves socialisation hence privacy mechanisms. It is also necessary to clarify that the following results were of overlapping manner. In order to examine the behaviour of the sample towards visitors, the subjects were asked who would receive guests in the dwelling.

As was expected, the analysis of the representative sample generally showed that single men visitors were mainly received by family men, 95.4%, whereas only 16.9%, 20% and 20% of households where women, children or servants, respectively, did the same job (see Tables 7.5.95-7.5.98).

On the other hand, the results revealed a different behaviour from the previous one when having single women visitors. Women were found to be the main receivers of female visitors, 95.4% compared to 23.1%, 24.6% and 23.1% of men, children or servants, respectively. (see Tables 7.5.99-7.5.102). The differential result of the reception of 'single males' and 'single females' conforms with the existence of 'males' and 'females' separate 'domains' in most of the Sudanese urban dwellings, as was apparent from the study. In addition, this also clarifies the use of two entrances in many of residencies in the sample. The low ratio of receiving the 'single opposite sex' could be attributed to the Sudanese 'cultural norm' of 'avoidance', i.e., a privacy mechanism, of the opposite sex, especially if she or he was not a 'close relative', i.e., a 'stranger'.

A further examination of response, generally, revealed a strong sharing of the tradition between all communities in question. In Hara-1, 2, 3 and Hara-4 the 'family males' participation in 'males guests' reception was very high 100%, 94.4%, 94.4% and 92.9% respectively, whereas only 6.7%, 11.1%, 16.7% and 35.7%, respectively, of household in the corresponding localities where women were involved in such activity (see Tables 7.5.103-7.5.104). Similarly, in Hara-1, 2, 3 and Hara-4 the 'family women' were the main receivers of 'female guests' 86.7%, 100%, 94.7% and 100% respectively, compared to 26.7%, 11.8%, 21.1% and 35.7%, respectively, of households where 'family males' receive such visitors (see Tables 7.5.105-7.5.106). In addition to comments made by some respondents, the results suggest that in households without 'adult males' there would be a slim chance for accepting 'single adult males' as visitors and vice versa.

The analysis indicates the significant effect of 'sex' on the 'reception behaviour' of 'single adult guests'. This

behaviour was based on a shared 'social convention, i.e., a cultural norm, of 'avoidance' of the opposite sex. Accordingly, it could be said that the dwellings of the sample were made to serve, beside other functions, a cultural norm of avoidance or control of social interaction. In other words the form of dwellings themselves to a great deal, if not totally, were a 'cultural convention', i.e., community shared knowledge.

On the other hand, the sample response generally indicated a considerable sharing among family men and women in receiving 'families', i.e., parent(s) and children, 80% and 92.3% respectively. Moreover, there was 24.6% and 23% of households where children and servants, respectively, carried the mentioned task (see Tables 7.5.107-7.5.110). It is obvious from this response to see the effect of social status where visiting families were regarded as 'intimate' for both sexes of the 'host household'. This 'intimacy' seemed to 'relax' the problem of 'avoidance' and lead to more socialisation with the opposite sex. Also, this may explain why all members of 'visiting families' sometimes are entertained in the 'women's section'. If a 'single male guest' arrives the situation changes and men have to retreat to the 'males' section'.

A comparison of results of the different areas under study showed a similar notion of high participation among both of household males and females in the reception of 'families'. For example, in Hara-1, 2, 3 and Hara-4 there was 93.3%, 76.5%, 82.4% and 71%, respectively, of households where men received 'families' compared to 73.3%, 100%, 100% and 92.9%, respectively, where women received such guests (see Tables 7.5.111-7.5.112). The consistent pattern of response confirms that such a social behaviour is also a 'cultural convention'.

It is necessary to mention that if one sex in the household was absent usually the other sex would likely receive guests. This indicates that the results of receiving 'single' guests by the opposite sex might be lower in normal conditions, i.e., when all the household members were available. On the other hand, the reception of families as guests does not always mean that all the household members should entertain together such visitors in the same room. The normal custom is that families stay together in the 'females section' for a short time then men 'retreat' to their section. In this sense the 'participation' in the reception of 'visiting families' would mean a 'segregated' entertainment for each 'sex group'.

Further analysis of the representative sample was made to see how people achieve 'socialisation' when having visitors. As was expected, the results generally revealed a high degree of 'segregation' between the 'opposite sexes' in the dwelling. In order to achieve the needed privacy, 3.1% of households received guests where each sex group came separately, 80% of households where each sex stayed in a separate section and 4.6% of households where both sexes sat together but separated activities. In addition there was only 12.3% of households where there was no separation at all (see Table 7.5.113). Women and men visitors would come separately or both stay together and separate activities if there was a shortage of space in the residence. The condition when there was no segregation at all or when both sexes sat together and separated activities would likely happen if the 'household convention', i.e., sub-culture, about privacy was 'relaxed'.

To conclude this, the results revealed that the 'concept of privacy' plays an important role in reception of visitors in Sudanese urban society. 'Privacy Controllers' such as 'avoidance', 'physical barriers' and 'temporal rhythm' were used to achieve the goal of socialisation with guests.

'Sex', 'age' and 'social status' affect to a great deal the behaviour towards such reception and determine whether there should be a 'segregation' or not. The concept of 'segregation' between sexes indicates that there are two 'worlds' in Sudanese urban community 'women' and 'men'. These 'two worlds' conform with 'women' and 'men' 'domains' or 'sections' found in most of the sample dwellings. Since privacy is culturally variable it would be possible to say that the Sudanese urban dwelling space conforms to certain cultural rules. Accordingly, in order to make successful housing design and planning, these cultural rules must be understood and satisfied.

As from the previous discussion, it becomes clear that women play an important role in the shaping of the social intercourse and accordingly affect the shape of the built environment. The next section will try to shed more light on the role of the Sudanese urban woman.

7.6 POSITION OF WOMEN, PRIVACY AND HOUSING FORM

While this is an aspect of family system, it is separated here for the convenience of discussion. The dominance of women in the house is affected by the socio-cultural system of a community. Whether the custom is that the man visits the woman's house and not having one of his own, whether there is a clear distinction between man and woman's domain, whether a woman has to stay with her parents or in-laws after marriage, the meaning of modesty, and attitude towards privacy between the different sexes can have a remarkable effect on the shape of the dwelling and the settlement as a whole⁵.

In the following is a brief discussion about women's position in the country as general and analysis of the attitudes towards their 'exposure' to the 'outside world' in communities in question.

The position of women is greatly affected by Islam and a mixture of local traditions. Education started initially as an Islamic sophism style and later in the thirties the English introduced the conventional girls schools to produce nurses, teachers, and officials. Since colonisation women have suffered inequality in education. They have less chances, and married girls have to leave the school. The new educational system at first was resisted by the parents thinking that it would lead to delinquency. The girls suffered more than boys and illiteracy remained very high at about⁶ >80%.

The urban women in the capital, unlike those in the rural areas, do not participate much in the work outside the house. Mainly they work in the domestic affairs and child care. While some of the poor go for daily shopping, others go to the main market only on occasional basis. A small portion of young women work as civil servants and in the private sector. Some of the poor old women work in traditional marketing. Working in ministries, hospitals, and in informal sector is governed by education which was rare for females in the past. For the majority the economic access is through their husbands and/or relatives, partly affected by the Islamic attitude to maintain financial support for parents and women by their relatives.

Although women were disadvantaged by the colonial civil and customary law, many efforts were made after independence (1956) to modulate the law for their benefit. Some laws were cancelled and others introduced. Now one can say that Sudanese women's rights are far better protected than in many of the adjacent countries. However, the imprisonment with the traditional behaviour, the tendency to solve problems customarily, the fear of social rejection, has tended to prevent women from benefiting fully their rights in law. The law guarantee rights of equality for women in

work, control over properties, voting, and in many other different matters.

Normally the man, whether the father, husband, brother, or son, is the head of the family [21]. He is responsible for supporting the family financially and looking after its organisation socially. Women are not responsible at all to earn living since they have a husband or a close relative. They are fed, clothed, and given money to buy their personal needs. Guardianship of children is for man and only under certain conditions it is given to the woman. If there are any problems a woman would be disciplined by her kin .

A women is chosen for marriage with regard to her politeness, beauty, education, and according to her family conformity with prevailing traditions and morals. The acceptance of the family is a must towards the success of her marriage. The bride pays for marriage contract, furniture, and a feast. Also, the bridegroom's family spends some expenses in making the ceremony. In rare cases marriage could be arranged in courts [22].

Seclusion of men and women, in general, is apparent between most of the Sudanese Muslims with more emphasis in urban areas due to social heterogeneity. Privacy between the two sexes is a religious, traditional, and a moral issue. There are two worlds, one for males and the other for females, and a link-zone exists between them varying in its strength according to intimacy. This intimacy follows an Islamic hierarchical order of privacy but it does not always conform with this system strictly. It is expected that the household achieves this seclusion and provides the physical barriers that facilitate its organisation. Segregation is valid for one in relation to a 'stranger' from the opposite sex. It is inappropriate for a man to invite a young woman, or visa versa, who is not a close relative into the family realm as it is considered as socially offensive.

As it can be seen later in the section of spatial analysis of the physical syntax, usually, the house is composed of males guest's and family/women's domains with, mostly, two separate gates. Sometimes, socialisation takes place in the family/women section with close relatives and friends. Grown up boys and girls areas within the house, whenever it is affordable, are separated [23]. The women's domain is a 'sacred' privacy realm, mostly, of rooms with doors and windows looking inwards to a courtyard, and if a window has to face the street it is managed in a way that no overlooking by passers-by would be possible.

Generally, the analysis of response towards women position proved to be sensitive and difficult to judge. While many people were not precise enough about their answers, especially those which were in favour of women exposure to the outside world, many others might have concealed their real views because many of the interviewers were ladies. Also, the lack of precision in answers might be due to the fact that people had never been asked or thought seriously about such an issue before. Moreover, the practice proves that many people could have an 'intellectual' preparation to do something but when the action takes place they fail 'psychologically' to cope with it. Due to these shortcomings it was assumed that people were more critical about negative answers than positive ones. Nevertheless, the result shed some light upon women status, in general.

When respondents were asked whether women should go to work, only 22.9% disagreed, 65.7%, 7.1%, 22.9% and 4.3%, for agree, don't mind, disagree and don't know, respectively. On the other hand, only 18.6% insisted that women should stay at home, 18.6%, 15.7%, 62.8% and 2.9%, for agree, don't mind, disagree and don't know respectively. The positive 'view' in favour of going to work is assumed to be comparatively high in relation to earlier days (see tables

7.6.1-7.6.2). Factors such as the increase of educated women, the economical hardship that is facing families as general, aspiration for a better life standards, and acculturation might have all contributed to inflate figures of the positive view.

In case of a woman going out alone whenever she likes, the analysis revealed that a high majority were discontented with such a behaviour, 15.7%, 7.1%, 74.3% and 2.9%, for agree, don't mind, disagree and don't know, respectively. whereas the majority supported it in case of a necessity, 68.6%, 14.3%, 11.4% and 5.7%, for agree, don't mind, disagree and don't know (see Tables 7.6.3-7.6.4). Although many supported women going out to work, this result reflects the insistence of most families to have control over their women's 'public' behaviour. It also suggests that such a behaviour was inseparable of the family 'private' image that it wanted the outside world to see under a certain light. In fact too much outing by an adult female used to be seen in these communities as a misbehaviour.

On the other hand, only 34.3% objected to women joining in mixed social activities, 41.4%, 20%, 34.3% and 4.3%, for agree, don't mind, disagree and don't know respectively. The supportive attitude towards this behaviour was greater than was expected. In fact it is difficult to say whether there were any mixed activities approached by women, during the survey period in areas under study, other than ceremonial occasions, educational and professional ones. Although the attitude is positive the real degree of acceptability for new mixed social activities, if they have to emerge, remains an untested one yet. About 51.4% of the respondents felt that women should join only social activities made specially for females, 51.4%, 8.6%, 37.1% and 2.9%, for agree, don't mind, disagree and don't know, whereas only 17.1% saw that women should not have any sort of social activities, 17.1%, 15.7%, 64.3% and 2.9%, for agree, don't mind, disagree, and

don't know (see Tables 7.6.5-7.6.7). These results, as general, indicate that the majority were in favour of some sort of social activities for women.

Finally, a small percentage of the respondents opposed the view that women should be separate from men guests at home, 61.4%, 14.3%, 17.2% and 7.1%, for agree, don't mind, disagree, don't know (see Table 7.6.8). The percentage of those who preferred mixing between the two sexes was higher than was expected.

To conclude this, it could be said that some socio-cultural changes have occurred in the last four decades and accordingly attitude towards women's position has changed. As more women are getting educated, joining the work force in the 'public' sector, and spending less time at home, this seems to exert new demands on the spheres in which they work. Such a shift is likely to introduce changes both in the dwelling and at the city level as a whole. Such change is not necessary to happen very quickly or at all levels of life.

Moreover, the analysis revealed that, in communities in question, people have two 'worlds' of realities, the 'family private' world and the 'public' world. Going to work was seen as a 'title' to 'privacy in public', i.e. anonymity, while coming home brings to the sphere of the 'family private'. So, going out by women to any place other than to work is considered as 'family private' which needs control to present it in its best shape to the public image, i.e. the family's worlds view. We have, also, seen that people held different attitudes towards the realm of social activities, where some preferred a segregated style, some a mixed one and others who thought it would suit them either way.

A built environment if it is meant to be peaceful and comfortable for its user, should represent their socio-cultural image in life, or at least it should not contradict with it. It also has to cope with a process of change that would take place through time. The difference of attitudes towards the use of space can be achieved by providing abundant choices in the environment so that social conflict can be eliminated, or at least reduced to the minimum level.

On the other hand, the attitude towards the segregation between men and women in the family dwelling is generally related to both of the position of women, social intercourse, and the opportunities that are provided by the spatial syntax of the built environment. In the following section the physical form of the household private realm will be analysed and discussed in detail. Furthermore, the implication of the household daily life and its socio-cultural values on the dwelling form will be explained.

7.7 THE PHYSICAL SYNTAX OF THE DWELLING AND PRIVACY

The aim of this section is to capture the physical syntax of the household private dwelling. It was seen as essential to describe the functional spaces before starting to analyse its spatial structure quantitatively, so that the two operations taken together can help develop a comprehensible picture about the spatial logic of the family realm.

7.7.1 Space Usage Within and Without the House:

This subsection describes the most common functional spaces in the dwelling in communities under study. Their spatial characteristics, how they are used, by whom and when are briefly discussed to pave the way for analysis in the next subsection.

It is believed that privacy affects the spatial use and organisation, hence the dwelling form. So it is essential to describe how spaces are used and the consequences of such usage on the general organisation of the residential environment. Omdurman has a long hot and dry summer. Conditions of summer and semi-summer climate prevail over ten months of the year. This has an obvious impact on spatial usage in the Sudanese dwelling and the environment around it. The pattern may differ slightly due to constructional systems involved in the building and the availability of certain spaces according to the economics. Some rooms have a better heat insulation capacity than others, some houses have got verandahs and some have not. Sometimes traditional buildings respond to climatical changes better than post traditional buildings, because of the use of mud roofing in the former and sheeting materials in the later.

(a) The Saloon:

The saloon or (DIWAN) is one of the spaces that characterises the Sudanese urban dwelling, where hospitality to visitors and segregation between men and women is manifested. It is recognised as very important and most of the sample dwellings included such a space, 87% (see table 5). Absence of the saloon is usually coupled with sheer economical hardship and, sometimes, lack of enough space. As the most spacious and well furnished roofed space in the household residence, it is normally kept tidy and clean. It is possible to say that the 'diwan' represents the "worlds' view" of the household, i.e. the light in which the household wants to be seen by others.

The large size of saloon is meant to cater for the big number of male visitors, especially in ceremonial occasions. As seclusion between men visitors and the household women folk is a common characteristic of the Sudanese urban society, normally, saloon is considered as a male domain. Accordingly, it is segregated and access to other parts of the dwelling is controlled. In case of shortage of rooms, the household's males use this space for eating, studying, reading and sleeping. The common pattern of this domain includes a courtyard, saloon and ,sometimes, verandah, whereby the relevant activities shift over time from one space to the other, depending on weather conditions. In hot summer days people sleep inside the saloon or verandah, if available, for the afternoon siesta, while they shift to the courtyard from the evening through the next morning. During winter most of the time is spent indoors. Recently, the size of saloon has been criticised by some local housing professionals and claims were made that the area should be reduced considerably. The problem is, what is the substitution that can support the psychological and social functions that were made to fit to certain type of space. a creative alternative taking into consideration all the

necessary socio-cultural and behavioural aspects is necessary, otherwise a damaging result would probably happen.

(b) **Bedrooms**

As the basic spatial units, these are of the most private spaces in the family realm, where the most intimate relations and activities, e.g. sexual relations, couples withdrawal, and changing clothes, are likely to take place. In addition, they are used for the storage of household furniture, clothing, and precious belongings. In a house with no verandah(s), the bedroom is the place for retreat of family members during hot summer days, especially for the after-noon siesta or when it is raining, or dusty. Similarly, the residents sleep indoors during winter cold nights, since it is comparatively the warmest in the dwelling. Also, in such a situation, i.e. absence of verandah(s), the room maybe used for reception of guests. Bedrooms are common indicators of personal or group territory within the household, such as those belong to married couples, boys, girls, women or men. If a verandah exists, the family normal daily activities are likely to take place in it.

(c) **The Verandah**

If a verandah is available it is preferred in summer, for a period which extends over six hours, for daily family activities like chatting, sleeping, play, eating, reading and studying. The verandah in the men's section is for receiving male guests and is used by different family males for reading, chatting, play and after-noon siesta. On the other hand, one or more of the verandahs in the family/women's section, if any at all, may be a place for receiving female guests. As for winter the use of this space is common during the day, while during the night the family

members retreat into the warmer rooms. Like the bedroom, the verandah if enclosed may contain some of the dwelling furniture, like beds, chairs, tables, etc.. According to its intermediate position between the bedroom and the courtyard it is possible to say that it acts as a transitional zone between the two spaces. In some cases the kitchen may have a verandah attached to it.

(d) The Kitchen

In traditional dwellings, as it was the case in most of the sample, the kitchen is usually separated from the bedrooms, because of smoke and food smell due to the use of charcoal and wood as fuel for cooking. During comfortable weather cooking may take place in the open courtyard in front of the kitchen, whereas the verandah, if available, is used when it becomes hotter. As the common practice of cooking in the Sudanese society is done by women, the kitchen is generally considered as a female domain. Men may bring food stuffs from the market but rarely they happen to enter the kitchen to cook a meal. Sometimes, there is attached or constructed near to it. Traditional kitchens are of the smallest rooms in the dwelling and mainly used for nothing else but cooking and storage of food stuffs and utensils. Although, it is climatically uncomfortable during most time of the year, i.e. long summer, it is considered as one of the important spaces in the dwelling (95.5% of the sample had a kitchen). Due to mess that results from preparation of food beside the fact that women working here are, usually, not well dressed and sometimes in light clothing, this area is regarded as a 'sensitive' privacy zone against 'strangers', especially men.

(e) The Courtyard

In the Sudanese dwelling usually there are, at least, two courtyards, one attached to the family/women's section and the other to the male guests' section. The family/women's courtyard is a vital space and has a central function for family activities. During summer its use extends over a lengthy period of, approximately, 16 hours, starting after 4:00 pm. through the next morning. Under the prevailing economical hardship, and the hot long summer, it is difficult to imagine how the majority of the capital urban families would survive without an open court. When it is cool, the family courtyard is used for children's play, washing and drying of clothes, cooking, washing utensils, eating, chatting, TV watching, female guests reception, beautification, sleeping, and other activities. The male guests' court follows the same pattern for male activities with respect to time and weather. It accommodates guest reception, collective prayers, ceremonies, eating, tea, feasts, children play, chatting, reading, studying, long-term guests and family males sleeping. The use of courts in winter is very slight and it is mainly for washing and children's play.

(f) Semiprivate Space and/or Street Areas in front of the Dwelling:

The external space in front of the house acts as an extension for some family activities. It is the place where family members, especially males, can meet casual friends, exchange information, and give a look to the 'outside world'. Also, it is where the family children play with neighbouring ones, and where house maintenance preparations, and ceremonial occasions, like weddings and funerals, take place.

This space needs careful attention when designing and planning the residential environment. Because of its direct relation to the dwelling, its failure would likely undermine the livability of community space and accordingly reduce the chance to enjoy the dwelling as an integral part of the related environment.

As was mentioned previously, the following subsection will examine 'access' and 'exposure' as spatial attributes and their effect on the form of the dwelling.

7.7.2 The Analysis of Spatial Patterns

(a) Introduction:

The aim of this section is to analyse quantitatively and discuss the spatial patterns of the dwellings in question. The idea behind this is to support the hypothesis that privacy and socio-cultural factors in general have the primacy in the shaping of such a pattern, that is what is realised in every interior is already a certain way of organising experience, and a certain way of representing in the space a cultural identity.

The dwelling was conceptualised as a bipolar system between the primary 'cells', i.e. rooms, and the 'carrier', e.g. world outside the dwelling e.g. (the street). The structure of space, i.e. spatial pattern, between these two domains was seen as means of interfacing two kinds of relationships those among the 'residents' and those between residents and 'strangers'.

The analysis was geared to examine quantitatively the interior of dwellings in terms of the 'permeability' of the system, that is, how the arrangement of cells and entrances controlled access and movement. In this analysis the

technique developed by Hillier was used as it was found to be the most suitable one for this purpose⁷.

The distinction between spaces that had direct access to other spaces without having to pass through one or more intermediary spaces , and spaces whose relationship was only indirect is recognised in terms of 'symmetry' and 'asymmetry'. On the other hand, the distinction between spatial relationships with more than one, or only one focus of control with respect to some other spaces is recognised in terms of 'distributed' and 'nondistributed' relationships.

The relationship of two spaces a and b will be said to be 'symmetric' if the relationship of a to b is the same as the relationship of b to a. For example, in (Fig. 7.44) the relationship of a and b is symmetrical as are the relationships of both with c. On the contrary, in (Fig. 7.45) the relationship of a to be with respect to c is not the same as the relationship of b to a, since from a one must pass through b to reach c but not vice versa. Such a relationship will be said to be 'asymmetric'. The asymmetric relationship always involves some sort of depth. The depth is related to the notion that we must pass through an intermediate space to go from one space to another.

A relationship between two spaces a and b said to be 'distributed' if there is more than one non-intersecting route from a to b, as in (Fig. 7.47), and 'non-distributed' if there is only one, as in (Fig. 7.46). It is necessary to note that this property is independent from that of symmetry and asymmetry. For example, (Fig. 7.46) combines the notion of non-distrinbutedness with symmetry from a with respect to other points; whereas (Fig. 7.47) combines distributedness with symmetry. As a result, in a 'nondistributed system' there will never be more than one route from point to any other. On the other hand, in a 'distributed system' routes

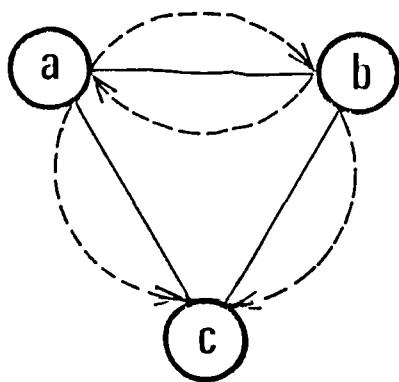


FIG. (7.44): The relationship of cell (a) and (b) is symmetrical as are the relationships of both with (c).

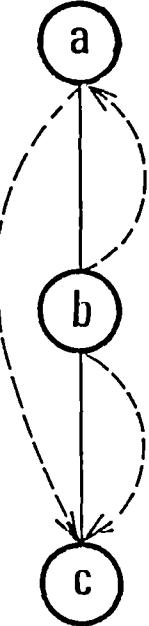


FIG. (7.45): The relationship of cell (a) to (b) with respect to (c) is not the same as the relationship of (b) to (a), i.e. asymmetric relationship (note the notion of depth involved in such a relationship).

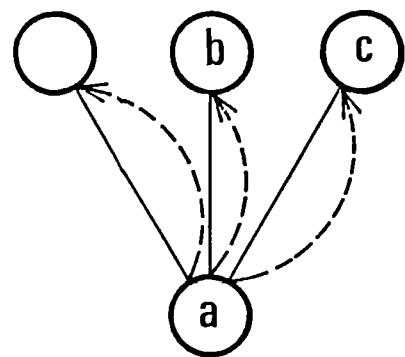


FIG. (7.46): The relationship between cell (a) and (b) is non-distributed, because there is only one route between (a) and (b).

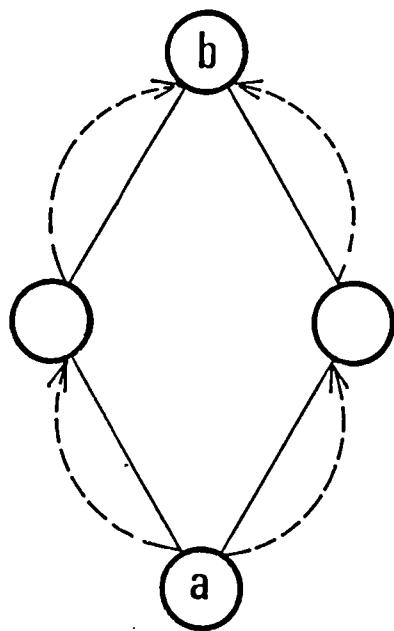


FIG. (7.47): The relationship between cell (a) and (b) is distributed, because there is more than one non-intersecting route from (a) to (b).

will always form 'rings', i.e. the relationship between cells, e.g. rooms, will be in a form of a ring (see Fig. 7.44 & 7.47).

These properties were represented by making a 'graph' of the spaces in the dwelling, with circles representing spaces, e.g. rooms, and linking lines representing entrances. The graph was then 'justified' with respect to the 'carrier' or 'outside world', i.e. surrounding street, meaning that all spaces one step into the building would be aligned horizontally immediately above the carrier, all those two deep at a level above, and so on until all levels above the carrier are accounted for⁸ [24] (see Fig. 7.48a-b). Due to extensive computations involved in the idea of looking at the dwelling from all points in it, computer-based numerical analyses was used to find out the 'relative asymmetry', 'control' values, and 'relative ringiness' - as we shall see later.

(b) The Measure of integration [25]:

As was explained before, relations of 'depth' necessarily involve the notion of 'asymmetry', as explained earlier (see Fig. 7.45) since spaces can only be deep from other spaces if it is necessary to pass through intervening spaces to arrive at them. The 'measure of integration', 'measure of relative symmetry' or 'measure of relative depth' (RA) compares how deep the system, i.e. the dwelling, is from a particular point with how deep or shallow it theoretically could be_ the least depth existing when all spaces are directly connected to the original space (see Fig. 7.46), and the most when all spaces are arranged in unilinear sequence away from the original space (see Fig. 7.45). To

HAT AL UNDA EAST

HOUSE NO.



NEIGH-

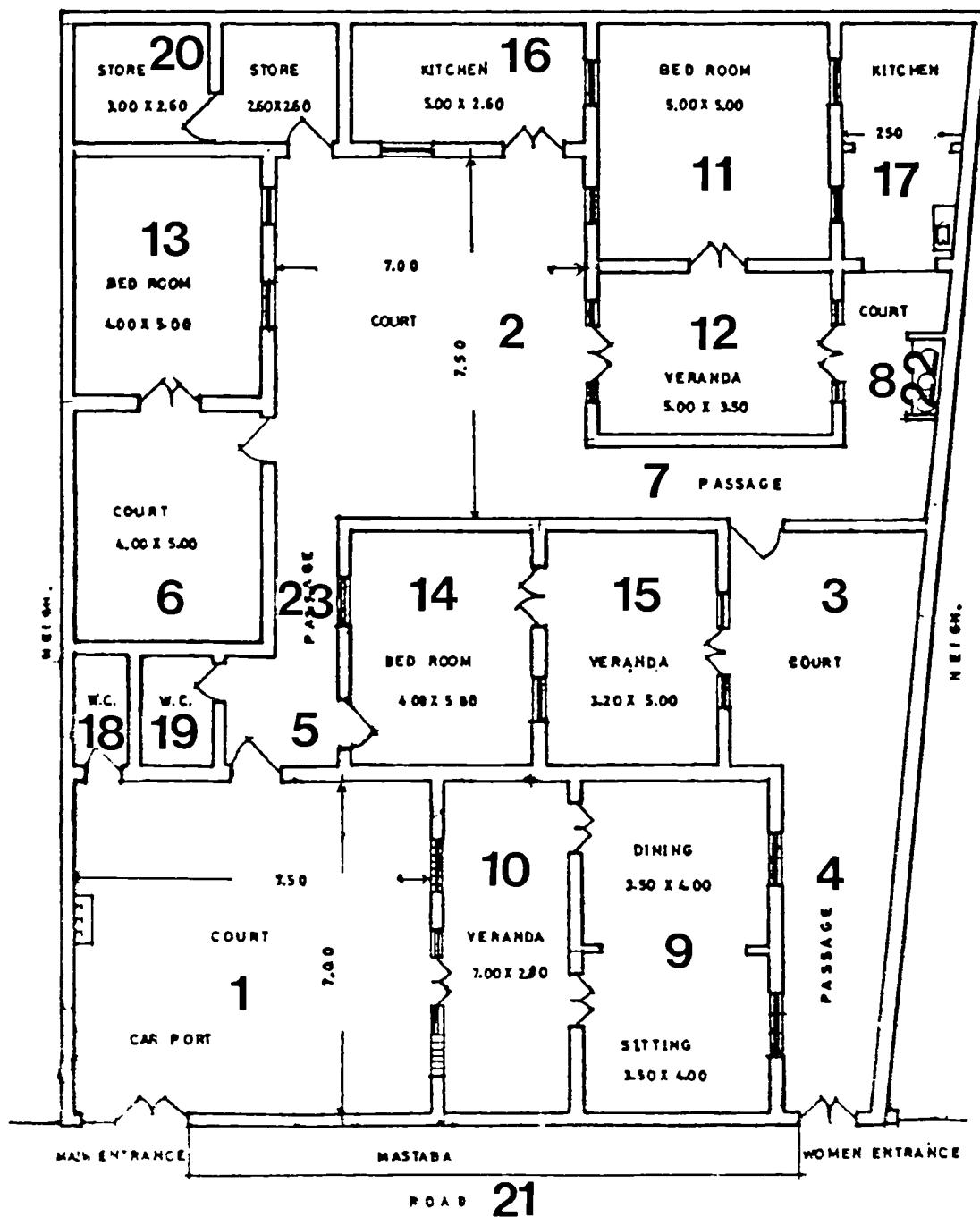


FIG. (7.48a): A SAMPLE DWELLING PLAN (AL-UMDA SHARQUE).

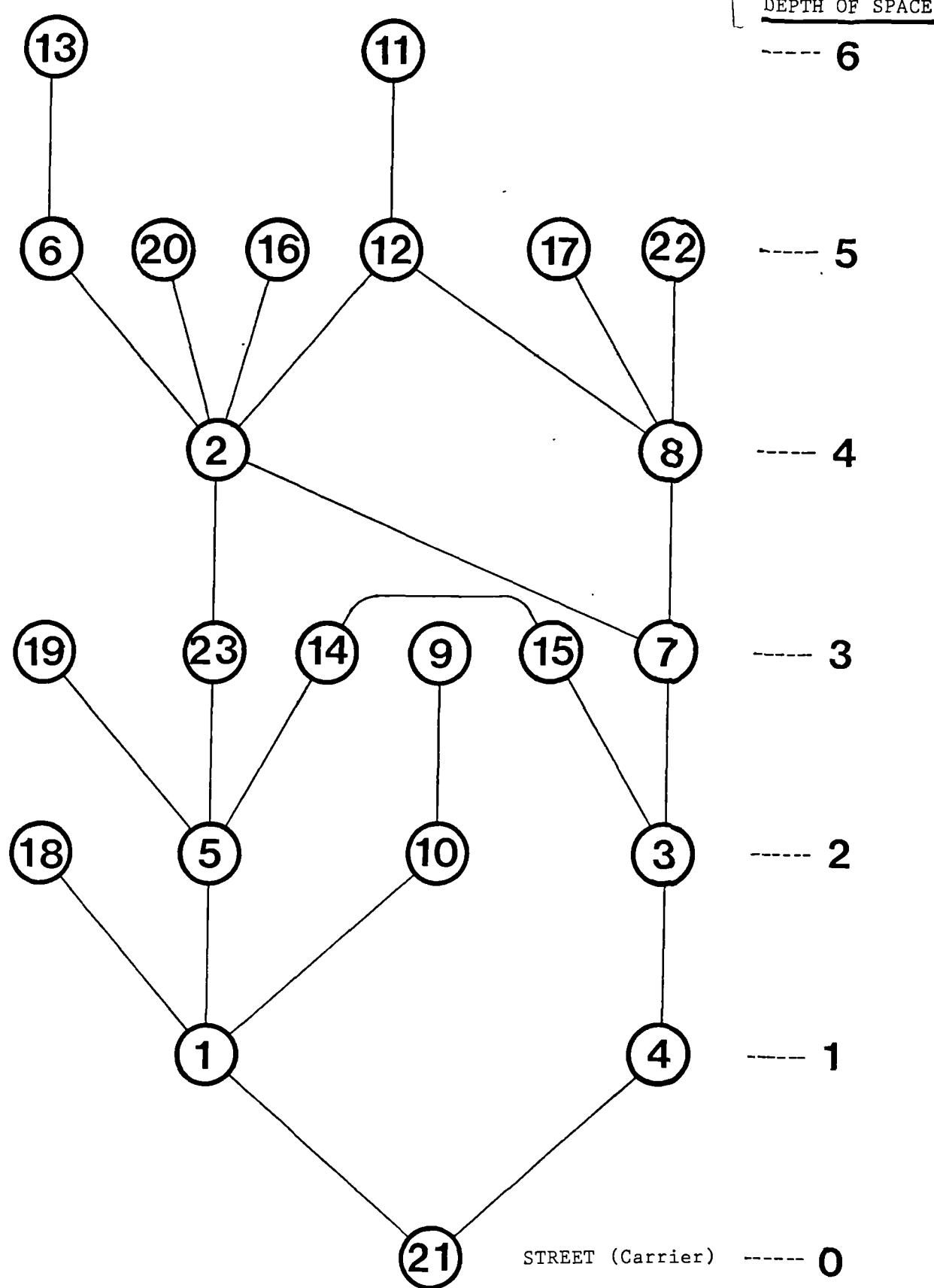


FIG. (7.48b): The dwelling adjusted graph in relation to the adjacent street. The numbers in circles represent spaces labels and lines resemble direct entrance(s) from one space to the other.

calculate (RA) from any point the following equation was used

$$RA = \frac{(MD - 1)}{K - 2}$$

where MD is the mean depth and K the number of spaces in the dwelling. The calculations usually give values between 0.0 and 1.0. Low values indicate a space from which the system is shallow, i.e. a space which tends to 'integrate' the system. In contrast, high values correspond to a space which tends to be segregated from the system, i.e. a space from which the system is deep⁹. The 'general measure of integration' (MRA), which is the mean RA (relative asymmetry), from all points in the system, was used as the measure of integration for the dwelling as a whole. Although for any given system the list of RA values will give a true account of the 'distribution' of integration, a further transformation is needed to eliminate the considerable effect that size can have on the 'level' of RA values in real systems. This is done by comparing the RA value we have with the RA value for the space at the bottom of a justified map of a 'diamond-shaped' pattern (D-value):

$$RRA = \frac{RA}{D_k}$$

where RRA is the 'real relative asymmetry', D the D-value, i.e. RA value for the diamond-shaped pattern, and k the number of points in the system [26].

Every 'space' in the dwelling was assigned a unique 'label' then a 'depth' value according to the minimum number of steps that must be taken to arrive in that space starting from the 'carrier', e.g. street, _the carrier depth to be

assigned the value of 0.0, a step being defined as a movement from one space to another [27] (see Fig. 7.48a-b).

The sample of domestic space was analysed on two levels: first for the average dwelling; second, for each functional space. These were then examined against the number of external entrances, all localities, and the effect of each locality.

The real relative asymmetry values (RRA) for the average dwelling when was cross-tabulated against the availability of first, second and third entrances indicated, generally, no significant difference in the 'level' of values, 1.0493, 1.0126, 0.9064, respectively, i.e. the values were closely related. On the other hand the order (or direction) of RRA values distribution showed a decrease in values towards the availability of more external entrances in the dwelling.

An examination of results in different localities reflected, approximately, similar average of RRA values for the average dwelling, 1.002, 0.954, 1.026, 1.024 for Hara 1, 2, 3 and 4 respectively (see Table 7.7.2). Such a result when compared with that for the different functional spaces, e.g. rooms, indicated a high level of relative asymmetry (> 0.9).

Except for Hara 2, there was a moderate percentage of the highest RRA values for a dwelling in the sample, those above (1.0), 43.75%, 33.33%, 47.06%, 43.75% for Hara 1, 2, 3 and Hara 4 respectively, while there was a lower percentage of the lowest values, those below (0.85), 25%, 22.22%, 23.53%, 6.25% for the corresponding localities respectively (see Tables 7.7.3-7.7.4).

Generally when the mean of RRA values for different 'spaces' was cross-tabulated with respect to the number of entrances in dwelling, it showed some regularities. Spaces

such as bedroom, kitchen, store, WC (men), bath (men), bath (women), and shop yielded always comparatively a higher RRA value (> 0.9), while other spaces reflected a mixed pattern of high and low values. The effect on the order of (or direction) of distribution of space mean RRA values was pronounced with respect to saloon, street, and the men and the women courtyards. For example, in case of the availability of a single entrance saloon and street produced comparatively high RRA values, the men courtyards produced comparatively low values while the women courtyards showed a mixture of low and high values. In the case of two entrances, both the men and the women courtyards had low RRA values, whereas street had a mixture of low and high values. In case of three entrances street and the women courtyards reflected low values while saloon and the men courtyards mixed values (see Table 7.7.5).

Generally, the average of RRA values for functional spaces i.e. real relative asymmetry or average depth, revealed higher values for saloon, bedroom, verandah, kitchen, store, conveniences, garage, shop, zeer, animals and terrace or balcony, whereas *courtyards, passage* and street, as general, showed comparatively lower values (see Table 7.7.6).

When the result was cross-tabulated against different areas under study, the overwhelming majority of the dwellings, $>80\%$, showed high values of real relative asymmetry, RRA, for spaces like bedroom, WC for men, bathroom for men or women, balcony or roof terrace, garage and shop. On the other hand, saloon had high RRA values in a considerable majority of dwellings in Hara 1, 2 and Hara 3, more than 84%, while there was only 53.33% in Hara 4. The low percentage in Hara 4 could be attributed to the difference in plot area, life span and family development.

The kitchen and store showed high RRA values with approximately, similar direction of distribution of percentages in different communities, 73.33%, 76.47%, 94.12%, 100% and 85.71%, 66.67%, 100% and 100% respectively. Similarly, WC for women or shared one had the least majority in Hara 2, 61.54% and 60%, respectively, while other Haras had more dwellings 77.78% to 100%. Also, the shared bathroom revealed moderate percentage less than 74%, with the least in Hara 2, 54.55%. The zeer and animal space reflected a mixture of high and moderate percentages with the lowest in Hara 1 and Hara 2, 75%, 66.67% respectively. Verandah for men revealed a mixture of high and moderate percentages, 62.5%, 66.67%, 80%, 50% for Hara 1, 2, 3 and Hara 4, respectively. The low percentage of dwellings in Hara 4 conforms with that for the saloon.

In contrast, most of the dwellings reflected low RRA values for courtyards and street. For example, the men's courtyard showed moderate percentages of dwellings with low RRA values in Hara 1, 3 and 4 and very high percentage in Hara 2, 73.33%, 100%, 71.43%, 73.33%, respectively. The low percentages in Hara 3 and Hara 4 were affected by the small size of subdivided plots with the existence of a single entrance with restrained and the changes for distributedness of the system (see Fig. 7.44 and 7.46). Moreover, the general small area of plot in Hara 4 might have contributed to that. With the elimination of the effect of the single entrance the result was modulated to a higher level for Hara 3 and Hara 4, 92.31%, 78.57%, respectively. On the other hand, the courtyard for women revealed low RRA values for the vast majority of dwellings in Hara 1, 2 and 3 and a moderate one in Hara 4, 100%, 87.5%, 87.5%, 83.33% respectively. By the elimination of single entrance effect, the percentage in Hara 3 was modulated to 100%.

An examination for RRA-values of street indicated low values for a moderate majority of dwellings, 73.33%, 76.47%, 58.82%, 62.5% for Hara 1, 2, 3 and Hara 4, respectively (see Tables 7.7.7-7.7.8). As was mentioned before this outcome was significantly reduced by the size of the plot and the number of entrances. An elimination of the single entrance gave the following percentages, 100%, 87.75%, 75%, 66.67%, respectively. The effect in Hara 4 seem to relate more to the general small size plots in the area than to the availability of entrances.

Generally, the average 'level' of RRA-values for functional space displayed different values, some of them with a remarkable 'variation'. The 'distribution' of RRA values for highest to lowest is in the following order: shop, 1.410, store, 1.309, saloon, 1.278, bathroom for men, 1.226, bathroom for women, 1.224, bedroom, 1.179, WC for men, 1.176, kitchen, 1.172, shared WC, 1.125, WC for women, 1.107, verandah for men, 0.987, garage, 0.968, street, 0.879, court for men, 0.695, and court for women, 0.587, respectively. As was mentioned before, other spaces showed a random position in the dwelling.

Generally, spaces which are of more relative asymmetry tend to segregate the system of the dwelling (or make it deep), i.e. as spatial and social categories, while spaces which are of less relative asymmetry, i.e. more symmetry, tend to render the system shallower and integrate its categories. Accordingly, the marked different values for the principle spaces, saloon, bedroom and the kitchen indicate their segregation from each other beside that from other spaces. The saloon, which is mainly a male domain, is segregated to provide 'privacy in isolation', i.e. to control interaction between family members and others. While, the segregation of bedroom was to control interaction 'between family members' and facilitate for 'intimate and private' family members affairs, whether in

groups or as single persons. For example, the role of sex gives extreme importance for such privacy. On the other hand, the high relative asymmetry of the kitchen, which is mainly a female domain, is to secure segregation between female and male domains. The lower difference of RRA values between the bedroom and the kitchen than between each of them and the saloon, indicate that the first two spaces are usually located within the family section, i.e. not in the male guest section, and they are less accessible to the outside world. Similarly, expect for shared bathroom, space for body hygiene, as general, tend to add more depth and segregates the dwelling system. The plans showed that bathroom for men and bathroom for women, most of the time were separate and could be in different domains, men versus women. For the sake of economy of construction and maintenance the different sexes bathrooms were sometimes attached together, since the overwhelming majority did not have a sewerage system. In contrast to the WC which was usually attached to the boundary wall because of its odours, the bathroom was normally pushed further into the dwelling space, partly for the security of the WC, and sometimes absorbed into a roofed habitable space. Pushing away the bathroom from main courtyards and containing it by another space increase its relative depth and improve the privacy opportunities, as the result indicated. On the other hand, values for the shared bathroom revealed random patterns, because sometimes two doors were introduced to allow for easy accessibility of each sex group. This produced a ring which increases the distributedness of the bathroom, hence increased its integration to the system, while having only one door decreased its integration and made it behave like a single sex bathroom. Also, sometimes it was either situated separately beside the WC, as mostly happened, in another direction, or integrated into a verandah or a room. Such situation explain the randomness of values for the shared bathroom. The shared bathroom is usually introduced due to economical hardship or shortage of space and located at a

position similar to women/men bathrooms. As for the WC, as general, the result showed a segregating nature from other parts of the residential space, conforming with the crucial perquisite of privacy for the maintenance of body hygiene. The close results of RRA values for men WC and shared WC indicated their similar position, while the lower values for women WC was due to its occasional, but rare, separation from the men's WC and its location near to the female domain, which is generally more distributed and integrated into the system.

In contrast, the results reflected that the women courtyard and the men courtyard tend to render the system of the dwelling shallower and led to its integration. In other words, they were more accessible to the family members and the visitors, i.e. less private, and they seem to hold together the whole system of the family residential space (see courtyards 1 and 2 in Figs. 7.48a-b). Also, the analysis revealed that the women courtyard was more integrated into the family realm than the men courtyard, i.e. the women courtyard is more private. The close, but different values, show the usual accessibility between the two spaces especially by family members and intimate visitors, with a sort of segregation to maintain for the privacy of the two different domains. As for the street the unexpected, comparatively very low RRA value revealed three things: first, the dwelling system was shallower towards the street; secondly, the family members and visitors can easily access the system; and thirdly, the control of interaction between the family realm and the outside world was not mainly by the external entrances but dominantly through the structuring of the internal space and segregation of categories, i.e. social or spatial. This explains why the adjacent street or space acts as an extension to the family activities, especially for children play and during ceremonial occasions. As for the men verandah, the moderate RRA value it showed corresponds, with its mediating

character between the saloon and the men courtyard. It has to be noted that this space was available in only 40% of the dwellings in question, because of economical hardship and sometimes shortage of space. Similarly, the moderate RRA values for the garages matches with its intermediate position between street and the inside of the family residence. On the other hand, the result revealed that the shops had the highest of the highest equivalent of RRA values, despite of its position being next to the street. Accordingly, it held the most segregating nature in relation to other residential space categories. It is a space that relates to the 'outside world' or 'world of strangers', where formal contracts take place. The privacy of the family realm is maintained by isolating other 'privacy cells' from such a space. Second to the shop was the store. It was either attached to the kitchen, as mostly happened, and approached from inside or outside, separated but on the same direction of the kitchen, or rarely pushed into a remote corner or side of the boundary wall. Such situations sometimes produced RRA values higher than that for the kitchen. As it is usually a space for the storage of food stuff, utensils and family furniture, such a location within the deepest and 'female private' part of dwelling, is needed. Thus the segregation of store fulfils its role as a 'supportive' family private space.

(c) The Measure of Control (E)

Control is a local measure and it takes into account relationships between a space and its immediate neighbours. Each space has a certain number (n) of immediate neighbours. Each space therefore gives to each of its immediate neighbours $1/n$, and these are then summed for each receiving space to give the 'control value' (E) of that space [28]. Spaces with E values greater than 1.0 will be strong control, while those below 1.0 will be of weak control¹⁰ (see Fig. 7.49).

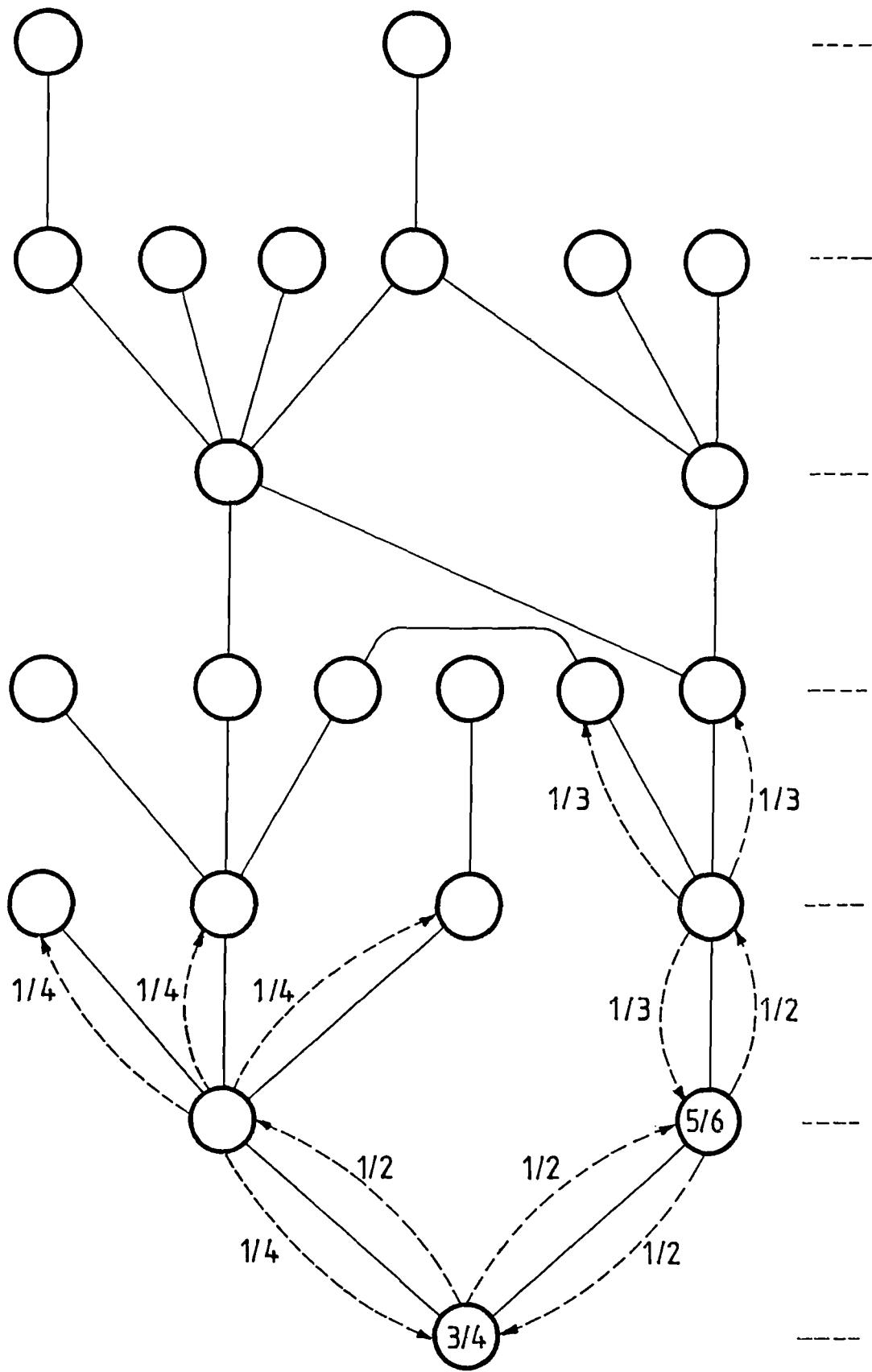


FIG. (7.49): Procedure for calculating control values (E) for the house in Fig. (7.48a) (the number inside the circle= control value for the cell).

The analysis of the relationship between space and its immediate neighbours revealed, generally, courtyards, verandahs and passages as dominating the space control in the dwelling. On the other hand, the men and the women courtyards were the highest of the highest equivalent, 2.698 and 3.243 respectively, (see Table 7.7.9).

Accordingly, it could be understood that the later elements relate directly to more 'privacy cells', i.e. spatial units, than the previous ones. Moreover, there seemed to be more investment of direct relations with the women courtyard compared to that of the men. Such a result indicates that the dwelling system was a nondistributed one with a tendency towards a unitary control. In other words, the dwelling residents and visitors have to pass through one or both of the courts when they enter or leave the residence. Also, the non-distributedness in relation to these spaces means that most of residents have equal access to them, especially those of the same sex most of the group. Because of the expected presence or mobility of many people through these elements, it is clear that they would enjoy less privacy compared to other cells of the systems especially during the day. As the women courtyard is likely considered by Sudanese as more private than of men, and where the family retreat most of the time while there was no visitors, its dominance of direct permeability to many of the privacy cells correspond with this character.

When the average control values for areas used mainly by women were compared with those used mainly by men in relation to locality, in Hara 1, 2, and Hara 3 values for men were marginally higher than for women, whereas for Hara 4 it was in the reverse order. This shift of order could be related to the effect to the comparatively small size of plots in Hara 4 (see Table 7.7.10).

When the results were examined against the availability of entrances, the effect was clear on the courtyards values of control. The value of control for the women courtyard increased with the increase of entrances, whereas values for the men courtyard behaved in a reverse manner (see Table 7.7.11). This is obvious from the fact that, a second or a third entrance has to have direct access to the women section which in turn would increase its control value. On the other hand, the increase in number of entrances would reduce the need of introducing more entrances between men and women sections in order to reduce the depth of the dwelling and have easier access to its inner parts. Accordingly, it could be understood that an increase in the number of external entrances would reduce the risk of unexpected exposure to the opposite sex and would increase the chances for privacy in the women section, i.e. no need to pass through men section when entering or leaving the dwelling.

(d) The Relative Ringiness (RR)

The measure of 'relative ringiness' (RR), captures the distributed - nondistributedness dimension of the system syntax in numerical form [29]. Since the least number of times to connect a system of (K) points is $(k - 1)$, and since $(K - 1)$ points can only give the form of a ringless tree, i.e. no neighbours sharing a common space (see Fig. 7.45), then any increase in the number of connecting lines will produce rings in the system (see Fig. 7.44). Therefore, increasing the ringiness of the system will increase the distributedness both of the syntax as a whole and of those cells within it affected by the rings.

To calculate the relative ringiness of the dwelling (RR) the following equation was used:

$$RR = \frac{I}{2P - 5}$$

Where I is the number of distinct rings, P is the number of points in the system, e.g. rooms and $(2P - 5)$ is the maximum possible planner rings for that number of points¹¹.

The analysis of Relative ringiness (RR), for the average dwelling revealed differential results for localities under study, 0.101, 0.1412, 0.1027, 0.1966 for Hara 1, 2, 3 and Hara 4 respectively (see table 7.7.12-7.7.13). Except for Hara 4, the RR values correspond with the related RRA values i.e. relative asymmetry. The highest values of RR in Hara 4 seems to have been exploited to produce greater distributedness of the system so as to reduce its internal relative asymmetry, i.e. relative depth. Since the plot area in this locality was relatively small, the higher ringiness of the dwelling was mainly achieved through the use of doors between rooms and verandahs, rather than through the use of passages between courtyards. The level of RR values was, generally, low, 74.61% of the dwellings had values below 0.2. This indicates that the number of rings was limited to favour the nondistributedness of the system. In other words, to limit the control, i.e. domination of space, to certain spaces for the sake of privacy within the family realm.

Also, it was found that 14% of the dwellings were without rings. They were characterised by a subdivided plot with a single entrance. The division of the plot was likely to cut through the original ring(s), if any, and disrupt them, or the plot was made so small that it was difficult to produce new ring(s) without sacrificing some of the privacy by

passing through spaces which are usually supposed to be in isolation. Accordingly, this clarifies why such dwellings had always high asymmetry and relatively deep. On the other hand, 10% of the dwelling had internal ring(s) only. They were also characterised by a single entrance and half of which were subdivided plots. Also, there was about 9%, with one ring that passes through the street. Other dwellings had multiple rings, i.e. of internal-external orientation.

Generally, the effect of the number of entrances on the relative ringiness of the average dwelling was clearly pronounced, 0.0407, 0.1549, 0.2249 for first, second and third entrance, respectively (see Table 7.7.14). This gives the impression that the availability of more entrances is to increase the distributedness of the system, hence to render it shallower, especially towards reception courtyards in the dwelling.

From the visual representation of the adjusted graphs, spaces like the kitchen (except for 2 cases), store, WC, bathroom for men and women, zeer and shop (except for one case) were always removed from the ring that included the entrance. Also, saloon and bedroom shared the same criteria in most of the dwellings, 86.21% and 86.57%, respectively. Spaces that dominated the first level ring that passes through the street included the women courtyard and the men courtyard and verandah for saloon, i.e. for men, while the deepest point on the deepest ring was mostly occupied by the women courtyard. The position of other spaces on rings seems to be randomised.

Dominating the first level ring, the men and the women courtyards seem to be the most important spaces in mediating the relationship of domestic interior to the 'outside world'. Furthermore, the special position taken by the women courtyard, on occupying the deepest point on the deepest ring, relate to its character as the interface for relation

between family members. Moreover, it reflects the effect of sex, as a domain for females, on such a position. As a common place where family individuals usually meet most of the time, it seems to play a major role in the reproduction of the 'family sub-culture' and the cultural system of the society as a whole. the removal of spaces such as the saloon, bedroom, kitchen, WC, and the bathroom coincides with their perquisite for a higher level of privacy. As for the shop, it was removed because it relates to the outside world, whereas the store relates to a space of a higher level of privacy, i.e. the kitchen.

(e) Conclusions

From the previous analysis of real relative asymmetry (RRA), Control values (E), and relative ringiness (RR), it could be concluded that, generally, the urban Sudanese dwelling space can be seen to have both a 'syntactic' and a 'numerical' form. The syntactic position of privacy cells, i.e. spaces, revealed three forms: first, spaces with high relative asymmetry i.e. relative depth, such as the saloon, bedroom, verandah for men, kitchen, store , WC's, bathroom for men, bathroom for women, garage, shop, zeer and space for animals; second, spaces with low relative asymmetry, such as the men and the women courtyards and street; thirdly, spaces with no special order such as the shared bathroom. Accordingly, it could be understood that the spaces of the first order tend to segregate from the dwelling system and increase its depth, whereas those of the second order tend to integrate and render it shallower. The average level of RRA values displayed different values indicating spaces which were of higher or lower values and those which related more to each other. The high RRA values for the roofed space compared to the lower values of the street clarify the fact that the control of the dwelling system is mainly achieved through the structuring of the interior space. The relationships between the family members

and the visitors are mapped into the structure by allowing easy accessibility into the dwelling through the courtyard and then regulate privacy through spatial and social isolation, especially between the different sex groups, e.g. the case of the saloon as a male domain. As for privacy between family members the result showed it could be achieved through the ordering of the internal privacy cells, i.e. bedrooms, in relation to the common spaces like courtyards. The analysis also point to the extreme importance of courtyards in the reproduction of the family sub-culture and the cultural system as a whole.

On the other hand, the availability of more entrances had no considerable effect on the level of RRA for the average dwelling while it showed some effect on the distribution of values of different functional spaces. e.g. rooms, courtyards, etc. In other words, addition of more entrances was exploited to keep a sort of balance of RRA values for the dwellings.

The examination of relationship of space with its immediate neighbours with respect to direct permeability, i.e. control values (E), revealed, generally, the dominance of the women and men courtyards with highest values for the women court. This indicates that the Sudanese dwelling has a nondistributed system with a tendency towards unitary control. Also, the introduction of more entrances seems to increase the distributedness of the dwelling and reduce the risk of unexpected exposure between different sexes.

On the other hand the level of the relative ringiness for the average dwelling (RR) was generally low (0.2) to limit the control to certain spaces. The visual representation of the adjusted graph revealed a syntactic order: first, some spaces were removed from rings; second, some spaces on rings; finally, some had random position, i.e. sometimes on rings and sometimes off them. The reduction in size of plot,

as general, or the availability of a single entrance either eliminated ring or reduced them.

To conclude this, it could be said that the Sudanese dwelling has a syntactic and a numerical form where the relations between the family members, family members and visitors, i.e. cultural identity, and different sexes is mapped into that form. Understanding the form and rules of such structure and respecting it will help produce more a humane residential environment. Neglecting such logic would mean destroying the cultural identity of such a society and, probably, the failure of such schemes.

Although, traditional dwellings conformed with the previous logic of residential syntax, new buildings designed by architects fell short to preserve privacy requirements. In the next section some of these problems are highlighted.

7.8 NEW ARCHITECTURAL DEVELOPMENTS AND PRIVACY

From the previous theoretical and analytical explanations of the field work, the issue of privacy was made obvious. The problem of privacy is central to the Sudanese social life in the capital. Architectural aspects and the form buildings take can help or hinder the proper control of privacy. Multi-storey buildings in particular can create problems.

In the last 30 years, a number of multi-storey buildings have been established in the three towns, particularly in the first and second class areas. More recently houses within third class areas have been built, sometimes, to more than 2 floors, with roof terraces, balconies and other architectural features, with the consequent problems of overlook and lack of privacy between one building and another [30].

Privacy was respected in the traditional courtyard one-floor residential buildings (Plate 7.1 and 7.3). The new developments give rise to many questions: to what extent do legislations protect the individual right to privacy? Are design professionals aware of the problem? Are architectural solutions possible?. The argument that, in developing countries the architect designs for a minority and has no considerable effect on the general urban environment, is not valid. A simple example is the problem of overlook created by the new architectural developments in the National Capital, Khartoum, Omdurman and Khartoum North (Plates 7.1 and 7.2).

The work of architects in these areas mostly express the trend of simplicity of building appearance, use of verticality and horizontality, solid and void, and recently the staggering of horizontal and vertical members of the building (Plates 7.4 and 7.5). One can not deny that some architects and housing professionals have, to some extent, a conception of the importance of privacy for Sudanese urban communities in the use of residential space, but they treat it intuitively. Privacy is not seen, like other physical factors in architectural and urban design and planning as a multidimensional and complex problem, which need the micro, i.e. architectural, and macro, i.e. the surroundings, to be dealt with together at the same time with regard to their physical and socio-cultural contexts.

Most architects when they design residential buildings, especially multi-floor ones, consider the boundary wall (AL-HOSH) mainly as a subsidiary element. They design the rooms, halls, balconies, roof, etc. and at end they treat the boundary wall as a beautifying element, without realising its significance in making the courtyard (Plates 7.6 to 7.9). In the traditional Sudanese urban dwelling the boundary wall, which defines the territory of the family realm and encircles the courtyards, where family members

spend most of their time, is an integral and in many cases a dominant part of the house. Sudanese architects did not provide a satisfactory solution for the boundary wall functional character, i.e. socio-cultural, physical, and economical, taking in mind that it plays an important role in the residential environment's privacy system as a whole.

Recently planners, housing specialists, and others claimed that the plot size was too big and was the reason behind the exaggerated sprawl of the capital, which made it difficult to achieve a better level of services, facilities, and a better urban environment. Whilst it is possible to agree with this view in principle, the problem is larger than as of plot size only, and involves the overall concept of the development of the THREE TOWNS, objectives, polices, regulations, infrastructure, etc.. Whatever the size of the plots the majority of them are now densely populated by the growing households. The answer is not just to reduce or increase the size of the plot, but rather to take a critical view of the hasty inclination towards the reduction of the plot size mainly on economic grounds. It is necessary to consider what the reduction in the plot size, or the introduction of multi-storey building might have on the social structure, culture, and behaviour of the Sudanese people. Proposed solutions must conform with Sudanese socio-cultural logic of what is a building. If a substantial change in the physical form is to happen, it must be handled sensitively.

An instance of this consequence are the balcony and the parapet, which mostly are designed according to western style. Such architectural elements, especially in third class areas where there is a majority of one-floor courtyard dwellings, are poor privacy regulators. They, sometimes, cause privacy invasion to adjacent dwellings and restrain social activities, especially in courtyards.

In the Sudanese capital residential environment being seen on the balcony or the roof terrace, is considered as bad behaviour. To overlook another dwelling, especially by males, can create problems and disintegrate relations between neighbours. The exposure of the dwelling courtyard, balcony, or roof terrace, undermine the use of that area. The use of such space can only be possible by avoiding to be seen by others. The less the height that cuts the view, the less used the space (Figs. 7.50 and 7.51). From observations it was realised that many modulations have been done in 'modern' buildings by users to solve the problem of visual privacy, e.g. closing spaces between balcony balusters, increasing the height of balcony/parapet, etc.. Materials used for this purpose, are either opaque, translucent, or perforated (Plates 7.5, 7.10 and 7.11).

The problem of overlook becomes more complex when having adjacent buildings with different heights. The closer the multi-storey buildings, depending on architectural composition, the more they expose each other (Figs. 7.52-7.53). When a multi-storey building occurs where there is a majority of low level buildings, as in third and second class areas, a wider horizon is subjected to exposure (Fig. 7.54).

The capital's present by-laws and regulations, except for minimum distance between structure and neighbour's boundary walls, and balcony sofit height and projection onto the street, do not govern the location of openings, alignment and orientation of buildings¹² [31] (Fig. 7.55). The private family realm must have priority of protection. Opening and alignment problems can be minimised or eliminated by architectural treatment and regulations.

Another dimension to the problem of privacy is the street. It affect the opportunities for privacy in relation to the adjacent buildings. For example, buildings with

different heights on narrower streets can expose each other more than those on wider ones.. Also, the street with more traffic have greater impact than those with less of it. This can be solved by the use of proper privacy controllers, as will be explained in the following Chapter. It is possible to say that there is no clear socio-cultural concept in the capital's 'modern' architecture, which relates buildings to the street.

It is obvious that the issue of visual privacy is seriously neglected and /or misconceived in the capital's recent planning and architectural design. The haphazard development shows how the attention is drawn off the fact that physical environment will affect the user behaviour and may corrode or delapidate it. The absence of the Sudanese experience of living in multilevel residential context, led to the illusion of user and designer conception for the newly introduced micro and macro multilevel urban environment.

Many architects and planners in the country do not practice their work in an evolutionary manner. They often impose irrelevant preconceived ideas, i.e. forms and features. In order to succeed, and make work adaptable to prevailing socio-cultural and physical restraints, they must be critical, selective, and good modulators. Also, it is necessary that the town planners and architects are made aware of socio-cultural dimensions missed in their planning and design of urban environment. Finally it is necessary to invent by-laws, programmes and tools for implementation that help controlling nature and type of building materials, level and direction of openings, height of walls and buildings and distance between them in relation to the people privacy needs. Also, it is necessary to note that these regulations should include the existing building stock in order to raise its privacy quality.

From the previous analysis and discussion, the nature of privacy and its socio-cultural and physical relation to the Sudanese residential environment has assumed its important functional character. The following Chapter will be conclude upon the results of this study and suggests how useful concept of privacy can be for design, planning and promotion of the residential environment.

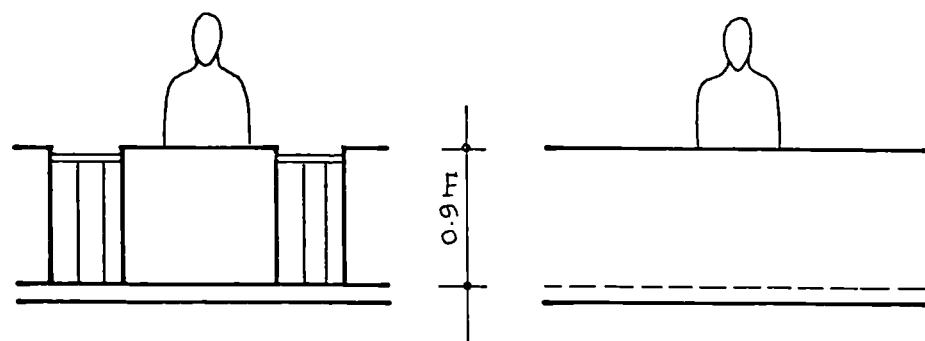
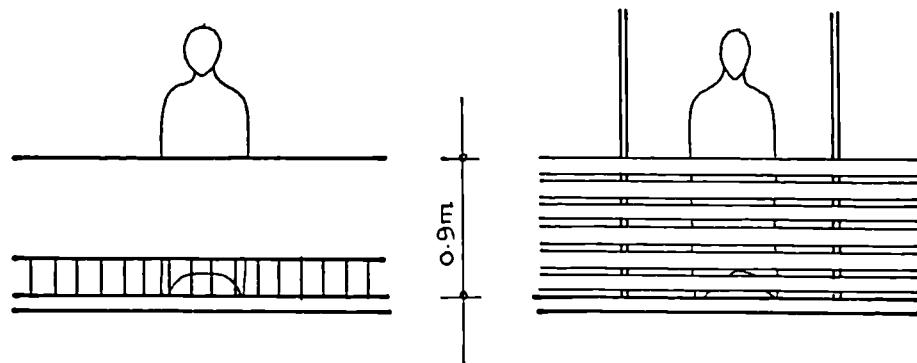
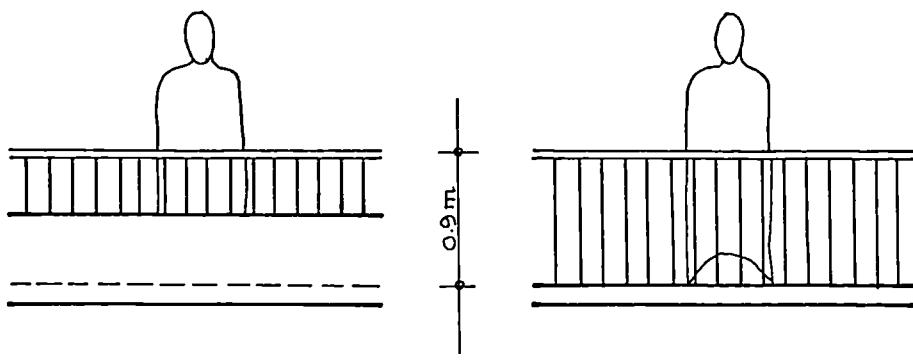


FIG. (7.50): In "modern" buildings, the terrace and balcony are either wholly or partially treated in perforated and/or solid blank patterns.

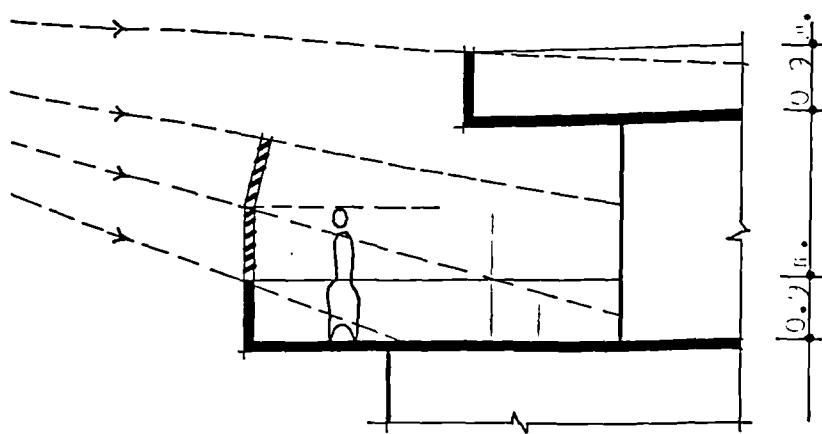
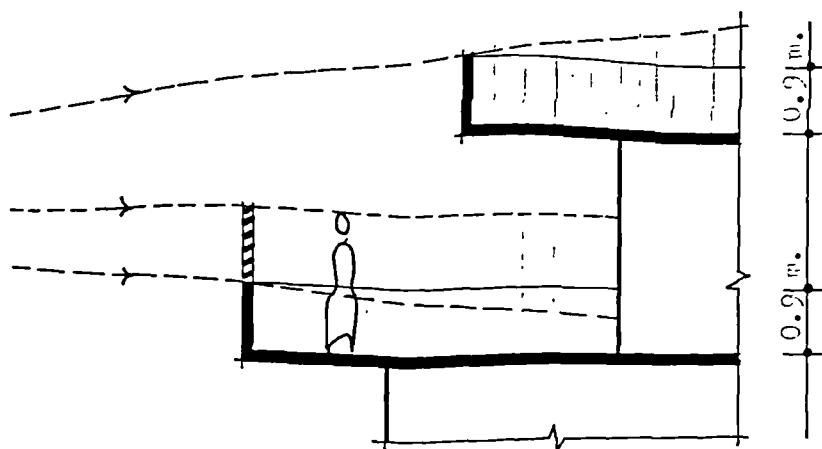
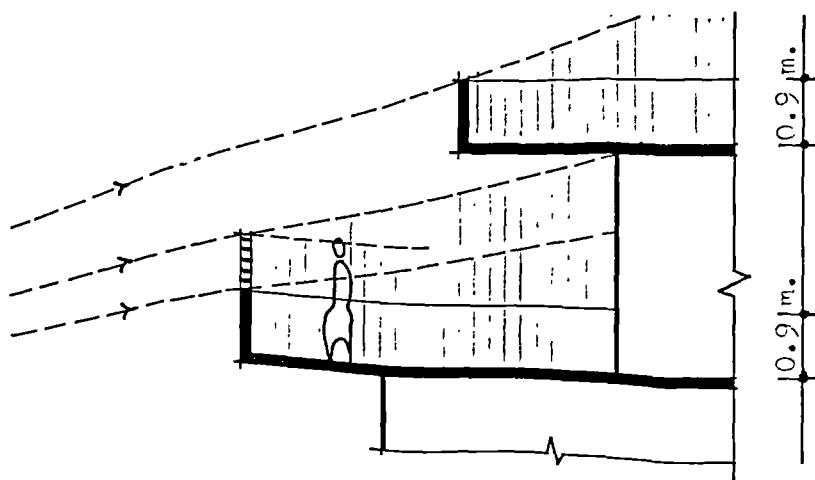


FIG. (7.51): The less the height that cuts the view, the more is the under used or abandoned the space. Privacy zones differ with differential height (vision lines are coming from stand point at 10 m, one floor under, at the same level and one floor above).

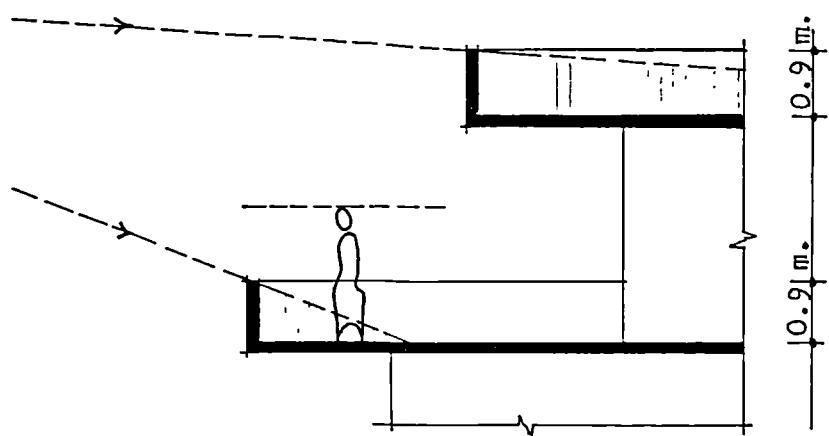
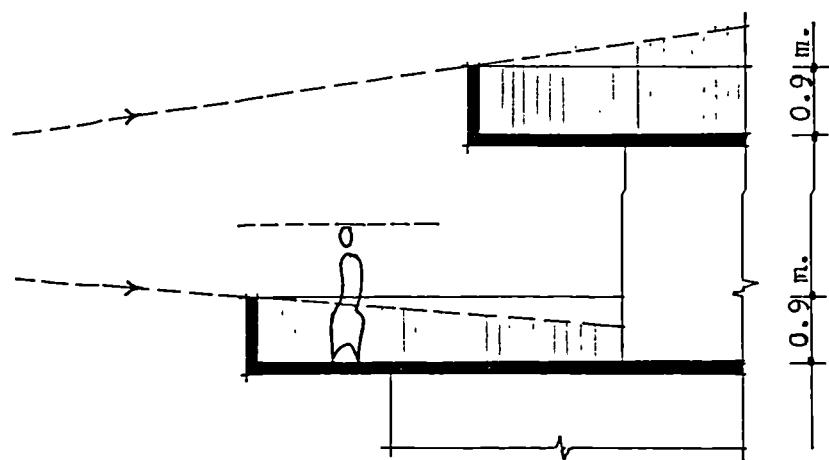
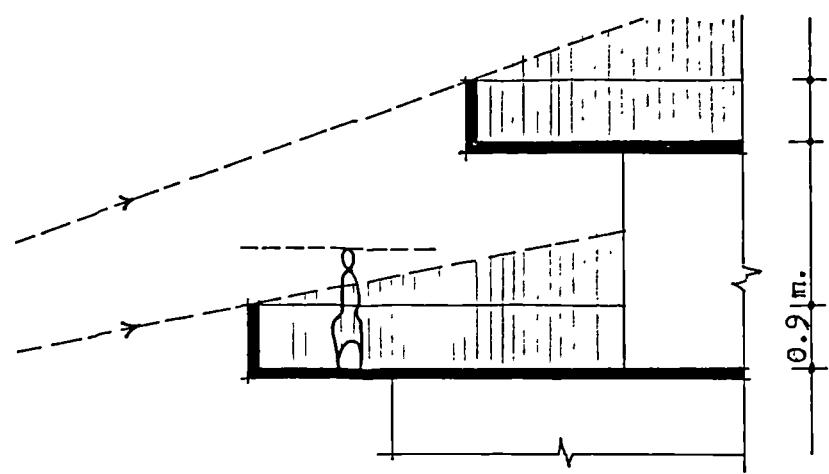


FIG. (7.52) : Privacy zones (shaded areas) on roof terrace, and balcony as affected by adjacent buildings at a lower level, same level and to a higher level.

FIG. (7.53) : The multi-storey buildings expose each other, people on the street and prevent the exposure of lower buildings behind them.

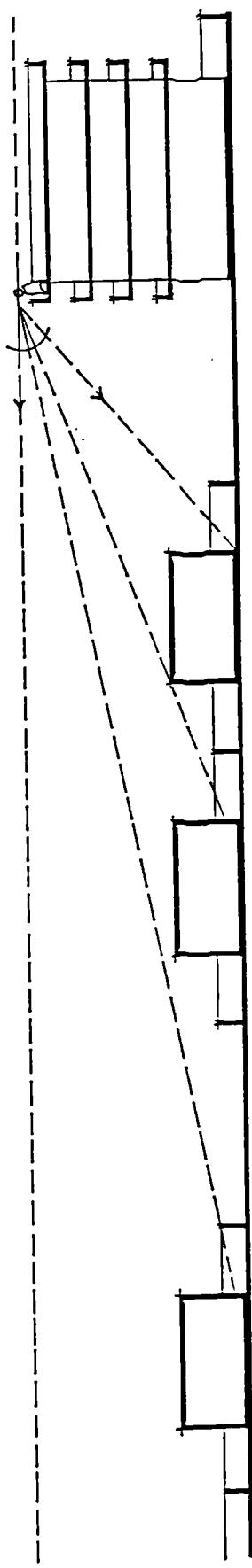
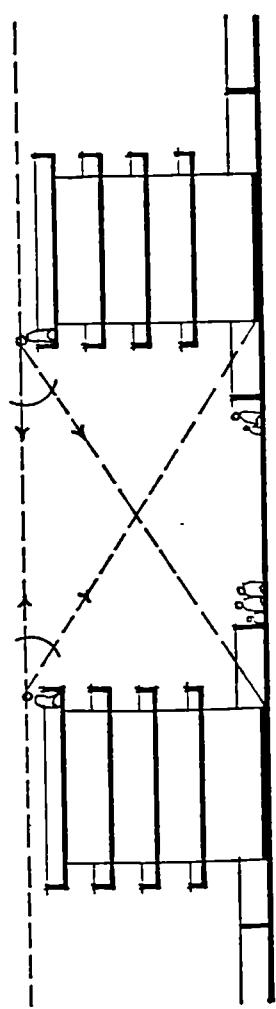
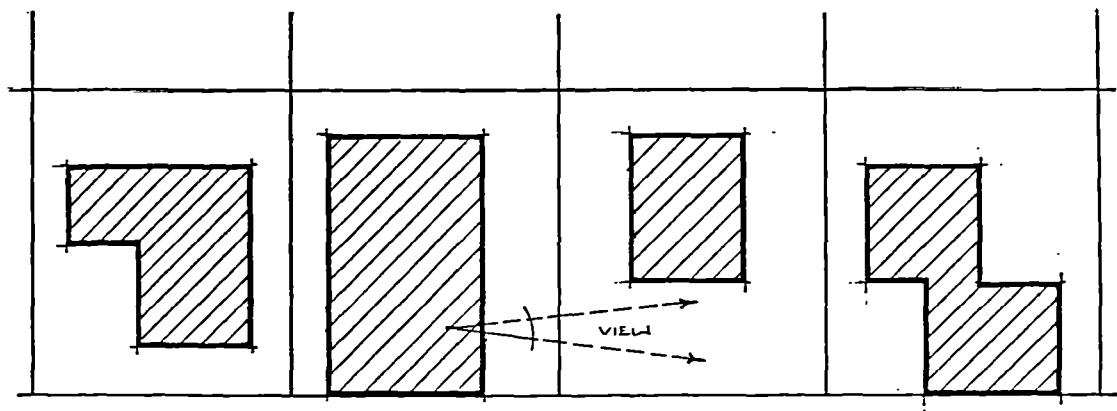


FIG. (7.54) : Where a multi-storey building rises between a majority of low level structures, it exposes a wide horizon.



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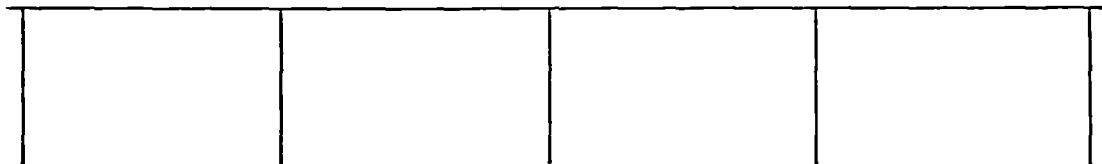


FIG. (7.55): The present building by-laws and regulations do not mention anything about the orientation and alignment of adjacent buildings, except for the minimum distance between built structures and boundary wall and the projection of balcony onto the street.



PLATE (7.1): The 'Traditional' and the 'Modern', a difference of concept.



PLATE (7.2): 'Modern' buildings that can overlook right through your 'private' courtyard, undermine the use of the dwelling outdoor space.



PLATE (7.3): The 'traditional' courtyard where people spend most of their time enjoying peace and privacy.



PLATE (7.4): The tradition towards staggering balconies and roof terraces, with their low walls, subject the building to a greater degree of visual privacy loss and exposure to sun rays during the day.



PLATE (7.5): Can the poor afford to build a party-wall as high as this to prevent being overlooked by the rich?!



PLATE (7.6): A boundary wall that has been reduced by an architect to no more than a decorative element with the front yard exposed to passers-by.

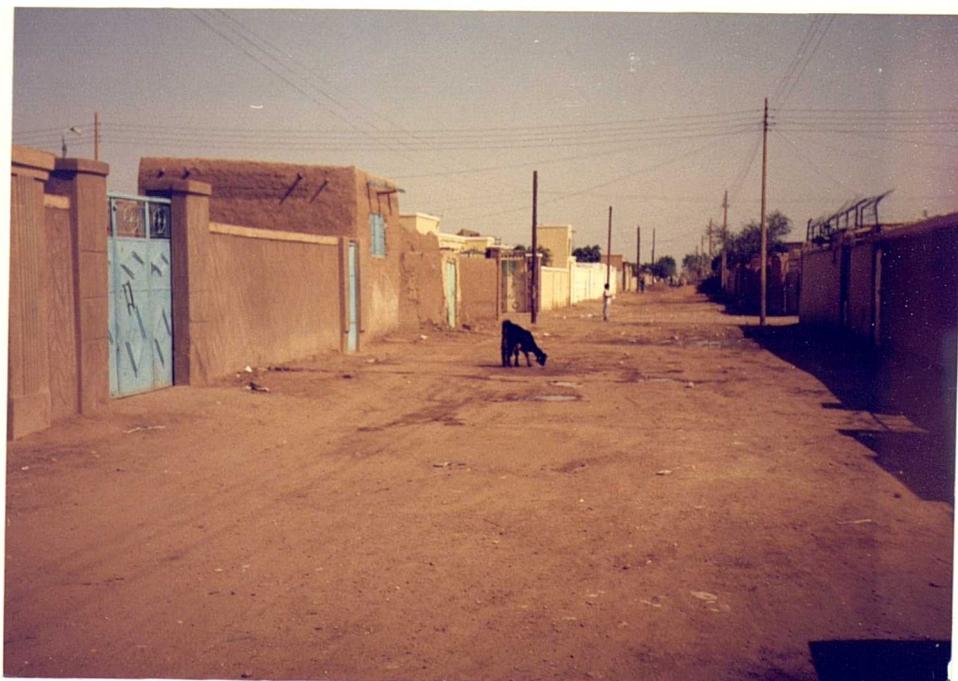


PLATE (7.7): High and solid boundary walls surrounding private courtyards, are still dominating the urban scene. A 'traditional' 'cultural' heritage from which we can learn.



PLATE (7.8): An architecture 'without' architects. The right} of the boundary wall from the start.

^{Treatment}



PLATE (7.9): The unfinished work of the architect, a boundary wall that has to be retreated again by the occupant to satisfy visual privacy.



PLATE (7.10): A dwelling roof terrace and boundary wall being treated by coloured plastic sheets by the occupier to prevent overlooking.



PLATE (7.11): Adjustable timber units added to the original balcony wall to make it as, approximately, high as 2ms. Would the architects consider the popular convention or would they insist on applying not matching elements to the perceived privacy.

REFERENCE NOTES (7):

- [1] The definition of household was almost similar to that used on the population census 1973. (see, population of the Sudan and its Regions (Project Document No. 1), Population Studies Centre, University of Geziera, 1983, P. 9.
- [2] Elias, O. E., Space standards in Low-Cost Housing with Specific Reference to Urban Areas of Central Sudan, Ph.D Thesis, University of Edinburgh, Vol. 2, 1970, P. 24.
- [3] A close relative relates to grandparents, their children, brothers and sisters, cousins and in-laws.
- [4] A branch family unit relates to children and their offspring.
- [5] A close kin family relates to close relatives families.
- [6] Sharing refer to as minimum sharing some of the amenities in the dwelling.
- [7] All these phases of family development are affected by age of parents and fertility.
- [8] The movement of family was affected, as we shall see later, by the affordability to purchase a new residence and the social solidarity of the household.
- [9] This phase can also be entered by multiple marriages. Such marriages are quite common in rural areas but quite rare in the capital.
- [10] Headship rate is found by $[(\text{frequency of heads}/\text{frequency the same sex}) \times 100]$ (see Table 7.1.8)
- [11] These results were contradictory to those revealed by some studies done in other parts of the capital which showed the dominance of young families in house sharing. This difference could be related to the fact that those studies were carried on housing areas offered by the government to mainly young families. On the other hand, there was less demand for housing and a more relaxing house rent and cost of living (see Elias, E. O., I bid, Vol. 2, P. 28).
- [12] Some of the forefathers were warriors in the Mahadist Islamic State which affected significantly the formation of Omdurman City.

- [13] Women in rural areas usually are actively involved in work outside the house.
- [14] In this study the head of the household was considered as the person who manages the social control of the family. For further definitions of the head of household (see Elias, E. O., Ibid, PP. 30).
- [15] Headship rate is defined as the percentage of population, or any group within it, who are heads of households. (See Elias, O. E., Ibid, PP. 31).
- [16] Public parks in the Sudanese capital are of varied nature and most of them are away from localities under study. Accordingly, the result might not reflect the real experience if there were parks in those areas. Hence more investigation is needed to achieve concrete results.
- [17] Environmental experience involves the cultural background and personal differences which might need further studies to clarify how they interact together.
- [18] Usually the wife of the deceased stays inside a room for 4 months and 10 days and never go out only for urgent needs.
- [19] This is also according to some Islamic rules where only men has to carry the dead to the cemetery.
- [20] It has to be noted that this strict Islamic practice is still widely respected.
- [21] This can be realised from the low percentage of women as heads of households in the sample (only 8 out of 70 of heads were found to be ladies), partly due to the Islamic rule that close male relatives have to take guardianship over their families.
- [22] In case of conflict between the women and her family on the issue of her marriage, the law permits her to carry the formalities in court.
- [23] The Sudanese system of privacy seems to be affected by the Islamic concept of (HIGAB) which means keeping a distance from a 'stranger' of the opposite sex, in the meaning not necessary the physical form. Even children if they are reasonably grown up are supposed to sleep separately.
- [24] The method of the 'Justified permeability map', or 'Justified gamma map' as called be Hillier, is more representative than the plan: it made the system of the dwelling spatial relations clear so that the

comparison could be made with respect to properties of depth, symmetry, and asymmetry, distributed and nondistributedness. It facilitated the visual comprehension of pattern and allowed for procedures for quantification.

- [25] (RA) value was calculated by a computer programme (Room Depth) designed by Illingworth J., University of York, Computer Department.
- [26] D-Values for systems of different sizes were obtained from Table (7.7.1) (see Hillier, B., and Others Ibid, PP, 112).
- [27] It should be noticed labels are independent from depth and spaces with different labels can have similar depth.
- [28] Control Values were calculated by a computer program (control) designed by Illingworth, J., University of York, Computer Dept.
- [29] A relation between two spaces a and b said to be distributed if there is more than one non-intersecting route from a to b as in (Fig. 7.47) and non-distributed if there is only one as in (Fig. 7.46).
- [30] Although, some multi-floor buildings have appeared long ago in third class areas, it was only in 1976 the erection of such buildings was allowed for the first time. The merit of this regulation is that it can increase the efficiency of use of space and services beside allowing for more family autonomy. On the other hand, the regulation drawback is the intention to increase the residential density on the account of comparison with western urbanities, a case of complete different culture, climate, technology and economic status. (See Regulations of Multi-floor Buildings for Third Class Areas_ in Arabic, office of deputy commissioner for technical affairs, Khartoum Municipality, 1976, PP. 1-3.
- [31] Although, the regulations of 1976 has put the height of sills to 1.8m for upper floors, most of architects and inhabitants are not aware of such limitation. While, the few of designers who may know the limitation together with the authorities ignore the application of the regulation, residents usually carry voluntary modulations after buildings were completed.

REFERENCES (7):

1. MARIS, P., Family and Social Change in an African City: A Study of Rehousing in Logos, Rouledge & Kegan Paul, London, 1961, P. 100.
2. Rapoport, A., House Form and Culture, Prentice-Hall, Inc., 1969, PP. 66-61.
3. Rapoport, A., Ibid, 1969, P. 63.
4. Rapoport, A., Ibid, 1969, PP. 68-68.
5. Rapoport, A., Ibid, 1969, PP. PP. 65-66.
6. From discussions with Abdul Majied Taha, A professional scholar in education at the university of khartoum, Sudan, 1986.
(See, also, World Development Report 1986.,Oxford University Press 1986, p. 236).
7. Hillier, B., and Others, The Social Logic of Space, Cambridge University Press, 1984, PP. 14, 100-112, 149-154.
8. Hillier, B., and Others, Ibid, 1984, PP. 14, 100, 104, 106, 149.
9. Hillier, B., and Others, Ibid, 1984, PP. 108-109.
10. Hillier, B., and Others, Ibid, 1984, PP. 109.
11. Hillier, B., and Others, Ibid, 1984, PP. 153-154.
12. Regulations of Multi-floor Buildings for Third Class Areas, I bid.

PART FOUR

CHAPTER 8

8.1 GENERAL CONCLUSIONS

8.1.1 General

As was clarified earlier, this study is primarily concerned with privacy and socio-cultural factors and their relation to the urban residential environment. The main objective is to test the working hypotheses and these are:

- (a) Maintenance of 'perceived' privacy is a major determinant in setting boundaries and forming of human residential environment.
- (b) Socio-cultural and behavioural variables, i.e. family structure, definition and performance of basic need, women position, social interaction, etc. are major elements as form determinants of the urban residential environment.
- (c) Intimate relationships, as friendship and neighbourliness affect to a great deal the ultimate satisfaction with the residential environment.

As a means to satisfy the above set objectives the study investigated the following:

- (a) the relation between privacy, as the maintenance of social interaction and communication, and the physical aspects of urban residential environment.
- (b) whether or in what ways the aspects of privacy and other socio-cultural variables are important as determinants of the form of the built environment in communities under study.

- (c) access and exposure as spatial attributes and their effect on the form of the dwelling (i.e. measures of integration and control of spatial elements).
- (d) to what extent privacy is of particular importance to the social groups under study.
- (e) the limitations that urban residential environments have on the development of social interaction.
- (f) the importance of privacy and socio-cultural variables in the tenants' adaptation and satisfaction with their residential environment.

The investigations of this study were based on the analysis of the results of field investigations and interviews undertaken in four residential environments in the city of Omdurman, Sudan. The goal of the study is to provide guidelines for the identification of dwelling systems, provide a reference for understanding and evaluating the urban residential environment, and to orient decision makers to optimise urban housing improvements. It is also meant to provide directions for creative design rather than being implicit rules.

This section gives a brief summary of the findings and recommendations that have emerged from the study. Finally, some lines for further investigation are highlighted.

8.1.2 Review of the Evidence

(a) The Social Structure of the Household

From the investigation, the evidence revealed that some changes have taken place in family size, social organisation, pattern of living and outlook, indicating its dynamic nature, which exert implications on the spatial

organisation and the form of dwelling as general. A new form of an independent family with more demands for privacy and hence space has emerged. From the evidence, this sort of family is believed to increase with time.

Although, such a change has happened, still the traditional pattern of living and house sharing was dominant(2/3). With the continuation of sheer shortage in housing and economical hardship, it seems such pattern will continue to dominate the communities in question. The prevailing pattern of sharing followed a certain 'socio-cultural' logic where a 'strange' family was not favoured due to privacy problems. This behaviour satisfied the first and second hypothesis where socio-cultural variables, including privacy, affect the setting of 'social boundaries', hence the use of residential space and accordingly the type of dwelling to be built and/or inhabited. Moreover, this indicates that the house was seen as a 'symbol' of privacy.

On the other hand, the structure of the households in question was found to be complex with a large number of residents (7.8 persons per household and 8.1 per dwelling) and different age groups. Such social complexity implies further complexity of privacy acquisition and regulation and accordingly affect the layout and use of space and its physical controllers. This makes the problem more complex if the household has to share residence with a 'strange' one. Also, men as heads of households were found to be higher than women (88.57% compared to 11.43%, respectively). Such a fact manifests the impact of cultural values on the family hierarchy of organisation, since women generally can not form independent families. Accordingly the form of the dwelling has to conform with such socio-cultural implications, hence satisfying the second hypothesis.

While a pattern of living for the elementary family could mean a large number of houses of smaller size, the extended household system may demand a small number of houses with a larger size.

(b) The Perceptual Definition of Privacy

Investigations into the perceptual meaning of privacy revealed that, the overwhelming majority of the sample were aware of the problem of privacy (97.7%). The obtained definitions pointed to 'territoriality', the 'realm of the self', 'others' or 'strangers', the notion of 'intrusion', 'dignity' and the concept of 'morality'. All these are necessary for the development and autonomy of personality. The definition indicated both positive and negative meanings. These were expressed in terms of psychological and physical comfort, security, necessity, moral, something good, spaciousness, prestige, respect, a must, ownership, visual privacy, secrecy, control of access to oneself, defended territory or zone, private sanctuary and as personal space.

The awareness of privacy was found to relate to social factors, such as the number of people living in the dwelling; cultural factors, as segregation between men and women; income; physical factors like thermal comfort; environmental factors, like noise trouble; design and planning factors, such as the opportunity for separation between men and women in the dwelling, availability of internal and external space, exposure from multi-floor buildings and availability of public amenities.

Since most definitions, if not all, of respondents related to privacy can be considered as basic human needs, this strengthens further the assumption that privacy is a basic human need. The high awareness of privacy in communities under study had experienced its value, meaning

and use as a prevailing socio-cultural fact in their life. The result also revealed the interrelation of socio-cultural-behavioural and physical factors, thus indicating the importance of considering the environment as a 'whole' whenever a solution for a 'fit' residential environment is sought.

(c) Cultural Values

When the psycho-cultural attitudes of respondents were examined against the visual exposure of passers-by, local street, an open space, a public park, school, social club, external and internal views of a house and exposure of dwelling functional spaces, the evidence indicated that the presence of people was a genuine element in the variation of response. This can be understood since the awareness of privacy is attributed to the presence of society. The general response showed that there was a 'hierarchy' of 'intimacy' system, i.e. 'privacy' system, between the respondent and the related environmental elements. While, passers-by were recognised as the least intimate, the public park was seen as the most intimate (72.9% and 14.5% as bad view, respectively).

Also, the result showed that there were two 'worlds' of privacy: (a) the 'envelope'; and (b) 'inside the envelope'. While there was some sort of preference to expose the 'envelope', there was a considerable disapproval about the 'inside the envelope', which was regarded as more 'private' than the first one. For example, the external view of a house was regarded as bad by 31.4% compared to 72.9% in response to its internal view, respectively. Such pattern of response can also be attributed to symbolic values attached to the corresponding environmental elements, e.g. inside the dwelling can be seen as representing 'symbolic' privacy of the 'family', as 'sanctioned' realm, or 'HARAM'.

On the other hand, the influence of environmental 'experience' and the 'quality' of the physical environment was clear from the differential results obtained, e.g. areas with more passers-by and traffic revealed more resentment to street exposure than otherwise. This shows clearly the relation between attitude to privacy and the socio-physical environment.

Also, the evidence indicated that there was a difference of attitude between men and women, where, except for public park and open space, women disliked to overlook the corresponding environmental elements more than men. This manifested that their attitude to privacy is related to the position of the sex, and has a socio-cultural base.

When the attitude towards the exposure of the dwelling's functional spaces was analysed, the findings yielded, also, a 'hierarchical' pattern of response. This hierarchy posed on three poles, sex, activity, and space. The response reflected that women enjoyed more privacy than men. This, again, supports the idea that privacy is of socio-cultural value. Also, such response can be attributed to the symbolic image attached to each sex, as women are usually recognised as a symbol of privacy in the Sudanese society.

On the other hand, activities of body hygiene were seen as more private than cooking, eating, sleeping, and socialisation, whereas bathroom, W.C., and kitchen were categorised as more private than other spaces in the dwelling. In general, the system of hierarchy attached to the meaning of privacy in relation to the dwelling seemed to be of a 'socio-cultural-functional-spatial' character. Such combination of pattern structured relations imply that there was a symbolic meaning of privacy attached to each of these elements and vice versa. As we have seen in Chapter (7), that the spatial syntax of the dwelling reflected the hierarchical image of privacy mentioned in this section,

hence confirming further the first and second hypotheses of privacy and socio-cultural influences.

In order to design and plan for more 'humane' and 'habitable' urban residential environment, the problem of privacy and its hierarchy should be tackled sensitively and the differential effect of 'environmental experience' and sex should not be overlooked, as it can be used to judge directions of 'preference' and hence the 'fitness' of the context to its users. In addition, the elements of 'sex', 'activity', and 'space', must be co-ordinated together to make a successful definition of 'functional' space.

(d) Attitude toward Basic Needs

The discussion and analysis of some basic needs (cooking, eating, sleeping, body hygiene, sexual life, sitting, beautification, weddings and funerals) in Chapter 7.0, revealed that the mere 'abstract' name of an activity does not tell much about the space use, but rather 'how', 'when', 'where', and 'why' it is going to be done.

While the performance of activity seemed to relate to both socio-cultural, behavioural and physical factors, the effect of the first two factors was significantly pronounced. The mere existence of some activities, such as DUKHAN and HENNA, can only be related to cultural values attached to the concept of beauty, hence affecting the dwelling spatial organisation and the social and physical privacy controllers related to them. This in turn implied a symbolic meaning to the activity itself, i.e. as an activity for beautification. Also, there was a notion of specialisation whereby a certain person of a certain characteristic was expected to carry a certain task. For example, it was only the young or middle aged married women who were expected to practice HENNA and DUKHAN. In addition, it was mainly the females of the household who cooked food on ordinary occasions. This explained why the kitchen was

normally related to women's section. Accordingly, the primacy of such a cultural value on the organisation of space in relation to household cooking, hence affecting the dwelling form.

On the other hand, the significance of privacy in its impact in the relation between people and people, and people and space was very pronounced. The relation between the two sexes was managed in accordance with kinship and intimacy. The notion of seclusion between men and women resulted in two domains, a major characteristic of Omdurman houses. Moreover, the notion of segregation resulted in duplication of some spaces, e.g. toilet and bathroom. Also, it affected the location of different spaces, so that they could be accessed by opposite sexes without the risk of loss of privacy.

The effect of religion, cultural values, tradition and symbolic can be seen clearly in the extent and nature of ceremonial occasions and weddings in the Sudanese society. The huge number of guests in weddings and funerals reflected by the analysis (above 1800 persons/occasion), can only be related to the above mentioned reasons. These activities were a symbol of social solidarity and their performance would likely be an indicator of strength of social interaction between different groups. The ceremonial activities, also, had their effect on the form and use of space, they affect both the social and physical environment of the dwelling and locality through the attendance of many people, erection of temporary structures and use of services.

A further examination of the relation between people space, and activity manifested a dynamic character. Some spaces were seen more private during the night and of less criticality during the day, like branch family realms, whereas the system of privacy was generally relaxed during

ceremonial occasions, indicating that crowding affects the definition of privacy realms. Also, the private realm of the household seemed to extend to the adjacent outside space during the day and ceremonial occasions, while the women domain, also, extend to occupy the male domain in the dwelling in ceremonial situations. The attitude toward sex seemed to play a major role in the territorial and privacy realms definition within the residence. The symbolic meaning of privacy and secrecy was very much attached to sexual life, whereby the cultural norm to recognise the family dwelling as private and must be respected, was a necessity to satisfy such a basic need.

Finally, it is possible to say that, although the dwelling form related to a range of socio-cultural and physical, the socio-cultural forces command the supremacy in their impact on its form. This, also, goes in accordance with the first two hypotheses mentioned earlier. All the symbolic nature of activities and its relation to socio-cultural variables is fundamental for generating a meaningful residential environment.

(e) Social Relationships

The investigation indicated that the respondents behaviour and attitude toward socialisation, seemed to hinge on many socio-cultural and physical factors. The reasons underlined the motivation of social intercourse were basically religious and social considerations. The result displayed a hierarchical pattern of importance of where most of the social interaction took place. While most socialisation took place in the privacy of the family dwelling, the mosque and the local street followed next. Also, the bus station and club showed some sort of effect.

On the other hand, the results revealed that relatives, friends and neighbours were of different character. While,

visiting relatives and neighbours was motivated religiously, friends were contacted mainly due to social considerations. Also, the analysis showed that the majority of interviewees preferred more social interaction but were different for the different social categories. The general attitude indicated that people need more privacy against neighbours, since this relation is governed by proximity rather than by qualitative selection.

The effect of physical form can be seen in the case of neighbours, whereby it created a special type of social relationship affecting the character frequency and length of contact. On the other hand, the implications of socio-cultural forces on the form of the urban environment was very clear. The special character of the Sudanese house with its separate domains for men and women and its customarily big reception saloon for men, the mosques with their high minarets dominating the urban scene, and the scarcity of coffee shops were all physical reflections of the socio-cultural factors embedded in the Sudanese society.

Since social intercourse is vital to the development of the individual as a social being and attaining of community spirit, hence understanding of such behaviour, in what spaces it is carried out, when, and why is a necessity towards the provision of residential environment that is liveable and enjoyable to its users. So it is necessary to give special care to the dwelling, mosque, and local street to back the goal toward a better environment. Such an environment should provide the 'right' atmosphere where social relationships can be acquired and controlled successfully, i.e. an atmosphere of privacy.

(f) Interaction with Neighbour

The investigation into the nature and type of interaction with neighbours in communities under study revealed that, there was, generally, a high 'neighbourliness' between households. Contact through the normal predictable privacy controllers, i.e. doors, was the main means of interaction. Gender was found to affect the mode of interaction. While, men mainly used doors to contact neighbours, women were dominating other forms of interaction, which were usually of less controllable character, e.g. use of NAFFAG and calling over the boundary wall. This indicated that the family dwelling was more controlled against men than women. In other words, women were seen as more intimate to the family realm than men. Also, beside normal socialisation such contacts were used by housewives to perform household tasks, e.g. exchange utensils. The effect of physical proximity was clear in that the neighbour across the road lacked interaction through naffag and over the party-wall, but it did not modulate the intensity of other modes significantly.

The 'form', 'intensity' and the 'mode' selected for social interaction with neighbours and the 'capacity' to handle it can only be a socio-cultural phenomenon facilitated to by the choices available in the physical environment, the selection of which is also cultural. As it was hypothesised before, the high neighbourliness, friendship formation, and interaction with relatives seemed to compensate for the apparent deterioration of the physical environment and raise the level of satisfaction in localities under study.

In order to produce a meaningful residential environment such socio-cultural mechanisms could be used to improve users' satisfaction with their localities, and create a sense of attachment and community spirit.

(g) Reception of Visitors

The results of reception of visitors behaviour manifested a strong sharing of characteristics between the different communities in question. The reception of visitors seemed to be one of the primary factors, if not the most, in shaping the spatial organisation of the Sudanese dwelling, through the segregation of men and women domains. The concept of privacy appeared to play a major role in the management of such a behaviour. Privacy 'controllers' such as avoidance, physical barriers, and temporal rhythm were used to achieve socialisation with guests.

Age, sex, social status, kinship, and intimacy affected significantly whether there should be segregation in the use of dwelling space or not. Privacy sensitivity and the concept of segregation between sexes conform with the existence of men and women domains in the overwhelming majority of the sample dwellings. Since privacy is culturally variable, thus it is possible to suggest that Omdurman's dwelling conformed to certain cultural rules. All the mentioned results together with explanations satisfy the hypotheses of the supremacy of privacy and socio-cultural forces in shaping the dwelling and the residential context as a whole in the related communities. Accordingly to make successful housing design and planning, the privacy concept and its socio-cultural relevance must be understood and satisfied.

(h) Position of Women:

From observation and evidence of analysis it could be said that some changes had occurred in the position of women in Sudan. These changes, e.g. education, going to work, etc.. would seem likely to exert new demands, and accordingly introduce changes in both of the dwelling and city structure as a whole. Although many of the sample

supported woman going to work, still the majority could not see her as independent of the family control. This could be related to the notion that the woman symbolises the 'world view' of her family, which should be seen only under a certain light.

Also, the result revealed that there were two 'worlds' of reality, the 'family private' and the 'public'. Both worlds offer privacy opportunities to the individual under certain conditions. While privacy in the 'family private' can be achieved by following the conventional rules of the society, it can be achieved by anonymity in the public realm. The notion of segregation between men and women seemed to have a considerable impact in the layout of the dwelling, since the majority stay at home as housewives. On the other hand, there were different preferences toward the realm of social activities, whether to be segregated or of mixed style.

(i) The Spatial Syntax of the Dwelling

From the analysis of relative depth of functional spaces (in Chapter 7), it was found the dwelling in communities in question generally had a 'syntactic' and a 'numerical' form. Some spaces showed high relative depth, while others yielded a low value. In addition, some behaved randomly. Spaces of the first order, which were roofed, had the nature to segregate the spatial system of the dwelling, whereas those of the second order, which were unroofed, integrated it. In addition the segregative spaces seemed to be those which usually enjoy more privacy than otherwise. The low relative depth revealed by the street suggested that control of the dwelling system was mainly achieved through the structuring of the interior space. This points to the fact that, while privacy in the 'public' realm is achieved through 'anonymity', it is controlled in the family house by 'structured' spatial system. The provision of more entrances

to the house seemed to be for keeping the balance of the general relative depth.

On the other hand, the courtyards, especially the women courtyard, dominated other spaces as the most directly permeable ones in the dwelling. In other words the general spatial system seemed to be a non-distributed one with a unitary control, i.e. courtyards control access to other spaces. The purpose to add more entrances seemed to increase the distributedness and reduce the risk of unexpected exposure.

The examination of general relative 'ringiness' manifested low values for the dwellings system. Such a pattern would likely be to reduce distributedness and limit control of the system to certain space(s). The visual representation of the 'adjusted graph', also, revealed a syntactic order of the dwelling spatial structure. Some spaces were found always to be 'off' rings, while others were constantly 'on' rings. In addition, some spaces behaved 'randomly'. The provision of a single entrance and/or a comparatively small sized plot either reduced the number of rings or eliminated them totally.

From the review of the evidence in this section related to findings in other chapters, it could be concluded that the Sudanese dwelling has a 'syntactic' and a 'numerical' form where the relations between family members, family members and visitors, and different sexes, i.e. the privacy system, is 'mapped' into that form. In other words, the management of the consistent spatial character by the overwhelming majority in communities under study, was a 'socio-cultural' phenomenon meant to convey an 'image' of an 'ideal' residential environment. Thus the findings, generally, satisfy the three hypotheses set at the beginning of this study.

We have seen that the Sudanese pattern of living is very much affected by deeply rooted socio-cultural considerations. The challenge remains, is how to make a successful housing design and planning for such a pattern of living.

8.2 DEVELOPMENT OF FRAMEWORK AND SUGGESTIONS

8.2.1 Introduction

From the previous theoretical and field work investigations, it becomes clear that the aspect of privacy is of significant implications on the manipulation of the environment. The achievement of an efficient residential environment can only be achieved through the satisfaction of users, and privacy is a genuine element in increasing or the diminishing of such a behaviour¹. Thus the knowledge about the nature, role and effect of privacy and its involvement in the shaping of dwelling environment is a necessity towards the creation of a satisfactory human habitat.

The environment is a system of components with a complex network and relationships. It includes objectives, goods and activities of groups involved. Actions are usually taken by humans from time to time to modify the physical environment, e.g. a new dwelling or a housing scheme, to meet their changing needs. If serious mistakes are made in any of the different elements of the environment, it disturbs the whole system.

The planning and design of a residential environment should aim at the satisfaction of socio-cultural and psychological needs of users². Attention should be paid to the dangers of 'forced' communication and interaction on one hand and the deprivation from such stimulus when needed. As was explained earlier, in the functions of privacy, lack of choice result in lack of self-value, respect for others

rights, and community spirit³⁻⁴. Following Goffman's statement, the individual's need for privacy is felt at every point of life and oscillates between community and withdrawal (see Fig. 8.1). These needs are always in balance and their achievement requires to understand how such a balance works⁵.

Some may argue that in today's urban environment it is difficult to satisfy privacy needs, if not impossible. Nevertheless, the research of social scientists and the failure of some of mass housing projects, in developing countries, after the world war 2, brought to light that at least some degree of privacy is recognised as a universal human vital need.

No doubt, the expansion of the urban scene, in many countries, in recent years due to powerful forces, e.g. people, economic, work, transportation etc. that are emerging has led to complications and caused lack of privacy in various situations. Traffic routes, heights and proximities of buildings are particularly problematic to the maintenance of privacy in neighbourhoods and dwellings.

Designers and planners need to work within the new urban scale so as to produce a modified sensitive and 'habitable' residential environment. Although designers may find it difficult to convince authorities, to escape physical and economical constraints, they should try their best to obtain and convey a clear understanding of the socio-cultural and psychological needs of users.

The question of how planners and designers can help solve the problem of privacy with respect to the conflicting variations of domains is a serious one. Invasion of privacy as an outcome of irresponsible urban planning and design, usually, affects a large number of people who were not involved to decide the degree of privacy their habitat

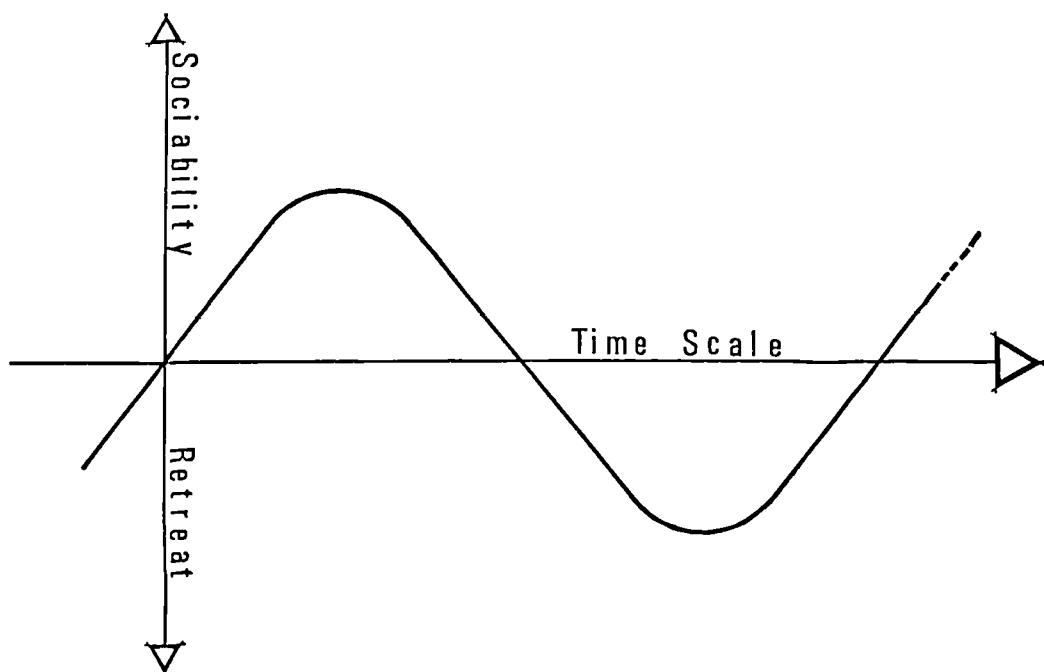


FIG. (8.1a): Hypothetical model of privacy, as an oscillation between retreat and sociability. See also the diagram shown below.

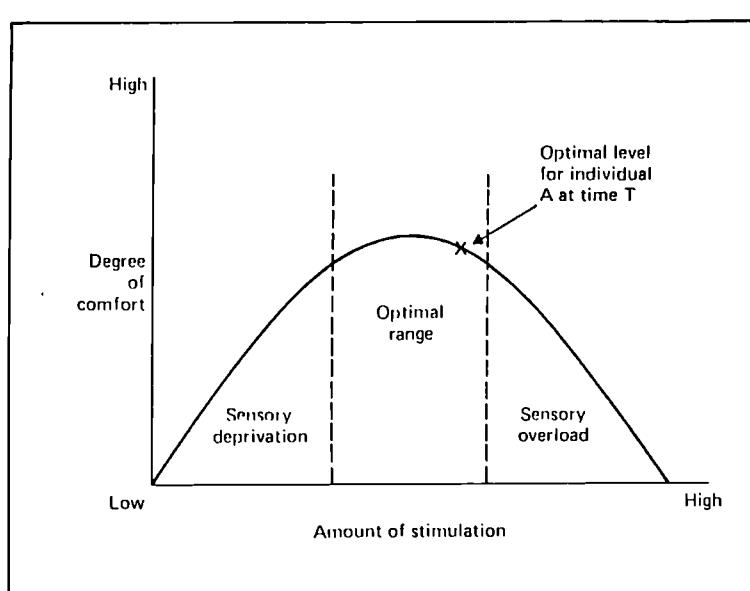


FIG. (8.1b): The concept of an optimal level of stimulation (after Porteus, J., D., Environment and Behaviour).

environment would make possible. Hence, the view of users and their attitude to privacy, which can affect the outcome positively, should not be marginalised.

8.2.2 The Meaning of Privacy

As was explained earlier, in privacy definition, the meaning of privacy can be generalised as the control of interaction and communication at will. Such behaviour, usually, involves the manipulation of the physical environment to attain the intended level of community or withdrawal. The 'livability' of residential space depends on its matching with the nature, type and magnitude of relationships between individuals and groups involved.

Solving the problem of privacy would require making decisions about visual, auditory and olfactory separation within and without the dwelling and community. Physical elements that provide separation, insulation, access and controlled transfer between spaces determine to a great deal the character of the residential environment. Temporary or permanent devices, such as barriers, are used to separate wanted from the unwanted. The appropriate separation device works in the manner of joints with each of its special form. Devices like buffer, barrier, zone, lock, transfer point and screen represent joints, each different and serves a function (see the anatomy of dwelling 8.2.12).

8.2.3 Criteria of Privacy

Equilibrium provided in nature for living organisms appears to be a compound of contrasts in a dynamic relationship. The man-made world must provide at least the same⁶.

If privacy can be seen as the control of flows of information between actors, it is then they can be differentiated in terms of 'input' and 'output'⁷. If it is taken as an 'optimum balance' between input and output, this may be seen as the basis for most human spatial

satisfaction. The value and form of privacy is variable between cultures, communities, families and individuals. Its means of control are a function of the immediate environment. Understanding the reason, circumstances and nature of balance of the privacy provide the designer and planner with a powerful tool to assist producing a flexible responsive residential environment. If the process of withdrawal and community can be understood as the control of access to oneself, its practical manipulation would require the establishment of physical and psychological barriers against 'others'.

8.2.4 Privacy in Housing Design

It is quite a common practice that many designers direct their solutions towards physical aspects of buildings. Good physical design does not necessarily produce a residential environment with good social quality. The failure of housing practitioners to produce a responsive habitable environment implies the failure to comprehend the socio-cultural and psychological characteristics of community involved and the implications that may take place⁸. While people bring their experiences with them to newly modified environment, in turn it affects the reproduction of their future experiences. The decision to modify is linked to experience by the notion of motivation which is a major category in housing dynamics. The action to modify environment should aim at removal of stress and equilibrium to achieve enjoyable life⁹.

Privacy as a fundamental need in housing and dwelling if not treated properly the product may prove to be functionless as a place to live in. Its lack may result from the failure to control social and physical environment interference¹⁰ (see Plate 8.1 and Fig. 8.2). To satisfy privacy needs the main task of designers would be how to control visual exposure, noise, odours, heat and social interaction, i.e. intimacies. As from the case study, it

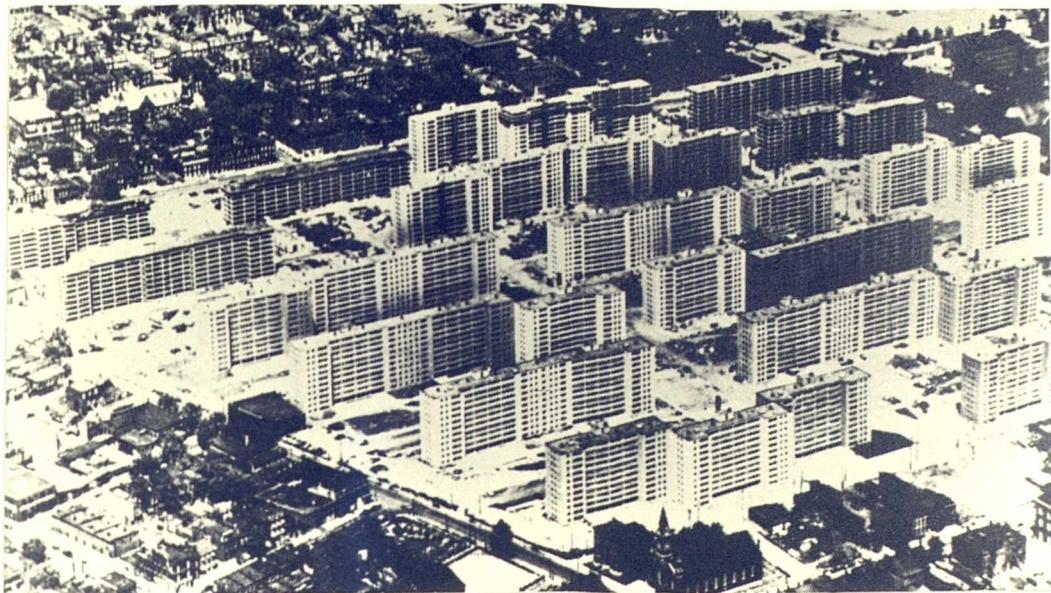


PLATE (8.1):

The failure of public housing: Pruitt-Igoe, St. Louis. Demolition began in April 1972 of several 11-storey buildings wholly evacuated by their occupants, who found them uninhabitable. (Above) Pruitt-Igoe before demolition, (below) the same area after demolition (after Porteus, J., D., Environment and Behaviour).



could be said that visual and social aspects are more important than other factors, at least for communities in question. The maintenance can be helped through the technical aspects of architectural design and spatial regulation between individuals and groups within the residential realm to enable each person to pursue his own life at will. 'Creative' design would assume a solution that satisfies the varying conditions of privacy in present and future¹¹.

The performance of dwelling in relation to the maintenance of interaction and communication depend on the degree of conflict of territories domains which is affected by zoning. A 'responsive' design for privacy lies in clear separation and zoning, both 'inside' and 'outside' the dwelling. As an important component of 'livability', privacy within the dwelling through functional zoning is related to activity defined by role and sex of performer and the symbolic meaning attached to activity in question. Architecturally, control of privacy between the 'outside world' and 'inside the dwelling' can be achieved by the design of barriers, doors and fenestration.

8.2.5 The Social Significance of the Dwelling

Dwellings are probably of the most numerous forms man has ever built. Their purpose is to provide a shelter for habitat and an environment for the family to meet individual basic needs such as eating, cooking, sleeping, defecating, washing, relaxing, entertaining, rearing children and performing intimate relations in an atmosphere of privacy¹². Shelter can be seen as resulting from the human need for protection from physical environment and enemies and to attain group expression and social stability¹³.

Most people, if not all, relate to the dwelling as a home and centre of one's world, where the individual attains his

identity in the family and society. It offers a sense of belonging and security for both the young and the elderly. It is the place where the family sub-culture is reproduced affecting the individual attitude and way of life, and the society at large, at the stages of development¹⁴.

8.2.6 Designing for Family Privacy

Architectural design, usually, aims at two objectives: (a) to create an artificial element to modify physical environment; and (b) to achieve a form that would render it possible for human activities to be carried out with ease. As activities are socially determined it could be said that physical forms have social significance. Dwellings provide for fundamental needs of humans and inadequacies in their design would likely undermine the quality of life of those who would use them¹⁵.

A meaningful housing design would require a genuine understanding of the family as the basic unit of the society. But, families are in constant change leading to different design requirements with implications on size and form of the dwelling which is a major factor in planning and design of housing¹⁶. Also, different families may have different ways of performing activities in space and time. Such dynamic change can not be accommodated by a fixed pattern of spaces, but a flexible one¹⁷. An architectural design that considers the social nature of different activities which make family life in home, would likely raise the degree of 'habitability' of residential space. Proper understanding and analysis of inter-family and intra-family relations is fundamental to the 'habitability' problem. 'Conflict', 'retreat' and 'communications' are the three aspects of family life that absorb these relations.

8.2.7 Realms of Conflict, Retreat and Communication

As was clarified before, the individual's life oscillates between community and retreat (see Fig. 8.1). When conflict occurs in interaction people start to retreat into their private domains and intimacies. Areas of conflict within the subgroups¹⁸, as areas of co-operation, are of vital importance to the individual growth process. From interaction with group, people experience norms, values, traditions and cultural identity, whereas withdrawal helps them to assess, consider, understand and develop a sense of 'self'. Unless the rejection- acceptance cycle needs are comprehended and satisfied through an effective environmental modulation, it may prove difficult to grow emotionally and develop a sense of identity. Recent psychological explanations assume that every individual needs his own private place for retreat so as to develop normally. The possibility of balanced community and withdrawal between individuals and groups in the dwelling is essential for a successful privacy maintenance. The main problem of the designer will be how to achieve such a balance.

8.2.8 Approximation of Privacy Levels

Individual's needs and tolerance to social pressures may vary according to the type of social relationship in which he is engaged and family background¹⁹. While it is difficult to generalise on a 'universal' system of privacy 'contents', it is possible to classify functions in relation to privacy in specific situations. If privacy oscillates between community and withdrawal, it can be seen as a scale for activities ranging from least private to most private ones. This scale, also, relates to individuals, subgroups and the family as a whole. The cultural conception of privacy may shift and differences in views between different age groups

within the same household may exist, e.g. early generations of women in some parts of Sudan do not eat in front of their son-in-law. Although, these differences may exist, a general convention of privacy can be identified. It could be estimated that 'too little' privacy can occur when the individual cannot retreat into a 'private' realm to escape the presence of others at all times, or when the family cannot manipulate the dwelling according to the most conventional pattern of 'privacy' of the society. The achievement of 'complete' privacy in the urban environment seems to be difficult, if not impossible. A reasonable 'approximation' of absolute privacy in relation to the users' convention, would likely be acceptable. For example, to withdraw reasonably from visual exposure and noise disturbance, whereas a general level of background noise may be seen as reasonable. As we have seen from the case study, the performance of activities in the family realm, usually, requires different privacy levels which may involve numerous types of controllers for interaction and communication. Some of the 'interaction modes' can be more difficult to control than others, e.g. exclusion of sound is more difficult than is vision.

The role of the architect is to identify the type and magnitude of privacy, required in the family dwelling, and to create the categories of space that would satisfy such privacy needs. Hence, the location, size, orientation and character must 'match' with type and privacy level needed in the family realm. The architectural design of space should communicate and facilitate the creation of different atmospheres for noisy, quiet, communal, personal, casual contacts and serious contacts zones. It should also assist to prevent distraction by stimuli, interruption by conflicting activities and embarrassment through unwanted or unexpected exposure. Creative design can itself communicate through the proper manipulation of architectural features.

8.2.9 Habitability

The definition of a place as a home is dependent upon the cultural conception of people, and only when it fits this schemata as a place to live in, can it then be called a dwelling. Historical evidence reveals that housing environment influence inhabitants' way of living and patterns of their social relationships²⁰ (see Fig. 8.2). This was particularly evident in urban housing areas where less privacy was available the community spirit was low, whereas in others of adequate privacy social co-operation was prevailing²¹. In this sense successful planning and design is the one that fits with the community's and family's social relationships.

(The pattern of pressures changes faster with the drift of culture and the shift in knowledge and technology. As a result forms easily ship out of equilibrium and become absolute..... If the form-making process is absolute, the design itself will be stillborn.²²)

'Habitability' image may change from time to time and different generations may have their own demands in relation to spatial arrangements and equipments. It is only through the notion of 'obsolescence' that we can know whether a certain arrangement of space is still required or not (see Fig. 8.3). On the other hand, due to certain limitations people may adapt to situations of inadequate housing conditions. In this light it is possible to say that to determine exactly the 'full' role of a dwelling as a 'habitable' 'home' is a difficult task due to the complex variables involved in its shaping.

The implementation of new technology in the dwelling, as it can facilitate the use of space, would be likely to affect peoples' future behaviour about privacy. For example if individuals can acquire comfort in their 'private' space

instead of grouping together, this will lead to new privacy experiences and probably more demands for it.

Individuals expect comfort from their dwellings as homes. But as the definition of 'habitable' space is changing, comfort is, also, complex and changing, regardless of the physical environment. Although the previous notions are in constant change, they can still be related to a 'general' pattern of convention. If architectural form has a direct effect and the way people live and if planners and architects manipulate the environment that affect peoples' lives²³, then users should have the right to choose in shaping their own lives. Planning and design of urban environment should help to promote a human-environment interaction that would gear the development of the society in the way its own individuals choose. The availability of such choice would likely to produce a meaningful and habitable environment to the communities involved.

'Habitability' depends on whether a building would perform the functions expected from it. It can best be controlled by codes and building regulations. Objective, i.e. human response, and standard measurements, i.e. day light, sound level etc., can be used to obtain 'habitability' conditions necessary for human performance²⁴. To conform with building standards does not necessarily imply efficient dwelling functional quality. The standards of building performance should take into account the psychological factors and aim at insuring social stability²⁵. This can be assisted through continuous evaluation of the functional quality of the residential environment (see Fig. 8.3).

8.2.10 Space Organisation and Privacy

(The ecosystem is an active energetic composite an intra-dependent activity network it is not only the individual members of the

system who act and react, but the total system "behaves" as a whole²⁶.)

As was explained earlier, the total environment of a community, i.e. social and physical, dictates certain aspects of experience, behaviour and attitudes. Hence, efficient residential community should be in terms of 'habitability' as a grouping rather than in terms of a single dwelling unit. A layout that defines the character of space and its relation to the users, would likely help promote efficient use and co-operation of community members.

The main categories of architectural space are usually based on the concepts of 'space', 'mass' and 'surface'. Surfaces form boundary to mass and spaces, whereas mass is a three-dimensional body with weight. On the other hand, space is a volume bounded by surfaces. Spaces are divided into places to contain generated activities. Mass shaped by actions and experiences of people, play an important role in the degree of 'habitability' of residential environments. Satisfactory living for a community needs a sensitive and balanced treatment for space to avoid conflict of activities and movement²⁷.

In relation to the previous explanations, it can be said that, attitude to privacy is, partially, a resultant of physical setting reflected through the experiences of its users. What is important about the space is not just how it is shaped but, also, where it is located and to where it relates. The form of distribution of buildings is fundamental to community open space²⁸. Small spaces are likely to create an atmosphere of intimacy, security and co-operation in relation to larger ones²⁹ (see Plates 8.2-8.3 and Fig. 8.4). This relates to the concept of 'defensible' space, whereby smaller spaces are more controllable than those with larger size. While the shape of architectural space is affected by the interplay of function, social, economic, and technical constraints, it

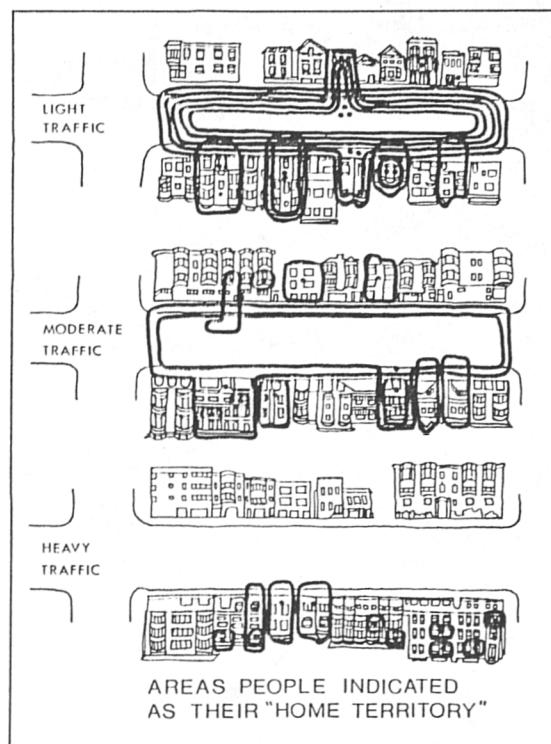


FIG. (8.2): Home-base territories of residents of streets of varying traffic volume (after Porteus, J., D., Environment and Behaviour).

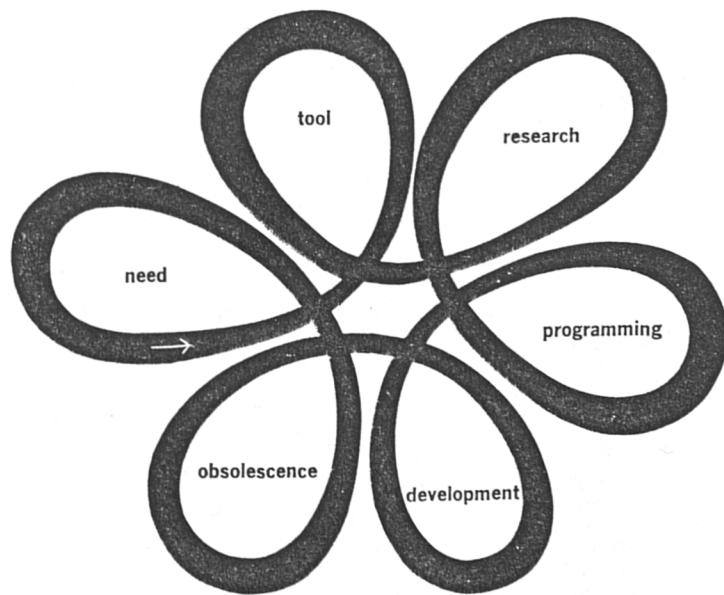
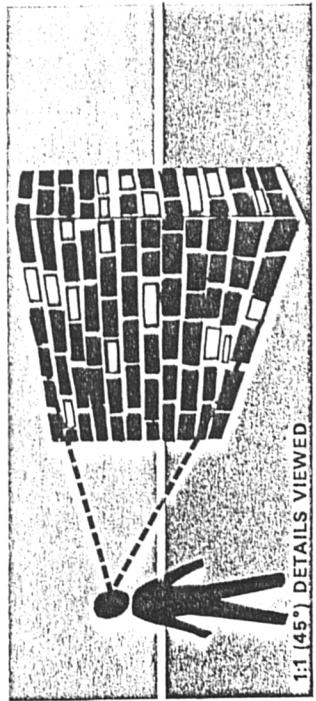
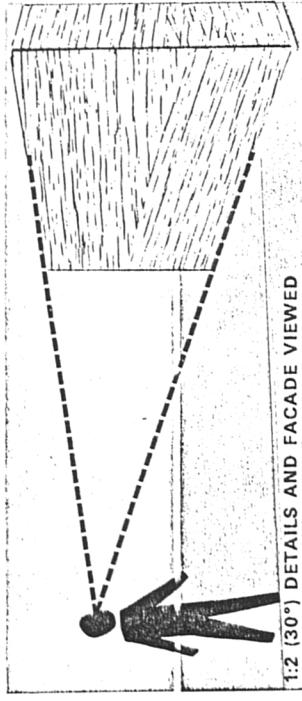


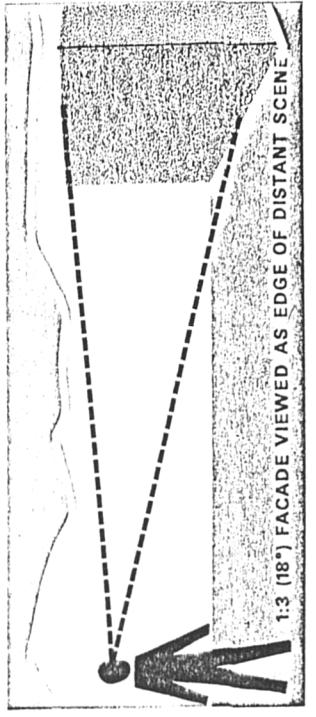
FIG. (8.3): Diagram of development cycle (after Chermayeff, S., Community and Privacy).



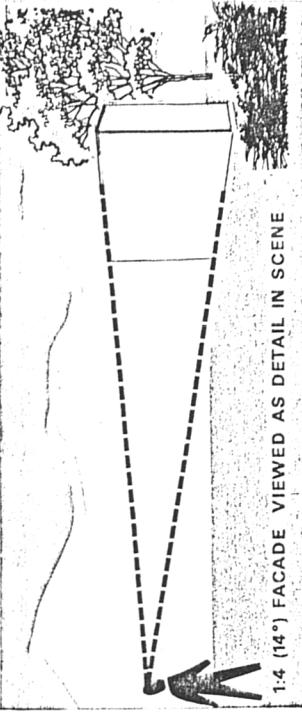
The area within a 45° cone of vision is about the limit of the human eye to perceive any degree of detail. Beyond this cone, details appear fuzzy. The 45° cone occurs when the viewer is as far from the element being viewed as the element is tall, a distance to height ratio of 1 to 1. At this distance a spatial sensation of nearly full enclosure is felt, particularly if the enclosure is on three or more sides.



The 30° cone of vision occurs where the height to viewing distance ratio is 1 to 2. Within the area of the 30° cone, the entire element and its details are perceived clearly. It is at this distance that the spatial sensation of enclosure is at its lowest threshold.



When the viewer is far enough away from the element so that cone of vision is decreased to 18° , a height of viewing distance ratio of 1 to 3, only a minimum sense of spatial enclosure is experienced. The element loses detail and its containing quality, and functions as an edge psychologically, providing a sense of place for the viewer rather than a sense of confining space.



As the height distance viewing ratio for an element approaches 1 to 4, the cone of vision needed to view the element is only 14° . At this distance the element loses its primary importance and becomes in itself a detail on an edge for the broader scene.

FIG. (8.4): The degree of detail of view perceived by the human eye is affected by the notion of distance (source: Plants/People/ and Environmental Quality).



PLATE (8.2): Street as setting, Bath, U.K.. (Photograph by the author).



PLATE (8.3): The spaces make the "street" as setting most unlikely, Leeds medium-rise housing, U.K.. (Photograph by the author).

relates to privacy through its influence on the performance of activities.

The critical question for planners and designers, is how to create a residential environment that would give a sense of identity and belonging to the individual, family, and community as a whole. To set the norm of behaviour in a relaxed and voluntary way, one needs to have control over what can occur during his performance of activity.¹ It suggests that perceived zones of 'territorial influence' reinforce attitude and behaviour. Thus, the implementation of 'defensible' space concept within and without the dwelling would be likely to work positively.

The question is not just to create independent unrelated closed spaces, but rather to introduce a 'zoning' control that would facilitate the performance of activities in their related 'controlled' zones while allowing for smooth interaction between different realms³⁰. As it appeared in many of the housing estates in developed countries, higher densities can be accompanied with difficulties to control and defend territories. Practically, people cannot handle finite relationships and the limitation of community group seems logical to allow the development of intimacy and belonging. For the sake of economy and technical efficiency a number of 20 dwellings has been suggested for the group cluster, but this has to be taken with caution in relation to different cultural settings³¹.

Controlled territories, i.e. 'defensible' space, can be achieved through architectural design. Real and symbolic devices can be implemented to define areas of activities for particular users. Walls, doors, fences, plating, as real or symbolic barriers, light stands and texture as symbolic ones help to perceive zones of transition and influence, dictate expected behaviour and provide safety for both users and passers-by by avoiding conflict³² (see Plates 8.4-8.17 and

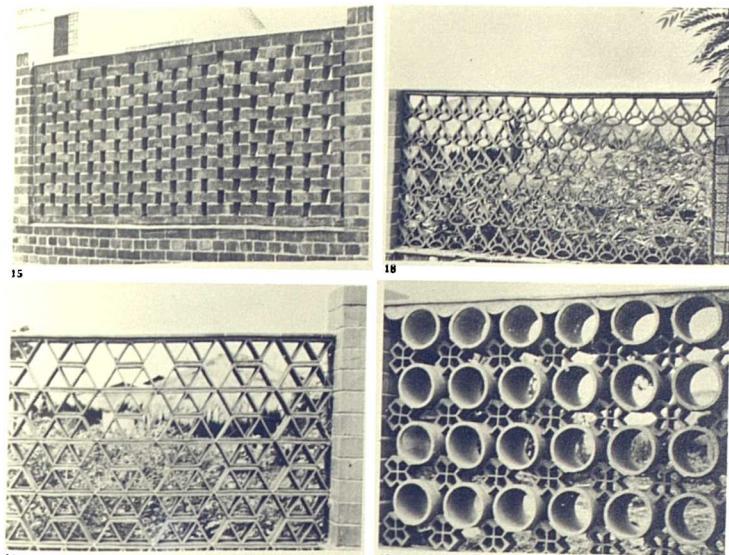


PLATE (8.4): Territories can be defined and controlled by perforated screen walls. Such walls sometimes can be used as linking features between buildings. With careful design of the size of openings they can almost act as one-way viewing barriers, vision depending upon distance from the screen. (Reprinted from Plants/People/ and Environmental Quality).

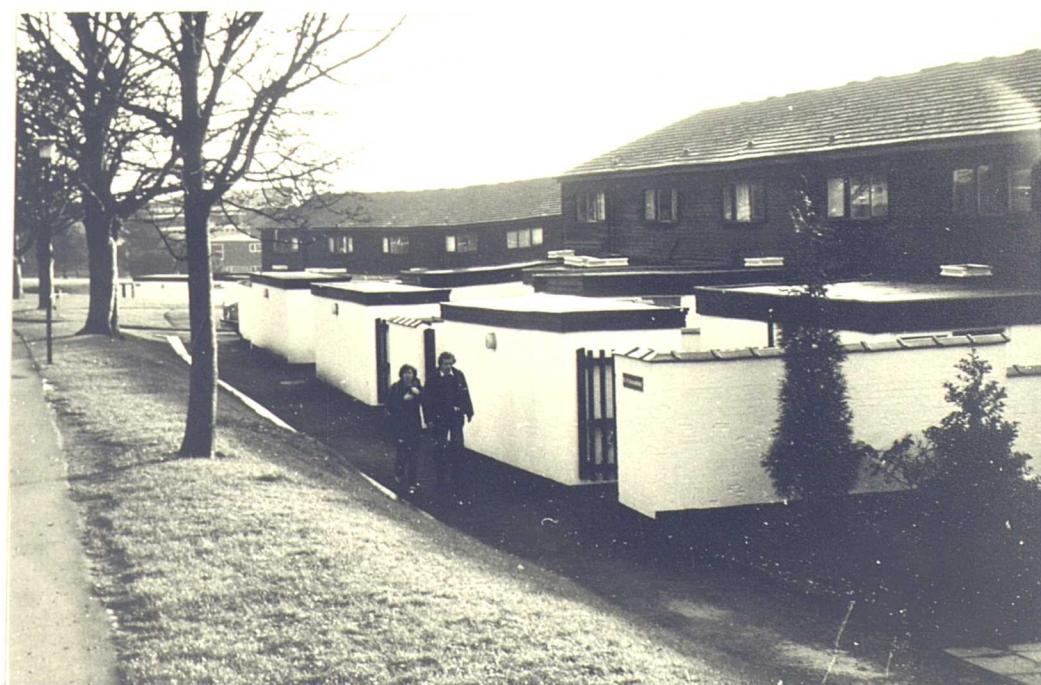


PLATE (8.5): Solid walls are the common territory controller. They provide visual and, if of adequate mass, acoustical privacy. Student hostel, University of York, U.K.. (Photograph by the author).



PLATE (8.6): Solid walls, fences, and plants can be used to define and control territories physically, whereas texture and furniture can be utilised to personalise spaces. (Reprinted from Plants/People/ and Environmental Quality).

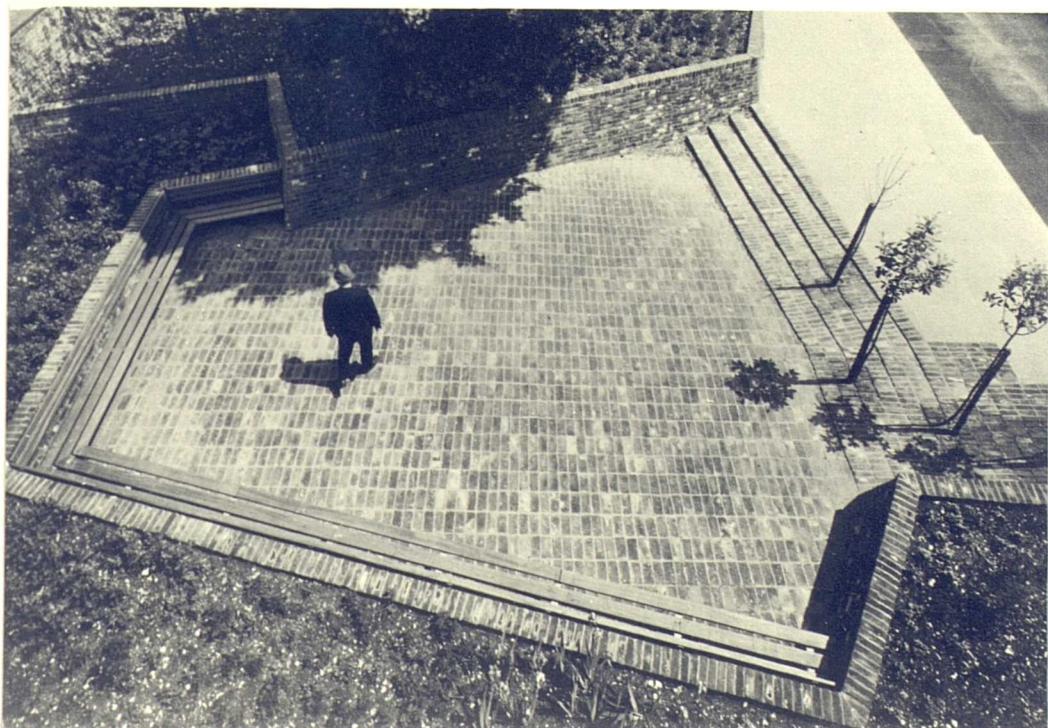


PLATE (8.7): Paving, walls and planting can form a pleasant resting area. levels are useful in defining space symbolically. Andover town centre: a resting space removed away from the mainstream of traffic. (Reprinted from Plants/People/ and Environmental Quality).

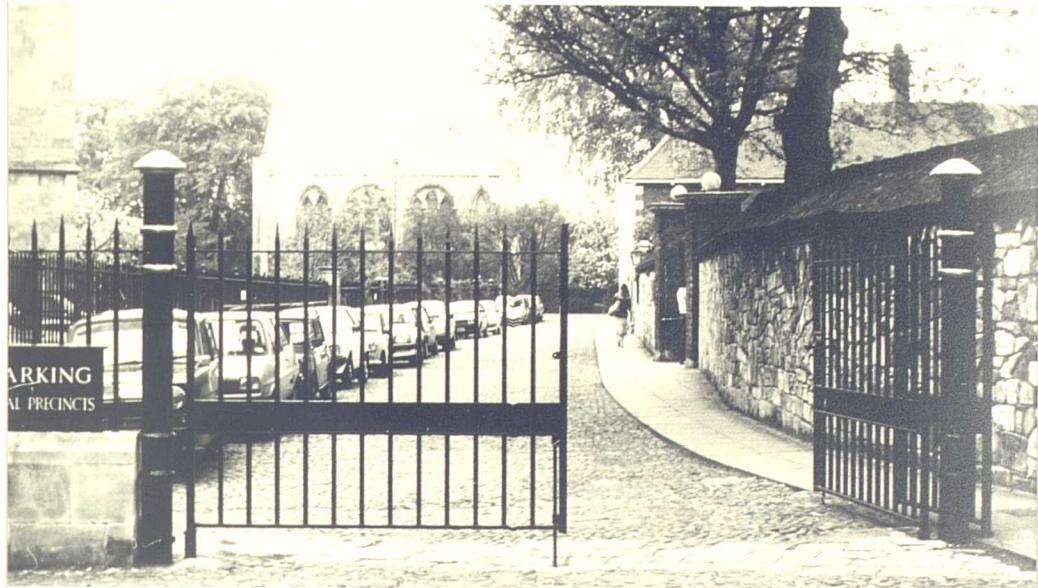


PLATE (8.8): The use of gates is one of the old and successful means of defining a territory and controlling accessibility. Here, the use of materials with different texture strengthen the symbolic character of the realm, York Munster, U.K.. (Photograph by the author).



PLATE (8.9): Open screen wall links between buildings and defines the space behind it. The use of planting adds to the symbolic character of the territory, Arhus University, USA. (Reprinted from Plants/People/ and Environmental Quality).



PLATE (8.10): Here, different types of real, symbolic, complete and partial controllers are used. The barrier blocking the street allows only pedestrians to pass through an old-age housing area, York, U.K.. (Photograph by the author).



PLATE (8.11): An effective circulation 'filter'. The concrete posts has been made to replace a solid wall to allow visual surveillance for safety reasons, York, U.K.. (Photograph by the author).



PLATE (8.12): The low wooden fence, texture added by hard surfaces and plants and colours all are personalization features for the front gardens., Terrace housing, York U.K.. (Photograph by the author).

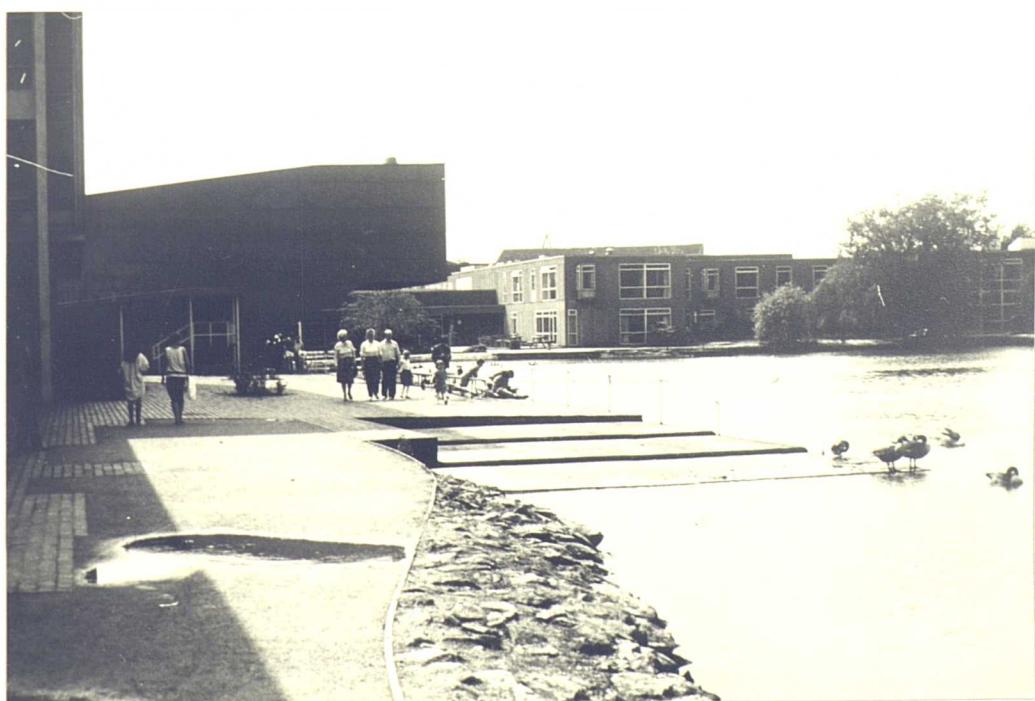


PLATE (8.13): Different textures of hard surfaces can define spaces and strengthen their symbolic character. Here the use of different materials provided rich texture to the area.. University of York, U.K.. (Photograph by the author).



PLATE (8.14): Plants, texture, lamp posts and furniture can help identify territories and increase livability if space, York, U.K.. (Photograph by the author).



PLATE (8.15): The use of solid barriers, such as walls, and the combination of texture and colour can render spaces as private territories and control accessibility. (Reprinted from Plants/People/ and Environmental Quality).

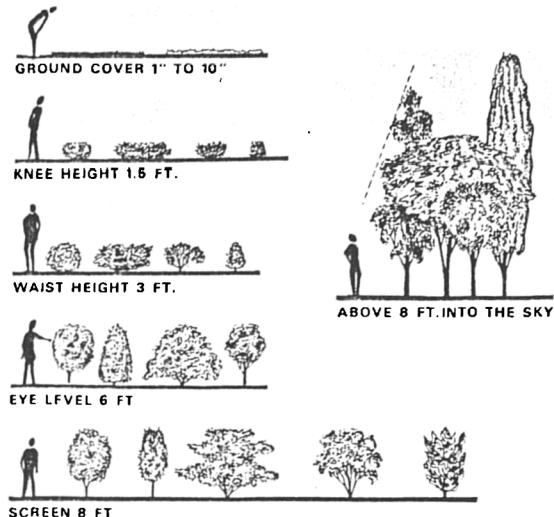


PLATE (8.16): The proper use of planting can provide a sense of containment, visual and acoustical privacy. Here the plantain screens off the public from the students hostels, amphitheatre at the University of York, U.K.. (Photograph by the author).

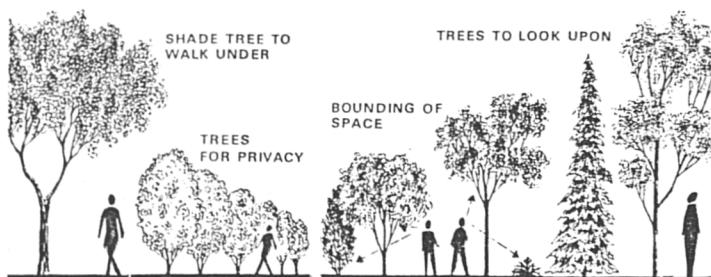


PLATE (6.17): Plants can, also, be used to screen off unpleasant views. Here a car park at the University of York, U.K.. (Photograph by the author).

SELECTING PLANT MATERIALS



PEOPLE



The ultimate height of plants is an important consideration in determining their possible architectural potential.

Type, age, and condition of the plant determine the degree to which an individual plant filters or blocks a view. Spacing, density, volume, height, and width of the planting determines the degree to which a group of plants filter or block a view.

FIG. (8.5): Plants if used appropriately can provide visual and acoustical privacy. Type, age, condition, spacing, ultimate height and width of plants determine the degree to which they filter or block a view (source: Plants/People/ and Environmental Quality).

Fig. 8.5). There are three physical design elements, acting individually and together, if implemented and integrated properly, would likely provide a secure residential environment. These elements are:

- (a) the territorial definition of space, i.e. the creation of clear identifiable zones;
- (b) correct positioning and treatment of building openings, i.e. to facilitate control of territories and sensual exposure;
- (c) suitable building forms, i.e. to assist the definition of zones, control of visual exposure and security (see Plates 8.18-8.20).

(The house is part of the urban anatomy in the way that a vital organ is part of a living centre - for example, the lungs in the mammal³³.)

The concept of the 'controlled' space, or zone, can follow a 'hierarchical' system from the most private to the most public domain, e.g. from dwelling to street. For a designer to produce a meaningful and efficient territory control, he has to view buildings and grounds as an organically integrated and interrelated whole.

8.2.11 Hierarchies of Control and Joints

The domains of urban environment, beside the possibility to explain them in terms of function or need, also, can be described in terms of physical properties which may be directly perceived. The conflict between these properties can be very real and sharply drawn. The integrity of each space and the preservation of its special character is governed by the physical elements that provide separation,



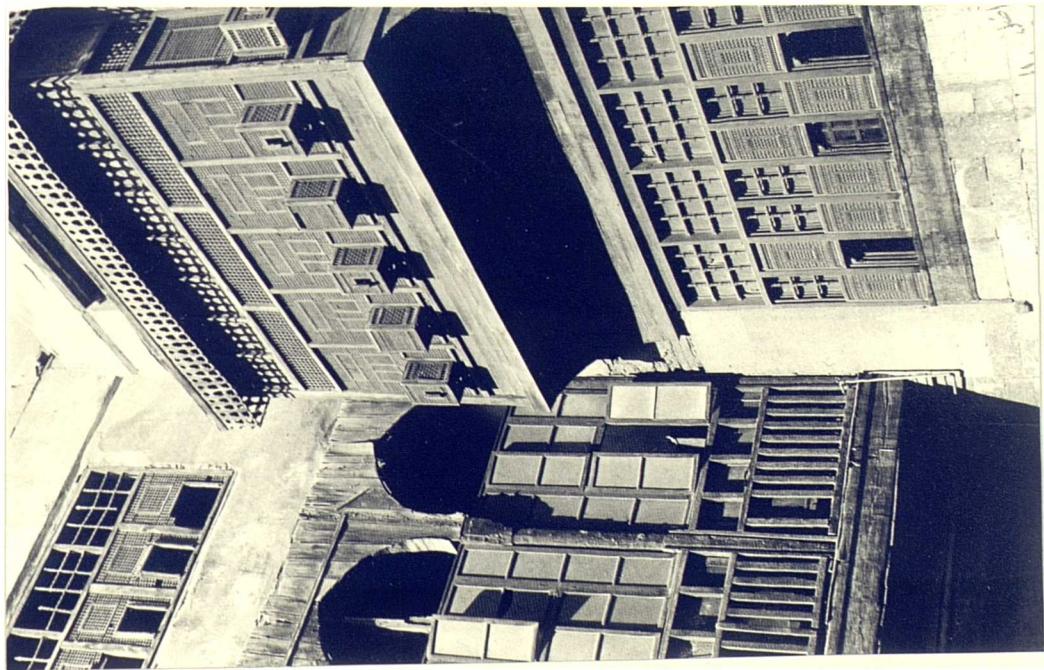
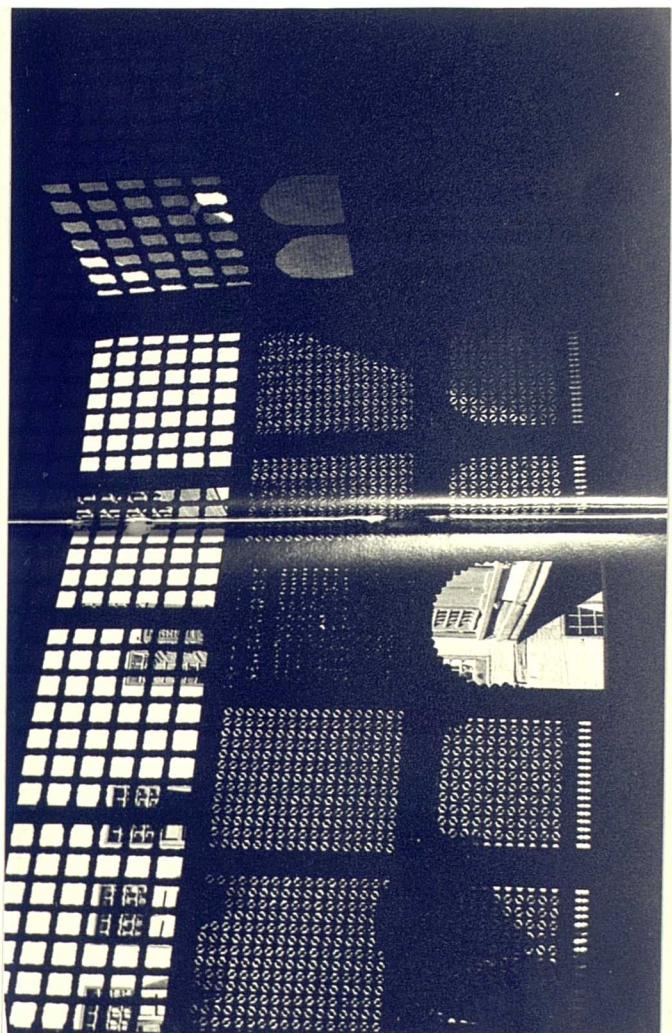
PLATE (8.18): The relation of the dwelling to the street, i.e. the public domain, is culturally relative. The blank walls of Tozeur, in Tunisia, exemplify the way the Islamic house turns its back upon the 'outside world' (after Grube, E. J., Architecture of the Islamic World).



PLATE (8.19): In contrast to the Tunisian dwelling (above), the British house's door and windows face the street, York, U.K.. (Photograph by the author).

PLATE (8.20):

The provision of one-way view can be achieved through the proper treatment of openings. An example of this, the transparent screens so characteristic of Islamic houses are due partly to the need of visual privacy. The view shows the exterior (left) and the interior (right) of similar Mamluk windows in Cairo. (after Grube, E. J., Architecture of the Islamic World).



insulation, access and controlled transfer between domains.

("For all kinds of control, it is roughly true that the smaller the domain to be controlled, the more controllable it is. ... Each kind of control has a natural hierarchy with it. The extent of control over climate, for example does not vary smoothly with size of the domain to be controlled although it is roughly true that the larger the domain, is the less controllable it is, there are also places where the control drops very suddenly in the domain gets larger and other places where there is only slight change³⁴."

Following Chermayeff, it could be said that the same provision of visual & acoustical privacy is hardest in a large space and easiest in a small one. Similarly, the "room" can be isolated, whereas the "dwelling" is open to all kinds of functional interchange, that make it relatively much less controllable. Accordingly the "room" becomes a critical point in the hierarchy of privacy control. The same concept can be applied at the level of community. The smaller the number of dwellings and people in the cluster, would be the easier to control. Hence, the aim should be to achieve the smallest cluster as possible that would support sense of belonging and motivate community co-operation.)

The approximate separating device between domains works in the manner of 'joints' with each of its own special form. Terms like baffle, barrier, buffer, screen, filter, transfer points, lock, junction, terminal, serve to distinguish them roughly. The joints between domains, as physical elements of no less importance, give the plan its hierarchical structure.

8.2.12 The Anatomy of Dwelling

The dwelling has to be a series of carefully organised realms, each with its own integrity. Such integrity of domestic domains, which is to encourage concentration, contemplation and self reliance rather than inhibit them, must begin by respecting differences in age, sex and

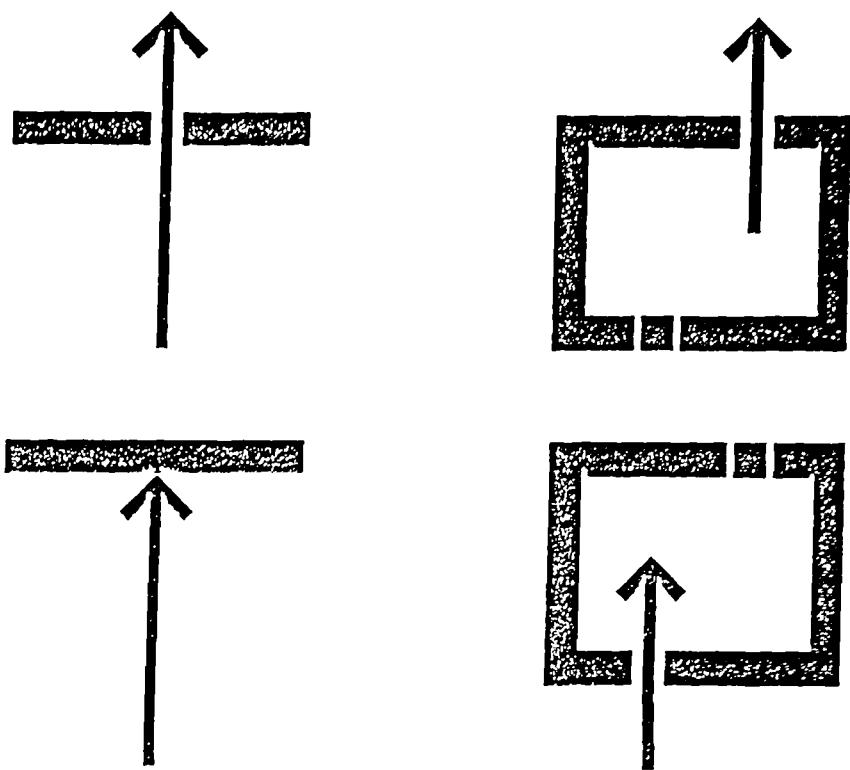


FIG. (8.6): Diagram of sequence of development from the barrier to the lock (after Chermayeff, S.. Community and Privacy. Community and Privacy).

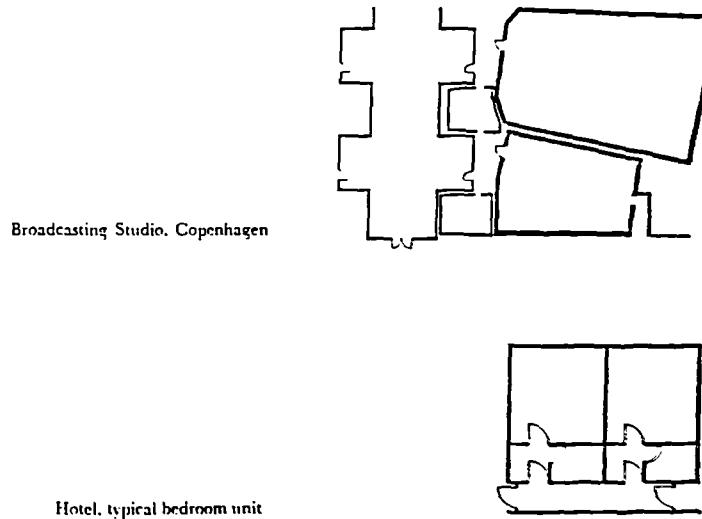


FIG. (8.7): Examples showing the use of locks in broadcasting studio and hotel typical bedroom unit (after Chermayeff, S.. Community and Privacy).

interest. Secondly, every dwelling must contain an acoustic hierarchy, closely linked to the enjoyment of air and light. The appropriate implementation of 'locks' and 'barriers' between various functional realms is necessary for the achievement of the desired level of privacy.

The idea of 'locks' between different activities as a planning device is not new. Sterilisation locks in hospitals, acoustic locks in broadcasting studios to separate traffic noise and locks in hotels since long have been in use. In all these situations, however, the lock is virtually a passage: a secondary transition between the major zones of activities. The intention here is to consider the lock as important as any other functional zone.

Similarly, the barrier is an old familiar form. The most efficient total barrier is the wall, which may as a security measure, visual barrier and, when of adequate mass, as acoustic barrier (see Fig. 8.6-8.7).

(a) A room of one's own:

The optimum control of privacy would suggest that each family member should have his own private place for retreat from social pressure. The integrity of the 'bedroom', as a realm of solitude, for rest, sleep and love, must be restored.

(b) The outdoor room:

An outdoor space within the dwelling can be an essential element due to climatic, economic, social or psychological reasons. In such cases, an outdoor space concomitant to each indoor realm would likely raise the degree of 'habitability' of the dwelling system [1].

(c) A family common place:

As the notion of privacy oscillates between community and withdrawal, the provision for voluntary togetherness is necessary. The diversity of interests that occurs in the average family of adults and children requires the provision of separate domains in which either group may be left decently to its own private devices. For voluntary or necessity communalities between these groups a 'family common place' must be provided. As was explained previously, if the situation necessitates, this realm may require its concomitant outdoor room. It can be suggested that, the lock or buffer zone needed between the private and the world of the family can accommodate all of the common place facilities: storage for personal possessions, facilities for washing, et al.

(d) Climatic hierarchy:

In formal interaction conditions the individual must be suitably dressed to conform with social traditions as well as climate. On the other hand, the same person in solitude might be undressed as he wishes. Although the aspect of climate is out of the scope of this work, it is worth noting that, the design for comfort could follow the pattern of bodily exposure. The same concept of hierarchy of control mentioned earlier can be applied to the hierarchy of climatic control in the private realm in relation temperature, humidity and air movement. A good level of bodily comfort would likely raise the level of privacy possible.

8.2.13 Applying the Principle

From the previous discussion, generally, it is possible to distinguish between five privacy zones that affect the

organisation of the dwelling. These are:

1. the family public =[Chermayeff's semi-private]. (where family members meet acquaintances and make casual socialisation, e.g. on the adjacent street/space.);
2. the family semi-public, (where family guests are received and entertained);
3. the family group-semi-private, (where all family members are entitled to free access, e.g. where individuals come together to entertain or discuss family affairs);
4. the family group-semi-private, (where a family group retreat for intimacy, e.g. a couple to make love); and
5. the individual-private, (the innermost sanctum where individuals retreat from 'others').

These zones may all or partially be displayed in the family realm, depending on stage of family development, economic affordability, life style and other factors.

As was stated earlier, the dwelling privacy can only be achieved through a hierarchical organisation and clarity of realms. The need for visual and acoustical privacy assume the insulation of the dwelling from the 'outside world' by barriers that cut view and reduce noise, e.g. the use of high solid walls. Link to the 'outside world' can be maintained through a 'lock' or indirect access (see Fig. 8.8.a).

The category of sex and the notion of segregation between the different sexes, when having visitors suggest two

different domains of the 2nd. order, one for males and another for females. A clear distinction between zones and appropriate visual and acoustical privacy maintenance would call for similar solutions as suggested earlier (see Fig. 8.8.b)

The 3rd calls for a common place where the family members can come together voluntarily. As this area involves a wide range of activities, noisy or quiet, hence it needs to be insulated from other parts of the dwelling, especially the male guests, female guests and individuals domains (2nd and 5th). This assumes high solid walls between zones 2,3 and 5. The use of a lock would help prevent visual and acoustical exposure between these realms (see Fig. 8.8.c). If the females guests domain is not available zone 3 can be used for such a purpose. For example, this can be achieved by the use of 'masharabia' (timber lattices).

Also , the zone 4 involves a variety of activities, some of which can be of very intimate nature and where certain exposures between the group members are not appreciated in front of 'others'. This call for visual and acoustical insulation between this zone and other ones, especially 1 and 2. Access to zones 3 and 5 assumes a controllable lock (see Fig. 8.8.d)

As for the 5th zone, it is the most private realm where the individual withdraws from social pressure or to pursue a task that demands concentration. This suggests that the area should be insulated from local noise and visual exposure to avoid distress and distraction. This assumes insulating walls and controllable 'lock' for access to zone 4 (see Fig. 8.8.e). Although, the general theory of privacy indicates that such zone is essential to the individual anatomy (see Chapter 5), it may not exist as an independent realm in many dwellings due economical, social and other constraints. In such cases 'jurisdiction' and temporal rhythm is used to

satisfy the need for retreat. Figure (8.9) shows suggested privacy zones and locks for the dwelling of communities in question.

This principle can be applied to upgrade privacy system of existing housing stock or design a new residential setting. For example, see changes made in the house shown in (Fig 8.10a-j), designed previously by the author and built in a third class area, to adapt as much as possible to suggested zoning criteria.

In the previous design, the outdoor spaces were not differentiated and visual exposure of internal courtyards can not be avoided when using main entrances. On the other hand, there was no proper locks between the different domains. Moreover, the use of clear glass in upper floor windows and the low level of the parapet did not provide proper visual privacy for the users and neighbours. To upgrade the livability of dwelling space, screen walls were suggested for the gates and three courtyards were provided of which one is for children and acting as a buffer zone between men and women sections. The toilet in the ground floor was separated for males use only, whereas female guests are to use the toilet introduced in the upper floor. While timber lattices were suggested for the upper floor windows, the parapet wall was raised to a level higher than the individual height. Also, the spaces on the roof terrace were differentiated (see Fig. 8.10).

8.2.14 Towards Integration of the principle.

The integrity of the family domain can only be achieved through the proper organisation of the urban space as a whole. As was clarified earlier, this can be achieved by hierarchical organisation and a clear differentiation between zones the provision of proper barriers and transfer

points. The relation between the different urban realms, as suggested by Chermayeff is shown in (Fig. 8.11)

For example, this can be applied to upgrade the situation in Hara-2. In the existing plan there was a complete lack of differentiation and control over the space between buildings. The suggested solution proposes the separation between the public and semi-private realms, creation of semi-private space and separation between vehicular and pedestrian movement, as shown in (Fig. 8.12.a-c).

8.3 FINAL CONCLUSIONS AND RECOMMENDATIONS

8.3.1 Introduction

In the light of the evidence received, some recommendations were made on the considerations for designing and planning for urban family and community privacy. However, there are some further suggestions and final conclusions to be made concerning design, planning and implementation of standards for urban residential environment in Sudan. Also, a critical appraisal for evaluation of architectural plans of dwellings has been suggested.

8.3.2 Further Suggestions and Final Conclusions

Careful architectural planning must take the following recommendations into consideration:

1. The family unit, as primary social and cultural attribute, must be given priority as regard to housing form, design and space requirements.
2. Besides satisfying privacy requirements the control device must meet the requirements of thermal comfort.

FIG. (8.8a):

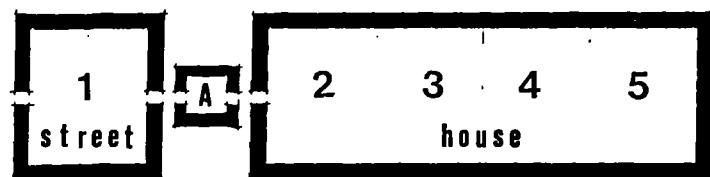


FIG. (8.8b):

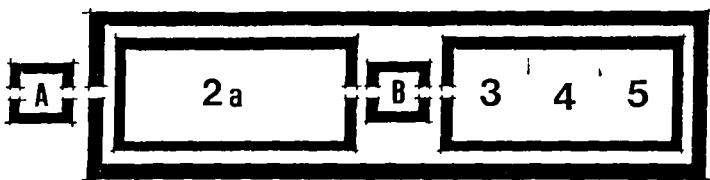


FIG. (8.8c):

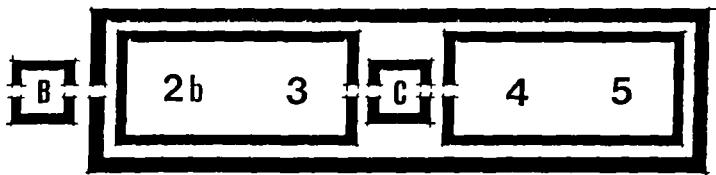


FIG. (8.8d):

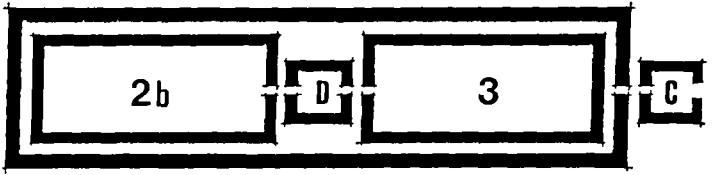


FIG. (8.8e):

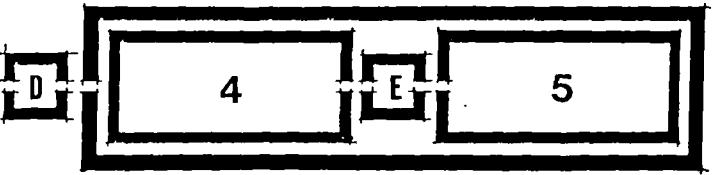


FIG. (8.8): (a-b)

Anatomy of the dwelling: privacy zones and locks- as areas of transition. all co-operate in a biological order of a living organism (the bold lines represent visual and sound barriers).

1, 2, 3, 4 = privacy zones (areas of transition)

A, B, C, D, E = locks

 = visual and sound barriers

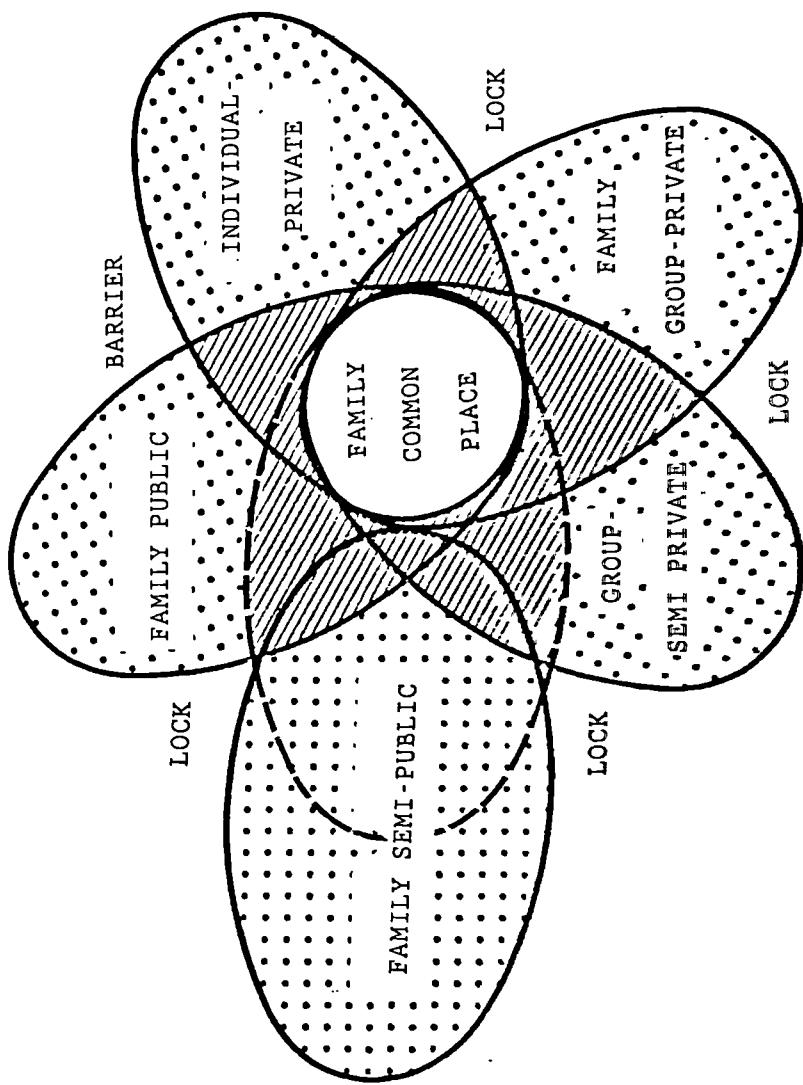


FIG. (8.9) : ANATOMY OF DWELLING: SUGGESTED PRIVACY ZONES AND LOCKS.

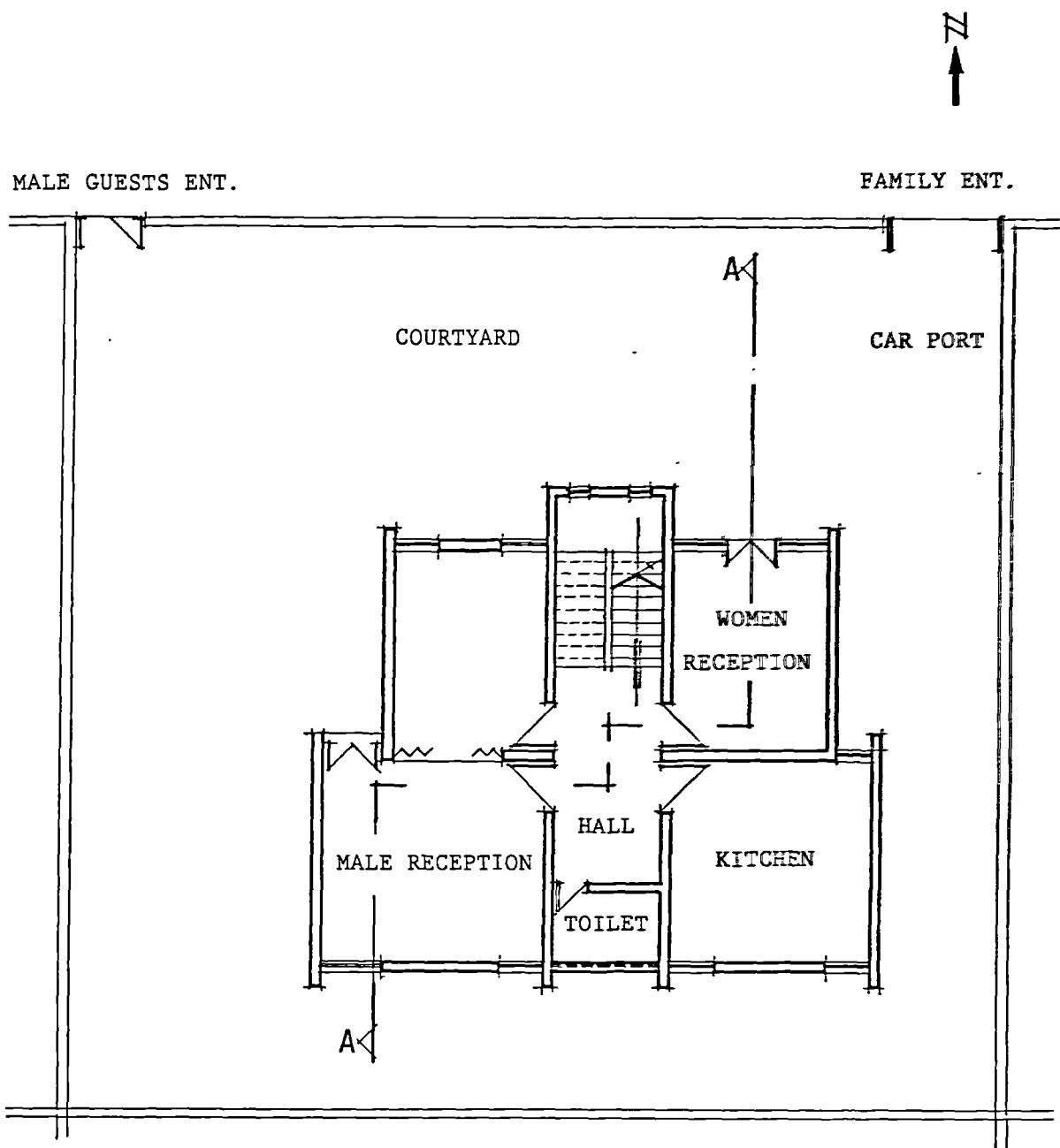


FIG. (8.10a): GROUND FLOOR PLAN (before modulation).

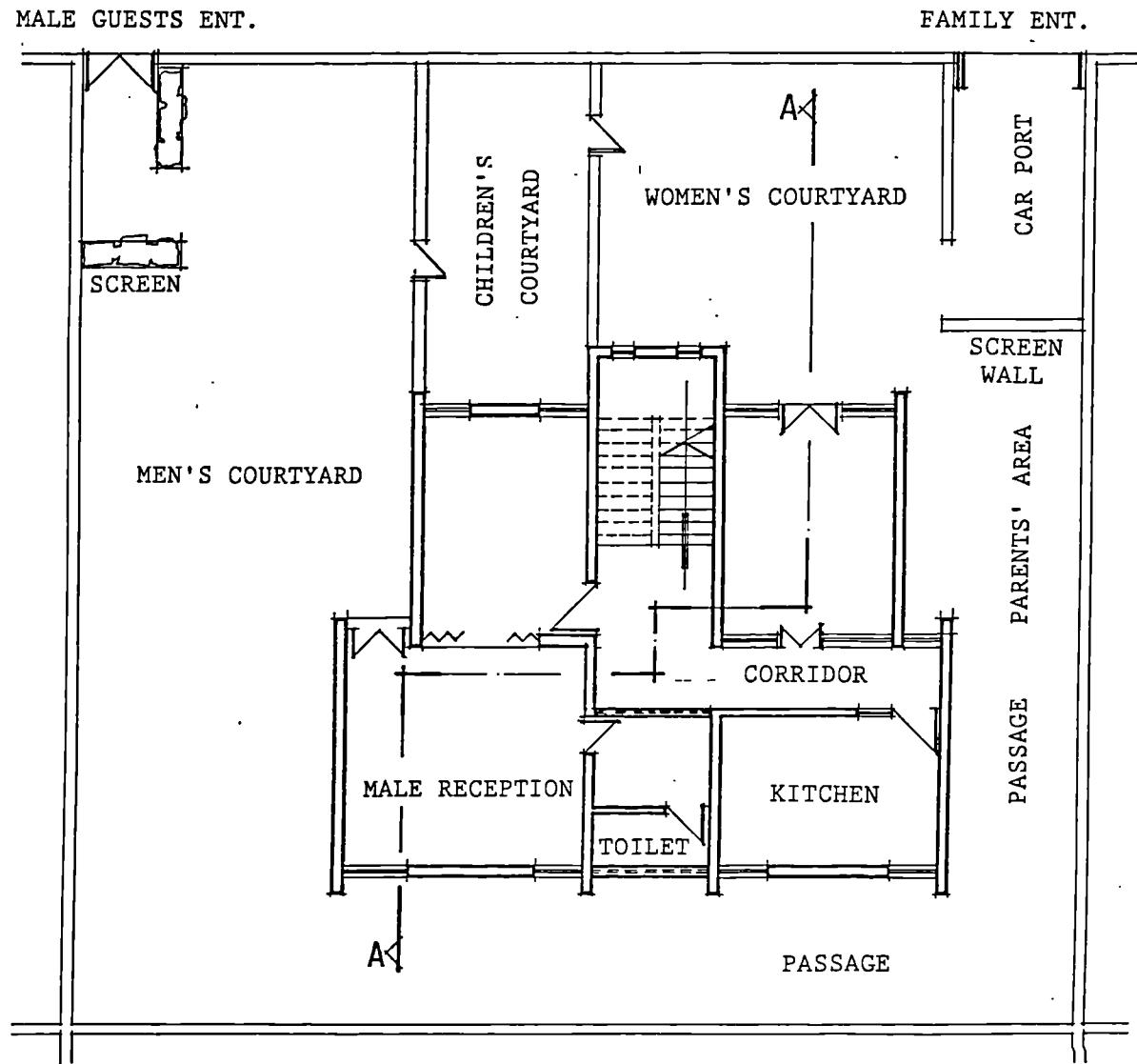


FIG. (8.10b): GROUND FLOOR PLAN (after modulation).

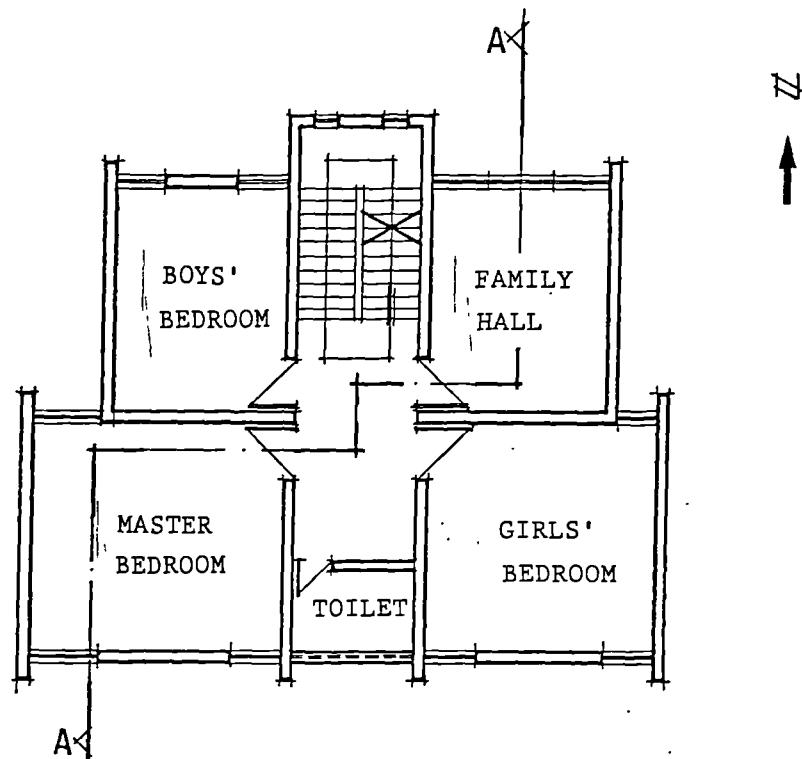


FIG. (8.10c): FIRST FLOOR PLAN (before modulation).

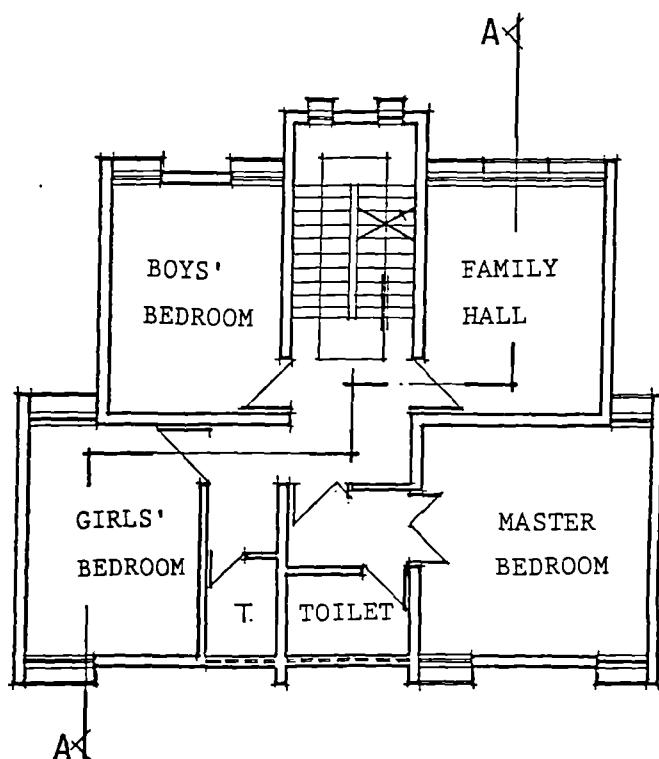


FIG. (8.10d): FIRST FLOOR PLAN (after modulation).

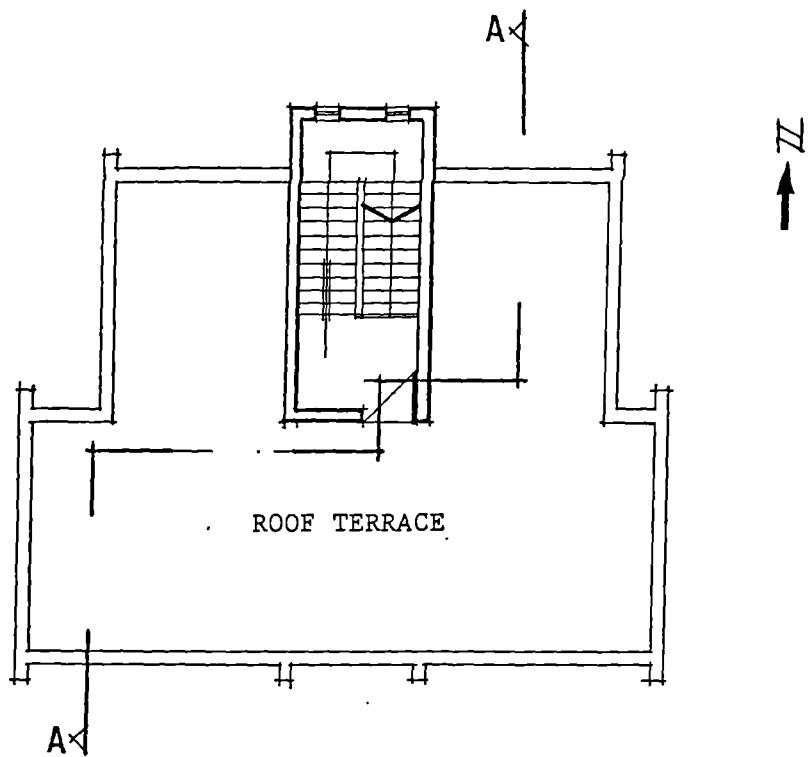


FIG. (8.10e): ROOF TERRACE PLAN (before modulation).

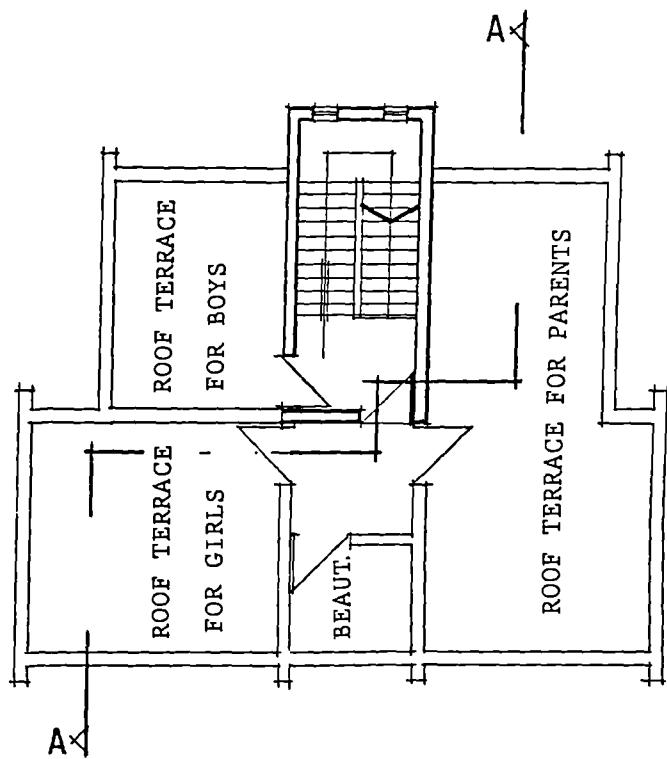


FIG. (8.10.f): ROOF TERRACE PLAN (after modulation).

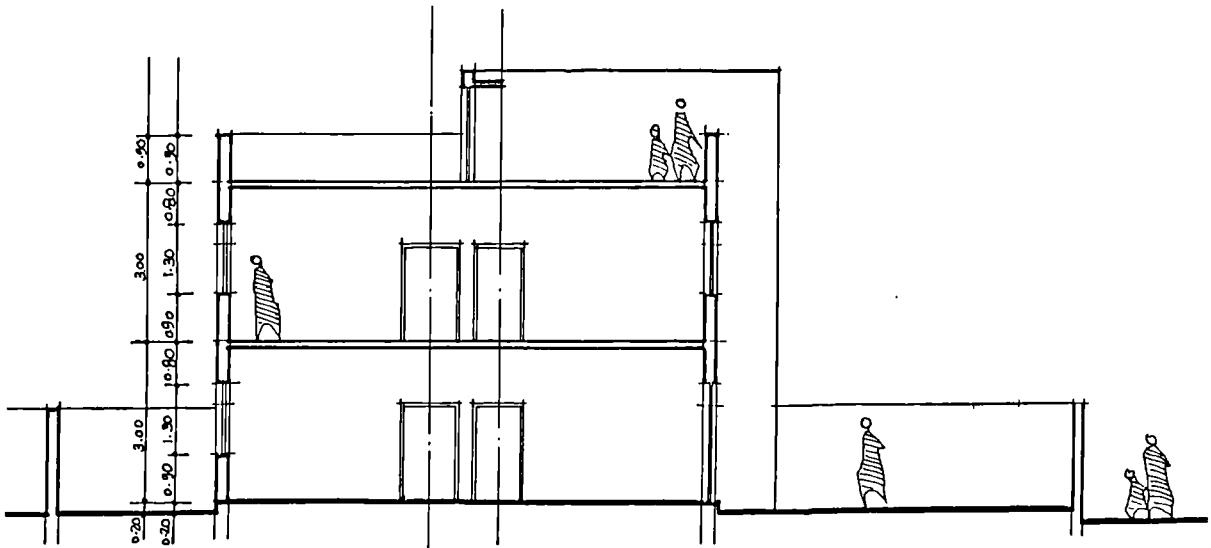


FIG. (8.10.g): SECTION A-A (before modulation).

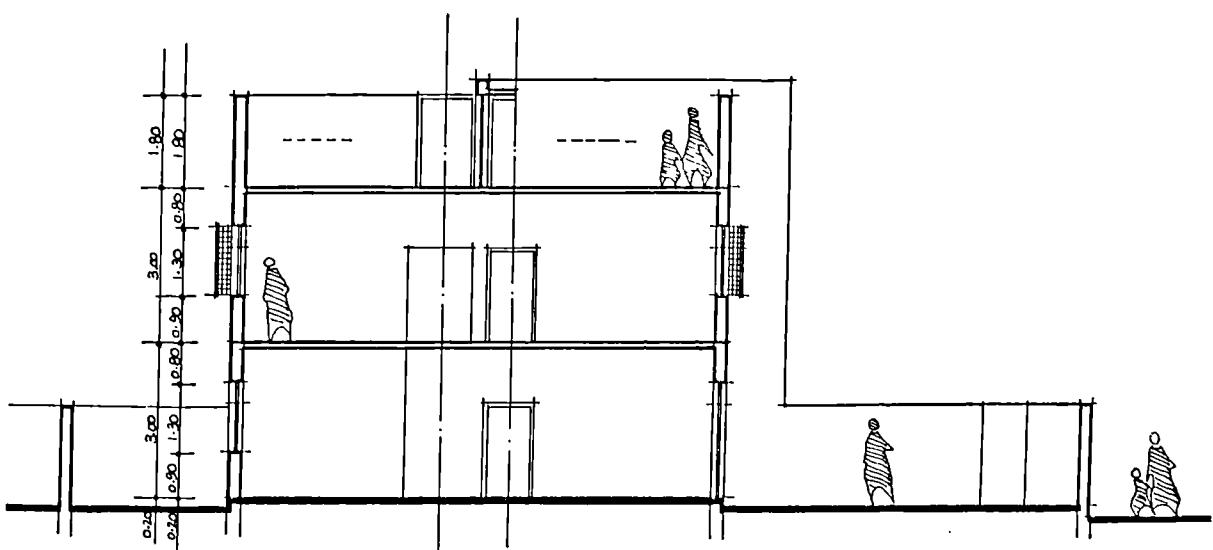


FIG. (8.10.h): SECTION A-A (after modualtion).

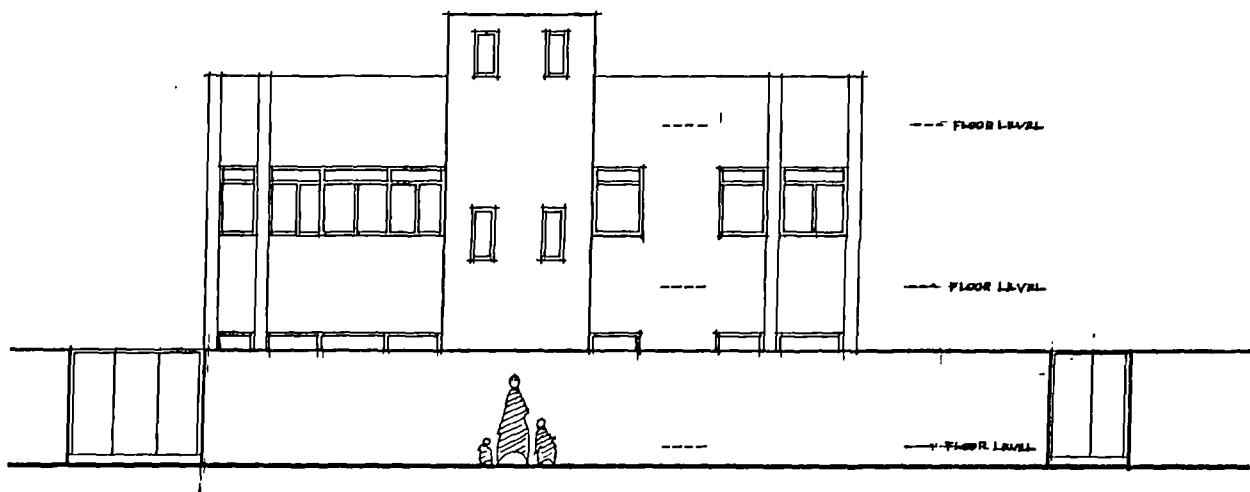


FIG. (8.10i): NORTH ELEVATION (before modulation).

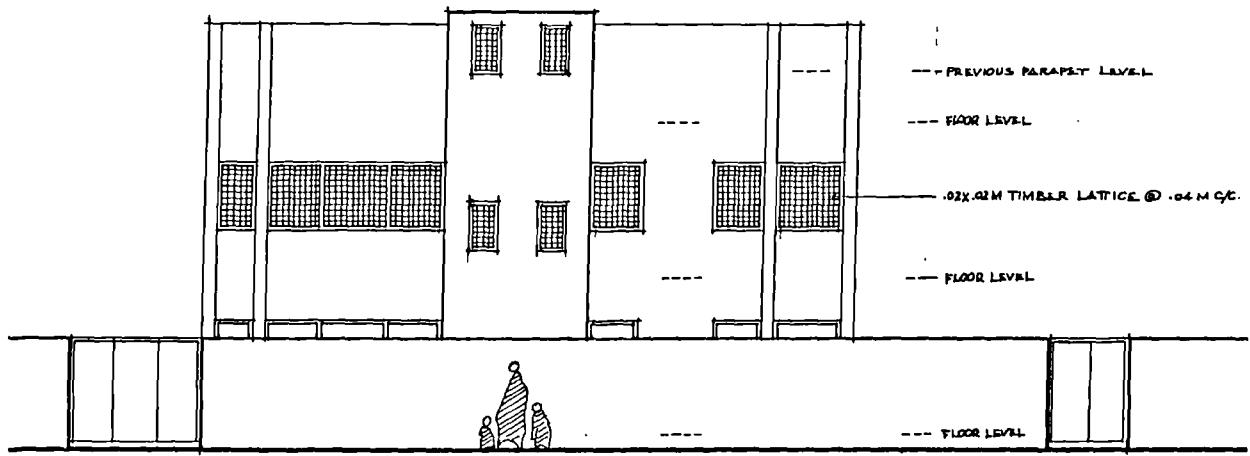


FIG. (8.10.j): NORTH ELEVATION (after modulation).

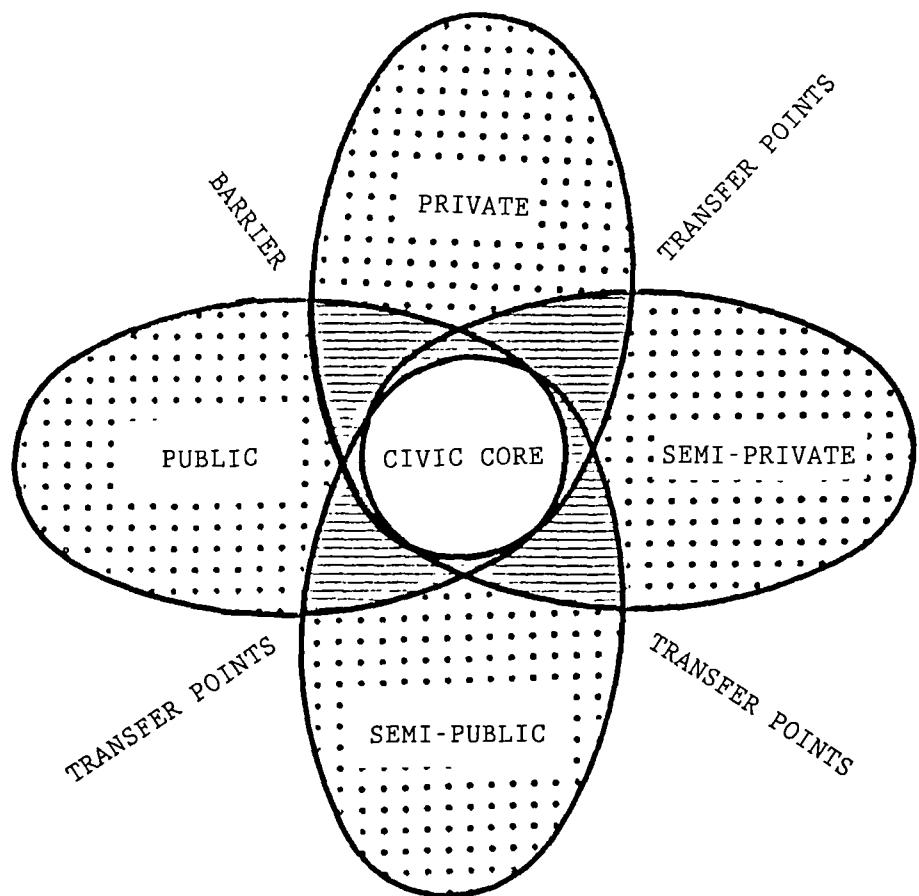


FIG. (8.11): ANATOMY OF PRIVACY: AREAS OF RESPONSIBILITY
(after Chermayeff, S., Community and Privacy).

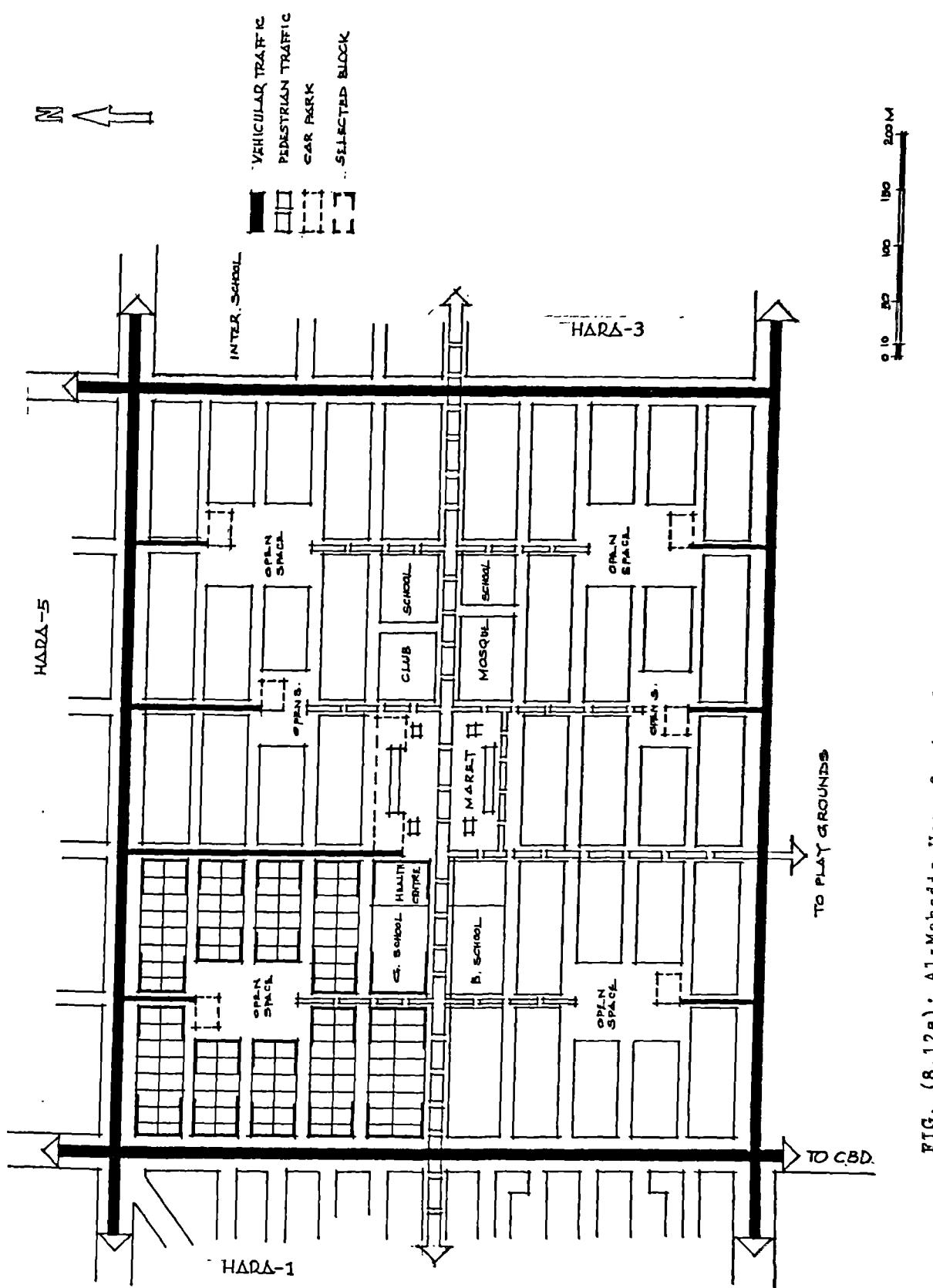


FIG. (8.12a): Al-Mahadia Hara 2 circulation plan (after modularization).

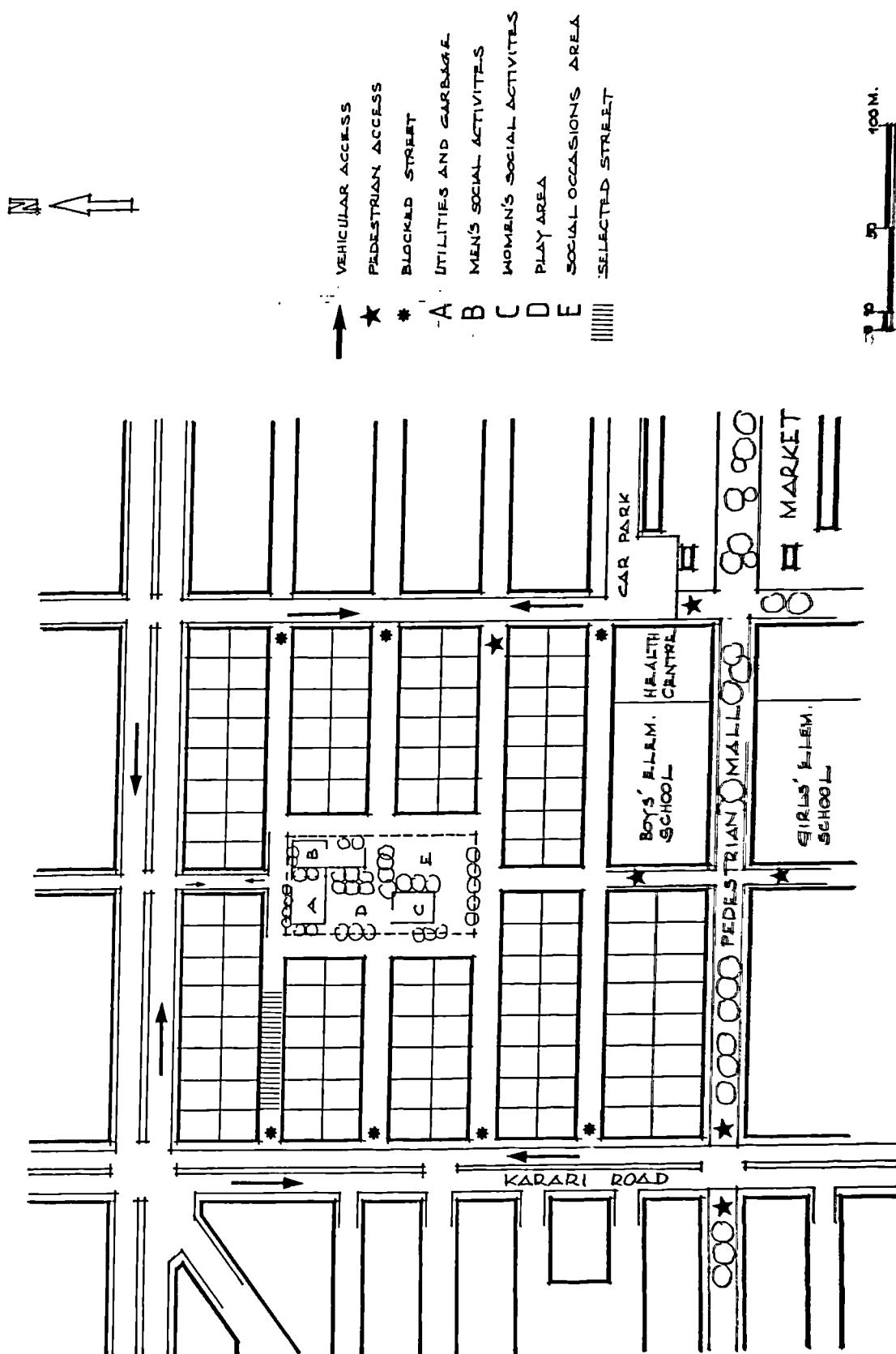


FIG. (8.12b): Selected block plan (after modulation).

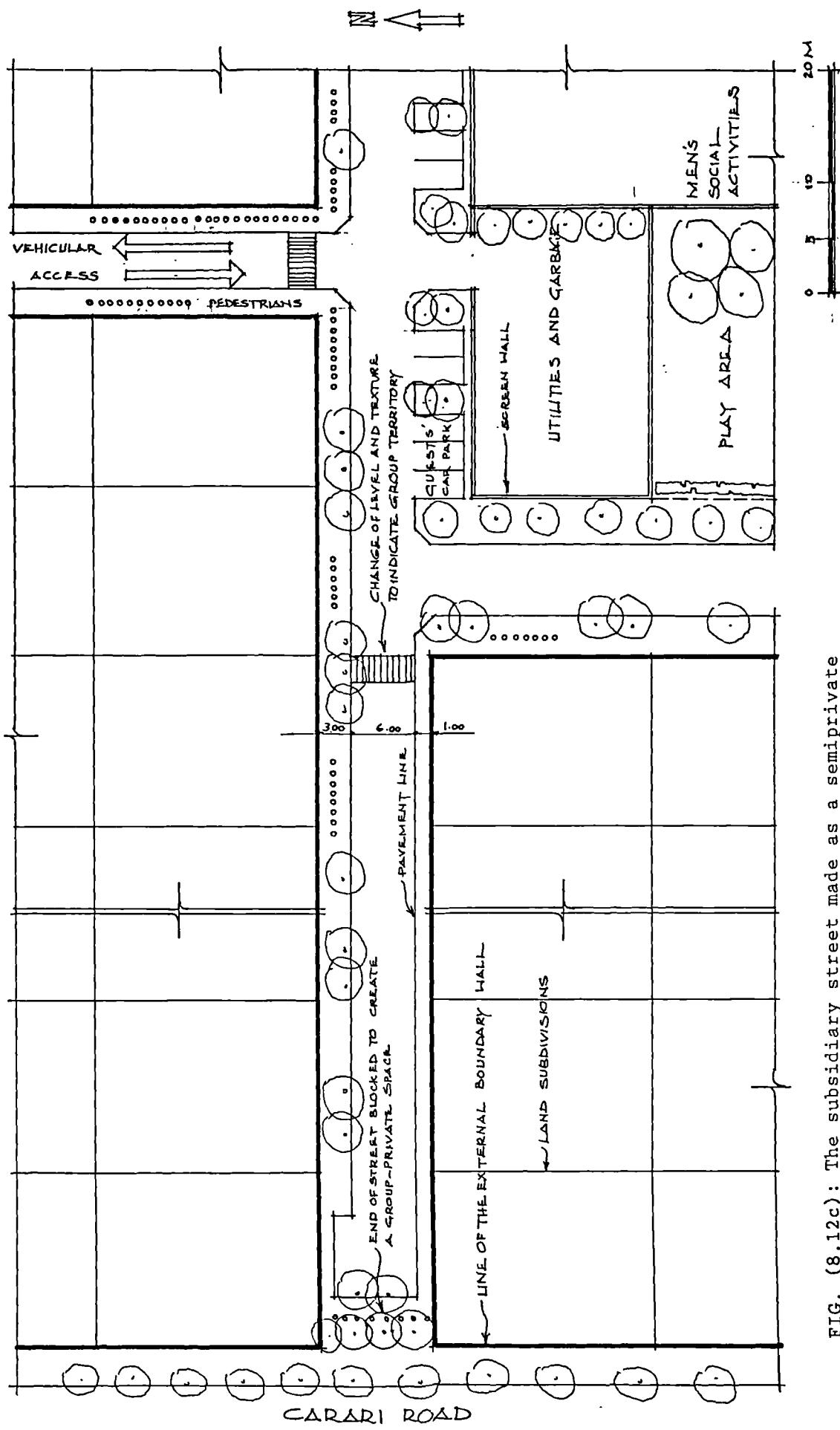


FIG. (8.12c): The subsidiary street made as a semiprivate space (after modualtion).

day lighting, natural ventilation, reflected solar radiation, weather protection, maintenance considerations, economy and aesthetic appearance.

3. The arrangement of the whole building layout and the orientation of elevations should 'balance' between the socio-cultural demands and the rules of physical environment.
4. The optimum size and distribution of window and door, is the one which is easy and flexible to control, whenever a certain level of privacy is sought.
5. Treatment of fenestration for the sake of privacy can help improve shading device requirements.
6. As it, also, proved climatically beneficial, the 'inward' looking courtyard building form can help maintain a private atmosphere for its occupants³⁵.
7. Non-inhabited space, whenever possible, should be used as a buffer zone between major domains.
8. Deep room arrangements can be used to reduce the possibility of visual exposure, as they are, also, climatically beneficial³⁶.
9. Relatively small openings reduces visual exposure and intense radiation³⁷.
10. Windows should be set high and shielded, especially on the side facing the public realm, to prevent overlooking, as this can, also, protect from direct and ground radiation³⁸.
11. Openings should be tight closing to cater for acoustical privacy, security as well as protection against high diurnal heat³⁹.

12. Vegetation is desirable both as a territory demarcator, radiation absorbent surface and for its evaporative and shade giving properties which can increase the habitability of group domains as well as for open spaces inside the dwelling⁴⁰.
13. Housing policy must offer guidance and assistance if housing with a reasonable habitability is to result, e.g. tenants can be guided to make best use of the space available in their territory.
14. Local architects and town planners should be made aware of the significance of the socio-cultural dimension in the making of residential environment.
15. Before designing or planning, it is necessary to explore social values orientation and its possible implications on planning and design of residential environment.
16. Flexible open-ended design is recommended to cater for changes in personal values and family structure.
17. Privacy to be controlled by an organic system ranging from the individual's room to the public space considering both physical and social environments, i.e. (social and physical together form a living system).
18. High rise buildings are not recommended as they may lead to poor privacy, existence of zones and right of others perception, beside their economic and technical problems⁴¹⁻⁴² that are difficult to cope with in the existing situation of the country.

19. The family life-cycle and the need to provide separate spaces for different age/sex groups activities should be considered.
20. The possibility of future expansion for children or branch family should be considered.
21. Design and planning should provide for more variety in the sizes and types of houses produced to meet the requirements of different types and sizes of households.
22. More attention must be given to the socio-cultural significance of the open spaces inside and outside the dwelling and how to reflect that through the manipulation of spatial layout and control.
23. The semiprivate open space outside the dwelling must be viewed as an extension of the tenant accommodation, especially for children to play, casual socialisation and performance of ceremonial occasions, and must be planned and designed to allow easy access, safety from vehicular traffic and control of privacy for its users.
24. The provision of practical and efficient means of sanitation and refuse collection would likely increase the level of habitability of residential environment. Such provision must take into consideration the possibility of future growth.
25. Housing standards have to be flexible enough to allow for different types of family requirements and resources as well as the change in standard of living and family expectations. For example, the roofed space standards could be related to the family cycle

while the plot could be sized in anticipation of future growth.

26. House sharing, is for some families a social and economic necessity. It can also compensate for the use of extra space in the dwelling resulting from different stages in the family cycle. Flexible policies, regulations and standards should be set to allow for such a need with the view that minimum conventional privacy standards, beside other basic needs, must be met, especially for the shared facilities, if any at all.
27. If a prefabrication system is to be used, it must be an 'open' ended one, i.e. a system which is not merely designed to produce standard dwelling types. It must be sufficiently flexible to be used by architects to meet a wide range of users requirements. It should be reasonably adaptable to future change.
28. If housing units are to be provided by any sort of programme, the dwelling should, at least, satisfy privacy minimum and provides a good pattern for future expansion.
29. Building materials used in housing should facilitate the control of privacy and yield themselves to dwelling extension.
30. Since the authorities have failed to maintain open spaces successfully, it would likely be beneficial to extend the territorial influence of tenants to maintain and control adjoining spaces.

8.3.3 The Critical Appraisal

The critical appraisal is meant to help develop, produce and evaluate dwellings architectural plans that are suitable for privacy of the Sudanese Communities in question. We are looking at plans from the point of view of organisation; we are not looking for structural or mechanical specification or aesthetic values. It is meant to see whether the dwelling plan provides the proper separation of 'realms' and appropriate transitions and barriers between them so as to assure their individual integrity and hence promote the enjoyment of retreat in the same manner as Communality. A scale ranging from 0 to 7, where 0 for very bad, 3.5 for moderate and 7 for very good considerations of privacy can be applied on different levels:

- (a) access;
- (b) activity domain, e.g. room;

in relation to the categories of:

- (a) visual privacy
- (b) auditory privacy
- (c) interruption privacy
- (d) olfactory privacy

The analysis can be geared in either way, towards the upper spatial elements or the lower privacy categories. Taking the mean value of the scale for each element in either level will indicate the 'fitness' of that element, i.e. either by relating privacy to space or space to privacy. A collective mean for the whole of each level will reflect the 'fitness' of the 'dwelling system'. To apply the

critique, the following questions are to be asked in each instance, i.e. for each plan [2]:

1. Can the Household private dwelling, as a whole, be isolated from neighbours and passers-by? Question of audio-visual privacy interruption and security between Household members and 'strangers'.
2. Can space(s) allocated for cooking be isolated from the males guests' domain? Question of audio-visual privacy between the different sexes.
3. Is the space(s) allocated for cooking directly accessible from the family/women's domain? Question of visual privacy between household females and male guests.
4. Can the space(s) allocated for women's' eating (including women guests) be isolated from the rest of the dwelling? Question of audio-visual privacy and modesty between the different sexes.
5. Is the space allocated for women's' eating (including guests, if any) directly accessible from the family/women's' domain?
6. Can the spaces allocated for sleeping be isolated from the rest of the dwelling? Question of audio-visual privacy between Household individuals, household groups and individuals, household groups and groups, and between different sexes, (including visitors, if any).
7. Can the space(s) allocated for excretory functions be isolated from the rest of the dwelling? Question audio-visual and olfactory privacy and modesty

between household individuals and between the different sexes (including visitors).

8. Is the space allocated for excretory functions directly accessible to male guests from the males guests' domain? Question of visual privacy in relation to the opposite sex.
9. Is the space allocated for excretory functions directly accessible to females from the females' domain(s)? Question of visual privacy in relation to the opposite sex.
10. Can the space(s) allocated for bathing be isolated from the rest of the dwelling? Question of visual privacy between household individuals and between groups, e.g. couples.
11. Is the space allocated for bathing directly accessible to males guests from the males guests' domain? Question of visual privacy between the opposite sexes.
12. Is the space allocated for bathing directly accessible to females from the females' domain(s)? Question of visual privacy between the opposite sexes.
13. Can the space(s) allocated for 'intimate' private household group relations e.g. intimate and sexual relations, be isolated from the rest of the dwelling? Question of audio-visual privacy, modesty and interruption between the household groups.
14. Is the space allocated for 'intimate' private household group relations directly accessible from

the related group domain? Question of visual privacy interruption and modesty.

15. Can the living space(s) allocated for men be isolated, as either a quiet or a noisy zone, from the rest of the dwelling? Questions of audio-visual privacy between different sexes and separating sounds of conversation, reading, 'listening' and looking from silent occupations.
16. Is the living space allocated for males guests' directly accessible from the males guests' domain? Question of interruption and visual privacy between the opposite sexes.
17. Can the living space(s) allocated for women be isolated from the rest of the dwelling? Questions of audio-visual privacy between different sexes and separating sounds of conversation, reading, 'listening' and 'looking' from silent occupations.
18. Is the living space allocated for women directly accessible from women's' domain(s)? Question of interruption and visual privacy between the opposite sexes.
19. Can the space(s) allocated for washing, drying and ironing clothes be isolated from guests' domains? Question of visual privacy.
20. Can the space(s) allocated for 'Dukhan', i.e. beautification, be isolated from the rest of the dwelling? Question of smoke and visual privacy between household females and visitors and between the different sexes.

21. Is the space allocated for 'Dukhan' directly accessible from the family/women's domain? Question of interruption and visual privacy between males guests and females.
22. Can the space(s) allocated for 'Henna', i.e. beautification, be isolated from visitors domains? Question of visual privacy between household females and visitors.
23. Is the space allocated for 'Henna' directly accessible from the family/women's domain? Question of interruption and visual privacy between males guests and females.
24. Can the space(s) allocated for studying and reading be isolated, as either a quiet or a noisy zone, from the rest of the dwelling? Questions of interruption and separating sounds of discussion and reading from silent occupations.
25. Is there a "lock" to the parents' private domain? Question of interruption and audio-visual privacy.
26. Is there a buffer zone between children's private domain and the parents private domain? Question of noise.
27. Are the outdoor spaces private and differential? Question of interference and audio-visual privacy between visitors and family, children and adults and individual and family domains.
28. Is the children domain directly accessible from outside so as not to interfere with adults' private and family domains? Question of noise and interruption.

29. Can the males guests' domain be isolated visually and acoustically from the rest of the dwelling? Questions of audio-visual privacy between males guests and household private domain (family/women), males guests and family individuals' domains, males guests and females guests domains and between different sexes, as general, i.e. avoiding overlooking, overhearing, separating sounds of conversation, 'listening' and 'looking' from silent occupations.
30. Is the males guests' domain directly accessible from the outside, i.e. street? Question of visual privacy and interruption in relation to household individuals', household groups', and different sexes' domains.
31. Can the family/women's (household private) domain be isolated acoustically and visually from the males guests' domain? Questions of audio-visual privacy between males visitors' and household's private domain, i.e. avoiding overlooking and overhearing.
32. Is the family/women's domain directly accessible from the outside? Question of visual privacy and interruption in relation to family individuals', family groups', and different sexes' domains.
33. Can the females guests' domain be isolated, visually and acoustically, from the rest of the dwelling? Question of audio- visual privacy between females guests and males guests, females guests' and household individuals' or groups' domains and between different sexes, as general, i.e. preventing overlooking, overhearing, and separating sounds of conversation, 'listening' and 'looking' from silent occupations.

34. Is the females guests' domain directly accessible from outside or the family/women's domain? Question of visual privacy and interruption in relation to household individuals', household groups' and different sexes' domains.

To apply the critique, the plan and its adjusted graph are needed. The plan shows the spatial layout and orientation of openings, whereas the adjusted graph simplifies the system of access. For example, the significance of visual privacy in relation to access for the house in (Figs. 7.48 a-b) can be found as follows:

Question No.	Category of privacy	Spatial Element	Score	Comment
	Visual	Access		
3		2-16	7	
5		2-12-11	7	
8		1-18	7	
9		2-23-5-19	6	
11		7		
12		2-23-5-19	6	
14		6-13	7	
14		3-15	7	
16		1-10-9	7	
18		2-12-11	7	
21		2-7-8-17, 2-12-8-17	6	
23		2-12-11	6	
29		21-4-3-15	6	
31		21-1	7	
33		21-4-3-7-2	6	
35		21-4-3-7-2	5	
16	Total		104	

$$\text{Average visual privacy significance for access} \\ = 104/16 = 6.5$$

Therefore, it could be concluded from this result, the house has, approximately, very high visual privacy for access. Other privacy categories could be worked out in similar way.

8.4 DIRECTIONS FOR FURTHER RESEARCH

If privacy is fundamental for the development of meaningful social relationships, intimacy, personal autonomy, mental health, creativity and promotion of liberty, then its realisation in planning and design of the built environment also becomes a fundamental issue⁴⁴. The notion of privacy brings forward many related aspects that still need further investigation. One of the major goals of the built environment is to serve human relationships, which involve privacy problems. Understanding the nature and magnitude of such relationships and how they affect the built form is necessary towards the achievement of a liveable built environment. The magnitude and nature of social relationships is culturally variant and involves aspects of value and meaning.

Further investigation is needed to reveal the nature and meaning of such relationships and the corresponding significance and symbolism attached to the built environment. To design and plan for privacy it is necessary to collect information about what is offensive, how control is granted and used conventionally⁴⁵⁻⁴⁶, type of information to be controlled, what would be gained and what would be lost in respect to the character of interpersonal relationships. Space, time and relation are major aspects of urban organisation and behaviour⁴⁷. Thus an understanding of time, space and relation enter into an understanding of the city. How it is shaped and it is used call for further investigation. The image of public-private is of great significance in relation to environmental desires, choices and standards, i.e. perceived environmental quality⁴⁸. Further research is needed into what is recognised as private or public by different individuals and groups at different urban levels to discover similarities and differences that can help make appropriate zoning. The image

of an ideal play a major role in evaluation and preference influencing activities, life style, habitat and design⁴⁹. Studies on value direction at individual and group levels is essential for capturing elements involved in the ultimate satisfaction and preference with social and built environment.

Also, the effect of perceived density and proximity needs more study to discover the suitable size and spatial relationships of physical and social categories. As was clarified before, a 'fit' residential environment can only be achieved through 'organic' planning and design, where both social and physical categories work in integration and balance. Hence it is necessary to make studies on how can the designer and planner best satisfy both socio-cultural, climatic, economic, structural, etc., forces involved in the built form.

This study was mainly concerned with socio-cultural variables, attitude and experience and their interplay with the built environment. It will however be of some use if similar studies are carried out on a wider range of residential contexts.

8.5 FINAL REMARKS:

If the provision of residential environment is meant to provide for human satisfaction and to enable people lead a meaningful life, then paying attention to socio-cultural aspects is of basic importance. Taking in mind such a reality , the contribution of this study is not so much in the quantitative results that have become apparent, but rather in the theoretical and qualitative considerations which underlined these results. The analysis and evaluation of survey have supported the hypotheses put forward at the beginning of this work. Moreover, the study has brought forward the problem of privacy, which is overlooked or

undermined by many designers and planners, and highlighted its crucial importance in maintaining a liveable residential environment. However, these results to be useful they need to be reviewed and updated according to changing situations.

Finally, one can say that designing and planning for privacy is a step forward towards a meaningful and satisfactory built environment.

REFERENCE NOTES

- [1]. Here, indoor spaces refer to liveable ones, e.g. where the individual can sleep.
- [2]. The questions may seem repetitive, because they are of two-way nature, e.g. A is isolated from B and B is isolated from A.

REFERENCES (8)

1. Rapoport, A., Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form and Design. Pergamon Press, PP. 44-45.
2. Allsop, B., Towards A Humane Architecture, Frederick Muller, 1974, P. 3.
3. Jones, M. (ed.), Privacy, David & Charles, Inc., U.S.A., 1974, P. 14.
4. Littman, M., and Carter-Ruck, P., Privacy and the Law: A Report by Justice, U.K., 1970, P. 4.
5. Goffman, E., The Representation of Self in Everyday Life, University of Edinburgh, 1955, P. 123.
6. Chermayeff, S., and Alexander, C., Community and Privacy, Doubleday and Co., Inc., U.S.A., 1963, P. 84.
7. Swartz, B., The Social Psychology of Privacy. American Journal of Sociology, Vol. 73, May 1968, PP. 741-752.
8. Allsop, B., Ibid, P. 37.
9. Tuan, Y., Space and Place, University of Minnesota, 1981, PP. 102-107.
10. Porteous, J. D., Environment and Behaviour: Planning and Everyday Urban Life, Addison-Wesley Company, Inc., U.S.A., 1977, PP. 294-297.
11. Sachs, I., Culture, Ecology and Development: Redefining Planning Approaches, in Altman, I., and others (eds.), Human Behaviour and Environment, Plenum Press, U.S.A., 1980, PP. 319-336.
12. Allsop, B., Ibid, P. 37.
13. Porteous, J. D., Ibid, PP. 61-65.
14. Rapoport, A., House Form and Culture, Prentice-Hall, Inc., 1969, P. 136.

15. Porteous, J. D., *Ibid*, PP. 294-297.
16. Elias, E. O., *Space Standards in Low-Cost Housing. With Special Reference to Urban Areas of Central Sudan*, Ph.D. Thesis, Vol. 2, University of Edinburgh, 1970.
17. Sachs, I., *Ibid*.
18. Hixon, R. F., *Privacy in A Public Society: Human Rights in Conflict*, Oxford University Press, 1978, P. xiii.
19. Sommer, R., *Personal Space: The Behavioural Basis of Design*, Prentice-Hall, Inc., U.S.A., 1969, P. 28.
20. Porteous, J. D., *Ibid*, PP. 147-211, 294-297.
21. Hathout, S., *Privacy in Housing Design*, Ph.D. Thesis, University of Manchester, 1979, P. 144.
22. Chermayeff, S., and Alexander, C., *Ibid*, P. 114.
23. Duncan, J. S., *Housing and Identity*, Billing and Sons, Ltd., 1981, PP. 5, 191.
24. Sunlight and Daylight, Planning Criteria and Design of Building, Department of Environment, London, HMSO, 1977.
25. Brieley, K., *Space About Housing*, Built Environment, September 1974, PP. 401-403.
26. Porteous, J. D., *Ibid*, P. 134.
27. Watts, K., Function Control SFB AC2, Architectural Journal, 23 October 1963.
28. Plants, People and Environmental Quality, U.S. Department of Interior, Washington, D.C., 1972, P. 18.
29. Elias, E. O., *Ibid*.
30. Canter, D., *The Psychology of Architecture*, London Press, 1966, P. 43.
31. Chermayeff, S., and Alexander, C., *Ibid*, P. 145.
32. Chermayeff, S., and Alexander, C., *Ibid*, P. 143.
33. Borlin, B. C., and others, *Mass House: Social Research Design*, Architecture Forum, 129, July/August 1968, PP. 66-71.
34. Chermayeff, S., and Alexander, C., *Ibid*, P. 144.

35. Inward looking layout can benefit from cool air pool effects (see Ahmed, A., Low-Cost Housing Policy Planning and Design Criteria, Ph.D. Thesis, University of Sheffield, 1976, PP. 138-139).
36. For the effect of climate see Ahmed, A., Ibid, P. 139.
37. For the effect of climate see Ahmed, A., Ibid, P. 139.
38. For the effect of climate see Ahmed, A., Ibid, P. 139.
- 39 For the effect of climate see Ahmed, A., Ibid, P. 139.
- 40 For the effect of climate see Ahmed, A., Ibid, P. 139.
41. Hassan, M. M., Culture, Behaviour and Urban Form, Ph.D. Thesis, University of Sheffield, 1979, P. 352.
42. A Lift to A High Society, The Guardian, March 2 1988, P. 23.
43. Ahmed, A., Ibid, P. 315.
44. Gavison, R., Privacy and the limits of law, in Philosophical Dimensions of Privacy, I bid, PP. 247, 360.
45. Shoeman, F. D., ed., I bid, P. 75
46. Fried,C., Privacy [a moral analysis], in Philosophical Dimensions of Privacy, I bid, P. 219.
47. Rapoport, A., Human Aspects of Urban Form, I bid, P. 44.
48. Rapoport, A., I bid. P. 45
49. Rapoport, A., I bid. P. 45