

**AN INVESTIGATION OF APPROPRIATENESS RELATIVE
TO INDIGENOUS AND MODERN HOUSING IN LIBYA**

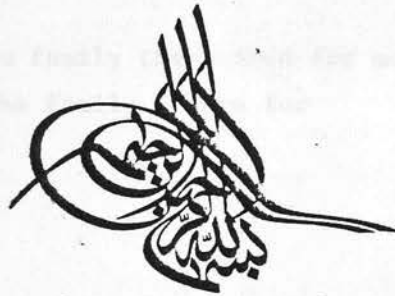
Thesis submitted for the
DEGREE of DOCTOR OF PHILOSOPHY

by

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In the name of Allah, the most Merciful, the most Kind.



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AN INVESTIGATION OF ARCHITECTURAL RESPONSE

**To the family that cared for me
and the family I care for**

1992

Date 1991/1992

Abstract

Space and the physical surroundings in which we live have an enormous bearing on our comfort and well being. However, for those whose housing and urban environment are incompatible with their behaviour and culture. However, taking on change is difficult when dealing with such an important aspect of life. The study aims to find the way in a long term solution to the housing crisis - a way not just of recovery, but of relevance of form.

A detailed review of architectural, historical and socio-cultural influences on housing in Libya is given to set the scene for an examination of the present situation. Modern housing developments post-1950s patterns very different in construction and layout from indigenous forms. This background study gives a general insight to the social effects of such housing and provides the ways in which they may be seen, the expectations and aspirations of their occupants.

The focus is on considering the space and form of New Housing with the indigenous courtyard houses, whose development was arrested at the time of the Italian occupation. Decades past, in the courtyard housing areas we live in a two-storey modern and renovated forms previously used in other cultures, are designed to show how they meet certain social and architectural needs also relevant to Libyan society.

While progress should not be prevented, the direction and pace of change should be given thoughtful consideration. Libya's dramatic acquisition of wealth has caused her to lose the spirit of hardworking poverty and harding of earlier years is not to be commiserated but a new one defined by up class individuals.

The clear quality change from the courtyard housing provided a relevant, appropriate space. However, it is still lacking in certain amenities. Modern western style housing is of maximum quality in its design, offers a high level of maintenance and management and will to meet technological and socio-cultural needs.

Designs, forms and values of the 1950s study are used to bring recommendations for the way forward, not as a regression to a situation of arrested development, but to control change and maintain the socio-cultural aspects of the recommendations of design which would ensure a socio-structural capacity of maintaining the culture and traditions of Libyan society.



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Abstract

Space and the physical surroundings in which we live have an enormous bearing on our comfort and well being. Fortunate are those whose housing and urban environment are compatible with their behaviour and culture. However, relying on chance is insufficient when dealing with such an important aspect of life. The study aims to point the way to a long term solution to the Libyan housing crisis - a crisis not just of numbers, but of relevance of form.

A detailed account of environmental, historical and socio-cultural influences on housing in Libya is given to set the scene for an examination of the present situation. Modern housing developments follow Western patterns, very different in construction and layout from indigenous forms. This background study gives a deeper insight to the social effects of such houses and pinpoints the ways in which they fail to meet the expectations and aspirations of their occupants.

The focus is on comparing the space and form of new homes with the indigenous courtyard houses, whose development was arrested at the time of the Italian occupation. Because most of the courtyard housing areas are now in a run-down condition, modern and renovated forms presently used in other cultures, are described to show how they meet certain social and environmental needs also relevant to Libyan society.

While progress should not be prevented, the direction and pace of change should be given thoughtful consideration. Libya's dramatic acquisition of wealth has caused her to lose the reins of development. Poverty and hardship of earlier years is not to be commended but it has been replaced by an alien infrastructure.

Two clear points emerge. Indigenous courtyard housing provides a relevant, appropriate spatial structure but is sadly lacking in modern amenities. Modern western style housing is of insufficient quality to be durable, requires a high level of maintenance and management and fails to meet psychological and socio-cultural needs.

Background notes and analysis of the case study are used to bring recommendations for the way ahead. As well as suggesting a structured network of research establishments to control standards and investigate needs, the recommendations include examples of houses which would provide a spatial structure capable of maintaining the culture and traditions of Libyan society.

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Thanks be to God for the opportunity to carry out this study which I hope will be beneficial to my country. Over the 4 years in which the thesis has been written, I have been indebted to contacts, family and University staff members, too numerous to mention all by name. Particular thanks, however, are due to the Course Director, Robert Smart, for this unwavering support and advice. I would also like to give special mention to Laurie Nisbet, Senior Lecturer, for the patient reading of the text and the interest he showed, and to Dr Peter Aspinall for his suggestions and guidance. To all three, and to colleagues in the Department of Urban design, I am grateful for the opportunities they gave, during seminars, for discussion and feedback. The Computer Department is also gratefully acknowledged for the facilities put at my disposal.

I am indebted to Robert Matthew Johnson Marshall and Partners for supplying materials and data on recent housing developments in Libya. Provision of documents, statistics and background from the Municipality and Housing Department of Musarata also made a great contribution to the case studies. These authorities are warmly thanked along with the Sheikh Muhallahs of areas under observation for their practical and documentary assistance.

To my wife, Amal, I owe the atmosphere of peace and love in which the study was able to develop and to her also much of the background on womens' activities is attributed. To other family members; my son, Abdulhameed, parents; sister, Asmah, ten brothers and parents-in-law, I extend apologies for the long hours of study and thank them for their long-suffering understanding.

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Finally, Geddes' City of Edinburgh, which made me welcome and provided a home from home, must not be omitted from the list of those whose friendship and warmth have made this work a pleasant and fruitful experience.

BIOGRAPHICAL NOTE ABOUT THE AUTHOR

In 1978, the author graduated from Tripoli University as an architect and subsequently worked in his home town of Musarata in the Technical Department. While employed by the Municipality, he was involved in the issuing of licences to build and became the Head of the Planning Department and supervised projects on housing and utilities. Simultaneously, he worked as an architect in a private office.

He represented his area at an International Conference for Architects in Poland in 1980 and was involved with the British company of Robert Matthew Johnson Marshall & Partners in their Libyan projects. The opportunities for visiting many parts of the country and living in different areas made him aware of the deterioration of indigenous housing and the dissatisfaction caused by modern schemes.

With the help of an award from UNESCO, administered by the British Council, he was able to take up postgraduate study at Heriot Watt University in 1982. The results of his MSc on the use of space highlighted problems which required further investigation. The Libyan authorities offered further finance for PhD studies at the same university.

Research for the thesis led him to make visits to Morocco (1986) and Spain (1987) to look at courtyard housing, and also afforded the opportunity to consult the Departments of Housing at the Universities of Rabat, Seville and Cordoba. Visits were also made to the Department of Eastern Studies at Durham University and to several symposia at the University of Newcastle, Department of Housing, on Housing Problems in Developing Countries.

It is hoped that the completed study will be a useful guide and reference for the housing authorities in Libya.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

In many parts of the developing world, where there is an urgent need for new housing, the solution has been to construct modern forms, largely influenced by the philosophy of Western countries in which building technology has reached an advanced and sophisticated level. The use of new methods of construction and the importation of skills and materials have resulted in the multiplication of housing schemes which are incompatible with the culture and environment of the users.

Current thinking on housing design has led to rejection of the diversity of house form found in earlier times, in favour of standard forms which respond to technological advances in building. Changes in Western society, which have accompanied the rapid development of the computer era and the domination of technology, have led planners to believe that their role should be to eliminate unfashionable regional or national variations of design, and to avoid the confusing range of styles prevalent in the 19th century. Purity of line and rejection of "frills" was the trap they fell into.

This Western philosophy has been uplifted into developing countries, regardless of the question of its appropriateness. The average citizen of Libya's coastal or mountain regions is puzzled by these ideas and would certainly fail to be impressed by either the theory behind the plans or by the structures themselves.

Each nation has, through the generations, developed its own unique housing design, fitting with its environment. Even within nations, various

regions have evolved their own particular style. However, the battle between recent housing development and the conservation of cultural characteristics has, more often than not, been won by the developers, despite considerations of history and tradition.

This conflict became evident for the first time in Libya during the Italian occupation when the occupying administration introduced new planning and design practices. Following the declaration of independence, the new rulers favoured "modern" architecture and brought in architects, planners and consultants from abroad to put into operation a radical updating of housing practices, solely for their own uses. The opinions, needs and instincts of the indigenous population and the characteristics of local environmental conditions were, by and large, overlooked.

The result was that, under Italian rule, cities developed in a way that was seen by the local inhabitants as being alien and out of step with their built environment. The new areas became forbidden ground to the indigenous population and were turned into compounds built along the lines of fortified castles.

While isolating the local population, the Italians also chose to ignore their need for housing. Kept out of the new settlements which were carefully planned, spacious and with all the necessary facilities, the Libyan population crowded into traditional quarters, or built for themselves huts on the outskirts of the big cities, in areas poorly serviced and generally run down. It is the inhabitants of these areas that provided the Italians with the cheap labour they required for their projects.

On the departure of the Italians, the new areas were immediately taken over by the emerging Libyan elite who inherited the colonial legacy of a collapsing economy without the necessary means to cope with the issues of development

and progress.

During this post-colonial period, Italian ideas and attitudes towards design and social issues persisted. Whether this was intended or not is debatable, but the fact remains that those who had newly acquired power took control of planning and development decisions over what should and what should not be built. The inevitable consequence was that they became increasingly alienated from their own people due to their failure to understand their native civilisation which, as far as the built environment is concerned, has always produced remarkable solutions.

Society is not static. There are always changes in priorities, shifts of philosophy and the introduction of new ideas. Indigenous housing can reflect such changes if given the chance to develop. Such an opportunity was lost in Libya at this time. No studies were carried out to establish how upgrading of the indigenous house could be managed.

The opportunities presented by the departure of the Italians were lost and the joy triggered by independence was dampened by the realisation that little had in fact changed as far as the majority of the population was concerned. Traditional customs were still regarded as reactionary and the evolution of the indigenous culture was stifled by the absence of any objective. No encouragement of any kind was given to those who wanted to seek their own roots and take pride in their historical past.

Those who had represented the elite in Libya, prior to occupation, lost not only their power and status but also their cultural supremacy. The whole process of urbanisation took on a new urgency with the arrival of the Italians and continued after their departure, when traditional styles were perceived to be primitive and reminiscent of the poor conditions of rural life. Urbanisation became equated with modernisation and, hence, with becoming part of the

developed world through the "International Style".

In the first few years of independence, a certain number of changes took place in Libya's economy, society and politics. However, these were fairly minor compared with the transformations that occurred during the early 1960s after the first barrels of oil were pumped up to the surface. This brought about a sudden increase in the country's wealth which, in turn, led to a far greater potential for development and radical changes in the economy. As J. Wright said at the time:

In less than a decade, a country that has been classified as the poorest in the world had become a major supplier of fuel to those same countries that, a generation before, had fought each other over the oil-bearing desert of Libya for the possession of the oilfields of Western Asia. No wonder that in 1966, a *Giornal di Sicilia* headline complained: "we never knew it; millions of barrels of oil in Libya.

From these same times of economic shifts, date similar changes in the administrative structure of the country. The federations of Tripolitania, Cyrenaica and Fezzan, under the leadership of locally elected *Muhafeds*, were now replaced by ten administrative districts. The name of the country was changed from "The United Kingdom of Libya" to "The Kingdom of Libya". The population in 1963 stood at two million and such a low figure did not justify the former administrative structure consisting of a cumbersome triad of provincial governments liasing with central government.

That arrangement involved the employment of too many civil servants and all too often led to the duplication of administrative structures at the two levels. Each federated state had its own ministerial departments (*Nazarats*) which set their own standards such as, for instance, in education where the standards could vary greatly from one part to another in the absence of any national co-ordination.

The new system introduced was by no means perfect in that there was still some duplication of tasks and overlap of responsibilities. Nevertheless, after the re-organisation, the *Muhafed* became the sole representative of the central authority in his region, with the responsibility of appointing all the personnel required for the functioning of his administration.

As far as housing was concerned, responsibility under the new system was shared between the Ministry of Labour and Social Affairs and that of Public Works and Communications. In 1965, it was finally recognised that this sharing of responsibility was not advantageous and a new Ministry of Housing was created.

Although the government was keen to initiate new housing schemes and to invest heavily in expensive public works, the shortage of skilled and trained personnel coupled with the lack of expertise at the ministerial level, led to poor co-ordination, waste and delays. Some projects were left unfinished and those completed were well below the required standards. The prime example of that state of affairs was the so-called "Idris scheme".¹

During the second part of the 1960s, it was possible for unscrupulous investors to make great fortunes by speculating on the property market. The shortage of qualified civil servants and the absence of legislation protecting people meant that the economy was in a state of "laissez-faire".

Existing divisions between people were increased by the new oil wealth and this study will aim to investigate in detail the inevitable social re-organisation and adjustment brought about by these changes.

¹ Idris - the last king of Libya.

The Libyan army kept a close watch on how the situation was developing in the 1960s and it became obvious that corruption and exploitation were widespread. There was also increasing awareness of the government's inability to cope with the growing social and economic problems.

Finally, on September 1st 1969, the army decided to seize power, abolish the monarchy, suspend the constitution and dissolve parliament. The Libyan Arab Republic was born. Seven years later, a People's Democracy was declared and the country was renamed "The Socialist Libyan Arab Jamahiria".²

1.2 THE NATURE OF THE PROBLEM

The allocation to people of houses which do not correspond to their way of life causes constraints which lead to the loss of pride and status in the community, within families, peer groups and neighbourhoods. A home should provide comfort, protection, security and dignity. If it fails to make these provisions, the very well-being, health and morale of the inhabitants can be seriously affected. The way in which people behave in their environment and their emotional reactions are reflections of their "ego". The style of the home reflects certain beliefs and attitudes. Standing in the community is self-evident from one's home, and mirrors the history of the occupant and his cultural ties with society.

Libya's population, until recently very poor, had formerly dwelt in shelters created according to their means and the local environment. After gaining independence in 1951, the cessation of hostility produced a rise in the birth rate, the age of marriage decreased and life expectancy increased.

²Jamahiria is an Arabic form meaning Republic of "Jamarhir" or "masses".

The resultant need for more housing, particularly in the cities, was recognised by the government, but the means to bring about improvement and expansion were unavailable. There was a shortage of skilled workers, raw materials and modern machinery and technology. Above all, there was no money to buy in the skills and techniques required.

As seen, efforts were made in 1966, after the economic boost given by the discovery of oil in Libya, to initiate a wide ranging Public Housing programme - The Idris Housing Project. However, this ambitious plan foundered largely due to lack of information about the nature of the problem.

Although a survey had produced statistics on housing in 1963, there was no other national census from which accurate population figures could be obtained. Thus the actual requirements were not clear and housing departments throughout the country worked to a standardized pattern of building which could not take into account family history, background, numbers or customs.

As money became more widely available, corruption prevented its efficacious use. Officials responsible for the project saw to it that their own family and friends were well-housed in good areas so that those whose need was greatest were often ignored.

The vast scale of the programme, and its lack of proper management and co-ordination, meant that there was little incentive for lower ranking officials and builders to hold out for quality, to meet time limits or take a pride in their product. Consequently houses were often well below standard, or areas under development would be abandoned with houses half finished.

The poorer people had no power or influence to halt these practices or to voice their needs except through the government. The Revolutionary

government took up their cause and saw the urgency of providing a higher standard of housing which was hygienic and comfortable with modern facilities.

In its Transformation Plan (5 year Government Housing Plan) of 1976-1980, the government wrote the following statement:

The state has endeavoured to provide an adequate house for each family in terms of quality, size and standard, taking into consideration the potential and planned changes of the economic and social conditions, as well as the customs and traditions and hence their expected impact on the design and shape of the dwellings and the construction of their component parts.

A new project was initiated to collect data on existing conditions throughout the country. This provided information on which present policy is based, aiming to house those in the lower income bracket through the provision of good public housing, and to assist the slightly better off by improving the private sector.

A fresh set of laws and regulations was introduced along with financial and administrative procedures in order to fulfil the objectives set by the Transformation Plan and to put the policies it contained into action. The government has not stinted in its efforts to speed up development. Finance for the development plans has been made freely available to try and build as much as possible in the shortest time. Money has been allocated in various ways, through public, direct or indirect, construction programmes and through loans and mortgages to encourage individuals to build their own homes. Housing co-operatives were also encouraged and subsidised through a system of soft loans and/or land allocations.

Despite all these efforts and after all the money invested, a serious housing problem still remains, one which the Libyan government seems unable to solve. Although there is no lack of finance or any diminution in the will to invest heavily, the sheer enormity and urgency of the problem has led to the

muddled implementation of the stated policies by the authorities responsible for housing. The completion of housing programmes was greatly held up by the unavailability of basic materials and skills.

There are certainly results for all to see which demonstrate that the government's efforts have paid off to a certain extent. The Ministry of Housing has been doing as much as it could to fill the gaps and plug the loopholes, but much remains to be done. Simply providing more and more units will not, in itself, solve the problem. As has been said earlier, the solution is much more complex and serious thought should be given as much to the quality of the environment as to the quantity of houses built.

Administrative upheaval further hindered progress when, in 1973, all former policy on housing was revoked and responsibility for advising on new planning decisions passed to the People's Committees. In 1986, the Ministry of Housing was abolished and their remit came under a new larger Ministry for General Utilities.

In recent study carried out by the author (1985), on behaviour patterns in housing in the Libyan coastal city of Misratah, it was recognised that the typical standardised public projects which have proliferated in all Libyan cities are unable to sustain the traditional patterns of family life, the structure of which is being constantly eroded by the socio-economic problems associated with these new living environments. The large majority of these projects failed, in one way or another, to take into account the families' requirements and needs, particularly those associated with extended families. The provision of adequate space is rarely accounted for, nor are the cultural and social backgrounds of the residents. Scant regard is given to climatic considerations and to the possibilities offered by locally available materials.

Libyan cities are becoming more and more faceless and impersonal with all

the old landmarks being erased to make way for the characterless and cold face of modern housing. Libya is in a period of transition, undergoing major and rapid changes in its economy, society and demography. Investments must be kept at a maximum level if the country is to build a firm foundation for its future in terms of human and other types of resources. Housing provisions, as they stand at present, are unsuited for the emerging socio-economic characteristics of the population.

Because the process of policy-making is centralised, this problem is felt in the same way throughout the country. Although the requirements in the various regions differ according to the local historical, economic, cultural and climatic characteristics, the central administration has seen fit to impose the same institutions, policies, regulations and standards across the board.

1.3 THE AIM OF THE STUDY

Libyan housing policies have made a leap from the traditional practices to the modern ones in a very short space of time. Although the study will show that traditional housing does not represent the ideal solution any longer, and that people are yearning for modern conveniences, the modern types of standardised housing fall well short of the requirements. The aim of this study is, therefore, to try and find a compromise between the need to upgrade design standards in the built environment, and to maintain the valuable characteristics of traditional social life, leading to urban space that combines quality and relevance for the users.

The level of dissatisfaction with present policies and the diversity of requirements throughout the country will be examined through the analysis of, and the comparison between, past and contemporary practices, in the light of the rapidly shifting socio-economic conditions of Libyan urban communities. In this way, it is hoped that the disparities between living space and needs will be

highlighted and that certain recommendations can be made in order to check and eventually eliminate the problems.

However admirable the government's attempts to provide housing for all, there is now an urgent need for basic studies on the nature of housing requirements. The author hopes to provide a survey of the development of housing based on people's traditions, their history, expectations and the way their society relates to their built environment. Linking this information with the development of the Libyan economy, the growth of technology and topographical and climatic data, it is hoped that an accurate picture of future needs can be developed to guide planners in their approach to building.

The main objective of this study is, therefore, to develop an appropriate approach to housing design which would take account of the abovementioned needs. By looking at these factors, from the past up to the present day, it should become clear how present day housing is failing in its most basic aspects.

One initial step in the analysis of this problem is the gathering of basic historical evidence regarding the background of traditional settlements and their design, prior to the introduction of Western concepts of habitation which began with the Italian occupation. This will enable us to see the types of interactions and relationships that people sustained in their environment, paying particular attention to the climatic and environmental forces in operation. We shall demonstrate how climatically modified conditions have helped to create a design responsive to the various needs and expectations of the users. The study will also look at the three clearly different climatic zones in Libya and highlight the characteristics of each one before going on to focus on the coastal area.

Housing development over the next twenty or thirty years will have to take

into account rapid social changes taking place and seek to cater for the traditional characteristics of family life as well as for the natural desire to become fully-fledged members of the age of technology with its changing values.

Above all, the aim will be to draw out the housing problems and all their contributory factors in order to help the formulation of a strategy for the years to come. The guidelines which are required should aim at including a certain degree of flexibility, compromise and the ability to respond in full to the residents' wishes and changes in society. The intention is to give rise to a higher degree of satisfaction in the Libyan population which seeks to see positive results, not only at the level of the individual, but also in society as a whole.

1.4 REASON FOR CHOICE OF STUDY AREA

Both private and public housing projects have shown problem areas which the author will consider in trying to establish a design formula. This will require in-depth study of the following questions:

- A) Does public housing benefit those with the greatest need?
- B) Are new tenants content to stay or would they prefer to return to their former homes?
- C) How have their lives had to change since moving into the new units?

To carry out these investigations, surveys will be made and observations noted on the behaviour of people in the spaces inside houses, between buildings and outside. Limited time and capacity makes it impossible to cover the whole country, since very detailed study and considerable personal contact is required. A single city, Misratah, has therefore been chosen to represent the problem (see fig 2 & 3).

Misratah is a coastal city of average size and population compared to other

Libyan cities (see Table 1). Politically, it is an important area as it contains a vast, modern steel complex and a large training academy for air cadets. This makes it a prime subject of further growth and consequently, for new housing.

Details will be given later of the characteristics of the 3 climatic and geographical zones of Libya - the coastal, mountain and desert regions. This will demonstrate that the majority of the population inhabits the coastal region where Misratah is situated. It is here also, that the government shows most concern for development. There is agricultural land, a thriving economy and a more temperate climate.

Misratah forms a communication link between the other main cities of Libya: Tripoli in the West, Benghazi in the East and Fezzan in the South. This makes it an ideal trading and financial centre and adds to its strategic importance. Steady growth is therefore likely to continue, particularly with a projected need for housing, for the steel complex alone, of 50,000 units. Expansion on a similar scale is going on simultaneously in other major cities. Examples of every category of housing are to be found here. There are traditional villages, modern sectors and shanty towns, typical of areas to be found throughout the country.

Having worked for several years as head of the Planning Department of the Municipality of Misratah, the author has had experience of working on several housing projects and designing units and facilities in the area. He has first hand knowledge of policy on provision of permits for building and an understanding of local needs. This included considerable contact with overseas firms and consultancies.

Through this work, it became evident that there was a need for improvement and the obvious shortcomings caused him enough concern to search for answers. It is easier as a local inhabitant to collect information, as

people are traditionally wary of strangers and less likely to be forthcoming with them or to behave naturally in their presence.

As his own neighbours and relatives suffered under the expansion policy, the issue became a personal one. His own family has experience of living in various coastal settlements where the problems were always the same. He also travelled widely in the desert region and is familiar with life there. It is therefore hoped that any suggested improvements based on the Misratah case study will also benefit other regions.

MSc study on the development of Misratah was carried out by the author in 1985 and a dissertation, based on Jan Gehl's method, was written on the interface between indoor and outdoor space. This has produced a solid background of data including the results of personal interviews, maps, charts and statistics. Since this survey took place there have been no major changes to alter the circumstances in Misratah.

1.5 METHODOLOGY

In order to achieve the aims of this study and expand the scope of the data provided to build a foundation for the analysis of the problems, the necessary information had to be collected under various headings.

There will be, in this dissertation, a description of the indigenous settlements and dwellings in Libya in terms of their components and the identification of these components. Courtyard housing found in Spain, Morocco and Scotland will be discussed briefly to assess its relevance outside Libya. The validity of the form, which the author had the opportunity to view, in similar and very different countries, will be explained.

A - The climatic conditions in three zones and the local population's adaptation to them, will be investigated in relation to the different types of

dwellings that they have developed.

B - Aspects of culture, such as the need for privacy, will be looked at as well as the effects that these aspects have had on the design of dwellings. Also under this heading, the religious aspects, the family and social structures will be examined.

C - In order to test their relevance, the findings from the above investigation will be applied to the case study, both in the traditional and modern housing areas. Comparisons will be further supported by an analysis of spatial structure (Hillier, 1984). After this stage, we should be in a position to make final recommendations for the development of a successful formula for housing design for future generations.

	1971	1981	1991	2001	2011	2021	2031	2041	2051
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132
Male	45	48	52	55	58	62	65	68	72
Female	40	42	45	48	50	53	55	58	60
Total	85	90	97	103	108	115	123	126	132

Figure 1: Sample of the Population Census 1971 and 2001

Table 1.1

Growth of Total Population 1973-84 by Municipality in 000s

Municipality	1973 Census adjusted for new boundaries			1984			Annual Compound Growth rate		Percentage of non-Libyans	
	Libyans	Non-Libyans	Total	Libyans	Non-Libyans	Total	Libyans	Non-Libyans	1973	1984
Tobruk	53	5.5	58.5	86	8.0	94.0	4.5	9.4	9.4	8.5
Derna	57	7.6	64.6	92	13.4	105.4	4.4	5.3	11.8	12.7
Gebel-Akhdar	72	7.1	79.1	110	10.6	120.7	3.9	3.7	9.0	8.8
Al-Fateh	62	5.3	67.3	94	8.9	102.9	3.9	4.8	7.9	8.6
Benghazi	265	53.2	318.2	418	67.9	485.9	4.2	2.2	16.7	14.0
Ejdabia	57	4.2	61.2	88	12.5	100.5	4.0	10.4	6.9	12.4
Sirte	45	2.7	47.7	90	21.0	111.0	6.5	20.5	5.7	18.9
Suf-Ajjin	32	0.4	32.4	39	6.1	45.1	1.6	28.1	1.2	13.5
Kufra	12	0.6	12.6	20	4.7	24.7	4.8	20.6	4.8	19.0
Misurata	87	4.1	91.1	150	28.4	178.4	5.1	19.2	4.5	15.9
Zliten	58	1.1	59.1	95	5.9	100.9	4.6	16.5	1.9	5.8
Khoms	86	3.0	89.0	140	10.1	150.1	4.5	11.7	3.4	6.7
Tarhuna	49	1.3	50.3	79	5.9	84.8	4.4	14.7	2.6	7.0
Tripoli	590	75.5	665.5	886	104.4	990.4	3.8	3.0	11.3	10.5
Azizia	42	2.3	44.3	73	11.9	84.9	5.2	16.1	5.2	14.0
Zavia	128	5.9	133.9	202	18.1	220.1	4.2	10.7	4.4	8.2
Niqat-Khams	101	4.9	105.9	166	15.5	181.5	4.6	11.0	4.6	8.5
Gherfan	64	2.5	66.5	107	9.8	116.8	4.8	13.2	3.8	8.4
Yefren	59	1.3	60.3	69	4.6	73.6	1.4	12.2	2.2	6.3
Ghadames	29	1.0	30.0	47	4.7	51.7	4.5	15.1	3.3	9.1
Sebha	31	4.7	35.7	62	14.1	76.1	6.5	10.5	13.2	18.5
Shati	26	0.9	26.9	42	4.5	46.5	4.5	15.8	3.3	9.7
Ubari	25	1.4	26.4	43	6.1	49.1	5.1	14.3	5.3	12.4
Murzuk	22	0.3	22.3	39	3.4	42.4	5.3	24.7	1.3	8.0
Total	2052	196.8	2248.8	3237	400.5	3637.5	4.2	6.7	8.8	11.0

Source : Computed from Population Censuses 1973 and 1984.

TABLE 1.2: POPULATION OF LIBYAN MUHAFA DAT, 1954-73

Muhafadat	Area (thousand sq km)	Density 1973 (per 100 sq km)	Pop ('000 1954)	% of total pop.	Pop ('000 1964)	% of total pop	Pop ('000 1973)	% of total pop	% growth		Males per 100 females 1973
									1964-73	1954-73	
Derna	103	119	56	5.2	84	5.3	123	5.4	45	120	112
Jabel Akhdar	17	776	67	6.2	91	5.8	131	5.8	44	96	111
Benghazi	17	1,982	134	12.3	225	14.4	331	14.7	47	147	119
El Khalij	720	15	52	4.8	80	5.1	108	4.8	35	108	122
Misurata	148	120	108	9.9	130	8.3	179	8.0	38	66	110
El Khums	25	648	124	11.4	137	8.8	163	7.2	19	31	109
Tripoli	3	24,500	264	24.2	406	25.0	709	31.4	75	169	116
Ez Zawiyah	7	3,543	120	11.0	154	10.4	244	10.8	49	103	110
Gherian	150	104	114	10.0	181	11.6	155	6.9	-14	36	109
Sebha	559	20	50	4.6	67	4.3	113	5.0	69	126	106
Total	1,749	131	1,089	100	1,565	100	2,257	100	44	107	114

Source: Compiled from: Kingdom of Libya (1955) The 1954 Census of Population Benghazi (in Arabic)
 Kingdom of Libya (1966) The 1964 Census of Population Benghazi (in Arabic)
 Ministry of Planning (1977) The 1973 Census of Population, Tripoli (in Arabic)

Fig. 1.1

تنمية السكان - الاتجاهات والكثافة

POPULATION DEVELOPMENT TRENDS AND DENSITY

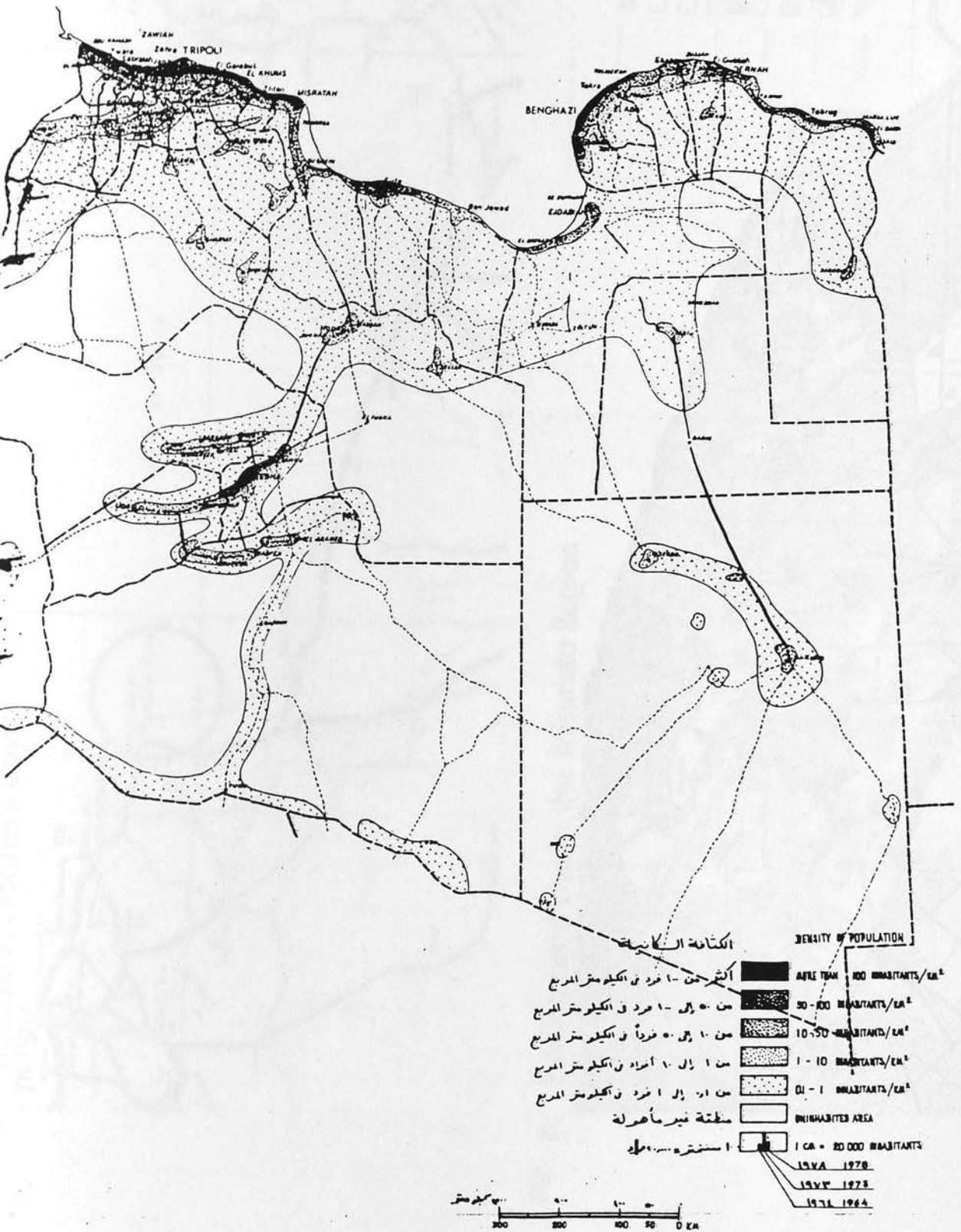


Fig 2 Misurata in Northern Libya

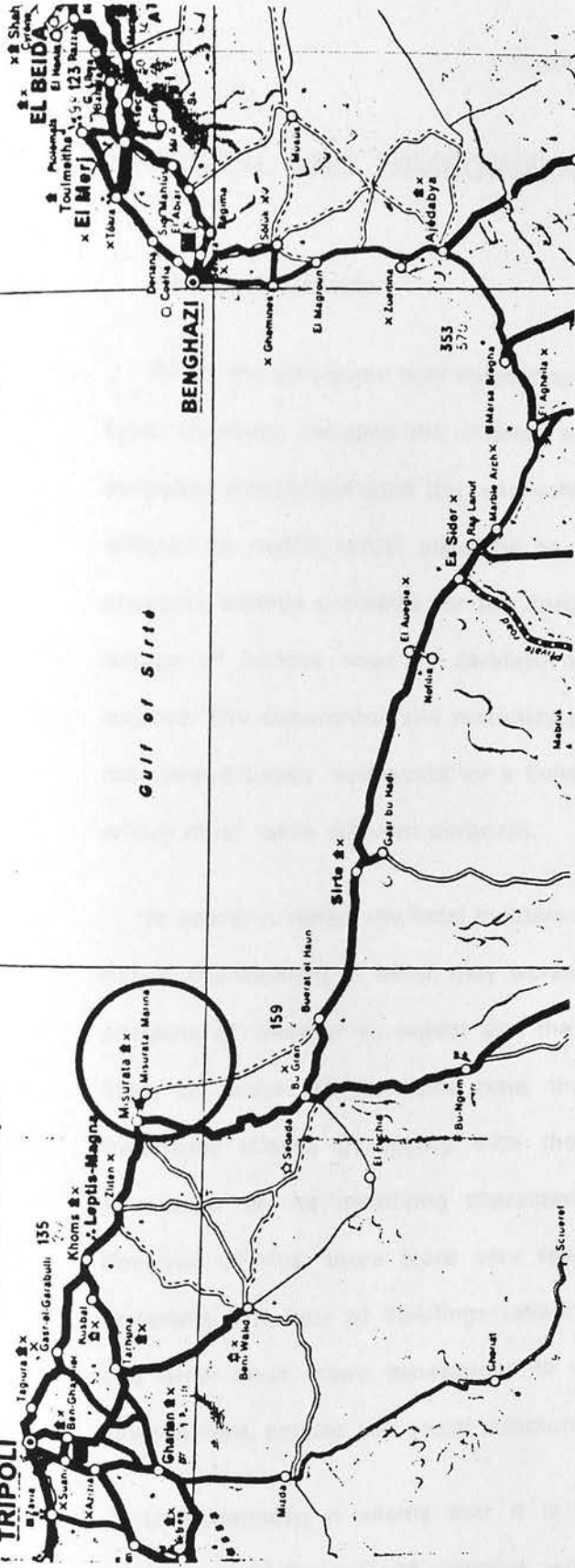
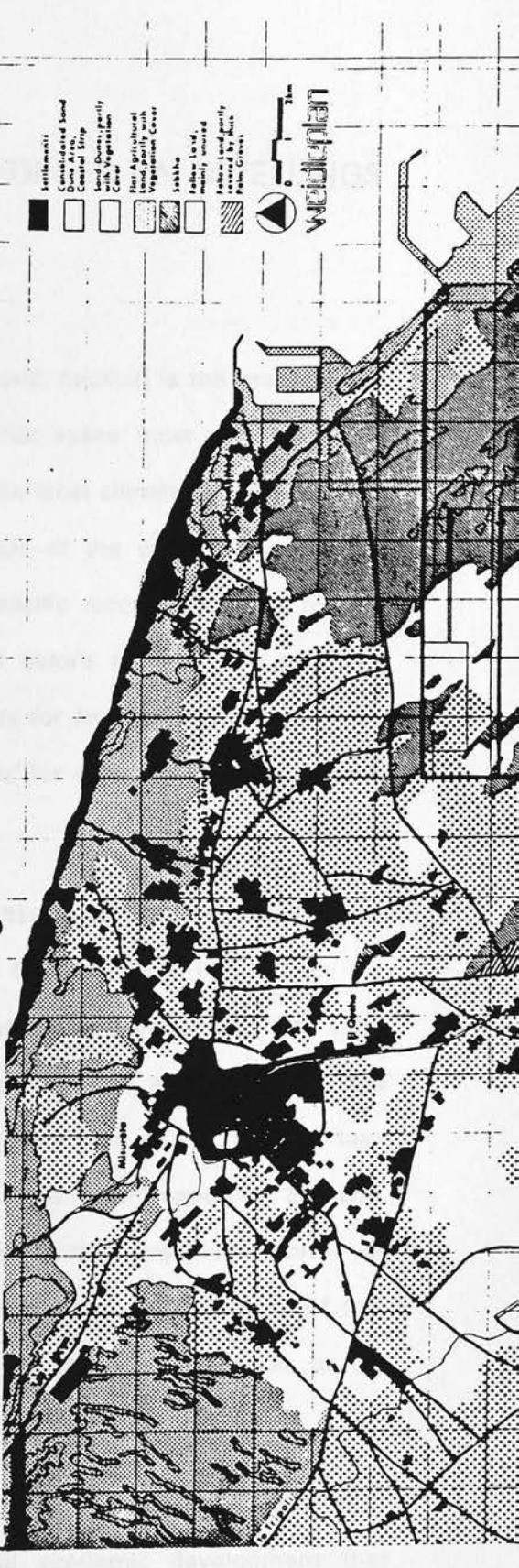


Fig 3. Existing Land Use in the Misurata Region



CHAPTER 2

PHYSICAL AND ENVIRONMENTAL FORCES ON DWELLINGS

2.1 INTRODUCTION

Of all the structures built throughout the world, housing is the predominant type. However, because the interior and exterior space must serve different purposes throughout each day, depending on the local climate, it is particularly difficult to match actual solutions to the needs of the users. This difficulty presents serious problems for the designer. Specific recommendations for the design of houses must be carefully analysed before they can be generally applied. The dimensions and materials necessary for an ideal housing structure may prove totally inadequate for a building used for storage or as a workplace which must serve different purposes.

In previous times, the local builders and craftsmen of Libya were part of the actual environment in which they worked. They therefore knew instinctively the patterns of weather to expect and the extreme climatic conditions that were likely to occur. At the same time, they were also well accustomed to the traditional means of coping with those extremes and knew how to take advantage of the modifying characteristics of the local resources at hand. Because of this, there were very few deviations from traditional forms or materials. The type of dwellings reflected the experience of a process of trial and error over many generations in design construction in relation to the environment, culture and social structure (M. Evans, 1980).

Unfortunately, it seems that it is only in countries which have already attained a high level of political, social and economic development that traditional and vernacular architecture is perceived as a viable alternative to the

destructive influence of modern mass-housing schemes. In countries still undergoing a process of development, including Libya, this perception is far from being realised. For these countries, the urge is to wipe out the old, which is often associated with primitive and inefficient ways or with an almost shameful stagnation. It is felt that the old ways must be reversed, before the all-new, modern age can really begin, bringing with it industrial development, enlightenment, a healthy economy and improved social conditions. In those countries, the feeling is that there is no place or time for sentimental memories.

The need for development does not, in the author's opinion, represent a valid reason for turning one's back on the wisdom of one's forefathers and, the more traditional housing is allowed to fall into disrepair, the more likely it is to be rejected as a guide for new designs. The lessons that it is able to give may be lost forever if one does not take the trouble to understand the reasons behind its continued use throughout many centuries.

It has become an increasingly noticeable characteristic of Libyan cities that the traditional areas are prone to overcrowding, populated by the poorer, less educated sections of society and allowed to deteriorate. Modern times have brought about changes in the types of materials used, as well as in the design and construction of housing developments. These changes, introduced to the developing countries, have taken place mainly because of the urge to catch up with the Western world and have been largely unresearched. Technology has been borrowed and applied, in totally inappropriate ways, to the local topography, climate and society, for which it was never intended in the first place. Imported, prefabricated materials with design specifications for a completely different environment have been used; their lack of flexibility makes them unfit for the particular needs of the local population. The case study on modern housing will expand on the problems arising from this trend.

The influx of new materials and technology is not restricted to the building sector. It is accompanied by a continuous flow of Western media influences; films, television programmes, books and magazines have greatly helped in producing a thirst for the latest fashions in clothes, the latest models in cars and electrical appliances, as well as for the latest designs in modern housing. All these imported ideas are used with total disregard to their relevance in a different setting; a glossy photograph of a house gives no indication as to the way in which heat may be retained or draughts excluded from it.

In architecture, as well as in cultural variations geographically, the importance of the climate as a determining factor in design has been generally accepted. There is, however, much debate as to the extent of the role of the climate on the final determination of built forms. If, for instance, one examines the house types within the old and new patterns of settlements in North Africa, it could be argued that their form is more related to culture than to the prevailing climatic conditions. Other determining factors, such as socio-cultural elements and, particularly in Muslim countries, the constraints of religions, have also had a considerable influence.

This part of the study will concentrate on the role that the climate plays in determining the form of houses in Libya. Further chapters will consider alternative views and examine cultural and religious influences.

2.2 PHYSICAL AND ENVIRONMENTAL FORCES ON DWELLINGS

The design of houses in special climatic conditions presents a certain number of problems. During each day and night, the house and the surrounding space must cater for a variety of needs and uses. Although the climatic considerations may fail to account absolutely for the diversity in house forms, they do nevertheless have a bearing on the evolution of present forms. Certain human needs and desires are also expressed through the arrangement of the

house and its environs.

Before the expansion of the Libyan economy and before modern technology became accessible, men had to make the best of their environment and use any means and materials at their disposal to cope with it. The view expressed by those who believe in a strict deterministic relationship between climate and built form is that, in primitive times, man's concern was primarily with building himself a shelter which would protect him against adverse forces and, therefore, the climate dictated the form.

As soon as men moved from the areas where little or no shelter was required, or from natural shelters, such as caves, they faced the problem of finding a design which would adequately combat climatic forces. In this sense, the house is a container whose main purpose is to shelter and protect its occupants from all kinds of hostile forces and elements. As Rapoport wrote (1969):

It is a tool that frees man for other activities by creating an environment which suits him, protecting him from the undesirable effects of his surroundings.

Under difficult conditions, primitive builders have shown themselves to be expert in the choice of materials and in finding ways to adapt to the micro-climate. They seem to have had a built-in knowledge of the ways in which local materials behave in certain types of climate, their absorbency, and their ability to reflect light and heat. They seem also to have studied carefully the area and its climate to ensure that the houses faced the best direction needed to keep out the undesirable elements of heat and high winds and to take advantage of the cool breezes and light. Shade and shelter was provided along with light and warmth to suit each time of day and each season. In spite of the rudimentary equipment available and the scarcity of resources, they demonstrated a very high level of performance, more durable and better

adapted than modern methods have proved to be.

Looking at traditional housing in Libya, (Chapter 4), one can see how the window openings optimise the penetration of light while preventing an excessive amount of heat from entering the house. The thick walls insulate against the extremes of heat and cold and the building materials reflect the heat away and prevent the cold from penetrating.

After returning from a trip to Africa, Louis Kahn commented:

I saw many huts that the natives made. They were all alike and they all worked. There were no architects there. I came back with impressions of how clever was the man who solved the problem of sun, rain, wind...

It is true that the type of shelter seen by Kahn has an element of ancient, almost instinctive wisdom, born out of experience and deep knowledge of an area, which modern architects seldom have the time or patience to absorb, and even less to actually use in their design. But the simplicity of these primitive forms, ingenious though they may be, should not be idealised. Modern families require a shelter that will be permanent, versatile, spacious, secure, hygienic and healthy, as well as weatherproof. What we must do is to learn from our ancestors how they adapted to the conditions in which they lived and apply this knowledge to modern methods of building, along with all the other elements mentioned. The need remains basically the same, although far greater sophistication is now required. As L. Bruce Archer remarked in his *Systematic Methods for Designers*: "We build houses to keep in a consistent climate and to keep out predators." Shelter is still of paramount importance to us. We still must struggle to survive as our ancestors did. Throughout the ages, the efforts to provide shelter have produced many different types of dwellings, one of which is the courtyard house in Libya.

The impact of the climate on the design and construction of Libyan houses

is considerable. It has led to the development of a system of internal circulation of air and has had a marked influence on the external orientation of buildings and on the use of certain materials in preference to others.

In a particularly dry climate, the regional differences between coastal sites and inland sites tend to be far greater because the variations in humidity and temperature are accentuated. When there is a discernible difference in temperature between the land and the sea, a cooling breeze is produced onshore or offshore which benefits the coastal areas. During the day, the sun causes the land to heat up more than the sea; as hot air rises from the land, cooler air from the sea moves in to replace it. After the sun has set, the sea retains more heat than the land and the previous process is reversed, producing an offshore breeze. Only for a short time, when the reversal of the flow of air occurs at dawn and dusk, does this process stop altogether. The duration of this stoppage increases the further inland one goes.

In many houses along the coastal strip in Libya, people have developed their own ways of trapping the wind and directing it into the houses or the inner courtyards during the summer season, in order to moderate the temperature. In the desert regions, people required less courtyard space and more covered areas. It is not, therefore, surprising to find covered streets providing shade for people outside. People in the mountainous areas developed a type of subterranean dwelling, which proved very useful in minimising the extremes of heat and cold. These forms will be described in greater detail in Chapter 4.

The development of courtyard houses and the effects of the climate in the coastal region will be examined at a later stage. The three distinctive types of house serve people sharing the same culture and religion, the only difference being that of the climatic conditions which, therefore, take on a very important

role in the determination of house types and forms.

All modern housing in Libya requires, for comfort, to have air conditioning which is demanded by new tenants, which proves beyond any remaining doubts the importance of the climate. Modern methods of building are not capable in themselves of minimising the extremes of climate. People have had to resort to mechanical devices in order to make life more comfortable inside. These can be excessively costly in comparison with the actual price of the building and are not even always reliable. Moreover, as Rene Duba pointed out:

1

The comfort created by these devices is still problematic and may lead to unforeseen dangers as an overcontrolled and uniform environment; man may not so much be controlling the environment as escaping it.

Rapoport supported this view when he stated that the poor thermal performance of many of our buildings, despite the mass of mechanical equipment, suggests that we cannot ignore the physical environment and that we have continuously underestimated its effects on our cities and buildings.

Although there are three distinct types of micro-climate in Libya, modern house design has been standardised to such an extent that houses in the desert regions are exactly the same as those built in the coastal areas. The reliance on technology to solve the problem of the climate is now the norm. Regrettably, conformance of style along European lines has taken precedence over the comfort of the inhabitants.

¹In Warren J. (1982), Traditional House in Baghdad.

2.3 THE CHARACTERISTICS OF CLIMATE IN LIBYA

Throughout North Africa, two major forces dictate the climate and combine to produce a wide range of atmospheric conditions: the Mediterranean sea and the Sahara desert. Before explaining the influence of the climate on the design of houses in Libya, it is worth mentioning in some detail the effects of the different types of weather conditions and where they occur.

Certain studies have identified five separate climatic areas: the coastal zone, the steppe area, the mountain zone, the pre-desert zone and finally the desert zone (Amilcare Fontoli, 1932). Despite this detailed breakdown, the author prefers to use a broader regional definition of (1) the coastal zone; (2) the mountain zone; and (3) the desert zone. These three zones reflect the three distinctive types of dwellings on which the climate has had an unmistakable bearing.

2.3.1 The Coastal Zone

In this zone is located the greatest part of the Libyan population, mainly in the two largest cities of the country, Tripoli and Benghazi, as well as in other medium sized towns such as Zawiah and Misratah, on which this study will mainly be focussed.

This coastal zone consists of a strip of land of varying widths, (see figs 3 & 6), along the southern shores of the Mediterranean sea, with a climate very similar to that of the Algerian, Tunisian, Sicilian and South European coasts. There are some variations within this zone depending on the precise situation and the closeness to other zones, the climate of which can exert a certain amount of influence, such as the area of Cyrenaica, where the neighbouring mountains bring cooler air as well as more rainfall.

Within this zone, there is, therefore, considerable variation; however, it

tends to have a prevailing Northerly wind, bringing seasonal rainfall and producing a humid and moist atmosphere. The further inland one gets, the less rainfall and humidity there is. Winds from the South are also partly responsible for the dryness of the areas furthest from the coastal strip. A breakdown of temperature, rainfall and humidity readings from Misratah is given in Table 1.

2.3.2 The Mountain Zone

The mountain region begins in the most westerly parts of the country near the Tunisian border, stretching to El Khums on the coast. In the east, the Green Mountains run from Benghazi to Darna. These two separate areas have the same climatic characteristics.

Besides the desert and sea influences, altitude has a major effect on climate. Variations, in this case, depend mainly on the proximity to other areas. Table 2 gives details of conditions.

2.3.3 The Desert Zone

This zone covers the largest part of the Libyan territory and lies to the south of the other two zones. Temperatures here are much higher, and the amount of rainfall is negligible and extremely infrequent. Details appear in Table 3.

2.4 RAINFALL

Highest annual rainfall is found in the areas closest to the sea, or in the Green Mountains. The wettest months on average throughout the country are January and December, although highest rainfall in the desert area occurs in May and June. However, precipitation throughout this latter zone reaches an annual average rate of only 5mm and is extremely variable and unpredictable (see Table 4).

REGION	YEARLY RAINFALL
MISARATH (Coastal City)	289.3mm
NALUT (Mountain City)	124.7mm
GHADAMES (Desert City)	10mm

Table 4: Shows rainfall in different regions

2.5 WIND

Wind directions vary considerably throughout the country. The prevailing winds in the coastal strip are from the north and become less and less dominant as the distance from the sea increases. In the western mountain range, winter winds blow mainly from the west, but here again, the direction varies considerably in the other seasons. The desert wind comes from the south and east. This latter has been so prevalent that a name is given to it, the "Gibli". It can last several days and can cause hot sandstorms of great ferocity.

This is the general pattern of wind but local factors do produce certain variations to this pattern. In the coastal zones of Tripoli and Misratah, the wind speed can reach 30-35 knots in winter. The same towns can also feel the effects of the "Gibli", making life very uncomfortable.

2.6 PLANNING FOR CLIMATE CONTROL

From the presentation of the above information about the climatic conditions prevailing in Libya, we can now study how indigenous housing was affected by them and adapted to them. Through a process of trial and error over many generations, people have managed to produce simple and ingenious ways of coping with the environment, ways which have since given shape to traditional housing as we know it today.

Amilcare Fontoli, (1932), carried out a series of studies which led him to formulate the hypothesis that the prevailing climatic conditions in any region affect the degree of biological adaptability of the individual to the environment. By applying these findings to the Libyan situation, one is tempted to assume that the climate has had a marked effect on the way of life of the indigenous population in mapping out these places where it was possible to survive. This is clearly visible if we look at the population figures. The most fertile, cooler and comfortable region, i.e. the coastal strip - is the most populated (see figs 3,4,5 & 6). On the other hand, as one might expect, the desert population is extremely sparse and mainly grouped around oases and wells.

Fontoli's studies showed that this pattern applies throughout the world, with the coastal areas always being the most favoured. Centres of population in other areas have had to adapt their lifestyles, sometimes to a considerable extent, in order to guarantee their survival. Fontoli also claimed that the activities within the group are determined by the climate.

Traditional settlements along the North African coastline tend to be much more efficient at keeping the temperature cool than their European counterparts. This is largely due to the very narrow and twisting streets built high with walls on either side. This pattern not only allows a large area of shade but it also prevents hot winds being channelled through them and reduces the infiltration of sand brought by those winds.

From the plans of old Algiers, Tunis, and Tripoli, one can easily see how much they differ from modern town configurations and even from ancient Greek and Roman cities. The geometric grid on which the latter were based bears no resemblance to the twisting branches of the old Arabic cities with their many dead ends and few main streets (see fig 1).



Fig: 1.

The old town of Tripoli with its traditional urban form and the adjacent Italian built new city

Although the traditional Islamic city appears to have developed, without any logical pattern, into an amorphous jumble of streets and houses, closer examination reveals its affinity to nature and thoughtful adaptation. Each twisting alley allows access whenever necessary and admits light while minimising the amount of direct sunlight allowed to penetrate, as well as breaking the force of the wind. This reminds one of the twisting sinews of roots and branches of a tree, seeking light and water while avoiding harmful elements. The irregular shape and layout is not confined by the constraints of form or of mechanical planning but is, instead, a reflection of the culture and the society which it serves, providing as much comfort as possible.

A careful study of these traditional settlements provides the explanation for differences with the Roman grid plan and why the Arab population of North Africa reverted to its traditional style after the departure of the Romans.

The design of traditional houses, inwardly looking onto a courtyard, predates the Arabic culture. The subsequent adaptations that were made in order to adjust to the religious, cultural and climatic requirements remained

fairly minor. Details of these developments are given in a later chapter on the development of the courtyard house. Judging by the widespread nature of this particular type of house configuration and its persistence through the ages, there can be little doubt about its success and popularity. There is still no certainty as to whether these settlements were pre-planned or not.

The streets in these settlements were never intended to be grand and symbolic in the way that the Roman ones were, nor were they intended to carry heavy traffic. Their purpose was to provide cool, shaded areas, so that outdoor life could continue to be comfortable. One finds archways, rooms built over the streets, either bridging them or overhanging, and canvas awnings and coverings. The European settlers failed to understand the quality of this pattern and chose to dismiss it as either anarchic, unnecessary or not practicable.

If one compares the old city of Tripoli with the new European-inspired planned section, one could immediately see how appropriate the traditional designs were. Gaetano Vinaccia, (1942), made a study of solar and wind direction in the colonised cities of North Africa and he recommended that his findings should be applied to the planning of the new sectors of Tripoli so that the streets and houses could benefit from the best directions. With very cold winters and burning summers, buildings should be sited to make maximum use of light and warmth in winter and shut out the glare and heat of the summer sun.

He recommended that in hot areas, streets should run along the line of sunrise and sunset during the summer solstice and should be perpendicular, facing the winter solstice. He noticed that the north-easterly wind in summer produces a welcome coolness and he thought it preferable to maximise its effect by orientating the streets accordingly. In this way, this wind would be

funnelled into the houses. On the other hand, the southerly wind, the "Gibli" is to be avoided at all costs as it brings with it hot dry air and sand (see fig 2).

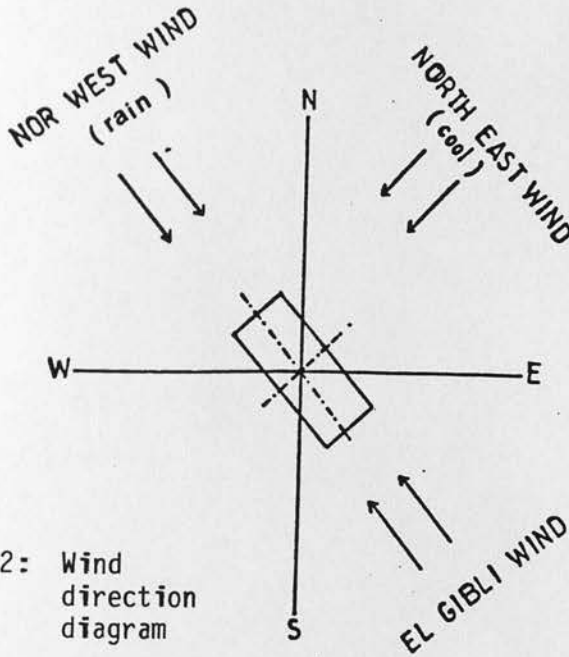


Fig 2.2: Wind direction diagram

The architect's solution to the problem of orientation was largely avoided by the traditional courtyard house. Being low set and inward looking, it minimises the effects of the sun on the outside walls as well as providing shade inside. It is usual for the height of the courtyard walls to exceed any of the floor dimensions so that shaded areas can be provided all through the day. These houses, which make up the fabric of the old cities, make outdoor life pleasant and comfortable where it would otherwise be impossible. Other elements are added to help the cooling process such as arches and porticoes which provide extra corners of shade. The nature of the materials used in buildings and the sheer build of the walls and ceilings provide a very efficient insulation against the sun and keep the outside temperature down. The minimum exposure of the outer walls also contributes to the reduction of heat. Day and night temperatures can be moderated by using a radiant cooling mechanism (Daniel Dunham, 1960).

The earth floor of the courtyard can act as a radiating storage unit. It is

shaded by the high walls during the day but it is still open to the night sky which cools it. Only when the sun is at its greatest height does the heat build up in the centre of the courtyard and is then transferred to the surrounding rooms. Interdirectional heat transfer across the roof top reinforces this process. However, during the cooler hours of the night, it causes cool air to be drawn down and around the courtyard. Rooms can be further protected by the use of arched doorways and porches so as to prevent any direct penetration of the sun while admitting air and light. This process will be looked at again in the section on Courtyard Houses in Misratah.

The Libyan desert area is 34m above sea level and, as previously shown, it has extremes of hot and cold. Harshness of climate makes it necessary for the inhabitants to adapt their way of life considerably to sustain life. Even the oases located within this zone do not benefit from the moderating effects of the sea and mountains.

Settlers in these unforgiving surroundings had to conceive a form of dwelling that minimised the effects of these elemental forces. Moderating factors, such as vegetation and water were necessary to create a micro-climate in which it was possible to survive comfortably. This is why the only desert settlements are found around oases and Artesian wells, where trees could moisten the atmosphere and reduce the intense aridity.

The sharing out of the precious liquid resource in centres of population is of extreme importance. As each family had different needs for drinking, hygiene and land irrigation, it was very important to devise a method of allocating water that was scrupulously fair as well as practical.

Firstly, drinking water is drawn at a collection point usually situated within the mosque which represents the focus of community life. At the point where it enters the mosque, it is taken for drinking. The next allocation is for

cleansing purposes, following the Islamic ritual of purification of the body. This takes place both in the public baths and in the mosque. Finally, the allocation of water for irrigation is made to each family on the basis of the acreage of land that it owns.

This custom is not only an effective way of easing the major problem of drought but it also acts as a way of uniting people through a common interest. The practice shows how the whole life of a community is influenced by the climate in which it lives. It is inevitable, therefore, that these influences should be evident in their dwellings.

In the Gulf States, where extreme heat is combined with extreme humidity, the problem is to provide enough ventilation in the traditional courtyard house. The arrangement of houses used in Libyan cities like Tripoli and Misratah would obviously be unsuitable in such a climate, as their first aim is to minimise the effects of hot and dry winds. In Dubai, houses have to be arranged differently so that breezes are encouraged. People in some areas such as Thutta and Hyderabad in Pakistan have devised a system of "wind scoops" to trap and channel the prevailing winds. The task in Libya is to achieve the opposite effect; therefore, the houses are built closer to each other in order to reduce exposure to the sun and limit heat exchanges. Cooler air is funnelled down through narrow streets, pushing out the hot air and the courtyards in the desert zone are often completely covered over to protect against the almost vertical sun's rays.

Houses in the desert settlement of Ghadames are typical of the type described above. The covered courtyards have a small opening in the ceiling as we have seen, to ventilate and cool the house by means of a one-way heat flow. The cold night-time temperatures prevailing outside help to cool the roof and cause the hot air remaining inside the house to rise and exit through the

opening. During the day the temperature inside is always cooler and therefore the air cannot escape. The courtyard ceiling is usually over 5 metres high so that even if the air beneath the ceiling is heated, the effects are not felt at the ground level.

A tight cluster of houses creates its own cooling system by keeping the streets free from direct sunlight and maintaining the temperature at relatively modest levels, even on the hottest summer days. Daylight is admitted through narrow gaps between houses where windows may be located. These windows draw in cool air from the openings which, in turn, cause a movement of cool air in the streets, providing in this way, an almost ideal ventilation system. The house entrances, opening into the streets also have the same effect of causing gentle, cool breezes.

Most of the dwellings have only the roof exposed directly to the sun. The facades are protected by the proximity of other houses. The ceilings are often partially covered by another room which breaks the flat surface and provides more shade. The narrow openings and doorways give vital protection against the "Gibli" wind (see plan in Chapter 4).

People like to sit in the streets which afford the greatest protection from the heat. Many walls are built with benches along their length for people to sit on. Insulation is so effective that the winter temperatures within the houses and in the streets are very seldom uncomfortable, although they might drop quite considerably in exposed outside areas. Thus, the traditional indigenous architecture has proved to be most effective and appropriate in these conditions. By providing its own ventilation and insulation system, traditional housing has managed to adapt to the climate with considerable success and lessons should be drawn from it in forming recommendations for future building.

2.7 DICTATES OF CLIMATE ON ACTIVITIES

Traditionally, the pattern of daily activities in many places has had to adjust to variations of temperature within a 24-hour period. Similarly, over the year, modifications are made according to seasonal changes. These patterns will have evolved over many generations and anything causing sudden disruption to the pattern would give rise to social unease. For example, in Libya, when the temperature is at its highest at midday, families gather to eat and rest. This is an important part of family life and takes place in the coolest part of the house.

In a Moslem society, the year is interspersed with a series of religious festivals, (Chapter 3, section 3.4.3). These involve large family gatherings at prescribed times, regardless of weather, and are catered for in the outdoor space of the house. These spaces have, therefore, to be comfortable in all seasons, night and day and must be easily accessible, providing protection against excessive heat and cold.

Outdoor space is used as an extension to the house in Libya not only for celebrations but for daily activities such as cooking, relaxing and craftwork. The case study will give further details of this.

2.8 SITE SELECTION

The first decision that will directly affect comfort is the choice of a suitable site. This will depend as much on the area itself as on its topography and climate. The nature of the surrounding features should be noted and all the advantages and disadvantages carefully recorded.

Traditionally, in North Africa and Spain, inland villages were often built on steep cliffs. Despite the difficulties of access and construction, the benefit of the cooling breezes was seen as enough of a bonus to offset the building

problems.

In the desert, the wind is more of a nuisance than a moderating element as it is on the coast. It carries dry, scorching air, filled with dust and sand. Therefore, the best locations in these areas are those where the wind speed is the lowest. Similar to many other hot and dry climatic regions, Libya also experiences seasons when the temperature is quite low and when protection from the wind becomes necessary. This is not only to protect against the cold but also against shifting sands carried by the wind.

The places which suffer most from wind effects are those with least natural protection given by the landscape. Open areas with no shelter are exposed to the most severe blasts of hot or cold winds. Where it is possible, vegetation barriers can be placed to minimise the effects of drifting sands, but this often incurs the additional time and money required to irrigate in the first few years to ensure success. Grazing animals also need to be discouraged from destroying the vegetation, by using substantial fencing around the newly planted areas.

A less aesthetically pleasing but perhaps more immediately effective solution has been to use, in some places, bitumen, crude oil or bitumen-latex mixture, which was sprayed on the loose sand so as to prevent it from drifting. In the villages, walled courtyards provide protection and shelter.

Rapoport firmly believes that siting is important although he questions the existence of any strong relationship between site and house form, describing many cases where a site has been used over many centuries for a wide variety of different house forms.

There are also important cultural factors intervening in the choice of a site. What may look like an ideal site for the architect could prove totally inadequate

for a community not used to it. For instance, people who have historically been living in mountain villages would feel totally out of place in a flat area. Each group has its own definition of suitability as far as settlement location is concerned.

Where large housing developments spring up outside existing town boundaries, the terrain may produce marked differences in climatic conditions even over a relatively short distance. Site analysis is, therefore, a major consideration, although it is not easy to weight the climatic considerations against what may seem like more vital questions when costs are being evaluated. Environmental aspects may find themselves at the bottom of a list of priorities when speed and economy are the main aim, even though in the long term, it is those factors which determine the life span of a project. With careful consideration, long term maintenance costs may be reduced.

In some cases in Libya, the site is chosen before an architect is even consulted. An individual may choose a spot he favours, buy the land and only then appoint an architect. When this situation occurs, the designer must make sure that all the advantages and disadvantages presented by the site chosen, are carefully evaluated.

There are recent factors which have added to the problems of site selection, factors which previous generations did not have to consider. The traditional settlements made use of the prevailing winds for a natural air-conditioning effect, with houses positioned and grouped to take advantage of breezes for cooling and carrying away undesirable odours. With the birth of industry, these same winds, instead of refreshing homes, may carry with them unhealthy pollutants which should be avoided.

In hot climates, the harmful effects of pollution can be greater than in cold climates...(M. Evans, 1980.)

High temperatures and prevailing wind direction will continue to be the main factors effecting the dangerous rise in and introduction of pollutants, however, the effect of breezes and wind tunnels caused by unfavourable siting of buildings and streets must also be considered for their potentially harmful effects.

Major industrial developments such as oil installations, have had a great influence on the choice of sites in Libya. Inevitably it is around these areas, where jobs are available, that migrants gather and houses are required.

Nearby the city of Misratah, a large steel-producing complex has recently been completed. Some outlying villages have found themselves trapped between this complex and marshland on the other flank. This affects the value of their land and denies any opportunity for expansion or development. Social problems have also resulted from the influx of migrant workers who are strangers in the area, and from an increase in heavy traffic.

Living in the area and working in the Technical Planning Department, the author found that people still preferred to stay where they were with their family and friends, rather than move, despite the effects of pollution - noise, dust, smell - and the potential danger of chemical releases. This was their own land and a community where they had their roots. The links with the land and with other members of a community will be examined further in a later chapter.

One more consideration in the choosing of a site is the possibility of flooding. On hard ground which does not absorb water, sudden rushes can build up and burst in from quite distant areas where there might have been heavy rainfall. This danger applies to many towns sited in Libya. Land set aside for building is generally infertile, hard and dry and sometimes towns are

positioned adjacent to marshlands which could pose a potential threat, as in Misratah. Softer soil tends to be reserved for agricultural purposes.

2.9 URBAN DESIGN AND HOUSE FORM IN THE COMBAT OF CLIMATE

Different forms of courtyard houses, and lay-out of settlements, have been used to moderate local climate as one of their functions. Traditional methods and materials alone do not, by themselves, counterbalance harsh conditions. Builders of old also looked at the optimum arrangement of space inside and outside the house to increase airflow and shade. This they had to achieve without blocking the entry of light into the house.

The space left between buildings and walls determines the amount and intensity of light allowed to filter through onto the facades. It also controls the flow of air so that it can be reduced when desirable or increased when required. A careful layout can produce an arrangement of buildings which allows in light and breezes from around the sides of the opposite building instead of over the roof.

It is fairly common in hot countries to find high ceilings traditionally used to control the climate. This feature tends to add to the cost and time of construction and also increases maintenance costs. The human factor ought also to be considered. People accustomed to living in rooms with high ceilings may find low ceilings claustrophobic and uncomfortable. The psychological effect may lead them to believe that they are airless, even when careful studies show otherwise. Changes such as these have to be introduced with tact and care until such time as they become accepted.

High ceilings have also been equated with high standards and this has turned people against the idea of low ceilings in houses. The author found, on recent visits, that in North Africa and Southern Spain, high-ceilinged traditional

houses are of a very good construction quality, finely decorated and carefully built. This has given the mistaken impression that low ceilings mean shoddy, second-rate production, when, in fact, the main problem with them is that they do not allow hot air to rise above the level of the house occupants. If it were possible to change people's views about low ceilings, it would still be necessary to find a means to disperse heat.

M. Evans has said (1981) that low rise buildings should provide the best protection against hot sand-bearing winds as well as shelter from the sun. The addition of a small inner court provides adequate light and air. The court also functions as an outdoor space, ideally adapted for the daily activities. It suits the Libyan community's need for family privacy by allowing for inward facing rooms and windowless outer walls.

A series of such buildings can be positioned one next to the other, giving mutual shelter and protection. This pattern is typical of that found in traditional areas of North Africa and Spain. As we have seen, a hot and dry climate can mean a wide daily and yearly fluctuation in temperature. To accommodate these changes, flexibility of space is required to provide comfort in extreme cold, rain and hot sun. For the cooler mornings, one would require shelter but would also need to admit the sun's rays. These rays would also be best kept out in the middle of the day and in hot evenings. One would ideally want flat roofs, sunlit rooms in winter and shade in summer.

Courtyard housing catered admirably for each season's changing needs and the traditional settlement layout provided an area of shade for each time of the day and year; shelter in the narrow streets, vegetation to shield one from the sun or keep out drying winds. This form has now been superseded and is seen today as primitive and old fashioned. These attitudes will be examined in Chapter 5. As a consequence, and despite their total unsuitability, we see high

rise flats taking their place. As M. Evans noticed (1981):

High rise apartment blocks are totally unsuited to this climate as they are highly exposed to the sun and to hot dusty winds and do not provide sheltered outdoor spaces for the occupants.

2.10 MATERIALS, CONSTRUCTION AND TECHNOLOGY

The factors affecting the choice of house forms are largely socio-cultural, based on people's way of life, their values and notions of the ideal in building styles (A. Rapoport, 1975). However, having taken the initial step of choosing what kind of construction is required, its role in the community, how it fits into the chosen site and adapts to the climate, one has still to face the problem of actually building it.

Any kind of space to be created must be enclosed. The type of place will largely depend on one's choice of materials and method of construction. As T. A. Ibrahim (1975) has noted:

...for thousands of years, wood and stone have determined the character of the buildings.

Modern attitudes to culture have popularised this view but it is rooted in our history and has been widely used in forming architectural theory both in the past and now. Rapoport feels that if it applies in modern Western thinking about construction, then it has a far greater influence on less developed societies and consequently, is a much more restraining factor.

Situations do exist when a society's values are of greater importance than the relentless advance of technology. There is a tendency to believe that technological advances equal progress and to ignore the consequences of their blind application.

In an attempt to improve conditions during their stay in Libya, the Italians

installed a water distribution network in a number of villages which were perceived by them to be needing it. What they failed to recognise is that, in a Moslem society the opportunity to go to the village well represents one of the very few occasions in which women can leave the confines of their houses, meet neighbours and exchange news. The new convenience of water taps in houses made the daily meetings by the village well unnecessary, thus reducing the opportunities for social contact. In other areas, the removal of thatch from the roofs and its replacement with other modern materials has led to the remaining thatched houses gaining a new status as desirable antiques, and therefore being too costly for the people for whom they were intended.

The materials, construction methods and technology used for housing, should be treated as modifying factors. They do not determine what is to be built or the form; these are decided on other grounds. Their role is to facilitate certain decisions and make possible the designer's ideas. The organisation of space according to other considerations is simply put into action when the materials are chosen and construction is started (A. Rapoport, 1968).

It has been claimed that the change in the form of traditional Arab courtyard houses in Libya has resulted from the introduction of new types of building materials. This cannot be said to represent an accurate view as the same materials, mud traditionally, or cement in modern times, can both be used to shape the same forms. The reason behind the rejection of the old form lies in other areas which will be investigated later in the study. As Rapoport indicated (1975):

Materials in themselves do not seem to determine the form...A change of materials does not necessarily change the form of the house...Frequently, the same materials can result in very different forms.

The character of the construction is, however, affected by choice or

availability of materials used. This is seen in both rural and urban dwellings in Libya. In some places, the dwellings are entirely built from unworked stones gathered around the chosen site. In other locations, mud clay is the main source of building material. Where it is widely available, sand and sandstones are found in traditional constructions or a mixture of small stones with clay and organic materials compacted together to form walls. In the desert zones, use could be made of the widespread crusted salt beds from which large chunks could be dug out, shaped into bricks and held together with clay. The types of houses using these materials are described in a later chapter on Courtyard Housing. All these various materials have been used in Libyan settlements and no one is preferred to the others. The main criteria for use was the availability, ease of handling and the minimum effort in gathering and preparing the material before its use in construction. The actual durability of the structure was less of a consideration than its form and its place among other buildings.

The typical characteristic of the construction of Libyan courtyard houses is its thick load-bearing outer walls, made of sandstone, limestone or mud bricks, depending on the local availability of materials. These walls are plastered over and then whitewashed. The roofs in these dwellings are normally flat, built from joists and flat timbers or plain trunks covered with clay or rubble and then decked and plastered. In more recent times, rain-proofing has been provided by concrete and cement. Other types of roofs, such as the vaulted or domed systems, are not common and are usually found in mosques, public buildings, or isolated mountain settlements.

2.11 EARTH AND MUD FOR SHELTERS

In a previous section, we have seen that the population of the desert areas chose the site for their settlements according to the availability of food and

water. In some of these locations, there was no ready source of suitable building materials. Often, all they had to work with was gritty sand and clay. Through generations of trial and error, experience about the prevailing climate and the local environment was accumulated. Through the exploitation of the locally available resources, they developed houses using mud, small sticks and brush.

This type of dwelling proved so successful that it has continued to be used for more than 600 years with only minor adjustments (G. Golany, 1982). The mud used in these settlements was made out of a good type of clay:

In Africa, the silt content of most soils is low and this means that they are mixtures in varying proportions of sand and clay (S. Denyer, 1978).

Although this is poor soil for agriculture, it is ideal for building purposes and there are various ways in which it can be used. It is so versatile and durable that one could quite easily build a two-storey house with it. The commonest method of producing mud bricks for building in Libya is by using wooden shutters and by sun-drying the bricks. They are cemented together with more mud and the rough outside walls are then covered with a plaster made out of a mud mixture.

Traditionally Libyan houses would have a mud floor which, though it may sound insanitary, is hard and smooth, unabsorbent and easy to clean. Mud was used in most plasters as a good binder; it produces a weatherproof finish and can easily be decorated or painted. Adding layer upon layer presents no problem since it bonds to itself very easily.

In older cultures, builders made use of the materials at hand so that the finished construction fitted into its surrounding environment and blended with the natural landscape. The difference, nowadays, is that building materials are

imported into areas. Some materials are easily regenerated, such as wood, but others run out and are more difficult to replace.

All builders and architects like to believe that their constructions will last forever; however, the useful life of most buildings is limited, at least in their original concept. We should now be looking at ways of establishing the length of time for which a building retains its original purpose and at determining which material is best suited to endure throughout that time span, so that the building can fulfil its purpose.

Due to the increase in the urban population, the introduction of new building regulations and the creation of new settlements, traditional materials are no longer readily available. They are too difficult to collect in large quantities and the land from which they came is now protected for agricultural use only. Modern housing programmes use modern construction techniques, including the use of glass, steel, aluminium and cement. These new materials often have to be imported into the country and have by now become a feature of Libyan foreign trade. Their use tends to add considerably to costs because they are not renewable in the way that mud bricks are. In the race for modernisation, however, costs are often overlooked in choosing new materials, and new forms follow on. Labourers, skilled in the old methods, are now hard to find and their work adds greatly to the time required for construction. These problems will be further discussed in a later chapter.

It would be unwise to advocate a rigid adherence to old methods but the use of what is available locally would represent a step in the right direction: "On the whole, it is not inflexibility in the traditional technology so much as competing economic, social and political pressures which have brought the old methods into disuse" (S. Denyer, 1978).

2.12 SUMMARY

The Arabs of Libya used to refer to their houses as an earthly paradise. No matter what the conditions were outside, they knew they would find comfort and shelter inside. One can see by looking at the modern areas of Libyan towns that this can no longer be the case. Blocks of flats have large areas of glass and are reproduced in the same form regardless of orientation to the sun and prevailing winds. There can be little worse than a home environment which is too hot or too cold.

This chapter has given some explanation of the way indigenous housing developed to cope with the environment and has established the importance of climate in relation to housing. More significantly, it has been shown that, throughout the country, different forms have evolved in regions with differing climatic conditions. It is therefore necessary to study each area separately in depth before building commences, to gauge rainfall, measure temperature by day and night, summer and winter and to observe from which direction the winds come. It will then be possible to site the house in the most advantageous position and to choose materials best suited to the climate. A standard form for the entire country may be cheaper in the short term, but, apart from the possible distress caused to the occupants, maintenance costs will soar if correct specifications are not used initially in each region.

If modern housing is unable to cope with climate, we should look back to the solutions reached by our forefathers. The old town layouts may appear random but they managed, as we saw, to channel favourable winds and to give maximum shelter in the streets and courtyards. Some places such as the kitchen and WC need to use the breeze, in others it is preferable to eliminate it. Similarly, it is sometimes desirable to let in the sun and sometimes not. Studies must be carried out to ensure that these facts are taken into

consideration.

By controlling the climate, one gives the opportunity for social life and activities to flourish in and around the open space. If people are not comfortable they will not use space but go elsewhere. It is therefore the community as a whole, as well as the individual, which benefits from thought given to planning for climate. We will look next at cultural factors which have influenced house form and which must also be taken into account by designers.

TABLE 2.1: CLIMATIC DATA FOR COASTAL CITY, MISARATAH
DATA BASED ON DIURNAL RANGE 1960 to 1986 METEOROLOGICAL DATA

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	YEARLY
Av. Max -													
Av. Min	9.4	10.4	10.0	10.4	10.7	10.7	10.6	10.8	10.1	10.1	10.4	9.9	10.3
Daily Av	13.3	14.1	15.9	18.5	21.6	25.0	26.4	27.2	25.9	22.5	18.6	14.5	20.5
Av. Max T°C	18.0	19.3	20.9	23.7	26.4	30.3	31.7	32.6	30.9	27.5	24.0	19.4	25.4
Av. Min T°C	8.6	8.9	10.9	13.3	16.2	19.6	21.1	21.8	20.8	17.4	13.1	9.5	15.1
Absol. Max	30.8	36.1	39.2	40.2	44.6	45.2	46.0	45.7	43.8	40.2	37.5	30.2	46.0
Absol. Min	2.0	2.0	2.5	5.0	7.7	11.0	14.0	16.4	14.5	8.4	4.2	4.0	11.0
Evp.Press.Max	68	65	65	63	62	63	65	66	68	69	66	68	66
Evp.Press.Min	38	35	36	32	32	34	35	36	38	37	33	36	34
R.H. Max	90	88	90	86	84	86	87	87	94	94	92	93	86
R.H. Min	50	47	48	48	44	46	47	47	52	52	47	48	48
Rainfall mms	62.4	28.4	20.6	17.8	5.2	1.4	0.0	0.2	19.6	41.7	28.2	63.8	289.3

Source: Ministry of Housing, Libya

TABLE 2.2: CLIMATIC DATA - MOUNTAIN CITY, NALUT, LIBYA - 31°52N and 10°59'E

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	YEARLY
Av. Max -	8.5	9.9	10.5	11.6	12.5	13.2	13.1	12.9	11.5	10.2	9.6	8.6	11.0
Av. Min	9.5	11.5	14.1	17.2	21.6	25.9	27.4	27.9	24.8	20.0	15.3	10.3	18.8
Daily Average	14.7	16.5	19.2	23.0	27.9	32.5	34.0	34.3	30.6	25.1	20.1	14.6	24.3
Av. Max	5.2	6.6	8.4	11.4	15.4	19.3	20.9	21.4	19.1	14.9	10.5	6.0	13.3
Abs. Max	24.6	31.6	34.3	39.4	41.4	42.0	43.5	42.8	41.2	36.2	32.0	25.0	43.5
Abs. Min	-1.6	-3.3	0.0	4.0	6.0	8.7	12.8	13.6	12.9	5.2	1.0	-2.0	-3.3
Rel.Humid (%)	59	50	48	46	43	41	41	44	51	55	54	61	49
Evap.cm.	10.1	12.9	17.1	20.8	28.0	33.6	32.9	28.3	20.5	14.8	10.9	9.9	241.8
Sunshine Hrs.	7.2	8.2	8.1	8.4	10.2	9.9	11.8	10.6	9.1	7.5	7.4	7.0	8.8
Vapor Press mbs	6.7	6.5	7.3	8.8	10.3	12.6	13.7	13.8	15.3	12.7	9.3	6.3	10.4
Rainfall mms.	15.3	7.7	21.6	19.2	11.1	2.3	0.0	0.0	8.5	15.4	10.3	13.3	124.7

Source: Ministry of Housing, Libya

TABLE 3: CLIMATIC DATA - GHADAMES(DESERT TOWN), LIBYA (27°01'N - 14°26' E)

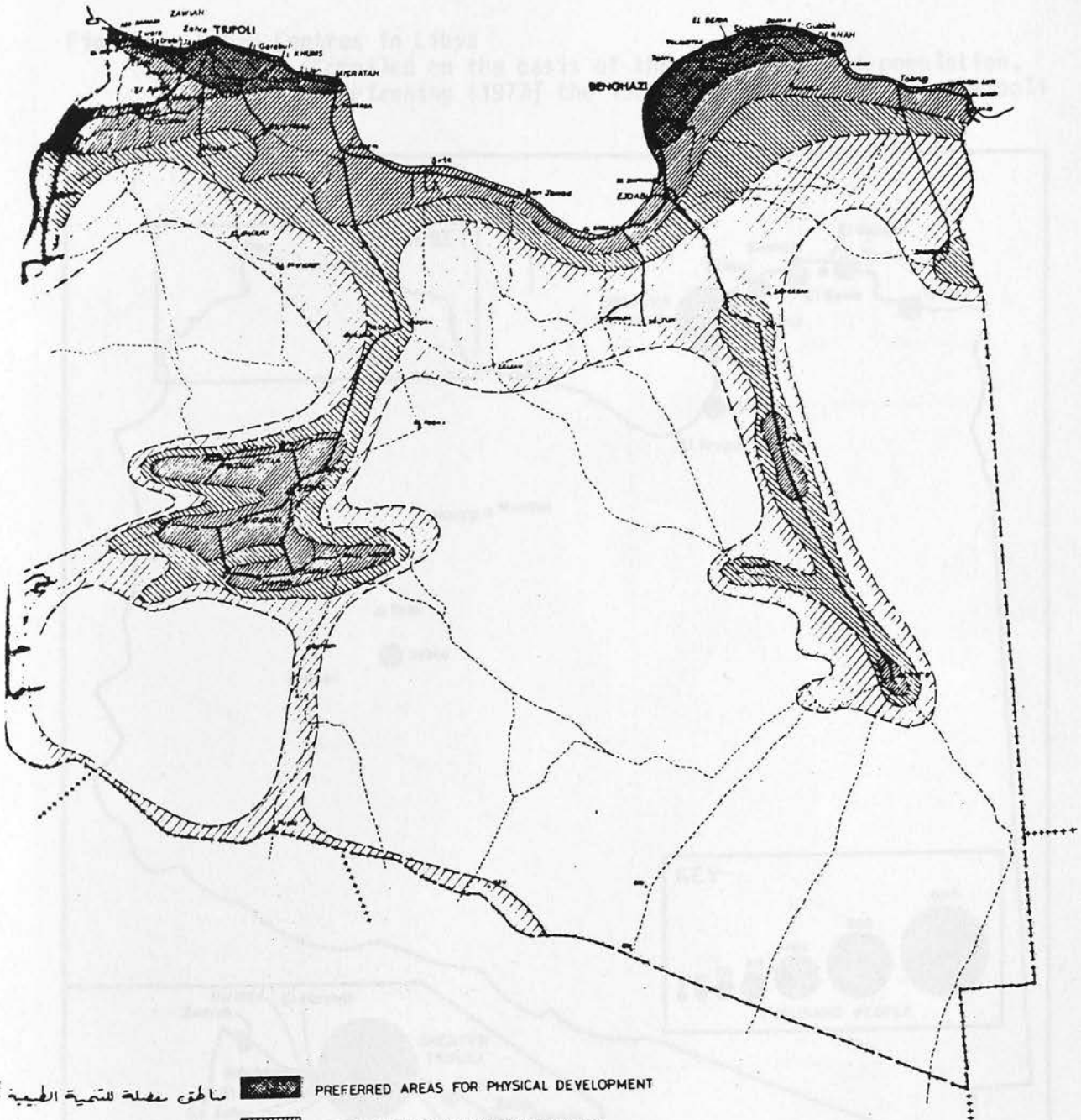
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	YEARLY
Av. Max -	14.4	15.7	14.2	15.8	15.7	15.6	15.6	15.2	14.2	14.3	14.4	14.4	14.1
Av. Min	11.7	14.8	18.3	23.3	27.1	31.0	30.2	30.0	28.8	23.6	18.3	12.4	22.5
Daily Average	18.9	22.4	26.4	31.2	34.9	39.8	38.0	37.6	35.9	30.8	25.5	20.1	30.0
Av. Max	4.5	6.7	10.2	15.4	19.2	23.2	22.4	22.4	21.7	16.3	11.1	3.7	14.9
Abs. Max	29.2	36.6	39.2	43.1	44.0	45.6	46.5	44.0	42.9	20.5	38.9	34.1	16.5
Abs. Min	-3.6	-3.3	-1.5	3.5	10.4	17.0	17.0	17.6	14.0	8.2	1.6	-2.3	-3.6
Rel.Humid (%)	50	42	35	29	26	23	26	28	31	40	46	47	35
Evap.cm.	12.5	14.7	20.7	24.2	31.4	36.1	37.2	33.0	24.3	18.8	14.2	11.6	278.7
Sunshine Hrs.	8.7	9.2	9.3	2.7	10.3	11.5	12.6	11.9	9.4	8.7	8.9	8.0	9.8
Vapor Press mbs	7.1	8.6	8.4	9.0	9.6	10.6	11.3	11.9	12.0	10.7	9.7	7.5	9.7
Rainfall mms.	0.4	0.4	0.0	0.6	1.2	1.4	0.0	0.0	0.3	4.4	1.0	0.3	10.0






Source: Ministry of Housing, Libya

Fig 2.3

تقييم مناطق التنمية المحتملة

EVALUATION OF POTENTIAL DEVELOPMENT AREAS



- مناطق مفضلة للتنمية الفيزيائية  PREFERRED AREAS FOR PHYSICAL DEVELOPMENT
- مناطق مقبولة للتنمية  ACCEPTABLE AREAS FOR DEVELOPMENT
- مناطق ممكنة للتنمية محدودة  POSSIBLE AREAS FOR LIMITED DEVELOPMENT
- إمكانيات مقيدة بصورة شديدة  SEVERELY RESTRICTED POSSIBILITIES
- مناطق غير مقبولة للتنمية  UNACCEPTABLE AREAS FOR DEVELOPMENT

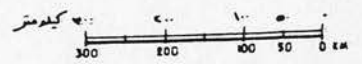


Fig 2.4:

Urban Centres in Libya

Source: Compiled on the basis of the 1973 census of population, Ministry of Planning (1977); the 1973 Census of Population, Tripoli (Arabic)

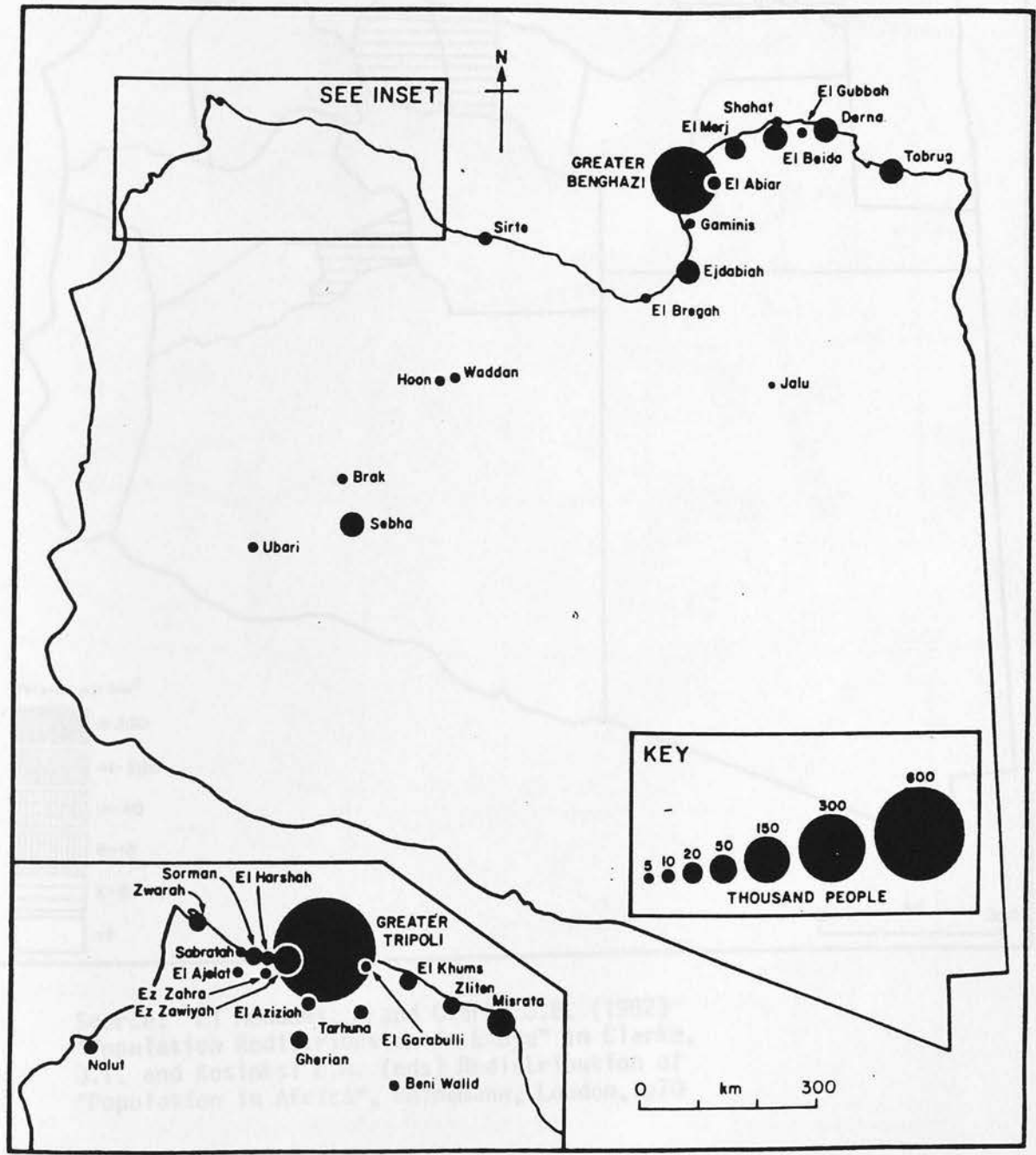
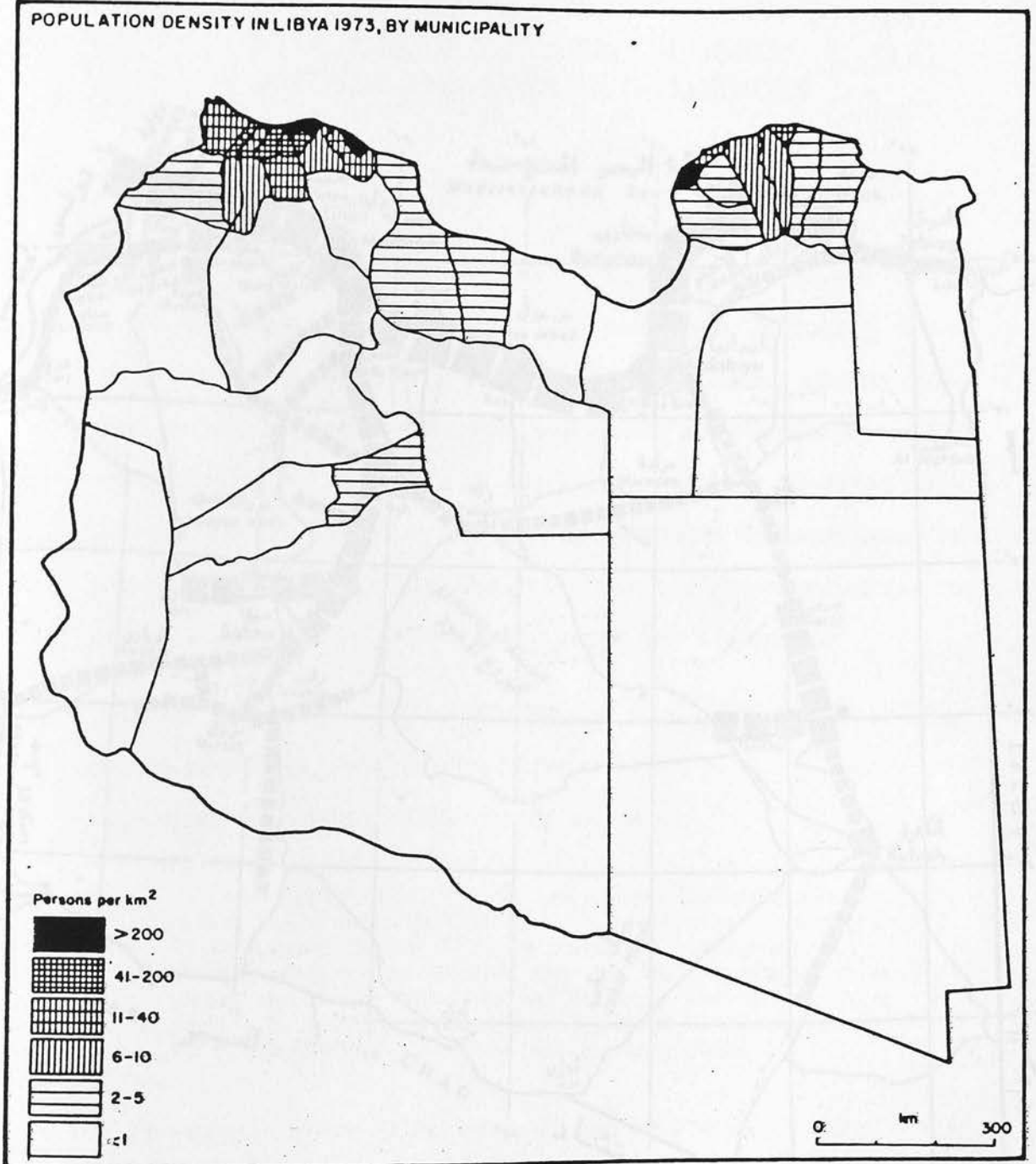


Fig 2.5

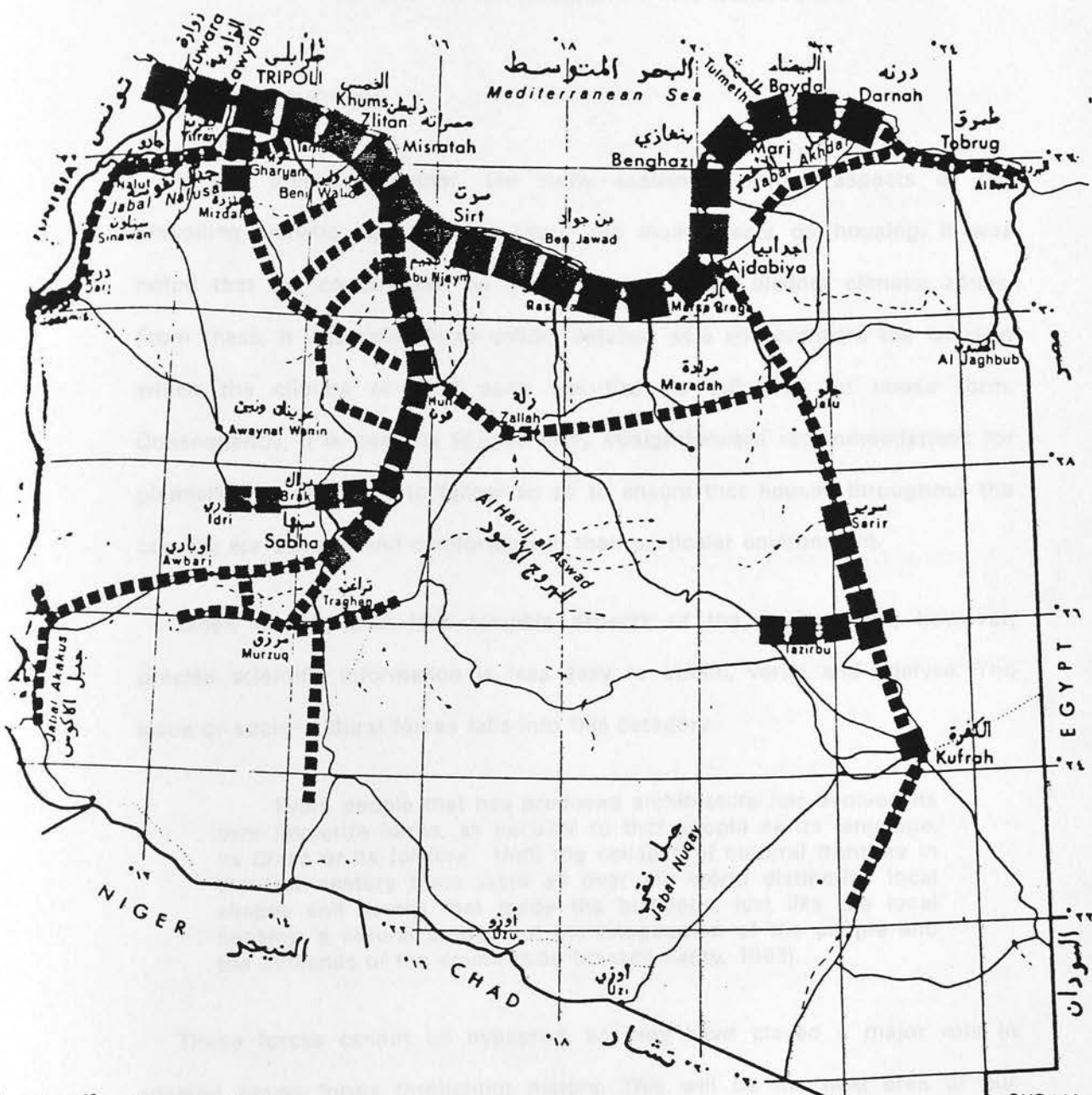
مناطق وخطوط النشاط الاقتصادي-2000
ZONES AND LINES OF ECONOMIC ACTIVITY-2000






Source: El Mehdawi, M and Clarke J.E. (1982)
"Population Redistribution in Libya" in Clarke,
J.I. and Kosinski L.A. (eds) Redistribution of
"Population in Africa", Heinemann, London, p70

Fig 2.6

مناطق ونخطوط النشاط الاقتصادي لعام ٢٠٠٠
ZONES AND LINES OF ECONOMIC ACTIVITY-2000



مناطق ونخطوط النشاط الاقتصادي

- | | | |
|-------------------|---|-----------|
| من الدرجة الاولى |  | PRIMARY |
| من الدرجة الثانية |  | SECONDARY |
| من الدرجة الثالثة |  | TERTIARY |
- 48a- -٢٥٨-



CHAPTER 3

CULTURE, SOCIETY AND RELIGION: ANCIENT AND MODERN INFLUENCES

3.1 INTRODUCTION

In the previous chapter, the study examined various aspects of the prevailing climatic conditions in Libya and their effects on housing. It was noted that the country can be separated into three distinct climatic zones. From these, it was possible to collect detailed data and compare the ways in which the climate of each zone has had its influence on house form. Consequently, it is possible to give fairly straightforward recommendations for planners and designers to follow so as to ensure that houses throughout the country are suitable and comfortable in their particular environment.

When dealing with less tangible aspects of the environment, however, precise scientific information is less easy to obtain, verify and analyse. The issue of socio-cultural forces falls into this category.

Every people that has produced architecture has evolved its own favourite forms, as peculiar to that people as its language, its dress or its folklore. Until the collapse of cultural frontiers in the last century there were all over the world distinctive local shapes and details that made the buildings, just like the local cooking, a natural product of the imagination of the people and the demands of the countryside (Hassan Fathy, 1963).

These forces cannot be bypassed, as they have played a major role in shaping house forms throughout history. This will be the next area of our investigation.

As part of this chapter, it is planned to conduct a detailed study of the laws of Islam, particularly with regard to privacy and its importance in the design of

houses and in the regulation of people's behaviour in general. Customs and culture, from both Islamic roots and other outside forces will also be examined and the whole structure of the family and tribal systems assessed to reveal the kind of hierarchy that operates.

Another very influential aspect of life which will require careful examination is the role of women in Libyan society. In an Islamic society, women are not permitted to mix freely with men, but they must be allowed to carry out their daily activities in comfort and without feeling exposed.

Each yearly cycle is broken up with various important social and religious festivals. These are the things that distinguish one society from another and every effort must therefore be made to ensure that they can continue to be celebrated so that society does not lose its identity.

All these factors require a special use of space, so particular attention will be given to the ways in which spaces are used, the daily and yearly timetables of use and movements between spaces. Both the new and traditional settlements will be examined in this study so that we can see how people have to adapt when moving into new areas to ensure that their way of life remains unchanged. The final sections will deal with recent influences on housing and society brought about by the period of colonisation, when Western powers brought radically new patterns of life to Libya. This was also the beginning of a trend towards urbanisation and the development of a city-dominated economy.

3.2 CULTURE AND LIBYAN SOCIETY

The first task is to establish exactly what we mean by the word "culture" and then, describe what has been found and what is the historical and social background which has shaped the present culture.

The word "culture" as used in this study will refer to the ideals, ideas,

emotions and manifestations of behaviour common among people in one area. The shared faith, aspirations, traditions and values are reflected in the ways in which their day-to-day life is organised and in their whole way of life. Every task they tackle, every time they greet a friend or see their family, their behaviour is learnt from a mixture of religious and social codes passed down from generation to generation so that it seems natural rather than learnt. Everyone in the area will be familiar with the patterns of behaviour and will conform to them. Non-conformity will be obvious, unpleasant and disturbing.

An old culture which has evolved over many generations may have grown away from its roots and changed quite markedly although it may be considered to be identical. What it will have done very successfully – and one of the reasons why it continues to exist – is to shape the environment in which it is found; as such, it becomes part of this environment. As T. A. Ibrahim (1987) put it “a relationship such as that between soul and body is developed”.

Rapoport (1977) has said that the cultural environment will indicate the reflection of a people's value system, environmental attitudes and preferences. He believes that the physical form of the built environment results from people's behaviour patterns in society. Such a view would mean that a traditional way of life could dictate the shape of housing, allocation of space, orientation of buildings and form, in such a way that the physical structures would become symbolic of society's rules, values, beliefs and norms.

The author will look particularly at these aspects of life in traditional villages which have not been affected by the rapid changes in urban areas brought about after the oil boom. Reasons for the survival of these areas will be examined to establish why, when people have the means to move out into modern housing, they choose to stay put.

Religion and kinship were very strong forces and people built their own

homes to reflect these feelings. They believed that God was responsible for all that happened and lived according to the teachings of the Quran. Superstitious feelings were also strong and this increased reluctance to change and strengthened conformity.

Symbolism was an important aspect of life along with belief in supernatural powers and holy men. The rooms built around a court, and houses around a square, reflect and symbolise the conservatism of the people and their need for security, privacy and co-operation of dwellers. This pattern is seen throughout North Africa in Islamic communities.

In traditional Libyan towns, the unique characteristics of society are underlined in the use of decorative additions to the space such as stone benches for men to sit outside, special shaded coverings and use of vegetation. The positioning of key public buildings, mosques and markets is also an important way of signalling cultural identity, in establishing the relationship between people, buildings and space.

The success of human activities requires correct and workable arrangements of space, whether open or enclosed. Almost every action is carried out in a specific space. The importance of the action and the method of performing it are factors that ought to be considered when discussing space. There is, therefore, a more complex relationship between man and space than simply the physical. Each space has a certain significance depending on its purpose. Our activities are affected by space and they, in turn, affect it.

We have previously stated that society's values, ideas and aspirations are reflected in the built environment and we can now add that this environment can, in turn, influence the people who "use" it. In the traditional Libyan community people behave in the same way, share the same perception of life and prefer to conform for the sake of maintaining a pleasant and comfortable

existence. Their built environment reinforces their way of life and helps preserve it by encouraging homogeneous behaviour. The mutually recognised but unvoiced codes of behaviour are, therefore, followed naturally and not as a result of coercion. As Rapoport (1977) said:

...there is a close fit between the organisation of space, time, meaning, communication and culture.

This chapter will look closely at the main aspects of the socio-cultural characteristics of Libyan society and identify the features which affect most directly the design of houses. This will include the analysis of the relationship between people and their built environment, the influences which are brought to bear on it and the need to maintain dignity whenever possible. To build a picture of the background to important cultural factors, the study will highlight historical issues: the Roman occupation and the coming of Islam. We shall try to demonstrate the effects that both of these have had in shaping the present patterns of behaviour.

3.3 OUTSIDE INFLUENCES ON THE SHAPING OF LIBYAN CULTURE

Influences on Libyan history have come from both the East and the West. The Phoenicians, from the West, first laid the foundations of the ancient cities of Leptis Magna, Old Tripoli (Oea) and Sabrata in the 5th century BC. The Greeks founded many cities in the Eastern region of Cyrenaica including Barce (El-Marj), the Hesperides (Berenice and Benghazi), Tanchera (Tocra) and Apolinia.

Tripolitania, during this time, was under the control of the Phoenicians, while the Greeks ruled over Cyrenaica. During the following few centuries, Carthaginians entered the country from Tunisia and took over control of the Western cities. They were then ousted by the Romans and the West came under the power of the Roman Empire. The Romans extended their Libyan

infiltration into the Jezzan region where they gained control over Germa, previously established by Garmantes.

The Roman occupation gave Libya its first taste of unity under one single administration. At the same time, however, strong ties with its Egyptian neighbours were being forged and for many years, the Roman centre in Cyrenaica was controlled by Alexandria.

Although they theoretically controlled the whole country, the Roman influence was mainly felt in the coastal regions which were also most strongly affected by the Greek occupation. The inland mountain areas were far less affected by either of these powers.

In 670AD, Islam came to Libya. Prior to that, several traditional religions had existed, including the worship of local gods introduced by the Greeks and the Romans. In Cyrenaica, there had been a Jewish community since 4BC and Christianity also had a foothold in Cyrene, which was reinforced by the Romans, spreading inland as far as some desert settlements.

Islam spread quickly throughout the country and within two centuries, became the predominant religion in cities, towns and villages. Its influence was the strongest force to take root in Libya, and being as much a way of life as a religion, its effects were deeply felt, changing the culture, laws and traditions of people. Every Libyan settlement was soon adapting and taking its lead from the first Islamic nations in both social and religious matters. The Arabic culture had arrived and brought with it new values and mores.

Arabisation had also brought unity. Libya was now a country with one faith, regardless of colour and race; its people took a pride in the brotherhood of Islam. Between the 7th and 11th centuries, the Arab tribes of Beni Hilal and Beni Salim migrated to North Africa and all the tribes mixed together

successfully.

Even the traditional local tribes, such as the Berbers with their long history in the region, were drawn in, although they still retain their own language and some of their customs. To this day they inhabit small settlements on the edge of the Western mountains of Nufusa and Jefren and pockets in the coastal areas of Zwara. The proud desert tribe of the Tuareg also retain some of their ancient identity although they too turned to Islam. Other immigrants arrived from the south, (Sudanese tribes and the Tabu), and established villages mainly in the southern region of Libya.¹

Subsequent colonisations were to have real significance only in the coastal region towns. Inland settlements were able to withstand outside forces and develop their own culture unimpeded. Many would-be conquerors limited their area of influence to the coastal regions because dominance there was less hazardous. Access was easy, the coastal towns were more prosperous, the bulk of the population lived in those areas (although many were originally from the hinterland) and life was more comfortable there. Inland regions presented problems geographically and climatically, were not economically attractive and presented a security risk.

However, the separate developments between coastal regions and inland regions should not be exaggerated. Differences do exist between the settlements in the two regions as a result of the varying degree of outside influence but the Islamic culture was very strong throughout the country and the scale of variation is therefore relatively minor.

The Islamic dominance in every zone meant that all the tribes held one

¹Al-Barghuthi, L., 1973

basic view of the world. It introduced people to practical ways of controlling society, to a straightforward outlook on life that all could share and above all, to the one vital element which brought them together, namely the belief in and the worship of one God, Allah.

This common faith helped form certain characteristics of socio-cultural patterns in Libya. The fact that Islam has succeeded where so many other religions failed, is a mark of its ability to fit into the economic, social, political and cultural way of life of any community. Other religions failed because they had evolved in alien cultures and were unable to adapt or to be adapted. They, therefore, found no strong basis from which to spread out into the inland regions of Libya.

Islam was easily absorbed by the indigenous population. It was not so different as to cause disruption and its roots were closer to home than many other alien forces. It suited their way of life, was not imposed on them and gave meaning to their existence.

A new kind of traffic began through Libya which helped to spread those ideas. Eastern cities became staging posts for caravans of pilgrims on their way to the Holy City of Mecca via Egypt. Commercial links with neighbouring Tunisia were also influential in the Western settlements.

3.4 THE EFFECTS OF ISLAM ON HOUSING

Islamic religious culture stamped cities and towns of the Islamic world with characteristics which impart to them their religious personality and it virtually distinguishes the cultural area to which they belong (G. Hamdam, 1962).

Hamdam states that as soon as Islam took hold in a region, it began to adopt the local architecture.

Islam does not directly affect the physical environment in that it does not

address problems such as housing or planning. However, it permeates every aspect of behaviour, delineating appropriate social conduct, family life and relationships. These teachings are a part and parcel of the culture of the people which they carry through their lives wherever they may find themselves. The built environment of a traditional area complemented their way of life and was shaped to facilitate the practices with which they felt comfortable. Therefore, although no rules exist in the Quran regarding shape or style of housing, the attitudes which these teachings instilled in its followers are reflected in their houses.

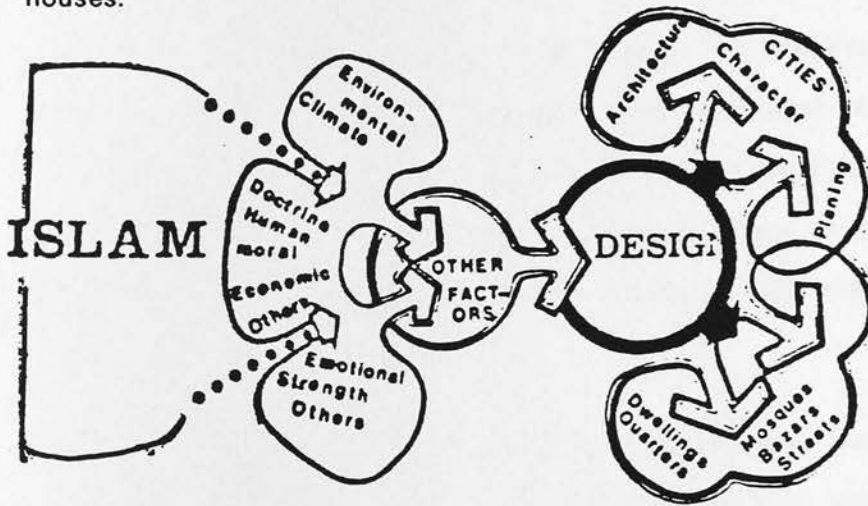


Fig 1: The social and behavioural components of design in Muslim countries were derived from the Quranic verses emphasising the model behaviour and way of life for Muslim society
Source: The Arab House (1982)

To understand this symbiosis we should identify patterns of behaviour based on Quranic injunctions which have had an impact on traditional design. Western architects employed to build housing in Islamic areas have picked out the obvious features, such as archways and incorporated them in their designs labelling them "Islamic". These outwardly visible symbols are mere gestures, missing the point. The average Muslim could live happily enough without this familiar feature, provided that the orientation, inner space and layout of the house suited his way of life. It is at the level of space, as Hillier (1984)

emphasised, that architecture has its greatest effect on behaviour.

It is generally agreed that Islam is not a solitary religion and it is best pursued in an urban setting as it stresses the importance of congregation, mutual aid and brotherhood. The words in Arabic for the holy day and for the mosque both come from the root word meaning "to gather". All Muslims pray at the same times, with the same words, in the same direction. There is no room for expressions of individualism in any aspect of their lives.

The effect of this on housing is that people want to be involved in a community. Houses differ only in site and location. The house is one unit, knit together with others to bind the population together. Because of the additional bonds of kinship, the villages have the atmosphere of a larger urban population with a high level of activity in the outdoor space. As a focal point for each area and to provide a place for group worship, the mosque and minaret dominates the skyline.

Quranic law also provided guidelines for more hygienic water supply and personal cleanliness. Provision of baths within mosques or in separate buildings were made throughout the region. This made it less imperative that these facilities be made available in the home. Men went five times a day to the mosque and washed there and women had privacy to wash from the well at home. Even today, many men in the villages still like to wash at the mosque as there is an element of spiritual as well as bodily cleanliness.

Another noticeable and widespread effect of the teachings of Islam is found in decorative elements of building. Geometric patterns, script and colour are widely used but never the representation of figures which was understood to be forbidden in the Quran.

From the author's previous studies in traditional housing areas of Misratah,

the type of questions people ask about housing were: how could they protect their families, how close would they be to others in the kinship group, would there be easy access to the mosque? These considerations stem from their cultural and religious background and put aesthetic considerations well down the list of priorities. The planner's first duty therefore, should be to examine the traditions of the community. It is not enough to look at what they seem to have or seem to lack, one must listen to what is important to them and ensure that their needs and wants can be catered for.

People who took their inspiration from the Quran designed their homes with a special understanding of what a house should be from their knowledge of the holy scriptures. The words for house used in the Quran are, "bayt", meaning somewhere to stay overnight which has taken on the significance of family sanctuary, and "sakan", the other word used, means peace and contentment. Thus the early builders aimed to create an atmosphere of family security within their houses. This is still an important aspect of life today.

When the Prophet Mohamed (Peace be upon him) left Mecca and settled with his followers in Medina in 622Ad, he built his first mosque and his house. This settlement can therefore, be regarded as the first Muslim community. Here were the seeds from which the entire Islamic movement sprang into life. It was, therefore, from the roots of the Islamic movement and its initial and essential spirit that subsequent buildings were erected and the guidelines for future plans laid down.

With the spread of Islam there came a flourishing of parallel intellectual activity, a search for knowledge in which the Quran encourages its followers. Religious principles relating to society and way of life were studied and scholars were able to advise and recommend practical solutions based on Quranic teachings, to design problems such as how to maintain privacy. There

was found to be a fund of basic rules in Fikha (The Quran and its explanations) out of which were developed practical solutions to the problems of access and an individual's rights.

Islam spread over a wide area but in each place where settlements sprang up, the same Quran was the basis of law and the philosophy of life. Each region already had its own customs and traditions, environmental factors and climate, and these merged with local interpretations of the Quran to give a unique flavour to their preferential constructions, styles and forms. Islam, to a Muslim, is more than a religion. It is an all-encompassing culture and a way of life. Islam defines a certain set of inter-relationships between the members of a community (Serageldin, I., 1980).

Teachings include many remarks regarding propriety, the family structure, the role of women and seclusion. In order to live according to these teachings, houses must be designed in such a way as to facilitate mobility and everyday activities within the given structures, while providing comfort and protection. Design can help or hinder suitable or acceptable behaviour and encourage modesty and chastity, avoiding temptations.

There is a widely-held belief that sexual impropriety and its consequences are largely to blame for the breakdown of spiritual ideals. Whether rumoured, real or imagined, of all social and environmental forces, this appears to be the greatest bringer of harm. Lack of personal or domestic privacy or breaches of acceptable behaviour are major contributing factors. The defeat of this evil influence would lead to far greater peace and prosperity in society. Within the traditional family home, the layout helps to engender the chastity of women and lets them enjoy their activities without hindrance from men. In modern housing, families have to create artificial boundaries as we will see, to make their social lives more comfortable and prevent any embarrassment or inconvenience.

Examples of the way in which a harmonious atmosphere is achieved in traditional houses will be demonstrated in later chapters.

Islam did not however, cause a major upheaval in the existing culture in Libya. The Arab tribes were already very conscious of family privacy and the need to protect their women. This will be discussed later in a section devoted to the role of women. The Quran actually elevated the status of women, giving them equal rights, but interpreters of the teaching recognised that, in reality, avoidance of temptation was the only way to realise the ideal world of Islam.

Libyan society is still relatively conservative in this matter. It is as much a case of personal pride as of religion and indeed sometimes taken more seriously than the five pillars of Islam. A man may not pray or fast, or go on pilgrimage but, for his dignity, in the eyes of society, he would want his female relatives to behave circumspectly and not to be seen by outsiders. It can be shameful to him if he sees his wife during the day or if he interferes in the women's daily activities. Children are used as messengers between men and women relatives or brief conversations can take place through screens.

Say to the believing men that they should lower their gaze and guard their modesty: that will make for greater purity for them: and Allah is well acquainted with all that they do. And say to the believing women that they should lower their gaze and guard their modesty. That they should not display their (zeena) beauty and ornaments except what (must ordinarily) appear thereof; that they should draw their veils over their bosom and not display their beauty except to their husbands, their fathers, their husband's father, their sons, their husbands' sons or their women, or the slaves whom their right hand possesses, or male servants free of physical needs, or small children who have no sense of the shame of sex; (Surat An-Nur (24) 30-31).

This quotation from the Quran is the basis for the belief that men outside the family should be separate from women. Although it is never specifically stated that the sexes should be segregated, scholars have recommended that, in order to create the kind of society advocated by the Quran, segregation is

necessary. The teachings of Islam lay great emphasis on conquering the temptations of sex and avoiding the resulting moral decay. Thus enormous importance is given to the sanctity of the family, privacy and respect as seen in the following verses:

Oh ye who believe! Enter not houses other than your own, until ye have asked permission and saluted those in them; that is best for you in order that ye may heed (what is seemly). If you find no one in the house, enter not until permission is given to you: if you are asked to go back, go back; that makes for greater purity for yourselves and God knows well all that ye do (Sura An-Nur (24) 27-28).

These words express the inviolable nature of the house and the seriousness of any behaviour breaching the family's privacy. Means of preventing such breaches should be discussed and exchanged among believers to maintain mutual respect. One only has to look at the outside face of a western style, large-windowed house in which a Muslim family is staying, to observe the measures they take to maintain their privacy, with heavy curtains and screens – a point the designer should not miss. Thus it may be possible to provide an atmosphere conducive to godness and purity.

Although the Quran states that women may go out if they are suitably covered, society does not encourage this. Even contact between a man and his prospective bride is frowned upon as the author can testify. If one wishes to catch a glimpse of the girl one is to marry, one has to watch patiently to see if she will appear at the house door to put out rubbish or to call her brothers. These customs persist in families who move into western societies.

There is now a conflict between economic recession and liberal ideas and society's preconceptions. An educated man may wish his wife to work to achieve a higher standard of living, but he will be aware of the disapproval of older relatives, neighbours and colleagues. He may indeed feel loss of face in society. The majority rule may prevent him from acting as he wishes.

Obedience to parents is stressed by Islam. Therefore, it is difficult for the new generations to introduce liberal ideas which may displease their elders. This has been carried to great lengths in Libyan society to the extent that an inattentive son may find himself ostracised.

The Lord hath decreed that ye worship none but Him and that ye be kind to parents. Whether one or both of them attain old age in their life, say not to them a word of contempt, nor repel them, but address them in terms of honour...(Sura Bani Israil (17))

The strength of family bonds cannot be over-emphasised. In many cases it is the cause of what appears to be the rather jumbled and piecemeal character of Islamic settlements. The family house must be flexible and often required to be adjusted, altered or extended to cater for new wives, growing sons who bring their own families, elderly grandparents and other relatives. Land usage around it may vary considerably as family needs change.

The nature of these houses produces settlements made up of large clans. Courtyards will be buzzing with the activities of women working, children playing, old people conversing and men drinking tea or doing crafts. It is difficult to distinguish which people belong to which building and whose children are whose. This helps to knit a neighbourhood together and promotes a feeling of security, comfort and sharing.

The prophet said "The neighbour has rights of priority" at Bukhari via Abu Rafi. If one person is going to market, he feels it is his duty to ask the neighbours if they want him to bring back some shopping for them. Helping with tasks and discussing problems are common activities and a natural result of the type of settlements rather than chores forced upon individuals. Again, verses from the Quran stress the importance of such ties.

Serve God and join not any partners with him; and do good to parents, kinsfolk, orphans, those in need, neighbours who are near, neighbours who are strangers, the companion by your side, the wayfarer (ye meet) and what your right hand possesses; for God loveth not the arrogant the vain-glorious (Sura An-Nisa (4))

The angel Gabriel kept exhorting me about the neighbour to the point that I thought he would grant him the right of inheritance (al Bukhari via Aysha).

He who believes in God and the Day of Judgement should not hurt his neighbour (Abu Hurairah).

In all its ideals, Islam today is as it was in the Prophet's time. However, Islamic society has changed over the years in all Muslim countries. It is not a rigid doctrine applying to only one area or one type of people.

There is often confusion between religion and tradition within the society. What is required is a return to the basic principles of Islam. On to these can be added elements of what modern civilisation has to offer in the way of materials and techniques which would be helpful and appropriate while not endangering the system. Hourie Kwati (1986) writes "...the history tells us how Muslim jurists worked to meet the changing needs in each generation, polity and geographical area through fresh efforts within the constraints of the sharia's". Her study was based on the three ancient cities of Harat, Cairo and Damascus.

Although, as seen, all Muslims have in common their beliefs in one God and in the Quran, if one compares the housing, way of life, dress and culture of Pakistan with North Africa or the Gulf States, one can easily see how very different they are. Therefore local influences such as climate, topography, environment and of course, history, must be recognised as important factors along with religion. Various studies have been carried out to establish exactly what effects Islamic culture has had on house form and urban settlements in Muslim countries.

Some of these have attempted to claim that the main influence is Islamic law. Those who favour this belief hold that this strict set of principles would explain why medieval Muslim settlements are so alike in form, construction and design. Credence has been given to the idea that a fairly rigid and widely held legal code was developed for use through interpretations of the Quran, the *Hadith*², *Ejtihad*³ and traditions. The code would appear to be the basis for guidelines used in buildings throughout the Muslim world and would explain the marked similarities in design throughout a widespread area. Besim Hakim (1986), who subscribed to this view, studied legal documents and ancient master plans from medieval Tunis. He also used *Ahkam* (verdicts) and manuscripts cited by Isa Rebn Musa (386H/AD996) of Andalusia and Iburil-Ramni (350H/AD961). He found that problems relating to architecture and urban design across North Africa were being solved by similar means. The types of decisions taken were very much alike and these he divided into two categories.

The "macro" decisions were those arrived at by the administration and were concerned mainly with public and official buildings, zoning and municipal structures. They aimed generally to preserve public order, to facilitate movement of people and goods in and out of the community, to provide protection and security and to promote and ameliorate measures which improved sanitation and hygiene. Governments were largely responsible for such decisions but religious-based decisions were being made simultaneously at a local level to benefit the community. The basis of all such local decisions was that, under Islam, any action against the public good was prohibited.

²sayings of the Prophet

³scholarly opinion

The "micro" decisions were those of ordinary citizens and dealt with their own built environment and the things that had most effect on their everyday lives. Five main problems were identified in this area:

- (a) streets and access,
- (b) local restrictions of usage that might cause public harm such as noise or smoke odour,
- (c) problems concerning the positioning of windows and doors, which involve the right to privacy and the right of light and air,
- (d) ownership problems of walls between neighbours and the right of usage,
- (e) problems concerning water usage, drainage and water waste restrictions.

Hakim concluded that solutions to both macro and micro scales were based on teachings found in the same identifiable sources, such as the Maliki School of Law. His claim is that this fact signals a desire throughout the Muslim world for compatibility between the built environment and Islamic principles.

In summarising Hakim's study, the following principles, (which were used by local Judges (*Kadis*) as the basis for their solutions to everyday problems) can be identified.

(1) Everyone is entitled to claim his rights but must not pursue a claim to the detriment of other people.

(2) Everyone should respect the property of others. As the Quran says (Surat Alsuara (183)-26) "And diminish not the good of the people and do not mischief in the earth working corruption".

(3) The Prophet decreed the right of pre-emption of a neighbour to purchase adjacent land or buildings in cases when a stranger or outsider may wish to own property such as a garden or wall which is indivisible.

(4) Privacy must be respected. The Quran encourages one to behave in such a way as to ensure that privacy is never invaded. Thus, when building,

access to private quarters should be along "blind" corridors.

(5) The right of your neighbour to have light and air must be recognised. Again from the Hadith we see "Do you know the rights of the neighbour...you must not build to exclude the breeze from him unless you have his permission". This meant that all houses should be the same height and no-one should add on extra storeys which would block the sun or the wind.

(6) Dimensions of the streets were also prescribed in the sayings of the Prophet. "If you disagree about the width of a street, make it seven cubits". This measurement is based on the space required for two laden camels or donkeys to pass. Similarly, the height was recommended to be seven cubits, representing the highest load of a camel (fig 3).

(7) Sharing amenities is another important aspect of the Prophet's teaching: "If you deny access to water, you will also deny the benefits of pasture". Any surplus water had to be given to others to use and everyone had the right to equal access according to their needs. This led to the familiar sight of a public fountain or well in the streets of Islamic cities. (Besim Salim Hakim, 1986).

We will see in the case study how such a process of meticulous attention to and consideration for people's needs shaped the courtyard houses to be examined and to what extent it is still valid. It will also be demonstrated that a more structured level of decision-taking is now required.

This section has looked in general at the religious influences on housing. Two important specific points have been raised, namely, women's role and privacy. The next section will look more fully at the former.

3.4.1 The influence of women on housing design

"The word harim in Arabic means a sacred, inviolable place, and it also

means the female members of the family. From the same root comes also the word *haram* which bears a double meaning: forbidden, or sacred and protected". ("Images of Women", Sarah Graham-Brown, 1988).

It has long been the view of western states that the concept of the *harim* is something either to smile at or to frown upon. These misconceptions are largely due to lack of understanding of the religious and cultural background and the common-sense principles on which segregation of men and women is based.

It is neither cruelty nor exploitation, but a sensible and sensitive organisation of society with which males and females are brought up and in which they feel comfortable. Indigenous housing did not restrict movement but provided an arrangement of space in which men and women could be at ease in their separate social lives and communal family activities.

The honour of the wife and mother is the honour of the family. She is the heart of the home. Indeed, she is so strongly equated with the home, that a man may refer to his wife as "my house". Around her, family activities revolve: the house is her domain. It is a matter of honour for the woman that her role is respected.

Traditionally in Libya, women spent most of their time in the house. The daily tasks of grinding corn, baking bread, preparing meat, cooking, washing and weaving were hard and time-consuming. The courtyard house gave her space and freedom to carry out these tasks undisturbed by the men. Much of the work could be done in the open air of the inner court. Here also she could receive her visitors, relax and watch her children. Other women would call frequently to share the chores, chat and take tea, they knew they would not be overlooked.

In more recent times, the education of women has been strongly encouraged by the Libyan authorities. More women are needed in health care and for teaching in single sex schools. Jobs are available outside the home. A new generation of young women has emerged; literate and highly aware of Western styles portrayed in the media.

A working woman no longer has time to spend on grinding corn and baking bread. Her household duties have to be fitted into a much shorter time. The convenience of a modern house with time-saving kitchen appliances is inevitably very attractive.

Despite changing attitudes, rural and traditional areas remain conservative and community disapproval may discourage women from seeking employment. Families wish their daughters to go to school and men like to marry educated women, but too much laxity is seen as dangerous by the older generation and lack of conformity mistrusted in urban areas.

On a recent visit to Morocco, the author interviewed residents in a traditional village. The way of life and the housing was the same as that found in Libya. Although life was hard in the poorly equipped homes, a male villager admitted that he would not move because of his daughter and his wife. He did not approve of the way of life in the cities and did not wish his daughter to be brought up there. It was better to show her a good example even if conditions were poor.

These attitudes make it very hard for young women who wish to further their education, to use their training or to contribute to the family economy. They therefore desire to have new houses in modern areas where they will feel freer. A man wishing to marry is often under obligation to provide a new house for his wife, complete with modern equipment. The link between women and the house is so strong that it allows her to influence her husband's choice

of home.

The urge to leave the traditional areas is further fuelled by the fact that modern housing is now seen as a status symbol. No man wants to be ashamed of his home or to have others think he cannot provide for his wife and family. Modern, to a man, means a modern elevation. To a woman it means a modern interior.

In this sphere, women have power to dictate their wishes. The author has experienced this when working in the Planning Department of the Municipality of Misratah. Women demanded the provision of modern hygienic kitchens and bathrooms and new furniture.

The only models on which they can base their dream houses are Western ones. Pictures seen on television or in a magazine give no indication of suitability or appropriateness to a particular society or culture. A dining table and chairs may make a pretty addition to a house but if the family has always eaten sitting on the floor they will continue to do so because it is what they are used to.

Education is not the same as experience. For a young woman to move from a traditional house to a modern one may be far less attractive than imagined. Those who have never used modern kitchen equipment or cooking methods may find it hard to adjust to them. Household duties carried out in the traditional areas can be tedious and time-consuming but one at least had the benefits of fresh air and frequent company. Working in the confined space of a modern kitchen is, by comparison, lonely and awkward. It does, in fact, decrease rather than increase freedom.

Although the pattern of life of young people is changing, the basic beliefs and commonly held principles on which Libyan society is based, do not change.

Young and old, educated and uneducated, continue to celebrate their religion together in a yearly cycle of festivals. The traditions of marriage, birth and death remain the same also and all these involve the gathering of large family groups.

These celebrations are carried on in the traditional way by Muslims the world over, wherever they may be. Just as in countries which are nominally Christian, Christmas is a traditional festival with certain important and unchanging features, observed by people who otherwise have no strong Christian feelings, Muslims, however devout, will continue to celebrate their festivals as of old. The fact that modern housing makes this more difficult does not mean that it is no longer an important issue.

Whether in old or new housing, women have to cater for these events in the traditional way. If an animal is slaughtered, as, by obligation it is on many occasions, their duty is to clean and prepare the carcass for eating. Without adequate space this becomes extremely difficult and practically impossible in a high rise flat. The courtyard of the traditional house provided an ideal area for this job.

Feminists may shudder at the use of words like duty and obligation, but women in Libya take great pride in cooking and preparing for large numbers of guests. They are not forced into these tasks but do them with pleasure to show off their skill and increase family honour. The wish for freedom does not mean they wish to lose their place as mistress of the home or the respect they have as wives and mothers.

Education, work, and modern housing are not their key to equality, they have always considered themselves fortunate to have been equal members of society long before Western women. The home is still the woman's sacred territory whether or not she works outside it. It is to her advantage if this

territory allows her to achieve her aims as conveniently and comfortably as possible, without compromise or loss of femininity. Hassan Fathy (1970) wrote:

Such a fragile creation in this peace and holiness, this womanly inwardness, this atmosphere of a house for which "domesticity" is so inadequate a word that it is lost with the least little rupture in the frail walls that guard it.

The importance of the woman's influence on housing could hardly be put more clearly.

3.4.2 Privacy needs in housing

C. Alexander (1977) wrote "Privacy is most urgently needed and most critical in the place where people live..." He was speaking in general terms but the previous two sections on the Quran and the role of women clearly indicate that, for a Muslim society such as Libya, this is a particularly important need.

For Libyan housing it is necessary to consider three levels of privacy; individual, family and community. Individual privacy, discussed more fully in a later chapter, is becoming a more common need than previously. The changing patterns of life, leading to nuclear rather than extended family living, has given young people the urge to have their own homes separate from a large group of relatives.

Families, whether nuclear or extended, have very strong links encouraged by tradition and religion. These ties are maintained within the home, where family members eat and talk together in areas, which are not used by visitors or guests, such as the inner courtyard. Times such as at the midday meal are for family only and intrusion would be seen as discourteous. A private, secluded area for these gatherings is also important because it includes male and female members. The case study will show how this is so crucial to the family that they are prepared to sacrifice a view and light to achieve full privacy.

Traditionally, many villages were clan communities. These kinship groups made socialising within the village lively and easy for all. Women knew who the men were and knew where they could go and when. The men, in turn, respected the women and did not intrude on them. Visitors to the area, or strangers, were always noticed as being outsiders and would have the feeling that they were in a private area. This caused them to show respect so as not to disturb the residents. The case study will demonstrate the differences now felt in modern housing areas, where people come and go freely.

Although the Quran does not recommend segregation for women, the tradition of separate areas for men and women continued to be common practice. It is necessary to realise that this is an accepted way of life with which people feel comfortable and that public mixing of men and women is not desirable for Libyan society. Male and female children are brought up in this way and do not find it strange or unnatural.

Women, however, were never prisoners in the home in traditional areas. They had their own separate social lives made possible by the privacy that the courtyard houses gave them and the easy access they had to neighbours' homes.

The organisation of the Muslim family required that the house should provide maximum privacy and protect its dwellers from the eyes of the outsider. These requirements led to the development of a double circulation system (Abdel Ismail, *Ekistics* 195, Feb 1972, pp.113-123).

This "double circulation system" is lost in modern housing causing women to be isolated. In the inner courtyard they knew they could dress as they wished, receive their friends and nurse their children without being overlooked. In modern housing, they must constantly be on their guard.

The designer faces a dilemma, which will be referred to again in this study,

of providing both privacy and access. The diagram shows two basic and conflicting needs. Muslims have always been urged by their religion to socialise, to keep in touch regularly with relatives and to help and befriend neighbours. At the same time, they have to preserve the three levels of privacy (see fig 2).

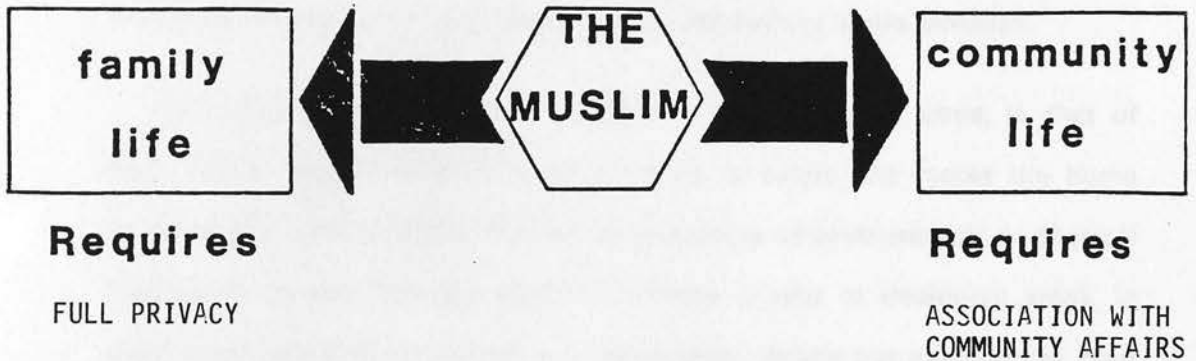


Fig 2: The complex balance between social homogeneity and heterogeneity of the socio-cultural system
Source: The Arab House (1982)

Altman (1980) describes privacy as "selective control of access to the self". Selectivity is the vital element that modern designers have not taken into account. Individuals, families and communities should be in a position of choice as regards their level of social interaction. New housing designs have the effect of enforcing openness on people.

The level of privacy provided in an area can greatly affect the activities of the inhabitants. In space where people feel comfortable and unexposed, activity is high. Where they are too open to view, people will avoid staying long.

Privacy is for all and the arrangement of space in traditional villages ensured that the people using public outdoor space or their own courtyards did not encroach on the privacy of neighbours. This makes the planning and arrangement of houses, public buildings and public space as important an issue as the interior layout of the house. The case study on modern housing

illustrates the unease produced by overlooking.

Privacy is an interpersonal boundary-control process which paces and regulates interaction with others (Altman, 1975).

Indigenous housing in Libya provided physical barriers to prevent anyone accidentally overstepping the limits into private spaces. When these barriers are not provided, people feel uncomfortable and activity levels diminish.

One other aspect of privacy which is of importance in Libya, is that of territorialism. Marked territory gives a feeling of safety and makes the home psychologically more private. A clear understanding of psychological or physical boundaries marking territory helps to increase privacy in traditional areas. In areas where territory markers are not understood, people put obstacles to keep passersby away from private space, examples of this will be shown in the case study on modern housing.

This chapter so far has given background information on the culture and behaviour patterns of Muslim societies in general and Libya in particular. Development of indigenous housing produced a harmonious arrangement of space, which matched the timing and nature of activities with the socio-culture. The case study will concentrate on these factors to evaluate how spatial arrangement in traditional and modern housing fits the present day needs of society. The next section gives examples of activities for which space should cater.

3.5 REGULAR EVENTS CREATING ACTIVITY

a. **Weddings:** Traditionally, and still in some parts, the first step towards a marriage was for the mother or grandmother of a young man to enquire after marriageable girls in the local area, visiting homes and discussing (that is, when arrangements of long-standing do not exist).

Following the agreement to wed, the groom's house (or his room) is painted white as a sign of the forthcoming event. Much visiting to give congratulations follows and animals are slaughtered and shared out. Before the wedding the bride and groom are paraded on horses around the area and even into the inner court for all to see and rejoice.

The bridal procession to take her from her family home to her new house is a very grand affair. She rides in a decorated houdah on a camel led by pipers and drummers and followed by the children of the area. On her right the men walk or ride horses, shooting guns to celebrate. The women take the left flank carrying food. They stop in each village and space on the way to receive gifts and money and all gather to feast the occasion.

b. Childbirth, Circumcision and "Aquiqah": These are also times for celebration but tend to be kept to the closer family and relatives. They are continued still in all areas.

c. Ramadhan: During this holy month there is continual activity, visiting and celebrating. The last three days of the month are particularly busy to mark the end of fasting. This is called "eid sagheer" and is followed seventy days later by "eid kabeer", another religious festival marked by the slaughter of animals, visiting friends, neighbours and relatives and sharing food.

d. Haj: The occasion of a person going on holy pilgrimage to Mecca is a time for family and friends to gather and celebrate for the weeks of their absence. The return is greeted by all, who gather to give thanks. The event is so important in their life that it is usually marked by them being given the addition of "Haj" to their own name.

e. Death: The body of the dead is carried in a coffin on the shoulders of the male relatives to the nearest cemetery. This mournful procession is joined by

friends, relatives and neighbours. After the burial, people return to the family's home to read the Quran. Food is provided for several days by the surrounding houses so that the bereaved family is not required to cook for the guests. This custom still continues in the villages.

f. **Hadherah:** This is a semi-religious, semi-superstitious custom occurring when a family moves into a new home, when there is a wedding or a birth. It involves dancing, drumming and chanting the names of Allah to bring luck and drive out the devil. Mullahs usually organise these events which take place either at the mosque or in the home.

There is always, in addition to the above, some seasonal activity involving the whole community. Whatever a man's daily job or profession may be, he will be expected to help with date gathering, olive picking, harvest and threshing, among others. Although these are arduous tasks, they are also enjoyable social events which people look forward to and would miss if they moved out of the area or if the area became unsuitable for continuance of such events. Women, children and old people all have their parts to play so much space is required. The co-operation built up by working and celebrating together helps to knit the community together.

3.6 ITALIAN INFLUENCES

The Italian occupation of Libya from 1911-1945 brought about great changes in the traditional way of life of the inhabitants. Influences which found their way into the nation's life during that period remain hard to dislodge. Any occupying force is, by nature, unpopular, but much that the Italians imported and imposed came to be greatly admired and coveted.

Immediately following occupation, the first Italian settlements were little more than army camps on scattered coastal sites. Gradually, however, as their

confidence grew, they were keen to manifest their dominance in every way possible, including architectural style.

Land was confiscated from the indigenous population and given to recently arrived colonists. Agricultural projects requiring large tracts of land and new technology were initiated, completely destroying the established pattern of subsistence farming, for the good of the individual family, which had continued for many years. These projects, although managed by Italians, who reaped benefits, required local labour.

Migrants from inland areas were brought to the fertile coastal area to work on the new farms. This process caused many inland villages to be abandoned and left to decay. It also produced a severe housing crisis in the new coastal settlements, further eroding the traditional way of life of those whose land it had been.

The Italians concentrated almost entirely on building for themselves. Almost nothing was done to help the indigenous people by way of rehousing or new developments. Their aim was to make their position unassailable by increasing their hold on the economy of the country. They did not seek to destroy the existing fabric but ignored it as being primitive, backward, and irrelevant to their drive for domination.

New colonists were actively encouraged to swell the ranks of the oppressors. Much controversy arose over the most suitable styles in which to house them and, although in the later stages of the occupation there is evidence that a certain appreciation of the indigenous form was reached because of its excellence in modifying climate, no attempt to adapt, copy or preserve it was made.

Even those for whom the local forms had appeal...could not overcome their cultural prejudice (Dazza, 1982).

Great thought was given to new centres for the incomers and it cannot be denied that many very fine structures, particularly in Tripoli, were erected. However, these were not designed with an Arab/Muslim culture in mind and held no relevance to the indigenes. The intention was to display a total rejection of local culture, emphasising the superiority of the Italian culture and the strength of their position.

While the country was occupied by the Italians, the indigenous population and their physical habitat and environment were considered either primitive or alien to the new "superior culture" which had assumed sole domination of the country (Dazza, 1982).

Such was the extent of their stranglehold on the financial life of the country that even after decolonisation, Libya looked to Rome for economic guidance, trade and co-operation. The economic institutions founded by the occupying force were taken over by those who had been the intermediaries during occupation and no wholesale economic change was attempted or even desired.

This resulted in the Italian influence remaining the dominant cultural focus. Many Italians stayed on and continued to hold positions of power. Libyans who benefited from the decolonisation by stepping into the vacant posts left behind, adopted the way of life of their former masters and moved into the sites they had vacated. The Italian sector therefore, became equated with wealth and power and consequently was attractive to those whose housing conditions had been allowed to deteriorate.

However, a latent psychological effect was created which made the Libyans want to assume the kind of economic and social power they observed the colonists to hold. First the privileged Libyans and then later the lower income groups felt that the colonial model would lead to modernisation and progress (Dazza, 1982).

A class structure, hitherto unknown, began to emerge, further increasing dissatisfaction in those "left behind" with their housing situation. When later, oil brought with it the ability to spend on housing to ease the lot of those in the crumbling traditional villages, the only solution was to turn to the West. As Dazza said "Libya found itself in a state of confusion because of the imposition of foreign concepts on its indigenous architecture". This "state of confusion" still exists and the legacy of the Italians in destroying the status of indigenous housing continues to permeate the psychological approach and attitudes to architecture for the future.

The Italian occupation was followed by a period when Britain and France took joint control, dividing Libya into two administrative areas. There was no development during their rule and, when they withdrew in 1950 and Libya gained independence, the country was left in a seriously depressed state economically and with a crumbling infrastructure.

3.7 RECENT POLITICAL AND ECONOMIC CHANGES

Throughout the '50s, Libya remained a very poor country, receiving aid from Western states and from the United Nations. Severe drought in 1952 further exacerbated the situation. The country was largely reliant on agriculture and on small-scale manufacturing, based on the produce of the land. Any aid money was for survival rather than development.

In a few large cities, jobs were available and life was less difficult. This brought an influx of people from the rural areas causing an unprecedented crisis in housing.

The 1945 census shows that 3,591 families were homeless in Tripoli City alone...(International Bank for Reconstruction and Development Report, p.294).

The federal system of government existing at the time was unwieldy, costly and inefficient. Between the different tiers of responsibility, it was uncertain whose task it was to take charge of housing. There was also considerable debate as to which policy should be followed. Some felt that major slum clearance should be carried out and others argued that any attempt to improve urban housing would increase migration to the cities and worsen the problem. A few stop-gap remedies were tried out with the construction of standard-sized, European-style blocks with no, or very few, facilities.

When the oil companies began explorations in 1955, their demands for labour drew people away from the land (see next section on urbanisation). Having left their farms, they did not return and moved eventually to the cities to settle. Most of the new city dwellers were in the lowest income bracket, unable to pay for land or house rents. As the city centres continued to prosper, the standard of life on the outskirts took on an unimaginable squalor.

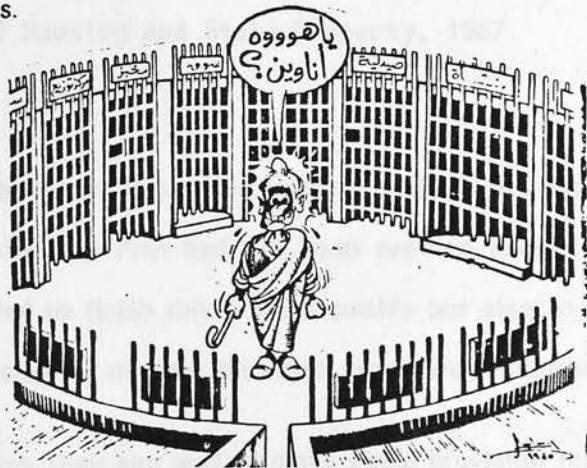
Meanwhile, in the rapidly depopulating rural areas, desperate poverty kept the remaining population, mainly women and old men, in makeshift shelters, caves and huts. They had no electricity or running water and no hope of obtaining any improvements.

The government, not unmindful of the plight of its people, decreed in 1966 that 70% of revenue should be put aside for economic and social development. In 1963 it was decided that this money should be used in a major new project:

the first Five Year Plan. The purpose of this as stated in the Plan ⁴ was the "provision of suitable sanitary and reasonably low-rent housing to alleviate a large burden of living costs, especially for citizens of limited means and resources. This is to be achieved through the inauguration of low-cost housing projects throughout the various depressed population centres all over the country".

The services of a western company, Doxiadis, were called on by the government to advise. They were given no design brief but instructed to investigate and recommend solutions. In fairness to them, their task was almost impossible, with the economy constantly expanding and the cities growing at an alarming rate. The result was the introduction in 1966 of the Idris Housing Programme (see Table 1).

Enormous resources were poured into this project and in 1969 a new Five Year Plan was introduced. However, the work was interrupted almost immediately by the revolution in the same year, bringing about a complete change of emphasis.



A person getting lost within the impact of a large city, "Where am I" as described by the famous Libyan cartoonist, M. Elzawawy, 1985: *Jannahrya Newspaper*

⁴Ministry of Planning and Development of the Kingdom of Libya, Five year Economic and Social Development Plan 1963-68 (Tripoli Government Press, 1963, p.49)

TABLE 3.1: IDRIS HOUSING SCHEME IN LIBYA, 1967-1971

MUQATAA	NO OF DWELLINGS	PERCENTAGE
TRIPOLI	1,828	19.8
ZAWYAH	650	7.1
GHERION	975	10.6
KHUMS	476	5.2
MISARATH	668	7.3
SABHA	376	4.1
UBARI	364	3.9
BENHAZI	1,777	19.3
BAYDA	889	9.7
DARNAH	1,196	13.0
TOTAL	9,199	100.0

SOURCE: Ministry of Housing and State Property, 1967

The revolutionary government saw the housing crisis as the nation's shame. The grand ideals of the Idris Plan had not been realised and no units were completed. They wanted to finish this project quickly but also to concentrate on other areas of the country, outside the cities, which were hitherto ignored.

As a socialist regime, their aim was to make equal provision for all sectors of society. Priority, however, was given to those in greatest need. No-interest mortgages were provided and slum areas rapidly bulldozed away. Rent controls were introduced to prevent speculators gaining the upper hand. Allocation of housing was also carefully monitored so that the lowest earners from the

poorest areas were given shelter before those better able to wait or fend for themselves. This was the introduction of mass public housing using new designs, to be looked at in the case study.

Throughout this time, the crisis continued to mount. Opportunities for lucrative employment brought rural people into the cities and expatriate Libyans flocked back to enjoy the new wealth. Medical care improved, the population swelled, people married earlier and family size expanded.

Increased building activity called for skilled labour. It became apparent that there was a severe shortage of manpower. The urgency of the situation did not allow time for training, or the use of traditional building methods and materials. Western companies called in to help concentrated only on the construction of housing units and not on streets, spaces or utilities. Prefabricated units were used for speed or high rise blocks. The foreign companies brought their own techniques and ideas about what was required. "Most foreign architects did not understand and appreciate the suitability of the courtyard house" (Jamel A. Akbar, 1981).

These problems were highlighted to the author in 1988 by R. Brownel, an architect and personal contact who was supervisor of the Hai Assalaam project undertaken by Robert Matthew Johnson Marshall in early 1970. He explained that consultants were given no design brief and had to make up their own minds about what was required. They naturally based this on their own culture and experience. The timetable for building was extremely tight. Houses were expected to be finished in 5 days, but lack of labour and materials constantly held up work.

Sometimes a limited survey was carried out but this did not involve prospective tenants. Houses were occupied before they had been completed, and left without electricity or water supplies. Designers were given no

background about the area on which to base their plans. There was great competition to submit plans quickly so as not to risk losing the contract. The highest prizes were awarded for speed and quantity, the inevitable loss was in quality of the finished product.

There was no time to consider needs beyond the provision of shelter. Standard manufactured units designed for Tripoli's cleared areas were sent to all regions, regardless of differing climate, culture or way of life. Although the shanty town occupants were city dwellers, they were essentially still rural people in their outlook. The units were no more appropriate for them than for the desert living nomadic tribes. The imported architects and construction workers did not know who they were building for and were not required to modify their methods or designs according to location or socio-cultural background of future occupants. Even when they were aware initially of their client's needs, the population shifted so rapidly that by the time the houses were completed, different people had moved into the area.

Policy for housing was centralised in Tripoli. Although this accelerated the implementation of projects it meant that local variation in needs went unnoticed and that regions were treated in the same way as the capital city.

An architect working as head of the Housing Corporation in Tripoli in the late 1960s and early 1970s commented to the author that even good planners found it difficult to voice their reservations or ideas, if they did not have influence and power. The only imperative was for speed - appropriateness was not an issue.

This year it has been decided to devolve some responsibility for housing to the regional authorities. This may be beneficial in that local needs may be considered or conversely, it could cause further confusion in that lack of expertise and experience could lead to problems of a different nature. Chapter

7 will recommend ways to ensure that housing decisions are centralised yet draw on information based on local knowledge from the region.

3.8 THE PROCESS OF URBANISATION

The discovery of oil in Libya sparked off a process of speedy and widespread urbanisation. Resulting from this, one not only finds major changes in the economy, with new potential and strength, but one sees a basically rural society suddenly facing the harsh realities of 20th century urban life (see fig 4). Although this was perhaps inevitable in the cities, the same changes are taking place throughout the country, in the towns and villages.

Although the whole country is in the midst of major social and economic transformation, the rural areas are more affected than the cities. The spread of urbanisation has brought the greatest upheaval to rural areas where the traditional way of life has clashed with the influx of new ideas and upset the balance of life for the local populations. The continuing process of urbanisation is therefore checked by long established behaviour patterns. (Stephenson, 1969) defined modernisation as follows:

..the movement of persons or groups along a cultural dimension from what is defined by the cultural norms as traditional, towards what is defined by the same culture as modern.

In global terms, the urbanisation of Libya's rural areas cannot be equated with modernisation, but in local terms, better off families appear to be modernising by purchasing the accoutrements of a modern life style such as cars, fridges and televisions. The main contrast with modernisation in the West is that most people in Libya, particularly those in the lower income bracket, cling to their traditional behaviour patterns.

In most Western societies, urbanising has been a slow and steady process

allowing time for social and economic adjustment.

The major shifts that have occurred in the pattern of evolution in Western Europe have resulted not from a sudden intervention of unexpected events, but rather from a slow build up of minor changes throughout the entire structure of society. (S. M. Ramally, 1979).

It is only in the old and well-established Libyan cities that one can find a truly urban modern population in the western sense.

It was only towards the end of Italian colonial rule that social changes began to emerge in the formerly homogeneous Libyan population (see Table 2). The small group of Libyans in regular contact with the colonisers began to take on more modern lifestyles. The terms "modernised" or "Italianised", therefore, had a perjorative meaning for other Libyans and people wished to avoid being so labelled (El Kabir, 1972).

TABLE 3.2: RURAL AND URBAN POPULATION TRENDS 1954-2000 IN 000s

YEAR	TOTAL POPULATION	RURAL	URBAN	% URBAN
1954	1,089	819	270	24.8
1964	1,564	829	735	47.0
1973	2,249	905	1,344	59.8
1984	3,637	797	2,840	78.1
2000	5,950	1,050	4,900	82.4

SOURCE: Calculated from Population Censuses 1954, 1964, 1973, 1984 and the National Physical Perspective Plan (1981-2000) Revised, Tripoli, Libya

*Estimates of year 2000 are based on low variants

However, in later years, the economic boom created a much greater population of "modern" Libyans in the cities. Rural society is still more harmonious and better integrated with fewer social differences. Housing in rural areas characterises the differences between 'modern' and rural Libyans as it is still of a traditional nature, varying slightly depending on the setting.

Physical transformation has been rapid but behaviour patterns are slower to change and this imbalance in progress causes dissatisfaction and disaffection. The effect of altered environment and pace of life has made people question their traditional ways, their strong family patterns of life and values.

Where physical changes have been less extreme or less rapid, assimilation has been less of a problem. Education and background are also important factors in that those people or families who were already fairly sophisticated and well-educated may find adjustment to modern housing easier than the very traditional families. However, for the purpose of the study we will now look at the emergence of various sectors of society caused by a shift in population.

3.8.1 Divisions of population

(i) The non-urban population comprises nomadic and semi-nomadic people from diverse populations and small scattered towns. Their housing is described in Chapter 4. They have adapted their way of life to their harsh, uncompromising environment and have maintained their own customs, having been very little exposed to outside influences. Now, however, levels of literacy are rapidly increasing and opportunities for education made available for all. Those who wish to take advantage of these chances have gravitated towards larger centres of population where better facilities are provided. The Bedouin population is therefore declining and, although the Libyan people have tribal roots, the ancient loyalties are less strong in urban areas than in the rural regions (see Table 3).

TABLE 3.3: DISTRIBUTION OF SETTLEMENTS BETWEEN URBAN AND RURAL AREAS BY MUHAFADAT BASED ON THE 1973 CENSUS OF POPULATION

MUHAFADAT	NUMBER OF URBAN SETTLEMENTS	NUMBER OF RURAL SETTLEMENTS	TOTAL
TRIPOLI	74	12	86
KHUMS	12	56	68
MISARATH	4	52	56
GHERION	10	100	110
ZAWYAH	20	56	76
SABHA	16	51	67
EL KHALIJ	8	37	45
BENGHAZI	29	36	65
JABAL AKHDAR	7	39	44
LIBYA(TOTAL)	189	474	663

SOURCE: Ministry of Planning (1977) The 1973 Census of Population, Tripoli (in Arabic)

The non-urban population is relatively poor and less well-educated. These two factors have an important bearing on their attitude to housing. Moreover, the topography of rural areas plays a vital role in the style of housing found in them as seen in Chapter 4 which describes the three regions of Libya.

As far as the case study is concerned, in the area around Misratah, the non-urban population live mainly in courtyard houses in the traditional sectors of the city outskirts. They maintain a traditional way of life based on rural

behaviour patterns. A small proportion of this group have moved to new houses in the transitional sector (see following section).

(ii) The urbanising population is made up of people making the transition from non-urban to urban life. From this category we can exclude the highest income group and those who are traditionally mobile. We are left with city migrants undergoing the process of assimilation into urban life; new communities in rural areas which are urbanised economically but are clinging precariously to their traditional behaviour patterns and finally, traditional communities gradually taking on urban characteristics.

This category represents the largest population group in both rural and urban areas. They have adopted some urban ways of life and resisted others. Their lives and behaviour reflect the economy and locality in which they dwell and attitudes to housing and space vary greatly according to the degree of adaption.

Those in the urbanising sector may live in traditional areas but adopt a modern way of life or they may live in new housing provided by the government or in new private housing. This transitional population is undergoing fundamental changes to its economic and social structure as described by Stone and Simmons (1976):

Urbanisation brings an increasing number of people from peasant and rural backgrounds to work in the modern economy. The transition to wage labour is more than a difference in working patterns. It involves a major change in way of life, in attitudes and standards of behaviour.

They have gradually adopted some features of modern life but maintain traditional behaviour where it suits them - in their daily life and social interaction - even if their housing is not adapted to make this convenient.

Families in this category may appear to be modernised especially when

they can afford the trappings of western modernisation such as cars, electrical gadgetry and clothing but such appearances may be deceptive. Stone and Simmons (1979) argued that this may be largely due to market forces. What is available in the way of housing and facilities tends to be what has come from the West, imported in bulk with no thought regarding suitability or convenience under totally different social conditions and climatic environment.

(iii) The urban population is mainly based in the major cities of Tripoli and Benghazi, housed in the modern sector. It has become fully integrated into city life with a diversity of social characteristics, values and standards. Prior to independence and the subsequent economic boom, many Libyans emigrated to neighbouring states to seek security and prosperity. When these benefits were offered within Libya, there was a homeward trend towards the expanding cities rather than to traditional settlements which could not offer the facilities to which they were accustomed. The tables show how population movements from rural to urban areas have increased.

The city used in the study, Misratah, is similar in many ways, as will be shown, to other coastal cities, but less extreme. Two types of immigrants can be identified here: those from rural villages and those from the outskirts, ie. rural and urbanising peoples.

3.8.2 Divisions of housing

Alongside the three sections of population described, it is possible to identify three categories of housing in Misratah; modern, transitional and traditional. The urban population is exclusively housed in the modern sector which comprises private homes in and around the city centre. The other categories do not link directly with any one section of the population.

Although a proportion of the non-urban population lives in traditional

housing, some of them have migrated to houses in the transitional sector or, those who are wealthy, to the modern sector. Those awaiting rehousing will be allocated homes in the transitional sector.

The transitional sector is mainly made up of new houses provided by the government in large schemes. The residents here, drawn from the non-urban and urbanising population, see their home as as a stepping stone to modernity. This sector is growing rapidly and the population constantly changing. Because houses here are not considered to be permanent homes, they are often poorly regarded.

In the traditional sector, one finds mainly courtyard houses and tents. The residents are non-urban or urbanising. From the latter group, people have tried to modernise the courtyard house or have built new houses within the traditional village.

The figure below shows the links between the sections of population and the categories of housing and the movements which are taking place.

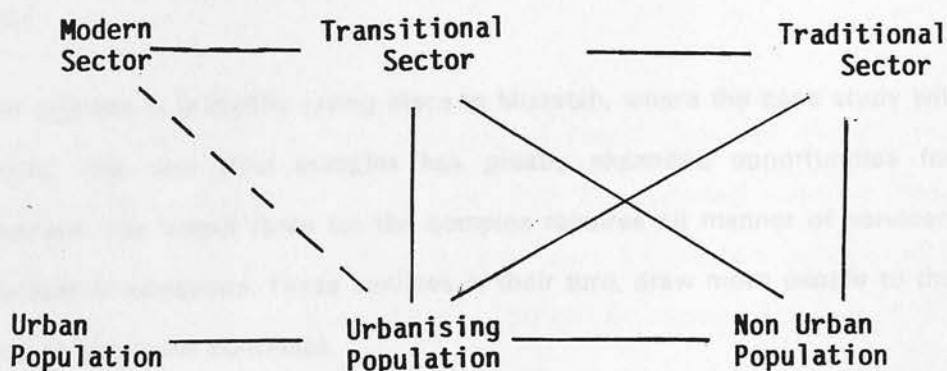


Fig6: Population Categories in Misarath

3.9 MIGRATION

Migration is a new and growing problem in Libya. Movements of population were previously on a small scale and very slow. The economy was depressed for many years before oil was discovered and the population mainly found its living from agriculture. People tended to live and die in the place where they were born.

For many families, life was on a subsistence level. When they saw the opportunities for wage-earning offered by city jobs after the oil boom, they were naturally keen to move. The possibilities of such a transition were soon recognised by many and the process encouraged by the government, desperate for labour in the new industries. Patrick Geddes described the way in which he saw the process of migration working. He found that it starts with a place; the place has work (industry, factories or administration); the work draws people, or 'folk' as he described them (see fig 7).

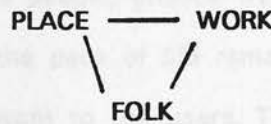


Fig.7

This process is presently taking place in Misratah, where the case study will be based. The new steel complex has greatly expanded opportunities for employment. The labour force for the complex requires all manner of services, from leisure to education. These services in their turn, draw more people to the city and so the spiral continues.

As services grow and improve they are recognised by people from other areas as being attractive. They see what the city can provide and wish for a share of the benefits. Those who move do so in order to improve their

standard of life. They come from rural areas or poorer towns and cities and, once they settle, they do not wish to go back.

The huge influx of migrants to Misratah settled first in shanty towns around the outskirts. Overcrowding and squalor soon became enough of a problem to concern the authorities who then began programmes of public building to meet the shortfall (see section 3.6).

The urgent housing needs of the migrant population have overshadowed the plight of those living in traditional areas. They have not been provided with the same facilities as the new areas receive and are therefore forced to join the migrants and move to new houses.

3.10 SUMMARY

The culture and religion of Libya discussed in the early sections of this chapter helped to mould the spatial structure of traditional housing. The house suited the way of life of the people, privacy was catered for and socialising was facilitated. As long as the pace of life remained slow and steady, these homes continued to be relevant to the users. The balance between housing space and housing needs could be maintained because there were few external influences to upset it.

Italian rule brought the first signs of de-stabilisation. As shown, the colonists confiscated large areas of land and dispossessed families. They imposed their own style of building for their own people and brought new ideas and fashions. The previously steady process of building was upset. An urban population emerged and the economy began to be trade-based rather than agrarian.

After their departure there was no lull in which stability could be regained. The British/French interregnum merely continued the process and left the

Fig 3.3: Recommendations for discussion of unity

country in a seriously depressed state, both economically and structurally. Oil should have been Libya's saving grace but the political and social fabric of society had been so eroded that it has brought as many problems as advantages.

The government was forced to look outside Libya to develop the oil fields and to build the new cities required to house the moving population. The patterns of industrialisation, migration and urbanisation have gone too far to turn back, even if this were desirable. The consequent changes this has worked in society have forever altered people's perception of housing, but they have neither destroyed their faith nor altered their basic conservatism in matters of family and social traditions. The designer's dilemma remains - segregation versus integration.

The following chapter will take a closer look at the history and evolution of courtyard housing to see how indigenous people dealt with the environmental and cultural factors described in this and the previous chapter.

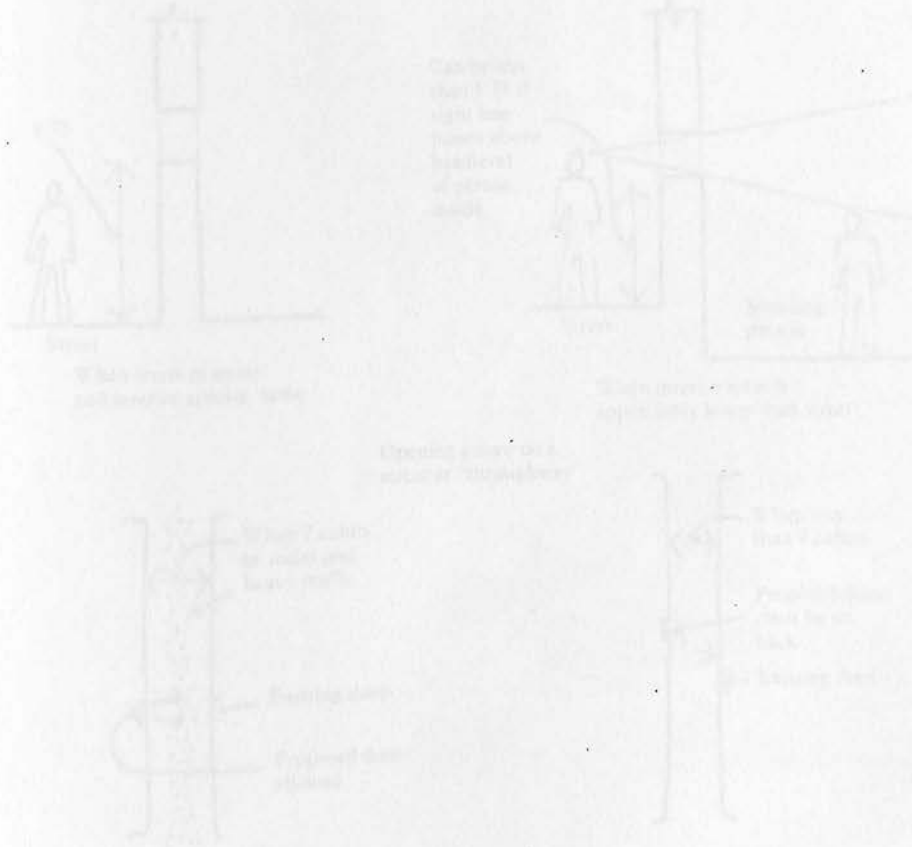


Fig 3.3: Recommendations for dimensions of doors and windows

Source: Besim Hakim (1986) "Arab-Islamic Cities"

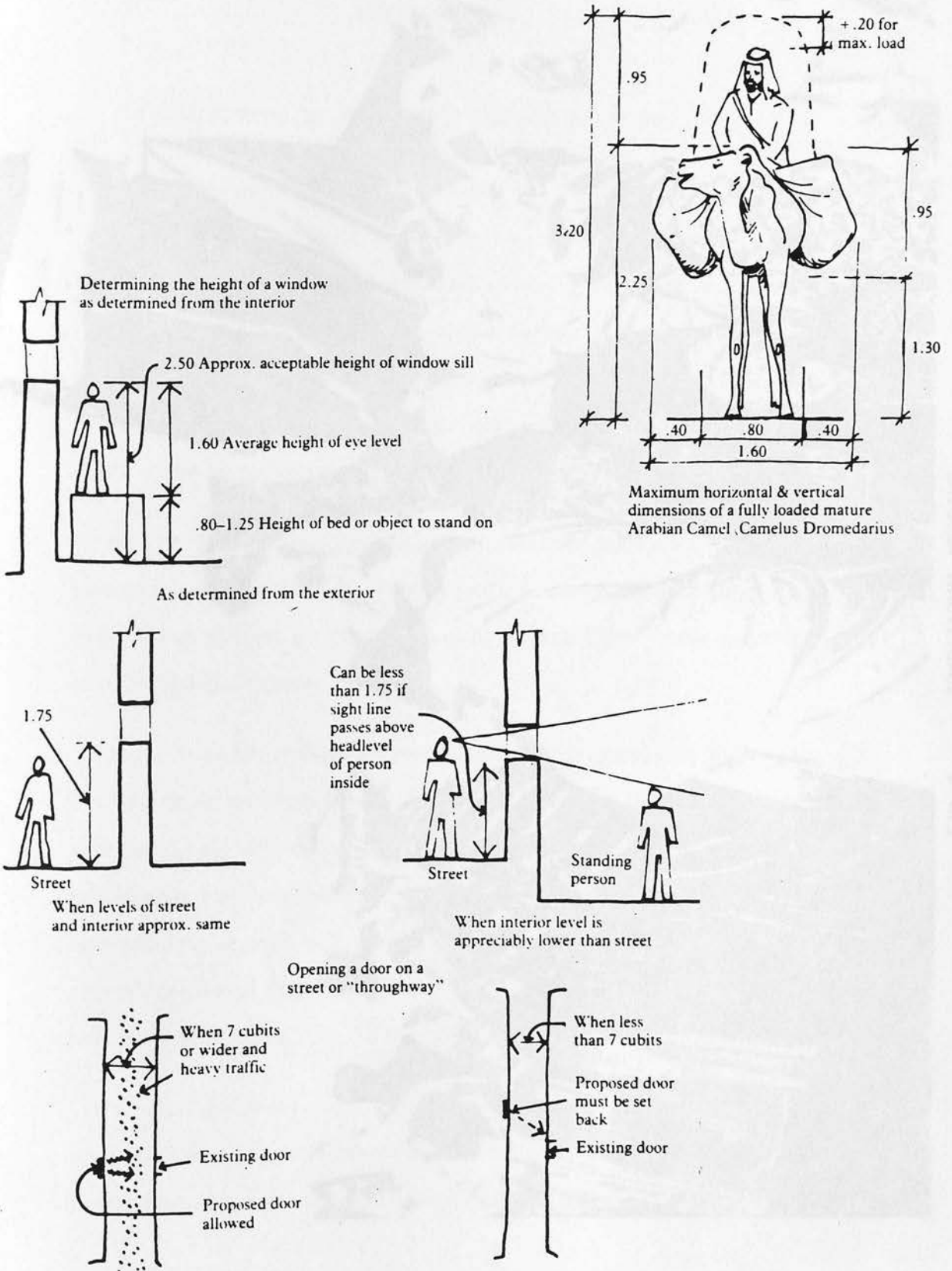




Fig : 3 . TRADITIONAL WEDDING

CHAPTER 4

COURTYARD HOUSING: HISTORIC AND MODERN PERSPECTIVES

4.1 DEVELOPMENT OF TRADITIONAL HOUSING PATTERNS

Owing to considerations of geography, climate, culture and material resources, as shown in the previous two chapters, most of the Libyan population is to be found in settlements along the coastal strip. There are only a few inhabited pockets in the mountain regions and a handful of scattered outcrops in the desert areas. The way in which these settlements have evolved has largely depended on the strategic importance of their location, the ethnic origin of the inhabitants and their historical background.

During the Roman occupation, the coastal settlements thrived on a prosperous agriculture made possible by a sophisticated system of irrigation, and on their becoming important centres for trade with similar settlements all around the Mediterranean basin.

The settlements located further inland, or less accessible for traders, did not benefit in the same way, which explains the fact that no major city was established in the mountainous regions during Roman times. The only settlements that existed were small villages clustered around fortified castles. One example of such settlements is that of the southern region of Fezzan where Garamantes founded a few small towns like Germa which went on to become the desert capital until the 19th century BC.

Pre-classical times saw many changes occur. Being poor in natural resources and with only a small population, Libya was not favoured by the new Islamic regimes as a major administrative or political centre. It was regarded as

useful as a staging post for armies on their way to new conquests in the West and East.

At that stage of its history, the Libyan population was divided into three categories: settled people, nomads and semi-nomads. The two latter types used portable shelters, moving from one place to another according to the seasons. The settled people lived in permanent shelters or homes of varying size and style.

The fixed settlements can be divided into three types. Firstly, there were those in the coastal region, mainly inhabited by people of Arabic origins. Their settlements consisted of clusters of houses of varying sizes and functions. In some cases, the number of clusters was big enough to constitute a town whereas others were only small villages. The morphological characteristic that they all shared was the complex web of twisting alleys with only a few principal ways for access. The general pattern was that of a tangle of roads crossing at right angles. This pattern is more evident in the larger settlements as opposed to the small villages, because the likelihood of regular house plans in the cities was greater due to the use there of rectangular courtyard houses (to be examined in a later chapter).

Where settlements evolved along caravan or trading routes, the formation was more likely to be linear. Otherwise, the heart of the settlement in the coastal areas would be the central mosque and the market place which both provided a gathering point for people. This can be seen in the market town of Misratah as well as in other coastal settlements.

The second type of fixed settlement is that which prevails in the mountain regions (see fig 1). Mountain people could be either settled or semi-nomadic. The Berber tribes of the western mountains did not succumb easily to the Arabic traditions brought by immigrant groups. Instead, they managed to

preserve their own identity through language, customs and beliefs. The economic system of the time caused the emergence of many conflicts between Arabs and Berbers, keeping them apart, but during the few and short interludes of peace, the Arabic traditions and customs did filter through to the Berber communities.

Each tribe has its own separate housing settlement and large tribal groups would build their houses close to each other in their territory. This pattern is exemplified throughout the Atlas mountains and in the mountain villages of Morocco.

In very ancient times, one could find troglodyte dwellings (to be described later in this chapter) in Libya's western mountains. Even in the pre-classical era, cave dwellings and troglodyte homes were still in existence. These settlements had no characteristic morphological features. Each consisted of a randomly spaced group of dug-outs connected to a mountain trail. They tended to be fairly dispersed compared with other villages, but this was more due to the danger of cave-ins caused by too much tunnelling rather than to social behaviour. Troglodyte dwellings found in Tunisia, as in Matmata for instance, displayed a more regular pattern in the construction of individual units and access paths.

Finally, the third type of fixed settlement is that found in the desert regions, usually by an oasis (see fig 2-3). Like the mountain population, the desert dwellers were of many different ethnic origins: Arabs, arabized Berbers, Tuaregs and Tabus. The Arab dwellers became the more dominant in these areas, while the other groups, having a lower status and less influence, remained mainly nomadic. However, there was very little friction between the different ethnic groups and all embraced Islam as well as reaching a mutual understanding on points of social organisation.

The nomadic tribes which roamed these regions established links with the settled population, links whose purpose was for mutual protection and co-operation in order to maintain free and safe routes for the caravan trade. Thus a bond was formed between the settled and nomadic populations.

The features of the settlements in desert areas varied considerably, depending on the culture and traditions of the settlers, the topography of the area, the degree to which they were prosperous and so forth. The size and sophistication of the housing settlement was also related to its historical and economic development, its function in the area and its relations to the surrounding settlement groups and their importance. Some would be trade centres on the trans-Saharan routes, thus playing a vital role in the area's economy. These were situated at cross roads or on the caravan routes, such as Murzuk, Ghat or Ghadames.

Experience accumulated through several generations went into the choice of location for settlements. Communities had to have ready access to water and fertile land and had to be easily protected, not just from marauding tribes but also from shifting sand.

The general pattern was for dwellings to be clustered around a fortified structure or "Qsur" which formed the nucleus of the settlement. Other buildings would be built around it in all directions. Some of the other structures consisted of scattered habitations of a very primitive type. These were usually Tuareg or Tabu dwellings and took the form of a single room surrounded by woven mats or reeds.

The configuration of the small towns in the Sahara region varied greatly in character and structure. In some, one could find narrow, twisting alleys with one main road leading to the mosque. The life of the old town evolved around these gathering points such as in Murzuk. On the other hand, settlements such

as Sukna or Hun had a rectangular grid with wide and straight roads; the market place in these settlements would usually be on the outskirts of town. Streets were also usually covered, giving protection against the sun and thus providing ideal places for daily activities during the long, hot summer days. Although the mosques had a far less grand structure than those of the coastal towns, they would normally still act as the central gathering point.

These examples demonstrate the extent to which the traditional indigenous architecture has developed in all the different regions of Libya. As far as housing was concerned, one could identify four main types of dwellings: tents, huts, courtyard houses and troglodyte dwellings. The location of these dwellings depended on the topography, economy, climate and history of the various areas in which they are found. In this sense, all reflect the custom and social organisation of the inhabitants.

The primary concern of the owner/builders were socio-cultural and physical. The particular characteristics of the natural environment were used as major forces in the moulding of the types of structure that allowed people most comfort and integration. Men have always built shelters for themselves, but experience has taught them how to adapt to their surroundings and how to make the best use of the natural features so as to minimise the disadvantages.

The spread of courtyard houses in the coastal areas had a lot to do with the availability of surface limestone used as the primary building material. Similarly, in the desert areas where clay was abundant, sun-dried clay bricks became a very popular building material.

Building has always been a traditional art rather than a science. People generally made the best use possible of the natural environment, but mistakes were not infrequent. For instance, in the mountain areas where the soil was neither suitable nor safe for building purposes, resultant cave-ins caused

disaster. However, one can safely say that, in general, the indigenous population always managed to find ways of coping with the geography, the environment and the climate.

The nomadic people adapted mobile shelters to live in out of necessity. Their land was neither fertile nor resourceful enough for them to justify the construction of permanent shelters (see fig 16). The necessity of sustaining their flocks required that they stayed almost constantly on the move in order to find new land to reap what meagre crop they could. For this reason, the type of shelter that they needed had to be easy to dismantle, re-assemble and transport. It is from these basic requirements that the tents associated with Saharan regions evolved as a specific type. They were usually made out of cloth, animal skins and camel and goat hair and were fixed around an easily constructed frame.

While we should not ignore any of the dwelling types existing in Libya, the study will mainly focus on the traditional fixed dwellings. Among these types, the courtyard house is by far the dominant unit of Libyan settlements and, therefore, will be the main focus of the analysis.

Before looking at this form of housing as it is presently found, the study will give an account of the historical forms which went towards its development.

4.2 HISTORIC FORMS OF COURTYARD HOUSING

Courtyard houses have been used as dwellings in a wide geographical area over many thousands of years. The Libyan courtyard house is a refinement of the original forms which archaeologists have unearthed. The studies of M. Zakaria Eldars and S. Zaki Said (1972) show that, from the ancient Egyptian civilisation, two sites still remain at Tell el-Amarna and El-Lahun. Houses have

been dated back to 2000 BC. This form with a courtyard to the front is described by the hieroglyphic word written "[]" which clearly shows their shape.

Another ancient form, sometimes found with a second storey, has been located in the region of ancient Mesopotamia. This type usually had a central courtyard and dates from 19th–17th century BC.

The Romans also used a central courtyard in houses of more sophisticated construction dating from 4th–2nd century BC. Later Roman houses were influenced by Greek styles of building with columns and porticos.

Discoveries in the city of Samaria on the Tigris river built in 863 AD show remarkably little change, but give evidence of separate quarters being provided on one side of the court for the women. This need for segregation is also found in the houses of El Fustat (640 AD) where houses with two courts have been discovered.

All the examples given were constructed of materials found locally in keeping with the natural environment. In Roman examples, particularly, this gave opportunity for very grand decoration with use of marble and mosaics. However, each form would have its own local decorative style even if of a primitive nature. The allocation of functions within each house would be more or less the same.

The important differences result from the various cultures and climates in which they existed. In some forms control of climate was a vital element and in others, privacy would be the priority. We will now look at how an Arab society views housing to assess the important psychological aspects of the physical structure.

4.3 A VIEW OF HOUSING THROUGH ARAB EYES

The structure of Arab families and their culture has been shaped by their long experience of desert life. This has given them a great affinity with nature and their surroundings, a love of simplicity, a gift for mathematics and astronomy and hospitality second to none.

Desert tribes had to contend with the punishing conditions of the landscape which discouraged them from opening their houses to the elements at ground level. They looked to the heavens for comfort, from there the life-giving rain would come, here was their calendar and their God and a welcome contrast to the burning sand. The land was the dwelling place of evil demons, dry earth and scorching storms of wind. Therefore, they wanted their homes to reflect the pleasing aspects of the heavens and shut out the harsh land,

...When he embarked upon a settled life, the Arab began to apply architectural metaphors in his cosmology, so that the sky, the home of God, was regarded as a dome supported by four columns. (Berger, 1963.)

House design attempted to reproduce, in microcosm, a view of the universe with God at its centre. Thus we have a style of housing in the form of a hollow square, blind walls to the outside and light and air within. The only view from the inner court was the sky - safe, secure and private.

This device, as we will see, has been used by many different peoples who had the need for peaceful, serene surroundings. For the Arab, the courtyard house also had an important symbolic meaning. The four sides of the court were held to represent four columns carrying the sky which forms the roof. There was also often a fountain in the centre of the court, an inverted scale model of the dome of the sky with four pillars. The element of water gave a softening effect in contrast to the harsh exterior.

The whole structure isolated the outside world and produced a cocoon within which only harmony existed. It was a haven unviolated by the male world of business and war, watched over and tended by the women. Things precious to the family were kept inside. In the author's own memory, camels were brought into the court for safekeeping, as they were vital to the family economy.

The following sections show how these common psychological aspects combined with varying environmental factors to produce local forms of indigenous dwellings.

4.4 COURTYARD HOUSE IN LIBYA

In order to understand the development of the courtyard house as a dwelling in Libya, it is necessary to look at the geography and socio-culture of the area in which it is found. The coastal strip of Libya, where the main cities are located, has a Mediterranean climate, described earlier, which has changed very little since historic times. One of the important features of a courtyard house is its ability to modify the extremes of temperature which can occur. It creates a cool space during the hot daytime and shelter and warmth for the cool nights. Moreover, materials and methods used in construction are ideally suited to the environment.

Influences in the form of courtyard house construction reach far back through the ages. The local inhabitants in this part of Libya have been subject to numerous influxes of foreign powers. Those which left their mark on the building style were mainly the Greek, Roman, Early Arab Islamic and Turkish colonists. There is evidence of various early types of courtyard houses being discovered in the areas from which the occupying forces originated and scattered archaeological finds throughout Libya bear record to the distinct features they introduced mainly in monuments or large public buildings.

The use of court houses in Libya dates back further than the time of the Turks and the Arabs in this country (M. Zakaria Eldars & S. Zaki Said, 1972).

In the case of domestic housing, change was less dramatic and much slower to take effect. The Hellenistic form of courtyard house remained in use during the Roman occupation until the 3rd century AD (A. Shaiboub, 1979).

In the ancient regions of Tripolitania and Cyrenaica (A. Shaiboub, 1979), archaeological finds reveal houses of typically Greek style with columns, arches and stairways. Evidence reveals that the indigenous people made use of certain features of the new style to enhance and adjust their traditional style in keeping with the local environment resulting eventually, in more modern times, in marked differences in the form (G. Marcais, 1973-74).

The two most significant periods of Libya's development were the Roman and the Islamic eras. Roman influence rooted the area in the Mediterranean culture and the later Islamic influence introduced the spirit of Eastern culture (G. Marcais, 1973-74). It has been said that "the forms of Hellenistic and Roman antiquity provided the shell, but that Islamic culture filled this shell and gave it its unique characteristics". The style of house brought by the former provided the perfect setting for the latter's particular cultural requirements. (G. Marcais, 1973-74).

The powerful force of Islamic culture had far-reaching effects throughout North Africa, covering a wide variety of terrains. In relatively recent times, Muslims escaping the wrath of Catholic rule in Spain, came in large numbers to the North African coast to find refuge. They brought with them new ideas on decorative detail, although the basic house form remained unaltered. This had a more marked effect in the areas of Tunisia and Algeria where Islamic culture was stronger. However, in Libya, the form had a more simple appearance and was more influenced by the Turkish style during their occupation of the

country. This is particularly noticeable in Tripoli where the Turks undertook an extensive building plan, perhaps indeed rebuilding the entire city. (A. M. El Ballush, 1979).

We will now look at the forms of housing which developed in the three climatic zones of Libya.

4.4.1 Housing in desert settlements

Clusters of dwellings in the desert area were generally to be found on trade routes, as seen already in this chapter, or by an oasis. The terms urban and rural are misleading in this region because no cities developed in the way that they did in the coastal region. The label "urban" would signify function rather than size or density of population. A settlement where trade and commerce were the main economic basis would therefore be urban and a community whose economic base was agriculture would be rural.

In these two types of settlement, because of different social organisation, housing developed distinct characteristics. The urban communities contained more public buildings and building was often on two storeys, whereas single storey houses were more common in the rural towns.

Despite these differences, one can identify a broad band of general characteristics common to all desert habitations. Firstly, their lowly appearance which, C. Godard (1954) argued "reflects the world view and religious beliefs inherited from the Islamic faith" and secondly, the many features of houses and layout designed to combat the harsh climate. Streets are narrow, irregular and often covered and buildings windowless to the outside, huddling together to produce maximum shade and protection from hot, sand-bearing winds (see fig 36-37).

Ghadames is a desert town in Western Libya, 400km from the coast, built

around an oasis and in an important position, strategically poised by the borders of Algeria and Tunisia. It has one of the most extreme climates in the land ranging from bitter cold in the winter to burning heat in the summer with almost no rainfall, sandstorms are violent and frequent. Houses here had to be able to modify these very varied conditions and, moreover, had to do it with a limited source of materials, namely mud, lime, palm trunks and fronds.

Land around the oasis was precious and buildings are therefore tightly grouped together and constructed vertically rather than spreading out horizontally (see fig 9). The narrow alleyways are completely covered to give maximum protection and the whole town is whitewashed to minimise heat absorption.

Each house had three levels, the ground level for storage; the first floor for the family to sleep and a third for the terrace – the women's area also used for daily activities (see fig 7-8). This upper level served the purpose of an inner courtyard, giving the women space to meet each other or call across the roofs in complete privacy from the men (see fig 10-11).

In houses found in other desert towns, such as Murzuk Ghat, Hun and Sukna, in Sabhah region, the ground area used is greater and houses built on two storeys only, with one or two courtyards (see Fig 24-25-26). A particularly wealthy family might have several courts to cater for servants, women and large extended family, animals and storage. These urban dwellings developed a sophisticated system of segregation by using the courts.

Rural settlements were generally very poor and their houses primitive. They could not afford the luxury of many rooms for segregation. The general pattern was of one long room surrounded by a walled court of rough construction. To this were added extensions as and when they were needed or could be afforded.

In all settlements in this region, builders used whatever materials were available locally. Construction methods were simple and the main concern was to provide suitable spatial arrangement. Sometimes they would use rough stone, sometimes mud clay, sand and sandstone or a mixture of small stones, clay and organic materials. A variety of sizes and shapes of sun-dried bricks has also been found.

Figures 7,8,9 show a three storey building with a narrow street passing below on the left. The main room would be highly decorated with paint and local crafts. There is a window, 75cm x 75cm, in the roof open to the sky with a screen of palm fronds protecting those passing above on the terrace. This provides air and light. Thus positioned, it is not in immediate eye range for those inside and therefore does not produce glare. Being in the roof rather than the wall, it looks out to the blue of the sky and not onto a sunlit surface which might reflect strong light. It gives sufficient light, however, to brighten the room. Hot air rising escapes through this opening and only cool air enters giving good flow of air and ventilation.

This type of dwelling provided comfortable living space over many years for inhabitants of this cruel climatic region. It served their needs in giving protection and privacy. The tight layout of towns produced strong social bonds.

On a recent visit, the author found the Ghadames area considerably run-down and the inhabitants awaiting rehousing because the authorities have bypassed them. They have not been given the opportunity to develop in line with modern needs (see fig 38).

4.4.2 Housing in the mountain area

(i) Flat-roofed Houses

This type of courtyard house is found in the Tripolitania area in the west. The

form is similar to houses in the coastal area but has a more rounded court thought to have been influenced by Berber traditions.

Rooms off the court are often separate from each other but always joined to at least one of the court walls. Sometimes two storey houses are found, either with a random huddle of small rooms or in a more planned form.

Construction materials are rough local stone, lime and clay mortar. Although a plaster coating is used to cover the walls, building is unsophisticated.

The flat roof is formed by laying palm and olive branches across the small rectangular rooms and covering them with straw, clay and pebbles. Extra support is given by wooden pillars inside the rooms.

Defence was a major consideration for these isolated villages and consequently, an extra room, above the entrance, used as a look-out post, is often found. For reasons of defence, the buildings housed large extended families and included space for their stores and animals in the court, or the first floor in a two-storey house. The courtyard is the most important feature, acting as a focus for all activity.

Another influence in their form was the grain store of the fortified castles or *qsur*. These stores protected vital supplies for the community and provided sanctuary when danger threatened. They assumed enormous symbolic importance and were therefore used as a model for the house.

The crude method of building may have been due to the fact that in these high mountainous parts, people often had to move to new settlements to find fresh pasture. The houses there were therefore not regarded as permanent fixtures.

(ii) Vault-roofed Houses

These houses show great resemblance to the more developed *qsur* in which there would be a courtyard for animals with the storage rooms leading off. When danger did not threaten, people built their own small vaulted stores on top of the house and then mirrored the pattern of the *qsur* in the house itself.

The vaulted roof was stronger and could therefore hold a considerable weight throughout a long period. Building was still unrefined, although more advanced than in the flat-roofed types of house.

Local stone, uncut, was used for construction. The stone was laid in rows leaning in to form the barrel vaulted roof. The vault could be left in curved form or made into a flat terrace with a covering of clay and plaster. Buttressed walls carried the weight of archways beneath but were often not sturdy enough and show signs of constant repair work necessary, due to cracks.

These problems often led to total collapse and the form was consequently not one that found favour in a wide area. Rebuilding was often more influenced by the coastal settlements where flat roofed houses were used.

(iii) Troglodyte Houses

Underground or cave houses were among the most ancient types of dwellings ever used. Houses of this type with certain variations are found in the Tripolitania mountains (see fig 19).

The form used here is similar to a courtyard house with a large area dug out, around which are small rooms. Influences on the form were as follows:

economic: they were very inexpensive to build, not requiring much in the way of materials. They can be extended without any great financial outlay.

climatic: they were cool during the hot summer, gave good shelter from rain and wind and were warm in winter.

defensive: they were easy to protect having only one vulnerable point at the entrance which could be watched carefully.

These houses may have developed from the use of natural caves but the courtyard form also suggests that they owe at least some of their style to the built walled houses of the same period. Walled and excavated houses existed together in the same communities.

Some of the troglodyte dwellings are little more than a hole cut into a slope which gave shelter and protection often on a temporary basis only. This may have had a terrace in front which acted as a courtyard (see fig 19,20,21). Light and air was from the entrance only.

Other forms were dug into flat ground having an open subterranean court with rooms around it. Light and air came from the court and the entrance was via a corridor cut through from an opening in a nearby slope. Material from the excavation was sometimes used to form a low wall above and around the sunken court to protect animals and people from falling in. In even more advanced types there was a second level used by men and reached by a stair cut deep into the earth. Surface rooms were sometimes also used as guest rooms or stables. Drainage of rainwater or waste was through a hole dug in the centre of the court. This would be filled with salt to keep it clean. Each room underground around the court had a special function, for sleeping, eating, cooking or washing. This was therefore a highly developed form and very successful.

Troglodyte dwellings are found in many other areas of North Africa, notably Tunisia and Algeria, where culture and climate are similar. They were also widely used in China where culture is very different, but there are climatic similarities, such as extremes of heat and cold (Paul Sun, Mimar 3, 1982).

4.4.3 Courtyard houses in the coastal area

Traditional houses of the courtyard type have been used in the coastal area for many centuries. Details of the components of coastal dwellings and their characteristics will be examined in depth in a later chapter. In brief, they are generally built on one storey and have an inner court with rooms leading off the court (see fig 30,31). Outer courts are often also found in areas where families could afford them.

The area has the most hospitable climate in Libya and includes good land for agriculture. Houses were usually intended for an extended family group who worked the fields together for mutual benefit. Several such groups, formed into clans, would be the basis for a village community.

These houses could be described as rural. A more developed urban form is found in Tripoli, where families engaged in trade and commerce rather than farming (see fig 3-4). They were wealthier as a consequence of their favourable conditions and tended to build courtyard houses on two storeys, an internal stair leading to the upper floor. Richness of detail, decor and furnishings reflected their relative position in society and level of income (see fig 5-6).

The case study will concentrate on the coastal area to see to what extent the traditional house is still valid for society and for individuals and what adaptations, if any, are necessary.

4.5 SOME PRESENT EXAMPLES OF COURTYARD HOUSING

In Libya, as has been shown, courtyard houses were particularly suited to the hot climate and met the needs of society in providing for their social activities and giving them privacy. Although this style of housing has proliferated around the Mediterranean and the Middle East, many other parts of

the world have experimented with the form. This may indeed be a testament to its success but it is worth briefly examining how different cultures have responded to it.

4.5.1 Scotland

Recent studies by the University of Edinburgh Architectural Research Unit (1967), on courtyard housing schemes in Dundee and Prestonpans have highlighted the need for privacy. The author has visited the latter scheme and found that the area received a favourable response from tenants.

The scheme, completed in 1962, is situated in Prestonpans, a small town near Edinburgh (see fig 47). It comprises 45 single storey houses. Before construction, prospective tenants were asked in questionnaires to comment on their priority needs, and subsequent surveys on the way these needs are being met have been carried out by the University of Edinburgh Study Group. The Adler scheme in Dundee is also closely monitored and the two compared.

The initial findings showed that people felt strongly about privacy, particularly privacy from being overlooked, privacy to live their lives without interference and privacy from noise. High density public housing schemes have, in the past, tended to neglect this need as any attempts to solve the problem have been considered too costly to carry out. There is also the dilemma that people do not wish to be isolated. They want limited contact with their neighbours but not intrusion. This is a similar dilemma to the one that faces planners in Libya - segregation versus social contact. As was stated in Design Criteria (March 1967):

Providing people with the right kind of privacy in their homes and gardens is, however, a complex problem which is difficult to break down to a satisfactory common denominator design basis.

The courtyard style of housing was considered to be reasonably cost effective while meeting the needs of the tenants for family privacy. All the houses except two, are L-shaped with the court completing a rectangle. The courts are surrounded by high, slatted, wooden fences to screen them from view. They were intended to provide space for gardening, odd jobs, drying clothes, children playing and sitting out (see fig 27).

A survey carried out in 1967 by the Edinburgh Unit looked at many aspects of the scheme, privacy being one important feature of this. They found that the courts were particularly appreciated for people to sit out in - "It's terrific, we go out in the summer with our bathing suits on and no one can see us". There were comments also on the security aspects of having a fenced-off outdoor space; safe to store goods or to leave washing out.

Complaints about these courts were that they were too small for large households with children, there was not sufficient room to hang large amounts of washing or for many children to play. Some tenants also disliked the wooden fencing which they modified by dismantling or covering. It was also felt by some to be too small for gardening, although one tenant commented that, although she was a keen gardener, she willingly gave up space for the privacy. Therefore, although the dimensions of the courtyard and its physical surrounds were criticised, almost all the occupants enjoyed the increased privacy it afforded. In fact, the scheme in general was found to be successful in those terms, with most problems arising from poor quality of materials and construction or from lack of space.

The author visited the scheme on a hot Sunday evening in June 1988 and in May 1989. He found the courtyards busy with children and adults, who were happy to voice their opinions and discuss their situation. Recorded interviews revealed that the courtyards were well-liked from a privacy point of view and

that people enjoyed having low rise housing which gave them a pride of possession and territory, not found in high rise flats.

Tenants were observed relaxing outside with newspapers, children were playing and women were hanging washing. The scheme had an aura of privacy, not a place for strangers to use. Courts were generally well-maintained although many adjustments to the outer fencing were observed, where people modified their level of privacy as they felt necessary. Passing neighbours greeted each other and were friendly although they did not stay long in the public areas.

Undoubtedly, there are many lessons to learn from this project. Residents expressed serious reservations about several aspects of their units; poorly maintained access lanes, dampness, structural faults and lack of nearby garage space. All these were concerned with construction and quality control. They all felt the area to be friendly but not to a level where neighbours became intrusive. On purely social, psychological terms it is successful, although far from perfect structurally. This probably arose from cost restrictions.

As mentioned before, there is another similar scheme in Dundee on which parallel studies have been carried out. On comparing the two schemes, the research Unit's 1966 Report commented,

..informants gave privacy as the main reason for liking the courtyards and the most typical remarks were ones like "you are all by yourself"; "you can do what you like in it.."

In neither area was "in looking" considered a problem and all liked the single storey plan and the "safeness" of the houses.

It is a sad irony that while the West finds its privacy needs can be met by adopting the courtyard style of housing, Libya turns to Western style modern architecture and abandons the courtyard style because it is considered

old-fashioned.

4.5.2 Andalusia

The author visited this region of Spain in April 1987 and found many examples of courtyard housing in cities, towns and villages. Almost without exception, these were magnificently well maintained, although sometimes dating back 100 years or more, and very popular. Local people took enormous pride in whitewashing them regularly, decorating the exterior with wrought iron and ceramic hangings and festooning every conceivable angle with bright flowers and leafy plants (see fig 46). It was obvious from a glance that the residents enjoyed living in these houses and recorded interviews confirmed this view.

People found they were cool in the long summer months and the narrow access lanes kept away traffic and provided shade (see fig 45). Old people were frequently observed sitting in the small public squares where a number of these lanes converged. There was a feeling of comfort about the old stone walls and cobbled streets that was almost tangible. This was added to by a pleasant irregularity of line and an atmosphere of peacefulness and coolness.

It is difficult not to romanticise these areas, which are given government protection because of their importance to the nation's heritage and to the tourist trade. However, all residents who were asked to comment, expressed delight with their homes even though access for cars was almost impossible in some cases. Carts, scooters and small vehicles were a common sight and people seemed willing to forego speedy ingress and egress to maintain their privacy.

4.5.4 Summary

The houses were mostly built on two storeys with an inner courtyard leading onto rooms and a stairway to the upper floor. Some had balconies

inside and outside. Like the outer aspect, the courtyards inside were generally impeccably maintained, some with fountains, flowers, statuary and seating. When there were windows to the outside there were also shutters to prevent inlooking and to keep out the heat.

The Professor of Architecture at Seville University commented to the author that these houses were still the best style to deal with the climate of the area and that they were now greatly prized because they were considered to be picturesque. Whereas, in Libya, the ancience of this type of house is despised, it is revered in Spain.

Many of them are used as small guest houses because they are so attractive to visitors. The author had the opportunity to stay in several homes but found that people in most areas, even where he did not stay, would happily let him enter and photograph inside and liked to tell him the history of the house. All these houses were privately owned.

4.5.3 Morocco

A sad comparison with the above story is the author's findings from a trip to Morocco in 1986. In this economically depressed country, housing is in great demand. The government has invested heavily in high rise housing. As in Libya, the courtyard house is considered old-fashioned and most have fallen into a state of serious disrepair and become slums. People move out in large numbers to live in shanty towns while awaiting rehousing. Psychologically in the Arab states of North Africa, modernisation of housing is equated with Western style block building (see fig 6.13).

4.5.4 Summary

From these different views of courtyard housing we can see three categories emerge. The Spanish experience shows how planners and designers

have gradually modernised and updated the old courtyard houses to make them attractive and desirable dwellings for local people. They have avoided wholesale destruction and sudden dramatic change and have given people confidence in the form.

The two recent experiments looked at in Scotland make clear that the form, although new to this country, has met an identified need of society, i.e privacy. It is evident that more thought needs to be given to the structure and layout of the schemes here before they can meet all housing needs, but planners have learned many valuable lessons.

In Libya and Morocco, the form was highly successful until recent times, when governments, under pressure to satisfy the housing needs of a growing population, turned to the western tradition for help and abandoned their own roots.

The author attended a two-day symposium at the School of Architecture, University of Newcastle, on 11th-12th June 1987 entitled "Housing and Physical Development in Algeria". At the meeting a group of research students discussed with staff and British architects working in Algeria, the problems of courtyard housing. Their conclusion was that it was vital to maintain the traditional style, developing it to meet present day needs, rather than rejecting it totally because it is old-fashioned.

Other comments to emerge from the meeting which reinforced the appropriateness of the form were:

The courtyard is popularly and colloquially referred to as "haouch" which literally means the space around the house. It is used in all Arab countries, whether they have a predominantly hot dry climate like Baghdad, or a more humid Mediterranean climate as in Tunisia (Al-Azzawi, 1986).

...It affords protection and privacy, it is open yet enclosed, it combines communal with individual space and it enables high density, low rise settlements to survive harsh climate and environmental conditions (Djamel Boussaa, June 1987).

As in Libya and Morocco, Algeria is facing a housing crisis. Old forms are being swept aside in favour of Western styles. Recognition of the inappropriateness of the new form has been shown to emerge and must be emphasised to those in control of building, if traditional socio-cultures in these areas is to be maintained.

4.6 CONCLUSION

The traditional houses in Libya were all privately owned, no public provision of houses existed until the '60s. People therefore built and lived in the type of house that best suited their requirements. For an Arab society, we have also seen that there are strong psychological elements in housing needs, as well as purely functional ones.

Certain forces influenced these needs and helped to shape the variety of forms of courtyard dwellings that have been shown. Environment was certainly an important element, particularly in the choice of materials, and climate and culture also played a major part.

Courtyard housing in Libya and Morocco is no longer being constructed and old houses are crumbling rapidly. Yet we have seen how renovated courtyard houses, or new forms of them, can be successful elsewhere. By taking into account the influences presently at work in Libya, it would be hoped that assessment and application of changes could go towards establishing an adapted and more appropriate form to meet modern day needs.

Each variety of the form is different for a reason. The examples shown in Libya fall into the three main categories of coastal, desert and mountain

houses, because the main distinctions were due to regional variations in climate and consequently environment. We shall now look more closely at housing in the coastal region in which the case study is based.

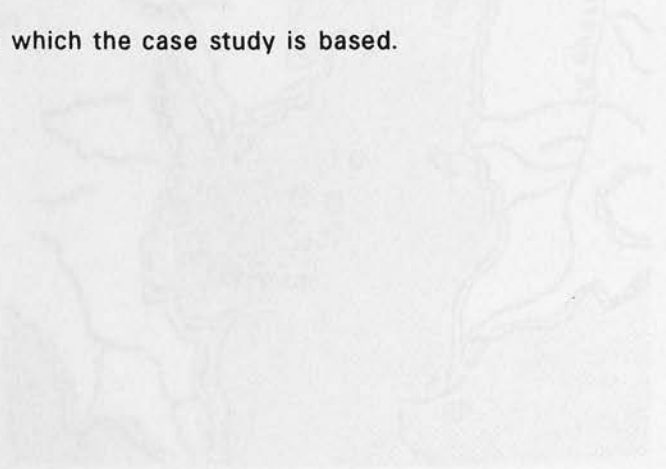


Fig. 47

A plan view of a house in the coastal region, showing the layout of the rooms and the central courtyard.



Fig. 48

The plan view of a house in the coastal region, showing the layout of the rooms and the central courtyard, with a different arrangement of spaces compared to Fig. 47.



Fig 4.1

Mountain settlements in the Jeffren area.



Fig 4.2

A desert settlement on an oasis 500 km inland from Misratah.

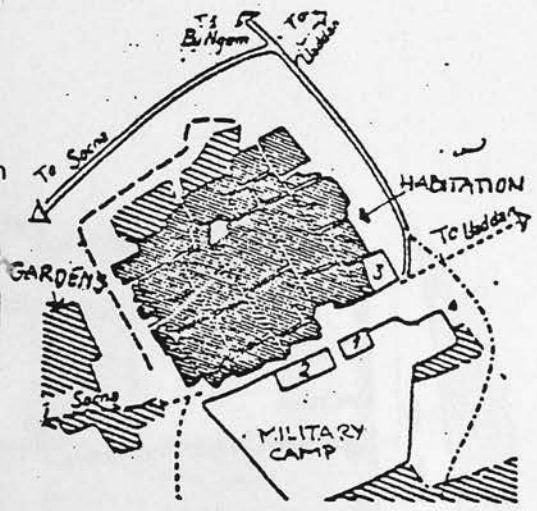
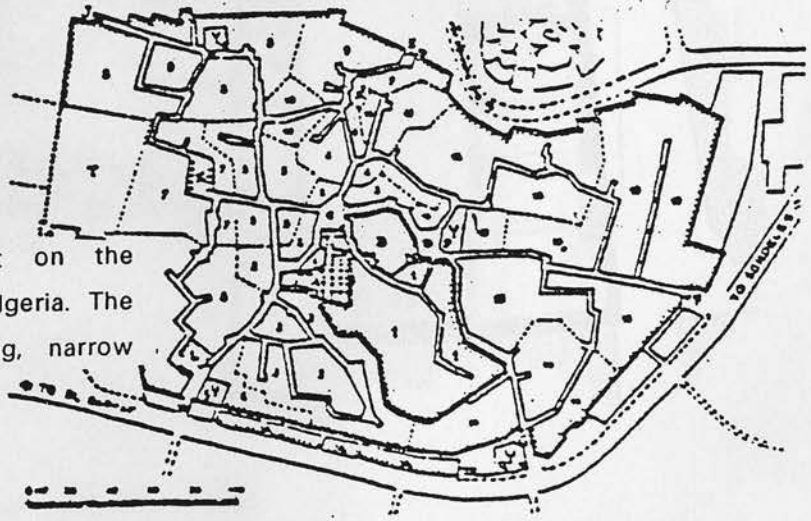


Fig 4.3

The settlement of Ghat on the borders of Tunisia and Algeria. The figure shows the twisting, narrow lanes between houses.



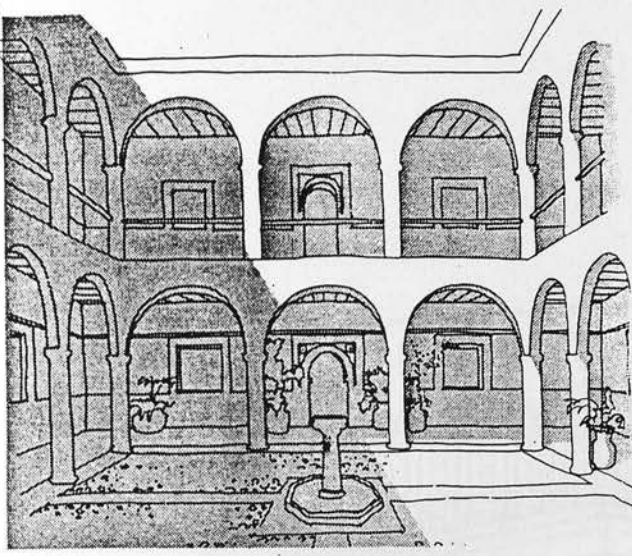


Fig 4.3a
2-storey traditional house in Tripoli.

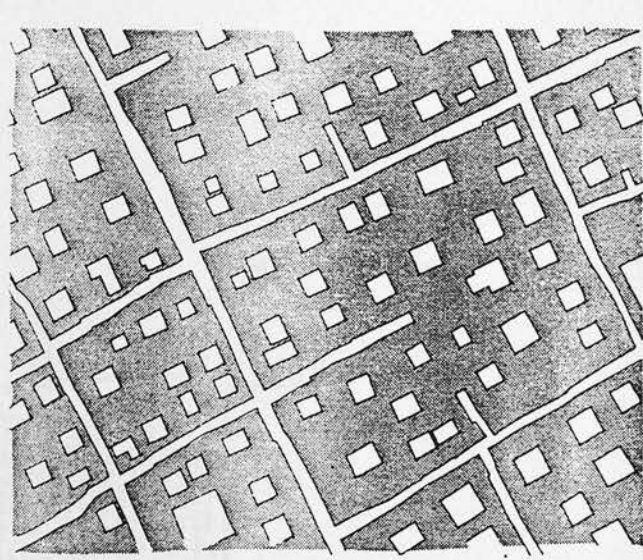


Fig 4.3b
The streets of the old town of Tripoli.

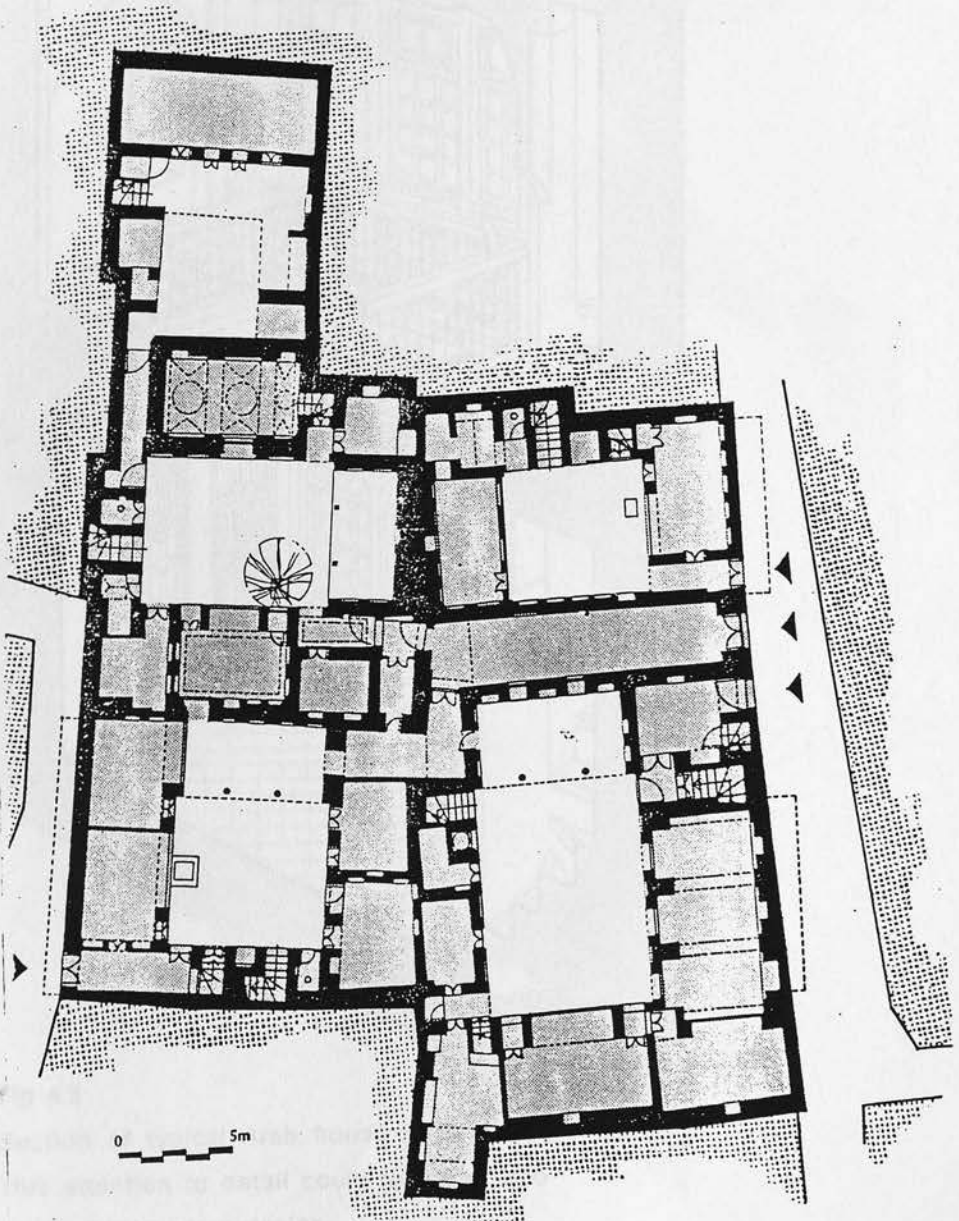


Fig 4.4
The complexity of the planning makes
isolation impossible.

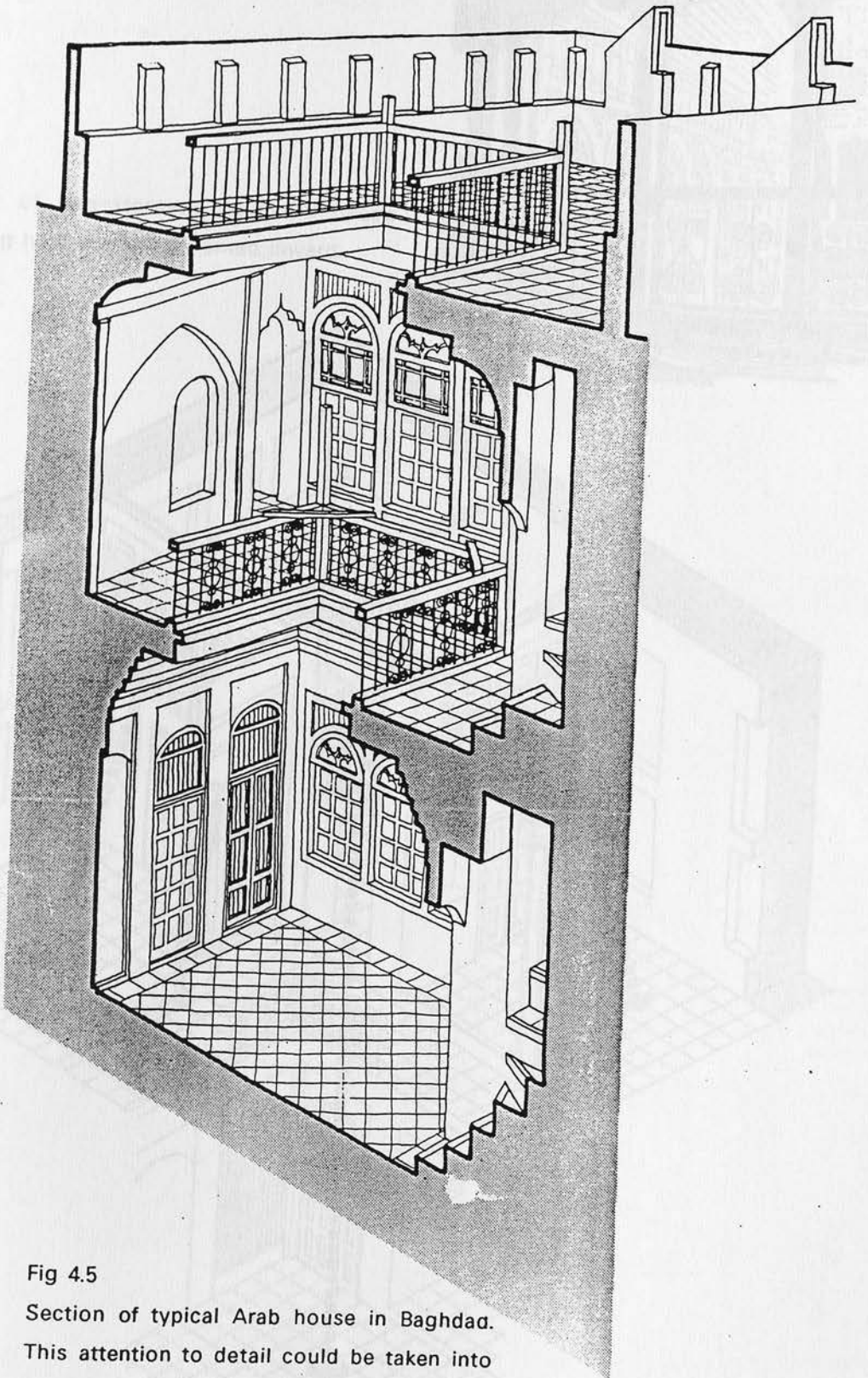


Fig 4.5

Section of typical Arab house in Baghdad.
This attention to detail could be taken into
account in modern design.

Fig 4.7
Roof plan of a traditional house. This is the woman's area. There is a central opening in the roof going out up the stairs below.



Fig 4.6
Interior of two-storeyed courtyard house showing how the eye is turned inward.

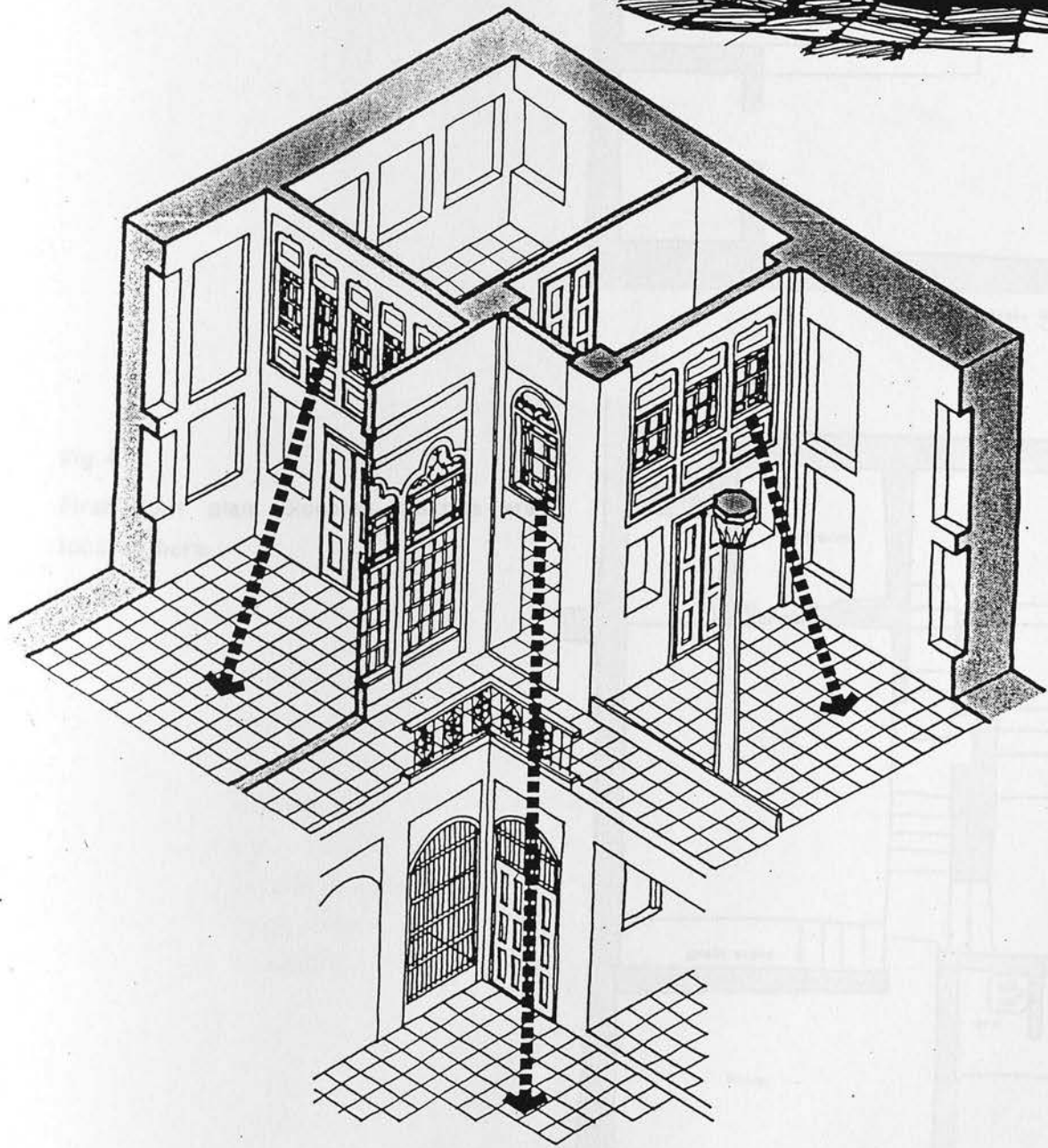


Fig 4.7

Roof plan of a Ghadames house. This is the women's area. There is a central opening in the roof giving on to the court below.

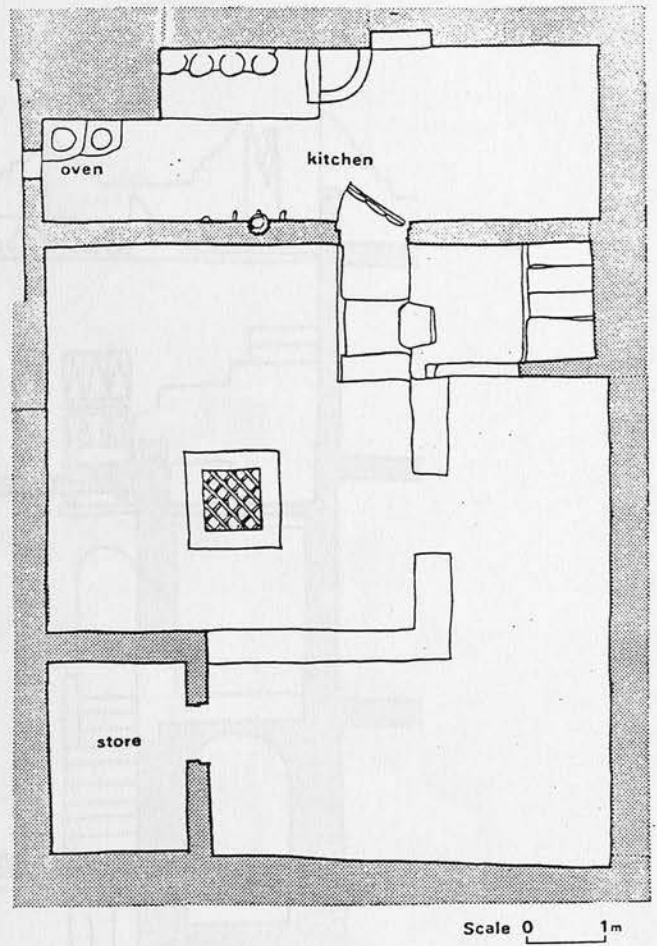
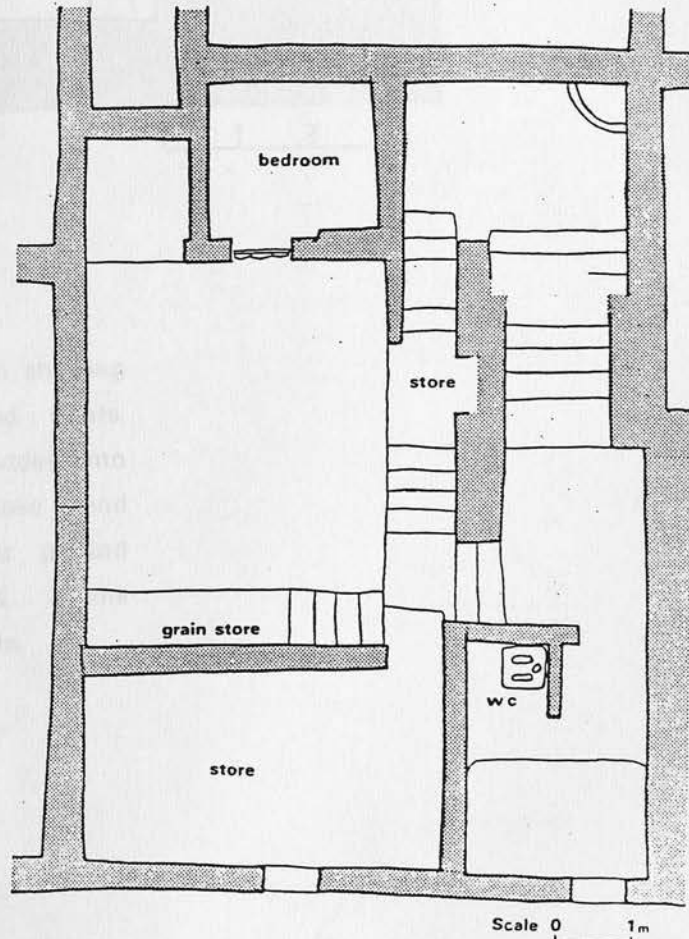


Fig 4.8

First floor plan. Sleeping quarters are located here.



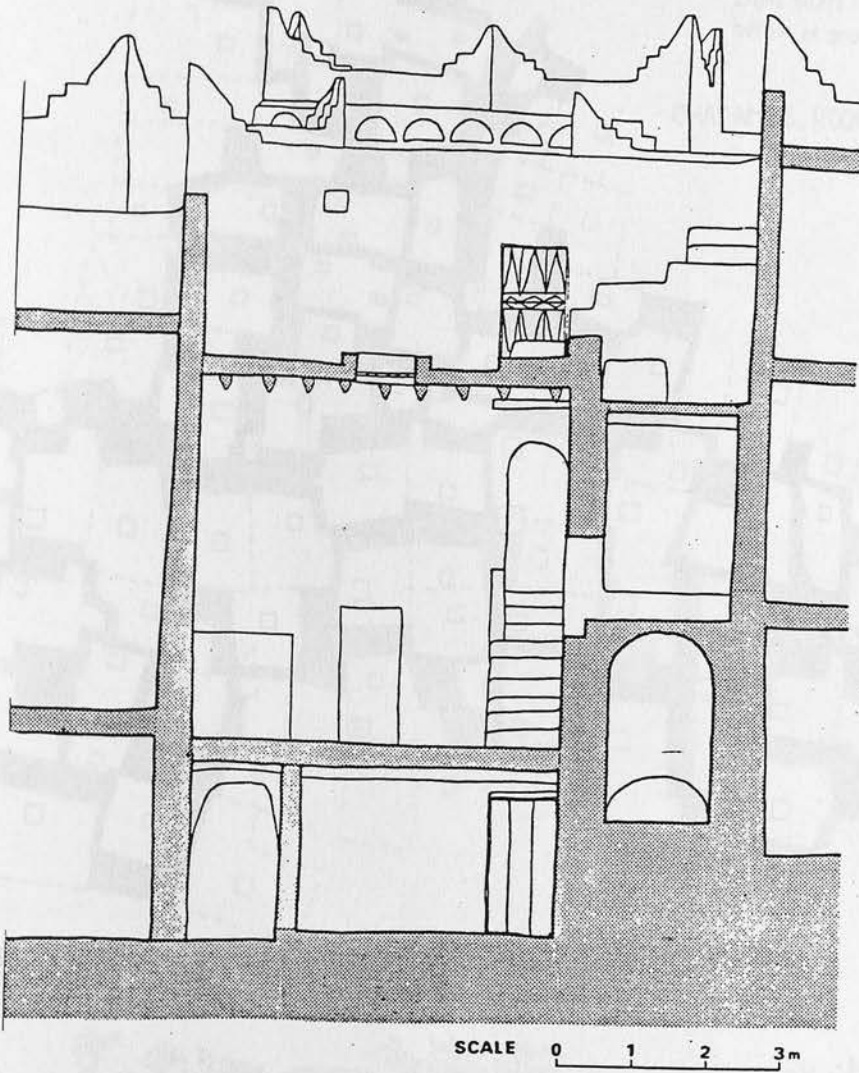


Fig 4.9

Section of Ghadames house showing ground, first and second floors. Pointed raised corners are added onto the parapet for symbolic and decorative purposes. The ground floor has low-ceilinged rooms because it is only for storage.

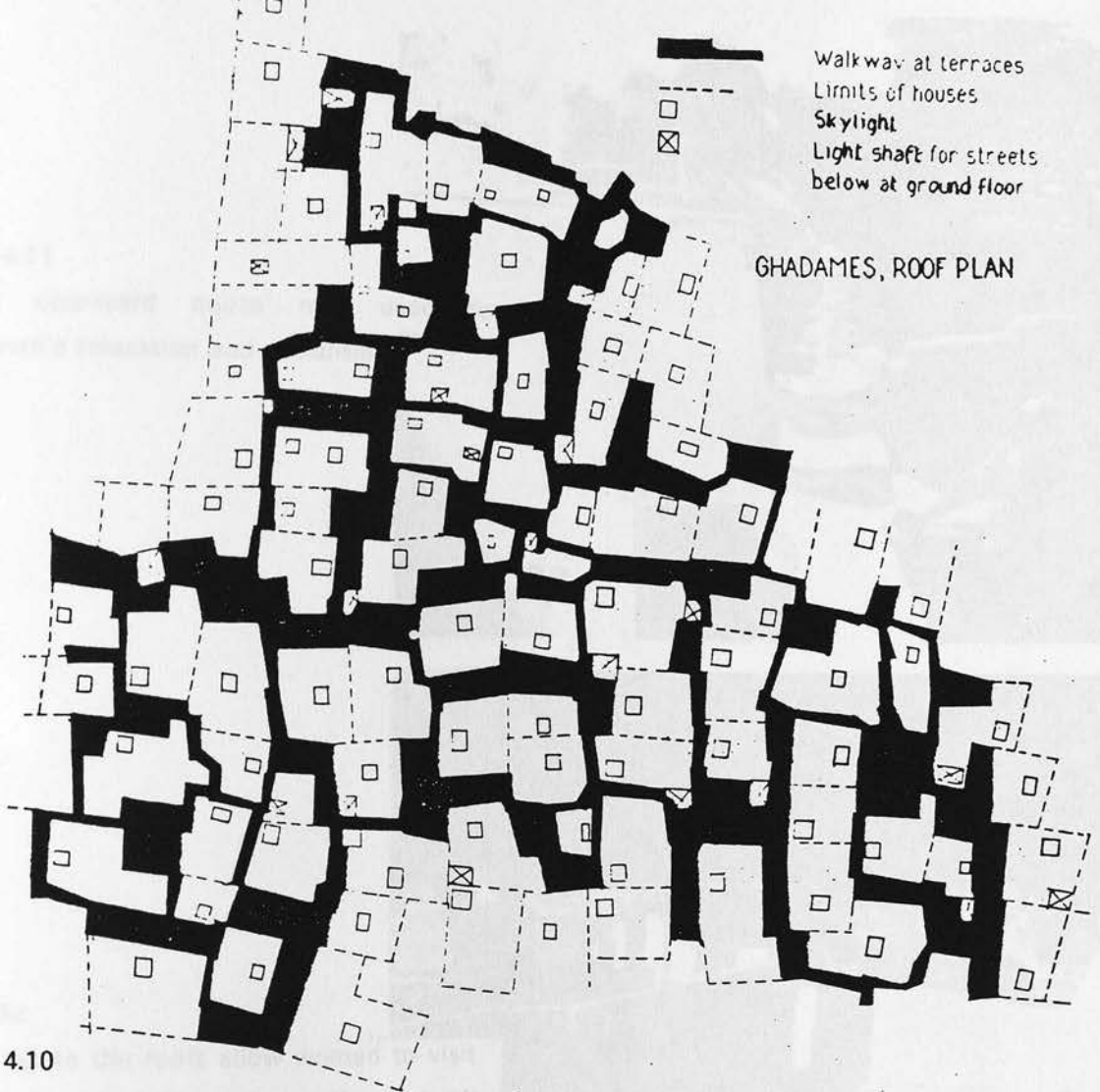


Fig 4.10

Plan of rooftops in Ghadames above and a view of the town showing how it is knit together.



Fig 4.11

The courtyard house roof used for women's relaxation and socialising.

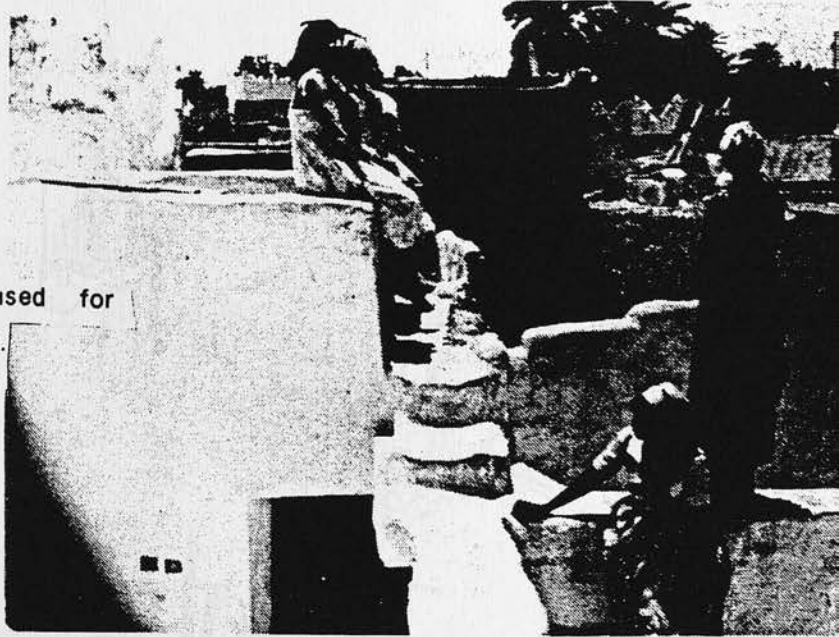


Fig 4.12

Steps up to the roofs allow women to visit easily. A strong door can easily shut off access.

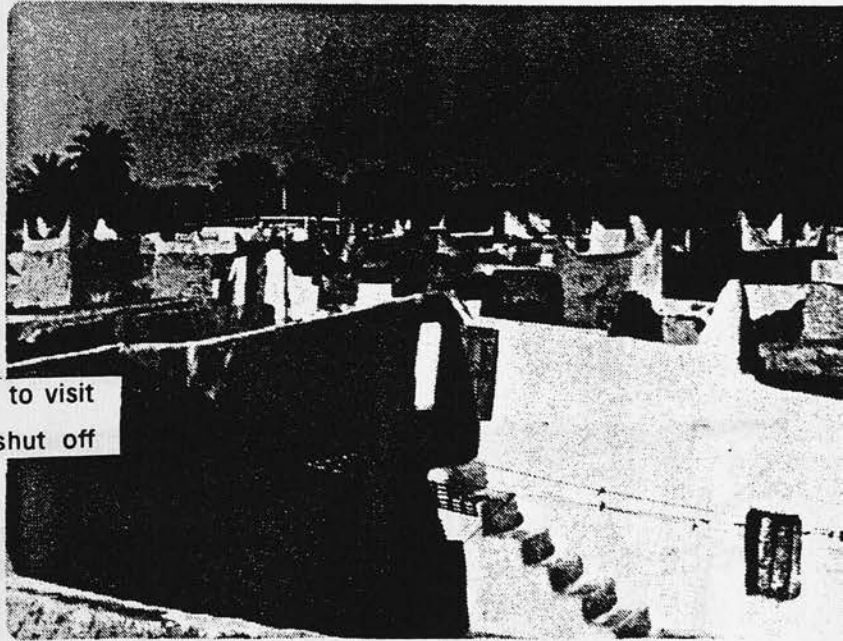


Fig 4.13

Lanes along the roof walls are strong and safe to walk on.



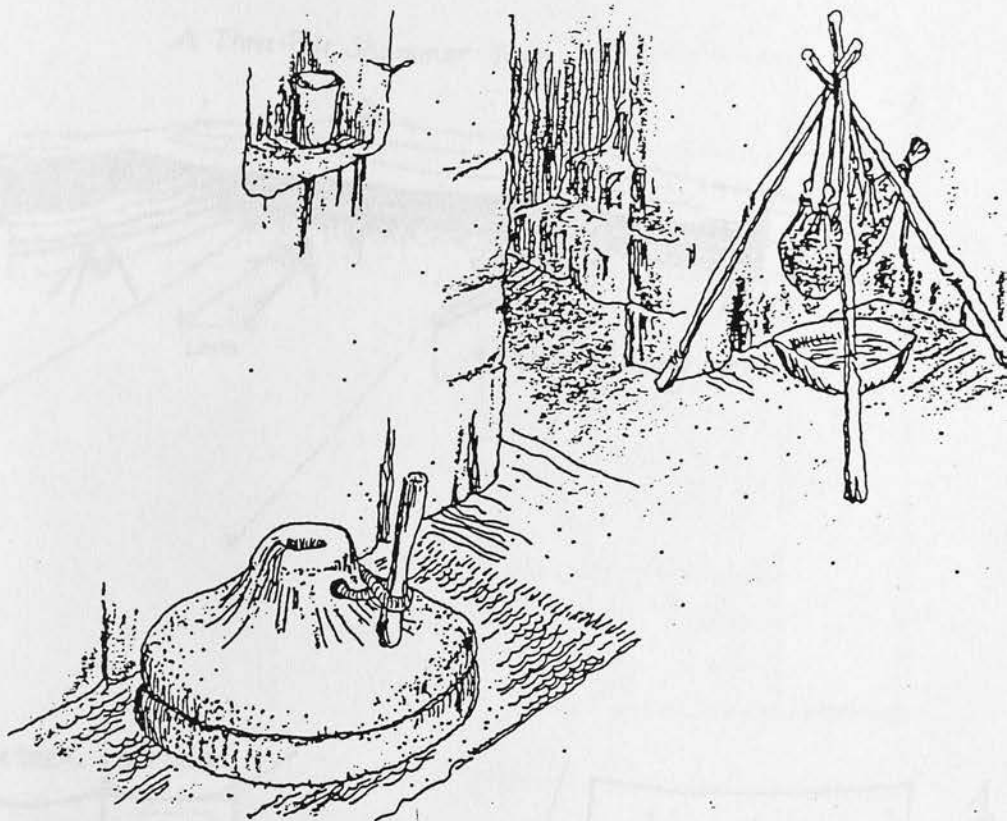


Fig 4.14

Traditional interior showing equipment for grinding corn and a stand for cooling water in the breeze or making butter-milk.

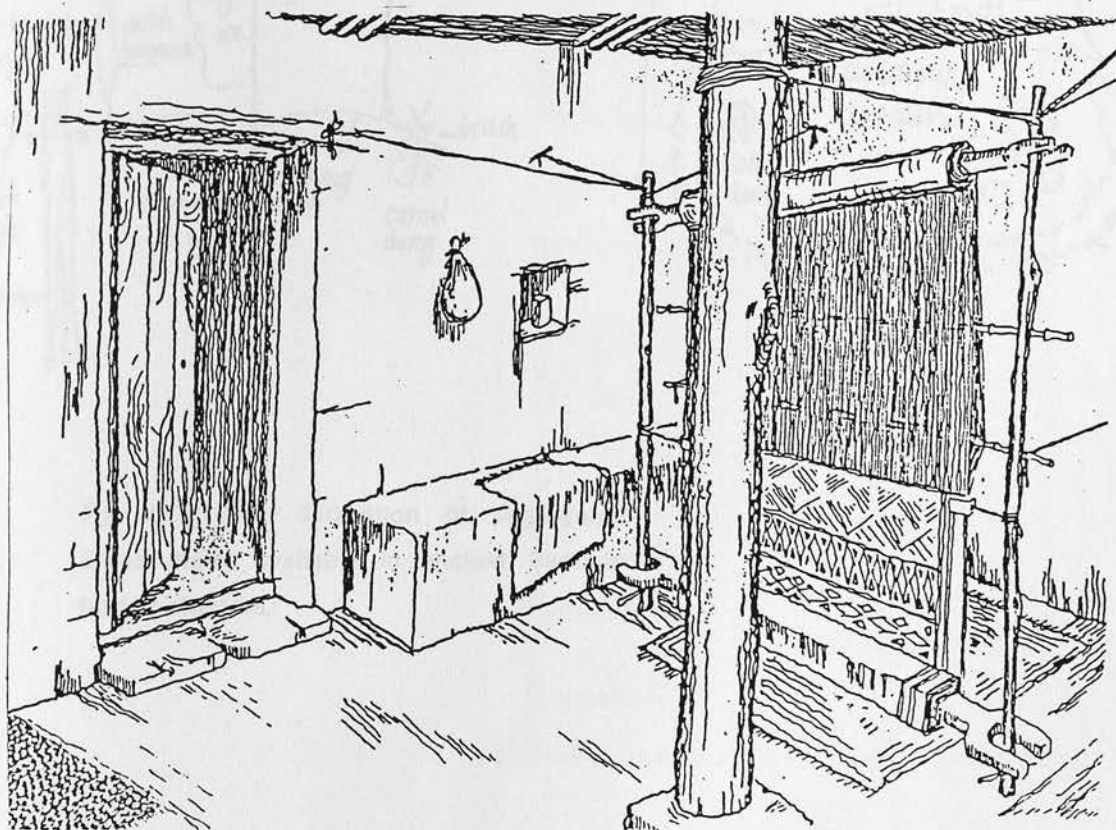


Fig 4.15

Places where women meet often include a frame for carpet making as part of the furniture.

A Three-Pole Shammar Tent

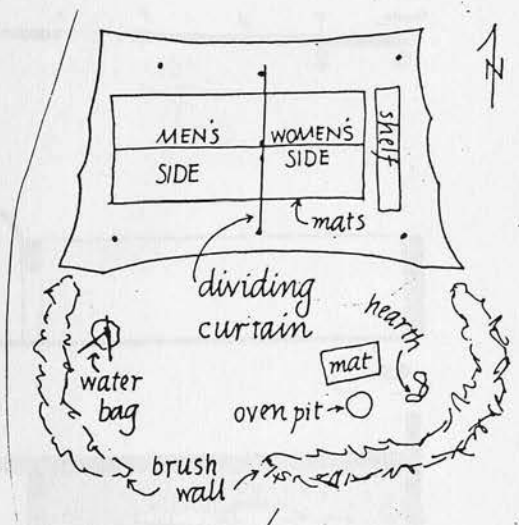
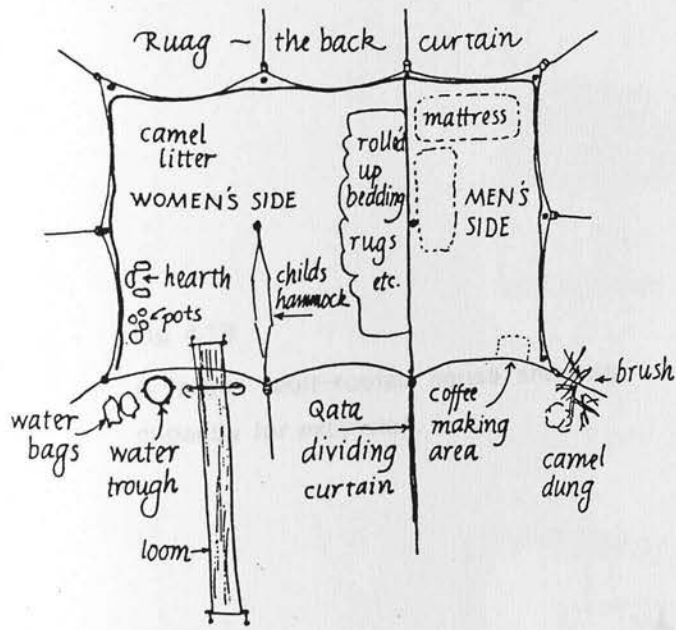
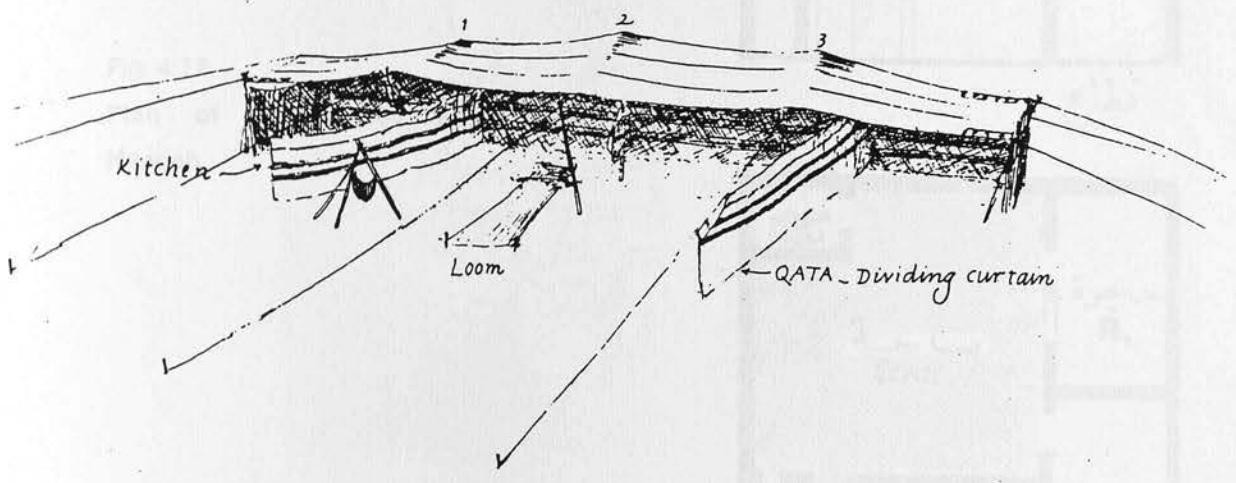


Fig 4.16 Clear indication of segregated areas made available in ancient Bedouin tented shelters.

Fig 4.17

Plan of vault-roofed house found in Mezdah.

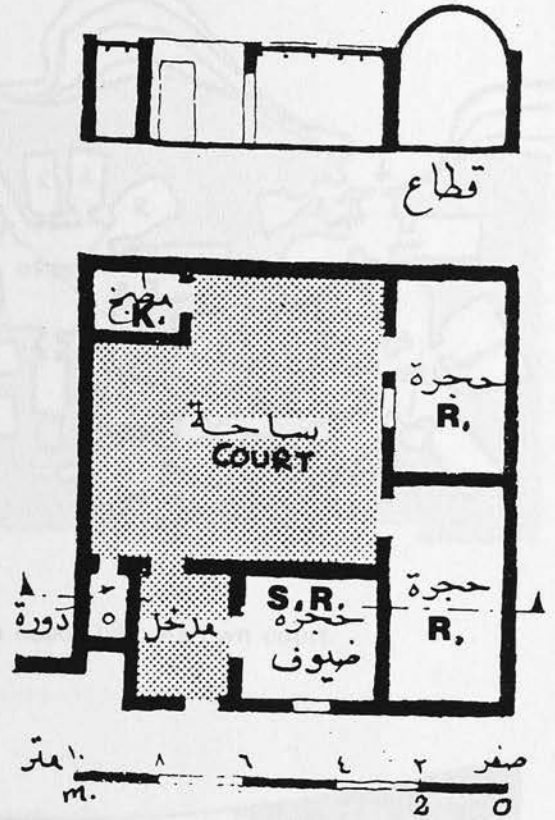
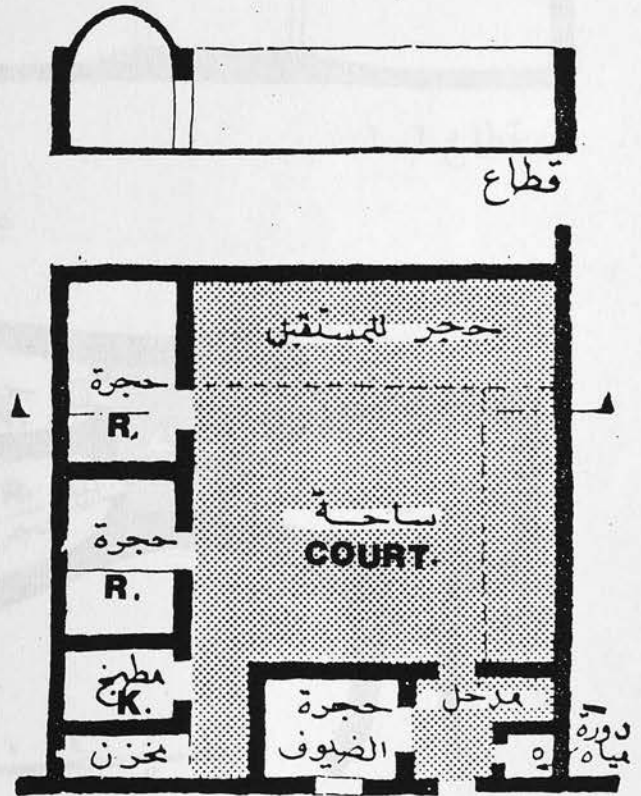


Fig 4.18

A larger vault-roofed house showing capacity for extension.



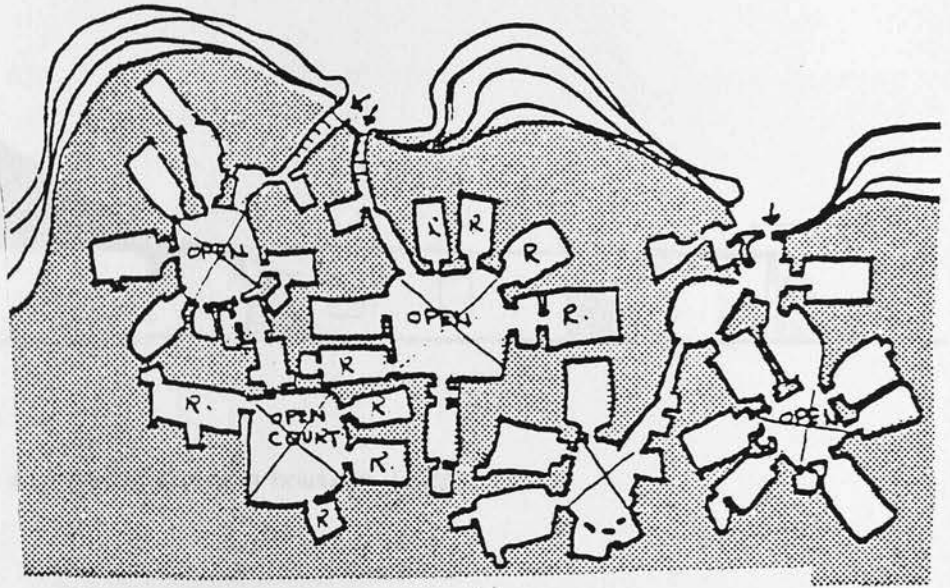
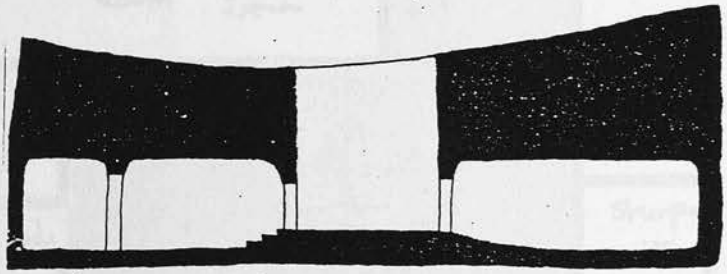


Fig 4.19

A troglodyte settlement, each house with its own court.



قطاع ١-١

Fig 4.20

Section of troglodyte house.

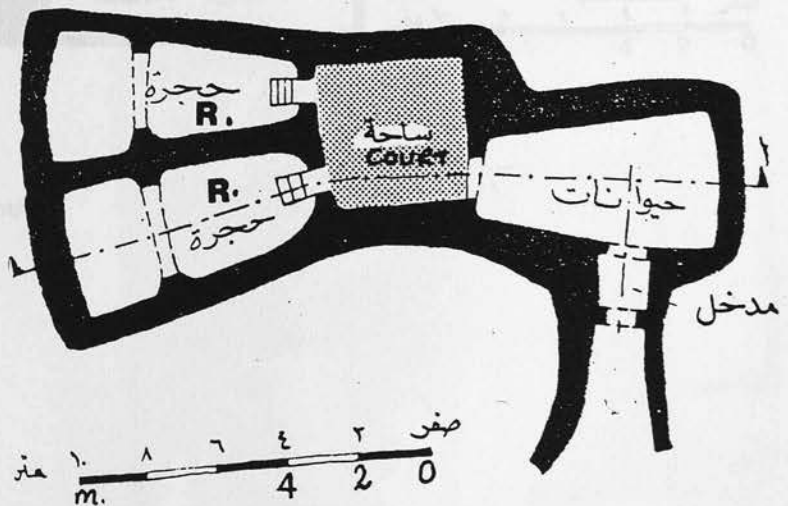


Fig 4.21

Floor plan of troglodyte house, the first court for animals and the second for the family.

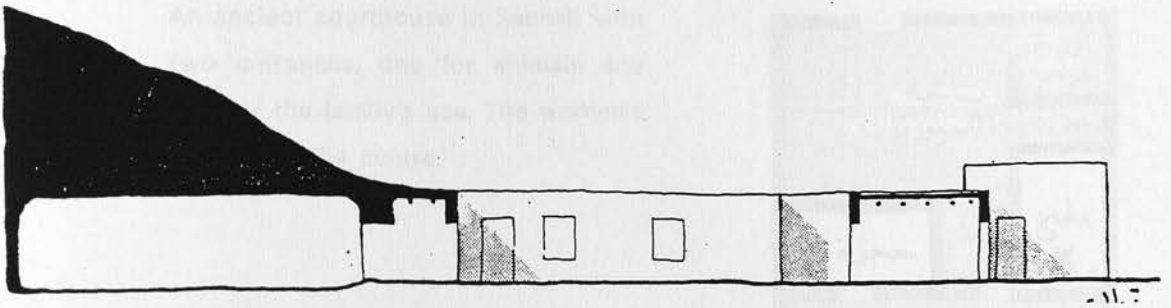


Fig 4.22

Section of a semi-subterranean house in Jaadou.

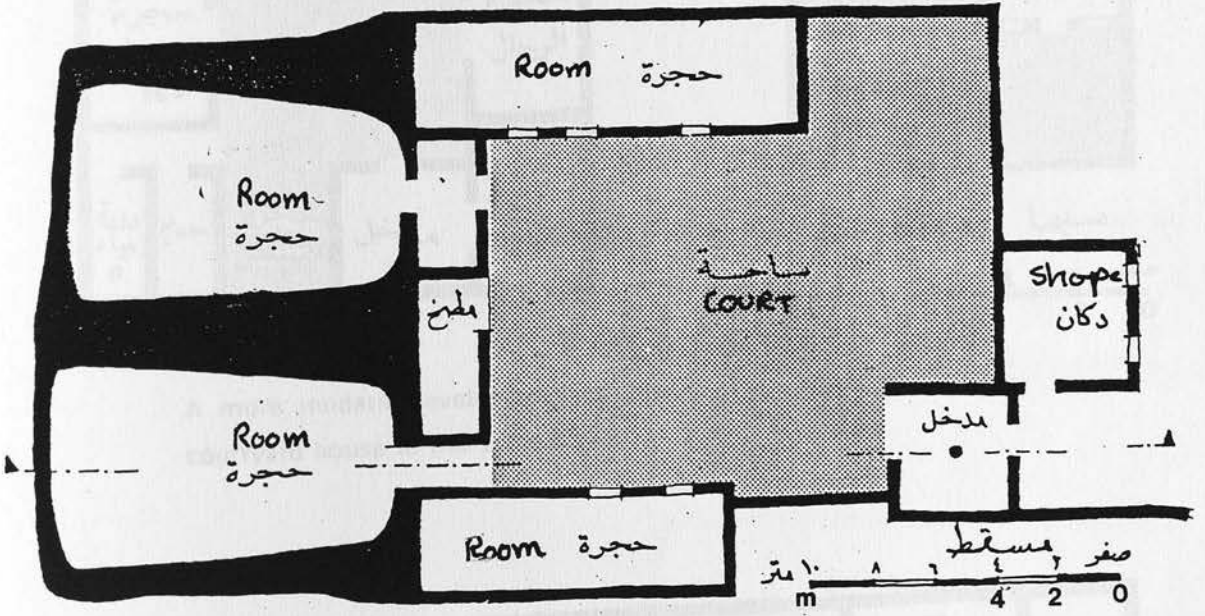


Fig 4.23

Floor plan of above house.

Fig 4.24

An ancient courthouse in Sabbah with two entrances, one for animals and one for the family's use. The women's court is in the centre.

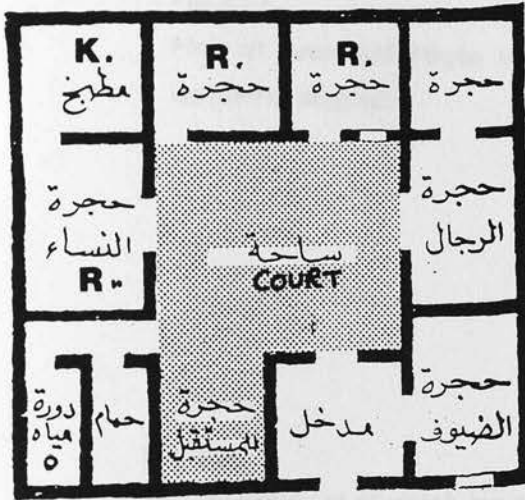


Fig 4.25

A more modern development of the courtyard house in the same area.

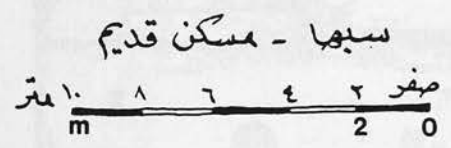
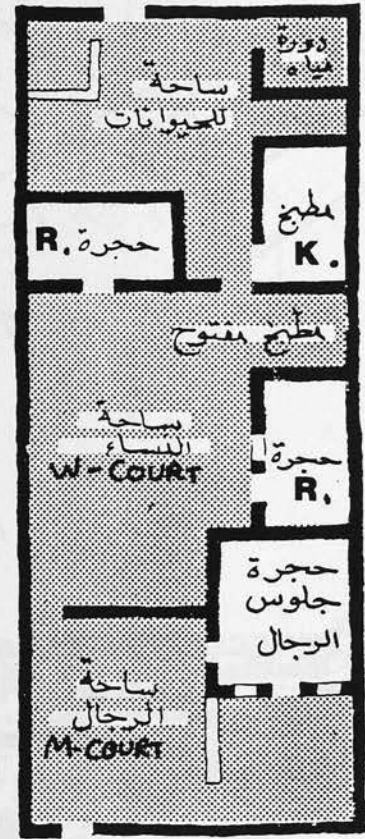
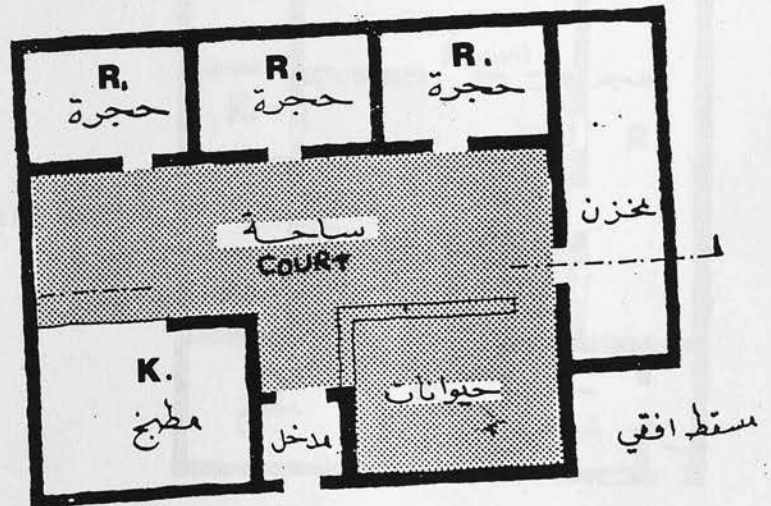


Fig 4.26

Another style of courtyard house, found in Arrehiba, with a separate partitioned court for animals.



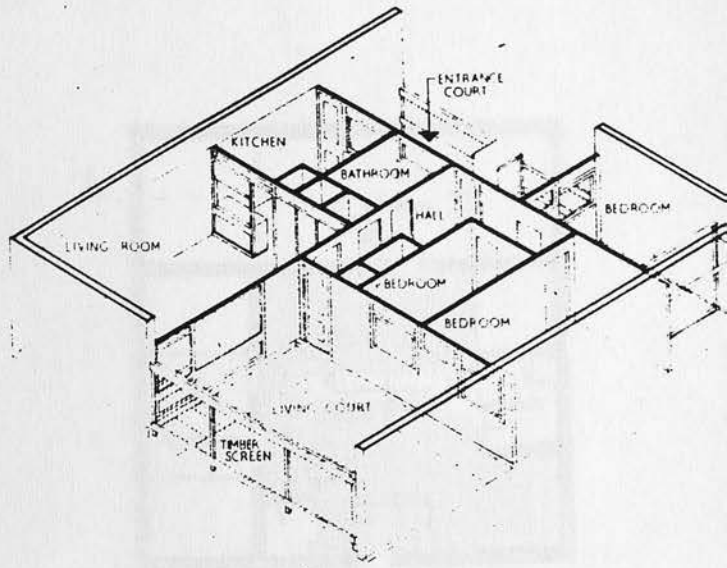
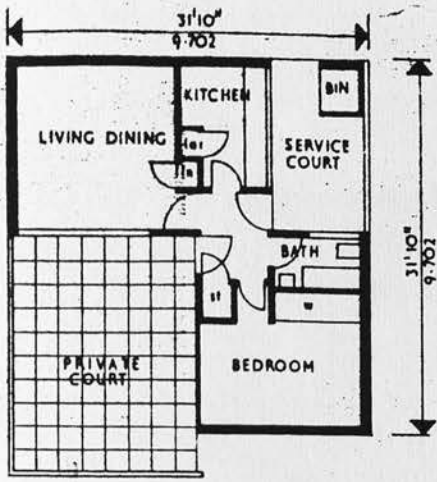


Fig 4.27
Plan of courtyard house in Scotland, with isometric diagram.



Fig 4.28
The elevation of Misratah houses.

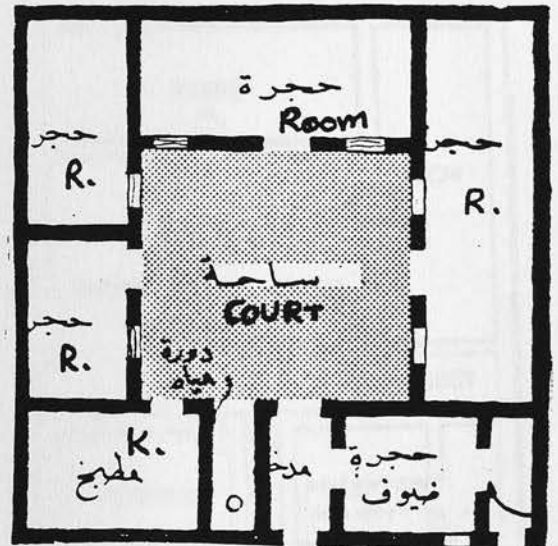


Fig 4.29
Ground plan of a Misratah house.

Fig 4.30

Ancient type of coastal courthouse found in Al Khournis. The entrance is partitioned off to block view to interior.

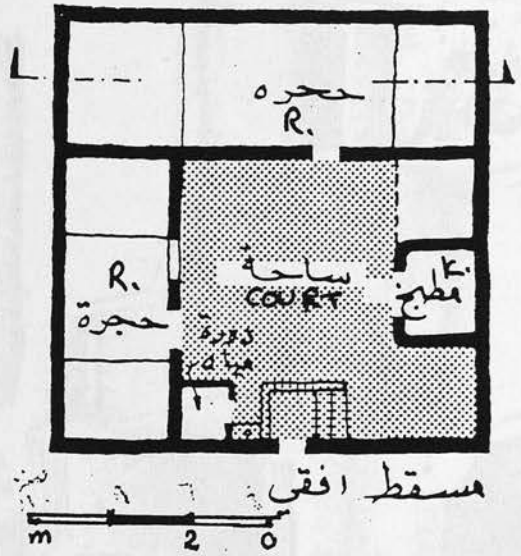


Fig 4.31

A more recent house in the same area with the entrance redesigned to give greater privacy. There is also a guest room, open to the street.

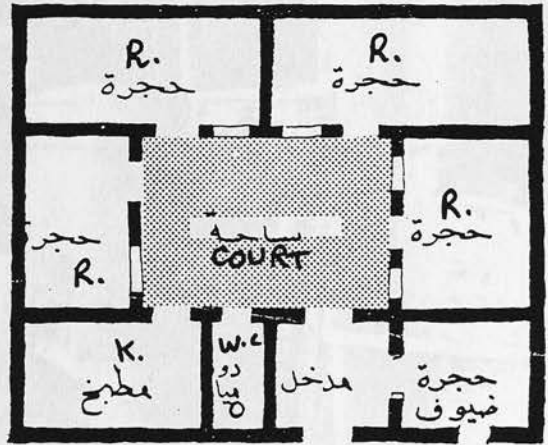
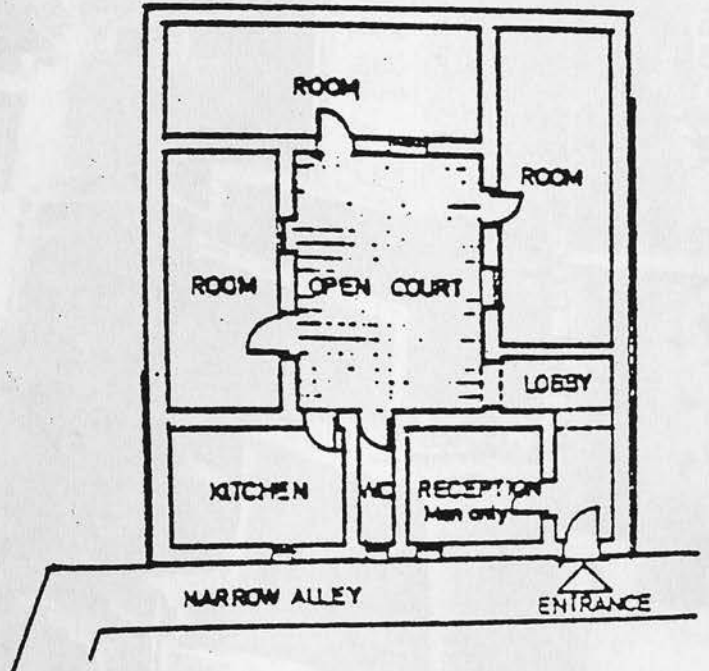
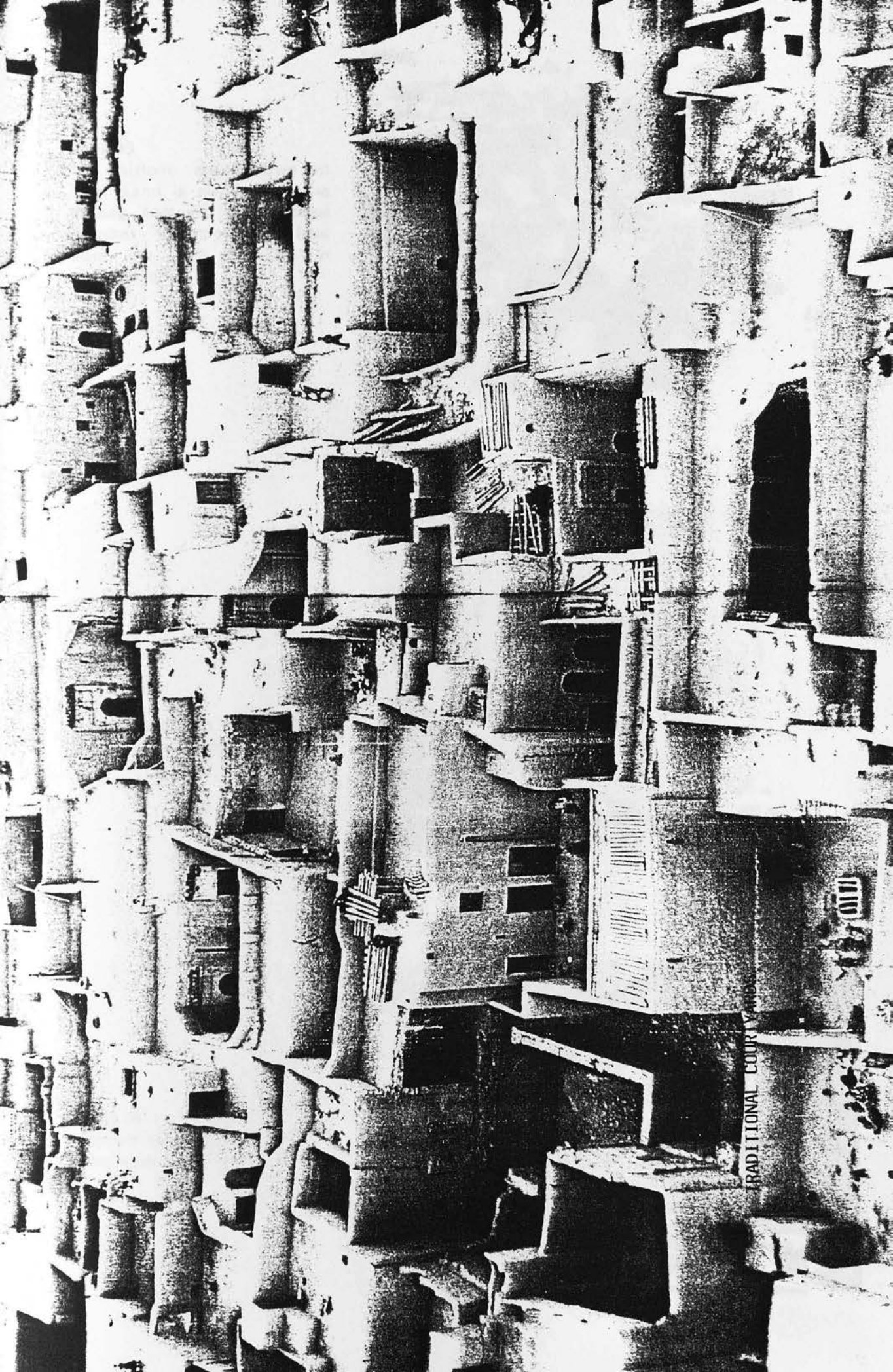


Fig.4.32

A court house plan from Tripoli.





TRADITIONAL COURTYARDS

Fig 4.33

The historic desert town of Ghat. Land is plentiful but the houses compact and huddled together for protection. Mud from the area is used in construction.



Fig 4.34

The central space in Ghat shows the gateways to kinship quarters. The mud-brick walls are thick and the buildings are closely packed together.

Fig 4.34

Central space in Ghat showing gateways to kinship quarters.

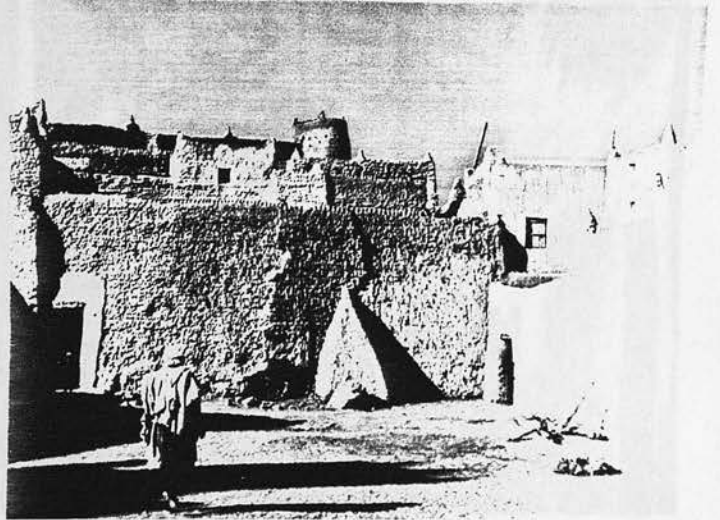


Fig 4.35

Women in Ghat socialise while they work at the well.



Fig 4.36

Characteristic building in Ghadames. Raised roof corners and covered lanes built in rough stone found locally.

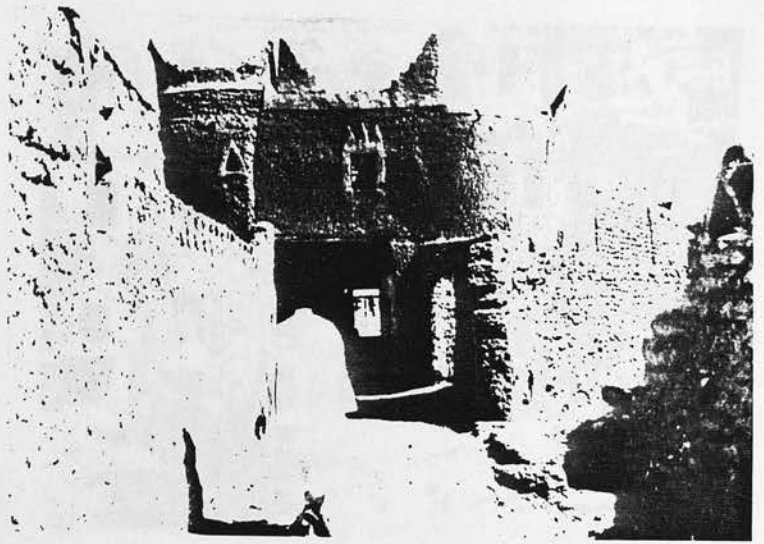


Fig 4.37

The morning sun beats down but the space is shaded. Stone benches provide places for people to relax in the cool areas.



Fig 4.38

A new desert housing project in Ghadames. Traditional symbols of pointed roof corners and stone patterns are the only gestures to culture.

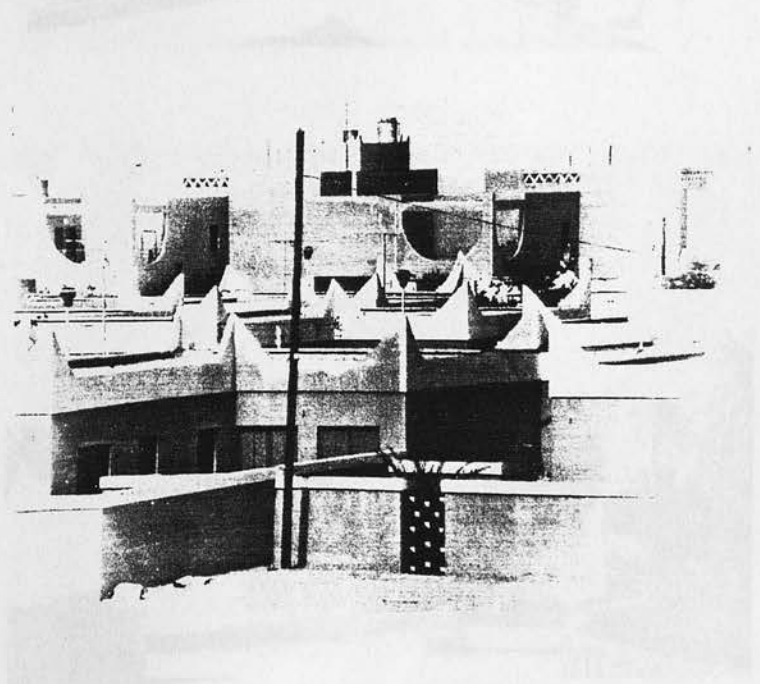


Fig 4.39

A Berber 'qsur' in the mountain region consisting of 4 storeys surrounding a circular court.

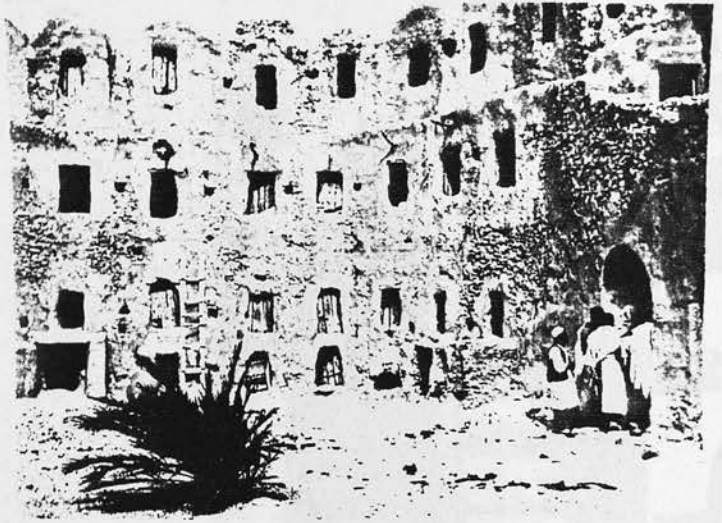


Fig 4.40

Traditional window design does not allow glare to penetrate.

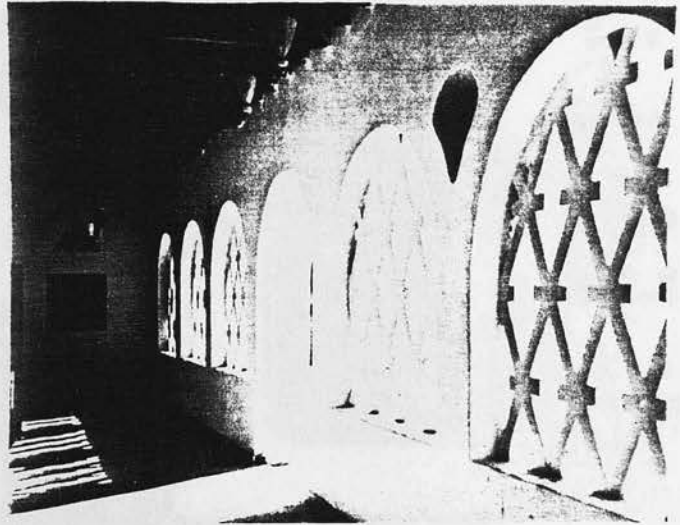


Fig 4.41

A large desert house, now used as a hotel, has been well preserved and fits well with the oasis landscape.



Fig 4.42

Rich decoration inside the desert house compared with the exterior. Red is a favourite colour to use. Steps give access to the higher levels from the entrance.

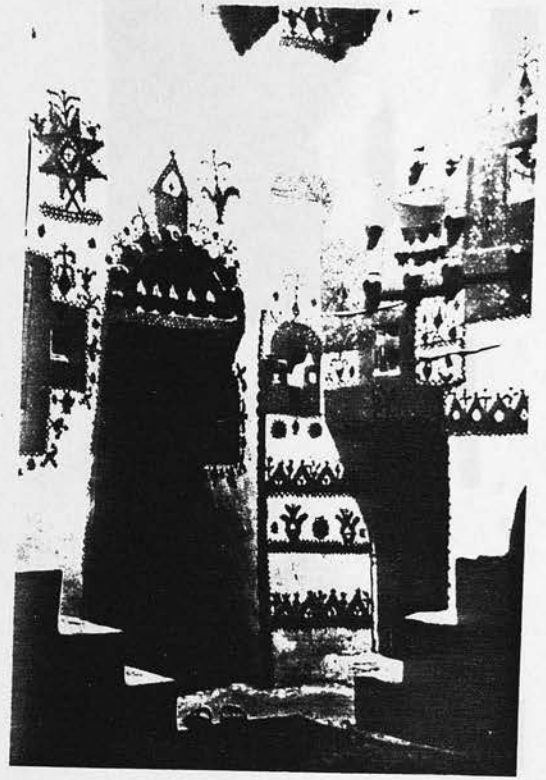


Fig 4.43

Elaborate design disguises the window of a woman's room.

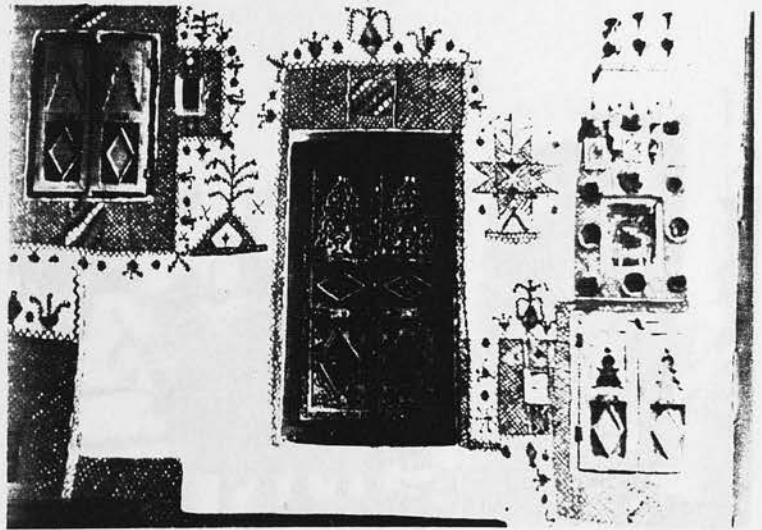


Fig 4.44

Personalisation is important in housing. Women compete to make the most creative designs and arrangements on door, windows and walls.

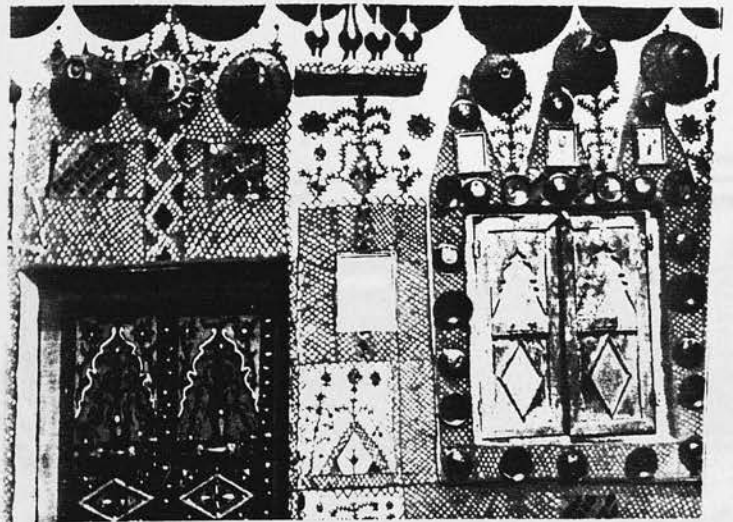


Fig 4.45

Narrow streets in Andalusia are often used as though they were completely private. Here we see one used for hanging washing. Personal goods are left outside with no worry about passersby.

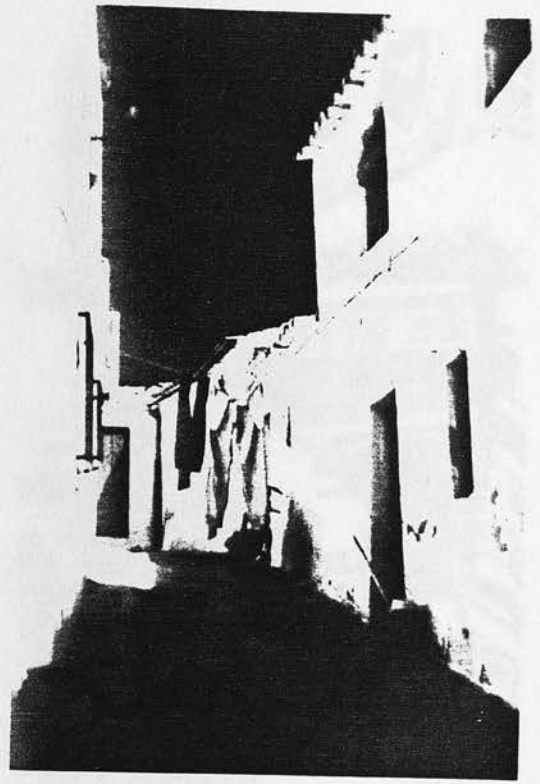


Fig 4.46

A picturesque Andalusian courtyard shows how attractive the courtyard can still be in modern times.

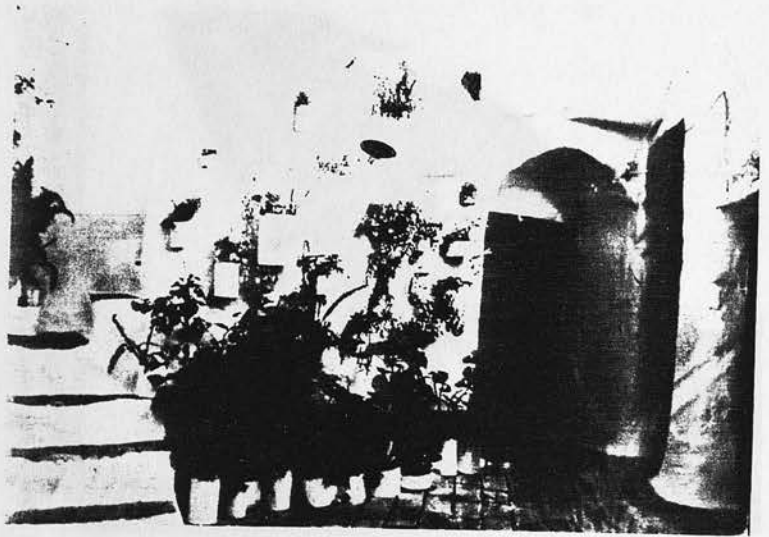


Fig 4.47

A courtyard in Prestonpans, Scotland showing how privacy can be controlled by increasing or decreasing planks in the fencing.

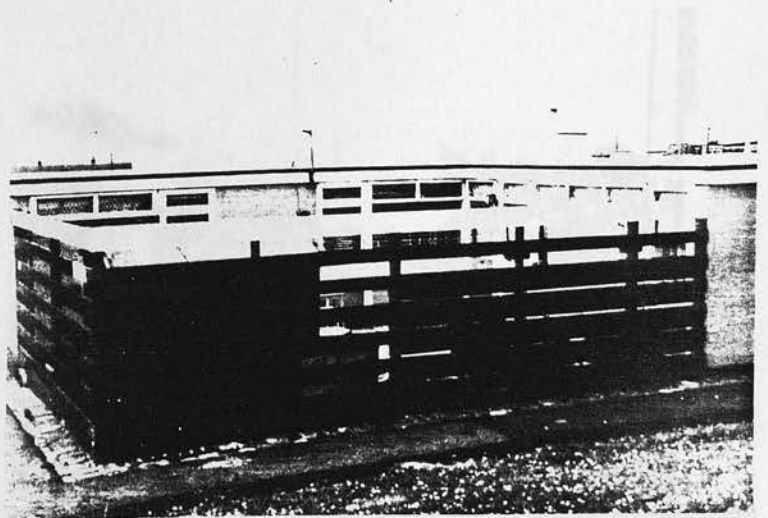


Fig 4.48
Entrance to a traditional carpet market in Rabat, Morocco. The building is used to display wares.

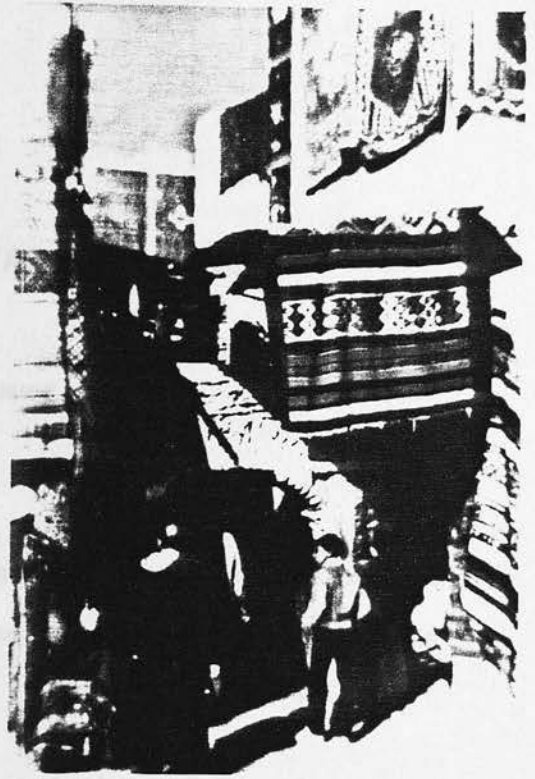


Fig 4.49
Archways and stone benches are almost universal in traditional Arab Muslim areas in North Africa. This street in Morocco shows how shade is provided.



Fig 4.50
Space between houses is shared by families as though it were private to them.



CASE STUDY: COURTYARD HOUSING

PART I: Background

5.1 INTRODUCTION

In this section, the author will concentrate on one particular style of housing which, for many centuries, has been a feature of life along Libya's coastal strip, namely the courtyard house.

Libya is a very large country and as already shown, it comprises many variations of terrain and climate. Each region has its own housing characteristics developed in response to the environment, and to the history of the area. Because, as explained, the coastal area is to be the main region for the study, and courtyard houses are the traditional and indigenous dwellings in this area, a special study of them will follow. The form has existed successfully for centuries and is now beginning to disappear. In order for planners and designers to develop future housing schemes, in the most appropriate manner, it is crucial that the history of traditional housing and the reasons for its successes and failures be understood by them.

It would not be unreasonable to consider that a form of housing that has been adaptable to the changing need of people through many centuries could not be adapted yet again to meet the requirements of today's society and its new lifestyle, at the same time giving a sense of identity and continuity.

But to accommodate social change and the progressive modern requirements of the Libyan family, together with new advances in building technology, the Libyan court house must undergo a certain further development. Dors and Said, "Libyan Court Houses", 1972.

An examination of how the courtyard house has responded to the physical and cultural environment will be made to see how flexible the form has proved to be and can continue to be. Each aspect of its design and construction will be analysed showing how the pattern developed and was used by the inhabitants.

Many other Mediterranean countries have similar types of dwelling but Libya's housing problem is unique because of the attitude displayed by the authorities towards the indigenous architecture. In Spain, as shown, courtyard houses are beautifully maintained and are picturesque, as well as functional, monuments to the past. In Libya, there is money for new construction and for maintenance, but housing authorities have chosen to erase all traces of the old style in favour of modern forms. The author's objective is not necessarily to prove them wrong but to evaluate the continuing viability of the form for future generations.

One of the aims of the study is to provide a detailed record of this form as it historically existed, to leave evidence for future generations of planners on exactly what forces affected its development and the physical and social aspects of its history. If we do not understand the nature of our own style of dwellings, it is unlikely we can make any judgements about imported forms or their relevance to the people for whom they are intended. By studying the traditional house and recent social changes, it would be hoped that a model can be produced from which the form can be updated and made relevant to modern society.

Having lived many years in a traditional courtyard house, the author is

familiar with life in a traditional village community. It is not out of sentiment or nostalgia that the following pages are written but in an attempt to give a balanced account of housing which, from a previous survey, was shown to provide the occupants with a lively, active and comfortable social life. How was this achieved and is it still of value in a changing society? The following section will look at the area chosen for the case study.

5.1.1 Introduction to Study Area

Misratah, the city chosen for the study, is the third largest Libyan city in terms of population. It contains over 200,000 inhabitants at present and demographical studies indicate this will rise to over 250,000 by the end of the century. The growth rate, partly due to a high birth rate, is accelerated by the siting of a vast new steel complex and an air academy, bringing new employment opportunities. "The highest rate of growth is achieved by Misratah because of its function as an economic growth pole, reaching between 250,000 and 350,000 people by the year 2000". (Saad Kezeiri and Richard Lawless, 1987.)

The city is favourably sited on the coastal strip and forms a link between the other main cities of Tripoli, Benghazi and Fazaan (see fig 1). "The present-day function of Misratah is primarily that of a market town both for the oasis of which it is the geographical centre and for an extensive region to the south and east." (G. H. Blake, 1968). Its good communication network makes it attractive to migrants and for new developments in industry. This means it already has a wide range of inhabitants, locals and incomers, who have to be catered for.

Traditional villages surround the city centre but are gradually being swallowed up in the drive for expansion and modernisation (see fig 2,4). The centre wears a mask of western style modernity underneath which the people carry on their former ways of life.

Some villages are swept aside when the central area needs room to grow. Others are changed when the population's status changes. People begin to feel ashamed of their old fashioned homes and demolish the old, replacing them with new houses possessing front and back gardens.

Some villages still remain relatively unchanged in character. From these the author has selected four areas for particular study. These are Ras Ali, Zammurah, Algahanat and Al-Magasbah. The fifth traditional area chosen is Tawargah which has slightly different problems in that it was an all black settlement area which was targeted for a government project (see fig 2). In all these areas, indigenous courtyard housing is the predominant form. The character of the villages and their patterns of activities are the same although most now include a number of new houses. A large number of areas are looked at in the study to see how people of similar background in each village react to the advance of technology and new styles and how their behaviour changes, if at all.

Finally, the area around Misratah is seen as most appropriate for study because of the author's own experience of living and working in it. Special insights into the way of life and the problems faced by the authorities are issues that he has lived with and will hope to clarify in the following pages. Modern areas to be studied will be described in a later chapter.

5.1.2 Study Method

The purpose of the study is to establish how different areas meet the needs of the people and what kind of adaptations have been made to satisfy needs. In order to do this the method chosen was based on recommendations for observation made by Jan Gehl in *Interface* for the study of the interface between public and private space.

Two surveys were carried out during the summer months of 1983 and 1986. Libya has a very long summer during which many and varied activities take place in outdoor space. Observations were made and interviews conducted at three different times of day - morning, noon and afternoon, over a period of several weeks. The three times were chosen because the temperature changes considerably throughout the day and is therefore likely to affect activities. Additionally, morning is usually when men work, midday when families gather and evening for leisure. The behaviour patterns consequently vary considerably depending on the time of day. A record was kept of the nature of activities observed, who was involved, where and at what times, and the relationship between time and activities shown in histograms.

Particular efforts were made not to disturb or interfere so that people were not inhibited. This was especially problematic when observing activities in private space (the inner courtyard) or women's activities. To minimise disturbance at these times, the author used areas where he had relatives and was not regarded as a stranger.

Help with statistical data, maps and plans was provided by the Technical Department of the Municipality. A plan giving detailed physical information of each area is given before the description of findings. Another diagram shows positioning of inhabitants in the space throughout the day from which a histogram of activities is made. These plans give a fuller understanding of the use of space and a guide for planners as to where, when and for how long certain areas are required by users, and whether they are men, women or children. These findings will guide the author in making his final recommendations (see histograms and maps for each area at the end of this chapter).

5.1.3 Interview Format

Much material for analysis and for explanation of problems was collected from local people who were interviewed. Formal questionnaires were avoided so that people felt more able to be open and expand their replies. The author was keen not to be seen as an official of the government to encourage the expression of frank and deep-seated feelings. For this reason, the methods of observation and informal interview were chosen.

Informal talk, rather than a question and answer session, was used. This was often carried out at traditional meeting places and particularly outside the mosque, where people frequently go to wait for prayers and to exchange news. Future plans and aspirations were sought as well as details of the current situation. The tone was generally lighthearted and simplicity maintained. Attempts were made, however, to elicit specific responses on certain aspects of housing such as the reason people were still in the traditional areas and why they wanted to move or stay. Those who were eager to move were asked what kind of housing they waited for, public or private, low or high rise.

Questions about furnishings and fittings were also asked to see if people placed particular emphasis on having such things as washing machines, televisions, and special areas for children. Another important area was their views on changes in family structure and particularly how they viewed the position and role of women of the family in the future. Women's views were less easy to elicit. The author chose the only possible solution of talking to female relatives in his own area as any other communication was not feasible.

Photographs will be used to illustrate the points raised in the interviews.¹

¹Photographs of the areas used by women were extremely difficult to obtain.

These are shown at the end of Chapters 4, 5 and 6. The author attempted to take films without being seen so that the results were unposed and natural. Minimal disruption was the aim so there are no pictures of the inner area of the house. Water towers and minarets were used for high views. Permission from the Sheikh Mahallah was sought before these shots were attempted.

5.1.4 Other Sources of Information

The author often referred for information to the Sheikh Mahallah² or village chiefs. Their role is to act as intermediaries in any disputes over territory and to advise and judge on allocation and division of space for building. They were able to give background information on the history and development of the area, on family histories, growth and problems arising out of these. Another aspect of their role was to negotiate terms between the Municipality and the people and between neighbouring villages to ensure that land was fairly divided.

The Municipality itself was able to help in giving details of the kind of problems facing them and on how requests for building licenses were dealt with. Having worked in the Municipality, the author's personal contacts made this task easier.

5.1.5 Physical Description of the Areas Chosen

In the villages most of the courtyard houses are single storey with at least one courtyard and often an inner and outer court. Some have outside sitting rooms with stone benches for relaxation or makeshift brick seating areas. The main components of the courtyards are described in the next section.

²The tribal chief.

Modifications which have been carried out to accommodate modern gadgetry, include adaptations to the kitchen area to fit a cooker and fridges. Sometimes also, the bedrooms may be floored or tiled and, in one main room, the palm branches of the ceiling may be replaced with wooden beams which are cleaner and suit new furnishings. Only minor changes are made as people are reluctant to spend on what they regard as substandard housing and many await mortgages to build new homes.

Already, however, in these five areas, some of the traditional houses have been replaced by those lucky enough to have their own finance or to obtain mortgages. We will see how these new units effect the neighbourhood later in the chapter.

While building is in train, the original outer wall is retained for privacy. It is usually demolished when the structure is complete and a fence put in its place, unless it is a shared wall.

The new house does not take up all the space within the fence and the remaining land is used for a garden and a garage. The old outer sitting room is often retained so that social life can carry on (see fig 31). It is not felt suitable for strangers to go into the house.

Recently installed electrical wiring can be seen hanging outside rooms and buildings, often poorly fitted. Water is supplied by two main taps, one in each courtyard. Pipes for this supply are run off the single tap provided, often outside the mosque, by the Municipality. Wells are also still used when people are unable to get their own taps.

Outer areas are often shaded with a covering of vines. This gives comfortable places for people to sit. The mosque dominates the skyline and is the most imposing structure of the village (see fig 11). Units are knit together

by narrow asphalted lanes which also give access to the main roads and other villages.

5.1.6 Residents

Information from the Sheikh Mahallah and the Municipality register shows that all families in each area are related. One courtyard house serves for several brothers with their wives and parents. There may be two or three families in each unit awaiting rehousing. New houses in the area are usually occupied by only one family. In addition to their daily occupations, most of the men work in the fields, with the common aim of providing adequate income. The young men who have office jobs return to traditional ways when they come home and join in the tasks on the land.

PART II - PHYSICAL CONSIDERATIONS

5.2 COMPONENTS OF A TYPICAL COURTYARD HOUSE IN LIBYA

(i) ENTRANCE

The entrance to a Libyan courtyard house (see fig 19-48) is often the only feature visible from the outside on otherwise blank walls. It is an important feature of the house and can tell the informed observer much about the family within. Local wood and craftsmanship were used to fashion the door, the locks and latches.

Its width and height were originally designed to admit a man riding a donkey or camel with loaded paniers. There is, therefore, a large gap in the form of an arch. Into the arch is fitted a strong wooden door, flush with the wall, filling the space in width and height but sometimes with a gap at the base for drainage of water. This large opening is necessary because people liked to bring their animals into the court to feed and load them or for

safekeeping. As women often tended them, it was necessary for the task to be done behind walls. However, for everyday general use the main door itself was fitted with another smaller door to allow the passage of a single person (see fig 40). This would be easier to open and less cumbersome for the women and children going in and out.

The Quran states "O ye who believe Enter not houses other than your own without first announcing your presence and invoking peace upon the folk thereof. That is better for you, that ye may be heedful. And if ye find no-one therein, still enter not until permission hath been given. And if it be said unto you: Go away again, then go away, for it is purer for you. Allah knoweth what you do". (Surah An-nur (24) 27-28.) Therefore the entrance must be obvious and it must have a strong easily located knocker. These were often highly decorated by local craftsmen, indicating the relative wealth of the family inside (see fig 50). The main doorway would sometimes be left open as a gesture of hospitality but it was still vital for the prospective guest to make his presence clearly known before entering. The knocker also gave interest to the street as each one would be of different and distinct style (see fig 49). These touches of personalisation were also psychologically important as will be discussed later.

Going through the doorway has an important symbolic significance. It represents passing from the public to the private domain, from the street to the home. Within the door one may find either a lobby with an inner door onto the outer court or one may enter immediately into the outer or guests' court. The further doors to inner space are never directly opposite the main entrance to ensure that privacy is preserved and that no-one may pry within. The only other doorway to the street that there may be is from the marboaa, or men's sitting room. This would be a much simpler entrance.

It is preferred for the entrance to face East towards Mecca for psychological reasons. This also makes the area around the doorway a comfortable shady place to relax in the afternoon and stone benches are often found here for the men to sit on (see fig 48).

When possible people like to exit from their homes onto their own land, fields or gardens, rather than the public street. There was formerly a practical economic reason for this in that the agrarian community used space outside their homes to keep their animals and for storage. Psychologically it gave them a feeling of having their own territory.

Because men gather regularly at the entrance to the mosque, house doorways tend not to face that area if possible, to avoid problems for women wishing to come and go. To give a little extra protection, when the door opens into the street, there is sometimes a high wall like a buttress close by the opening at right angles to the front wall of the house.

On a recent study visit the author noticed that in Andalusia, doorways of courtyard houses often face each other across narrow lanes. Privacy is a less important issue and one finds doorways left open so that from the inside of one house it is possible to see straight through to another. Even when locked, the entrances are often left open to view with wrought-iron gates or bars across them denying passage but allowing sight to the interior.

It is important to recognise that the entrance is a functional part of the house. It gives dignity to the home and has great symbolic significance for visitors and family alike.

(ii) COURTYARD

All traditional courtyard houses in Libya have at least one courtyard. Single storey houses often have an outer and inner courtyard. The dimensions of

these vary depending on the wealth of the occupants. In the coastal zone the courtyard is always uncovered and usually has an earth surface. There may be a paved or tiled area around the edge for easy passage during rainy periods when the central area may be muddy.

There are two very important aspects of the courtyard. Firstly it modifies the climate of the living space and gives light to the surrounding rooms. Secondly, it plays a vital role in the social life of the family. More will be said on this in a later section. As John Warren writes (1982):

The courtyard was the fundamental space of the house. It provided light and ventilation. It was the temperature regulator and the circulation space and it was the zone where the several stratifications of the house came together, ...and No-one could move about the house from room to room or level to level without in some way participating in the life of the courtyard and contributing to it.

Compared with courtyards in Spain, the Libyan courtyards are relatively simple and unadorned. They are functional spaces rather than decorative.

(iii) OUTER COURT

The outer court situated immediately inside the entrance, is usually slightly smaller than the inner court. It serves as a recreation area for the male members of the family and their guests (see fig 47). For religious and cultural reasons, as described earlier, it is preferred that the sexes be segregated and the outer court provides an ideal solution to the problem and eases social gatherings in the home.

Guests' sleeping rooms are situated off this court to avoid the need for visitors to pass within the private areas of the house. There may also be a men's sitting room or area where important matters such as weddings can be discussed.

On one side of the court, stables for animals may be found. This provides a safe area for them inside the house walls and facilitates the process of feeding, watering, milking and cleaning them, especially as this is a job that women sometimes carry out. Stables often have a lower floor than the rest of the house to keep in straw for bedding and any mess or smell.

Although open to the elements, this court is usually at least partially covered with vines to provide a cool shady area. When the main door is left open it becomes like an extension of the public space. Passersby can see into the court and the men inside can see them and exchange news with them.

Men control this area to maintain the security of the home. The court is a transitional space between the public and private areas through which any callers must pass. Children come and go freely through this space and are used to carry messages from the men to the women of the family.

If the house is small or poor and cannot have an outer court, there is instead, a small covered lobby area, or *saquifah*, which fulfils the same purpose. A door from the outer court or lobby leads into the private area of the house through the *saquifah*. This door is never directly opposite the main door and would always be kept locked when the main door is open (see fig 46).

(iv) INNER COURT

The inner courtyard is the main court of the house and is used by all members of the family but mainly the women and children. This is the deepest, and consequently, most private level of dwelling space (see fig 51-50). It is the heart and hub of the home, often buzzing with activity but of an introspective nature, cut off from the public world outside.

The haouch (courtyard) is perhaps the most common feature and is the most used living space in the house. It affords protection and privacy, it is open yet enclosed, it combines communal with individual spaces and it enables high density, low rise settlements to survive harsh climatic and environmental conditions. (Djamal Boussaa, 1987.)

It is surrounded and enclosed by the rooms for sleeping and cooking with walls about 4m high. There are sometimes windows from these rooms onto the court to allow light and air inside the house. It is in this area that the women's activities take place; where they work, relax and receive their guests, neighbours and relations. They can pass from house to house over the roofs without going out into the street.

As with the outer court, a shady area is always available for people to sit on mats or stone benches. There may also be a tank or barrel in one corner of the court to collect and store water from the roof and a raised box in the centre to grow vegetables, palms and flowers, providing food for the family and interest to the area. Waste water from the kitchen or the well is used to water the plants.

Although there is a kitchen off the court, much of the work of preparing and cooking meals is done in the courtyard. The section on women shows how they share the household tasks here which makes the daily chores more enjoyable. There is an area to hang washing, to beat carpets and to sit and chat while doing craft work and water is readily available from a well situated near the kitchen entrance.

(v) "SAQUIFAH"

Between the two courtyards there is a lobby area to transfer from semi-private to private space (see fig 46): the second level of space in the house. This is usually 7x4m and is covered, with an entrance at either end. The entrance to the inner court has no door but is an open archway, the other

entrance on to the outer court is closed off and has a spy hole for the women to check if they may go out, through the area used by men.

When men pass through the saquifah, they must indicate their presence by clearing their throats to give the women time to cover themselves. The time taken by the men passing through the saquifah gives the opportunity for women to hide themselves. The women will be familiar with the sound each man makes so that they will know immediately if they need to cover up or not - a wife would not need to cover herself for her husband but other women with her would have to. They are, therefore, well protected by this system.

The saquifah is also used as a storage area for food and water as it is cool, secure and accessible for men and women. Light enters only from the entrances. There may be a room off the saquifah used by senior family members (grandfathers) so that they are at the hub of all family life - near stores and guests, and observing all.

(vi) SITTING ROOM - "AL MARBOA"

The sitting room is located off the outer court, often with two entrances, one from the court and one from the street (see fig 43-45). It is used by men and the family and occasionally the older women, who would only stay a short time. The door onto the court can be used by women to serve food to guests. Larger houses sometimes have two sitting rooms. One off the street and another, for important meetings and discussions; off the court. The latter would be more richly furnished with cushions and rugs.

Furnishings are handmade, reflecting the skill of the women of the household in weaving and sewing. Apart from the rugs and cushions, there would also be palm mats on which to serve meals. Men keep their outer garments here in readiness for going out. There may also be an area to make

tea with a cupboard for cups and trays, a Quran and other books.

The room has arched doorways and in wealthier families may also have a dividing arch in the middle. Privacy in these areas is not so important because they are used by men. There are windows onto the street admitting light and allowing people to see in and out. It is a point of contact with the public space.

(vii) BEDROOMS - "GHORFAT AL-NOUM"

Rooms for sleeping surround the courtyard and are all of the same size (see fig 50). The dimensions are approximately 7x2.5x4 metres. This makes a long narrow room from which a central doorway in the form of an arch breaks the space, leading out to the court. This method of construction was due to the restrictions of materials used, in this case, the length of a palm trunk.

All other space in the house is shared by the extended family, but the bedroom is only for a couple and their children. It is the woman's private domain and cannot be entered without her permission. She takes a great pride in the decoration of this, her personal space, and it is here that she keeps the jewels and gold of the dowry, her clothing, make-up and personal possessions. Here also, her children are born and looked after. A cradle of local manufacture is situated in the centre of the room so that it can be watched at all times to ensure the baby's safety.

On one side of the room the couple's bed or "sedah" is found. This is a raised platform reached by wooden steps and is the most private place of all. The greatest skill is used in decorating the sedah with woven screens, carved wood and painting. Palm leaves are placed on the platform and covered by a mattress.

Under the platform, an area is kept for the women to wash themselves as it is secluded. The rest of this area may be used as a chicken run so that the

woman may make her own contribution to the family economy. The chickens will be her own and they come here to lay their eggs for her. On the other side, another platform, less high, is used for the children to sleep. This keeps them safe from scorpions and off the bare earth floor.

The open entrance may have a stone or clay bar at the base to prevent water entering the room. A drainage hole in the bar allows water to be swept out if used for cleaning.

(viii) KITCHEN - "AL MATBAKH"

The kitchen, used only by the women, is reached from one corner of the inner court near to the well but away from the storage area in the saquifah which is used by both men and women.

Women collect grain from the store to grind in the inner court and use in the kitchen, which is unsuitable for storage because it is less accessible for men. The space between the kitchen and the well is like a kitchen extension and is used for outdoor cooking and preparation work.

The room itself is small and dark, with walls blackened by smoke from wood fires and cooking oils. Very few dishes are required as meals are normally communal affairs with everyone eating from one large platter. Any plates and utensils are kept in the kitchen and are shared by all members of the extended family.

A small window in the ceiling lets out fumes and allows a little light to enter. Minimal preparation takes place here. Washing is carried out at the well and meals are taken in the courtyard or in the saquifah with people sitting on the ground.

In traditional homes, there is little doubt that the kitchen, above all other

areas of the house, would benefit from modernisation and, in the form described, it certainly would not be an attractive aspect for any prospective owner.

(ix) BATHROOM - "AL HAMMAM"

There is no bathroom as such in the traditional house but a small room used for a WC and another for showering. These are mainly for the use of women as the men tend to use facilities provided at the mosque.

The area used is in the corner of the courtyard, sometimes screened off from view. There is no running water but a hole in the ground, over which people squat. Underneath a tank is dug out to store waste. This may lead through to the house next door for their use also. A lane between the houses gives access into the underground storage tank from which waste materials can be collected to be sold or simply disposed of. Another WC may often be found just outside the main entrance for the use of men and guests, or even passersby.

It is important that the room should not face or back onto Mecca as people feel this to be disrespectful. "The person who eases nature or makes water, should not fall or turn back on Mecca"...(M.Tineokst. M.Phil 1986, Newcastle). This is a matter of propriety and not a Quranic injunction.

The shower room would be next to the WC. People take water from the well to wash themselves. A large stone or clay tank at head height in the wall is filled with water. The pipe or tap from the tank is then opened allowing the water to come out over the person standing underneath. The floor is slightly sloped to let the water drain into the same tank as the waste from the WC.

Cleaning is an important aspect of Islamic life and people have had to use imaginative and ingenious methods to design a means whereby fresh running

water can be used. These primitive showers had the benefit of conserving water, a limited supply only being available, and increasing hygiene. However, they are far from comfortable or convenient for the present generation.

(x) ROOF - "AL SADHAH"

The house roofs are normally flat and on one level except for the stable roof which is lower. This low part is used to keep dates and for drying mats because it is easy to reach. There is a slight slope on the surface so that water can run off for collection beneath.

Roofs of houses are knit together, even when lanes run between the outer walls (see fig 11-12). Women, as mentioned, find them convenient to use for passing over into neighbouring houses without having to go out to the street.

Sometimes roofs may be used for sleeping, in which case they would have parapet walls for privacy. This is not common in Libyan villages where there is enough space to make upward building unnecessary. This style is more often found in congested towns where extension on the ground is impossible.

The description given of the components of the traditional courtyard house should help in understanding the way of life of the people. Each area had a particular significance in their culture so that, if we understand the way this style worked for them, we should better understand their needs and the traditions behind their behaviour in the house.

In later sections we will look at the changes in this form and steps taken by the people to modernise by bringing electricity, tiled floors and other benefits of the modern age. Firstly, however, the study will analyse the courtyard house in depth.

5.2.1 Analytical study of the indigenous house in Libya

In studying the courtyard house in Libya, and in particular with reference to the coastal settlements, the author has used a recent survey and observations. Plans drawn from various traditional villages in Misratah were used to examine the ways in which the people solved their housing needs in the design of the courtyard house.

From this examination it is hoped to identify behavioural patterns in old and new housing and to evaluate to what extent the courtyard house still meets people's housing needs. The observations show that three main factors influenced the original design:

- (1) Environment - particularly climate
- (2) Religious and Social Life
- (3) Availability of materials and indigenous technology

These three points, which shaped indigenous housing in Libya for many centuries, may still bear relevance today. Bearing in mind points raised in Chapter 2, we will now see how the traditional house form was influenced by environmental factors.

5.2.2 Traditional house design in response to climate

It is not unnatural that the sometimes fierce climate of Libya should be one of the primary factors influencing house design. Orientation of houses so that they benefitted from any cool breeze from the east and north has long been common practice in traditional areas. The close proximity of dwellings is also a means of modifying the environment. As Olgyay wrote in "A Design with Climate" (1963):

By aligning buildings close to each other natural shading will increase. As a result the heat gain on the exposed areas will decrease.

By clever positioning and use of an inner court, shade was maximised and heat kept out. Light stone paving and natural earthen surfaces with use of vegetation inside and outside the house also helped to deflect heat and minimise its absorption. Between houses, narrow lanes give access. Shelter is provided by high walls on either side to keep them in almost permanent shade. They are rarely asphalted and the natural surface helps to absorb the sun's heat.

These features of traditional settlements indicate that the designers of old recognised the need to plan both external and internal space, to use natural features and materials and to look carefully at the interrelationship between buildings and spaces. By these means they were able to modify the climate and to make life comfortable without the aid of mechanical devices or technology. Their guide when planning dimensions of building and spaces was purely convenience: doors and gateways were sized according to what had to pass through and streets were of such a width as to allow the passing of loaded camels.

Similarly, the traditional courtyard gardens included natural features providing advantages for the house dwellers. Vegetation helps to reduce dust particles in the dry seasons, acting as a wind break. It can also cut noise pollution by absorbing sound and, by careful positioning, it can help to channel air into the house by changing air pressure. Finally, it gives shelter to those using the space, cutting out glare and throwing shadows on the surface. There is also, of course, the purely aesthetic aspect of its existence, a way of softening and lightening the otherwise hard sunbaked space.

Indigenous housing involved the use of what was readily available to the

local builders in the way of materials and technology. Therefore, although the houses throughout Libya may be of basically the same design with space serving the same function, there are visible differences between the three climatic zones as we saw. Each area solved its housing needs according to what was locally found, and each had its particular methods of coping with the local climate to make life bearable for the inhabitants.

One of the most important features of the house in controlling heat is the roof. Palm trunks were often used as a base over which a 5–8cm layer of mortar, lime, limestone gravel and sand were laid, topped with mud and finished off with seaweed to prevent water getting in (see fig 54). The layer of mud helps to delay heat penetration. This was given a final covering of stone tiles of a light colour. Danby (1973) found that "a whitewashed roof surface temperature can be 10° less than an unwhitewashed mud roof under the same conditions."

Traditional builders seem to have developed an instinct for judging the width of walls to keep out heat and provide a cool comfortable interior. Space between houses is also carefully arranged to help in providing shade.

"Traditional houses are densely clustered together, resulting in a minimum amount of solar exposure on external and internal walls." (Dr Ihsan F and Susan Roaf *The Arab House* 1984). Each house can give shelter to its neighbours and to passersby.

The heat of the day takes a long time to penetrate into these old houses. They are better in many ways than new houses, which use air conditioning and frequently cannot cope with extremes of climate. The modern systems tend to be unreliable and require frequent overhauling and maintenance. For those able to afford the system in the first place, skilled maintenance workers are often not nearby and occupants may have to wait long uncomfortable periods for

help. There is also the danger of frequent cuts in electricity. Thus, if a means of providing cool air without technology is available, it should be utilised. The indigenous builders achieved this in a very satisfactory way by careful positioning and sizing of windows to maximise the use of shade, and by utilising materials which absorbed heat.

Young family members often build new homes near the traditional family home where the parents stay (see fig 28-30). They go to the family home in the hot summer days and use it frequently for celebrations and social occasions, because it is more comfortable for them.

5.2.3 Building mandates for traditional buildings

Before any construction of a traditional house could commence, consultation with local chiefs and close neighbours had to take place to ensure that the positioning, the appearance and the functioning of the new house did not give offence. For background to this process, the author talked to the Sheikh Mahallah and local people, and has also drawn on his memories of events occurring at the time when his grandfather and father built their houses. Other evidence has been taken from Besim Hakim's book "Arabic-Islamic Cities. Building and Planning Principles" (1986) based on the Quran, Shariyah, Hadith and case studies on various Islamic cities.

Building in a village was a social event, as will be seen. The Sheikh Mahallah was present as the government representative and the Imam from the mosque as an additional witness to the building agreement. The site was measured out on the ground and dimensions agreed, consideration was given to positioning of doors, windows, access and roadways. Enough space for two loaded camels to pass was the recommended width of a road (3-4 metres) although lanes, for access only, may be narrower (see fig 10 & 62). Space in front of the walls had to be left for maintenance and for the collection of

rainwater in underground tanks. The height of the house was agreed to ensure that no-one was overlooked.

It was necessary for there to be an understanding between neighbours regarding the cleaning and upkeep of shared walls or common ground. Arrangements for water rights, drainage and sanitation were made and land rights protected.

These matters were understood by all members of the community as being important. When a final decision had been reached, a document was drawn up and given to the owner to keep. The Sheikh Mahallah kept a copy so that he could mediate in any future disputes regarding heritage or neighbours' claims on the land. The manuscript detailed exactly the position of windows and doors and the measurement of the walls. It was drawn up on site and stamped before being given to the family to be passed down through the generations.

Decisions reached were based on a common sense understanding of how society functioned. The Sheikh Mahallah mediated to ensure fairness to all. A Libyan saying states "Neighbours before house". It was therefore understood that respect should be given to those already in the neighbourhood before building began.

5.2.4 Materials and Methods

General environmental and cultural factors influencing the choice of site, form and method of construction and materials have already been dealt with in this study. However, each traditional area had unique problems due to local variations. Traditionally, as seen, choice of site and materials depended on what was available locally. The main concern was to protect agricultural land and anything on it which added to the local income. Water conservation was also an important consideration and materials which needed less water were

favoured where possible. Lack of money meant that the cheapest materials and methods were sought.

These points may apply to many areas of the world. However, particular mention in connection with Libyan courtyard housing is given here to show the importance they had in forming the character of traditional settlements and giving them a 'natural' face. Indigenous builders had to work within their environment and it may be that we can learn from the solutions they found.

5.2.5 Palm Trees

In Misratah the local economy depended very much on the abundance of palm trees for which the area is famed. They provided food for the family and were the basis of many local crafts such as weaving and the making of mats. They were therefore respected and only used when they died or fell naturally. No part of them was wasted. Planks cut from the trunk were used as roof rafters and branches laid across them at right angles to form a grid on which leaves and seaweed could be layered to provide insulation and waterproofing.

As we saw in the section about house components, the roof is an important area, used to store food, dry fruit and collect water. Wood and mud are also used in Misratah to construct raised, painted corners on the house roofs to ward off the devil.

The best time of year for building is between April and October. This is after winter when there are many fallen trees to use. During these months also mud will dry more quickly and thus speed up construction.

5.2.6 Mud & Stone

In Misratah, as in many dry areas of the world, mud is widely used in housing construction. Experience has taught how it excels in modifying the

harsh climate. Clay ovens have been used for centuries showing how great heat inside is not felt on the outer surfaces. These lessons were put to use in the building of comfortable homes.

Mud is often mixed with stones or vegetation to reinforce it. Sometimes it is set in forms to make bricks, this method is described in Chapter 2.

A formerly familiar and exciting spectacle in Misratak revolved around a local method of constructing house walls. Wooden frames were made, into which a layer of mud was poured, followed by a layer of stones, then more mud, stones etc. As each layer was added, three men standing above the frame pummelled down on it with wooden presses to compact it. They sang and kept up a rhythm while they worked, their songs communicating to those on the ground when the next layer was required.

Lessons about stone were also learnt by ancient travellers who heated them in fires and wrapped them around with dough to bake bread. These properties of temperature control were used in housing construction. Experts became skilled in choosing suitable stone and in cutting and breaking it. If it was not near the site, it was cut and transported on carts or loaded into panniers for donkeys to carry. Special pieces were shaped for domes and arches and slabs found in site excavation were put to use.

This work was extremely time consuming and laborious. When asked, local people did not deny the attractiveness of stone built homes but were put off by the fact that both these and mud constructions were labour intensive and time consuming. No machines exist to ease or speed up the process (see fig 20-21). Hassan Fathy, an Egyptian architect found this when he recently constructed a new village, Gournaq, with mud. People also have the psychological feeling that it is old fashioned. A final drawback is that the methods used, being very unsophisticated, leave the finished walls are rough

and often not level. In its favour, Golany Gideon (1982) reports that "tests have proved that the rate of erosion of mud surfaces, whether mud plaster or brick face, occurring from natural rainfall is only 1" per 20 years."

5.2.7 Maintenance

Traditional courtyard houses require a great deal of maintenance. This is labour intensive, often requiring skills which are dying out and very time consuming. Following rainstorms, roofs, walls and drains of mud built houses must be checked for leakage or blockage in the case of drains. Even small holes in walls must be filled to prevent the entry of scorpions and other pests. In modern times, this has become a disadvantage as adequate maintenance has proved impossible causing the houses to fall into ruin.

Roofs and doorways which were originally crafted by skilled men may have to be entirely dismantled and rebuilt in a modern style if the skills cannot be reproduced. Public rooms are given the greatest attention as this is what visitors will see. These are also highly decorated and furnished so people like to preserve them well.

5.2.8 Windows

Window design in Libyan housing is extremely important from a climatic and cultural point of view. It is necessary to permit sufficient light to pass inside and to allow cool air to flow through but at the same time, flies, hot air and dust must be kept out. Another major consideration is privacy for the occupants. Traditional builders managed to solve this crucial problem by using the "mashrabiyyah", an opening covered by a wooden lattice screen (see fig 41).

The mashrabiyyah allows a certain amount of light to pass through but the wooden struts cut down glare and soften it. Passage of air is accelerated by

the design of the wooden struts which are rounded. The opening is often positioned opposite vegetation which helps to cut glare and reduce reflected light. The view from the inside to the exterior is softened by the lattice and the eye protected. Passersby cannot easily focus on the interior because of the difference of light quality between inner and outer space and the inhibiting nature of the screen.

These mashrabiyyahs served to satisfy the curiosity of those who were indoors and could not be penetrated by the indiscretion of those who were outside. (Adel. A. Ismail, Feb 1972.)

The lattice work is designed so that the spaces are greater at the top of the aperture and smallest at the foot. This not only maximised privacy but lead the eye to look upward to the more pleasant view of the sky rather than the harsh ground. Its appearance of solidity and the softening effect it gives the light helps to keep out house flies who are discouraged by the dark inner appearance.

The mashrabiyyah consists of turned lattice work of a patterned ornamental character which admits reflected light and air and at the same time maintains visual privacy. (Danby 1984.)

5.2.9 Court House as temperature regulator

Many studies have already been conducted on the performance of the traditional Arab house in modifying climate. Temperature readings over the 24 hour period in the height of summer taken inside the house and compared with the external temperature have shown very favourable results. Ahmed Reda Abdin's *A Bio-climatic Approach to House Design for Semi-Desert and the Climates* (PhD Thesis) and M. M. Moor's *An Analytical Study of Traditional Arab Domestic Architecture* (PhD 1979) show how effective some traditional designs can be in improving comfort.

In his book "Natural Energy and Vernacular Architecture", Hassan Fathy shows how the cooling system used in a courtyard house works and how convection currents generate a flow of air.

The lunar crescent, which has been adopted by no fewer than eight predominantly Muslim nations to use in their national flags, is an important symbol to Arab people. It conjures up an image of the cool night sky giving relief from the heat of the day. In Libya, particularly in the desert, radiation to the sky at night causes a considerable drop in temperature.

Within the courtyard, air is heated by the sun all day and retained by the surrounding buildings. In the evening, the warm air rises and is replaced by cooler air from above. This cool air lies in the courtyard and penetrates the rooms around it, cooling them also. They remain cool until late in the day because shade from the courtyard walls prevents too much heat and sun from entering. Only when the sun is directly above the courtyard does direct heat enter. For the rest of the day, hot air passes over the house only entering in small currents.

"The courtyard", Daniel Dunham observed in 1960 "serves as a reservoir of coolness". Almost without exception, traditional builders in hot lands from Iran to the Atlantic have adopted this form of building in both urban and rural settings.

Research carried out in 1984 and 1985 led the author to the conclusion that the most popular places for people to sit outside were the cool areas. Findings showed that these were mainly located at the eastern elevation either in the inner court or outside the house walls. People, therefore, prefer that their house entrances face east and northeast so that they can sit comfortably outside when they return from work. This allows them to be comfortable and relaxed while watching activities around them. It also gives the opportunity for

passing neighbours and friends to stop and chat.

It is in these areas, as has been stated, that many activities take place, crafts are carried out by women and old people, tea is brewed, children play games and men play chess while social life revolves around them. To improve comfort, vines are planted to catch the breeze and give additional shade and mats are scattered for people to sit on. The outer walls often have stone benches for sitting on.

This crucial balance of culture and climate should be understood by planners and designers so that the life of a community can continue to be active and lively. Areas which are shaded and comfortable should be provided not just around homes but at public buildings such as the mosques where people regularly gather. These points will be further developed later in the study.

Between the east and west elevations of the house a cool breeze passes through a covered corridor area known as the *saquifah*. At the hottest time of the day the family gather here for shelter to carry out their activities.

We could conclude this look at the house and climate in Libya with an extract from *The Arab House* by Dr Subhi Al Azzawi, 1984, when he states "In summer, the courtyard provides the surrounding habitable rooms and spaces (which are designated for summer use) with the desired shade, particularly when they are oriented away from the sun...there is adequate shade on the floor of the courtyard to permit activities to take place most of the day, even around midday in summer, when the sun is nearest its zenith. The inhabitants simply follow the shade, rather than the sun, around the courtyard... In winter, the courtyard is usually deserted because it is exposed to the sky and is, therefore, cold. However, it is a desirable place to sit in and enjoy the warmth of the sun around midday and during the afternoon, particularly as the

courtyard is protected from any cold breeze by the surrounding habitable rooms and spaces..." (1984 March 15/16).

To summarise our discussion of the modifying ability of the traditional house design on climate, Danby states "The Arab house does produce better internal environmental conditions compared with its modern equivalent". (*The Arab House*, 1984).

This design of housing to cope with climatic conditions in hot arid countries has been utilised widely throughout North Africa, Spain and the Middle East. On a recent visit to Spain, the author spoke with A. Escart, Professor of Architecture in Cordoba University. He said that his findings were that the courtyard house in Andalusia proved the best way of modifying the climate in that region. Moreover, they were built on a human scale with natural materials attractive to the people (see previous section).

These sections give some of the benefits and drawbacks of the physical structure of traditional courtyard housing in Libya. We will now turn to aspects of socio-culture to examine how the form responds to them.

PART III - SOCIAL CONSIDERATIONS

5.3 SOCIO-CULTURAL DIMENSIONS

It has already been mentioned that climate is an important factor affecting housing design in Libya.

A second vital influence is provided by aspects of religion and culture. These factors have helped to sculpt the face of both individual dwellings and the network of streets and spaces.

As we saw in Chapter 3, Libyan culture is closely tied in with Islamic traditions. This relationship has produced a dilemma for the designer, to which

we have already alluded. The Quran encourages its followers to be hospitable, to maintain close family contact and to welcome and co-operate with neighbours. This is a major force in the culture. At the same time, the teachings of Islam lay stress on family privacy and provision of secluded space for women. The designer is, therefore, under pressure to ensure openness, to encourage socialising and to preserve privacy within the same area.

The author considers that it is most useful to examine the social dimensions of old and new housing through field study, plans and an analysis of behaviour, starting with the traditional sector. The aim of this will be to show to what extent the above needs are met in each and how people can manipulate their built environment and be involved in its evolution in today's changing world, as they did in traditional courtyard settlements of old. We will look in the following section at observations of activities in the courtyard housing areas.

5.3.1 Observations

Data was collected at three different times of day in three different levels of space, namely the inner court, the outer court and the space between the houses. Notes were taken to show the nature and length of each activity observed. The following paragraphs are a summary of information detailed in the diagrams showing the observations in the five chosen areas.

THE INNER COURT - observations in this area clearly indicate that it is mainly used by children and women. Although children come and go regularly, there are limited times and circumstances when women were outside this space and crossed into other areas. Their use of this area is free and easy for work and recreation and they are quickly aware of any sound indicating that a man is approaching so that they can hide themselves or cover their heads.

(i) Morning. The day begins with the women of the household involved in cleaning, and preparing morning tea for the family. All gather on the sheltered northern side to take tea and sit for a while before the men go to work. The women then air the clothes by hanging them up and sit again to take tea and rest a while.

Further chores follow this, mainly involving the preparation of food, grinding grain for flour and baking bread in clay ovens. Kitchen space and outer space in the court are used for these tasks and give the women adequate room as well as allowing for the traditional lengthy methods of preparation to be carried out in a relaxed way and shared by many.

During this time they may also visit the street outside while the men are away, to call their children. They often meet women neighbours and invite them for tea, calling on others to join them by knocking on the walls or sending children to ask them. Neighbouring women can arrive via the roofs to avoid going into the street. These gatherings are an opportunity to relax and exchange news and gossip. Tea is drunk and activities such as grooming children, washing wool, carding and weaving are carried out. Children are constantly passing in and out of the area at this time.

(ii) Midday. When the sun is at its height, the courtyard is not so attractive for activities and readings show that number and frequency falls dramatically. Women and children move into the surrounding rooms and particularly to the saquifah. The women sit here and weave until the temperature outside drops a little.

(iii) Evening. Once again the court becomes busy with activities. Women begin to prepare the evening meal and to wash and dry grain brought in from the fields. It is cooler at this time for these chores to be comfortably achieved.

THE OUTER COURT - Research in this area shows it to be clearly the men's domain where they eat, work and entertain their guests. The door to the outside is usually left open giving a psychological feeling of welcome to passersby, allowing them to see in and the occupants to see out. Activities are carried out inside and outside the area with men coming and going regularly between each and out to the fields carrying back fruit and crops.

When there is no outer court, the saquifah is used instead for the same purposes as it separates the inner court from the public space outside. However, because it is at a deeper level it is considered more private and respected more by guests.

If an outdoor sitting room is available, this acts as an extension to the outer court. This area, mainly used for visitors, is often highly decorated and well furnished. The two doors provided in the sitting room allow women to disappear by one door into the house when visitors enter by another from the street.

(i) Morning. The men are absent at this time and women use the opportunity to clean the area and to milk the animals. Children may also help with this work or play in the area while the women are there.

(ii) Midday. Men begin to arrive and relax in the shade of the vines. They eat their midday meal here which is brought in by the children or grandmother. Children also run in and out with messages from or to the women of the house. After the meal, the coolest areas are sought for a siesta. This is a quiet time and visitors are not encouraged.

(iii) Evening. This is the time when activity reaches its highest level. Men sit to weave baskets or make ropes. Animals are fed and crops prepared. There is constant coming and going from the outer court to the fields or the public

space. Neighbours pop in and out and tea is brought by the children.

SPACE BETWEEN THE HOUSES – Although this space is public, it has the psychological feeling of belonging to the community and therefore being semi-private. Different corners of the space show different levels of activities depending on what was occurring at the time. Where there was some major work such as building, activity would be at a very high level as people flocked to help, advise or watch.

This space plays an important role in knitting together the residents. Older men particularly use it for extended periods, to watch children, to be near the mosque for praying or to guard over the area.

The author found it a problem, particularly in very traditional villages like Tawargah, to be simply an observer, as he was frequently invited to join groups and participate in their activities.

(i) Morning. While the men are away, women visit this area, using the excuse of looking after children or feeding the animals, to go out. This is more noticeable when the space is secluded or enclosed affording them greater protection. They meet neighbouring women, talk and invite them for tea. Interaction between them continues until they hear a stranger, or the cars or donkeys of the men returning. Children, always around the space, may warn them of their father's approach.

On holidays and Fridays, the women do not go into the public space because the men will be there. But on all other days they use it to socialise, to sell goods to neighbours or to show off new purchases and chat.

(ii) Midday. Men arrive home. Those in cars quickly drop off passengers and go to their houses. Those on animals or walking take longer to cross the space but visits and conversations at this time are kept brief because it is the most

important time of the day for the family to gather together. The space is very hot and they are tired from work and hungry, so although there is a high level of interaction the exchanges are brief and short-lived.

(iii) Evening The space becomes very lively during the evening when activity peaks. Certain areas are chosen for men to meet and to stay talking, playing checkers or cards and to exchange ideas. This is an important way of obtaining news, like a local newspaper.

The most popular meeting places are near the mosques or the market where they can watch the area, be near their homes and not cause disturbance or inconvenience to any household or encroach on anyone's privacy. If work is being carried out, all will go to help. Passersby will be included in the work or talk. Tea is often provided from a nearby house, brought by the children.

Activity continues until the last prayers of the day are called. The men may then go to pray or return to their homes to continue their activities in the outer sitting room or courtyard. Public lighting is not provided in this area, therefore, when darkness falls people can no longer use it.

5.3.2 Activities on Fridays³

This day is rather different from the other days of the week because it is a holy day and the one day off from work. The histograms show that the space between buildings is very busy throughout daylight hours on Fridays.

Major repairs, tasks, date gathering and building jobs are kept for this day so that the whole community can join in and help. It is also a day for family celebrations and weddings. Men may gather to slaughter animals and divide the

³See histograms showing activities on Fridays.

meat.

Teachers of the Quran recommend that people should use this time to visit relatives making the space active with people coming and going all day. Fathers use their leisure time to entertain children, and one man may take a large group of local youngsters to the sea or on a picnic.

Midday is the busiest time, when men go for the main prayers of the day. They dress in their best clothes and cross the space slowly, stopping frequently to greet friends, chat and exchange news. Often they go to the central mosque, rather than the local one (types described later), which gives the opportunity to interact with people from neighbouring villages.

The women carry on their usual tasks in the inner court and do not appear outside on Fridays. It is the busiest day for them and they know the outdoor space will be constantly used by men. There is a higher level of contact over the rooftops between women on this day.

5.3.3 Some general notes from Field Study

The points given below are from the author's diary, observations and experience. They apply to all the traditional areas and show how events that may seem minor and insignificant have great value in the creation of activities, highlighting the sensitive balance of relationships within a community.

It was noted that property, particularly tools, building and farming equipment, was shared among members of the community. For example, there might be one wheelbarrow which all could use. This helps build trust and co-operation and is also of economic benefit.

Both from investigation and from the experience of the Sheikh Mahallah, it was found that people do not like groups to gather and sit immediately

opposite their homes. This may occur when the house is close to the mosque or local shop. These are popular meeting places but can give the house a psychological feeling of being overlooked. Women's access is inhibited and their privacy threatened.

Work at a high level, on the roof or in palm trees causes the outer space to be busy as people gather to watch, talk and help. However, it may cause activity inside the courtyards to drop off because family can be overlooked. Men working above the level of the walls have to indicate by clearing the throat that they are in a position to see over.

When outer walls are replaced by a fence, this is usually a measure taken out of necessity due to the state of dilapidation of the old. Because of new planning regulations regarding road width, the family lose ground when they replace the original boundary walls. These fences are less sturdy and lower although the new houses are higher causing possible inconvenience to neighbours.

The author gathered from his interviews with local residents and with the Sheikh Mahallah, that people living in traditional houses next to new units complained about the height of the upper windows (see fig 39 & 63). There was a psychological feeling of constant intrusion from these ever-open eyes.

If the outer sitting room is lost when new building takes place, the garage is used for the same purpose, to keep visitors away from the home where the women are. Because the families in the new units are already well known in the area and like to keep the same traditions as before, the new houses have a negligible effect on the social life of the village.

The outer space is constantly busy with children. Adults, particularly the old men, watch over them and control them when necessary. It is never clear to

whom they actually belong, because they respond to orders and requests from all elders and come and go in groups between the houses.

Activity is busier and lasts longer where tea is being served. This is an important ritual of socialising and always draws people together. Cars parked in the space can disrupt activities and block the view of people sitting there. However, they often act as signals that a certain man is at home to encourage others to visit.

It is most unusual for men to pass each other or to pass a group without at least giving the traditional greeting of "Assalamu alaikum wa rahmat Ullah". They are always given a response and it would be considered extremely rude if this did not occur even between strangers. This greeting often leads to a further exchange.

5.3.4 Physical elements instrumental in creating activities in the space between houses

The study has previously examined the structure of courtyard houses and activities related to the space in and around them. From an architect's point of view, houses are usually looked on as the main component in creating a successful residential area but there are some other important elements contributing to the life of an area which should be considered. From the plans, interviews and information gathered, it is clear that certain areas of the open space can be very busy while others are relatively unused. It seems that some physical structures can help to promote and prolong activities and enhance the socio-culture of the area. The following paragraphs describe three important physical aspects of space which act in this way.

(i) The Mosque One of the most important of the busy areas is outside the mosque. This is the house of Allah and therefore public and accessible at all

times to all the people. Some men go five times a day to pray and many mosques are therefore needed so that no-one has to travel any distance to reach them.

They all serve the same basic function, as places of worship, but are found in many different sizes and styles. A noticeable characteristic, however, is that they dominate the skyline and are easily visible above the roof tops (see fig 11).

A central mosque, larger and more imposing, is often provided and maintained by endowment to serve a wider area. This is sometimes called the Jummah or Friday mosque as people gather from a wide area to make their Friday prayers here. Bodies are brought to the Central mosque after death to be washed and buried.

There are two other categories of mosque - the Masjid and the Zawiah. The Masjid is the larger of the two and used for daily prayers. The Zawiah is small and the least intimidating in style. It is cleaned, furnished and maintained by local people.

Mosques serve several functions within the area. They are, first and foremost, for worship but they also provide religious education for adults and for children (see fig 42). Some gain fame for their skills in teaching recitation of the Quran and draw people from a wide area. They also act as a focus for political debate, particularly at the Friday prayers. This opportunity is often used to resolve local issues such as choosing a new Sheikh Mahallah.

As public buildings, they are also used for the major religious festivals, for arrangements of engagements and weddings and large celebrations. On the seventh day after the birth of a child, men slaughter an animal at the mosque and share the meat among other worshippers or the family provides food for

all after the final prayers of the day.

Some people, notably the elderly men, use the mosque as an extension to their homes. It must always be within easy walking distance for this reason. They go there to wash, pray, exchange news, to sit and relax or carry out traditional crafts.

All these aspects of the mosque's functions make it a place of constant activity. The busiest times are on Fridays and on all days during the holy month of Ramadhan. At this time food is served daily from one of the surrounding houses. The house used on each day is also very busy with many helpers arriving to aid preparation and to celebrate the occasion.

In conclusion, we can see that the mosques are vital parts of the built environment. They require thoughtful location and ample surrounding space. People in traditional areas consider themselves fortunate to have local mosques on a humble, human scale. Regrettably, many of these are falling into a state of dilapidation. Residents are unable to find financial resources to rebuild or renovate them and the government does not regard them as a priority area for use of resources.

(ii) The Local Shop This was found to be another important place where activities occurred. The villages are some distance from the city centre and people have to travel a long way to do their main shopping. The local shops, beyond the range of the Municipality's authority and uncontrolled by them, were started by local people and, unlike the city shops, were unlicensed for trade.

They were generally situated in the outdoor sitting room or garage of a house left open to the street (see fig 34). They were family-run and privately owned, and served a wider purpose than simply to trade. Men used them like

clubs to meet and talk. The shopkeeper, being constantly in the area, knew all the local news and would serve tea at a modest price for those sitting outside. When he was absent in the mornings, the women could use the shop and chat with his wife while meeting friends. This became a very important aspect of their social life as well as a great help to them in their housekeeping.

At other times, children were used to fetch goods and carry them home. Because the keeper knew all the families, the children could be sent without money if the woman's husband was away. The keeper would keep a tally of costs until he returned. This was obviously of great benefit as women otherwise might have to go without supplies when the men were absent. A system of bartering with eggs or local crafts was often used so that women could contribute to the economy of the household and use the shop like a market.

This traditional system was carried on for very many years and appreciated, according to the interviews carried out, by the locals, as a means of easing their lives. The government however, decided it was out of line with their policy and made all these outlets close their doors. This ban lasted for several years until the lack of facility was recognised. They began to build supermarkets and centrally owned licensed stores, for the villagers' use. This was also to try and prevent the illegal continuation of the local stores.

Although this was a useful contribution, it was not popular because these new shops were too large and imposing for people to gather and sit at and no-one wanted to have them sited close by or to give up land for them. Strangers from outside the area staffed the supermarkets and they were used by people from other areas. They were therefore not suitable for the women and children and also lost their function as a source of local news.

Land belonging to the mosque was sometimes used to build them as it was

public and unprotected. This naturally caused resentment in the villages concerned. No-one wanted to see their space used for something that did not bring them any benefit.

During the writing of this thesis, news has reached the author that once again, local shops, privately owned, are to be allowed to open. This is the result of representations from the villagers indicating how important the shop is for their communities.

(iii) Space Furniture It appears from the notes taken that some events could happen anywhere in the space at any time, such as fetching and carrying, chatting and relaxing. Other activities are focussed on one particular area. These areas are often chosen because there are stone benches to sit on, a convenient wall for shelter, or vines to give shade. Where these things exist, activities are longer and busier because people are encouraged to stay.

Often people improvise by using wood or bricks to make their own seats. For major gatherings, at celebrations or religious occasions, large tents may be erected in the space.

From the observations, the most successful places for activities are where people can make themselves comfortable. These spaces are often outside houses and are well-shaded. Tea can easily be served or a clay water pot left in the window for passersby to drink and the shade allows for continual activity.

In the village of Al-Jehanah, one house was noticed with a light outside. When this was lit, people knew they could visit. It was like an invitation to them. Such signals are common in these communities and recognised by the local residents.

Mounds of sand left in the space to be used for building work were used to

sit on and around, being soft and clean. Any such landmark gives the excuse for people to stop a while.

There was no system of appointments or arrangements about the activities seen. They happened as a matter of habit or chance whenever there were people outside. No definite daily pattern was observed. The middle of the space was rarely used by people for any length of time unless it was to feed animals or for some specific task. They preferred the edges. When questioned, the users responded that these places gave shelter from wind, shade from the sun and were convenient for them to watch over the space. On a visit to Heriot-Watt University in 1988, Jan Gehl mentioned that the same tendency was noted in his study of space use in Western societies.

The three categories of physical aspects examined all have primary functional purposes: the mosque for worship, the shop for trade and the space furniture for various community uses. Each however contributes to the social life of the area, increasing and extending activities. This was not the reason for their existence, but their location and the choice people had in siting them is of particular significance.

People enjoy showing their hospitality by manipulating the space for the use of guests. They put chairs from the house outside or make comfortable areas to sit. All the gathering points seen in the study of public space in traditional areas were for the use of locals and had a psychological feeling of being semi-private.

5.3.5 What social needs does the traditional courtyard housing area fulfil?

From the previous chapters on culture and religion, we can now see in what measure the courtyard housing area meets some of the needs of Libyan society which these two influences have evolved.

(i) Privacy:

The introductory chapters of the study leave no doubt that privacy is a fundamental need for both religious and cultural reasons. Perhaps the greatest benefit of the courtyard style of house is that it has provided that privacy both for individual family members from each other and for the family as a unit to be private from outsiders.

As described fully when the components of the house were examined, the entrance is always staggered. There are two doors through which one passes into the inner space. These are never opposite each other. The first leads into the outer court or saquifah from the public space and the other goes from here into the inner court.

Design of windows is also critical in preserving privacy as well as for ventilation and vision (see section on window design). A large window to the outside gives good vision but the family pay the price in losing privacy. Compromise is therefore made by having windows facing inward to the inner court where no stranger will pass by. On the rare occasions when windows are found in the outer walls, these are placed high so that they are above the level of a man passing on a camel. Windows are never positioned where they can overlook neighbouring houses.

The complex of the constituent building was arranged so as to secure the maximum privacy required. This oriented the house away from the street, receiving its light from the inner court. The windows and roofs were constructed in such a way as to prevent anyone intruding unseen into the intimacy of his neighbour's life. (Adel. A. Ismail, Feb 1972.)

City houses built on two storeys solve the problem of maintaining privacy by having mashrabiyyahs, which allow air to pass through and people to look out but no one can see in. This is detailed in the section on window design.

If tall trees give the opportunity for men in them to see into the court, people will complain to the Sheikh Mahallah to have them removed. Only the minaret gives a clear view over the houses. Even this was formerly seen as intrusive so that, as Makrizy mentioned in 1853 "...for this reason alone...the office of the Mu'adhin (caller to prayer) came to be the prerogative of blind men".

(ii) Women's Needs

An unspoken timetable of events is understood in these areas so that both men and women can enjoy an active social life unhampered. Women tend not to trespass into the public space when it is used by the men at noon and in the evening (see histograms) and men allow the women free access during the morning. There is mutual respect between residents born out of kinship and an ancient, deep-seated understanding of the optimum practices of society. When women do have to use the space while men are there, they are not uncomfortable because the neighbours are all related and well known to each other.

Women are the hub of the family and rely on each other for support in times of need. If anyone is sick or when there is a birth or death, they do not need to be asked, but willingly go to cook and clean for their neighbours. Each kitchen area layout is almost the same so that they find it easy to cook in any house. Lack of electricity and modern equipment means their work is hard but they share out the major tasks between them and are always busy helping the family and the community. The access over the roofs to their neighbours is very important to them in fulfilling their role.

Their leisure time is taken up with less arduous activities such as weaving. If the family has a television it is for the men, in their quarters, for news or religious broadcasts.

Men feel that the disadvantages of traditional houses are outweighed by the great advantage of security they provide. Many men have to be away from their families for days or weeks at a time for work or trade. They always know that their wives will be protected by neighbours and untroubled by strangers. This is a major consideration and certainly the reason that many have stayed when they could have moved to new areas.

(iii) Social Activities

The sections on culture and religion have highlighted the demands of providing hospitality and of socialising with neighbours and relatives. These are important issues in the consideration of design for the courtyard house and its internal and external space. The observations show how the space arrangement of a traditional village allowed all sections of the community to mix.

Within the house there may be several generations dwelling. All these have their own social needs, depending on age and sex. The space within the house gave them freedom to entertain or to carry out their activities without causing disturbance to others.

In Libya, as in other Muslim societies, there is a yearly calendar of events, such as religious and traditional festivals and celebrations. Each area would also inevitably have a number of weddings, births and deaths each year. All of these require large areas of open space and are well catered for in the areas examined. Section 3.5, Chapter 3 gives details of a number of such events and the manner in which they are celebrated.

These activities are so much a part of life for Libyan peoples that they tend to be celebrated wherever people find themselves. However, they have evolved in the kind of space we have looked at and are supported by that space so that they become awkward and unsatisfactory in a different spatial arrangement.

Moreover, they are family and community events and can only be celebrated when there is a large gathering of relatives as there always would be in the traditional areas.

5.3.6 Psychological Factors

Movement from space to space is influenced by psychological and physical factors. People in the public space act and behave differently from when they are in private space. They can throw off their outer, more formal face when they enter a house. "In the way we get from one space to another, we seem to be influenced both physically and psychologically. While people are on the street, they adopt a mask of 'street character'. When they come into the house they naturally want to change their behaviour and settle down into a more relaxed mood, but it seems likely that they cannot do this, unless there is a transition from one space to the other, which may help them to lose the street atmosphere or character." (Lynch, 1960).

This process is aided by the design of the entrance, softened by the arched doorway. The first stage brings them into the outer court or saquifah where the light is softer and the atmosphere more intimate. Passing through this brings them to the inner sanctum, the heart of the home, where they can be completely relaxed. It is normal to remove outer clothing including footwear during this transition which is a manifestation of the psychological change taking place.

Public activities involving members of the community normally take place some distance from the doorways as space immediately in front of the house is regarded as semi-private. Owners clean and control this space and do not welcome intrusion into it.

The central area of the public space is divided according to a mutual

understanding between the people. They know that a certain portion is kept for grinding corn and must not be used for any purpose obstructing this task; another part is for rubbish, another for animals and so on. Each family takes care to use these places accordingly as it is to their own benefit as well as to others.

The courtyard house was usually constructed by the owner/occupier who planned according to family size and the type of activities he expected to take place. He would be aware that the family would expand and eventually the house would have to accommodate several generations. Large space was, therefore, used to prevent a feeling of overcrowding.

There is widespread evidence to show that overcrowding in small dwellings causes psychological damage. (William C. Loring, January 1956.)

Members of the community who were more important, generally had larger space as they would expect more visitors. "Big spaces seem to be the answer to the Muslim family's needs both physically and psychologically." (M. M. Nour, 1979.)

Traditionally, in a Libyan family house not everyone could have their own room. Sleeping space was shared by men in the *saquifah* or outer sitting room where they laid down mats. The older sisters would share a room off the inner court closer to their mother. This gave the family members a feeling of safety and security.

5.3.7 Building in a Traditional community

Building an individual dwelling in a Libyan village is an exciting event involving the whole community. It often occurs when a family grows up and expands and the elder sons take wives, putting pressure on space within the parents' home. A new wife may desire to have her own home but to remain

close to her husband's family for support and socialising.

The first step is to locate land from the family territory suitable for building purposes. The local Sheikh Mahallah would then be called in to discuss positioning of entrances, roads and windows. This ensures that neighbours in the area are not inconvenienced or overlooked and that their privacy is maintained. Regulations are discussed in an earlier chapter.

Helping to build an uncle's house recently, the author witnessed the traditional method of design whereby the house plan was marked on the ground with a stick. The outline was then covered with lines of white powdered lime to highlight it giving a 1/1 scale drawing on which building could commence.

This method makes it simple for all involved to see clearly exactly what shape the building will take. The owner/occupier is fully involved at this stage with friends and neighbours at hand to give practical help and advice. Those who will live nearby are aware of how the new house will affect them and will not therefore be surprised or upset by the finished product.

Courtyard houses can be constructed room by room as and when the owner can afford to proceed. This makes them ideal for the type of community found in Misratah where the economy is based on agriculture and a man's income depends on each year's harvest. The size of the house also depends very much on the rate at which the family members increase. One would always want to provide extra space for new additions to the family or for grown up sons and daughters.

It is not just the men who take part in the design and building process. The wives give private advice and suggestions on what is required for the home and can give encouragement and support to the working team. The event is as

much a social one as a work task. Frequent breaks for tea and meals brought by women and children are important and enjoyable so that building is a happy time.

...all members of the community are expected to have the knowledge and the dexterity to be able to construct their own dwelling. (P. Oliver, 1987.)

Local tradesmen with previous experience are called in for skilled work such as carpentry and for shaping arches. They become part of the team and others can learn from them and help out.

It is not difficult to imagine the elation felt in completing a home when one has been the designer, builder, decorator, purchaser and transporter of materials from the area. When an architect or outside workers are brought in, they cannot be expected to have the same background knowledge of the family, the local way of life and the area's traditions. Nor could they have the same personal emotional ties with the area which is such an important aspect of the process in which a whole community is involved.

"...As design the process is different from that of the western architect who may isolate problems and seek solutions to his brief through the abstraction of the drawing board and the building specification. In the indigenous dwelling there is design too, but it is arrived at on a one-to-one scale; problems are perceived only as they affect the established norm and its suitability for the prospective builder and occupier". (P. Oliver, 1987.)

PART IV - SUMMARY

5.4 APPLICATION OF BACKGROUND KNOWLEDGE TO COURTYARD STRUCTURE

The study has examined in depth the climate of Libya and the physical and cultural needs. It is not sufficient simply to know these things. Priority areas

must be identified and methods worked out whereby a mixture of different needs related or unrelated can be catered for within one structure.

..through the process of design the formation of each part should be referred to the other part and the design as a whole. Each step should be related carefully to the building as a whole and to each and every detail of the building. (Danby, 1963.)

This complex process seemed to take place naturally and instinctively when indigenous people built for themselves. The courtyard house was a reflection of their culture and ideally suited their behaviour and way of life.

The traditional designer was like the juggler who has to keep all the balls in the air, he cannot afford to devote time to any of them at the expense of the others". (M. M. Nour, 1979.)

Development of the courtyard form went hand in hand with developments in society and with adaptations to the environment in the places where groups settled. In the past, there were few major shifts of population from one region to another and the depressed economy meant that society changed little. However, the traditional methods and form of building have been unable to keep up with recent rapid changes. The following section will look at a few of the first steps towards modernisation carried out on a small scale in the traditional villages.

5.4.1 Traditional Dwellings and the change of design

In the survey carried out, extensive areas where indigenous architecture survives intact were observed in traditional villages outside the cities. These villages escaped change during the Italian occupation of Libya when the main centres of government and commerce were modernised. Many people wanted to emulate the way of life brought by the Italians and saw their own lifestyle as old fashioned at this time. A fuller discussion of the transfer of architectural styles was given in Chapter 3.

As was previously shown, the traditional Arab houses in the village are in poor condition. They lack modern amenities and deteriorate rapidly due to poor maintenance. This is largely because the occupants see little point in caring for them if they are waiting to be rehoused. They have a low opinion of them and think that new housing is to be preferred.

Traditional materials such as mud, brick and palm-wood are weak, dusty and need constant maintenance, and are no longer considered adequate. (J. Martin Evans, 1975-76, *Libyan Studies*.)

In the years following the discovery of oil, when there was a rapid expansion of the economy, imported goods began to appear in the market places. The modern conveniences of the western world went on display and people began to feel that they should have homes to match them.

Those who were better educated or wealthier looked for highly paid employment to improve their quality of life. However, this did not mean they desired to change their way of life. Religion remained a strong force and the natural environment and climate they lived in did not alter. They did not want to move because it would split the family unit but they felt it necessary if they were to make any progress. The homes they moved into were either ones they built themselves or which were provided with by the government.

Some chose to build new houses near the family house and in the same style. These units had the same components as the traditional houses but were of better quality and design with running water, electricity and telephones when possible. Modifications in design might include an entrance suitable for a car rather than for a camel and fully fitted kitchens to suit a young wife. However, it was still seen as important to maintain the dignity and privacy of the house.

The house generally continued to be designed and built by the owner with

help from the neighbours and family. However, many materials were supplied in standard sizes, so variation on the dimensions was not always possible. Often professional advice in these matters might be required but the owner would still be involved in decisions and the building process.

In the late 60s and 70s, the municipality was only concerned with buildings in the city centre therefore its consent was not required for building on the outskirts of the town. It was not involved in any stage of the building or design work. The owners were not asking for a mortgage so they did not require a licence to build and were not inhibited in any way. The author will give details of licensing procedures in a future chapter.

Successive generations made changes in the method of construction to make the process easier and quicker. Transportation of stones was a very time consuming, back breaking exercise. As labour became less available and the pace of life increased, it became desirable to use large limestone blocks made in forms 400x400x200mm. These were made on site, or manufactured in bulk and were easier and quicker to build with.

At first the blocks were laid horizontally and then vertically as people thought this made the building rise more quickly. Further development led to half blocks (400x200x200mm) being used for building the inner walls and then for outer walls as well. Finally, for economic reasons, and to ease labour, hollow bricks were used.

These changes, and others, occurred because problems with old methods and materials or basic forms, were identified. Sometimes, solutions were reached easily and quickly but often there was a long history of modifications before the ideal solution emerged. An example of this would be the development of window design before the mashrabiyyah was finally found to be the best method.

We should learn from these developments and from previous mistakes that there should be a balance between the old and new. Young people do not wish to live the way their parents live, but equally, they do not wish to inhabit an environment which is alien to them. A house should be worn like clothes so that the wearer is comfortable with the fit and can move and perform as he wishes without being aware of restrictions.

The architect now must build for the new generations to meet changing needs. Old methods or materials which are no longer valid or have not been successful should be rejected but we should not throw out the baby with the bathwater. What is good and useful should be preserved.

As Hassan Fathy said, we should be "shaping the houses to the measure of the people's songs". This means knowing the people well to identify their needs. The need for change has been clearly stated but the way is uncertain.

Before looking at new areas and their problems, the following section will identify some of the reasons why change is necessary.

5.4.2 Concluding Remarks

This chapter has highlighted the advantages and benefits of courtyard housing in Libya, showing how immensely successful it has been over many years in controlling climate and creating activity. Physically, the allocation of space, internal to the house and external, allowed the culture to flourish, and the simplicity of form suited the limited resources available. Even today when entering these traditional villages one is impressed by a feeling of awe engendered by years of history and culture. There is a natural tendency to show respect and to modify one's actions to cause minimum disturbance.

As earlier chapters have shown, the indigenous style of housing evolved and adapted over a long period from mobile shelter to courtyard house. Design

alterations were lasting and successful because they resulted from changes in lifestyle rather than change for the sake of change. Local craftsmen were skilled in providing what they knew was acceptable and the form came to reflect the local climate and culture. The climate has remained largely unaltered and there were no major demographic or economical changes to upset the balance of life. Any new materials which became available were introduced as a matter of choice to enhance living conditions.

However, the study now has to detail the causes for recent expressions of dissatisfaction with this form without romanticising the past. The necessity for modernisation must be faced as it is here to stay.

Economic upsurge brought about by the oil boom gave many people the desire for housing conditions in line with those of other countries. Increased trade and better education meant that more Libyans travelled abroad, read foreign magazines, saw films from the west and had access to television.

The mass media exposure made them ashamed of their dwellings and caricatures of village life made them keen to seek a new identity (see fig 56). This perception was reinforced by the Housing Authorities who saw, and continue to see, courtyard housing areas as undesirable for a developing economy.

Surplus earnings meant that, rather than eking out a simple existence, people could afford luxuries. There was still little outlet for purchase of consumer goods in Libya - no restaurants, gambling clubs, supermarkets or stores, so they chose to buy or build houses. There were no licences available for building in the villages and no amenities or facilities provided there, so they moved to the towns and cities where jobs were easily found and life was less arduous.

Once this pattern was established, those remaining in the traditional areas began to regard themselves as unfortunate and their houses as slums. The courtyard houses had primitive sanitation, often no electricity or a very erratic provision and their earthen floors and rough walls did not lend themselves to modern furnishings.

Deterioration in these areas has reached a stage where it is too late to save much. The only solution offered by the authorities is the bulldozer, which is given free. Conservation has never been their priority. Homes of those who have moved out lie derelict and, as structures become increasingly dilapidated, the chance of restoring them decreases. Therefore, aesthetically, the dwellings are not pleasing.

Previous chapters have given evidence that culture and religions were instrumental in forming traditional housing in Libya. Housing is more than simply form. It embodies much that is emotional and spiritual in society and the continuity of these aspects as well as structural ones should not be overlooked. One should not deny the importance of the past to the future, nor undervalue the heritage of housing - a heritage that is rapidly disappearing.

We can look at tradition as major resource. (A. Rapoport, 1973.)

Cultural changes are taking place which encourage the urge to modernise. Among these is a new emphasis on personal privacy. Privacy for the family still remains a vital consideration but young people now wish to have their own rooms in the house and newly married couples want a home separate from the extended family although they like to remain close by. It is almost impossible for a man to find a wife if he cannot provide a house for her.

Traditional areas do not provide suitable educational facilities for young families and no provision is made for the education of girls. This is an

important point for people who are keen to see their children be given every opportunity to escape from the hardship of their parents' lives.

Husbands and wives want to have a closer relationship and to spend more time together. Men are also keen to improve the lot of women by making their chores easier in newly fitted kitchens with clean smooth surfaces, time saving equipment, running water, refrigerators and cookers.

Young men now have their own salaries and are independent of the family. If they need a mortgage, these are only available for single families and not to provide housing for a group of relatives. There is often little option for them. No one is permitted to build on agricultural land. If they wish to stay in their own territory, they must demolish the original house on the land, but there is a problem of heritage here as many brothers may have rights to it. In the author's own experience in the municipality of Misratah, licences for new houses were only given if the site to be used was that on which the old house stood, thus ensuring the destruction of the old house. Those in the poorest areas in greatest need accept willingly the offer of public housing in the city as a means of escape.

New housing is provided and new money available, but not the corresponding experience to deal with it. The rapid transformation is like Cinderella's night of glory, after which one is back to the reality of life. What can we learn from this and will there be a happy ending? The following chapter will examine the ways in which new units meet housing needs and the problems which have faced new occupants.

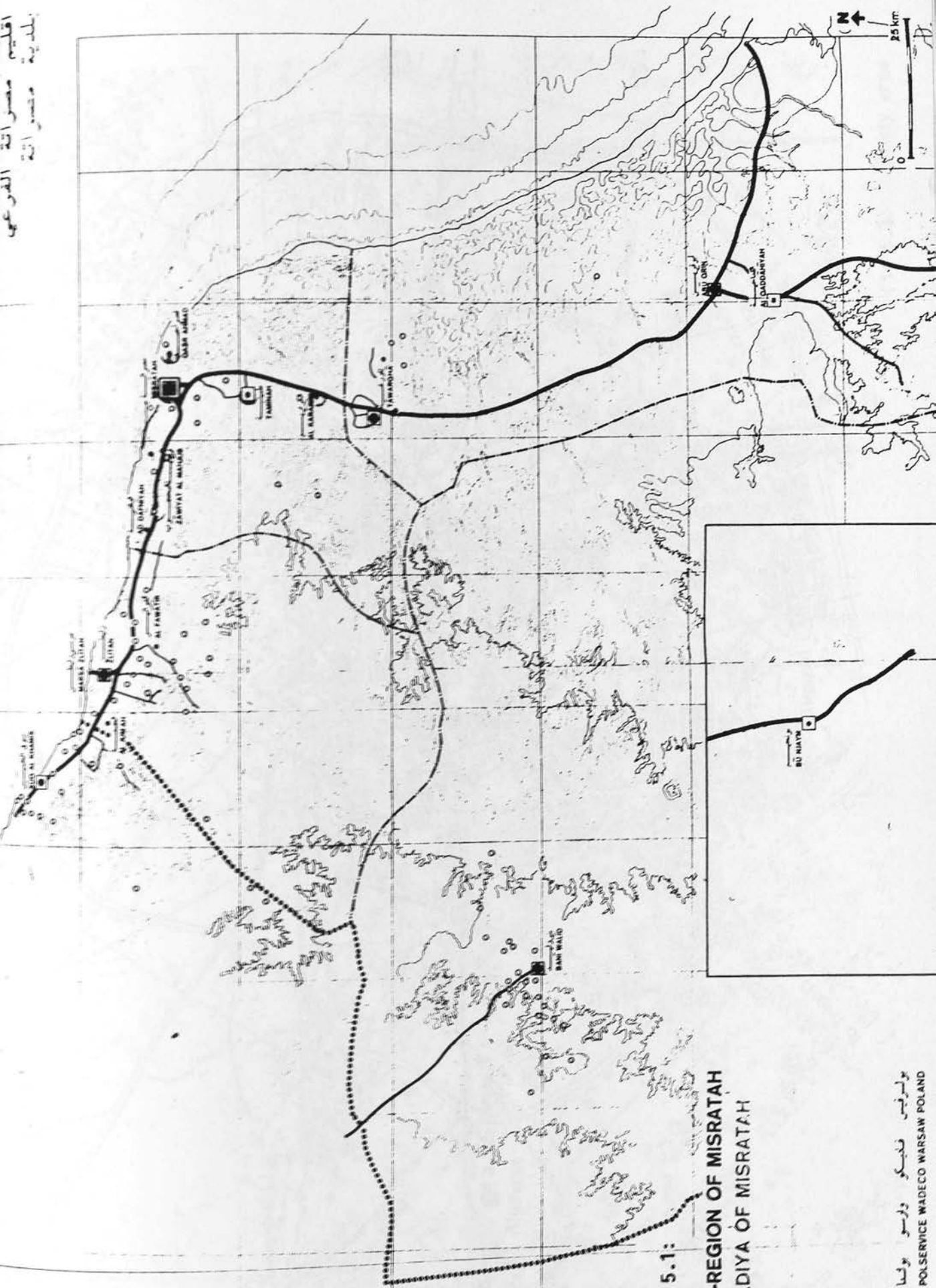


Fig 5.1:
SUB-REGION OF MISRATAH
BALADIYA OF MISRATAH

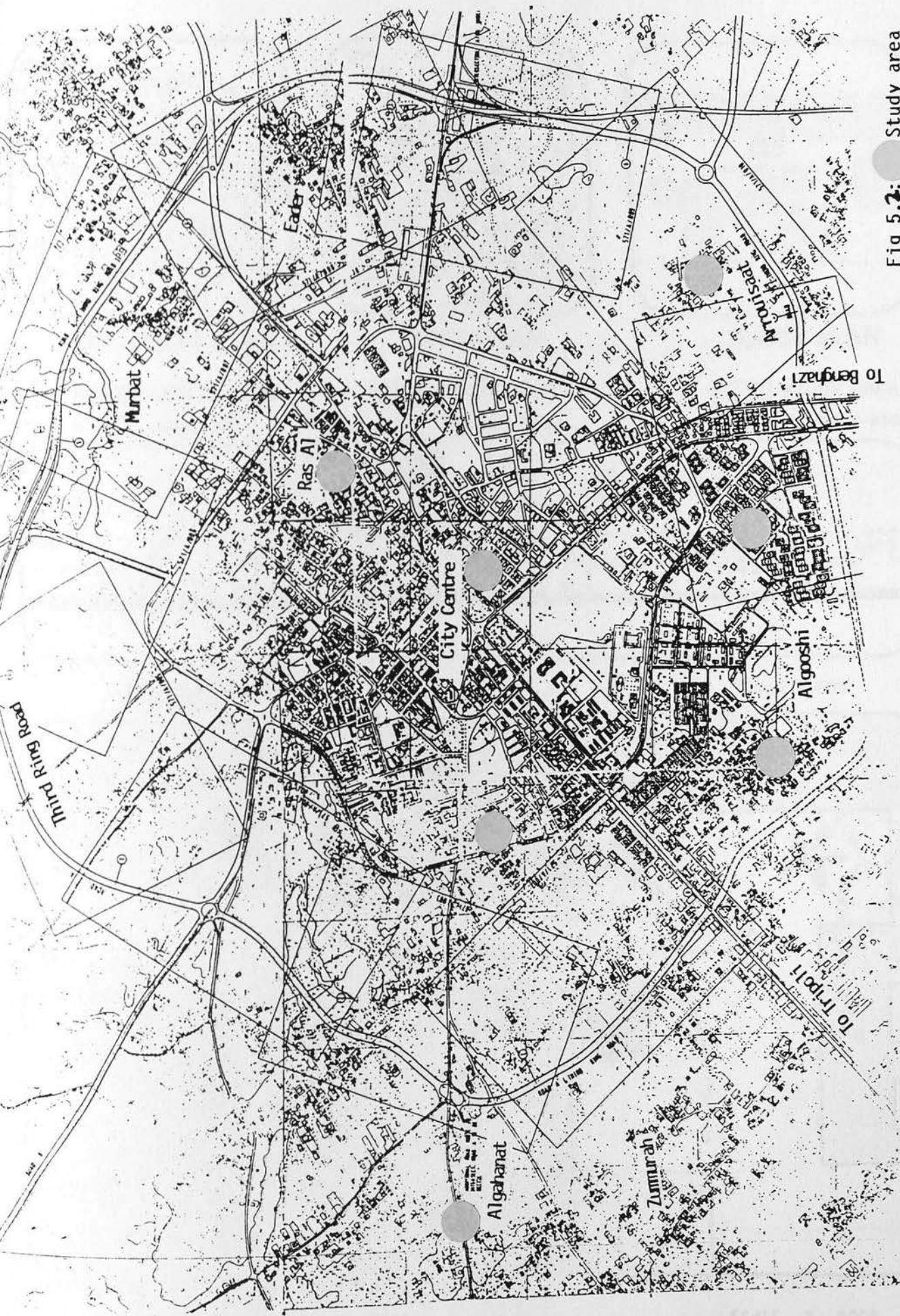


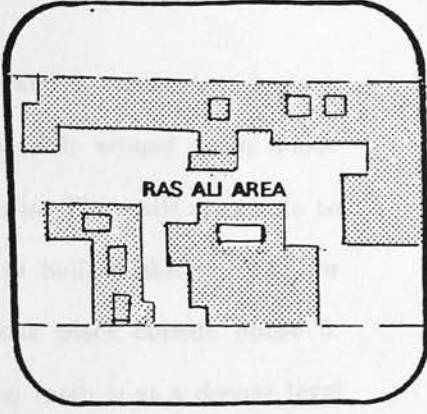
Fig 5.2: Study area





LOCATION PLAN





AREA PLAN

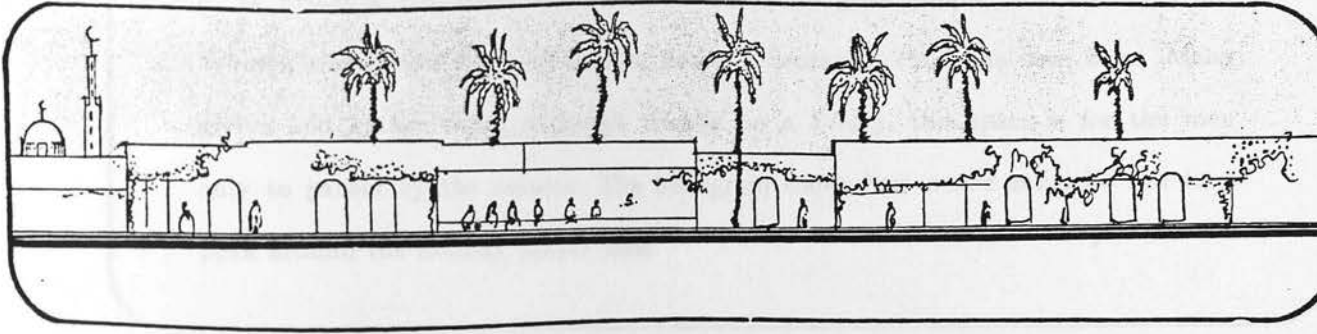


BLOCK PLAN

 CITY CENTRE
 VILLAGES

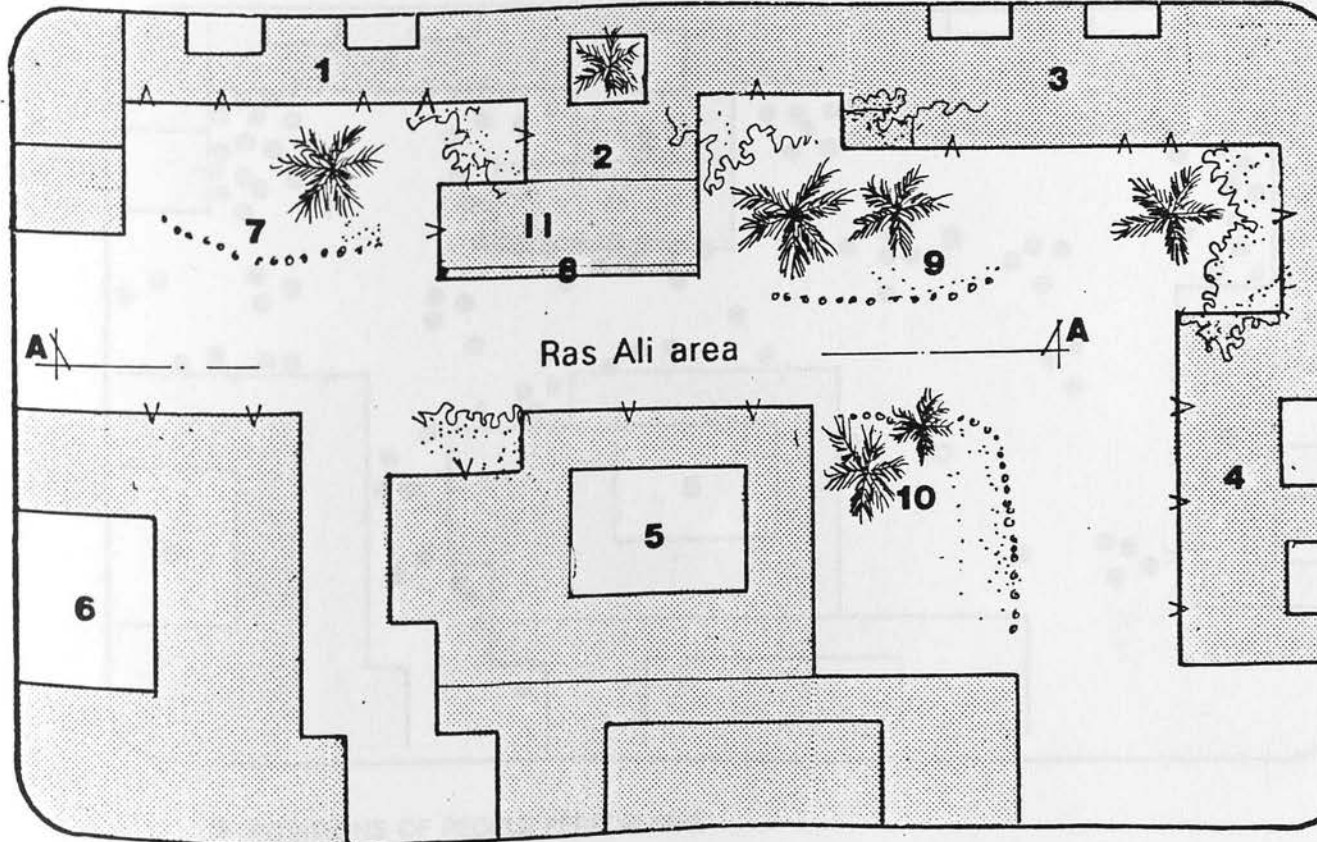
 STUDY AREA
 SCALE 1-5000

 STUDY AREA
 SCALE 1-2500



SECTION A-A

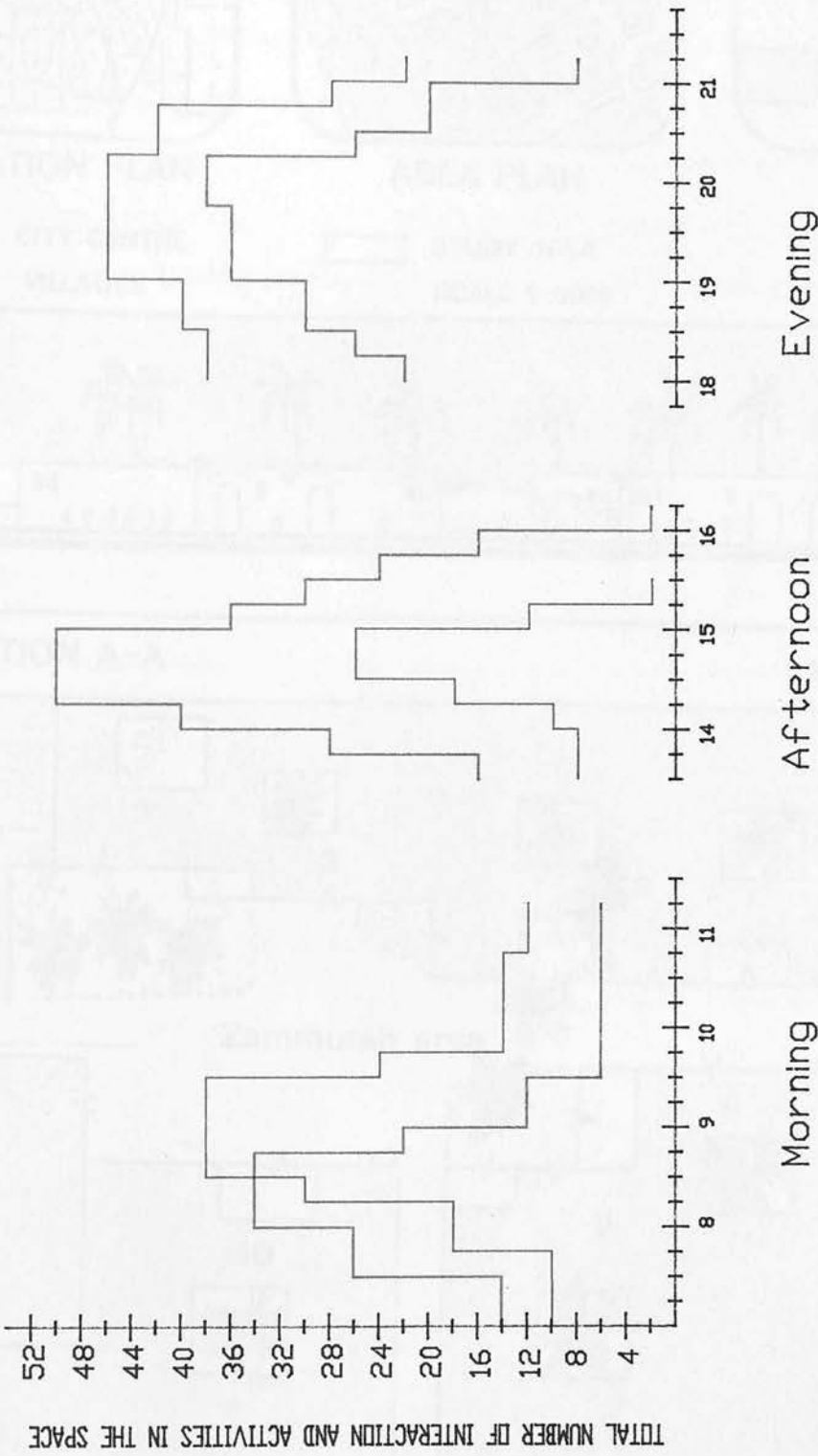
SCALE 1-500



PHYSICAL INFORMATION

SCALE 1-1000

HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME



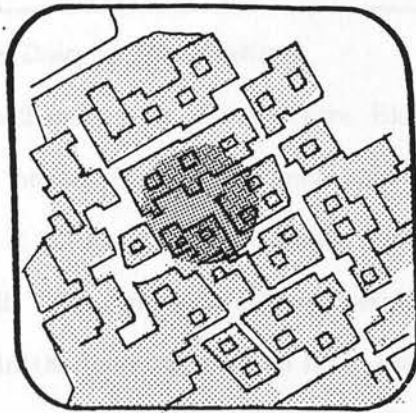
Men's activities

Women's activities

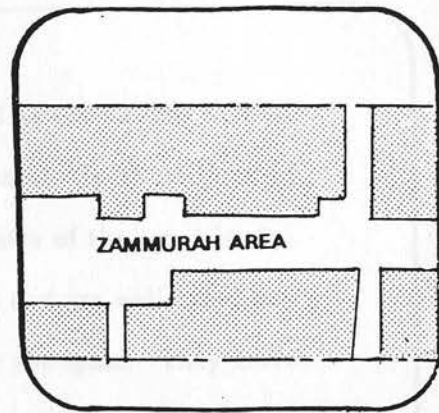
Children's activities



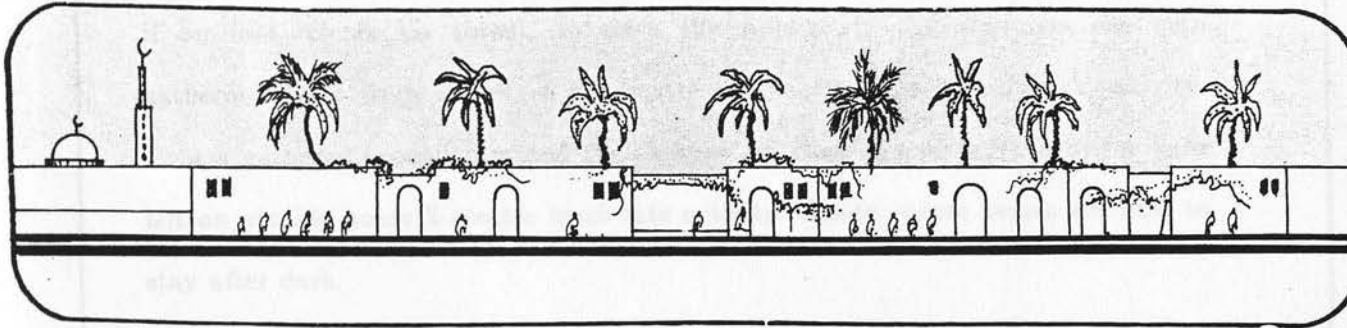
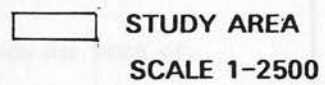
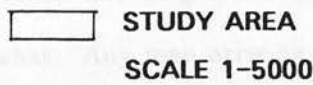
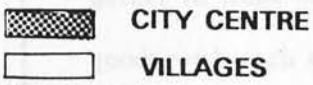
LOCATION PLAN



AREA PLAN

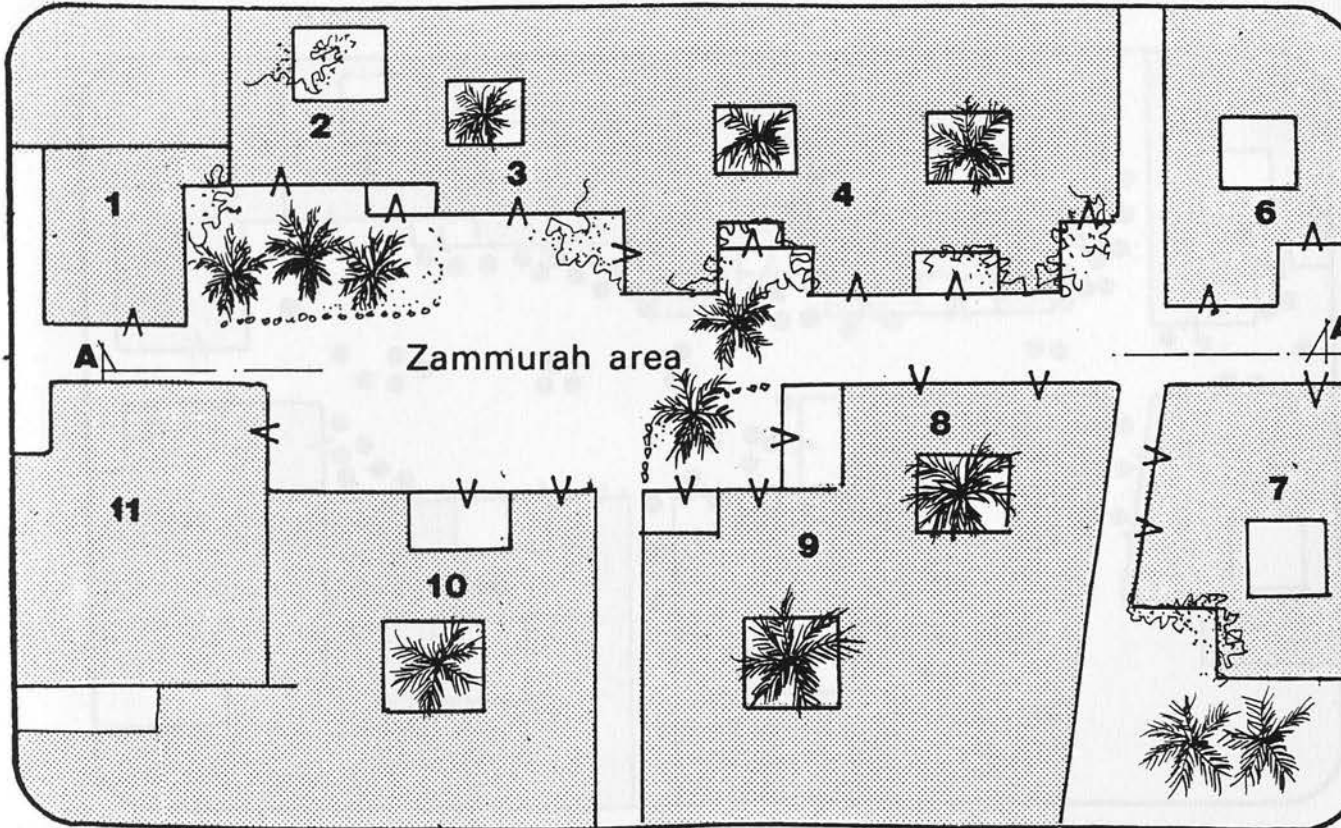


BLOCK PLAN



SECTION A-A

SCALE 1-500

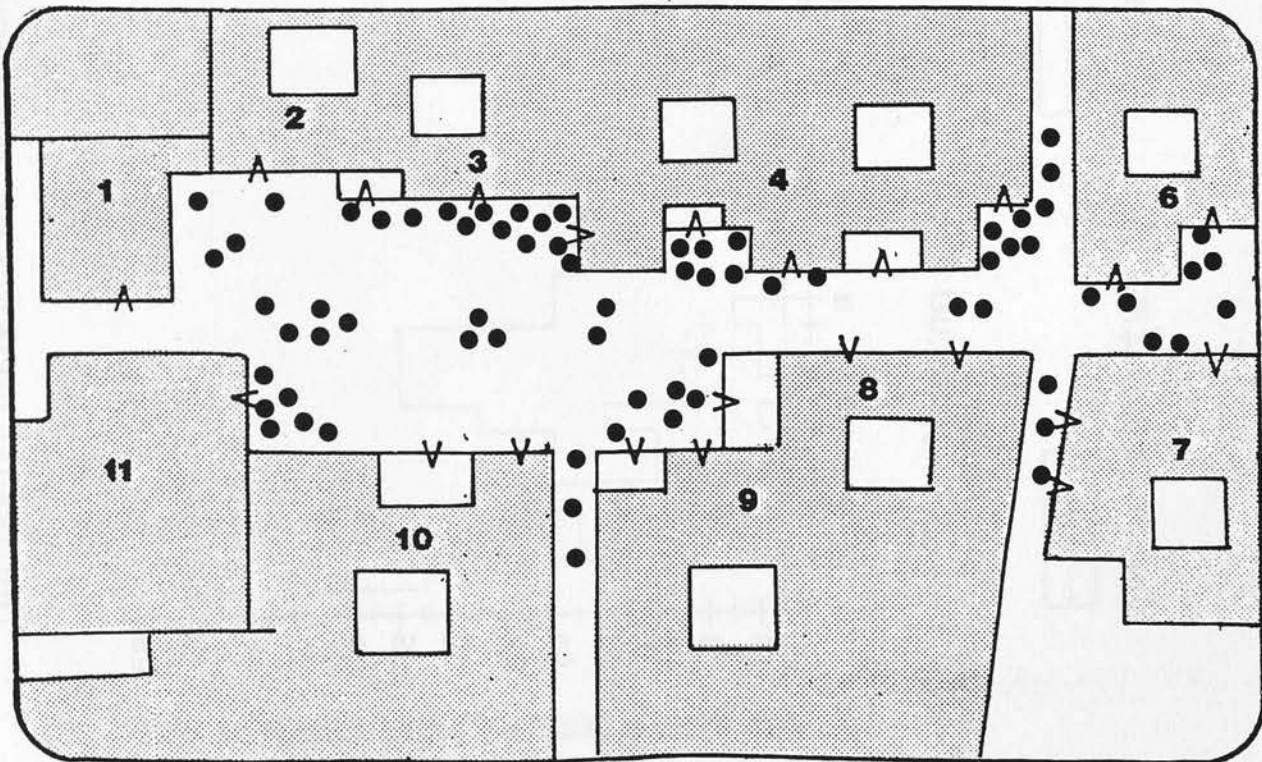


PHYSICAL INFORMATION

SCALE 1 - 1000

Notes from the Author's Diary of Observations

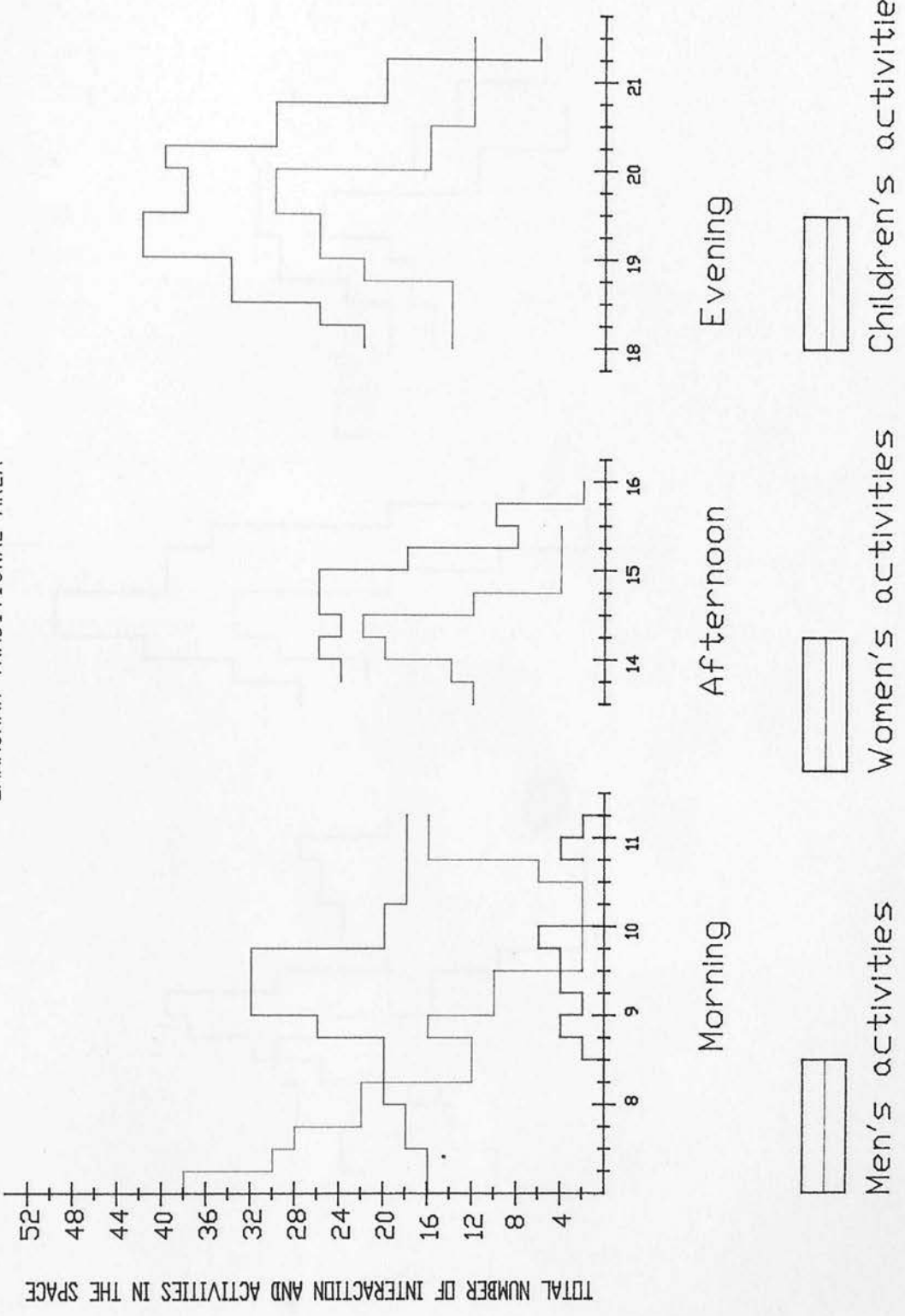
Zamourah Area: 1 1/2 to 2 miles west of city centre. Block 1 is the mosque and all the others are courtyard houses. No 7 is the only modern house. Space in front of no. 9 is marked showing it belongs to the occupants. The centre of the space is also marked and shared by all. Trees belong to different residents and are well cared for. Before leaving for work in the morning, men do little jobs in the space. They leave in groups, sharing cars or carts. Men who stay, remain near the mosque. Women gather in front of house 5 which affords greatest seclusion and shelter. They trade goods with each other and chat. Any man arriving at the area sounds his horn or, if on foot, clears his throat, to warn the women. In the afternoon one man gathering dates from a tree in the centre of the space produced much activity. Others gathered around him and the children watched and played nearby. A light left on outside house 2 creates much late activity outside, where people are able to stay after dark.



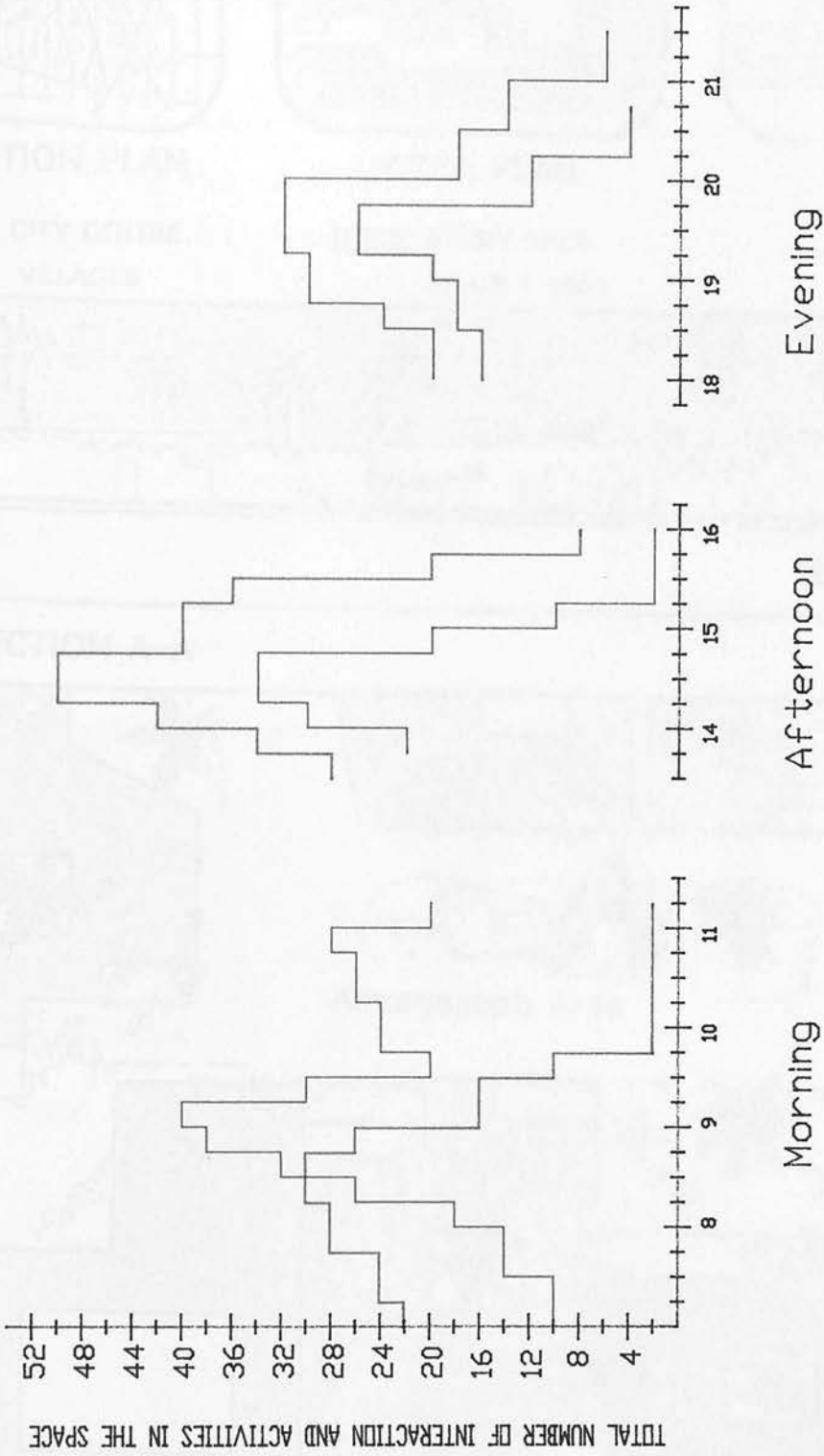
● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME

ZAMMURAH TRADITIONAL AREA



HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME



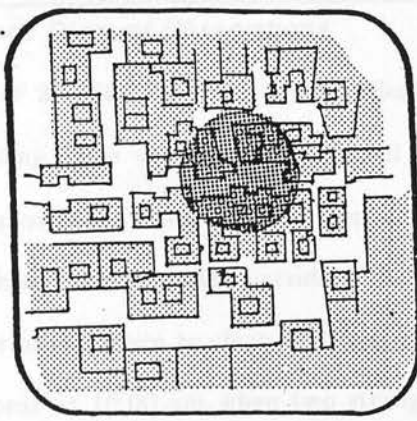
Men's activities

Women's activities

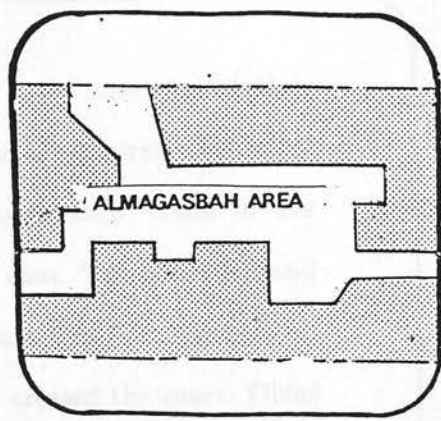
Children's activities



LOCATION PLAN



AREA PLAN

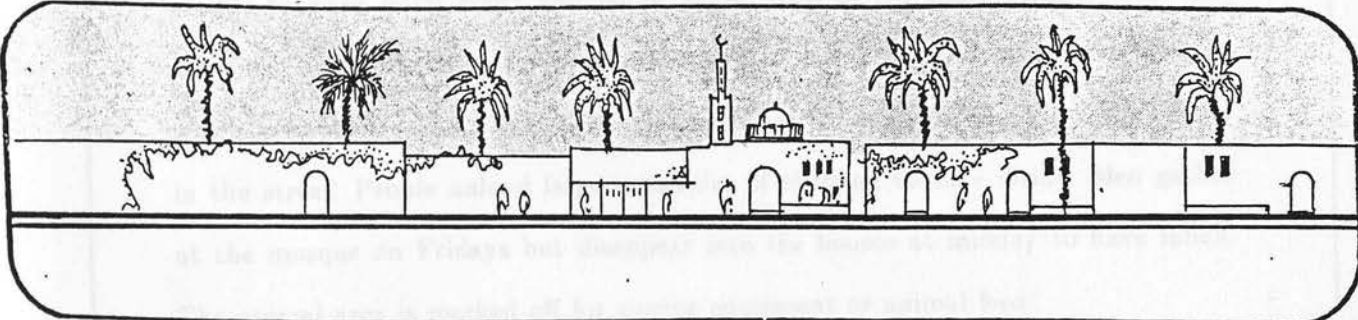


BLOCK PLAN

CITY CENTRE
 VILLAGES

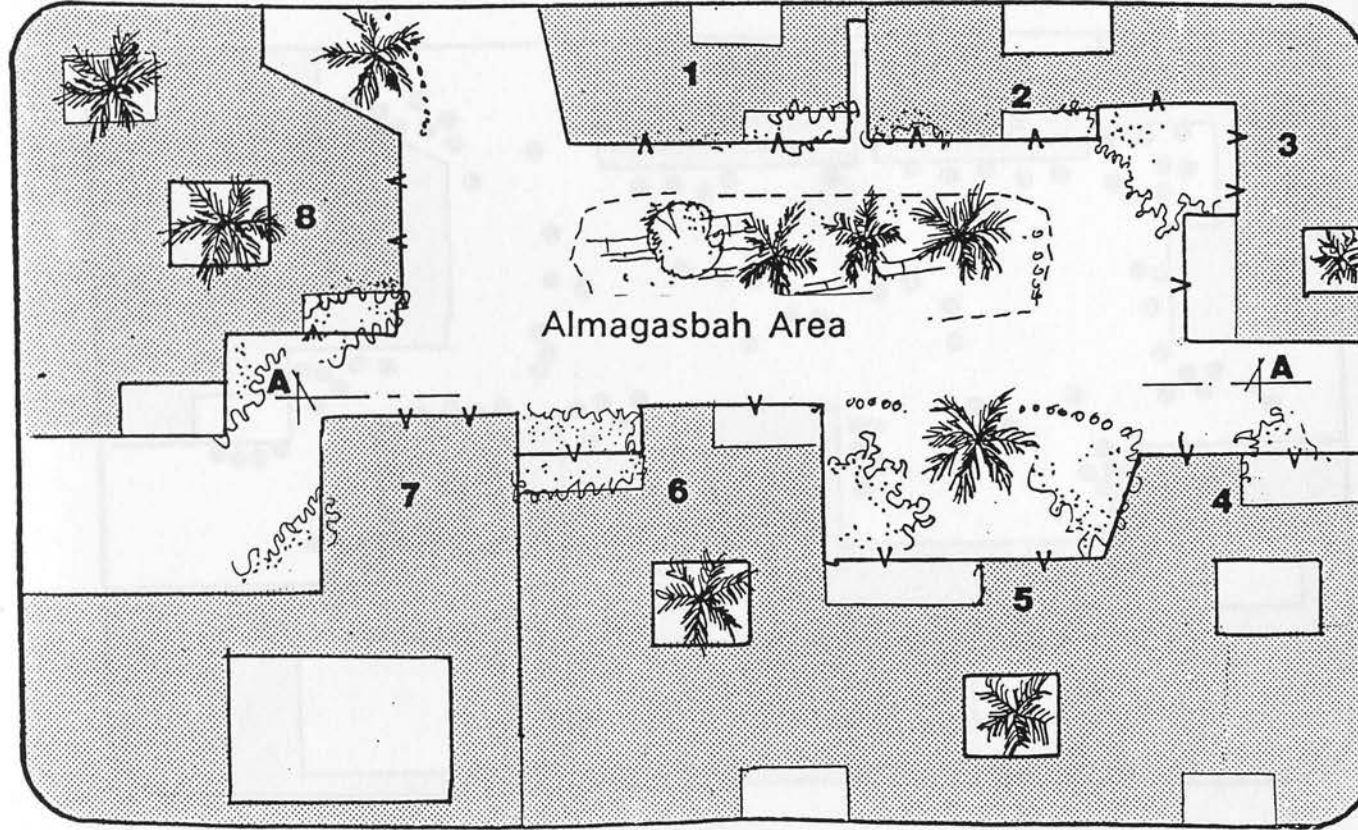
STUDY AREA
 SCALE 1-5000

STUDY AREA
 SCALE 1-2500



SECTION A-A

SCALE 1-500

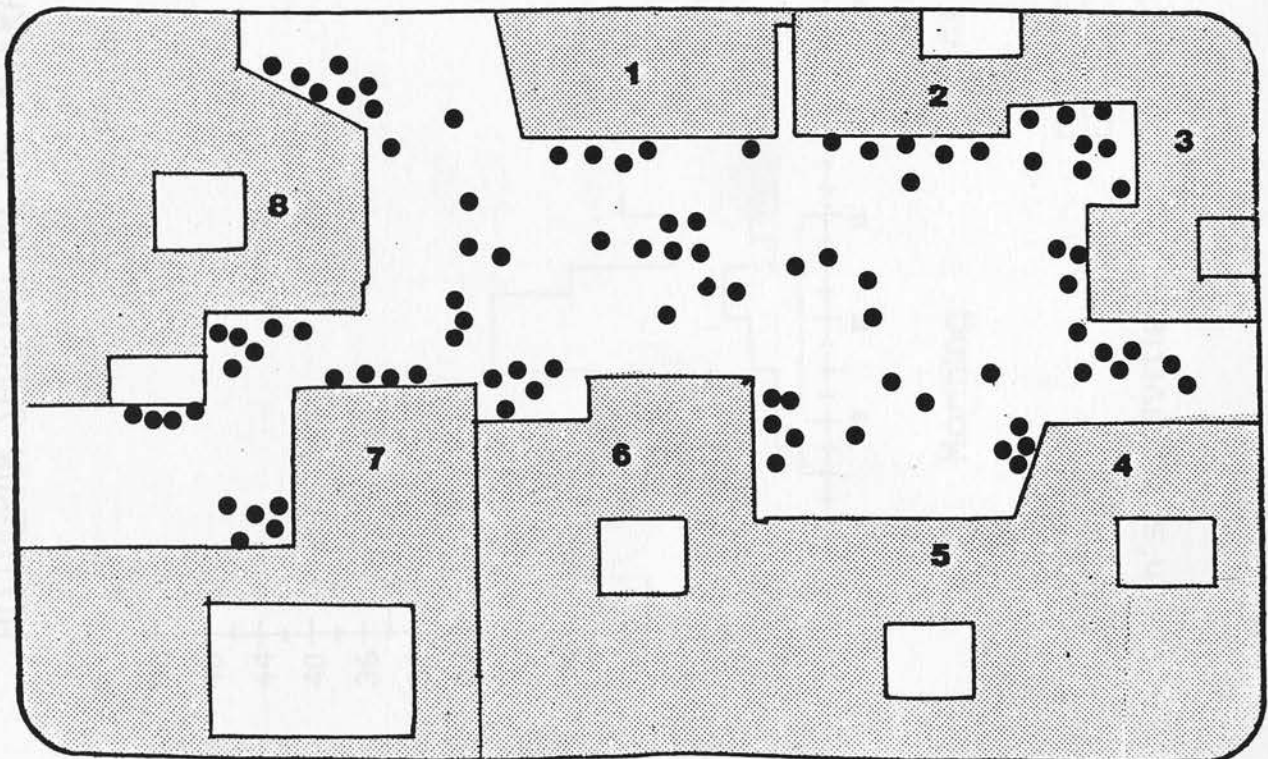


PHYSICAL INFORMATION

SCALE 1-1000

Notes from the Author's Diary of Observations

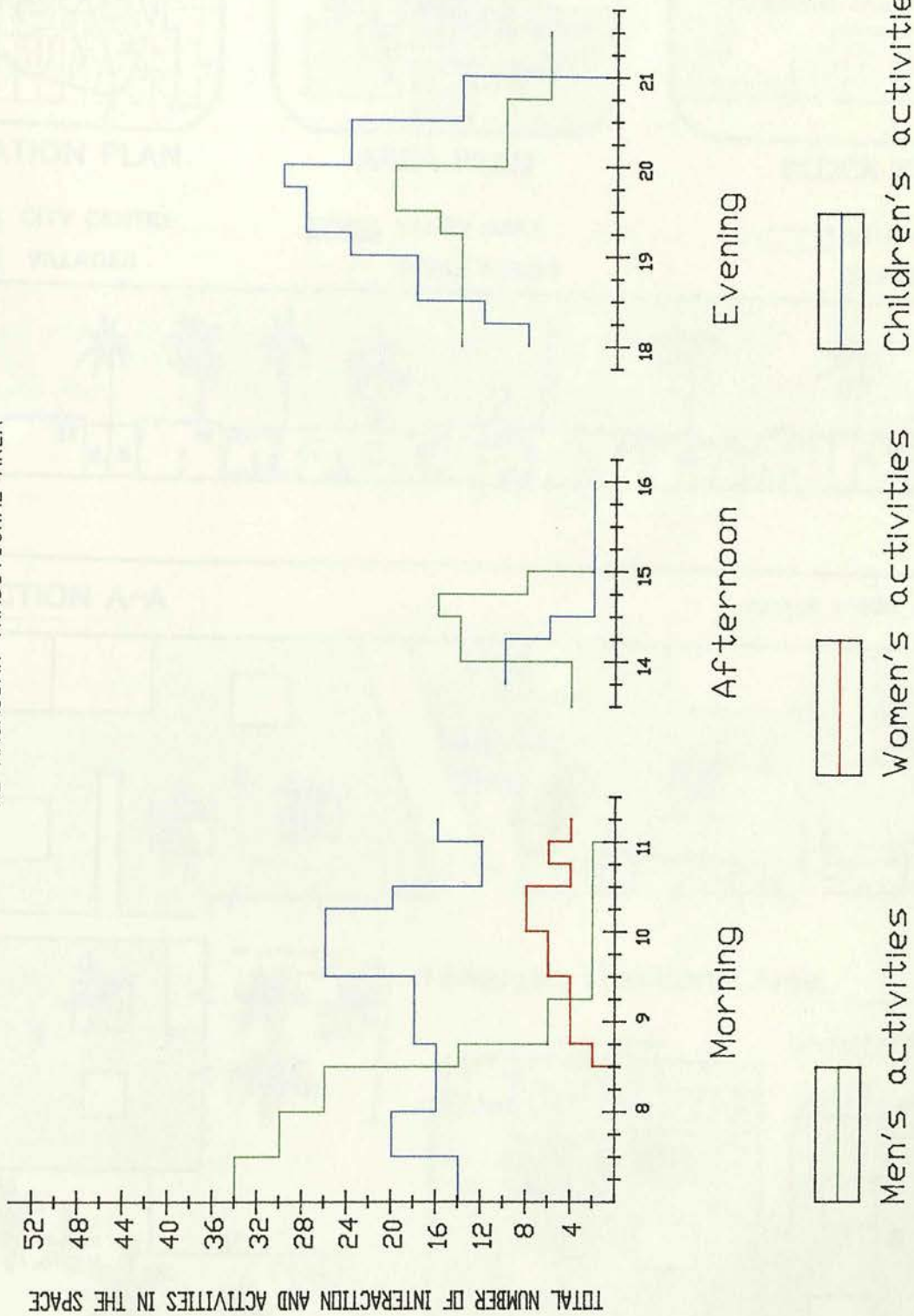
Al Magasbah Area: 2 or 3 miles from city centre. Block 1 is the mosque and 11 is empty space for building. The others are courtyard houses. Observations taken throughout the day show that some women appear outside their doors in the morning. A group gathered in a secluded outside corner to chat. Two women spend sometime in the centre of the space to clean and feed animals. The histogram shows that all women disappear at 10.00 am when two strangers crossed the space. Older men, to whom they are related, sit in another corner weaving and do not inhibit the women. At midday all women return home to prepare lunch. Children move in groups between outer court and public space. Men in the space control them and ask them to run errands for them. Houses 4, 5 and 9 have vines growing outside which give shelter and add a little privacy. Cars draw up to doors, moving slowly in the street. People unload large quantities of shopping to take inside. Men gather at the mosque on Fridays but disappear into the houses at midday to have lunch. The central area is marked off for storing equipment or animal feed.



● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

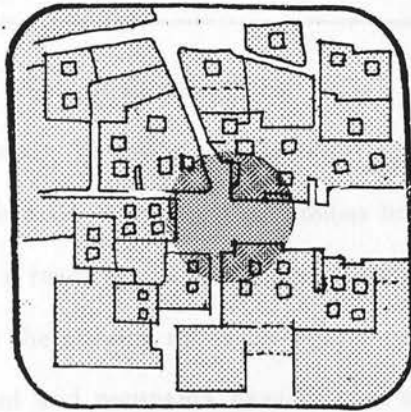
HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME

AL MAGASBAH TRADITIONAL AREA

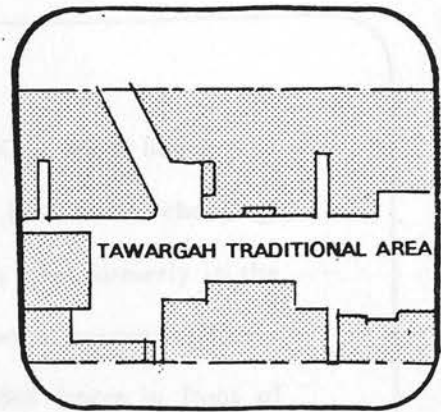






LOCATION PLAN





AREA PLAN

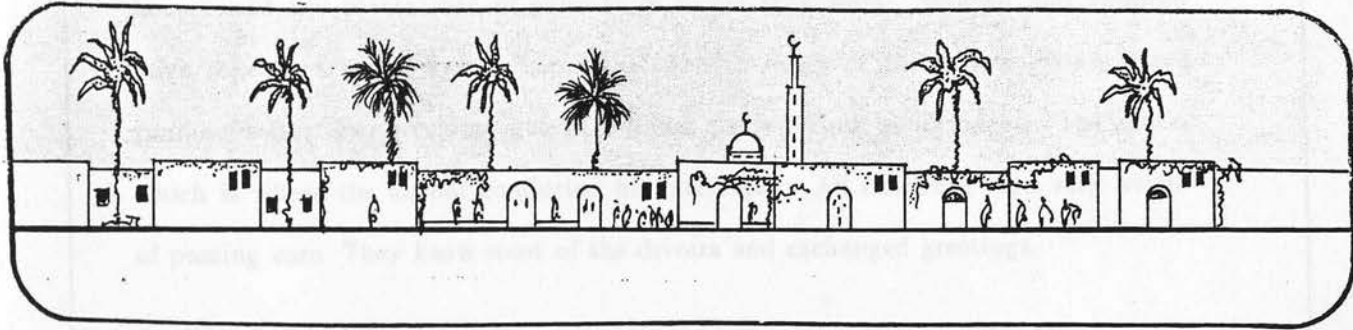


BLOCK PLAN

 CITY CENTRE
 VILLAGES

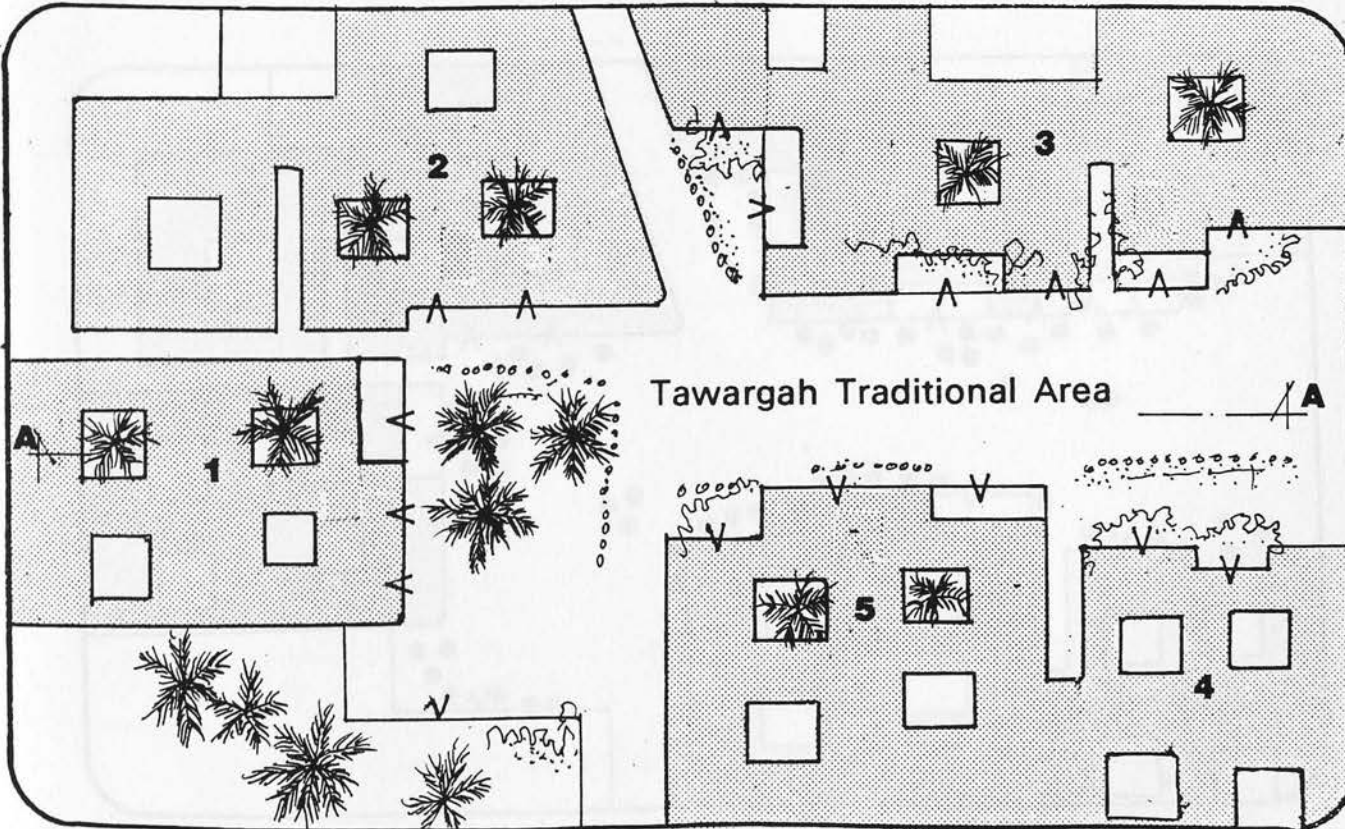
 STUDY AREA
 SCALE 1-5000

 STUDY AREA
 SCALE 1-2500



SECTION A-A

SCALE 1-500

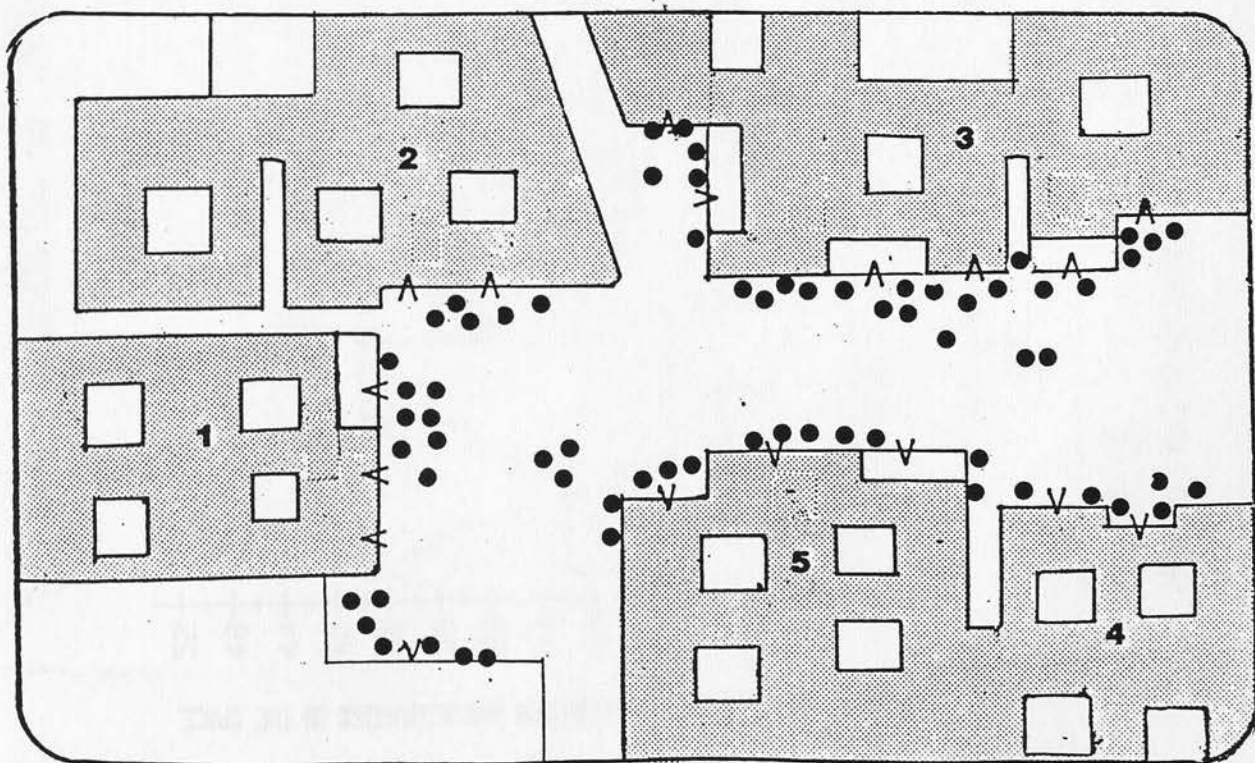


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SCALE 1-1000

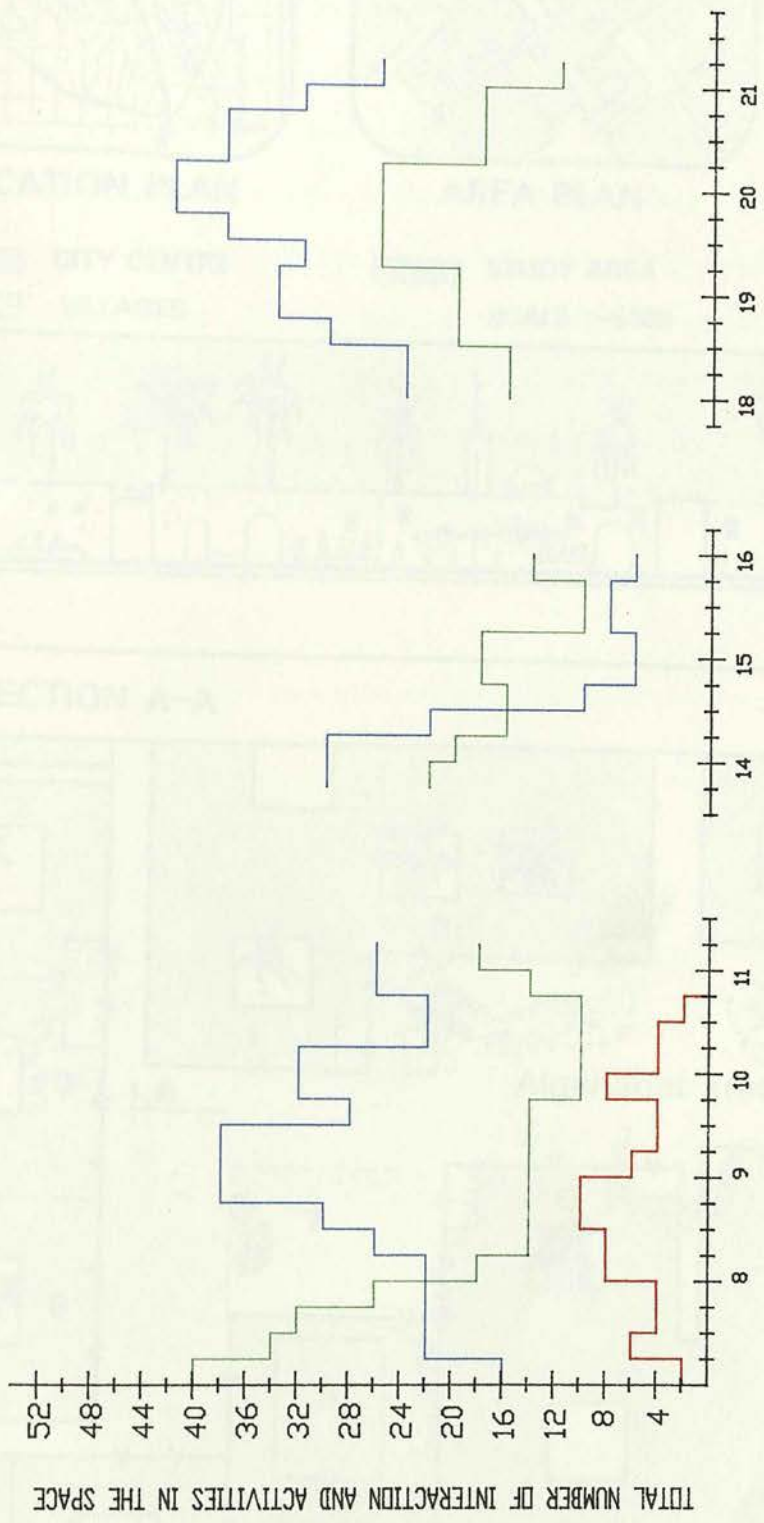
Notes from the Author's Diary of Observations

Tawargah Area (Traditional): 15 miles east of city centre. Courtyard housing in this area is in a very poor state of repair. The families living here await rehousing. Block 1 is in the path of a roadway, as are a number of palm trees formerly in the centre of the space. Since the opening up of the road a number of houses in Blocks 3, 4, 5 and 6 are exposed and occupants have erected wooden fences in front of them. They have also built wooden garages for their cars. The space in front of Block 5 is used for drying clothes. Men continually come and go between their houses and the plantations of palm trees where they work. Women and children have to collect water from a communal well as many of the houses do not have running water. For receiving guests, families put up tents or awnings in the space, which is where the author conducted his interviews. All residents were very aware of passing cars. They knew most of the drivers and exchanged greetings.



● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

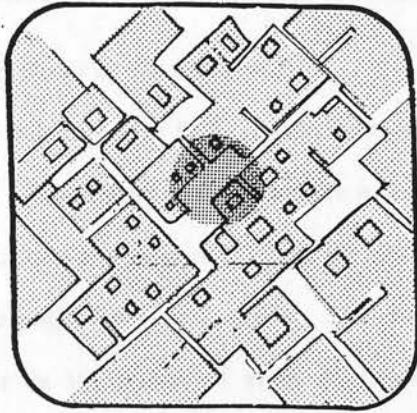
HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME



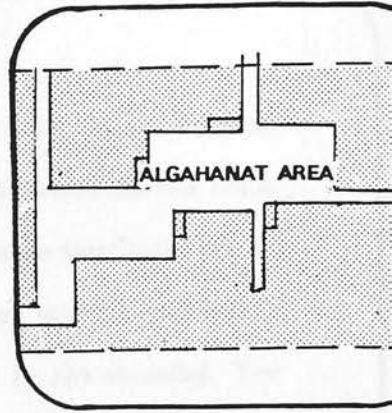
Morning
 Women's activities
 Children's activities
 Men's activities



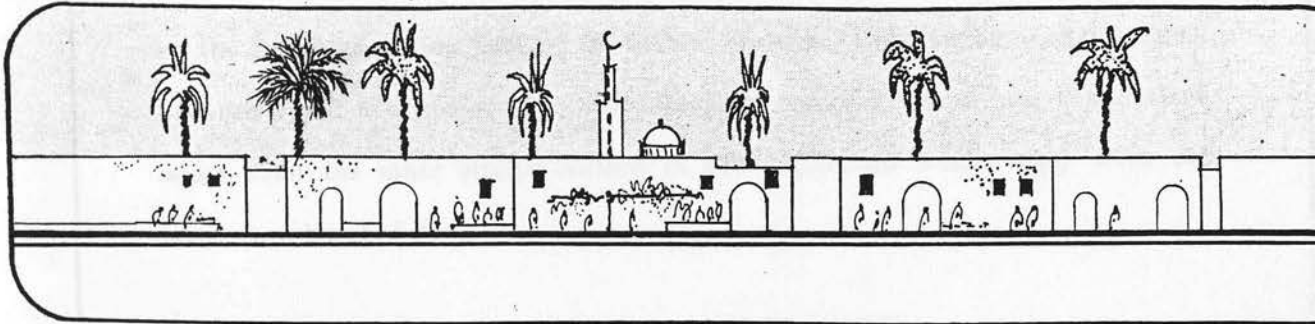
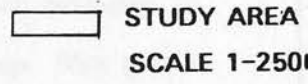
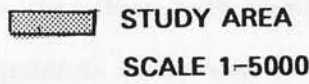
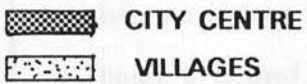
LOCATION PLAN



AREA PLAN

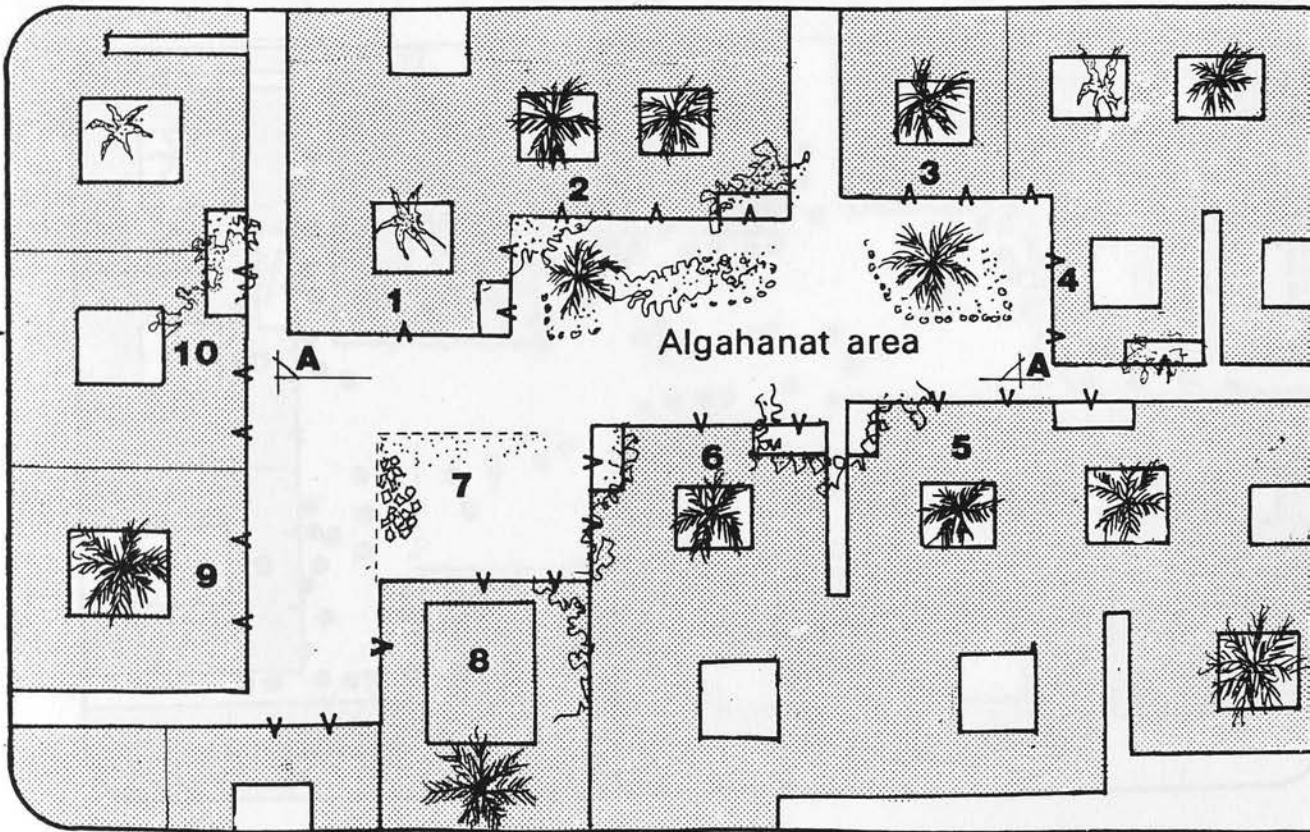


BLOCK PLAN



SECTION A-A

SCALE 1-500

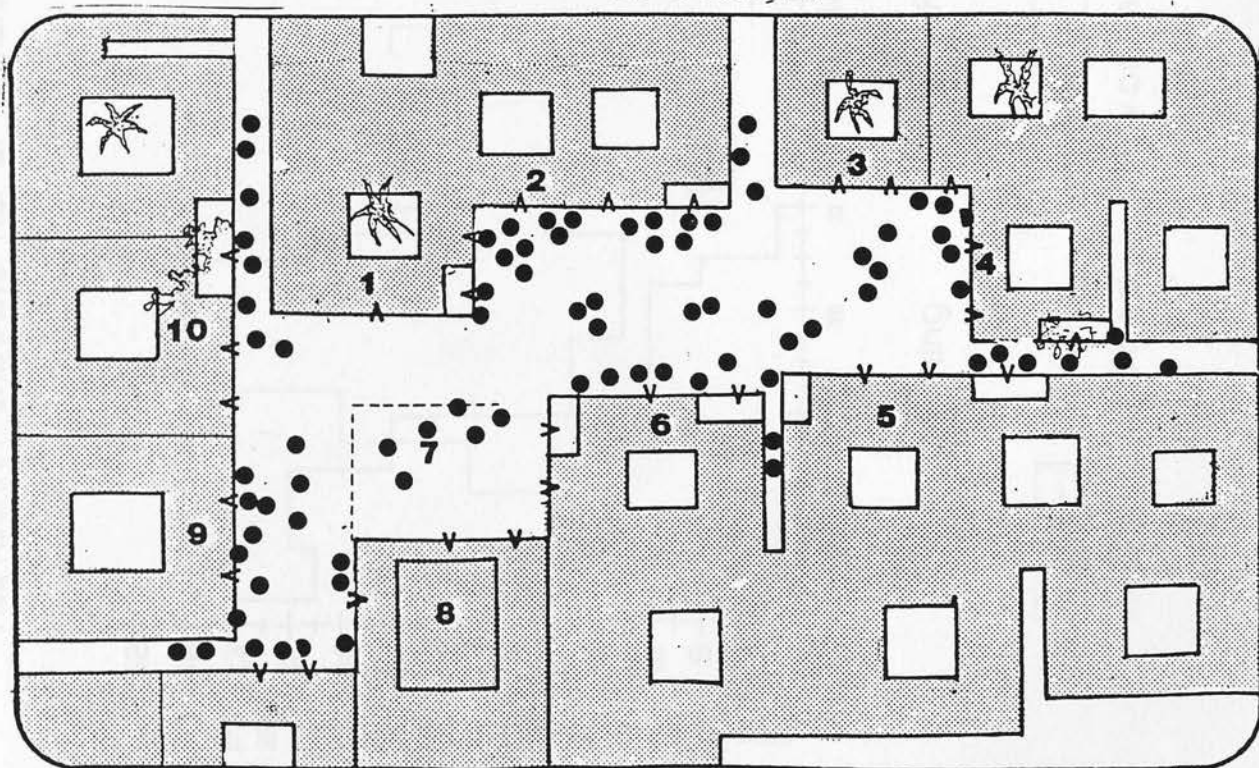


PHYSICAL INFORMATION

SCALE 1-1000

Notes from the Author's Diary of Observations

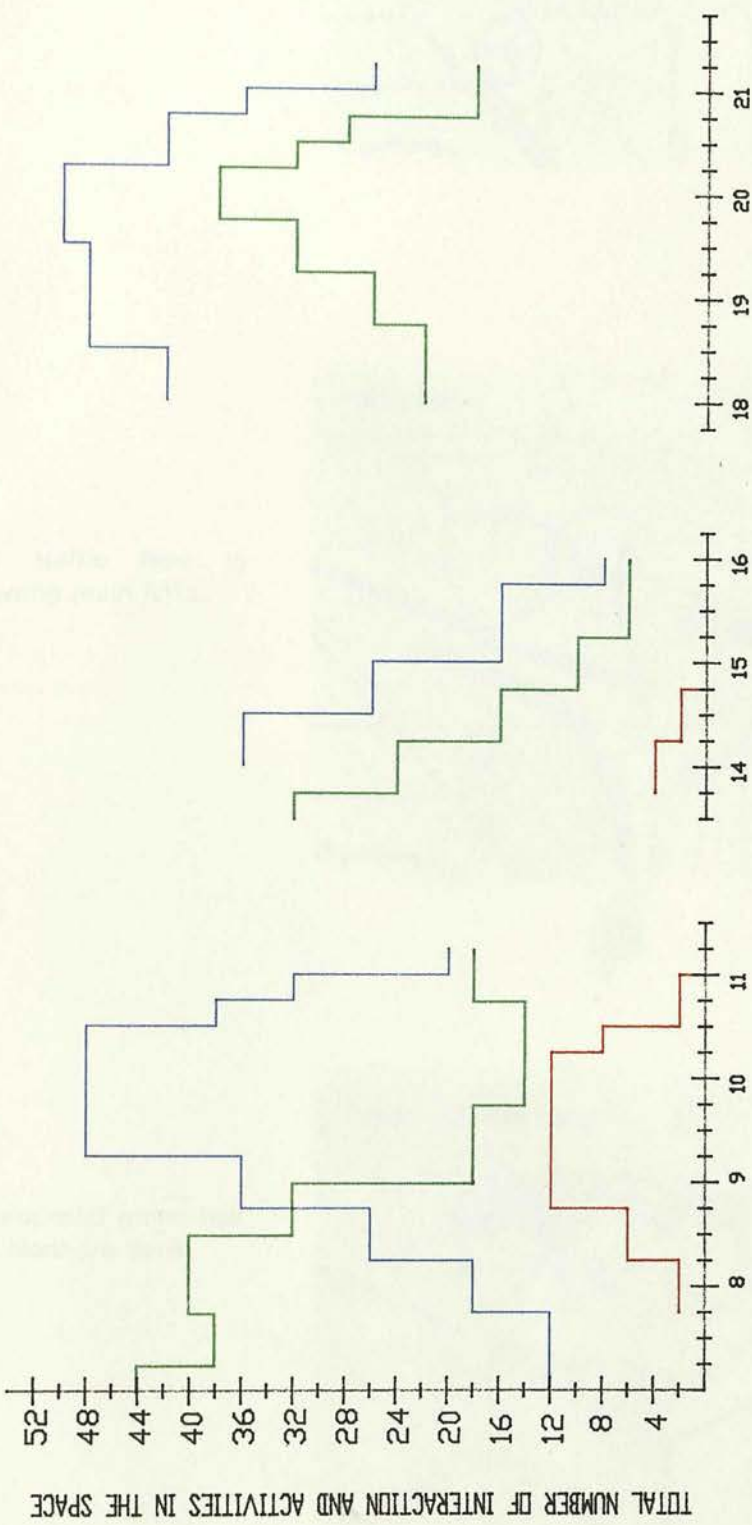
Al-Jehanaat Area: 2 1/2 miles west of City centre. All blocks marked are courtyard houses except 8 which is a new house and 7 which is a free site where the old house was demolished. Bricks round the land at 7 mark off the family's territory. There is also empty land in the angle between 3 and 4. Moonlighting workers gather here at night. Women gather in the shade of vines at house 2 in the morning. The author saw this pattern on several consecutive days. House 8 was a disturbance because it was higher than the others, with outside windows. Space belonging to house 2 is used by many residents of the area for animals or storage. Men gather on the free sites to help building in the late afternoon. Children come and go freely between space and houses. The street between houses 7 and 8, and 9 and 10 is wider than the other streets because of new regulations which apply when old houses are knocked down.



● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME

26/11



Morning Afternoon Evening

Men's activities
Women's activities
Children's activities

TOTAL NUMBER OF INTERACTION AND ACTIVITIES IN THE SPACE

Fig 5.4
Diagram of Misratah showing steel complex, air academy and proposed development of outskirts.

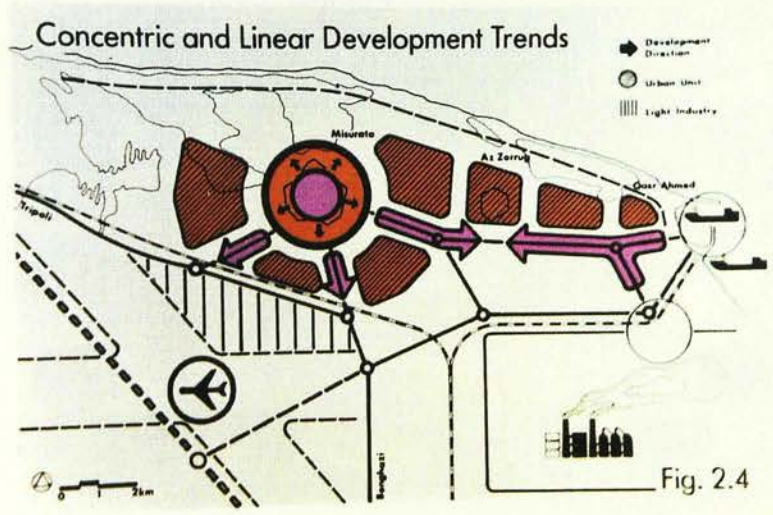


Fig. 2.4

Fig 5.5
Diagram of traffic flow in Misratah showing main links.

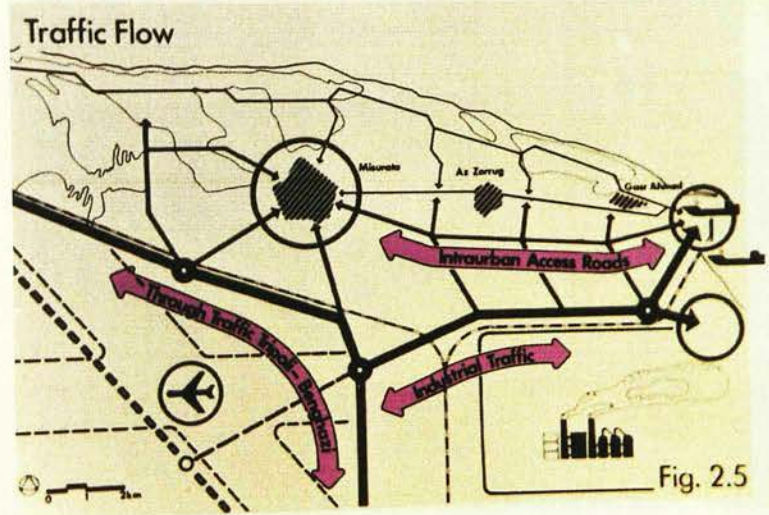


Fig. 2.5

Fig 5.6
Diagram of proposed green belt in Misratah's Northern flank.

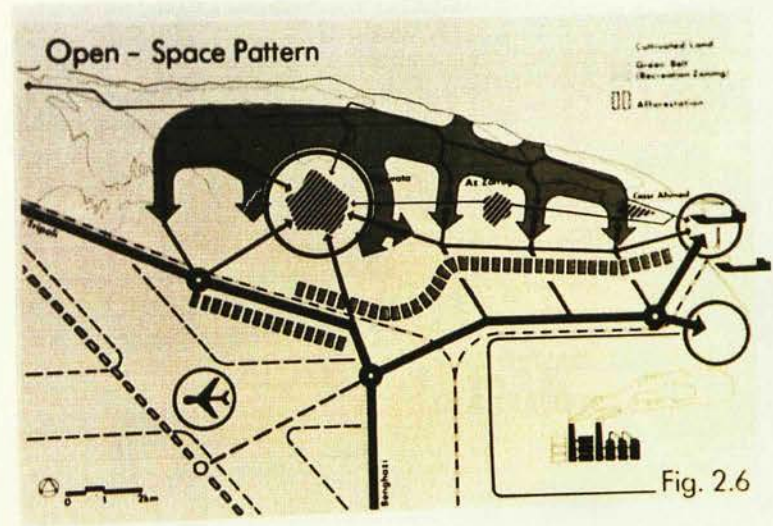


Fig. 2.6

Fig 5.7

A scene from Misratah village showing old courtyard houses and some new constructions. Outhouses in the space protect their land from passing cars.



Fig 5.8

Another typical indigenous village with houses on one level and a well in the foreground for the use of villagers.



Fig 5.9

High view of old courtyard houses built on the same level but now overlooked by a new house with a large upstairs window disturbing the privacy of neighbours.



Fig 5.10

An old courtyard house (1) with a palm tree inside surrounded by many extensions and dominated by the high rise flats (3) and modern houses (2) of the encroaching city centre.



Fig 5.11

Old and new. The old area is on one level and dominated by the mosque. The new area in the background now rises above this.



Fig 5.12

A derelict courtyard house next to one that is still occupied and maintained is used for animals and for storage.

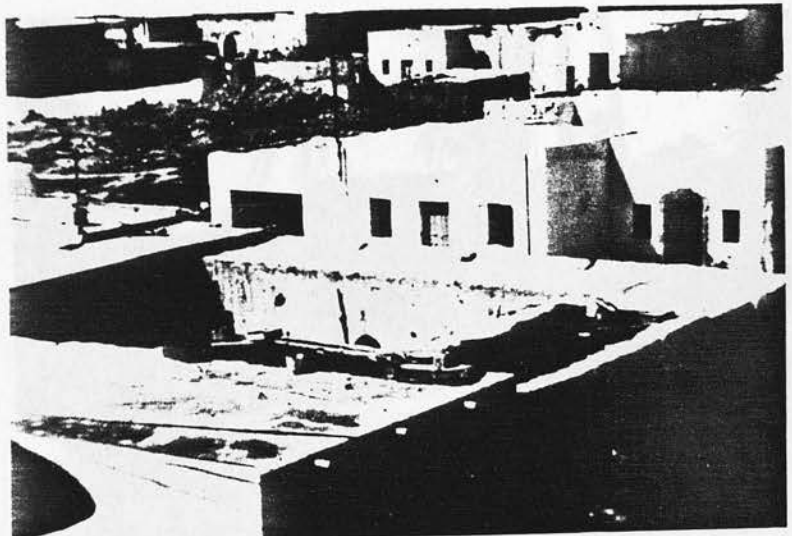


Fig 5.13

The author interviewed people in this area. When no other shelter is available, people go back to ancient methods. This tent allows people to see in and out. Mats inside are placed for people to sit comfortable. A makeshift screen hides the house entrance from view.



Fig 5.14

A new wall has been built to screen the house from passing traffic. On the spot from where the author took the photograph once stood another house. Now the space arrangement of the area has altered and some of the remaining dwellings are exposed.



Fig 5.15

The outdoor sitting room (1) is whitewashed in this photograph. This is common practice to decorate the area which guests use and to leave the other rooms (2). The shade for the car (3) is the least important and left in a ramshackle condition.



Fig 5.16
Shells of new buildings abandoned because of lack of amenities in the area.



Fig 5.17
This shows how people have tried to build extensions to their old houses to stay near their land. The trees now neglected and the house empty except at harvest time. The style of building is between traditional and modern.



Fig 5.18
Many extensions to a courtyard house, for animals and a car. The authorities do not like this scene. The people await new housing.



Fig 5.19

Scene from Tawargah area showing the main elevation of a house with front entrance. The area outside is muddy when it rains but good for activities and children in the dry months. Extensions to the house can also be seen.

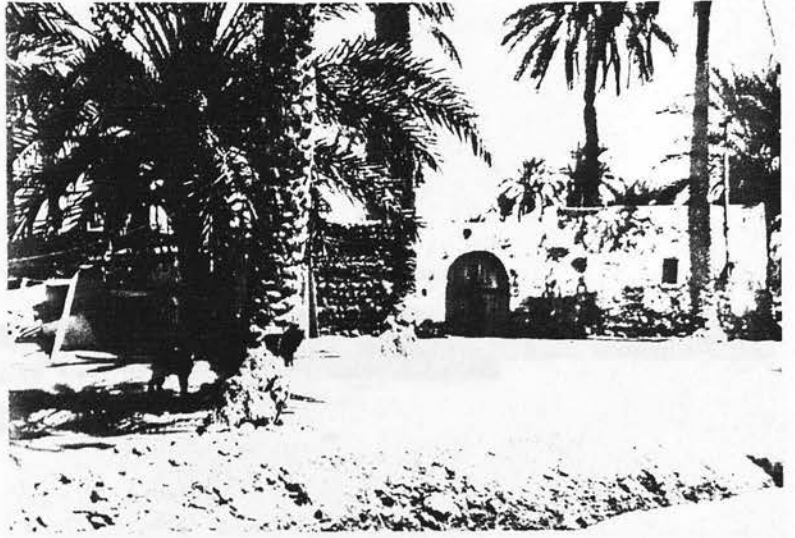


Fig 5.20

Wall of a house showing 3 different phases of building as extensions were added. No. 1 is an example of building with stones in a herring-bone pattern. 2 - Larger stones are used and reinforced with cement. 3 - Extra reinforcement with sections of tree trunks is used in this construction method.

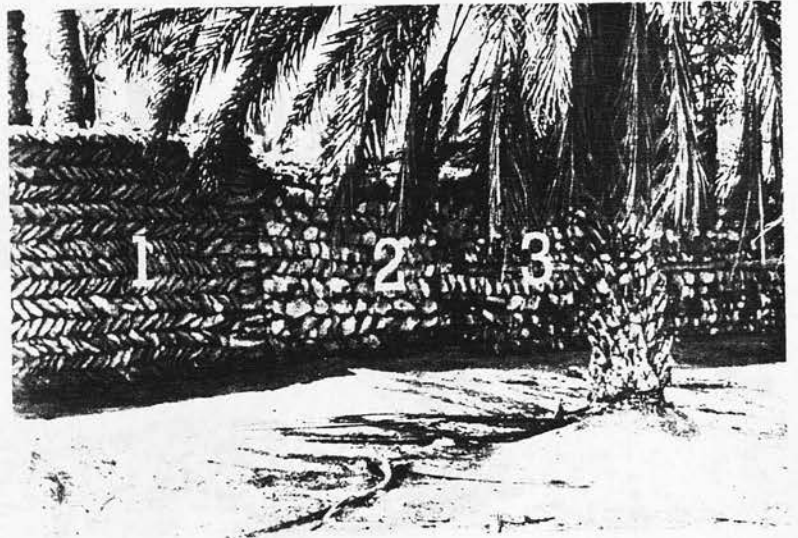


Fig 5.21

Three different means of construction. A modern extension is shown next to a stone-built room. People find it easier to build new structures rather than maintain the old.



Fig 5.22
The mosque stands alone, the surrounding houses having been demolished.



Fig 5.23
Inside an ancient courtyard an archaeologist collects some precious remains. This scene has dominated people's ideas about courtyard houses.



Fig 5.24
This entire area has been allowed to die. There is no one to take responsibility for these trees and no one will want to live here. The environment as well as the houses should be maintained. The authorities should encourage people to return to these areas to protect an important resource.



Fig 5.25
The roof area acts as an extension of the house for the family.

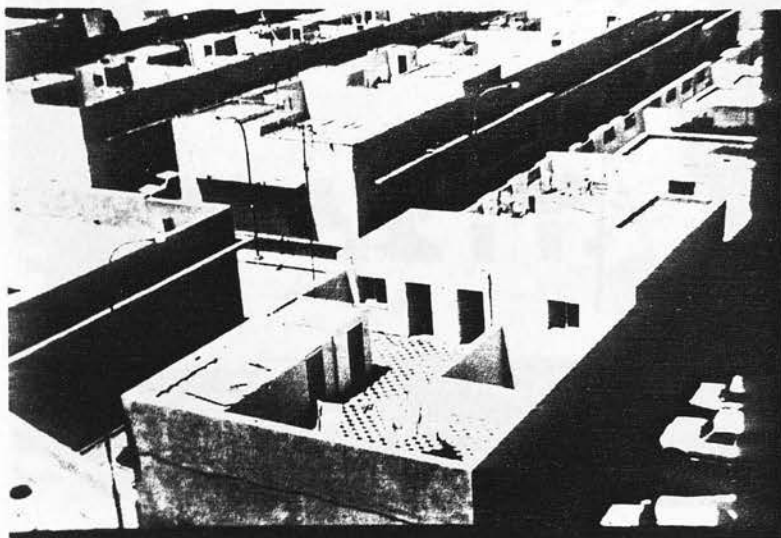


Fig 5.26
Market space in Tawargah. Selling in the traditional way is still popular. This area is close to houses and people like to support local craftsmen.



Fig 5.27
A traditional carpet market in Misratah is also the focus of much activity. Goods are sold by auction in areas purpose-built for buyers and sellers.

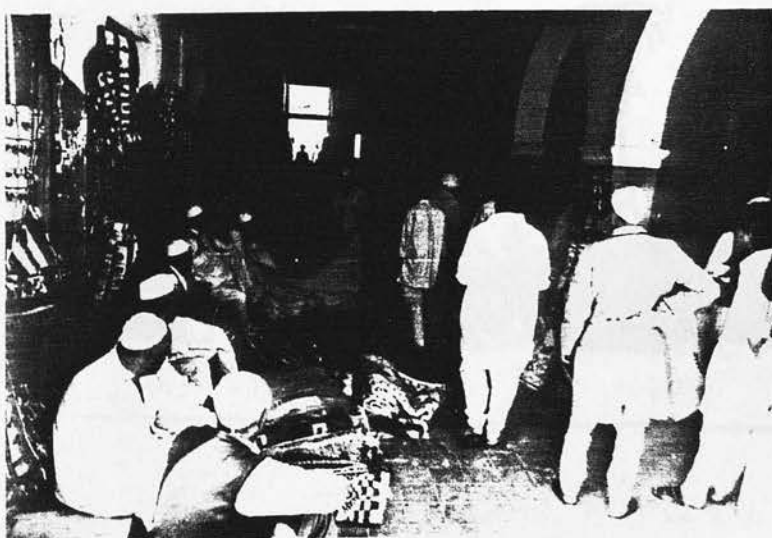


Fig 5.28 An old Italian whitewashed house with a modern building next door showing different methods of construction. The front wall protects the women when they go out to work.



Fig 5.29 Neglected trees and empty homes. The owners have left the area to go to new houses.



Fig 5.30 Bricks lie ready to build an extension to a pleasant farm.



Fig 5.31

Corner of a new house on a right hand side with the old wall and entrance and original outdoor sitting room preserved.



Fig 5.32

Space between houses is used for horse racing at major events.



Fig 5.33

A wall with two methods of construction knit together. Women move freely in this Tawagah area because all residents are closely related and strangers rarely pass through. Barrels of water are kept because of frequent shortages.



Fig 5.34
Locally crafted goods made in the village spaces from palm leaves.



Fig 5.35
Reed mats being made in Tawargah. This helps the family income and turns the disadvantage of living near a marsh into an advantage. The mats make good floor coverings to keep out damp and dust.



Fig 5.36
The village well is a place for people to meet and join together in drawing water.



Fig 5.37

Activities in the space – this is a common site when the dates are ready to be picked. The climber keeps up a conversation with those waiting below.



Fig 5.38

Wedding festivities in a tent. Traditional bagpipes are still popular for these events and attract many people.

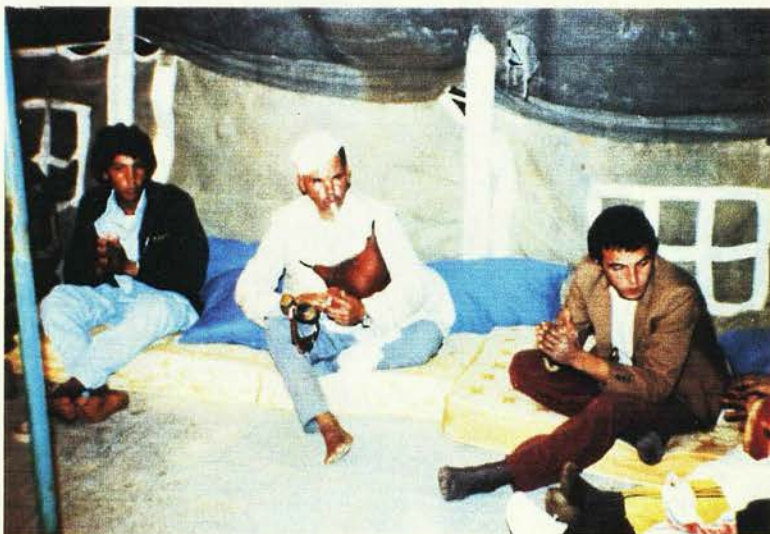


Fig 5.39

Even when people have a modern house they need land to feed and tend their animals.



Fig 5.40

An arched doorway with a double door. The smaller opening is used for people to come and go and is sometimes left open. The larger one is for loaded animals to pass through.



Fig 5.41

An old house in Tripoli showing the mashrabbiyahs over windows.



Fig 5.42

Outside a village mosque men sit in the shade to recite from the Quran. Many scholars had their first education in this way.



Fig 5.43

The entrance to an outdoor sitting room looking onto a cool area shaded by vines. Convenient to sit in or to pick fruit from.



Fig 5.44

Soft interface leading to men's area; the outer court, with people sitting and relaxing. The breeze passes through and passersby are invited to join those already gathered.



Fig 5.45

The hard interface of the entrance to the women's area, very private and clearly out of bounds.



Fig 5.46
Light from the outer court filters
into the saquifah.

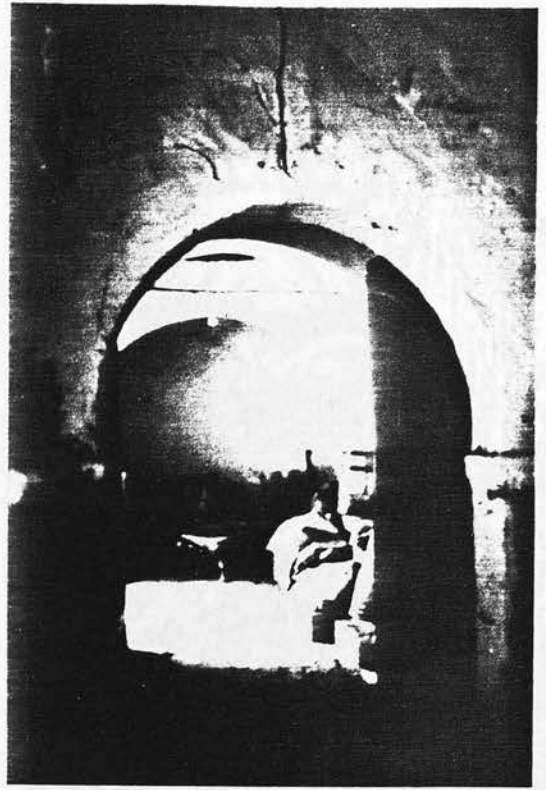


Fig 5.47
The outer court, attractively
shady, is inviting for people
passing the open archway.



Fig 5.48
The door to a courtyard is left
open for occupants to see out
and passersby to see in. Stone
benches outside provide cool
shady places to sit.

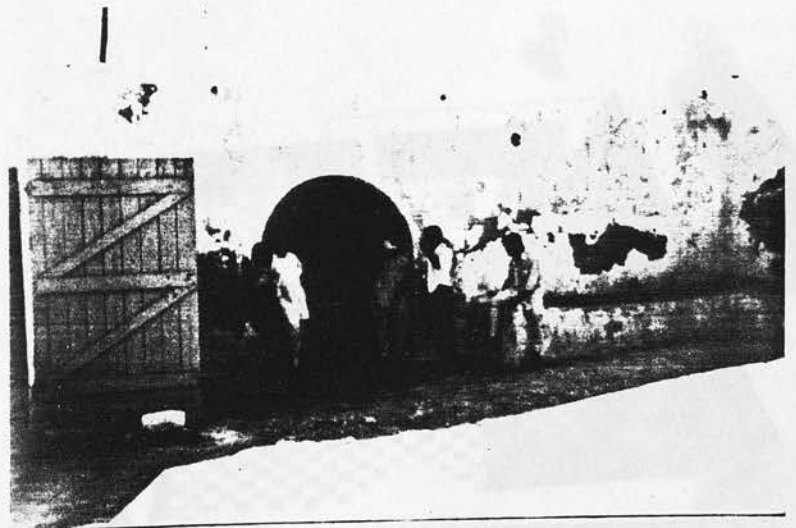


Fig 5.49
Richly worked door knocker,
symbolic of status of occupants.

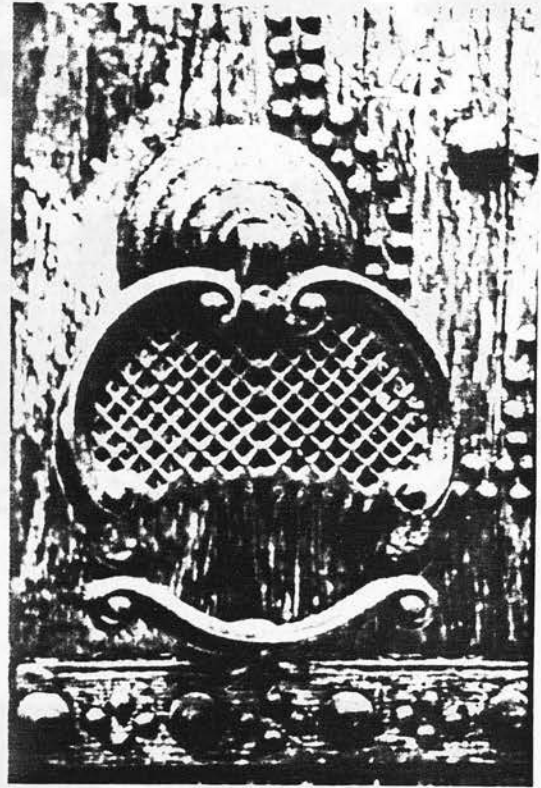


Fig 5.50 Entrance to a bedroom
from the inner court. This room
is highly decorated by the
women of the house. Large
windows face the court to let in
air and light.



Fig 5.51
Modernised courtyard, tiled over
for ease of cleaning and for
decorative purposes, a
half-roofed area gives
additional shelter and shade.

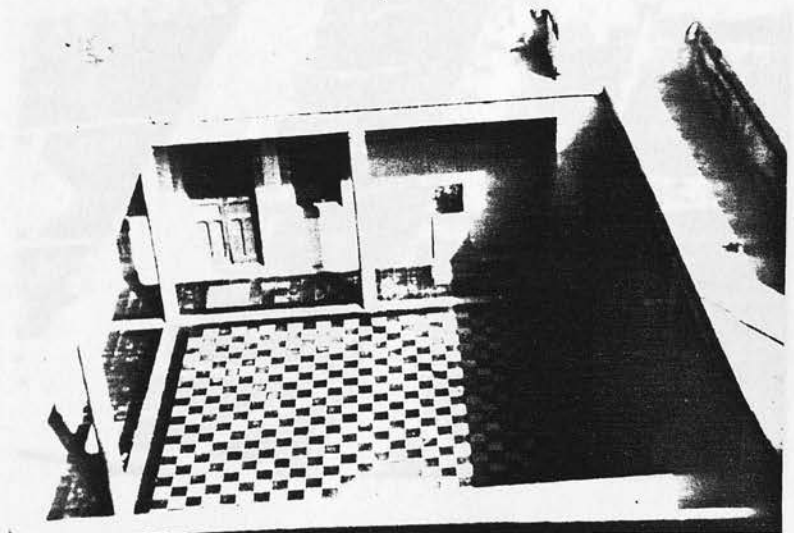


Fig 5.52

This house used to provide shelter for many families. It is now in a state of neglect and overgrown and will soon be demolished.

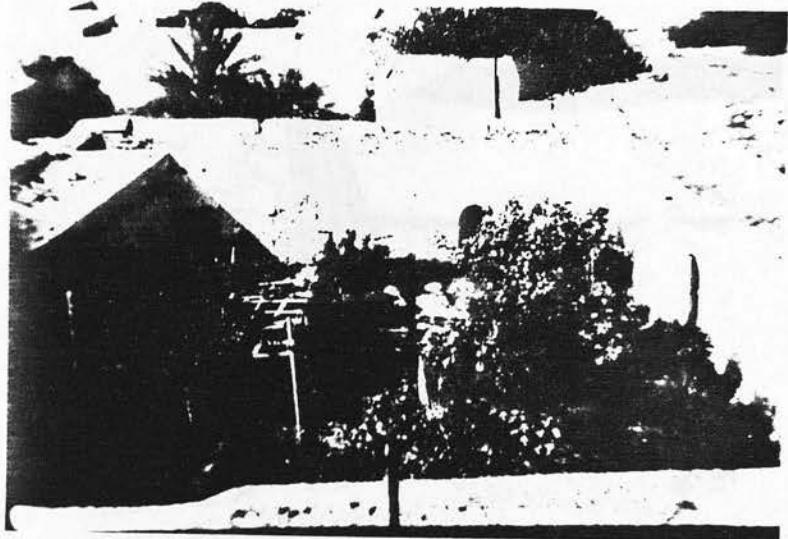


Fig 5.53

A ruined outdoor sitting room with arched doorway and sitting alcove below a window to the outside.



Fig 5.54

Roof of an old house showing methods of construction with planks and branches or palms.



Fig 5.55

This cartoonist shows how technology has overtaken housing. The woman still lives in a tent but has a new cooker, TV, fridge, cassettes and records. She still dresses in a traditional way and has kicked off her high shoes. There is a conflict of culture and custom.



Fig 5.56

A wife tells her husband that a traditional meal - "bazine" - tastes better if cooked on gas and that she will not cook it again until she has gas (compare with fig 5.55).



الأسرة التي لا تزال تعيش في البادية - بعد أن تطعمت في البازين...

Fig 5.57

Men's "club" in a traditional area with horrified government officials looking on in despair at what they see as an old fashioned and undesirable scene.



Fig 5.61

Entrance to private traditional house, showing personalisation around the arched doorway. Stone benches are provided outside for men to sit in the shade. The window is above the heads of passersby to prevent inlooking.

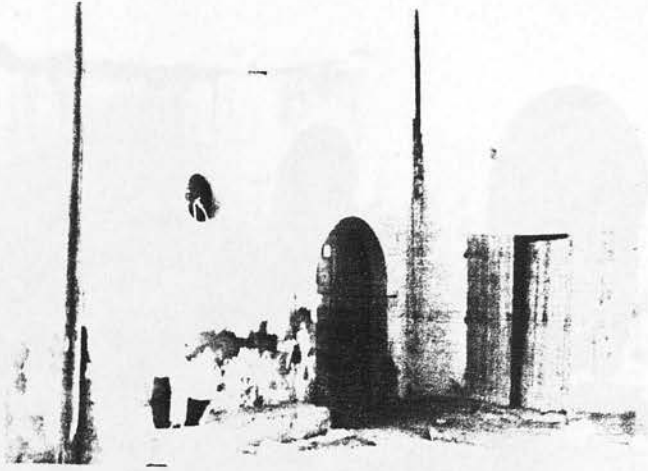


Fig 5.62

Narrow streets in this traditional area give shade for pedestrians. The doorway gives onto the outer court and men's sitting room.



Fig 5.63

The modern roadway and modern blocks give the old traditional home a sad and run-down appearance.



Fig 5.64
Inside the traditional inner court
the women have complete
privacy to work and socialise.



Fig 5.65
Outside the traditional house
there is adequate space for
children and animals.

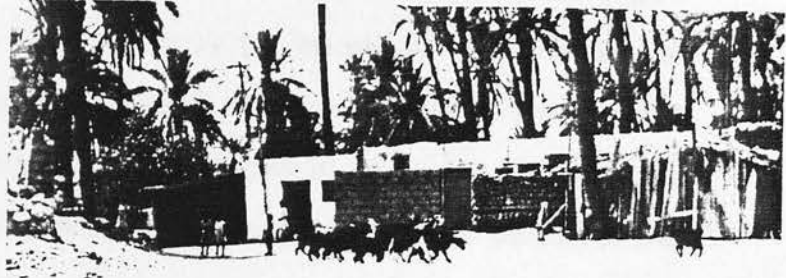
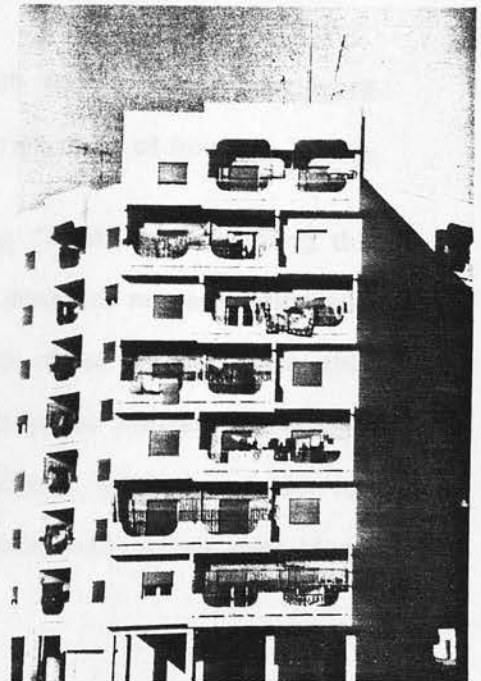


Fig 5.66
People from these traditional
settings are rehoused in this
kind of unit. Problems resulting
from the changes in lifestyle
will be examined in the
following chapter.



CHAPTER 6

MODERN HOUSING

6.1 INTRODUCTION

Previous chapters have examined the housing situation in traditional villages stressing the background and present condition of courtyard dwellings. This form has been highlighted because of its links with the heritage of the area and because it is the indigenous form of dwelling found in the coastal region chosen for the study. We have looked at the history and development of traditional courtyard housing and described how the indigenous form evolved simultaneously with the developing socio-culture of the people. Its ability to respond and adapt to changing needs was shown to be a major advantage and instrumental in its continuing existence.

Each region of Libya adopted the courtyard form and adapted it to suit its particular climate and way of life. Today's problem is partly one of standardisation. Regardless of climate, culture, social and psychological needs, imported houses of uniform size, shape and construction are allocated to those awaiting rehousing.

The houses looked at in the last chapter each told a story. They were personalised homes as opposed to standard production units of housing.

Additionally, it was shown that there is growing dissatisfaction among the present occupants of this form. There is a national drive for modernisation and the courtyard house does not fit the aspirations of those caught up by this impulse. The descriptions given make it clear that these houses are indeed generally in very poor condition and lacking in utilities which are taken for granted by the majority of western citizens, on which they model their ideas

for housing.

Libyan society has undergone rapid changes; wages are higher, education is of a high quality and nationally available to men and women, and access through the media to patterns of western life is now possible. However, much remains unchanged. Libya is still a Muslim country. Islamic Law prevails, family and kinship ties are still very important and privacy remains a dominant factor. The yearly cycle of festivals and celebrations also continues unaltered.

People are indeed hungry for change and as society has divided into modern, transitional and traditional sectors, those in the latter feel they may have been left behind and will readily accept the modern homes offered by the authorities if they cannot afford to build new homes for themselves. This is like an infection spreading out from the cities and affecting even the desert tent dwellers. As overindulgence brings sickness in its wake, so the new found wealth and eagerness to be at the forefront of modern developments have started to produce symptoms of distress and dissatisfaction.

The people are therefore torn between their roots and their desire to move with the times. Primarily, they want a better quality of life and a healthier, brighter environment. Those from the poorest areas perceive quality housing to be the modern housing provided by the government. There are no other modern forms available with which this can be compared. It is understandable that a cave or tent dweller will eagerly accept the offer of a new home which looks clean and well fitted. He has no choice and he will certainly not be worse off materially.

From the section on socio-cultural changes we see that housing developments over the past 50 years have been quite separate from any cultural or social changes taking place in the indigenous population.

The type of architecture was imposed rather than developing from a grass roots movement. For much of this time, foreign powers controlled building programmes and no thought was given to local people. There was therefore no relevance in the new styles for their way of life or philosophy.

The need for housing is too great for considerations of appropriateness to be gone into. As when a beggar is given a new coat to wear, he is grateful. Even if it is the wrong size, it covers and shelters him from cold - Libyans must now make themselves fit their houses instead of the houses being tailored to their needs.

Society in Libya has no class structure as is seen in Britain. All have the same background and humble beginnings. There is not yet a second generation of wealthy families who have forgotten the face of poverty. However, money has made a great difference in that those who have benefited most, like to display their good fortune in the only way they can - by having a modern house with modern furnishings and utilities. This is the ultimate goal of those still striving to make their way. The government is eager to help those lower down the salary scale and to provide for them but they make the mistake of thinking "modern" is enough to satisfy their needs.

Public low and high rise modern schemes will be examined in the following section. An attempt will be made to analyse behaviour and activities in these units and to assess whether the new coat fits and how people have tried to make it fit. In the private sector, which will also be described, people have built for themselves. The author will look at the primary influential factors behind their choice of style and try to determine what their ideals are. The intention will be to draw a line between what has already been shown to be advantageous and meaningful in the courtyard form and what new housing has to offer, thus, hopefully, reaching a level of understanding out of which

recommendations for future plans can be based.

6.2 PUBLIC HIGH RISE BUILDINGS

Names and perceptions have great significance for buildings. A Scottish friend presently working in the Middle East wrote recently that he was living in an area regarded as one of the wonders of modern architecture. It contained all the trappings of luxury, marble exteriors, soft leather furnishings and water spouting from everywhere but the taps. His own unit within a high block would be described by a Londoner as a studio flat, by a New Yorker as a small apartment and by a Scot as a bedsit. In his village the same unit would be considered a hen house. Images can be extremely misleading.

There are two expressions used in developing Arab States for high rise blocks. When these houses first appeared, people did not know what to call them, and they used the names "Aimeraat" meaning architecture and "Aimeraat Alka'ib Ale'ale" meaning high heeled shoes. Both these expressions sound very grand and attractive and symbolise dreams of impossible glory. Thus they gain false reverence and appeal. Another image which gripped the public imagination was that of a ram butting the clouds; vigorous, healthy, powerful and glorious. The reaction of one designer was to put horns on the top of a high rise block as seen in figure 8.

An area of high rise housing in Misratak called Algooshi was chosen for the study.¹ It was constructed in the early 70s for low income families from rural areas to provide them with a city base from which they could find employment. This group of houses typifies modern housing areas springing up on the city outskirts. In Libyan society any building that rises vertically for 4 or 5 storeys is

¹See Plans and Physical Information.

called a high-rise block. There is not the distinction, found in the West, between 'walk-up' and 'high-rise'.

The units are standard sized and built in four storey blocks, randomly sited around an open space half a mile from the city centre. Wide access roads are asphalted and have pavements for pedestrians. Priority, however, has been given to vehicular traffic, there is no protection for the casual walker and no attempt at landscaping. No area has been set aside for children's playgrounds and nobody takes responsibility for rubbish collection or maintenance.

It was difficult to obtain information on these areas. Often they appeared deserted. Those who appeared in the space did not stay for long or greet strangers. The Sheikh Mahallah was not known to many and he did not know them well or their family background and history. The Housing Department could produce statistics and plans but not personal details.

However, because the author has friends living in the area he managed to obtain first hand knowledge of life there and was able to go into flats to observe activities. His contacts were able to give information about long standing problems concerning their homes and the surrounding area.

The occupants are mainly young families with children. The men and some of the women work in the city. No shops in the area were open and there was no local mosque or private gardens and garages.

6.3 OBSERVATIONS

The same methods of gathering information and observing as used in the traditional areas were employed here. Details of activities observed are given for external space only. With no relatives in the area it was not suitable to observe women's activities inside the house.

(i) *Morning Activities.* Working men and women leave home early to go to the city on foot or in cars. They leave quickly and the public space is soon empty again. It is too exposed for women to remain and there is nowhere for them to go. Children from the ground floor, or those old enough to negotiate the stairs, play in the space outside the blocks. They cannot be easily seen by their mothers and do not stray far or stay long.

(ii) *Midday.* People return from work and go straight into their houses. There is no shelter or shade outside and nothing to create activities. The lack of work areas, garages, shops, or gardens gives them no reason to stay outside.

(iii) *Evening.* The city centre is the equivalent of the outdoor sitting room. Men leave the area to go to the cafes and clubs to socialise. They feel that they are overlooked if they stay in the space between the flats or that they may disturb other people. There is no feeling of belonging.

Only the old people, who can manage the stairs, sit outside on the shaded areas of pavement to chat and play checkers. They try to choose a spot near a public building so that they do not encroach on anyone's privacy.

Cars pass by quickly. The occupants are not known by residents and do not slow down to greet the people sitting outside. They create no interest or interaction.

Because there is no local mosque, the elderly people must walk far if they are to maintain their routine of prayers five times a day. This is difficult for them and if they cannot manage, they feel physically uncomfortable and spiritually uneasy. The city mosque is not an intimate place and has no attraction as a meeting ground and disseminator of local news.

Although the histogram for this area shows a high level of men's activities, these are short lived and fewer than in the traditional areas. The author was

surprised to find such a low level of activities, considering the high number of residents in the flats around the space.²

6.4 GENERAL PROBLEMS WITH PUBLIC HIGH RISE HOUSING

There is international recognition that public high rise housing creates social, family and psychological problems. Developed western countries, whose history of using this form is longer than in Libya, have found that they experience increased rates of crime, vandalism, mental health disorders and family breakdowns.

At a seminar in 1988 at Heriot-Watt University, Sir Robert Grieve pointed out that Patrick Geddes had recognised the problems related to public high rise blocks when they were first introduced into Scotland. The aesthetic affront was obvious, but less apparent was the affront to humanity. Geddes saw it in biological terms and was disheartened at what he regarded as the degradation of people brought about by such structures. His belief was that these buildings should be avoided by the authorities who have to keep costs low and provide for people of low income. Only when people are wealthy can they afford the necessary upkeep and maintenance that is required in high rise blocks.

The introduction of this form into Libya was in response to the taunts of neighbouring Arab States who mockingly remarked that, although Libya had wealth, it still had old fashioned low rise housing (see figs 10 & 11). This was at a time when western states were questioning the form to an extent that in many countries, public high rise blocks were being demolished as unsatisfactory due to the problems they produced.

²See histogram for Algooshi area.

Chapter 3 on the background to Libyan culture, showed the affinity that people have with the land. Activities are land based; animal and crop husbandry, local crafts, sitting on the ground to socialise and to eat. Territory and functional space is therefore an important aspect of their expectations in housing. For those living in apartment blocks, the land is inaccessible. This makes the form even less appropriate in Libyan society than in the West.

Outer space in these areas is poorly organised. Cars are the main users here, not people. The central asphalted area is intended for parking. Although there are marked boundaries, the author noticed that these are not always respected. People like to take their cars to the entrance of the houses, particularly when they are bringing back heavy goods or shopping. It is unpleasant and dangerous to stay long, particularly for youngsters or the elderly. People are pushed back into their houses to carry out their activities and cut off from outside contacts.

Poor maintenance and substandard materials and workmanship mean that often lifts do not work and dangerous shafts create hazards for children. Stairs are sometimes not made to standard causing accidents, so that the old or very young are discouraged from using them. The grandparents of families in these areas find it difficult to visit for the above reasons and people, therefore, find themselves isolated from the clan. Maintenance problems will be expanded on later in this Chapter.

Large family size means that considerable stores of food are required. These must be carried laboriously to the higher levels. Some families have contrived pulley systems from the window to ground level to help them but it is still a tedious and awkward task.

In handing over design responsibility to foreign contractors, the government allows a free hand for experimentation or for careless application of forms

used in other geographical and social contexts. In a speech reported in *The Daily Telegraph*, December 3rd, 1987, Prince Charles told an assembled group of architects and town planners,

Architects and developers have the wrong kind of freedom, the freedom to impose their caprice, which is a kind of tyranny.

His comments referred mainly to recently constructed public buildings in London which were visibly offensive and inappropriate in their settings. How much more tyrannical the imposition of a housing form whose experience for the occupant is restrictive and alien.

6.5 PUBLIC LOW RISE BUILDING

Low rise buildings provided by the government were first introduced by Doxiadis for the Idris project. Initially they were intended for government officials who had previously received a housing allowance. However, the Plan took so long to implement, that many of the originally chosen tenants had long since found alternative housing or moved elsewhere.

The government continued to build in this style using slightly smaller units. Some are equipped with garages and small gardens. The varying quality and size allocated, depended on the relative wealth of the family rather than the number of its members.

They are built on a grid pattern, crossed by main roads. Houses give immediately onto the pavements and roads, and are of standard form regardless of orientation. Windows look out onto the street. Construction is of brick and all are on one floor with no parapets or stairs.

One scheme in the centre of Misratah and one in Tawargah, on the

outskirts, were chosen for this study.³ The houses in these two areas are the same although it is worth noting that no house is now as it was when built in the mid-70s. Makeshift alterations will be looked at later.

6.6 MISRATAH SCHEME

The scheme in Misratah is surrounded by main roads, and separate from other houses, like an island in the city. There is no open space, no landscaping, no children's play area or gardens. As in the high-rise area, there is no natural gathering point such as a local shop or mosque. People in this area are unrelated. There are no kinship links and no identified leader like the Sheikh Mahallah to unite them.⁴

Observations

(i) Morning activities. Workers leave quickly for the city. Children play on the pavements but this is discouraged because of danger from the passing traffic. If women appear outside they move quickly into neighbours' houses or out of the area.

(ii) Midday. Returning from work, the men go straight to their homes with almost no interaction. The street is asphalted and there is no comfortable or shaded place to sit or for children to play.

(iii) Evening. People go into the space but because there is no place to sit and nothing to hold their interest, they do not linger for long. Cars pass through quickly. Some men work in their garages or stay indoors with their family. Others make their way to the city centre. Those who stay outside

³See Physical Information plans.

⁴See Physical Information plans and histograms for the Misratah scheme.

gather at public places, like cafes, to chat for a while. They are discouraged from staying too long in other spaces because they do not want to disturb people. There are few excuses to stay long. They have no animals to tend, and few manual tasks to do.

6.7 TAWARGAH SCHEME

In the Tawargah area, the houses and roads are the same as in the scheme in Misratah but the space is more lively. People were moved here from one traditional village which was on a prime agricultural site. They are all related and from the same tribe. The scheme is surrounded by open land, now used for a government agricultural scheme which provides work for the residents.

Although private outside space has not been provided for them, they have made their own semi-private areas by blocking off the pavements in front of their doors with ladders or closing one side of a road to allow children to play safely (see fig 26). People recognise that these areas are not for public use and respect them (see figs 28,32,33).

The Sheikh Mahallah knows all the families and helped the author in his research and in gaining access. There is a new three-storey block in the area used as a school. Overlooking from this does not disturb the residents too much because it is their own people and children who use the school. The author was able to use this as a vantage point for observation.

Residents in this area have brought their animals with them despite the fact that there is no provision for them (see fig 32 & 34). They are kept in garages or tethered outside houses. People like to keep their traditions of slaughtering animals on special occasions and feeding them with left over food, believing that waste is a sacrilege.

6.7.1 Observations

(i) *Morning activities.* Men go to work and children appear in the space to play in the semi-private areas. Women go out to clean the pavement and chat. Passing cars disturb them but they know all the families so there is much less intrusion than in the other modern schemes. Animals are tended and there is a relaxed atmosphere.

(ii) *Midday.* The space is not busy. Workers come home and go into their houses. There is no place for them to stay out in the hot sun. Some stop a while to chat with neighbours. Residents here have chosen the units they wanted and arranged to be close to family, this makes them very friendly with their neighbours.

(iii) *Evening.* The pavement or the shelter of a parked car are used as sitting areas for the men. Children play and run to and fro. There is nothing to provide entertainment or a focus for attention and activity, but groups gather to sit and talk for a while. When darkness falls the space empties again.

(iv) *General.* From the histograms (Misratah scheme & Tawargah area) there are obvious differences in the levels of activity manifested in these two areas. The author will examine why this should be and look into difficulties and disadvantages expressed. Activities which were not displayed will be mentioned to see if they are missed by people and why they are no longer possible. Alterations carried out by residents will also be examined and the reasons for these discussed.

6.8 GENERAL FINDINGS

The study has shown how the traditional courtyard house reflected the family structure and income as well as giving them scope to develop with their society. Having charge of the building of their homes meant they catered for

how much or how little was required by way of space. They erected barriers and rooms which suited their family size and needs for seclusion. The house was part of their family and the family was the soul of the house.

Families moved to the new areas we have looked at here come from the poorer, less advantaged sections of the community. They are better off in terms of sanitation, hygiene and facilities than they were in the courtyard areas and in the tent villages. However, the bond linking family and home seems to have been lost. These areas are soulless and lifeless. Even in terms of modifying the climate, the new houses are far from ideal. M. Danby further justifies this finding when he states:

The Arab house does produce better internal environmental conditions compared with its modern equivalent. (*The Arab House*, 1984.)

To personalise and increase the comfort of their homes, people have made alterations of their own, although these units are not easy to adapt or manipulate. Sometimes, extra windows were noticed where occupants attempted to catch a favourable cool wind. In other houses, windows were covered to give greater privacy (see fig 18-19-39).

Modifications did not usually have an obvious explanation but, when asked, the owners always gave reasons. Often it was for privacy, but they also expressed the wish to change the space in order to make it more flexible (see fig 17). These are simple people and did not learn their ideas from books or schools. They used their instincts for what was right for them, their dependants and their social lives. More changes were apparent in low rise areas, the high blocks being far more difficult to modify.

In the areas where the occupants are from different tribes, unrelated and unknown to each other, they have no agent such as the Sheikh Mahallah to

unite them. They prefer to go back to the Sheikh Mahallah in their original village if problems occur.

Lack of suitable space, and the fact that the men all work in different jobs in the city centre, make mixing and getting to know neighbours very difficult. Women are not happy to go out because the area is open to passing traffic and very exposed. When people want to go out they go to the city centre, to the cafes and clubs or back to their own areas with which they still have a strong affinity. In these places, they feel relaxed: in the former because of the anonymity they offer and in the latter because they are with their own people.

Another noted factor was the extent to which people miss their links with the land. Some have brought their animals with them, even to the least suitable locations. The author has witnessed the death of a sheep which fell from the balcony of a high rise flat. There was also a case reported of a family in the middle of a high block who complained of rain leaking through their ceiling. It was not a rainy day, but on investigation, it was found that the occupants of the upstairs flat had turned one room into a garden with sand and soil and were watering their vegetables. These tales have their comic side but are finally a striking and sad comment on the incompatibility between form and the occupants.

Privacy has already been discussed in the study and its roots in the culture and religion of the people. The indigenous houses were able to provide an unobtrusive and natural form of segregation so that members of both sexes could enjoy their activities freely and unselfconsciously. There was a clear understanding of where and when events could occur. The narrow streets of these traditional areas minimised passing traffic and the intrusion of strangers and the close bonds between neighbours belonging to the same clan, led to a comfortable co-existence between them.

Changing times have produced a change in the nature of privacy needs, as discussed in the concluding remarks of Chapter 5. Young people now want individual privacy from the extended family. New brides want new homes and feel they will have more freedom if they are in a separate house, away from parents and in-laws. Young men are tempted by the easier routine and steady wages of a city job. They want to have a separate identity from the larger clan group.

The breaking away from the clan means they lose the security and support they once enjoyed. Women have to do their daily chores and bring up the family unaided and men cannot rely on relatives for help with any maintenance or repair jobs.

Public areas of housing are known as "Sha'Beah" (public), a word which is used in a derogatory manner. The new schemes have gained a bad reputation because, without the controls of the extended family, they are regarded as places where people relax their sense of responsibility, their duties and their adherence to proprieties. Residents do not have to care what they do or who sees them because neighbours are unrelated. Although this is a perception rather than what may actually be the case, it is still a problem in that the notoriety it engenders does little to instil pride in the occupants.

Those who move from traditional areas see the new houses as stepping stones to greater things. For this reason, the study has referred to them as transitional areas. They serve the urbanising sector of society. Having moved into what they think of as luxury compared with their lowly habitations in the country, they find they have to make considerable unwelcome changes to their way of life. They have to sacrifice things they had taken for granted which suddenly gain value, such as their animals and land, close bonds with the community and shared activities, but particularly, privacy and the feeling of

belonging.

Inside and outside the courtyard house, territorial rights were understood and respected. In the new houses the room layout makes any socialising awkward; men and women cannot enter or move about easily because they are inhibited by the lack of segregated areas which they know are "safe". Outside there is no private or semi-private area; no land the family can call its own.

In making alterations, people are willing to sacrifice light and ventilation if it will increase privacy. They do not mind if the space looks untidy as long as their barriers will prevent intrusion (see fig 20 & 39). The authorities are powerless to stop these changes.

The dramatic change from an inward looking house to an outward looking one is the main problem. All homes open directly to the street affording no protection and no soft interface between private and public. The people try to create this interface by artificial means (see fig 31).

Along with the need for privacy, the desire to mark off territory creates the greatest number of makeshift alterations and modifications. The study revealed that when people passed neighbouring homes they walked in the road rather than on the pavement because they knew that psychologically people feel the space in front of their homes should be kept private (see fig 35). The author notes many attempts to reinforce this message by the erection of barriers such as shelters, ladders or wood on the pavement. This identifies and marks off territory and leaves no doubt that trespassers will not be welcomed.

Other modifications to stamp identity on property or to personalise it are difficult to make because of the bare, harsh facing of the walls. Doors are painted in favoured colours but otherwise there is little else people can do. There is nowhere for them to grow vines or palms or to carry out any major

decorative work.

With regard to personalization there is evidence of almost desperate attempts by people to do just this. (A. Rapoport, 1967.)

Modifications within the house are less easily achieved. The form is too rigid and the space too confined. The difficulty in forming social links within the community is further hampered by this inflexibility of space which makes any gatherings or entertaining very difficult.

Raymond Preston Brownwell wrote in 1977:⁵

...it appears that there is a basic human need for privacy and that the individual must be able to have the enjoyment of his dwellings, his own personal space, without a sense of unwanted intrusion by others. House and layout design must easily permit a choice of social participation or withdrawal.

It is this choice that is lacking. The houses are claustrophobic and the space agoraphobic. The outward facing aspect inhibits any possibility for casual encounters in the space. People do not like to linger in front of the homes of their neighbours because of the disturbance it will cause. They are strangers to each other.

In Tawargah these problems were identified as less severe. Because all the community were from the same tribe, they were less reserved and used the space more frequently. They clearly understood when and where they could venture out. The area belonged to them, and they were not thwarted by the roadway to the same extent as in other modern areas. For major celebrations, they put up large tents in the space in which to gather.

⁵Brownwell worked in Libya in the early 70s with architects Robert Matthew Johnson Marshall. His thesis was concerned with a comparative study of modern public housing in Tripoli and in Edinburgh.

In the high rise areas, however, the problem is far greater. Scope for alterations is very limited. One only has a doorstep and not even an area of pavement. People do not like to let children go out as shown. Mixing socially is very much more difficult and isolation has become a new feature of their lives. For traditional activities and celebrations they return to their former areas, regarding the new house as a second home.

New tables in the modern units are set aside so that the family can eat sitting on the floor as they are accustomed to doing. Chairs are also abandoned to give more space for children to run around and play. Burns and accidents occur because people are not used to new electrical or mechanical household aids.

Family and social problems have occurred in these areas because of the lack of community spirit and difficulties in making friends or going out. There has been a rise in the crime rate, accidents in the road and frustrations caused by the isolation. There is a low level of respect between people which further increases the tension and means the area becomes quickly run down and poorly tended. Rubbish builds up and dirt from animals collects.

6.9 MODERN PUBLIC HOUSING IN RESPONSE TO CLIMATE

In the new areas where there are high rise flats or houses with no courtyard, people spend most of their time indoors. As already described the space outside is asphalted and offers no comfort and there are no vines, trees or gardens provided where shelter from wind or shade from sun can be found.

Houses and streets are constructed on a grid pattern with no thought for prevailing winds. Some homes will be directly in the path of hot sand-bearing blasts and others will receive cold winter winds. The streets are too wide to afford protection and the lack of landscaping leaves the space exposed to the

elements.

Roofs and walls are constructed with 15cm reinforced concrete blocks. These are far too thin to keep out the heat in summer or cold in winter. The tiled floors inside the house were also mentioned by people as being uncomfortable in winter, particularly for young children playing on them, or people sleeping and eating. This disrupts their normal habits as they have to make raised platforms for mattresses to sleep on and eat sitting on chairs. Some referred to their homes as refrigerators in winter.

Air conditioning is not supplied with these units although it is required. It is very expensive to purchase and difficult to maintain or to get new parts for. Apart from the cost for these low income families, it is noisy and disturbing for them when fitted. They feel awkward about having vents to the street blowing their hot air out to where neighbours may pass. Observations showed that, in locations where there were vents, people did not stop. Suspicion that it may be dangerous because the artificially cold interior may make them suffer more when they go out was also expressed.

If a family does get an air conditioning unit they can often only afford to have it in one room. They choose the public room but there is not enough space here nor is it practicable for everyone to use it all the time. Finally, running costs may prevent them from using it, or the fact that the electricity supply is often overloaded when it is operating.

6.10 MAINTENANCE

In the areas studied, many difficulties and problems with maintenance were noticed and remarked upon. When the units were constructed they were bright and clean and the area was tidy. Many factors have combined to cause them to look run down and neglected.

It has already been mentioned that the families are not well off and that they regard these houses as a stepping off point to a better life. They do not want to spend money on upkeep. They may paint inside but little else is attempted.

When they move to these houses, their old furniture moves with them from the traditional areas. This is inappropriate for the modern houses with their bright white walls and small interior space. Families tend either not to notice that walls become marked and dirty or feel that this suits the furnishings better and so they don't make any repairs or decorations.

Women sometimes ignore new cookers because they do not understand how to use them or find them inadequate. They revert to traditional methods which quickly cause a build up of condensation and mess, as well as causing damage and being potentially dangerous in the confined, enclosed kitchens.

Materials used in construction were not good quality. Tiles crack, steps break, taps and bathroom fittings fall off or become damaged. When this happens, people cannot afford to repair them and finding replacements is virtually impossible. They were originally supplied in bulk for the units and are unavailable in the shops.

When electricity circuits are overloaded and burn out they are replaced with external wires and unsightly new channels. Similarly, pipes which have to be replaced are left uncovered and exposed and the surrounding area patched up.

No attempt was made to educate the new occupants before they took up residence. They are often unfamiliar with the kind of fittings they find in the kitchens and bathrooms and damage is caused through misuse. Toilet seats and bowls are broken, taps come off and pipes are blocked up. The author saw several examples of broken taps bunged with wood and left unused because

the owners could not replace them and were unable to repair them. Waste and water pipes were not designed for the level of use to which large families will put them. If they break outside the house they will be left because no one takes responsibility for them. The space, therefore, becomes muddy and unhygienic.

The erratic water supply led people to say to the author that they would prefer to have a well in the space where they would always be able to collect water for their needs. Despite their modern surroundings they often have to use traditional methods to make their lives bearable.

Because the authorities have handed over ownership, they wash their hands of any further involvement in the area. There is no one to take charge of cleansing, rubbish collection, general upkeep of the house exterior, or the space. As the deterioration worsens, the image in the public eye also becomes further tarnished. Lack of pride, which was mentioned earlier in the chapter, means no one cares enough to upgrade their property. They are only passing through. This also ties in with the feelings of not belonging which are discussed in the section on territory in Chapter 7.

Lack of space inside the house and lack of garages or sheds leads people to use the roof for storage of old furniture or animal foodstuffs (see fig 27, 33). Rain water collects in these and seeps into the house, causing damage and damp. Sometimes a water tank is put on the roof, usually because water pressure inside is too low. This spoils the skyline but also, more seriously, causes damage to the ceilings which were not designed to carry heavy loads.

In similar areas in Britain and America, the same conditions apply and poverty means that maintenance is a low priority but there are at least, building controls which prevent the haphazardous erection or destruction of walls, or the relocation of wiring and pipes. In Libya, these controls do not yet

exist. There is nothing to prevent people from making crude alterations without any consultation.

Discussions revealed that the 'look' of the area was secondary to the fulfilment of needs. Families were willing to sacrifice aesthetic considerations to gain greater privacy, comfort and space. However, during the interview it was clear that maintenance problems caused them great distress and frustration.

Although the area examined in the case study was built in the early 70s, problems of maintenance continue in newer schemes. In 1987, The People's Committee for Utilities of the Municipality of Misratah commissioned Robert Matthew Johnson Marshall & Partners to carry out a report on a new scheme at Wadi Bey near Misratah started in 1983. The development included 200 public housing units, a school, a mosque and supermarket. It does not require expert knowledge to see from the photographs the kind of deterioration that had taken place. Walls and fences showed sizeable cracks, some repaired in a makeshift way and with little success (see fig 41-42-43).

The survey's findings were that insufficient initial testing of the site had taken place resulting in foundation work which was not suitable for the terrain. There were also several design faults which were not picked up at the building stage.

This is an example of how hastily and cheaply constructed projects finally involve the authorities in greatly increased expense for maintenance and repairs and give rise to dissatisfaction and disaffection from the occupants who see their homes literally falling to pieces. Windows are often broken because frames swell as the temperature changes and become stiff to open. These are often left unrepaired due to the expense of replacement, or they are covered with wood preventing proper ventilation.

Prior to construction there was no detailed examination of the soil on the sites. Some sites had different soils and many houses now suffer from cracks in the walls due to settlement. The extent of the damage is frightening for residents and beyond their abilities to rectify. Damp seeps in through the cracks and causes further damage to paintwork. This is also potentially a health hazard as well as an eyesore.

These problems are not solely confined to Libya although problems of supply and of basic skills tend to make the situation harder to deal with there. The section on new court housing in Prestonpans showed how the success of an area could be seriously affected by poor maintenance or low quality construction leading to maintenance problems. These are therefore universal considerations for any form of housing in any area.

The following section will look outside the physical structure of the areas to examine how people have responded to the space and what effect the new environment has had on their social and family lives. Information from questionnaires and observations will be supported by charts showing levels of activity.

6.11 GENERAL PROBLEMS RELATED TO SPACE

Compared with levels of activity noticed in traditional areas, the space in the new public housing areas is very quiet. There is less use by all age groups and sections of the community. Children have the highest rate of use but this is well down on traditional areas. How then do people entertain themselves and what are their leisure pursuits?

The term 'leisure' is used here to refer to what people choose to do with their time after normal daily work is finished. There is in general, considerable variation from group to group and from person to person depending on level of

education, background, age and interests. In a community with strong roots where all are connected, interests overlap, mixing is easy and there is little chance of any differences causing offence. The people understand each other and know the levels of toleration and the limits to which they can go. This makes shared leisure in traditional areas easy. Families in the urbanising sector have left their roots behind them. In their new location, they find themselves among other rootless strangers with different backgrounds.

As has been mentioned, they are generally low income, rural families with a poor standard of education. The lack of suitable areas for hobbies or pastimes in the space means the men go to the city cafes to socialise. Alternatively, they will often have videos and televisions which help them pass the time indoors. Telephones provide an easy means of communicating with distant family and friends. Those fortunate enough to have cars can escape back to their villages to relax. Thus meeting and socialising with neighbours is minimal. An additional element in Libyan society is a natural wariness of strangers due to the troubled political climate. Free expression of opinions to strangers is best avoided.

The new units are fitted with entry-phone systems which allow the women at home to know who is calling without having to appear at the door. However, for the men, this is unwelcoming and does not encourage contact.

For the women in these areas, life is easier in some ways. The new homes are cleaner and electrical appliances cut down the tedious household duties. They are near enough the city to work but society is still strongly inclined to frown upon working wives.

The authorities have not provided any outlets for them to work locally, to continue their traditional crafts or to obtain further education. It is difficult for them to keep up with their modern husbands. The men use the house as a

hotel to sleep in and eat their meals. Loneliness and isolation are becoming increasingly evident. Western society has already recognised these problems in modern housing and particularly in high rise blocks. "...Mothers isolated in five to eight storey deck access blocks exhibit relatively high rates of psychiatric disturbance..." (M. Goodman, 1974.) The possibilities for them to socialise in a Muslim society in this kind of environment are even more limited than in the West. It has already been explained, in the chapter on culture, why women cannot use public space freely. In these areas strangers are constantly present, passing in cars or looking out from other houses.

Observations in the traditional areas show that elderly people use the space a great deal and stay a long time. Their presence helps others to meet and mix, they can make introductions, break the ice between people and encourage people to join them. Design and space arrangement in the new schemes does not consider their needs. If there is no comfortable space for them to sit, they use the pavements, but it is often too awkward or uncomfortable for them. They feel less useful because their role as watchers and guardians of the open spaces in traditional villages is no longer required.

The little walks they once could make between their homes and the local shop or mosque are no longer possible. These places are now too far away and involve negotiating traffic-filled streets. In high rise areas the difficulties are increased because of the dangerous stairs.

The most worrying problem however, is with the children. From Jephcott, Pearl, with Robinson, 1971:

Children are more deeply affected by the environment than any other age group. They may be psychologically and physiologically harmed by constant restrictions on their play and movement within it.

The study showed how, in traditional areas, children used the outdoor

space freely, coming and going between houses with very little restriction. The adults in the space controlled them but they could play, explore, and learn without danger to themselves or annoyance to others.

With no play areas marked off in these public schemes, there is no safe place for children to go. Families discourage mixing with strangers and no one can sit and watch them to ensure safety and good behaviour. The area is not clean, the surfaces are hard and traffic is a constant hazard.

Inside the units there is insufficient space for play. A couple may have as many as 9 or 10 children and the mother has sole responsibility for caring for them. She has no choice but to restrict their activities to areas which are safe and where they can be seen.

The homes have new hazards - gas bottles and electrical gadgets. The rate of accidents in the home has greatly increased. Balconies in the high rise blocks are another potential danger and have already claimed lives. Stairs likewise are dangerous for the young... Mothers dare not leave their children unsupervised and can only work if they are all at school. "...young children living in high density areas, run two major risks: loneliness and the perils of motor traffic". (Lady Allen of Hurtwood, 1968.)

Older children who use the outdoor space soon learn that lack of control gives them greater opportunities for mischief. Vandalism and the appearance of graffiti have given the new areas a notorious image. People do not want to bring up families there. Patrick Geddes stresses the importance of providing young people with natural unstructured space in which to expend their energies and states that

it is primarily for lack of this first-hand rustic experience that we have forced young energy into hooliganism; or even worse, depressed it below that level. (Geddes, 1968.)

Frustration leads to disruptive behaviour and lack of control increases outlets for it. On one hand there is too much freedom and on the other, too little. Thin walls means noise can be a problem and activities indoors have to be restricted. "Several studies show that lack of auditory privacy causes parents to restrict children's indoor play severely. This may limit outlets for aggression and creativity, leading to tension between children and irritable adults and encourage sedentary, passive activities such as TV viewing" (Canadian Journal of Public Health 1962, Cappon, Daniel 1971, "Mental health in the High Rise").

These problems are new to Libyan society but are having the same effects as in Western countries with the breakdown of family life, increase in crime and damage to property as well as the mental damage it causes to both children and adults.

In the traditional areas the young children followed their mothers and learnt from them or played in the space watched by elderly relatives. As they grew up they started to go with their fathers, helping with chores as part of their play. They learnt respect without having to be severely disciplined. The difference in their behaviour in the urban space is very marked.

The study will now move on to examine how the people in private schemes have reacted to their new surroundings and how their homes meet their needs. Use of space and level of activities will be examined as well as the response to climate and culture.

Although the study aims to find recommendations for low income families in public housing, who cannot afford to build for themselves, the investigation

of new private housing may teach us how those able to build for themselves have solved some of the problems highlighted above.

The strong unifying forces of culture, religion and traditions shown in the opening chapter have failed to provide a bond in the public areas. We have now seen some reasons for this breakdown, but can the private sector provide some hope of maintaining the stability of society in catering for family and individual needs?

6.12 PRIVATE HOUSING

Fluctuations in the oil price affecting the economy have led to varying rates of expansion in the private sector. After the discovery of oil, there was a rapid increase in building which continued into the first years after the revolution. However, the new regime soon began to discourage private enterprise and nationalised foreign and local trade. Workers took over the running of private companies and factories and a new law in 1979 forbade an individual from owning more than one house. Restrictions in individual wealth and the impossibility of building additional properties for rent halted the building boom in this sector.

Private housing areas chosen for the study are those used by middle income families fortunate enough to get a mortgage from a bank or building society. These are given without interest to people with regular steady wages who do not already have a suitable house. They will then require a plot of land and, finally, a government licence to build.

The area chosen is Arrouisaat. Houses here are not luxurious and were chosen by the author to try and show how people with choice can meet their cultural needs and how their houses cope with the excesses of climate described earlier. It is typical of private schemes throughout the city which are

on land set aside for building and contains moderately priced plots.

Land in this area formerly belonged to individuals who could not use it for agriculture and were not permitted to build additional houses on it themselves. The government bought it from them and divided it into small plots, laying out roads and pavements and providing lighting before reselling it for building.

Lack of local architects and experience means that most houses are of a similar basic design. People copy each other because they do not have access to alternative ideas. No detailed study of these areas has yet been conducted.

Licences to build here are easy to obtain. The Municipality has designated them as housing areas and not for agricultural use. They prefer that people move here because they have control of roads and lighting.

In the traditional areas, land is kept for agricultural use and licenses are difficult to get. The authorities have less control here to ensure that standards are maintained when construction takes place. Many people are, therefore, left with no choice but to move to the city. A traditional house is usually owned jointly by family members so one member cannot demolish to build a new house. The city sites are attractive to them because of access to jobs and facilities.

Many plots of land on the same site may be available at one time. The Municipality informs prospective buyers of the identity of owners already in situ and allows a choice of plot to ensure compatibility. Groups even move together from one area bringing harmony with them. This is a great advantage compared to the public areas where a house is allocated with no choice and people find themselves living with neighbours who are strangers. For young people, private housing is an attractive alternative to the public sector. It means they can be with likeminded people. They are committed to their new

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homes and do not regard them as transitional. Pride is strong and there is a more caring attitude to the properties. The ability to be close to families who are related or of similar backgrounds makes them friendlier and more close-knit communities.

Use of land for building is a problem for the authorities. As stated, agricultural land has to be protected but, in Misratah, other difficulties have arisen due to the proposed construction of a rail link from the south for the new steel complex. The precise siting of this has not been decided but the route is roughly understood and houses in its path cleared, the land being left unused. A similar clearance occurred at the air training school which is to be expanded. People from these areas have to move to the city sites.

The rapid growth of the city and need for a modern communication network has been examined in a previous chapter. These factors put great pressure on the authorities to find land for building.

The study area is mainly occupied by people whose traditional village was demolished for a new roadway. They have not had to move far and have kept their old neighbours. They still have a sense of belonging to their own area which helps to make it a very successful community.

Layout here is on a grid system divided by wide roads with pavements. Space is left to use for gardens. There are also shared parking areas provided. The sites are attractive to people because of the facilities provided, the ease of obtaining cheap land and the speedy allocation of licenses.

6.13 REGULATIONS, CONTROLS AND LIMITATIONS ON PRIVATE BUILDING

In order for a licence to build to be issued by the Municipality for one of the plots mentioned above, drawings of the proposed structure must be submitted to, and approved by the Municipality. The author worked for several

years as Head of the Planning Department, part of whose responsibility this is.

Their definition of a suitable house is one which provides utilities for one family. There must be a kitchen, bathroom, provision of water and an electrical supply among other stipulations. The courtyard houses in traditional areas have been victims of this definition because families wanting to be rehoused will quickly receive a certificate to demolish traditional homes which do not meet the standards (see fig 65,66,67 - example of Certificate is found in Appendix). It is not that the authorities are against courtyard houses in particular, but consider them unfit for habitation if their conditions are not met. An earlier chapter has shown that they are generally in a run-down state lacking in modern amenities.

Specific rulings laid down require that the rooms of new houses have openings to the outside. If a house has other units built against its walls, the owner will have to include an unroofed area called a "manwir" to give light and ventilation. These manwirs have to be at least 3x3m. Some houses may need two of these areas if surrounded on three walls. They are purely functional and not intended for social purposes like the courts of traditional houses. The front wall of the new house has to be at least 4m from the centre of the road so that sufficient space is left free for traffic and pedestrians.

Additionally, it is stipulated that houses should not overlook neighbours. Windows are positioned with care and upper floors only allowed when unlikely to inhibit the privacy of others. Roof areas to be used for sitting or working have to be provided with parapets.

If these conditions are satisfied, the Department will ensure that the plan fits the site and a licence will be granted. This allows the owner to obtain a mortgage. From that time he has six months in which the licence to build remains valid. He must inform the authorities when he is ready to build so that

they can carry out their duties to provide electricity and water. Documents for roadway rights also have to be completed. A Certificate of Completion is issued when building has been finished and the work inspected.

Although government policy is based on a socialist philosophy, in practice it is the wealthier members of the population who benefit when asking for a bank loan or mortgage by being given greater sums than lower income families. Moreover, those with higher incomes can afford to have the better designers, materials and expert help. Their homes reflect their status.

It is only very recently that indigenous architects have been available. Their experience is in modern structures only and they are generally employed on large scale government projects for industry, hospitals or schools. There is, therefore, very little interest in small private ventures and people have to turn to surveyors to provide plans for them. These people have no training and limited experience.

As an alternative, the Technical Department of the Municipality can provide blueprints for prospective builders to use. Licences will be automatically given for these plans because they are already approved and the relative ease of this choice makes it attractive although naturally very limiting.

It is common for people to copy what has already been built. They have no one to turn to for advice and innovation is avoided because of the fear that untried designs may prove problematic both for builders and for future use if design faults appear. As we saw, formerly the owner would also be the designer and builder, he would be fully in control. Now, due to legal necessities, the authorities have to be involved and outsiders take decision-making out of his hands. To avoid any error it is easier to stick to tried and tested designs.

Severe shortage of materials is another limiting factor in design. Having decided to build, the family may begin to purchase materials as they become available before a design has been produced. The drawings will then have to fit the bricks, wood, tiles and steel which the owners already have. These materials come in standard size and are unlikely to fit new or imaginative plans.

Often it is necessary to rely on foreign labour for the more complex building operations. Inevitably, these workers, often 'moonlighting' from government projects, bring their own ideas of construction. The owner has no choice but to go along with their recommendations. They are not able to use traditional materials because they do not understand them and they are, in any case, extremely difficult to obtain.

The standard brick size for inner walls is 15cm thick (see fig 59). More substantial bricks, if available, can be used for outer walls. Window sizes are also standard so that the owner cannot have small openings to the street or on southeast facing walls but has to have the size provided on the market (see fig 80,82).

Where the owner does have choice and the authorities do not exercise control is with decoration and elevation. People personalise their homes by using different colours for woodwork or plaster and stamp their identity by using doors of varying designs (see fig 83,85).

Generally, the first stage of construction is the outer boundary wall. This relatively simple structure is found in a variety of styles. It marks off the site and protects it, giving the authorities the opportunity to complete the pavements.

In order to save money from the mortgage for the purchase of luxuries,

furnishings or a car, some owners may use the cheapest materials possible. The authorities have no control over this, and, once the building has begun, do not check on its progress. Some outer walls are left unfinished for the same reason, which gives the area a poor appearance (see fig 73).

It was noticed that many units had an incomplete appearance, left that way intentionally to allow for future extensions as the family expanded or money became available. People like to have this potential to build additions as their needs dictate. It gives them freedom and the feeling that their home will always meet the changing requirements of their family.

Either for financial reasons or because of labour shortages, many owners carry out the simpler building tasks themselves. Jobs such as digging foundations and mixing cement are shared by neighbours. They use each others' tools and equipment, electrical and water supplies. This is beneficial in creating an atmosphere of co-operation and makes a good start for social contact in the area. Involvement in the building process is also psychologically a way of making the owner feel part of his home, and giving him some control and pride.

In the public areas which the study investigated, foreign companies called in to build or advise, with no background about the society, have failed to meet people's needs. The private owner who can choose his own design often has no skilled help in construction from the local population and sometimes is thwarted in his desires by inappropriate plans. Materials used in both areas will be the same because nothing different is available. However, the private areas are more attractive and better maintained because there is a degree of choice and of participation giving people a feeling of belonging.

The study will go on to examine some of the social aspects of the space in these areas to compare them with the public areas seen in the previous

chapter.

6.14 GENERAL OBSERVATIONS ON PRIVATE HOUSING

The great advantage of private areas is that people can choose their land to be near people they already know or who are of the same clan or background. Social contact is either already established or can start easily at the building stage when the construction work draws neighbours together in co-operation.

Although the walled gardens absorb much of the outdoor activity and have to be used by youngsters because of the danger of traffic on the streets, there are often vacant lots where men can gather and sit in comfort to socialise. These can also be used by children, but no area is specifically set aside as a playground.

Women pop in and out of their houses in the mornings to watch the children, looking for excuses to use the space. Cars passing make it difficult for them to stay for any length of time. Drivers do not give respect to these areas because the roads are wide and straight, not indicating any degree of privacy or territorial rights for the residents.

The garden walls create a hard interface between public and private space. This is not a welcoming sign for visitors and the men in the gardens cannot interact with people passing outside. Neighbours cannot climb the walls into each others' gardens as they do not know who might be there. Both men and women use the front and back gardens.

People mix more easily here than in the public areas but are given little encouragement because of lack of facilities. There is nowhere to keep animals, no local shops or mosque.

Private ownership gives people greater pride in their homes and their area,

and maintenance is of a higher standard than in public housing schemes although the units themselves are not radically different. Small repair jobs or painting give people a reason to be outside and to interact and also helps the appearance of the neighbourhood. Neighbours respect each other because these homes are seen as permanent rather than transitional. Residents are here for life.

6.15 SUMMARY OF SURVEY

Information gathered for the opening chapters on culture and climate has been used in conjunction with observations on the ground to give a comprehensive analysis of housing in various sections of the chosen area.

The findings from the survey demonstrate that the traditional areas, despite their lack of amenities and their run down condition are more lively and more integrated than the modern public and private areas. Deterioration of property and raised expectations due to the improved economy naturally lead people to desire rehousing. For economic and legal reasons, as described in the section on mortgages and the role of the authorities, it is easier for families to migrate to new city areas than to stay in their own villages. Very often this means spending at least some time in the transitional sector of public housing.

From the observations and interviews it is clear that public housing falls well short of people's expectations and that new private areas, although more satisfactory in that there is a higher level of choice involved, are still not meeting the needs of occupants.

The author does not wish to claim that busyness in itself is a criterion of success. The activities which were observed are governed by deep cultural and religious instincts. Privacy, segregation, family unity and hospitality only become 'problems' when they are not catered for. As far as society is

concerned these are subconscious and natural aspects of everyday life.

Influences upon the courtyard house and its development have already been discussed. The recent economic changes in Libya bring the next phase of housing evolution, but because the people have lost control and decisions are taken on a greater scale by outsiders, development has turned into destruction and the introduction of alien forms.

It is apparent to any observer that a courtyard house, looking inward, does not encourage intrusion but hugs the occupants and protects them from the outside gaze. Conversely, new houses are open to the streets and closer to the public domain. The study of Libyan religion and culture makes it clear that the latter is an unsuitable form in this society. However, it is also apparent that the traditional form fails to meet other needs.

The first job of the designer should be to establish who will be the potential users of the house and what their activities will be. Taking into account orientation, siting and climatic considerations, he should then allocate areas for the users and their activities and manipulate them to ensure that there is no clash of purpose or of needs in the spatial structure. Only then should he begin to think about division into rooms.

The relation of social and spatial structure is mediated by norms, shared rules and expectations not only about what is to be done but even more frequently on what is not to be done (Rapoport, 1969).

6.16 SPATIAL STRUCTURE OF TRADITIONAL AND MODERN HOUSES

Observations from the case study have shown that the spatial structure in traditional villages and courthouses appears to work well for people. To find out whether there is an optimum layout of space, the study will take a more structural view of how levels of space operate to minimise intrusion and

maximise contact.

Hillier provides a useful means of visualising spatial structure. Aspinall, (1987), pointed out that Hillier is concerned with more than simply visual experience of space. The new house may be attractive, bright, well fitted and new, but Hillier is concerned that the space in which we live has consequences which are more important than the home's or area's appearance. "The uniqueness of buildings is their organisation of space, which is done for social reasons. Buildings have therefore social purposes built into their form." (P. Aspinall, 1988)

We have now seen how space is used by people in traditional and modern areas and established that the modern areas make it more difficult for people to achieve the high levels of segregation and integration that they desire. The physical information plans, histograms and notes produced, using Jan Gehl's method of observations, clearly show that activity is longer lasting and involves more people in traditional areas than modern and that women, in particular, do not use space in modern areas. Such studies can only be carried out after a built form has been imposed and used. Only when we see how people use the space can we say whether or not it is appropriate. "Spatial structures relate to social structures". (P. Aspinall, 1988.) At the design stage, a certain amount of guesswork is required to try to picture how people are likely to interact within the proposed structure. This has therefore meant that the examination of space has been somewhat limiting as a design tool.

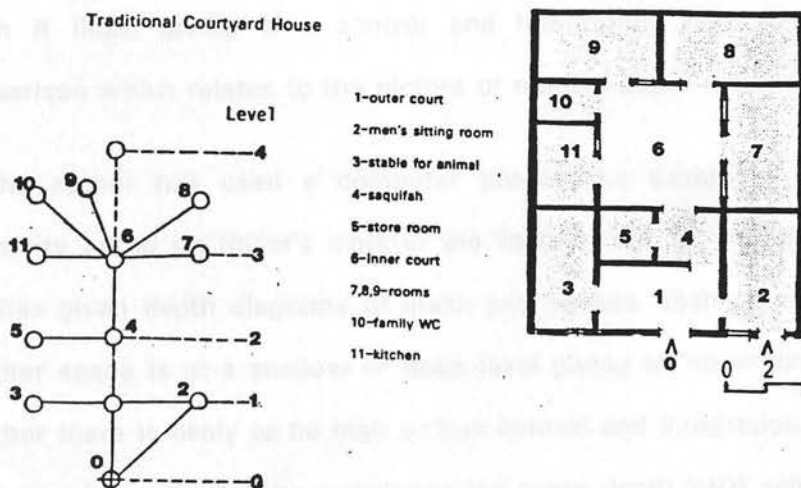
In order to reinforce the argument that space of traditional houses is more appropriate to Libyan society, and to find a means whereby designers can identify the relationship between space and society to build relevant forms, the author will use the Hillier method of analysing space. Hillier provides a useful way of representing spatial structure in a purely abstract way, which he calls

'space syntax'.

He has devised a refined version of the method used by Marcus in *Order and Space in Society* 1982, where levels of space are examined. By looking at how spaces link and the routes of progression through space, we can show whether an area or a room is at a deep or shallow level.

The examination of space can give an indication of its importance to people and helps to clarify the function of the house. Space brings people into contact with each other in specific ways. Passing through a courtyard house to the more private, or deeper levels requires crossing through a controlling space which acts as a kind of filter. Contact is therefore limited and ordered by the spatial structure.

EXAMPLE OF DEPTH DIAGRAM: In representing space in this way, each starting space can be given an integration value. The fewer levels to connect all spaces in the house, the greater the integration.



The circles indicate spaces within the house, lines between them in the diagram represent links between spaces.

One progresses through space via the links from the carrier space into the

first levels of the house which Hillier has called "shallow" levels. In the courtyard house in Libya this level is used by the men. The deeper level of the house, private for the women and family, is the inner courtyard. To pass from shallow to deep, one must go through a control area or filter, (the saquifah). The deeper the level the more private and controlled the space becomes.

For Libyan society, as described, we would expect to find men's quarters at the shallow level, which connects directly with the carrier space (outside public space). Women's space should be at the deepest most private level of the house. We would also want to see that there is a control space between the most deep and most shallow spaces to protect the private rooms. The case study would lead us to surmise that the saquifah would carry out this function. The users of the spaces to be examined will be the men and women of the family and guests calling at the house.

We are not concerned here with either appearance or dimensions but with dynamics. Each space is numbered and related to the surrounding spaces with which it links, giving it a control and integration value as a means for comparison which relates to the picture of relative depth (see Aspinall, 1988).

The author has used a computer programme developed at Heriot-Watt University based on Hillier's work at the Bartlett Unit for Architectural Studies, and has given depth diagrams of areas and houses. Each diagram lets us see whether space is at a shallow or deep level giving an immediate indication of whether there is likely to be high or low control and integration. The computer takes this a step further by calculating the mean depth (MD), relative asymmetry (RA), and control value (CV), of each space. The lowest number given for MD equals the highest point of integration. Each figure also therefore has a table showing these values. (See Aspinall, 1988).

Mean depth, or integration, is the number of levels needed to connect all

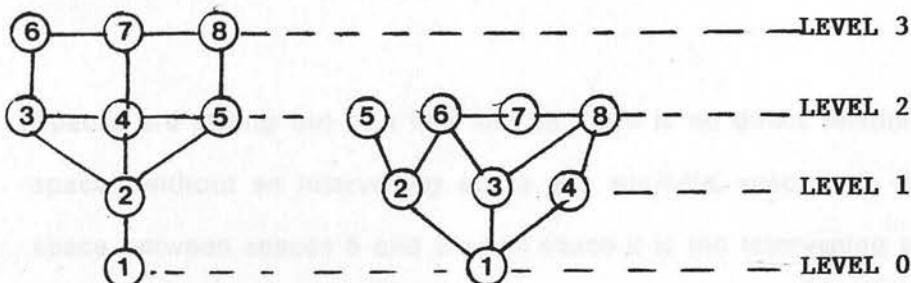
spaces in a system: the fewer the levels, the more integrated the spatial system. Relative asymmetry is mean depth corrected for the number of spaces in a system. It enables us to compare systems of different size. The control value is the value which assesses how a space locally controls movement through other spaces in the vicinity.

It is the figures for MD and CV that will most concern us here as the purpose is to look at spatial structure from the point of view of high or low integration and control value. By comparing the values, for different types of houses, we have clear evidence of which spaces provide the optimum levels of integration and control and can test new layouts and house designs before building commences. The figure for RA is based on the calculation for MD (mean depth).

$$RA = \frac{(MD-1)}{K-2}$$

Where K is the number of spaces in the system.

In the example shown below, starting from the carrier space, one has 1 space at level 1, and 3 spaces at level 2 and 3 spaces at level 3. To calculate the mean depth, the equation used is as follows:- multiply the number of spaces at each level by the level they are on, add them together and divide by the total number of spaces in the system:-



Example 1

Example 2

$$MD = \frac{(1 \times 1) + (3 \times 2) + (3 \times 3)}{7} = \frac{16}{7} = 2.3$$

In the second example there are 3 spaces at level 1 and 4 spaces at Level

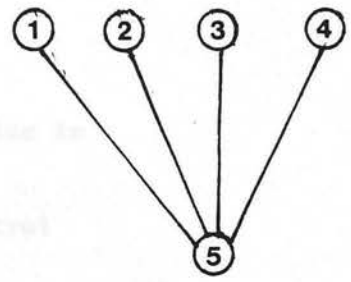
$$MD = \frac{(3 \times 1) + (4 \times 2)}{7} = \frac{11}{7} = 1.6$$

The important thing to note from the calculation of the two spaces is that the more strung out the system is the higher the mean depth and the lower the integration, as in example 1; while the more compact the system, the lower the mean depth and the higher the integration (example 2).

The two important theories to remember in space syntax are the limits of integration values as shown in example 3 and example 4.



Example 3



The lowest possible integration value or maximum depth

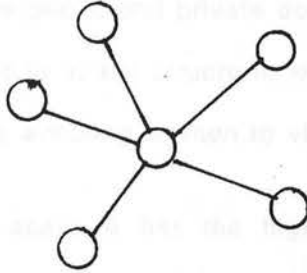
The highest possible integration value or minimum depth

Spaces are strung out in a line and so there is no direct relationship between spaces without an intervening space. For example, space 4 is the intervening space between spaces 5 and 3 while space 2 is the intervening space between spaces 1 and 3.

Spaces in example 4 are shallow as each of the spaces has direct

relationship and are all connected to space 5.

The local control (control value, CV) assesses the control a space has over movement through the spatial system and its relation with its immediate neighbours.



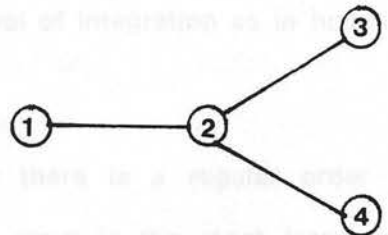
The central space has high control over its neighbours because all movement in the system must pass through it. If the neighbours of a space have themselves several neighbours then the space is only one of the several choices to its neighbours and its control value over its neighbours will then be low.

The formula for calculating control value is

$$C = \frac{1}{c_n} \quad \text{Where } C \text{ is the control}$$

c_n is the number of connection

$$\therefore C_1 = \frac{1}{3} \quad \text{or} \quad 0.333$$



Areas and units chosen for the analyses typify the categories into which they fall. A plan for each is given but the focus will be on the depth diagram and tables, since it is the experience of space rather than the visual aspects with which we are concerned. The components of the house are given in the plan

and the links between the components are shown in the depth diagram. The carrier space at level 0 is the public space outside the house.

Traditional Courtyard House Type 1 {see fig 1}. Level 1 is for men and guests, level 3 for women and family, and level 2 is the saquifah, which controls space between the public and private domains of the house. There is a 4th level, not represented in actual structure, which shows the links between houses across the rooftops, enabling women to visit and socialise.

The table shows that space 6 has the highest level of integration and control. This is the inner courtyard. Space 4 has the second highest integration value and is the saquifah. The sittingroom and outer court, spaces 2 and 3, have lower control figures (see Table 1).

Traditional Courtyard House Type 2 {see fig 2}: From the table, space 3, the inner court, has the highest integration and control. Space 2, the saquifah is second highest in control and space 1, the men's area, the lowest (see Table 2).

Traditional Courtyard House Type 3 {see fig 3}: Again a different house layout, but the inner court still shows highest control and integration. In this house the saquifah shares the high level of integration with slightly less control. Space 2, the marboa has the lowest level of integration as in house 2 (see Table 3).

A summary of these findings shows that there is a regular order of integration in the courtyard house. The inner court is the most integrated space and, where men gather and entertain their guests is more segregated. The filter space of the saquifah is second highest in control, as one moves into the most private area of the house.

This is not an obvious factor when looking at the plans. It is significant in

demonstrating what the observations had already led us to believe, that the courtyard form provides the answer to the problem of achieving maximum privacy and maximum integration. Space functions in the way in which society requires.

Typical single storey public housing {see fig 4}: The depth diagram has only 2 levels of depth. Level 1 is the men's area and level 2, the family area, kitchen and bedrooms. There is no control level. Level 2 connects with the carrier level, losing much of its control as a private area.

The table shows space 4, the corridor, has the highest integration, but not the highest control. The living area, space 6 has lower integration. Space 1, the men's area, has very high control and high integration (see Table 4).

Typical modern private house {see fig 5}: Highest intergration and control is in space 5, the corridor. The sitting room, space 6, has less integration and control. Lowest integration is in spaces 10 and 11, bedroom and W.C. The men's sitting room has higher integration than in courtyard forms (see Table 5).

Typical High Rise Flat {see fig 6}: The carrier area is the stair. Level 1 is the men's area at the entrance, Level 2 the kitchen and the family living area, and level 3 the bedrooms and W. C.

Highest integration is in space 4, the corridor, Second highest is space 11, another corridor between rooms. The lowest integration figure is the balconies (see Table 6).

In these modern units a new pattern is shown whereby the highest integration value is not where one would have expected, in the family quarters (living room), but in the corridor. One loses the control level of the saquifah with only 2 levels of space in these forms. In the courtyard houses, lowest integration was found in the outer courts and men's sitting room, where

segregation is required. This is not the case for modern houses where men's quarters are linked more closely to the family quarters. Walls around the modern house set the men's area back from the carrier area. Men tend to use garages, when they have them, for entertaining, as these link directly with the public space and do not connect with the inner space of the house. It is important to remember, when we refer to integration and segregation that we are speaking about the family using the house. Segregated space is required for successful socialising with guests; men with men and women with women. Integrated space is required for the family to gather, eat, celebrate and relax together in privacy. There is no level at which the women can move between houses in complete privacy as at level 4 of the courtyard house.

It is therefore evident, that, for Libyan society, the space of a modern house does not function appropriately and we must look more closely at the space syntax of the courtyard form when making recommendations for future designs.

6.17 SUMMARY

There is now a wide variety of housing styles to be seen throughout Libya. The study has looked closely at the types which are predominant and has found that none of them are able to meet all the needs of the society they serve.

As described, there were many factors which combined to bring about the deterioration of the traditional courtyard form and which led to the adoption of Western style modern housing. It is not the author's wish to attach blame for these events but rather to draw lessons from the mistakes of the past.

Traditional housing still provides the spatial structure preferred by residents as the Hillier method demonstrated, but modern forms may provide better interior and convenience. Modernisation is inevitable and we must not be

tempted to revert to old forms out of frustration at the failure of the new or out of sentiment. Space is timeless and shapeless, it is the structure that ages and imposes barriers to behaviour patterns. For this reason, the Hillier method can be particularly beneficial in allowing us, firstly to look at how space works for people, and only then to design the structure.

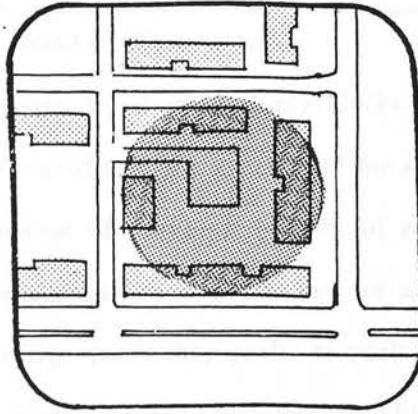
For those in the high income bracket there is less distress because they have far greater choice in the houses they build and the way they live. It is the poorer families in public housing who have suffered most. The government recognises their need for housing and is willing to provide for them but also likes to advertise its magnanimity in the outward appearance of the cities and towns. Houses should not be used to decorate the environment but to improve the quality of life. Public houses belong to no one so no one cares about them or for them.

The author has tried to give as comprehensive a record as possible of the present situation, if not by observation and interviews, then by camera. The photographs included in the thesis show the physical face of housing and the accompanying notes indicate the ways in which it meets needs.

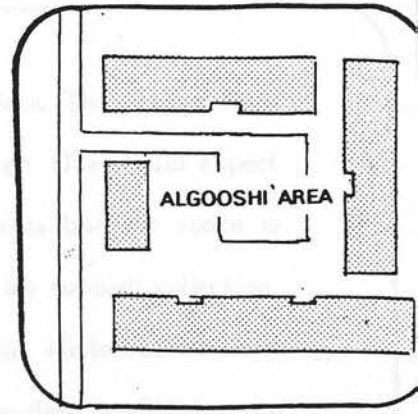
We must now draw together what we have learnt about the physical and psychological aspects of housing to try and arrange an ideal match between the two.





LOCATION PLAN





AREA PLAN

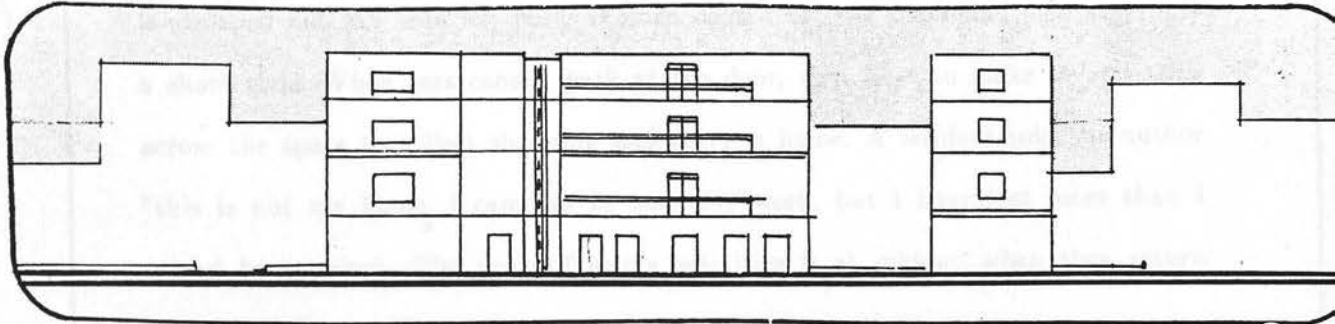


BLOCK PLAN

 CITY CENTRE
 VILLAGES

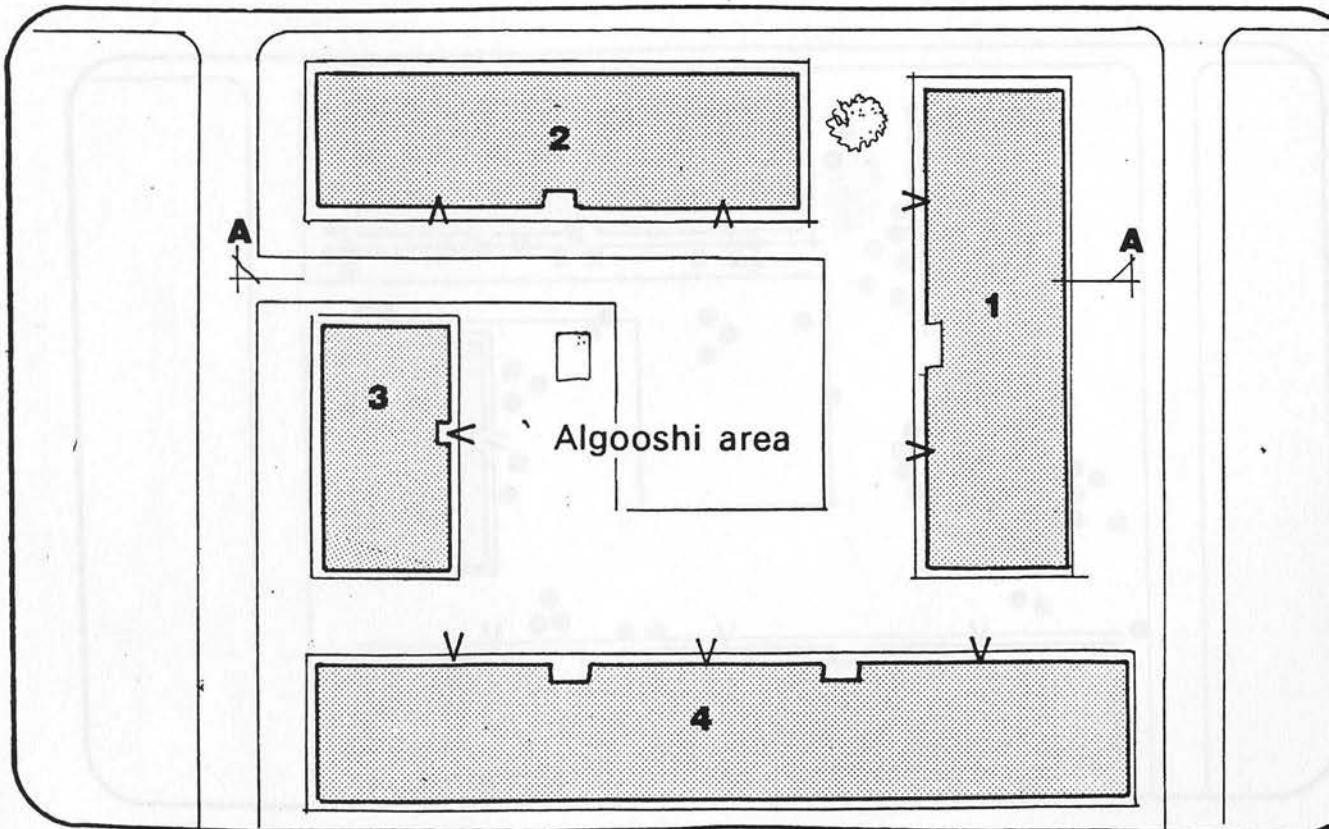
 STUDY AREA
 SCALE 1-5000

 STUDY AREA
 SCALE 1-2500



SECTION A-A

SCALE 1-500

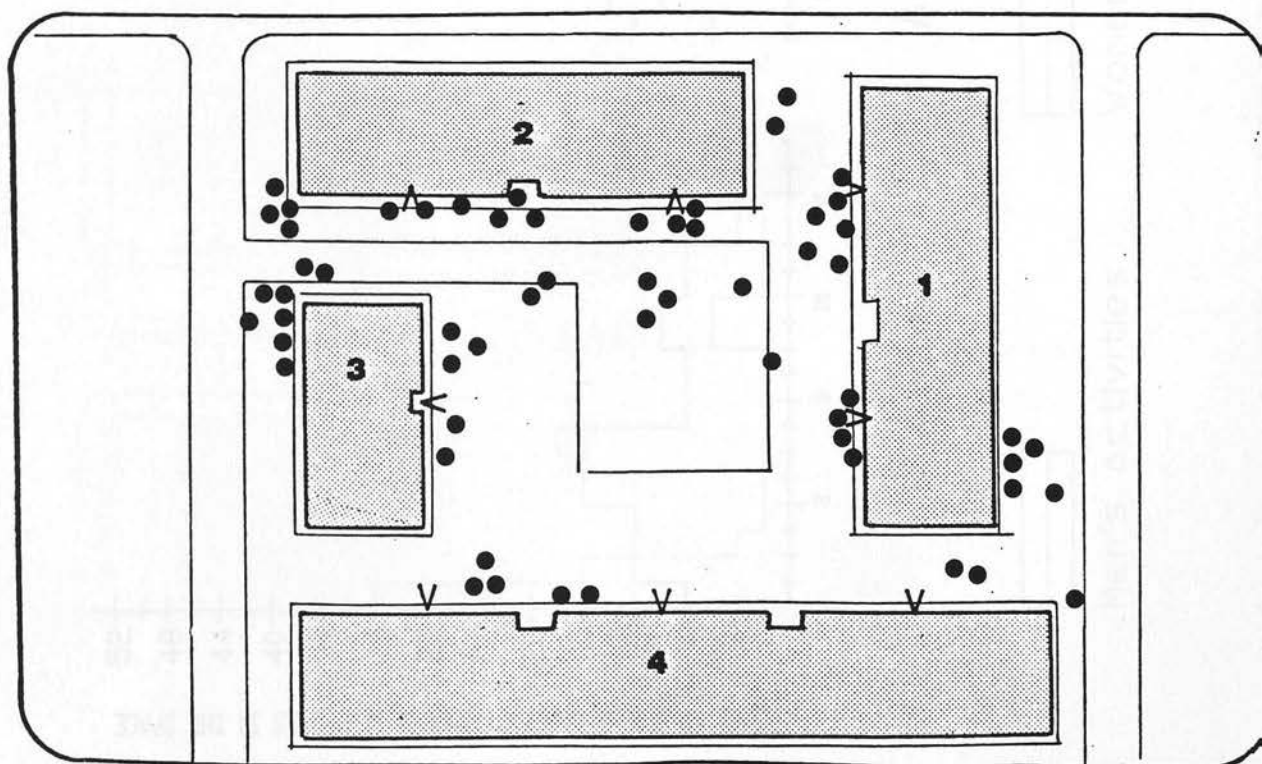


PHYSICAL INFORMATION

SCALE 1 - 1000

Notes from the Author's Diary of Observations

Al Gooshi Area: in city centre. 1 - 4 are 4 storey blocks of flats. The ground floor was shops. These are now closed and the space used for storage. One would expect to find much activity because of the high number of residents but the space is quiet. The centre of the space has parking lots and an area for rubbish collection. People do not use the parking space, they prefer to park in the shade outside their homes. The space is very dirty. No one takes responsibility to clean it. Children do not spend long outside and do not go far from the flats. Their mothers call them in, from the balconies, if they stray far. Space around the blocks should have been landscaped but has been left bare. Women do not use the space and men stay only a short time. When cars cannot park at the door, men have to make several trips across the space to collect shopping and carry it home. A resident told the author "this is not my home. I came to be near my work, but I have lost more than I gained by moving". The peak of men's activities is at midday when they return from work. They only stay long enough to exchange greetings.



● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

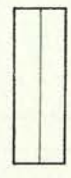
HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME



Morning

Afternoon

Evening



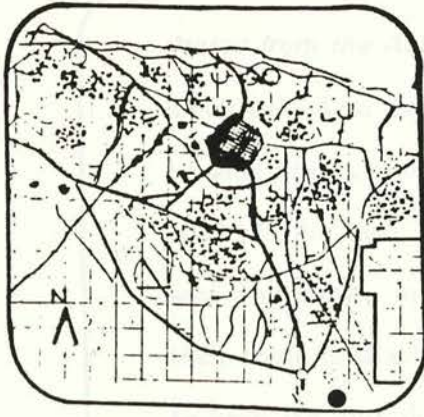
Men's activities



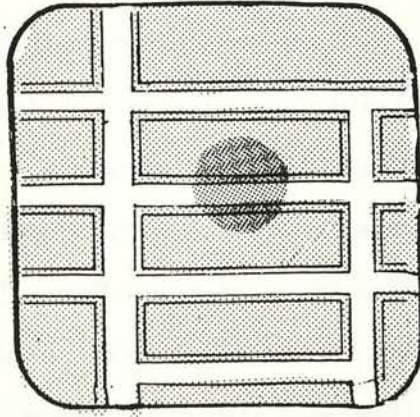
Women's activities



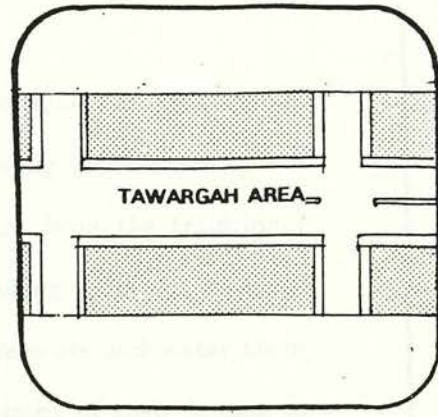
Children's activities



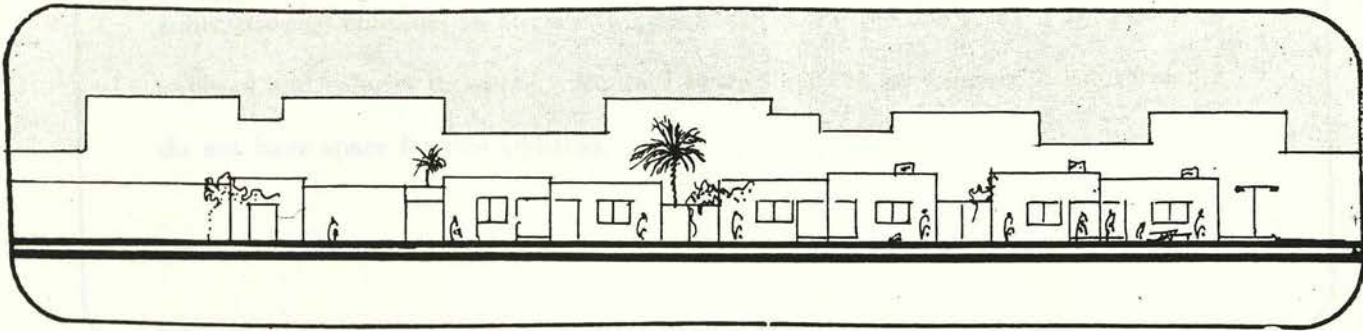
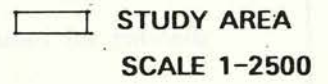
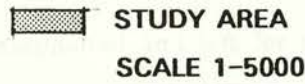
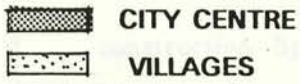
LOCATION PLAN



AREA PLAN

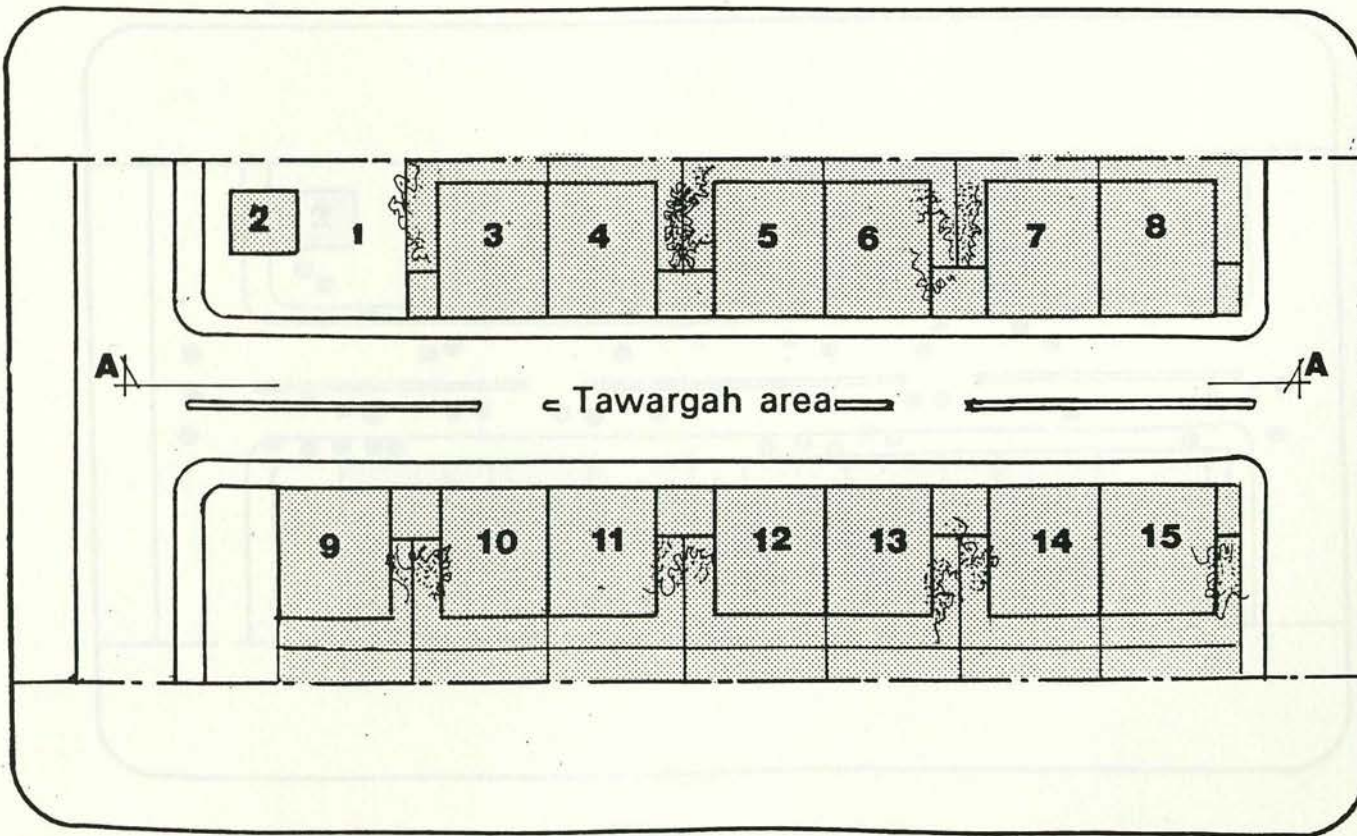


BLOCK PLAN



SECTION A-A

SCALE 1-500

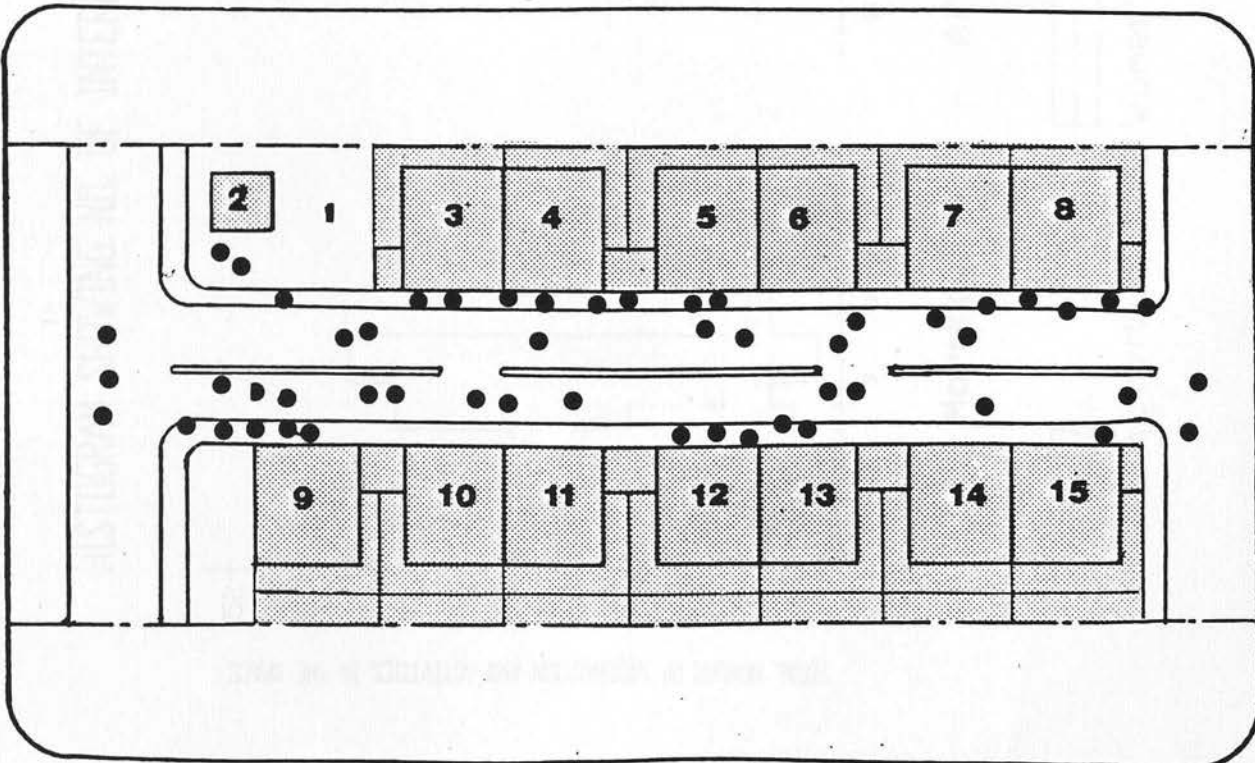


PHYSICAL INFORMATION

SCALE 1 - 1000

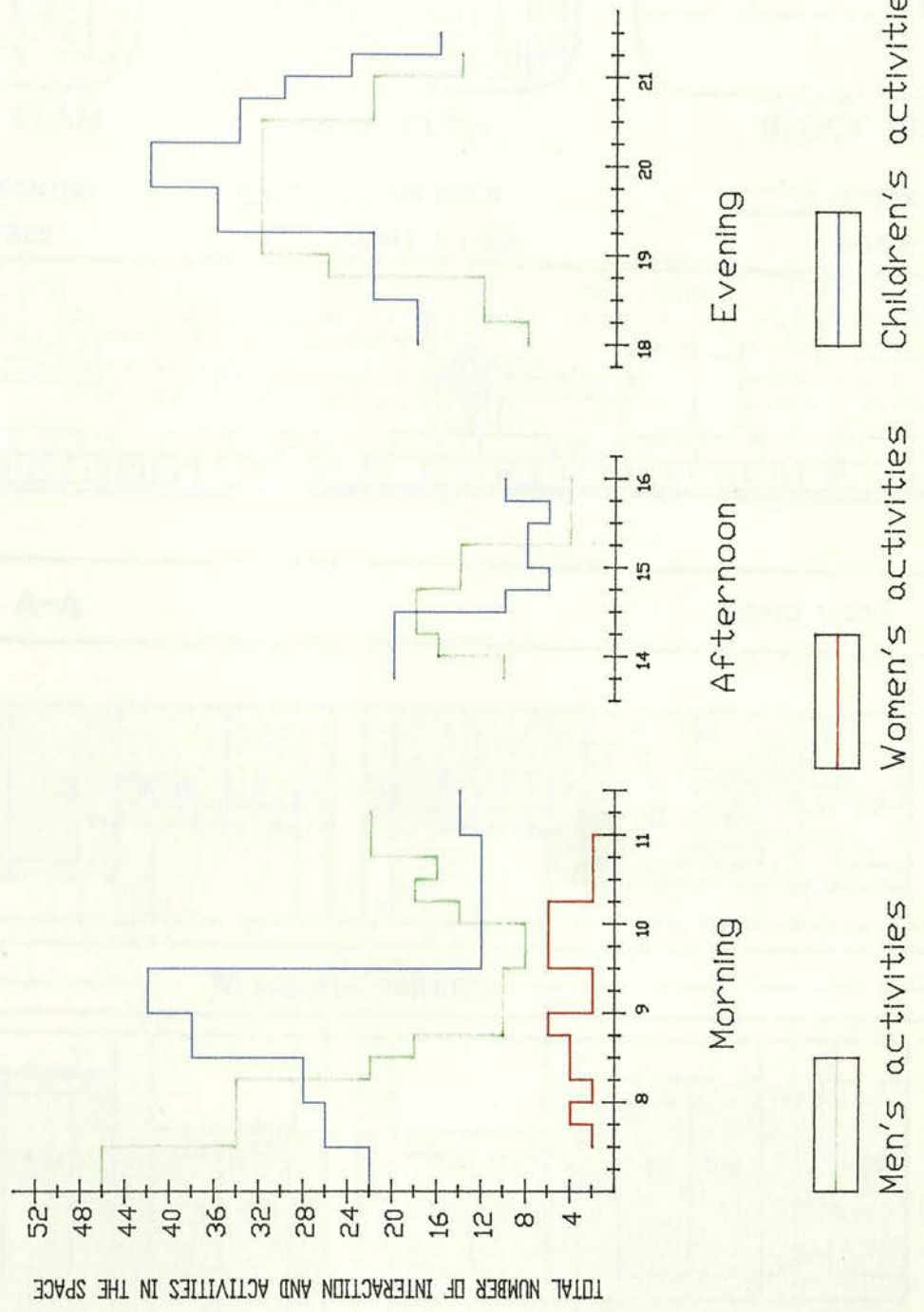
Notes from the Author's Diary of Observations

Tawargah Area (modern): 3/4 mile from Tawargah traditional village. Public housing lines a two-way, wide street. One side of this is usually blocked off by the residents for their children or animals. House occupants are from the traditional area and mostly related or well known to one another. Women carry on many of their traditional activities in the space. They sweep the pavements and water them to keep the dust down. Some families have built walls in front of their houses to mark their territory and increase privacy. These are of varying height, colour and construction. Space 1 is unasphalted and left for public use. It is used for rubbish collection and contains an electricity generator (2). People don't use it because it is exposed and belongs to no-one. House 7 has a hut (15) for animals, other residents do not have space for this addition.



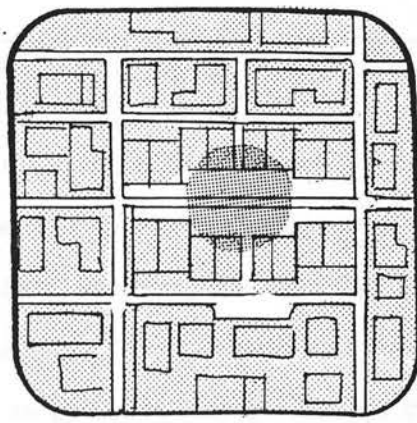
● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME

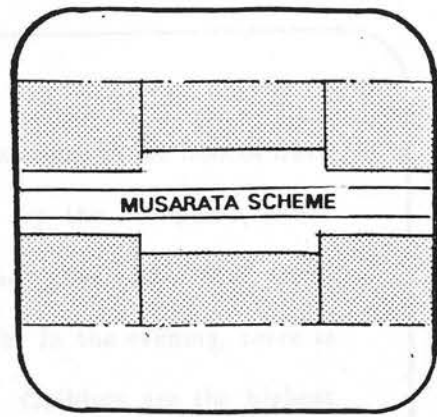






LOCATION PLAN





AREA PLAN

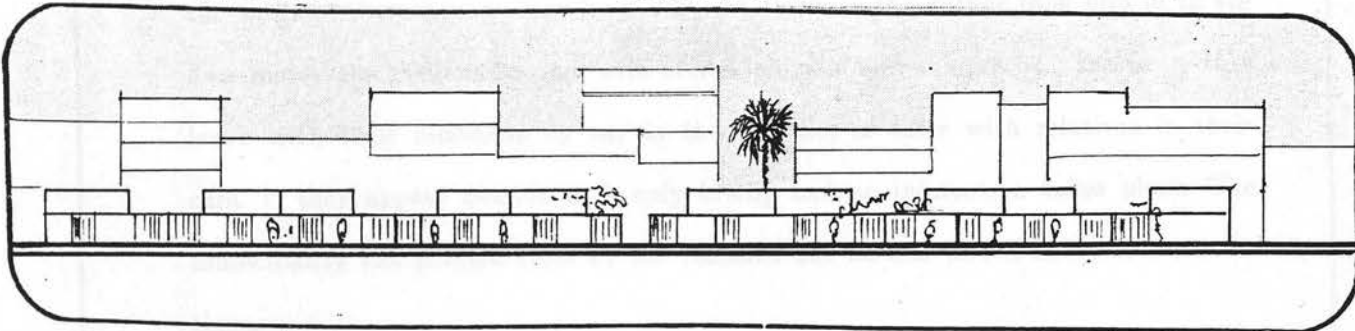


BLOCK PLAN

 CITY CENTRE
 VILLAGES

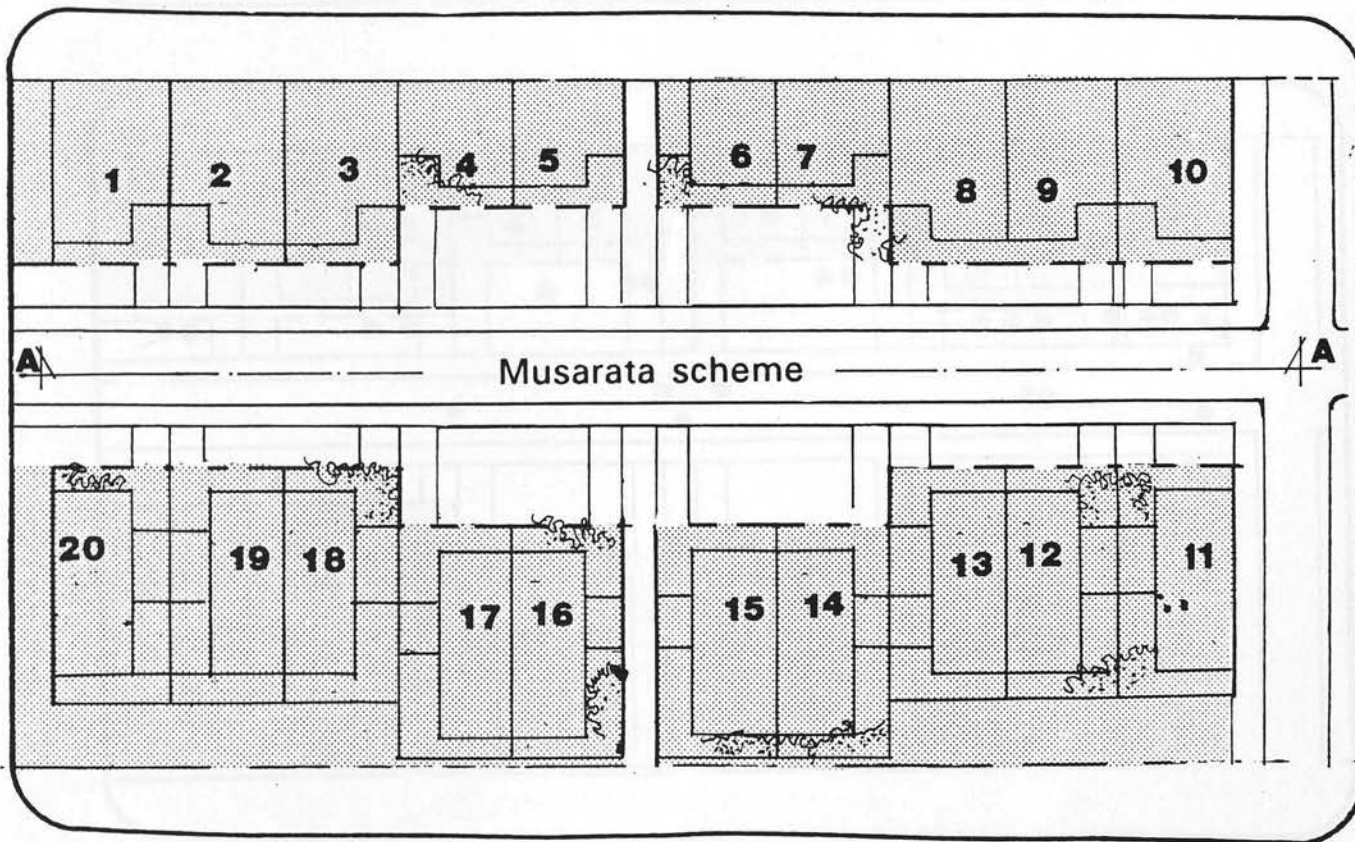
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 SCALE 1-5000

 STUDY AREA
 SCALE 1-2500



SECTION A-A

SCALE 1-500

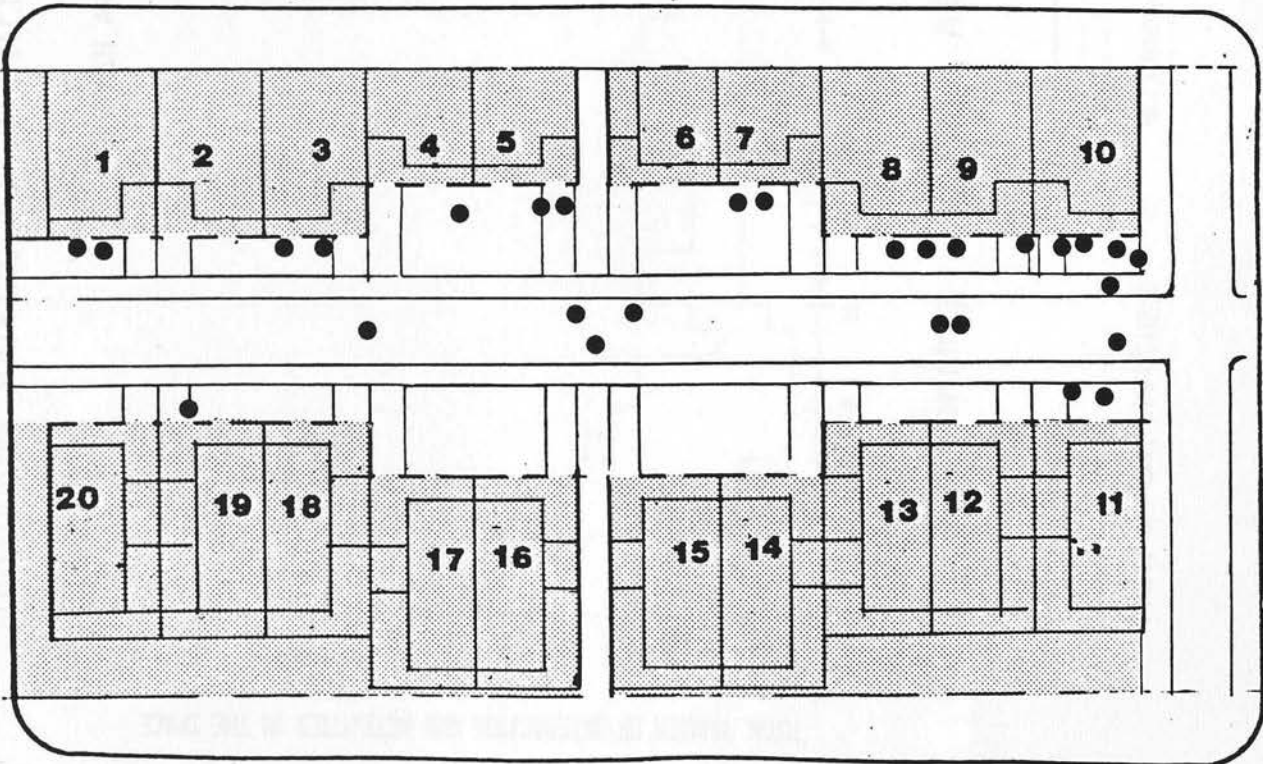


PHYSICAL INFORMATION

SCALE 1-1000

Notes from the Author's Diary of Observations

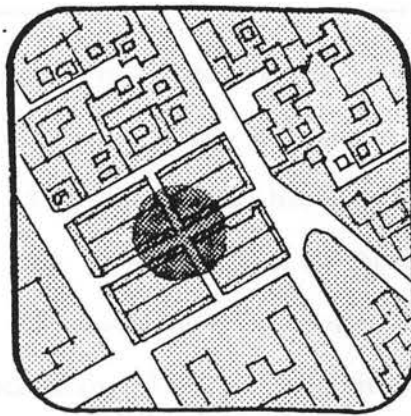
Al Gooshi Area: in city centre, a low rise public housing scheme. Some houses have some land in front with a driveway. This is used only by the occupants, other residents do not go there. Men go inside immediately when they come from work. Most activity happens in the front garden behind the walls. In the evening, there is nowhere for the men to gather so they go into the city. Children are the highest users. Occupants of houses 9, 10 and 11 are related and many children come and go here. Activities which happen in outside space in traditional areas take place inside the walls of these houses. Residents who got to know the author took him in to see how messy the gardens became with stores, animals and equipment. Women either leave with their husbands by car in the morning or later with relatives in their cars. If they appear outside it is only briefly and no interaction takes place. The municipality has planted trees by the roadside but no one waters them or cares for them.



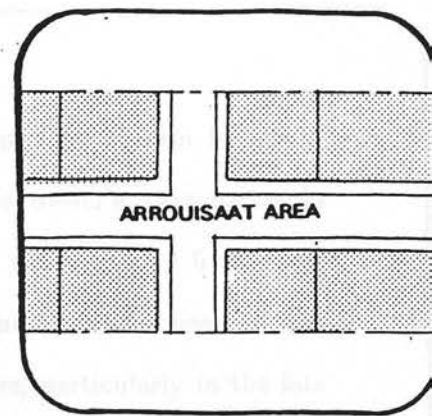
● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES





LOCATION PLAN





AREA PLAN

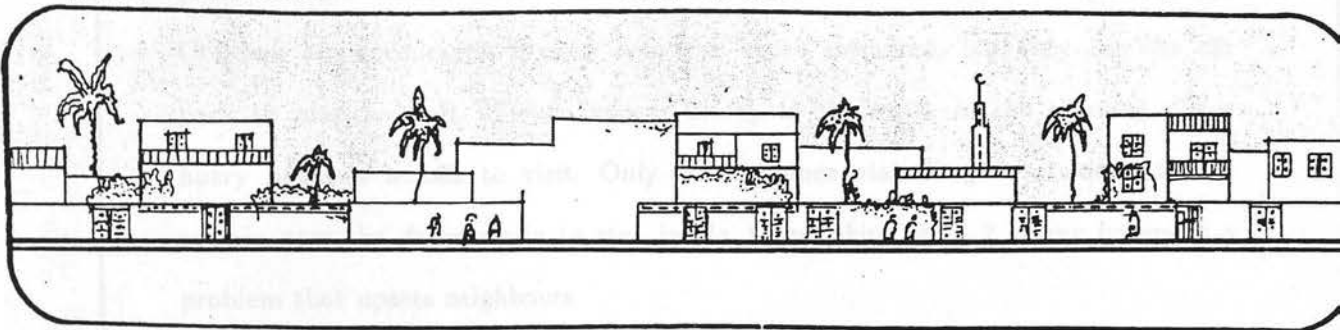


BLOCK PLAN

 CITY CENTRE
 VILLAGES

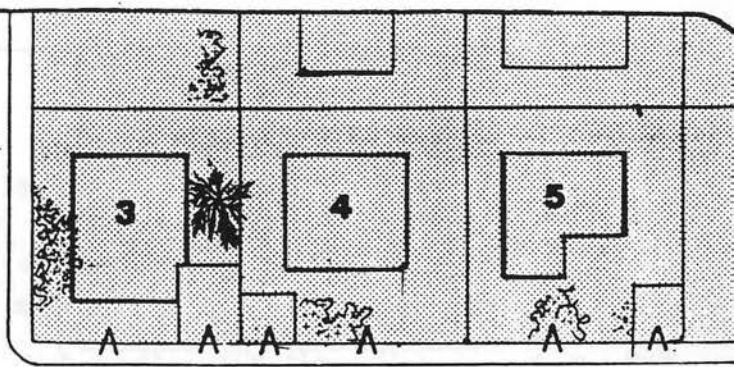
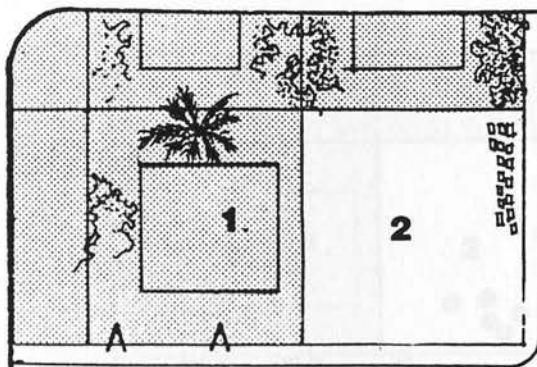
 STUDY AREA
 SCALE 1-5000

 STUDY AREA
 SCALE 1-2500

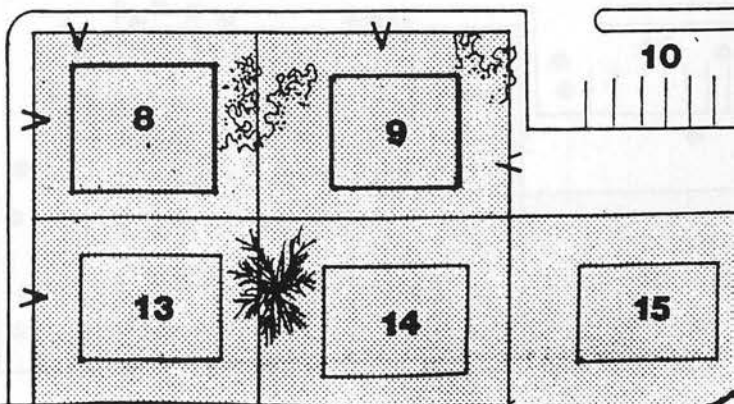
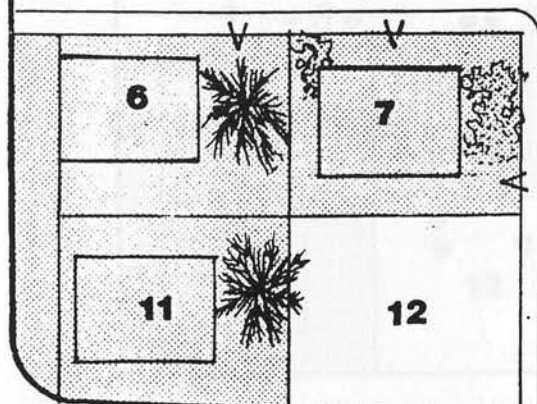


SECTION A-A

SCALE 1-500



A-A Arrouisaat area

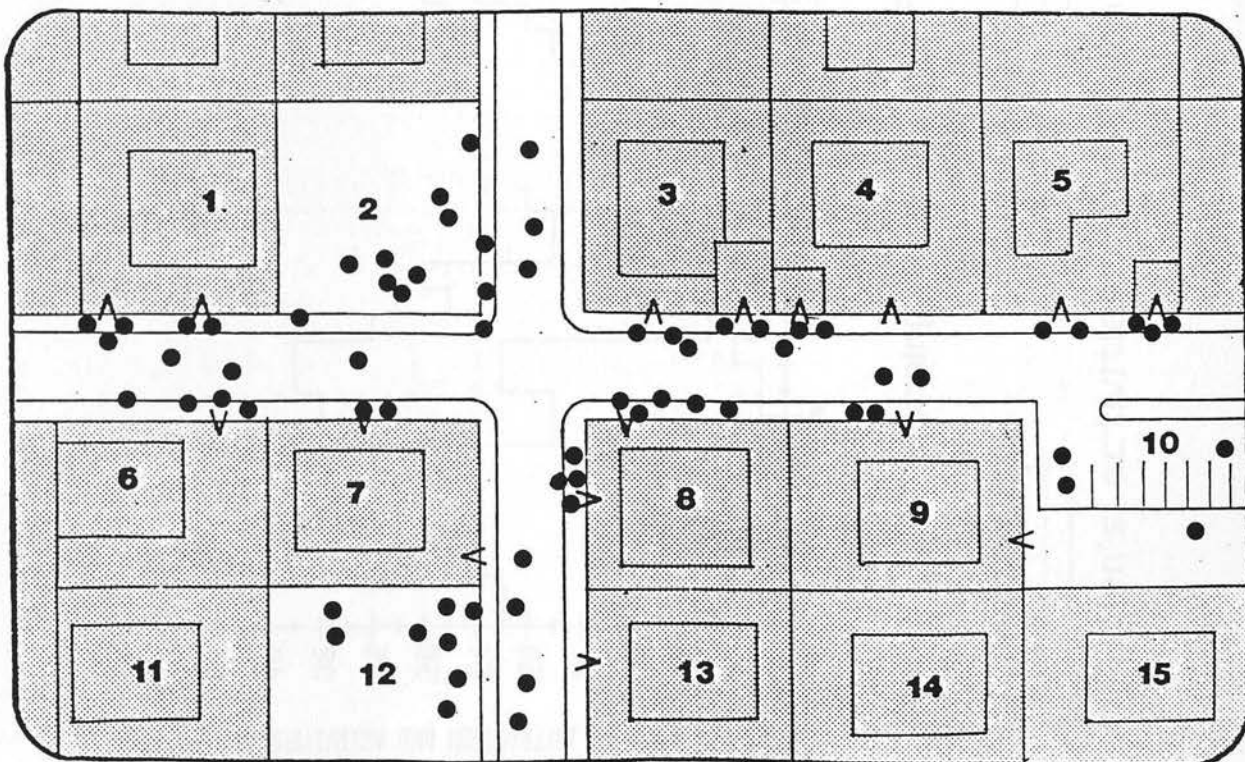


PHYSICAL INFORMATION

SCALE 1-1000

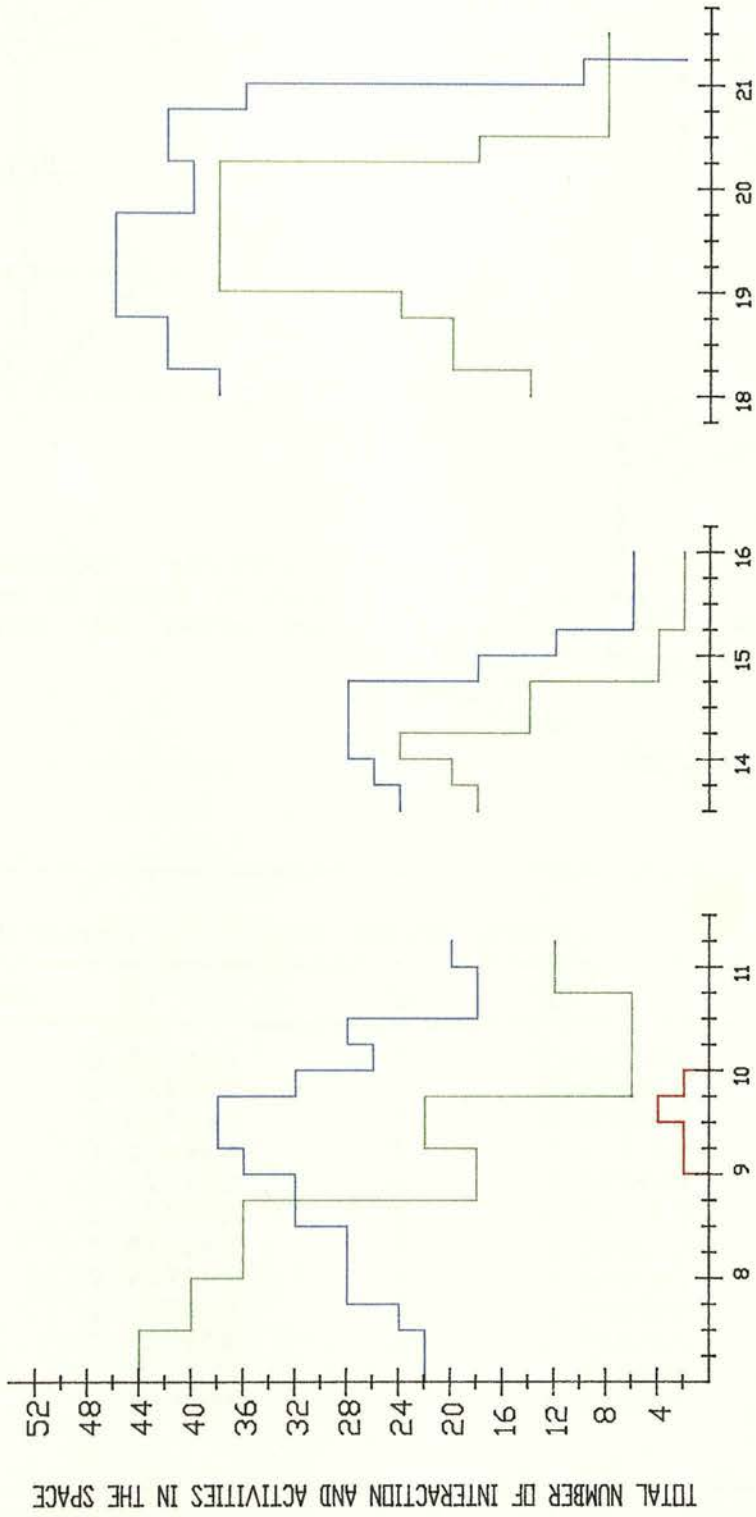
Notes from the Author's Diary of Observations

Arrouisaat Area: 1/2 mile south of city centre. All are private modern houses of one or two storeys. They are similar but reflect the owner's personality in decoration and colour. No. 10 is a car park for the area which is very little used. People prefer to have their own garages or to park in front of their houses. Houses 2 and 12 are under construction. There is high activity here, particularly in the late afternoon. People share work and mix freely. A pile of sand at 2 becomes the site of a kind of club in the evening, where people meet, cars stop and activities take place. People talked about accidents caused to children by cars passing by. Children are encouraged to stay near the house entrances, but they use the car park to play football. Women appear briefly in the space in the morning. They hurry between houses to visit. Only older women stay longer outside but they remain near the doors ready to step inside. Overlooking from 2 storey houses is a problem that upsets neighbours.



● POSITIONS OF PEOPLE PERFORMING INTERACTIONS & ACTIVITIES

HISTOGRAM SHOWING NO. OF INTERACTIONS AND ACTIVITIES RELATED TO TIME



Evening

Afternoon

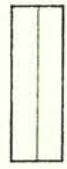
Morning



Children's activities



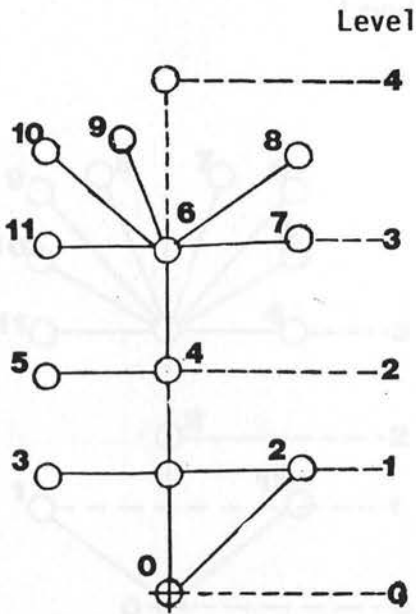
Women's activities



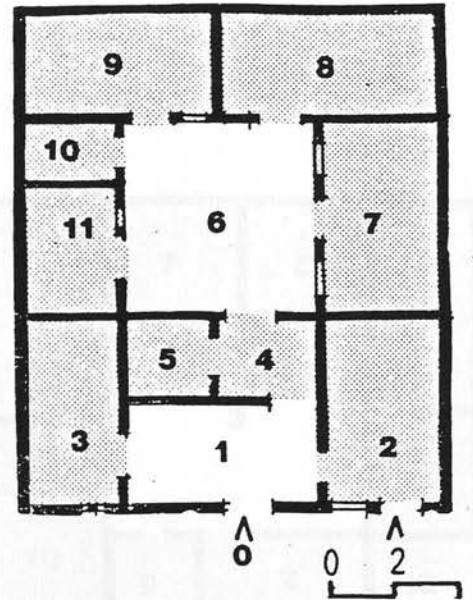
Men's activities

TOTAL NUMBER OF INTERACTION AND ACTIVITIES IN THE SPACE

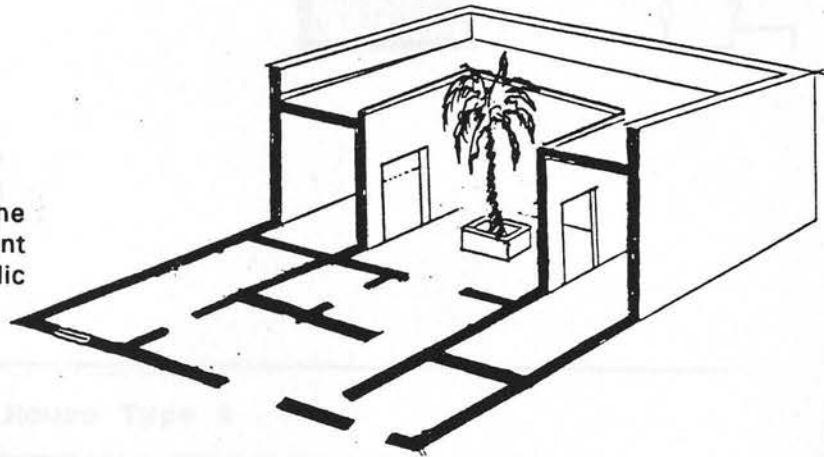
(Fig 1) Traditional Courtyard House Type 1



- 1-outer court
- 2-men's sitting room
- 3-stable for animal
- 4-saquifah
- 5-store room
- 6-inner court
- 7,8,9-rooms
- 10-family WC
- 11-kitchen



Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

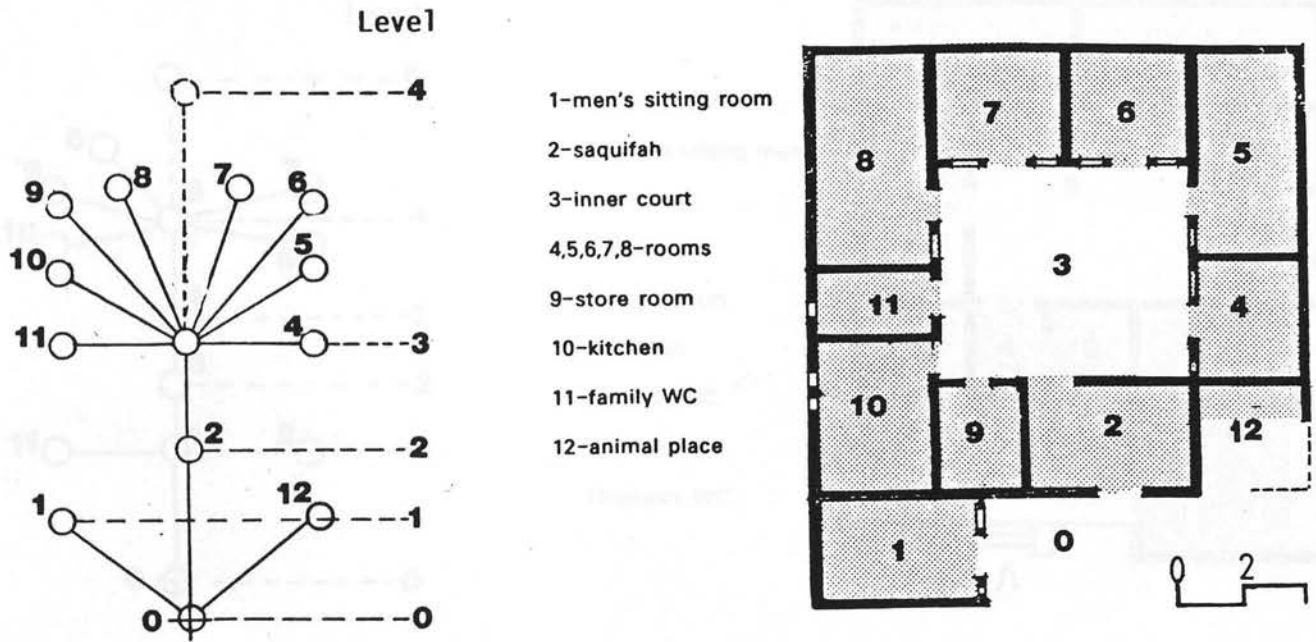


Traditional Courtyard House Type 1

SPACE	MD	CN	RA	CV
0	3.000000	3	0.400000	0.866667
1	2.181818	5	0.236364	1.616667
2	3.000000	3	0.400000	0.866667
3	3.090909	2	0.418182	0.700000
4	1.818182	4	0.163636	1.092857
5	2.727273	2	0.345455	0.750000
6	1.818182	7	0.163636	2.892857
7	2.727273	2	0.345455	0.642857
8	2.727273	2	0.345455	0.642857
9	2.727273	2	0.345455	0.642857
10	2.727273	2	0.345455	0.642857
11	2.727273	2	0.345455	0.642857

Table 1. Showing integration values (MD or RA) and control (CV).
 Note: high integration corresponds to low RA (see page 216).

(Fig 2) Traditional Courtyard House Type 2



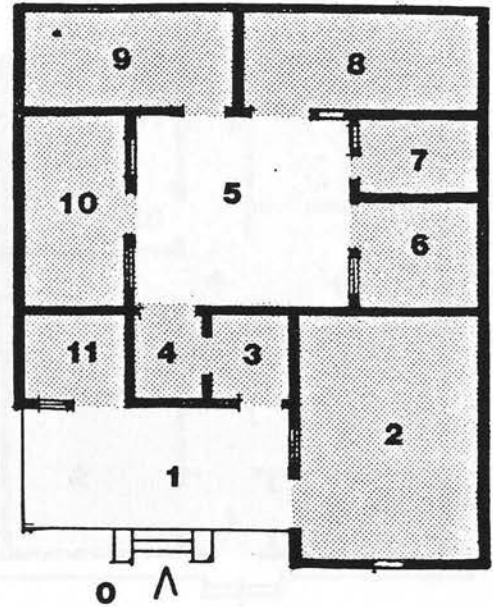
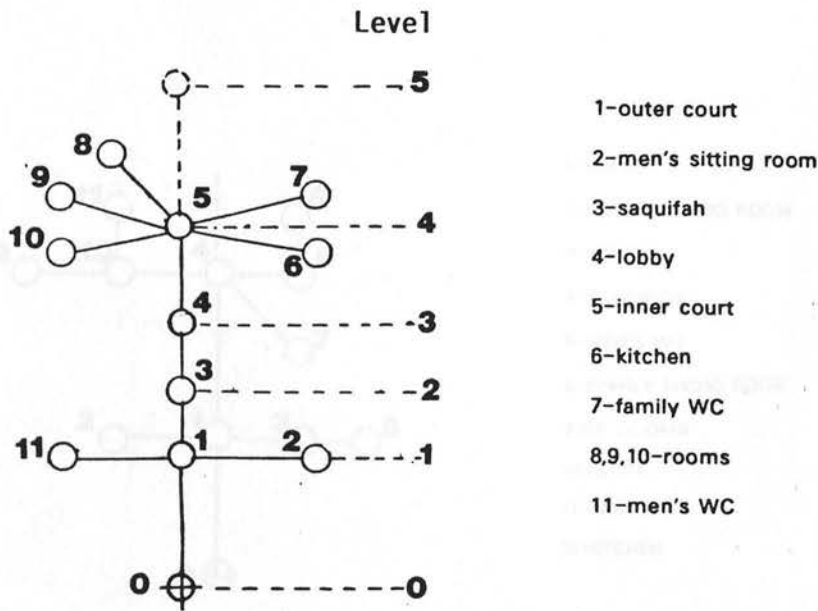
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Traditional Courtyard House Type 2

SPACE	MD	CN	RA	CV
0	2.583333	4	0.287879	1.583333
1	3.500000	2	0.454545	0.750000
2	2.000000	3	0.181818	0.694444
3	1.583333	9	0.106061	3.777778
4	2.500000	2	0.272727	0.611111
5	2.500000	2	0.272727	0.611111
6	2.500000	2	0.272727	0.611111
7	2.500000	2	0.272727	0.611111
8	2.500000	2	0.272727	0.611111
9	2.500000	2	0.272727	0.611111
10	2.333333	3	0.242424	0.944444
11	3.250000	2	0.409091	0.833333
12	3.500000	2	0.454545	0.750000

Table 2. Showing Integration values (MD or RA) and control (CV).
 Note: High integration corresponds to low RA (see page 216).

(Fig 3) Traditional Courtyard House Type 3



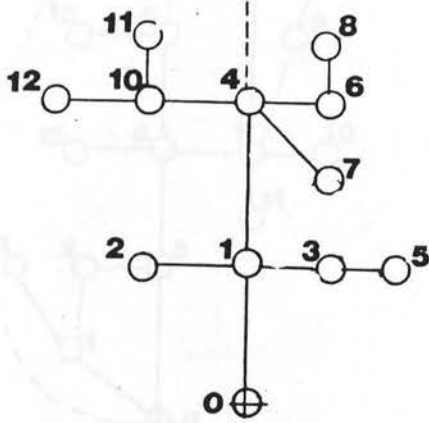
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Traditional Courtyard House Type 3

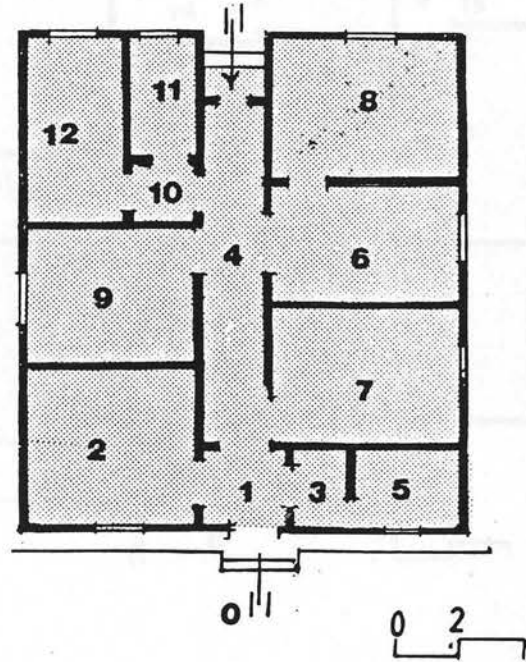
SPACE	MD	CN	RA	CV
0	3.636364	2	0.527273	0.700000
1	2.727273	5	0.345455	2.033333
2	3.636364	2	0.527273	0.700000
3	2.363636	3	0.272727	0.866667
4	2.181818	3	0.236364	0.809524
5	2.181818	7	0.236364	2.976190
6	3.090909	2	0.418182	0.642857
7	3.090909	2	0.418182	0.642857
8	3.090909	2	0.418182	0.642857
9	3.090909	2	0.418182	0.642857
10	3.090909	2	0.418182	0.642857
11	3.636364	2	0.527273	0.700000

Table . 3. Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

(Fig 4) Typical single storey public housing



- 1-LOBBY
- 2-MEN'S SITTING ROOM
- 3-LOBBY
- 4-CORRIDOR
- 5-MEN'S WC
- 6-FAMILY LIVING ROOM
- 7,8,9-ROOMS
- 10-LOBBY
- 11-FAMILY WC
- 12-KITCHEN



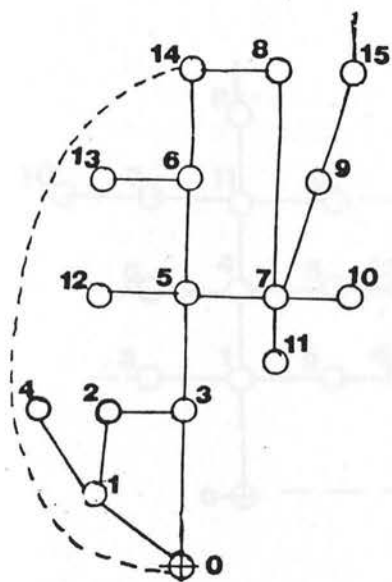
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Typical Single Storey Public Housing

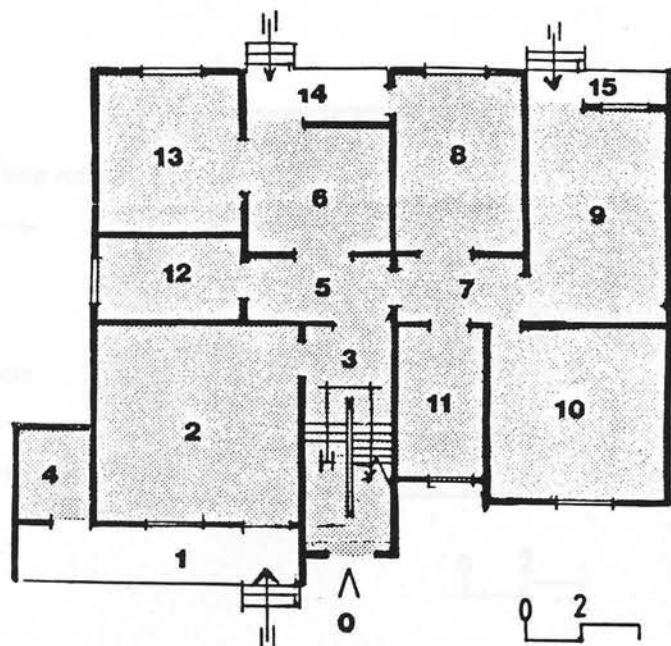
SPACE	MD	CN	RA	CV
0	2.250000	3	0.227273	0.666667
1	1.916667	6	0.166667	2.000000
2	2.833333	2	0.333333	0.666667
3	2.666667	3	0.303030	1.000000
4	1.750000	6	0.136364	1.750000
5	3.583333	2	0.469697	0.833333
6	2.500000	3	0.272727	1.000000
7	2.833333	2	0.333333	0.666667
8	3.416667	2	0.439394	0.833333
9	2.666667	2	0.303030	0.666667
10	2.333333	4	0.242424	1.416667
11	3.250000	2	0.409091	0.750000
12	3.250000	2	0.409091	0.750000

Table .4. Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

(Fig 5) Typical modern private house



- 1-TERRACE
- 2-MEN'S SITTING ROOM
- 3-SAQUIFAH & STAIR
- 4-WC (MEN)
- 5-CORRIDOR
- 6-FAMILY LIVINGROOM
- 7-CORRIDOR
- 8,9,10-ROOMS
- 11,12-FAMILY WC
- 13-KITCHEN
- 14,15-TERRACE



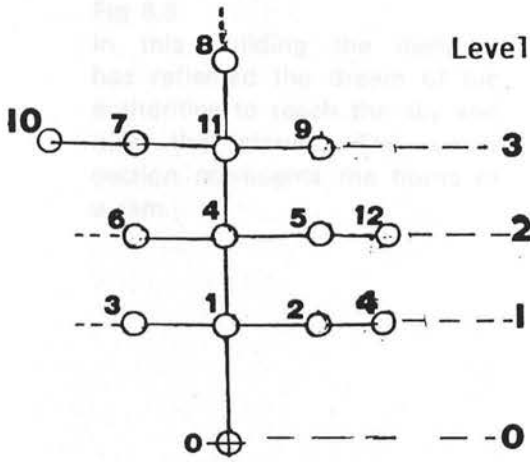
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Typical modern private house

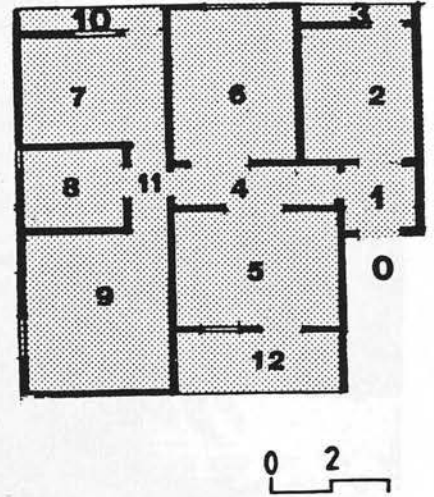
SPACE	MD	CN	RA	CV
0	2.266667	5	0.180952	1.283333
1	2.933333	4	0.276190	1.283333
2	2.933333	3	0.276190	0.833333
3	2.266667	4	0.180952	0.983333
4	3.866667	2	0.409524	0.750000
5	2.066667	5	0.152381	1.366667
6	2.400000	4	0.200000	1.200000
7	2.266667	6	0.180952	2.033333
8	2.533333	3	0.219048	0.750000
9	2.666667	3	0.238095	0.833333
10	3.200000	2	0.314286	0.666667
11	3.200000	2	0.314286	0.666667
12	3.000000	2	0.285714	0.700000
13	3.333333	2	0.333333	0.750000
14	2.266667	4	0.180952	1.033333
15	2.666667	3	0.238095	0.866667

Table. 5 . Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

(Fig 6) Typical high-rise flat



- 1-lobby
- 2-men's sitting room
- 3-10-balcony
- 4-corridor
- 5-kitchen
- 6-living room
- 7,9-rooms
- 8-family WC



Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Typical high-rise flat

SPACE	MD	CN	RA	CV
0	3.250000	2	0.409091	0.750000
1	2.333333	4	0.242424	1.283333
2	3.083333	3	0.378788	1.083333
3	4.000000	2	0.545455	0.833333
4	1.916667	5	0.166667	1.483333
5	2.666667	3	0.303030	1.033333
6	2.833333	2	0.333333	0.700000
7	2.916667	3	0.348485	1.033333
8	3.083333	2	0.378788	0.700000
9	3.083333	2	0.378788	0.700000
10	3.833333	2	0.515152	0.833333
11	2.166667	5	0.212121	1.733333
12	3.583333	2	0.469697	0.833333

Table 6. Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

Fig 6.8

In this building the designer has reflected the dream of the authorities to reach the sky and butt the clouds. The upper section represents the horns of a ram.

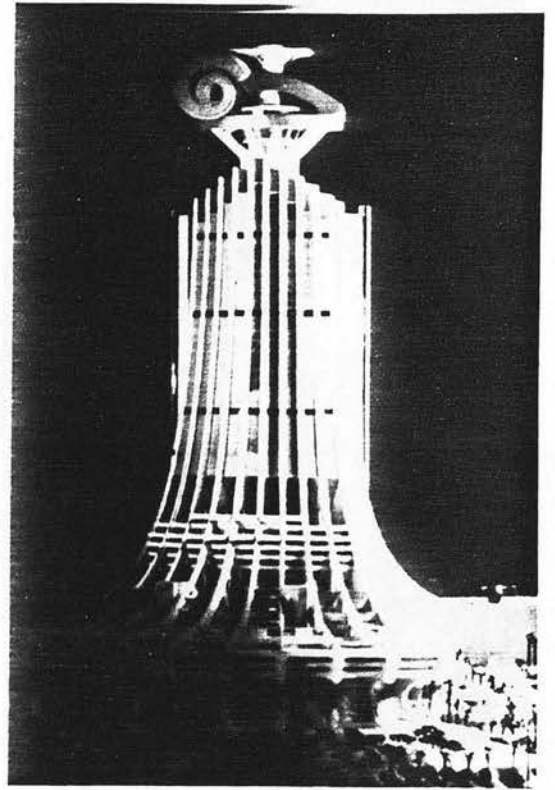


Fig 6.9

This house, in traditional style, shows the contrast and highlights the absence of any link between the forms.



Fig 6.10

Posters emphasise the difference between traditional and modern housing. The authorities display pride in their achievements.



Fig 6.11

"Today we celebrate the truth and move from our huts to the modern house." A high rise block in Tripoli announces its success with a message from the government.



Fig 6.12

A shanty town on the outskirts of Tripoli makes it clear that there are people in desperate need for housing. The new flats are shown in the background.

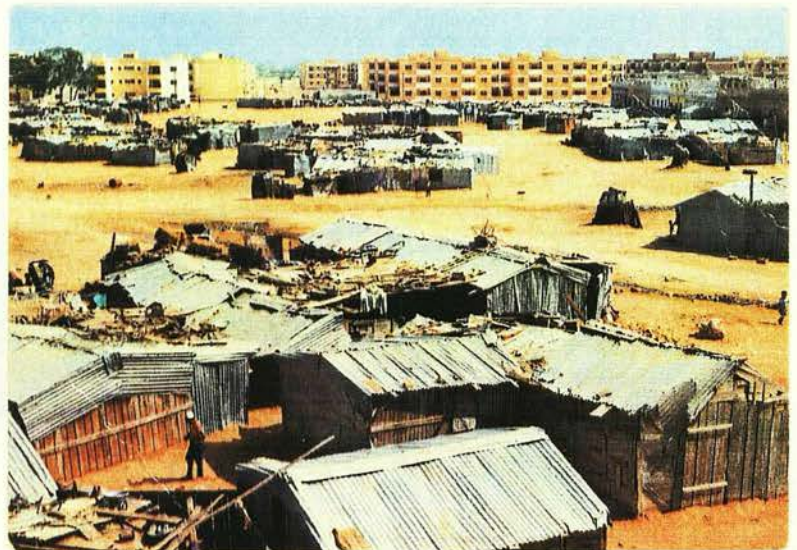


Fig 6.13

A similar scene in Morocco contrasting the makeshift shelters of settlers with new housing.



Fig 6.14

The true face of modern housing showing balconies blocked off to give occupants privacy.

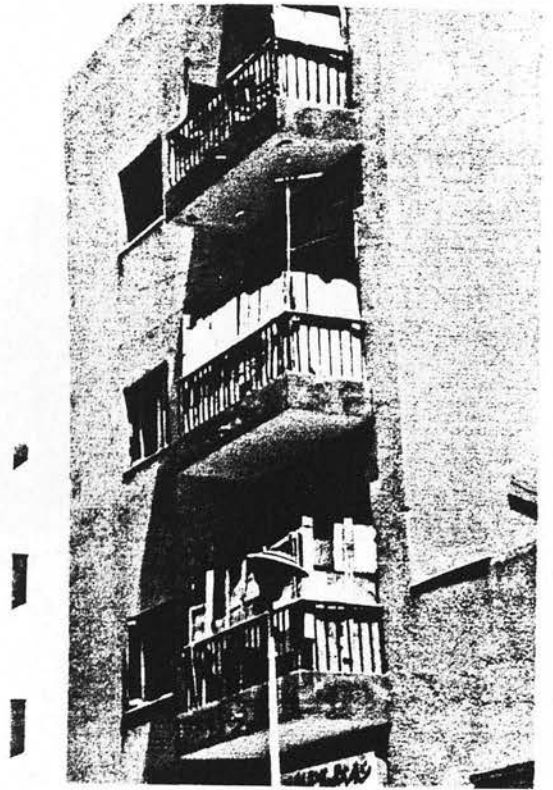


Fig 6.15

The public space outside such flats is uncared for, bleak and exposed.



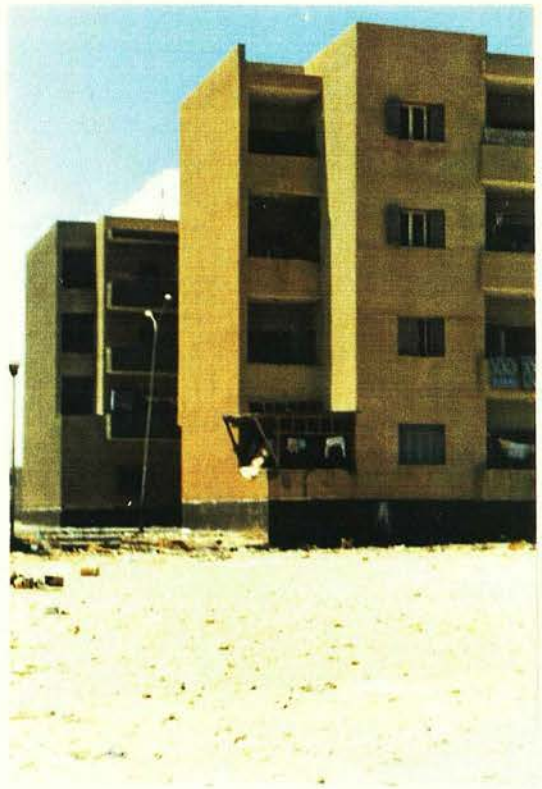
Fig 6.16

The far-off view looks attractive and modern. It gives no idea of who the dwellers are or of any problems. The above photographs show a more accurate image of these areas.



Fig 6.17

A balcony is turned into an extra room with makeshift alterations.



Figs 6.18 & 6.19

Closer view of the steps people take to preserve their privacy.

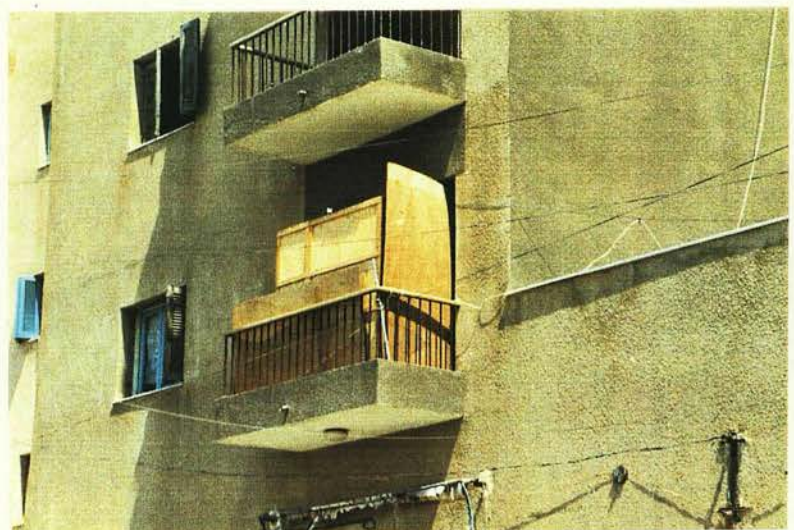


Fig 6.20

Damage and vandalism begin to show their face when occupants of an area are strangers and community control is lost.

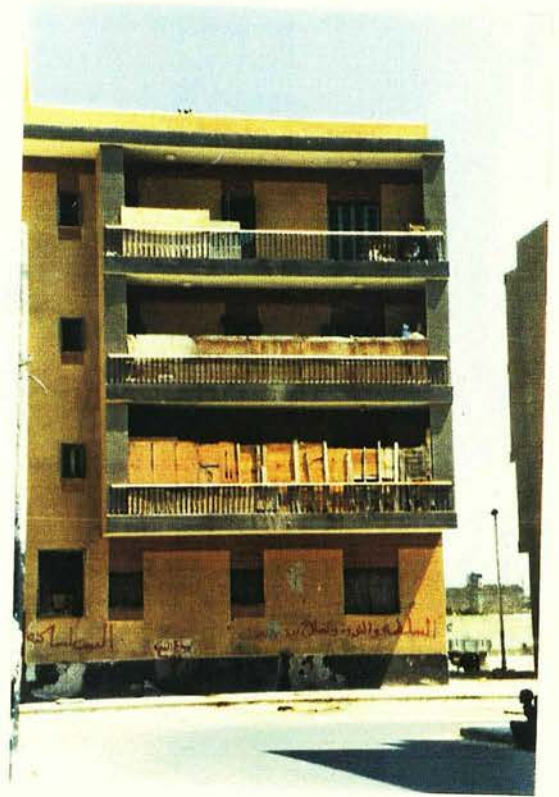


Fig 6.21

Only the pavement provides shade for old men to sit between the roadway and the places exposed to sun.



Fig 6.22

City centre space surrounded by offices. Attractive looking but not used by local people who prefer most intimate space and consider that such areas are for foreigners only.



Fig 6.23

Old and new. Traditional building soon to be swept aside by the spreading modern blocks.



Fig 6.24

The minaret no longer dominates the skyline and is dwarfed by high rise blocks.



Fig 6.25

Lack of co-operation between building contractors and highway engineers often lead to finished houses without any proper road access.



Fig 6.26

Public low rise modern houses are modified by occupants to give them some semi-private space outside and to indicate what is their territory.



Fig 6.27

Stores have to be kept on the roof when no interior space is provided. Men appearing in the area drive the women inside.

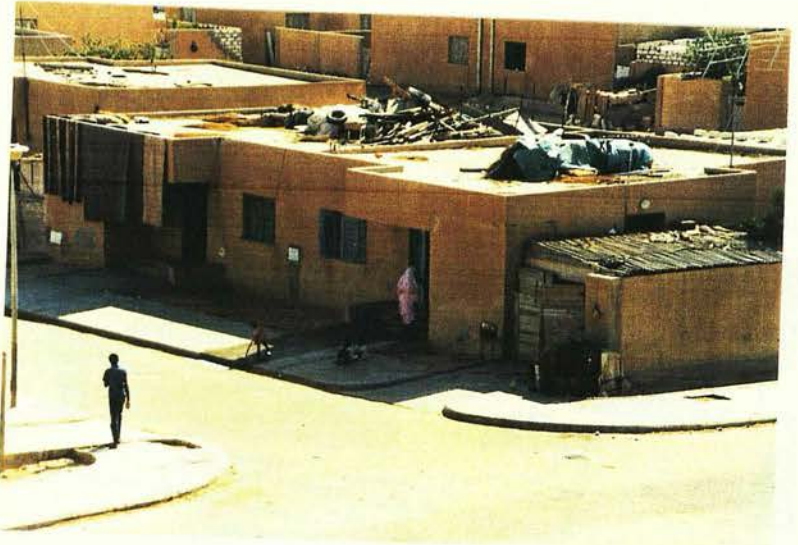


Fig 6.28

Houses on one level in the Tawargah area. Women use the walls to dry washing.

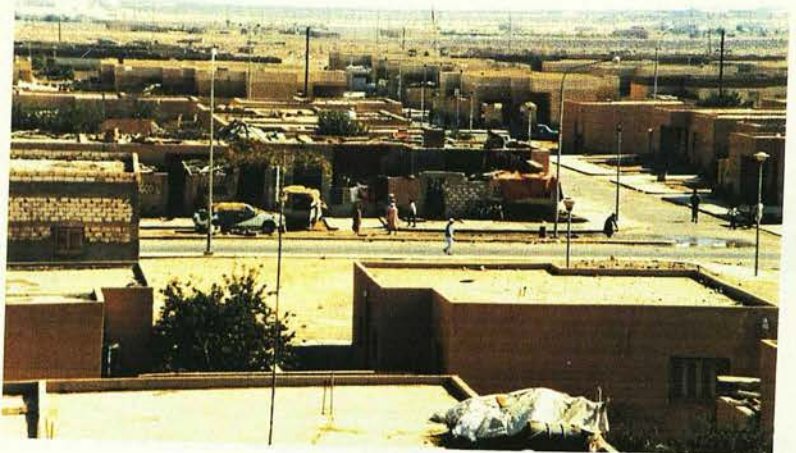


Fig 6.29
Unfinished street and evidence
of additional buildings to
heighten walls.

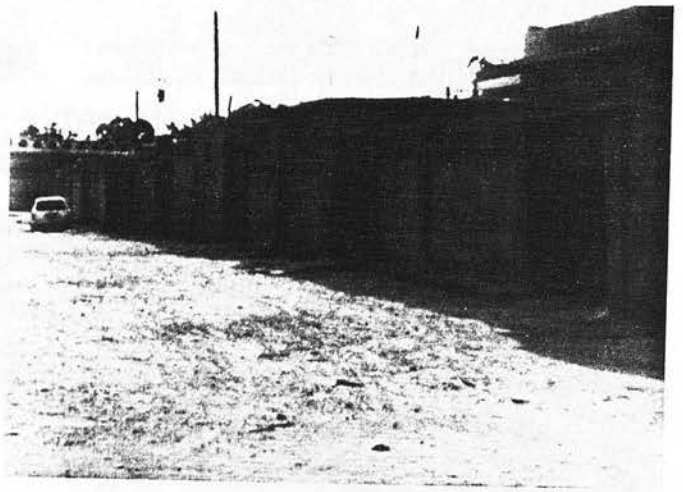


Fig 6.30
Any available space, outside the
house or on corners is used for
animals even though it is
unsuitable. Sheep in the
roadway can be a danger to
traffic.



Fig 6.31
Huts and walls added to
buildings give the area a poor
appearance.

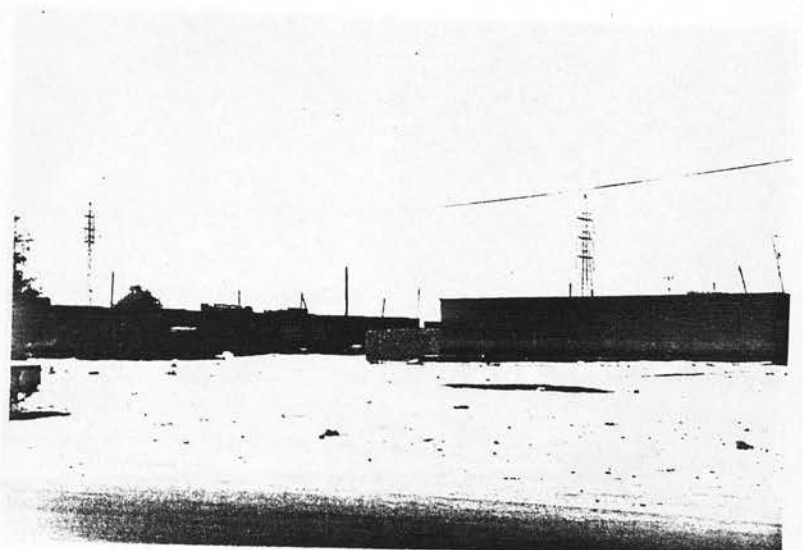


Fig 6.32

In the Tawargah area, space is busier and life is still of a traditional nature. Children have to use the roads and pavements to play.

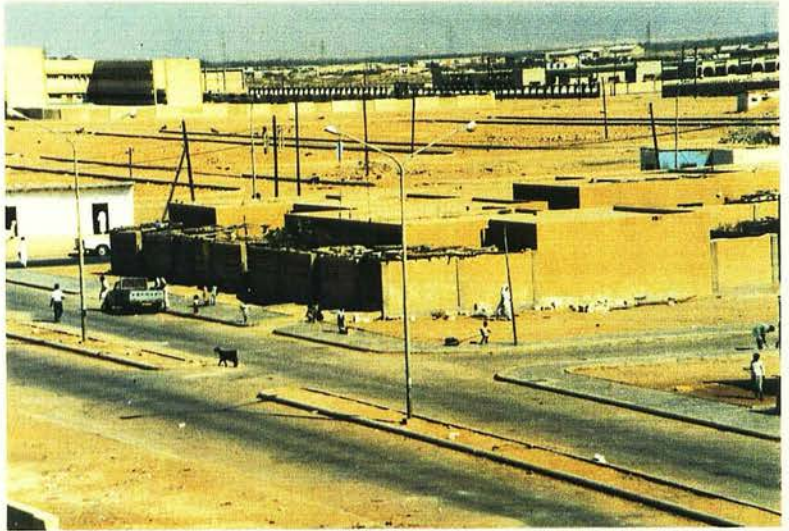


Fig 6.33

Street as playground. Stores on the roof catch and retain water in the winter causing damage to the structure.

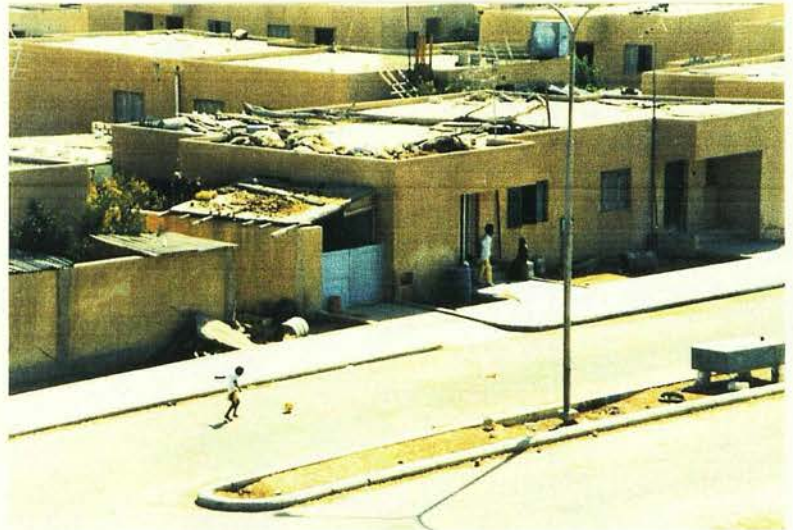


Fig 6.34

A goat wanders the street and people gather in the road to talk. There is no pleasant shady area to keep them long. They are unwilling to change their way of life to suit their surroundings.

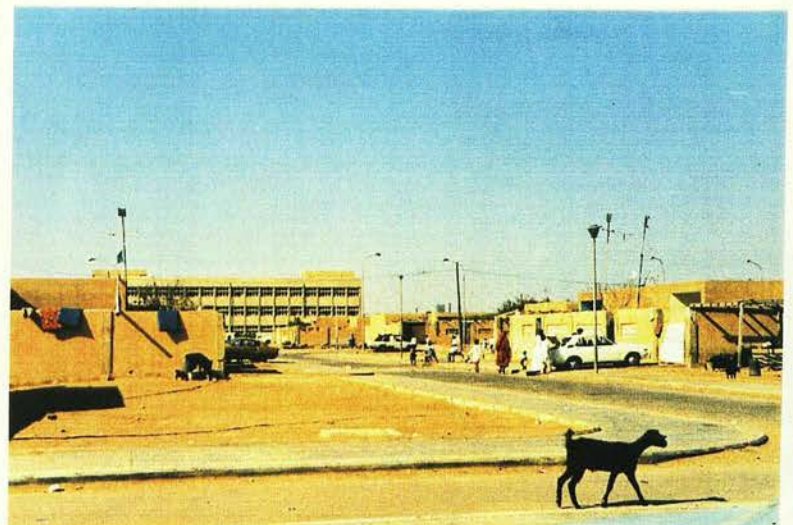


Fig 6.35

Wide roadway but no place for people. They walk on the road because they consider the off-road area is private for people living there.



Fig 6.36

People living in modern areas have to receive relatives and friends from traditional villages. Their house are not suited to such gatherings as the cartoon shows.



Fig 6.37

In modern areas women are exposed in the space when they have to go out.

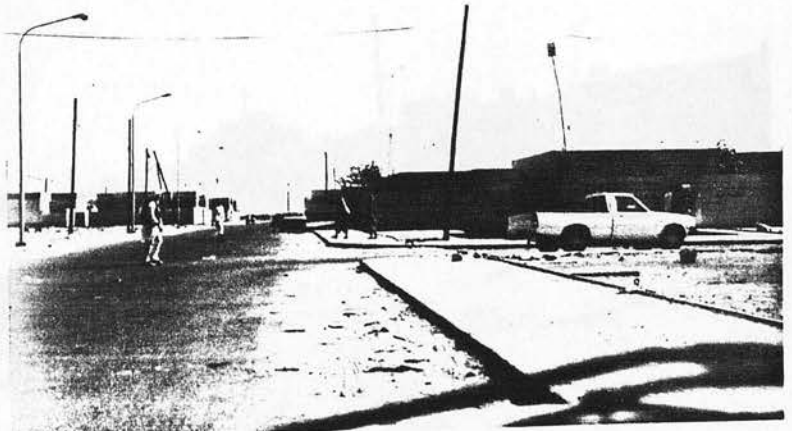


Fig 6.38

Attempts have been made in this scheme to provide some shade in the garden and space. The mosque appears as part of the grid in an exposed position.

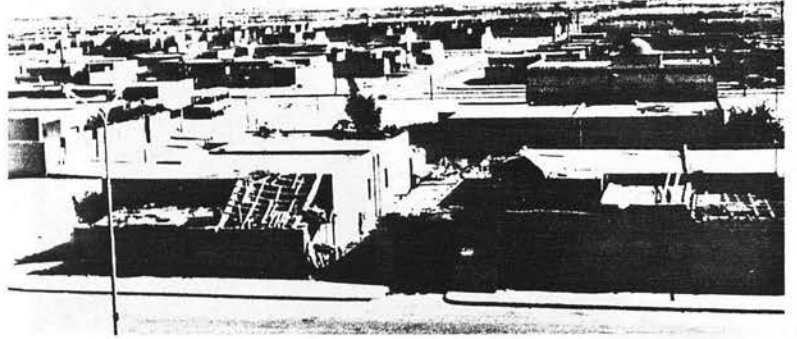


Fig 6.39

Very open space. Additions to houses are common as people attempt to gain private areas. Lack of cooperation between housing authorities and telephone engineers causes awkward unsightly positioning of wires and poles.

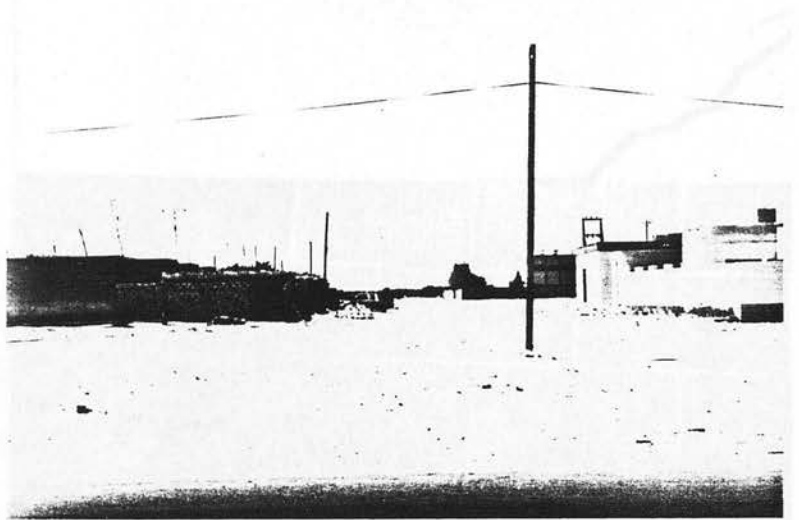


Fig 6.40

For those who cannot afford to build extensions, they use any materials they can to erect walls.



Fig 6.41
Photographs from the study in
Wadi Bei show extensive
damage caused by cracks.

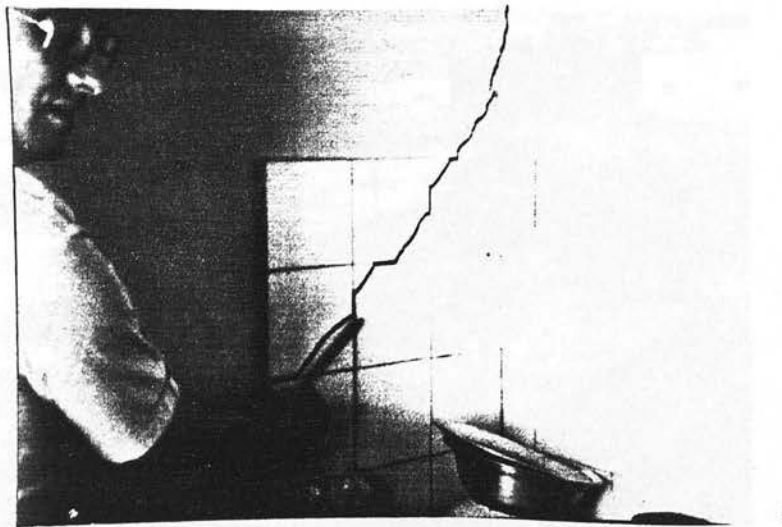


Fig 6.42
These cracks are too big for the
occupants to deal with
themselves.

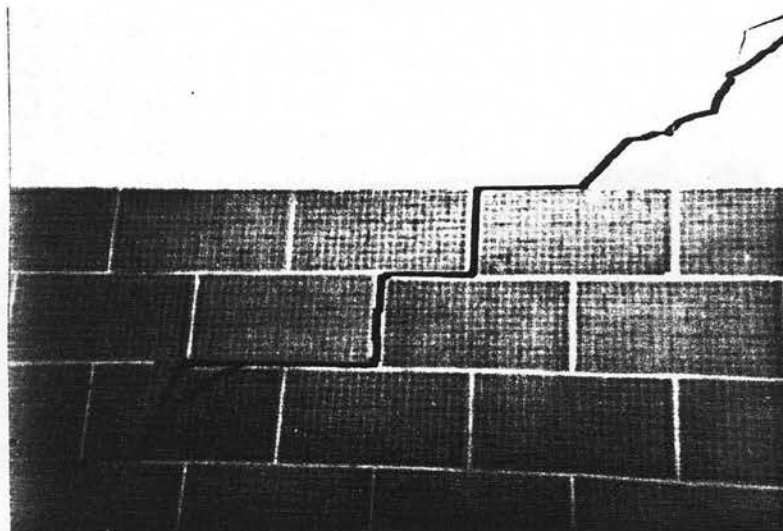


Fig 6.43
Cracks in the exterior wall
caused by subsidence.

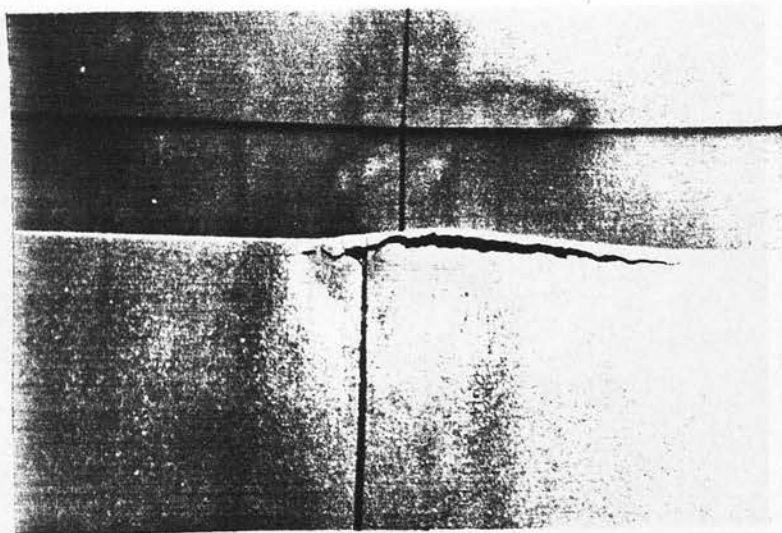


Fig 6.44

2 storey private houses overlook low level public houses and make people feel uncomfortable. Trees belonging to the houses are well looked after but those planted by the government are not cared for and do not flourish.

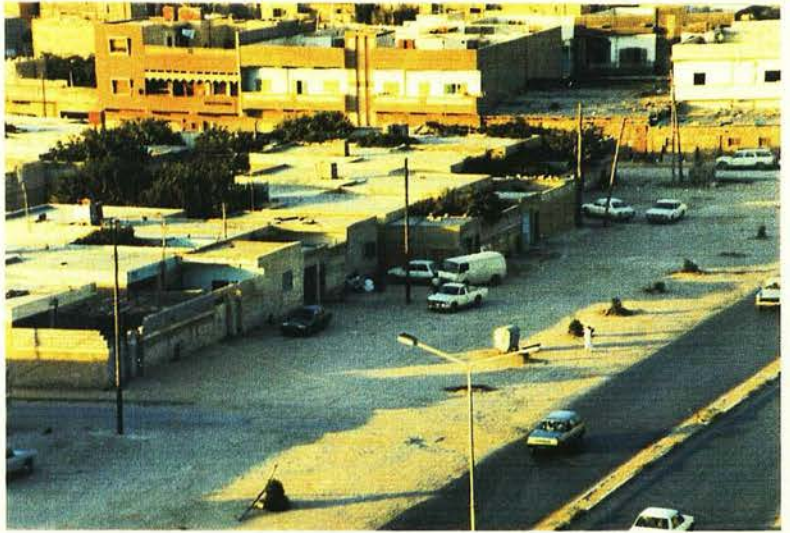


Fig 6.45

A city landscape showing many different levels of building.



Fig 6.46

From the roadway in this picture one can see inside the houses which have been poorly located.

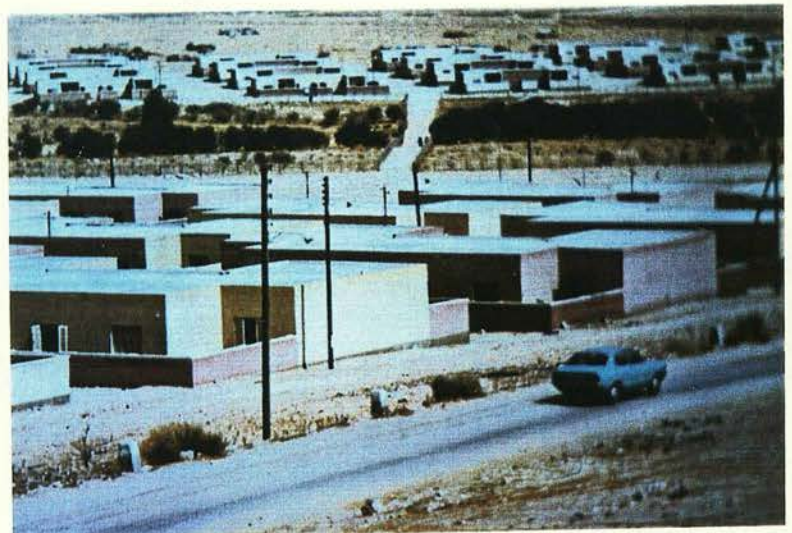


Fig 6.47

Private housing shows better quality of finish but people use one side of the roadway as the pavement is closed off by residents for their own uses.



Fig 6.48

When no court or garden is provided people take over pavement space to protect main door of house.



Fig 6.49

School gates provide the only space for old men to meet and socialise.

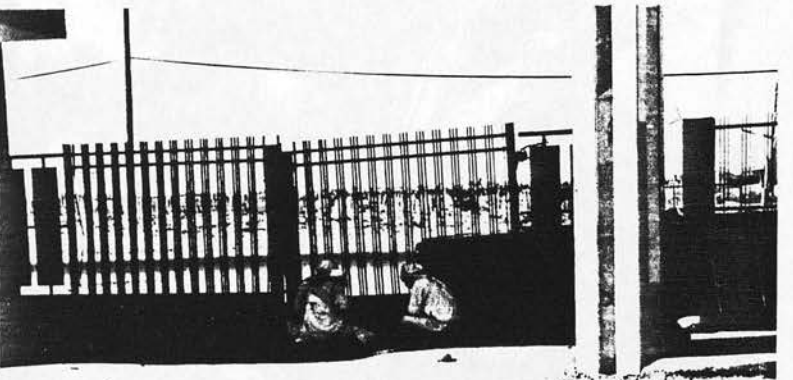


Fig 6.50

Private housing shows better quality of finish but people still meet out on the pavement in preference to their new sitting rooms which are too cut off from the public domain.



Fig 6.51

Blind wall on right is the boundary of a traditional area facing the new lower exposed facades of modern houses.



Fig 6.52

High walls protect the house but cut off interaction.

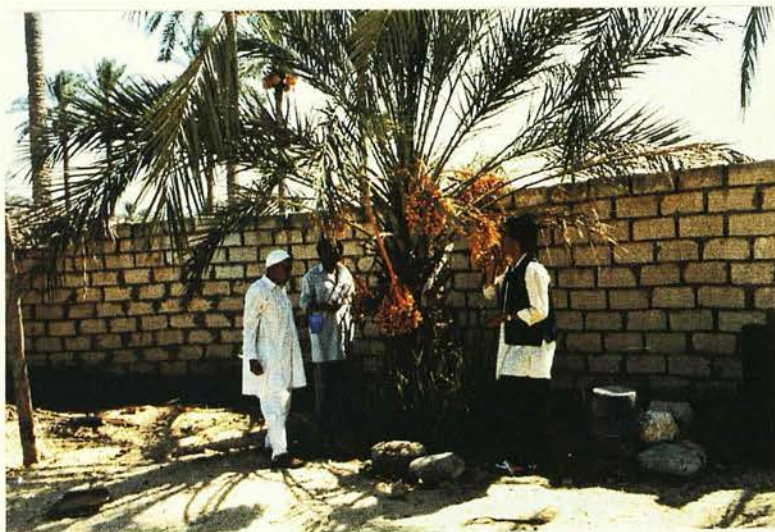


Fig 6.53
Colour is used for personalisation and trees maintained even in awkward positions.



Fig 6.54
Marked-off territory makes a private area for building bricks to be stored and for people to sit.

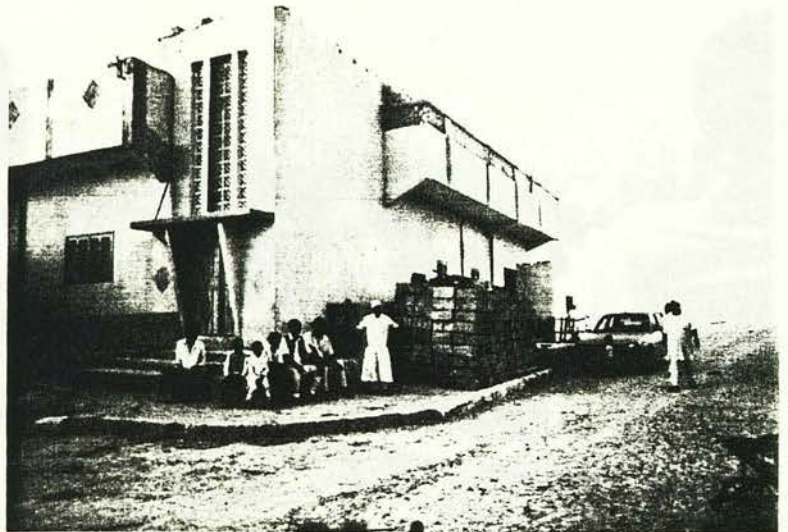


Fig 6.55
Gates to private houses left open encourage interaction between men, but the space is intended for families and therefore has to be closed off unless for a special reason.



Fig 6.56

Special occasions need large outdoor space for people to gather but those behind the walls are cut off from the activities.



Fig 6.57

Space behind the barrier is used by women at this celebration and the men have to use the pavement.



Fig 6.58

Windows have to be blocked when men use space outside the house.



Fig 6.58
The original settlement
was built on a high ridge of
stone with a narrow street
between the walls.

Fig 6.59
Modern building materials.

Fig 6.60
The pattern of a traditional
area starts to change with
the construction of modern
houses.



Fig 6.61
Some of the original
houses can be seen
in the background.

Fig 6.62
The pattern of a traditional
area starts to change with
the construction of modern
houses.



Fig 6.63
Only the arable land is left
from a traditional area,
the original houses
have been destroyed
for modern building.



Fig 6.62

The outdoor sittingroom of a traditional house opens to the street with a barrier to protect the main house entrance. Next door the sitting room has to be surrounded by a high wall as it leaves the other rooms of the house exposed.

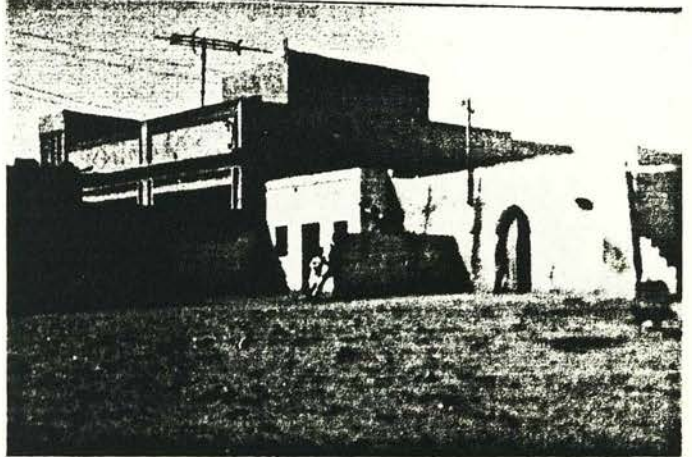


Fig 6.63

Sitting rooms giving onto the space can be used casually and frequently in traditional houses but cause neighbours in modern houses to heighten their walls as they know men will gather there.



Fig 6.64

Garages built in modern areas are also used on occasions by men for entertaining.



Fig 6.65
A traditional area is quickly
cleared for the extension of
modern housing.



Fig 6.66
The old wall of a traditional
house is retained until the new
house is complete. The author
monitored this area and
remained until the wall was
demolished (Fig 6.52).



Fig 6.67
Contrast of old and new.

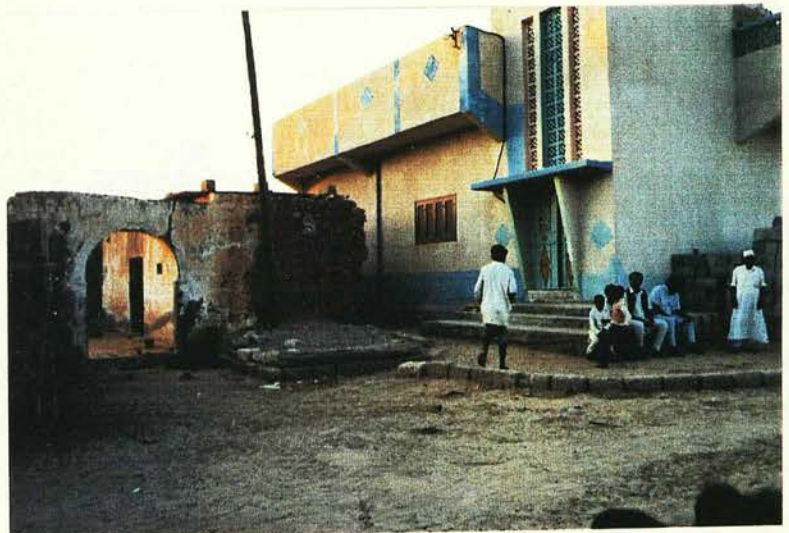


Fig 6.68

Narrow lanes between villages are used for social events.



Fig 6.69

The owner of this house has anticipated the development of a highway which will cut through the area and has constructed a wide highway which is unsuitable for people.



Fig 6.70

People erect barriers when new roads bring strangers, noise and dust to an area.



Fig 6.71

People mark off their territory and try to prevent any possibility of roadways passing their homes.

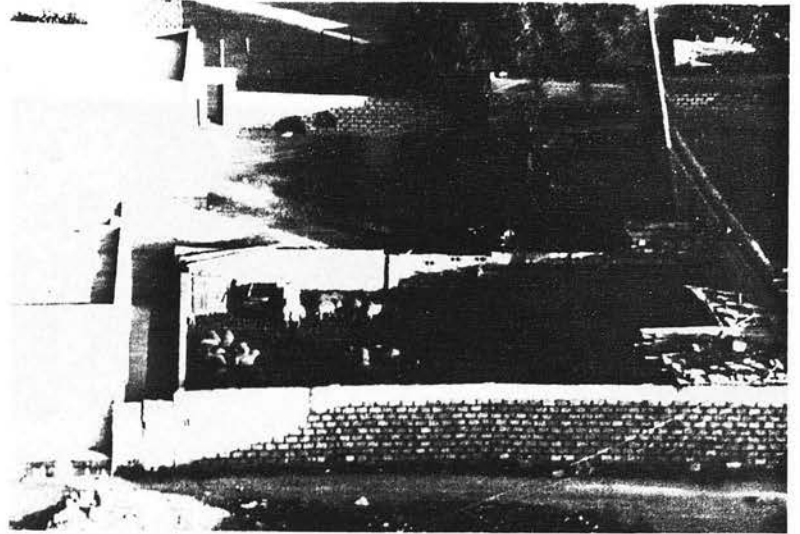


Fig 6.72

The owner of this house has anticipated the development of a high speed wide road outside his house and has constructed a high wall to make sure his land is protected and given respect.

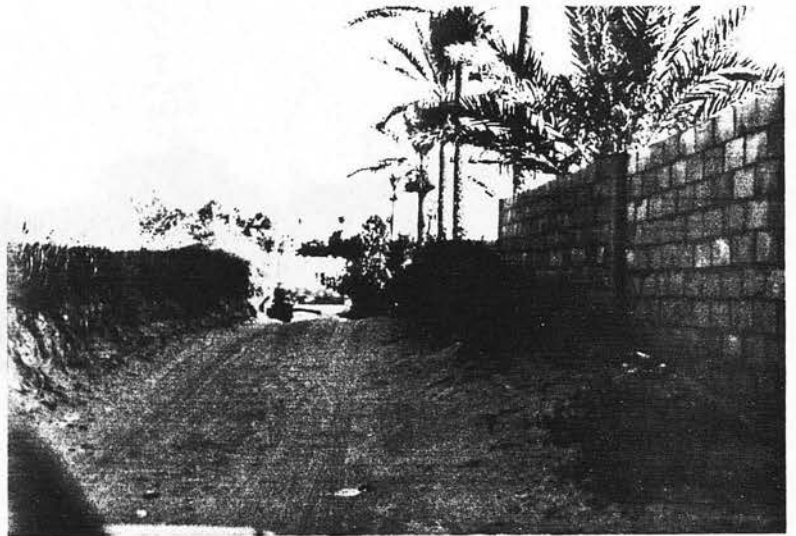


Fig 6.73

An old man sits on the pavement in a modern street. Pedestrians do not pass through nor are there any courts or outdoor sitting rooms to provide contact for him.



Fig 6.74

Families try to provide a shaded area outside for a special occasion by hanging sheets between the houses.

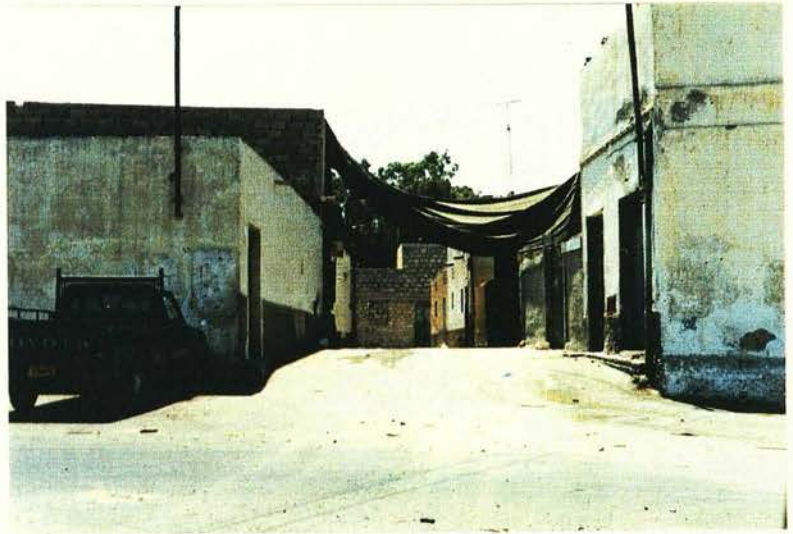


Fig 6.75

A house entrance is protected by a makeshift awning.



Fig 6.76

Tents in the space help to give shelter where none is provided naturally.

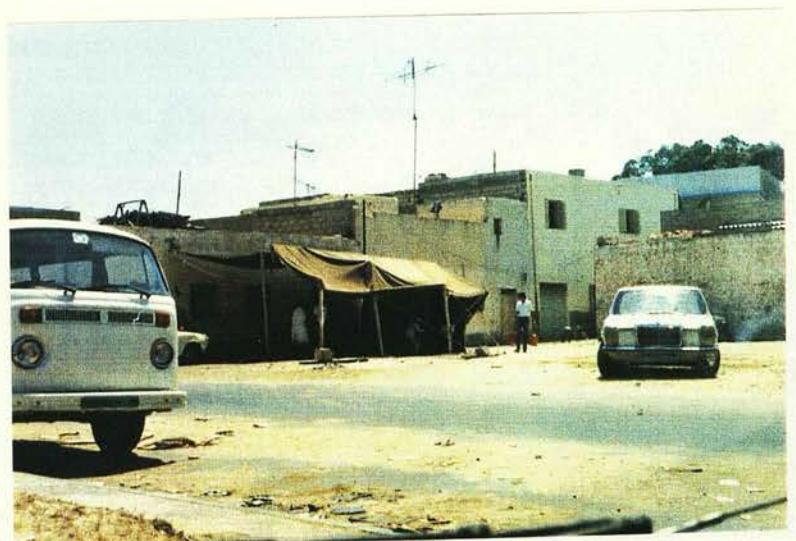


Fig 6.77 View from the city centre to the outskirts shows the green areas and level building of traditional areas with only minarets showing above the roofs.



Fig 6.78 View into the centre is like a giant construction site. All manner of new buildings appear in every corner.



Fig 6.79 Steps have not been taken to ensure that this area is properly finished. There is no control of building nor any care taken of space between houses.



Fig 6.80

Houses built on 2 floors are a status symbol. Villages now show many sights like this where people compete to build high.

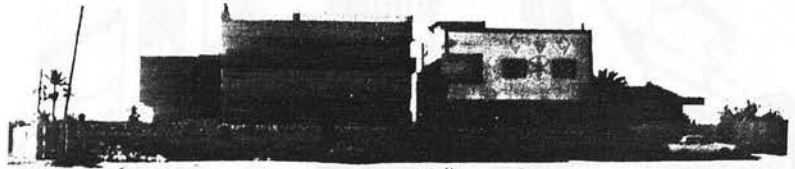


Fig 6.81

Modern materials give harder, sharper lines than traditional ones and have a less human face.

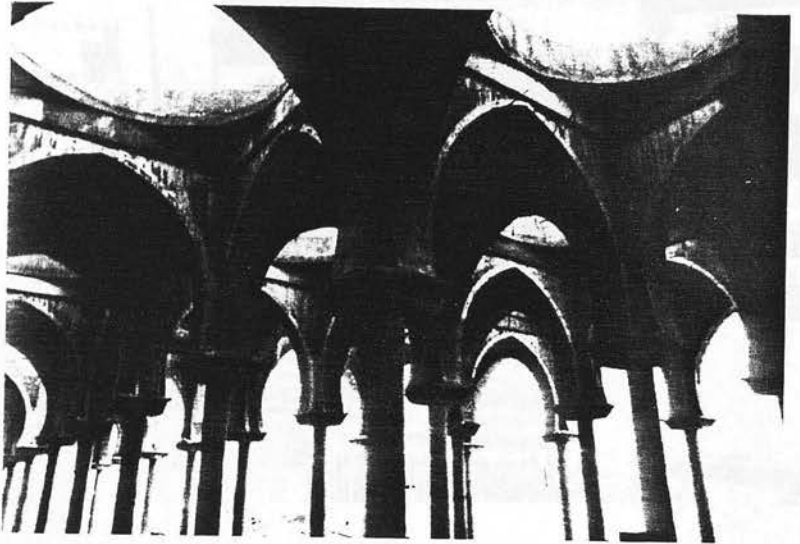


Fig 6.82

Space for standard size windows is left during construction. Bricks also give standard height to new homes.

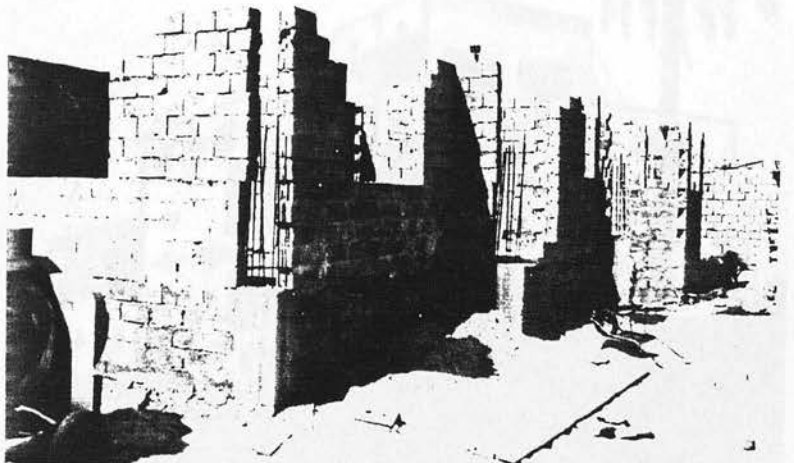


Fig 6.83

Modern private housing can be made to look attractive with many personal touches, but the balconies cannot be used nor can the gate be left open.

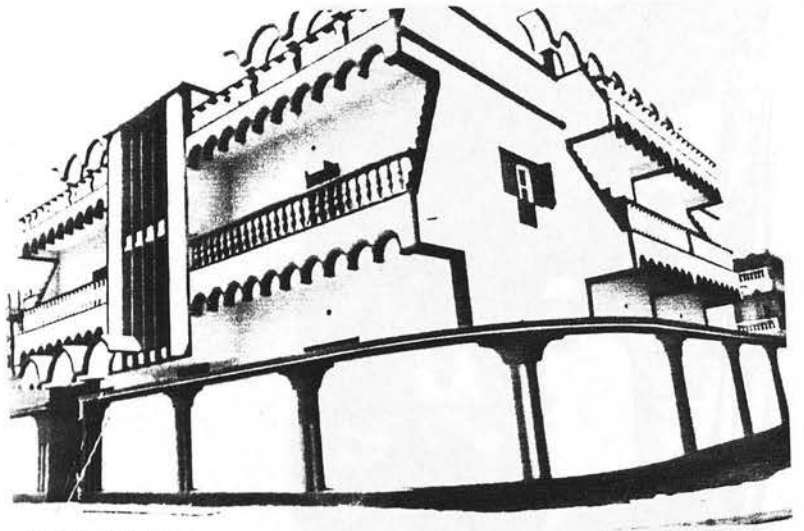


Fig 6.84

Inside the gate of a modern private house a courtyard gives pleasant space for the family, but guests and visitors cannot use it.

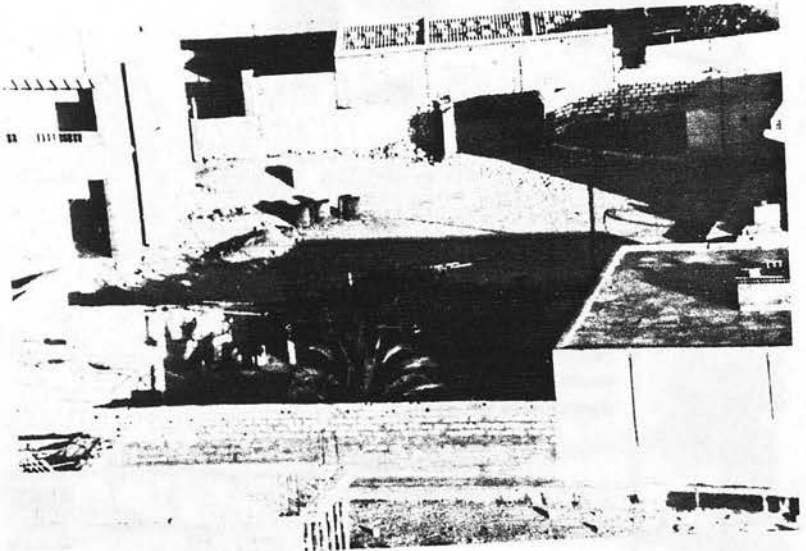


Fig 6.85

A balcony of a private house has been covered so that it can be used. False windows are used to decorate the external walls.



Fig 6.86

A small traditional corner shop is used for people to socialise. The author is shown interviewing the owner who has placed boxes and barrels for people to sit on.

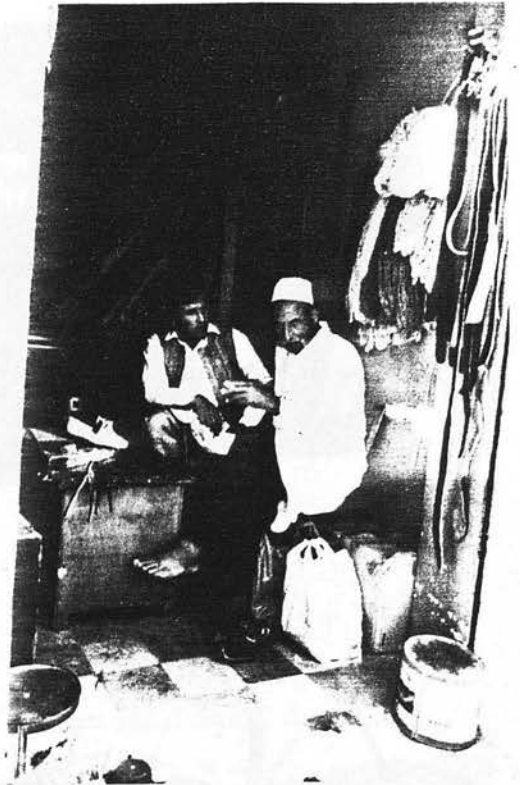


Fig 6.87

People for whom the main market is available, regard their corner shops which remain

Fig 6.87

No such activities can take place in this impersonal modern supermarket which is far removed from residential areas and too large and imposing to be a suitable meeting point.



Fig 6.88

Traditional open market, which no longer exists, used to provide a trading point for local crafts and attracted many people. There is no outlet now for such goods and so people no longer produce them. The markets are also missed as they provided a meeting place and much activity.



Fig 6.89
Traditional carpet auction in Misratah provides an outlet for women's crafts.

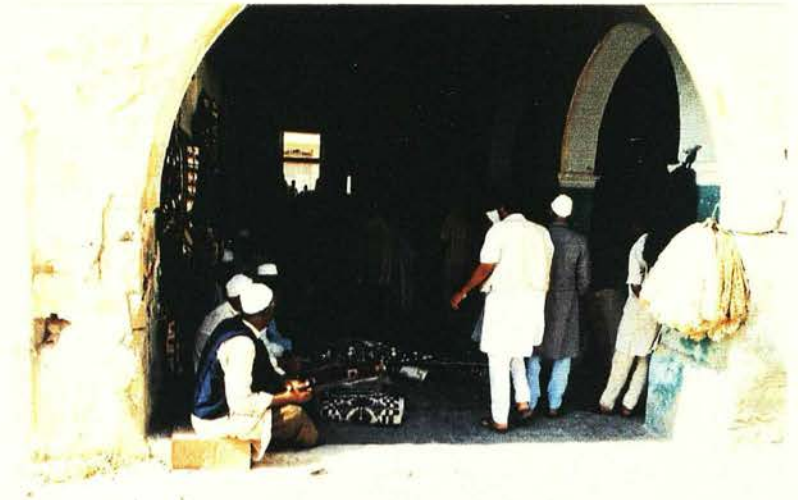


Fig 6.90
People for whom no such market is available, create their own sales areas which become meeting places for passersby.



Fig 6.91
Much activity and interaction is created by improvised markets but cause disturbance to the surrounding houses.

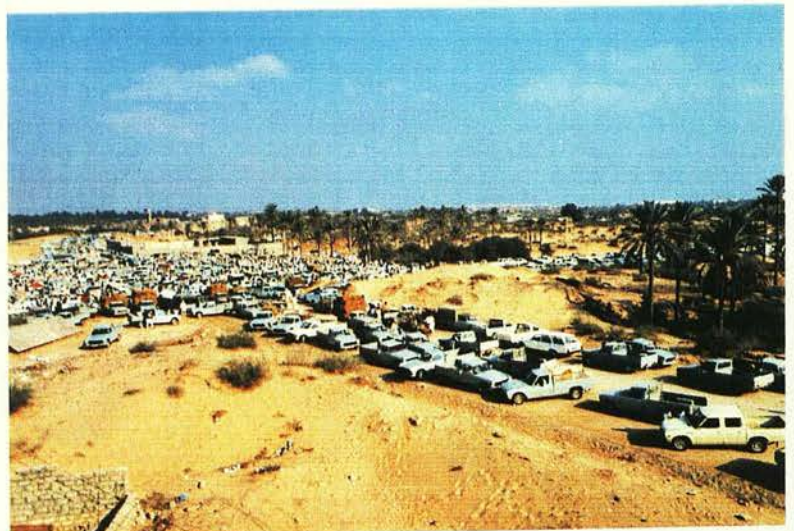


Fig 6.92

Outside the mosque many men gather to exchange news, to chat and to celebrate religious festivals.



Fig 6.93

When the mosque does not have its own space outside men have to use the street for their prayers.



Fig 6.94

A small village mosque is by-passed by a high speed road making it unattractive for people to gather.



CHAPTER 7

MOVING FORWARD

7.1 INTRODUCTION

Having looked in detail at the present day housing situation in Libya and bearing in mind the examination made of culture and climate, it becomes clear that the traditional settlements with courtyard houses continue to provide the kind of spatial arrangement preferred by Libyan society. The form has been shown to be ideal in the varying climatic zones of the country, where separate development and adaptations to suit the environment and sub-culture have maintained its dominance until recent times.

Major political, economic and demographic changes this century, which were looked at in a previous chapter, have changed people's aspirations as they benefited materially from the oil boom. However, lack of education and expertise, leading to wholesale adoption of imported styles and methods of construction have resulted in increasing social and psychological uneasiness, particularly in the public sector.

Certainly the new houses are more attractive and better equipped, but the survey lifted aside this veil to reveal the true character beneath. Makeshift alterations fail to make up for the discomfort felt by families in these areas. Attracted by the modernity, people have no choice of style. Even in the private sector, as seen, design follows the lead of publicly built units.

The housing authorities, keen to fall in with the government's policy of providing every family with a high standard of housing have had to look to foreign builders, planners and designers for help. This has resulted in the construction of high rise blocks and wide open streets. Comparing the physical

face this presents with the traditional areas, one would be favourably inclined towards the new. A modern house with good amenities is better than a crumbling courtyard house, a hut or a tent. People are, therefore, caught between two stools.

There are still people who are willing to remain with their extended family in the traditional area to await a better solution. The study has already shown that turning back the clock is not possible, firstly for purely practical reasons – difficulties in obtaining materials, the speed and scale of building required and the problems of construction. The second reason is that people now want to break from the extended family, remaining close, but living as a nuclear unit and finally, they want the benefits of modern technology within their homes. Traditional courtyard houses no longer fit the bill while modern houses fail to meet needs in a different way.

In spite of the country being in transition in every respect, there are still certain requirements in housing imposed culturally or socially, or both, which are not easy to ignore. Environmental qualities are greatly affected by the extent to which the human and social requirements are met (N. Essayed, 1981).

It is these social and cultural needs that present the problem with western style modern housing, but like children given a new toy, people are unwilling to give up what they have been given and have no alternative to which they can turn. They still consider the courtyard house to be like a slum and do not wish to go back to it. The only advantages in the private sector are the degree of choice of location, private ownership and personalisation.

The author recognises that there is no quick or easy solution but would recommend that the housing authorities take the lead in the public sector to offer a form of housing drawing the best from traditional and modern forms and taking into account psychological as well as physical needs. As was seen in the section on new schemes in Dundee and Prestonpans (Chapter 4), they

should try out a new form introducing an alternative for people and monitor closely to see how it meets their needs, working adaptations and alterations required into future schemes.

By giving this example, the private sector would follow. The only way to learn is by experience and this has to be on a three dimensional scale. Untrained people cannot tell by looking at plans if a house will be good or bad for them nor will they be convinced by talk alone.

The author has identified the needs of society and looked at how various sectors of housing meet these needs. It is now the task to identify what is appropriate from each sector to give guidance to planners of the future. Some needs are universal and some specific and particular. To give a key to the planners therefore the background environment and climate of each area must be thoroughly examined before any plan is initiated. Recommendations will form the backbone of the design but the designer will still have scope to make innovations and decorative changes.

For the public housing sector, priority areas were identified by the survey. It would however be a mistake to set hard and fast rules regarding dimensions and division of space. Each group of clients should be considered separately and surveys continuously updated to take account of changes in society, family and economy.

The residents of the present public housing schemes are no longer rural people. Having lived for some time in modern city houses, their needs differ from those coming from courtyard houses or tents in traditional villages. They have become more sophisticated and more accustomed to city life and the use of modern amenities in the home. Designers should take into account where people have come from, what they are accustomed to, what improvements they require and what they wish to keep of their old way of life and style of

housing.

People are different so try to satisfy most of them by providing many choices or alternative units (Farouk Konash, 1984).

It will also be necessary to educate by example, to prove to people that a better environment can be created for them rather than encouraging them to take a step backwards. Let us now consider the different levels of responsibility involved in this process; local authorities, planners, designers and builders.

In Chapter 3, the study examined a code for building guidelines identified by Besim Hakim. This was based on purely religious considerations and applied, he claimed, throughout Northern Africa. The two levels which were described, of macro and micro responsibilities, were admirable for the period in which they were used, however, although the considerations outlined are still valid, much has changed and the scope of such a scheme cannot cover the needs of a modern society.

Designers and planners, local and national governments are now faced with pressures unknown until recently in Libya. Control of finance, demographic changes, modern technology, sophisticated communications networks and above all, the pressing need for building expansion, have to be taken into account. Hakim's code could still be appropriate for an individual wishing to build for himself, but, when faced with large sections of the population awaiting re-housing, a more structured approach is required involving all levels of government and those responsible for actual construction, as well as the individual.

7.2 LEVELS OF RESPONSIBILITY

As described in the Introduction, there have been many changes in the internal political structure and administration of Libya within recent years. This

has caused a lack of stability and continuity, with each new administration sweeping aside former rulings and setting its own priorities. There has been no attempt to learn from previous mistakes and no opportunity to build up a bank of experience.

In 1973, all former legislation was abandoned in favour of the newly established People's Committees. Theoretically, these committees, meeting in each village and city area, were to consult and recommend action on every aspect of administration. In practical terms, they have very little influence because people do not know what alternatives or choices are open to them, nor do they have sufficient education or experience to take decisions or make policy in any realistic sense. Finally, they have no control over finance or access to information on levels of funding available.

The highly technical and complex area of building and planning is beyond the capabilities of the ordinary man in the street to fully comprehend. People know houses are needed and can say how many, state what they do not want but, if they do not know what the choices are or the goals, or how much money can be provided, they can only rely on authorities higher up the scale and foreign consultants to take decisions.

It should not be expected that, at this level, the local centre (see fig 1), people should make recommendations on technical aspects of housing, however, as has been stressed throughout this study, the wishes of the people should be taken into account. The author would suggest that these committees should have access to the design brief, plans and drawings at an early stage of consultation. These, backed up with demonstration units, exhibitions and contact with the design and planning teams, would give them the chance to offer their criticisms on a more reasoned basis, so that the municipal authorities are made aware of disadvantages or drawbacks before building

begins.

(i) At present the municipal centres have the highest level and widest scale of responsibility. They have to locate and purchase suitable land for building, obtain sufficient finance to ensure successful completion and provide the required amenities.

The author would recommend that, at this level, individual units are put under the microscope by a research team comprising qualified architects, quantity surveyors, engineers, builders, sociologists and psychologists. Their task would be to look at each component of the house and its functions, not forgetting the connecting areas between houses. Thus any planning regulations decided upon would have a strong basis of justification.

This group would report their findings to a Central Committee to contribute to the drawing up of national guidelines for building. The committee would then feed back their information to all regions and municipalities for designers to refer to (see fig 1).

The country should be sub-divided into regions and each region given a controlling body responsible for building and with facilities for research. Municipalities and their local branches would feed the regional centre with findings from their studies and the region would feed back to the Central Committee. Each municipality and region would consult together and co-operate on the method and nature of their work.

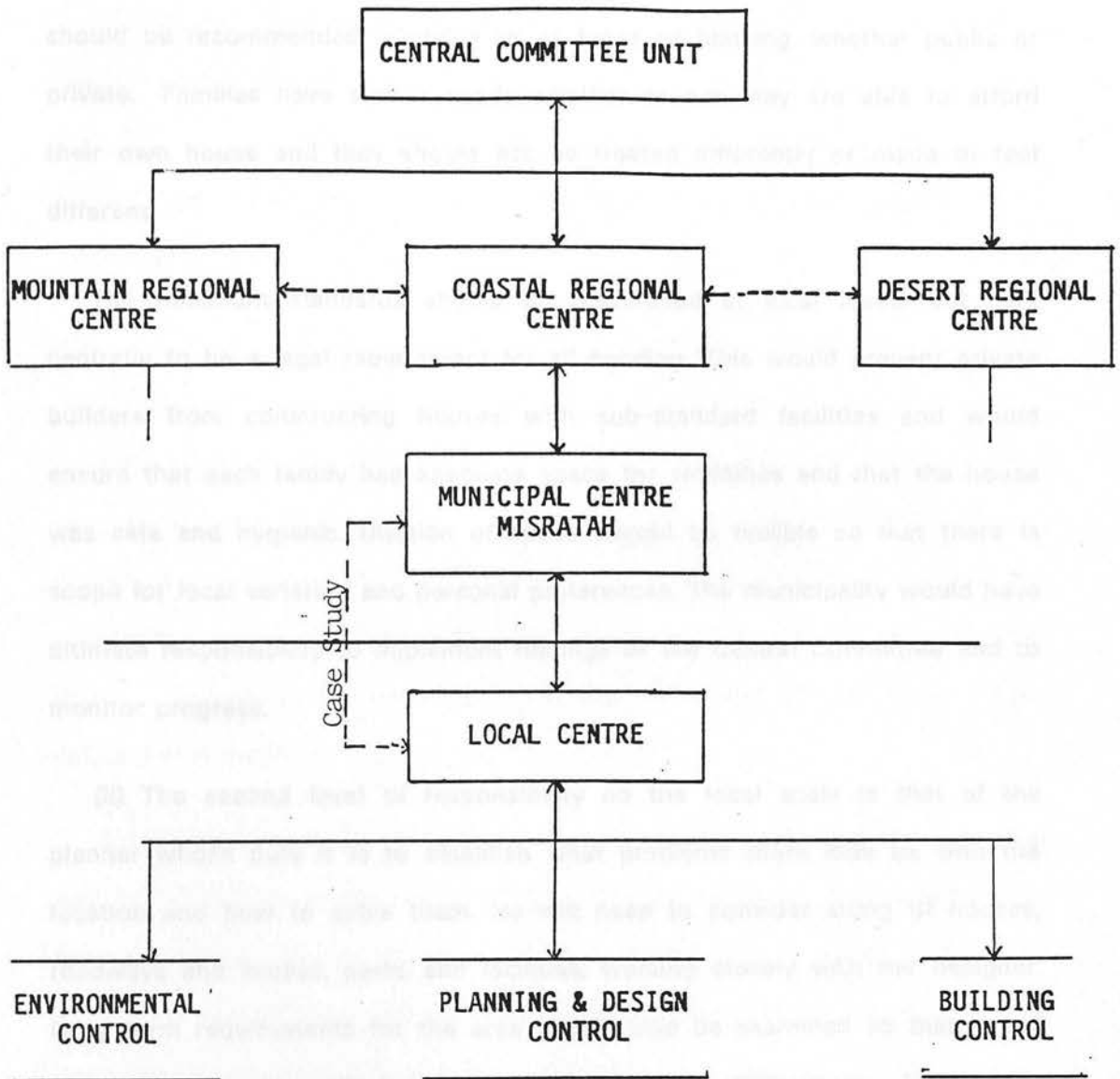


Fig 7.1

As a bank of information is built up, the authorities at all levels would have more muscle to implement their building programmes and designers, in whichever region they were required to operate, would have easy access to local standards, background and recommendations, from the region and municipality, similar to the design bulletins issued in Britain.

Standards should apply across the board, but minimum standards only

should be recommended, applying to all types of housing, whether public or private. Families have similar needs whether or not they are able to afford their own house and they should not be treated differently or made to feel different.

The minimum standards should be researched at local levels but held centrally to be a legal requirement for all building. This would prevent private builders from constructing houses with sub-standard facilities and would ensure that each family had adequate space for amenities and that the house was safe and hygienic. Division of space should be flexible so that there is scope for local variation and personal preferences. The municipality would have ultimate responsibility to implement findings of the Central Committee and to monitor progress.

(ii) The second level of responsibility on the local scale is that of the planner whose duty it is to establish what problems there may be with the location and how to solve them. He will need to consider siting of houses, roadways and access, parks and facilities, working closely with the designer. Long term requirements for the area should also be examined so that it will continue to provide valid living space for successive generations. This means that research on the background of the user group must be carried out and data fed back to the central research group.

Planners should be concerned to minimise pollution from traffic, factories and noise. Increasing industrialisation in Misratah, as in other Libyan cities, is likely to make control of pollution an issue of growing importance in the future.

An area should be knit together unit by unit and on a larger scale, scheme by scheme. This could prevent the creation of islands of houses where people are isolated from neighbouring areas and facilities, which has happened, as shown, in public housing areas examined in the case study, in Misratah.

Regrettably, Libya does not yet have enough qualified urban designers to take responsibility for space design and layout of streets. Another aspect of their job would include the protection and improvement of the natural environment, landscaping and maintaining the community's established way of life and activities.

(iii) Our next level is the designer level. Here, responsibilities include detailed research of client's individual needs, background and social problems. A relationship should be established with the prospective occupier so that he can be involved in the design process. Thus particular and specific needs regarding family size and structure, the employment, level of education and prospects of the user could be identified and catered for. Presently in Misratah families have to fit their lives to the designs available instead of the house design being made to suit their requirements.

(iv) Finally, the builder must have the responsibility to take note of planning and design structures but should also be flexible enough to work closely with the new owner, listening to him and explaining what he is doing. Up to now, foreign companies have come in, completed construction and departed. There has therefore been no build up or reserve of local knowledge or experience on which designers can call. As we have seen, when deterioration sets in, the construction team has long since gone and the building methods they used are unfamiliar to local people.

Builders should be used to advise designers on likely costs and time factors based on their experience. Only by building up skills at a local level can this be achieved. Standards could be considerably improved if local firms had the chance to prove their worthiness and reliability by demonstrating ability to meet deadlines without forfeiting quality.

These levels should not be regarded as separate or finite. They should

co-operate and consult continually, questioning and developing ideas or suggestions. Libya is virgin territory for the researcher. There is still a considerable way to go before the ideal solution can be found but at every stage, research should be taken as a step forward, not only prior to construction but during and after. Ostrich tactics are no longer acceptable, social and family problems must be recognised and speedily dealt with.

Patrick Geddes recognised this vital need for research when he stated in 'Cities in Evolution' (1968):

We cannot too fully survey and interpret the city for which we are to plan – survey it at its highest in past, in present, and above all, since planning is the problem, foresee its opening future. Its civic character, its collective soul, thus in some measure discerned and entered into, its active daily life may be more fully touched, and its economic efficiency more vitally stimulated.

7.3 BUILDING COSTS

The issue of costs for building is a sensitive one in Libya, which, as a developing nation, has only one main source of income, i.e. oil. This is a finite resource whose value is dependent on world market prices. As seen in the background studies, Libya needs to provide a large number of houses as quickly as possible for demographic and economic reasons. Political pressures and the pressing nature of the problem have led to a policy based on speed and quantity at the expense of caution and quality.

Level of costs depends on the material to be used, the design chosen, time taken in construction and labour requirement. P. A. Stone pointed out (1964) that "The costs and benefits differ between developers, public authorities and the community". Formerly, individuals knew how much they could afford to spend and what benefits they needed from the end product. They found material locally, to cut costs, and carried out much of the work themselves

calling on local help when required. Throughout the process they were in control of the costs while ensuring that the house was going to meet their needs.

The rapid shift in the economy and influences from abroad have led to changed aspirations for housing. Primitive, unprofessionally built units are no longer acceptable. The government has money to build but the control factor has been lost. Quite apart from the inappropriateness to society of the units examined in the survey, there is also the argument that they are not cost effective although, in fact, very few studies on cost and benefit have ever been carried out in Libya. Such investigation is beyond the scope of this present study but would be worth following up in greater detail. Here, we will only consider general findings to support the argument against the proliferation of high rise buildings.

In 1966/67, a cost analysis carried out by M. A. Khuga in Tripoli indicated that, at that time, traditional (courtyard) houses were cheaper to construct than villas or flats.

TYPE OF DWELLING	COST PER SQ METRE LD
Flats	50
Villas	30
Traditional Houses (Middle Income Group)	20
Traditional Houses (Low Income Group)	15
Huts (Shanty Town)	5

Table 1: Cost Analysis

(Khuga, M.A. "The Growth and Function of Tripoli, Libya"
unpublished PhD Thesis, University of Durham, 1969)

The author will not argue on cost alone that the traditional form is preferable and far greater study in this area would be required for conclusive evidence

that the form remains economically favourable. It is hoped that future trials will provide such information.

Government policy for building, as laid out in one of the Five Year Plans, called for the construction of 150,000 units by 1980 (80,500 of these were to be in the public sector). This has followed on from other similar schemes where massive projects were launched with a specific time limitation. One of the largest projects involved the building of 29,106 units for a proposed cost of £217.4 million. The strain this and similar projects put on the labour and materials market led to the setting up of a factory in Tripoli to produce pre-fabricated units in an attempt to meet the target time (see section on Urbanisation). Referring back to the sections on personalisation and individual needs, it is not hard to predict how poorly such units will solve housing requirements in a psychological sense.

Western studies have been showing for some time now that high rise housing in the public sector is not an efficient way of building. P. A. Stone carried out cost studies in Britain which led him to conclude - "It is clear from the cost analyses given ...that in the general situations considered the scope for using high block residential buildings as a means of reducing the costs of providing housing and its accompanying urban amenities is very limited".

Regrettably, this fact has not yet been recognised in Libya and at the time of writing this thesis, the author is aware that 1,000 units are under construction, the large majority of which are to be high rise (see fig 2,3,4). These are to be constructed by a Turkish company at Al-Jezirah, 3km from the centre of Misratah on a site 120-140m.sq. Approximate costs are LD35,000 for

high rise units and LD45,000¹ for single storey.

The lower cost of high rise units hides the fact that maintenance costs are greatly increased in this type of dwelling, particularly considering the poor quality of materials available and problems with repair and replacement. A high rise scheme built in Edinburgh in the 60s for public housing, hit the headlines in 1988 when the blocks in question became so run-down as to be uninhabitable. The local council was faced with the question of whether to demolish them, rebuild and rehouse all the tenants in low rise housing or to carry out extensive renovation. Either way, the costs would run to more than £10 million. Out of the 500 units, only 20 tenants argued for renovation. (R. Thomson, *Evening News*, 1988.) The council learned the hard way what Sir Frederick Osborn (1964) said in a discussion on P. A. Stone's findings "The socially better is the cheaper".

During the Wilson government in Britain, Stone carried out a study which showed that it could cost up to twice as much to build high rise dwellings and could only be justified in Central London where land was extremely scarce and very expensive, and where there was a degree of expertise with this type of building. The government had indeed found that they could not afford the continued use of this type of building in meeting the housing demand, thus to some extent perpetuating urban sprawl. The message at the time was put out that high rise blocks were socially unacceptable and that, for this reason, their use would be discontinued. Although this may be the case, and showed the government in a sympathetic light, an underlying reason for discontinuing use of the form was cost. (Personal contact, L. Nisbet, 1988, Heriot-Watt University.)

¹LD = Libyan Dinar (£1.95)

In the private sector in Libya, mortgages for low rise buildings are given at approximately LD20-25,000. With this money, families provide themselves with houses, usually, as seen, more attractive and appropriate than in the public sector. It is also common for them not to use the full amount for building. They will often keep some back for luxuries such as a car. However, they manage to build more cheaply than the government can because they are not contracting out to such a great extent and they can do some of the work themselves or with friends' help. To prevent the mis-spending of money given for mortgages, the government should establish greater controls and pay indirectly rather than giving a block of money before construction has commenced.

In each area where public building is to take place, studies on costs, including design, materials, labour, number and timescale should be carried out before building begins. Estimated maintenance costs should be added to the sum. This will make it possible to ensure that labour and materials will be available and will prevent the black market in materials that operates presently because number and time are seen as paramount, causing shortage of basic materials such as cement, which is traded at 3 times the price on the black market. If time were taken initially to assess quantity and cost, these things could be provided at an early stage. If cost of maintenance were made clear, quality control in building would gain more prominence and a higher standard would be achieved.

On completion of building, a further costing should be taken to establish the accuracy of the initial estimate and thereafter a record of further spending on maintenance kept so that the authorities can budget for renovation as well as for new projects. This would also allow them to decide what level of grants can be made available or will be necessary as schemes age. Improvements can therefore be built into their future expenditure plans.

By controlling the flow of money and ensuring that time limits and costings are adhered to, a continuity of building work could be established. The benefits of this would be to have local construction teams continually in use, building up a bank of skills and experience – the importance of this will be mentioned again. Contractors should always be paid in time so that they are not in a position where they are forced to cut costs and lower standards, or be faced with bankruptcy.

The Municipality should keep a close watch on housing deterioration. An official, whose responsibility this would be, should ensure that no area reaches a state of decay from which there is no turning back. Any problems should be quickly noted and dealt with. Thus continual inspections would be necessary. The inspector should also monitor requirements for home extensions and make provision for them. Hasty, makeshift additions (as shown) quickly make an area look untidy and can be dangerous or disruptive to others. They should be constructed to the same standards as the main house.

Providing money for building or for grants has a psychological element and has to be well managed. Families enjoy spending on their own homes but should be encouraged to use their funds wisely. As seen, there is a danger of providing too much and having the money used of purposes other than building. On the other hand, if quality homes are to be produced, sufficient funds to keep standards high are required.

Either the government can pay the owner the full amount to find the contractor or the owner can obtain a limited mortgage and the government would pay the contractor to complete the work. The latter alternative is favoured by the author. It allows the owner to contribute, making him feel the house is really his and provides a much more flexible system, saving on overpayment. It also protects the contractor ensuring that full costs are paid on

time.

Comparing the cost of public building with the present level of all mortgages it seems that costs are lower when people build privately. Private building, even with the limited designs examined in the case study, was shown to be preferable to high rise or low level public housing.

There would still be a need for smaller government housing programmes for emergencies and to meet any short fall, but where possible, owner participation should be encouraged. Public housing should not be seen as a punishment but as a means of raising the quality of life.

Islamic teaching forbids the lending of money for interest. Mortgages are therefore given for no interest for building only; the land being the security for the bank. Mortgages for buying are not given, to discourage an explosion on the property market which might make prices rise in the way that they have in Britain.

The author has already shown that high rise building is neither cost effective nor appropriate and he would advocate that each family should be provided with a mortgage to build rather than with a completed publicly built house. It would obviously not be possible to give a building mortgage for a high rise block therefore the alternative must be low rise housing units.

Units examined for the case study in modern low rise areas have failed to live up to expectations. The following sections will investigate the adaptability of the courtyard form to see if it offers a viable and relevant alternative. A common argument used against low rise building is that it uses too much valuable land. The author aims to show that this is not necessarily the case.

Figure 5 shows how the same size of land could be used for single story

7.4 LAYOUT OF PUBLIC HOUSING SCHEMES

It has been mentioned before that land in and around Misratah, which is suitable for agriculture, has to be protected. With the growing population there is increasing pressure on land for building and the temptation may well be to build high in an effort to resolve the problem.

The high rise areas examined were seen by the users as transitional housing. They did not want to stay there and felt uncomfortable because they like to be based on ground level where their roots are. It is preferable that families should feel settled and that their houses are permanent homes.

Bearing in mind the above points the author has looked at plans for a new high rise area in Al-Jezirah, 3km from the city centre, to see if more appropriate low rise housing could be sited on the same area. The location and layout shown in figure 7.2 is for a scheme of 6 blocks of 4 storey flats on an area of 103,600m². Each flat is 165m² and 240 in total will be built (see figs 3 & 4).

The ground floor is to be left vacant, the flats being built on raised columns. This area is to be used for storage. Parking lots are situated centrally, some distance from the blocks and wide main roads dissect the scheme. The units are analysed, using the Hillier method, in figure 9.

There are large areas of open public space and a school and shops in the middle of the space. On the charts and plans, the open space is coloured green. In reality, it has been seen that these areas are dusty and unkempt. It is unrealistic to suppose that either individuals or the authorities can maintain large grassed areas and lawns in the Libyan climate. No survey of users was carried out before the plans were drawn up.

Figure 5 shows how the same area of land could be used for single storey

units. The same number of houses are provided in tightly knit groups. Narrow roads with many turns would prevent traffic from passing at speed and keep away heavy vehicles. Space between the houses is semi-enclosed and therefore semi-private for each group of users. Cars would be able to draw up in front of houses for ease of loading and access.

All houses are on the same level and would allow women to cross to neighbours over the roofs if they could not go out to the street. However, in such a scheme, streets and space would be less used by strangers because of the road restrictions. It was seen how such a layout worked ideally in Andalusian towns.

House walls are linked and the small spaces and narrow lanes all help to give protection from wind and shade from the sun. The low elevation and standard height would also prevent too much sun from beating on the walls. Streets could easily be covered with vines for extra shade (see figs 6 & 8).

A local mosque for the area would include a school. Both are provided with extra outdoor space for extensions or large gatherings. Similarly each house would have a stair to the roof for storage or extra sleeping space if required.

Two sizes of units are given in this plan, although it should be borne in mind that this is simply a suggestion to show how low rise units do not need more space than high rise. Any plan to be used in reality would have to be based on the requirements of the user families. Thus one might see several much larger units or some smaller ones.

The space between houses would be given as much attention as the units themselves. The case study on traditional areas showed that this space was considered to be an extension to the house and was used frequently by all members of the community at different times. Communities were given the

opportunity to decide its functions as their needs dictated and sharing space helped to give them a common point of reference and mutual respect.

Even in the city, not everyone works in an office, and it is still a common pattern for young men to return from city jobs to work on the family land. This helps to supplement the family income and is also a leisure activity. There are many activities which cannot take place inside; storage of crops and bulk purchases, looking after animals and care of vehicles or equipment. If external space is not provided near the house for such purposes, interior space will suffer – examples of this were given in the case study on modern areas.

It would also be necessary to make sure that outdoor space was provided for children. This should be close to the house and safe from traffic. Some external space should be completely unstructured so that users could decide for themselves which functions they wished it to fulfil. In other places space furniture such as stone benches could be provided for relaxation, remembering that space in front of main doors should be avoided to minimise disturbance to families.

Positioning of doors leading onto the outside space should be carefully considered so that doors do not face each other directly. This would make it easier for people to come and go knowing they were not encroaching on the privacy of others.

The spaces in this suggested plan are relatively small and private. People could therefore be given responsibility for their upkeep making them feel it was their territory. They could use them in the way seen in traditional areas. Large public spaces in modern areas were sadly neglected because they belonged to no one. A sense of ownership would lead to a higher level of involvement and responsibility, so that the area would be better cared for.

Such a plan shows how outdoor space can be organised to suit the kind of needs examined earlier. All users would have easy access to the land and protection from intrusion. The author has tested a section of the plan using Hillier's method of analysing space to show how spaces in the area relate and the levels of depth between outer and inner space (see fig 12,13 & 14). This helps to show that the spatial structure of traditional areas, which was shown to be more appropriate, can be maintained in modern areas.

This exercise is an artificial one in a sense since the government's plan will go ahead in any case and is due for completion in two years. However, it proves the point that the excuse of lack of land is not a valid one for high rise building. We have already seen that costs cannot justify this type of building and that it does not meet the needs of society. However, the author hopes to have the opportunity to re-examine the area, when it has been completed, to assess the reactions of the occupants. If the authorities wish, for other, psychological, reasons, to build high, this is beyond the means of the designer to prevent.

7.5 JUSTIFICATION FOR CONTINUING USE OF COURTYARD FORM

The built form has to be considered first in terms of physical and symbolic requirements, which are common to all (or the vast majority) of the future inhabitants and secondly, in terms of flexible forms which involve minimal effort in adaptation to suit individual housing needs and to permit the expression of individual aspirations. (N. Essayed, 1981.)

The designer must work towards fulfilling this recommendation.

The author believes that a form of the courtyard house can achieve these ends if thoughtfully modernised. Other countries, such as Spain, have succeeded in this and have prevented the form from gaining a poor reputation.

As it presently exists, the courtyard house in Libya is too large with vast

rooms and very thick walls. The need for large space inside was for a rural society living in villages. Transitional urbanising society no longer wants such large space and requires instead a higher standard of decor and furnishings. Modern fittings must be provided along with efficient electricity and plumbing facilities.

Figure 10 demonstrates how a courtyard house could be built to provide sufficient space and take up no more land than the modern low rise houses presently in use in public schemes. The inner court is open to the sky but surrounded by a gallery with a roof supported on pillars. An area of the gallery could be given additional privacy by using a mashrabiyyah if required, for example, in front of a bedroom.

Rooms off the court are all inward facing. Recessed doors could give extra protection and respect. The kitchen and WC have additional corridor space for ventilation and to set them back from other rooms and the court. The number and dimensions of rooms need not be fixed. Size could be determined according to need.

The outer court gives onto the public space and is surrounded by a wall of whatever height users wish. There is space here for cars and animals – a garage or stable could be added if necessary. Off the outer court is the men's sitting room. This could also have an entrance from the street and a window to the outside to increase interaction. By providing an inner and outer court people are given the chance to control the level of privacy they require. The outer court can be left open or closed off and the inner court used for maximum privacy for family members. Fig 10 & Table 3 show how the space functions using Hillier's method.

The author has designed the sitting room as a large L-shape. One could divide this or break the space with an arch. A corner of it could be used as a

study or to display modern furnishings.

Also off the outer court there is a WC for men and the entrance to the saquifah. As in traditional houses, this leads into the most private area through another door. Because these houses are intended for only one nuclear family, the saquifah is smaller than in the traditional designs, where it was used as a filter for the men of an extended family to pass to the private areas of the house. It is given more functional purpose in this plan for storage and for the stair. From the saquifah a stair leads to the roof, which could be used by men or women, or could be made into an extension to the house, or simply used for storage. There is also a door into the sitting room for ease of access for family members.

The plan is made to provide many alternatives and to cater for possible changes of use for a growing family.

Figure 11 gives an idea of how a 2 storey courtyard house might look. This is also inward facing on an area of approximately 220m². Even those with large plots of land often like to build 2 storey houses. They should be given this option but should ensure that the house is inward looking so that neighbours are not overlooked. The outer court has a W.C., space for cars and animals and leads on to the saquifah and outdoor sitting room.

Rooms around the inner court on the ground floor would be the kitchen and W.C. and sleeping rooms for elderly family members. At the back of the inner court, and very private, one finds a stair to the upper floor. This could be highly decorated and an attractive feature of the inner space. No guests would penetrate to this deep level of the house.

Upstairs the rooms would also be inward looking. The men's sitting room would not have a room above it but be left open with a parapet wall around it.

Here the family could use the space as an extra court for communal activities, or for storage or extra sleeping space.

These houses could be closely knit together forming a cohesive community without loss of privacy. All windows would be to the inside. If more space was required for a larger or extended family a second storey could be added; again, inward facing to prevent overlooking. Thought could also be given to providing garage or stabling facilities according to the users' needs.

The concern of the author in giving the above recommendations is to show how the space of the area and the house could be laid out. Actual architectural detail is a secondary consideration and out of the scope of this study. It has already been stated that there should be flexibility in the dimensions and that the client's needs would have to be fully researched before these were decided.

Modern techniques of building give far greater scope to vary the dimensions of rooms and to provide flexible space. No longer is one constrained by the length of a tree trunk or its width (as has been shown in the earlier chapter on the construction of courtyard houses). Although in Misratah, houses were traditionally stone built, there is now a shortage of labour and land on which to quarry stone in large quantities. It would be possible to build or face outer walls in stone and to use brick for inner and partition walls. Misratah has a great abundance of sand for brick making, as well as concrete and steel.

Formerly, the thick sturdy walls were difficult to decorate or plaster but brick provides a smooth, easily covered surface which can be made attractive and is conducive to variations in cover, such as wallpapers and paint.

The inner court protects the family while the outer court controls it. The

latter should open to public space to encourage socialising and increase activities in the public area. Immediately adjacent to this a guest room, also opening to the public space, would allow men to receive guests without fear of disturbing the women of the family. Cover for the border of the courts could be provided to give shade and shelter and these outer areas could also be landscaped and furnished (see figs 6,7 & 8).

The courtyard house existed for many years before the discovery of oil, without any major change or modernisation. Suddenly, it was replaced by high rise blocks and western style houses. Tradition does not have to be old fashioned, it goes hand in hand with progress. The author defines tradition as the refinement of human achievement. This refinement has not been given the opportunity to blossom in Libya.

It is not the author's view that the physical form of the courtyard house alone solves society's housing problem but that because it has been shown to have the kind of spatial arrangement appropriate to people's needs, such as privacy, kinship and hospitality, it is psychologically the best solution available. Bricks and mortar alone do not make a home. The following paragraphs will consider other important aspects for creating successful dwellings without involving great expense or effort.

7.6 POINTS TO CONSIDER

From the background study and survey, certain social and psychological factors were identified as having an important bearing on housing success or failure. Although the survey suggested that the courtyard house met with greater success in social terms, we have also seen the drawbacks of the form as it exists. It is, therefore, the psychological rather than the physical aspects of it that should be noted. These will vary considerably from area to area and depend greatly on what is required and what is available. The concern is rather

to emphasise how the team involved in the building process should approach their job. This section highlights a number of considerations important in housing of which designers should be aware.

(i) **Family size** – It is considered a disgrace in Libya to have one's parents living alone and old folk's homes do not exist. Young families like to have their own houses but it is an honour for them if their parents stay with them. The style and scale of modern housing makes this very difficult as has been seen in the survey notes.

This choice should be available to people and should not require the sacrifice of private space or comfort. Although the traditional courtyard house provided enough room for the extended family it no longer suits the changing requirements for individual privacy.

All members of the family need areas to work and relax in, from the elderly to young children. Space for them should be safe, comfortable and be located so that their activities do not inconvenience others.

(ii) **Privacy and Segregation** – An earlier chapter has given details of the continuing need for family privacy and the segregation of sexes. From the survey it was clear that no amount of modernity changes this. People are prepared to make unsightly alterations to their homes to cater for this need.

The obligation and desire for visiting and receiving guests, which the study has already described, makes it vital that men and women have areas where they can entertain separately. Access to these areas must not be forgotten, as easy movement around the house without being inhibited is a necessary requirement.

The national attitudes towards age and sex affect the development of the dwelling form, most important being attitudes towards privacy in terms of separation of sexes. This has created two distinct areas in the family home, one reserved for the private family living activities, and the other for receiving visitors. (N. Essayed, 1981.)

When considering these points the outside area of the house should be given as much thought as the inside space. "...seventy five per cent of the essential function of urban living can occur in an open-air space. After deducting for climate constraints, we find this capacity still viable for at least seventy per cent of the year. This gives the courtyard a useability co-efficient slightly greater than half (i.e. 70% x 70%) that of an enclosed room." (Charles Correa "Urban Housing in the Third World" pp 46-49 1980, The Aga Khan Award).

It is not sufficient to provide public outdoor space. As seen in the case study, this is not widely used in public housing schemes. People need to have outdoor space where they can enjoy their family activities in seclusion. Even if a family says it does not require privacy, the privacy of their neighbours must be given respect. Therefore the designer should look, not just at an individual unit or family but at the needs of the whole community.

(iii) **Activities** - For women, the house is where most of the activities will take place. The kitchen area particularly should be thoughtfully planned to give her maximum space and convenience.

The family's background is of importance here as women from rural areas may not be accustomed to modern equipment and may wish to have the option of cooking and preparing food in the traditional way, particularly for large family celebrations. A very popular traditional dish called "bazeen" is eaten regularly at weekends, if not every day, and at special festivals. It is prepared from a heavy, thick mixture of flour and water boiled in a large pot.

This then has to be stirred with a heavy stick kept for the purpose. Because of the weight of the pot and ingredients, this job is carried out sitting on the floor. No modern equipment exists for such a task and no Libyan women would be prepared to forego the preparation of it.

Many other examples of traditional food preparation exist, such as the cutting and drying of meat for "gadeed", the cleaning of slaughtered animals and the cooking of couscous. Many modern units are unsuitable for storage of heavy and large dishes or for bulk-bought produce. If these are not catered for, the kitchen area will soon become untidy or lightweight fittings be broken and spoilt.

Misratah is famous for carpet making. Women need space in the home for their weaving frames and equipment. Children also need space to study and to play without causing disturbance.

Large family celebrations and festivals described earlier need flexible open space. This is where the courtyard comes into its own as the heart of family activity. It provides an extension to the kitchen area and to sleeping areas when a large group gathers to celebrate. No high rise flat or modern Western house can provide for these activities, nor are they sufficiently soundproofed to allow any gathering of guests to feel comfortable.

(iv) *Cleansing customs* – The background notes of the study have shown how important it is for Muslim society to have access to running water for regular washing. "...special consideration should be given to bathroom design because Muslims have very specific rules with regard to bathroom use...where are two acts, elimination and cleansing and they can (or should be) be segregated." (Farouk Konash, 1984).

The courtyard house provided very primitive toilet and shower facilities and

there was often a shortage of water. Modern houses provide clean well-equipped bathrooms which are undoubtedly an improvement. However, bathroom fittings are of standard size and come in sets of bath, bidet, shower, basin and WC. The baths are very rarely used; running water is preferred for washing but the modern shower is often very weak with low pressure. The units are often of poor quality and easily broken. Replacement, as stated previously, is a constant problem.

Bidets are favoured but the ideal solution would be a combined bidet/WC to suit the customary habits of society. These are not available in the European market from where equipment now comes.

Finally, requirements will vary according to the previous experience and expectations of users. This is another reason why the research on the background of the new tenants should be carried out prior to building.

(v) *Technology and Degrees of Change* – Some customs and traditions such as visiting and celebrating are universal and unchanging. These are shared by all members of society in Libya, regardless of wealth, background or status. Other habits are changing at varying speeds with increased access to education, urban employment and money. This alters the expectations of groups or sections of society.

It is good to provide everyone with the best that technology has to offer but it does not always suit them or solve their problems. Firstly, they may not be accustomed to the use of new equipment and either ignore it or damage it and secondly, it may fail to satisfy them. The provision of telephones for everyone does not decrease their isolation or loneliness if they are used to the constant company of family and neighbours popping in and out. The purpose of technology in the home is to make tedious chores faster and easier. It is for people to use to their advantage and should not dictate how they must live

their lives. Homes should include the potential for use of the highest level of technology – but it should not be forced on those who are unaccustomed to its use and prefer old fashioned ways.

In its present form, the courtyard house does not have the flexibility to accommodate innovations, and is therefore shunned by modern women who have neither the time nor the desire to carry out every task in the traditional way. They are now educated and wish greater leisure or the option to take a job outside the home.

With many young families opting for separation from the extended family, there are less female relatives in the home to assist with preparation and cooking. It is therefore likely that more and more will turn to electric food processors, grinders and dishwashers to ease their load.

It should not be difficult to find out from a family, before they move, what their requirements in the area will be so that they are neither baffled by unfamiliar instruments nor horrified at their omission.

(vi) Furniture – Furnishings for indoor and outdoor space should be provided to fit the space. They should be comfortable, convenient, functional and attractive. To ensure that this can be achieved, people's activities and use of furniture should be closely analysed. Storage space for additional bedding and cooking utensils should be available as this is always required for family gatherings, entertaining and celebrating.

The above considerations concern the individual unit, however designers should also take care to see that the public perception of an area is favourable so that people are at ease, not just within their homes, but within their environment. A housing area should be viewed from the start as a community having mutual needs and expectations.

7.7 IMPROVING THE IMAGE OF PUBLIC HOUSING

As has already been stated, the Libyan government aims to provide each family with their own high standard home. Ownership should be enjoyed and appreciated. It is important for a Libyan to be proud of his home and to feel it is his own property. This gives him security in a financial and psychological sense. Public housing has failed to instil pride of ownership and people are ashamed to live in the new schemes, but these feelings could be reversed if the following suggestions were considered.

(i) Ownership - Ownership should be offered at an earlier stage than at present. If the land were given to the occupant before the house was built, he could be involved in the building process and feel he could contribute to the new home. It would also give the feeling that the house was being built especially for him, in his name, and not simply an anonymous unit he had obtained, which could have been given to anyone.

Muslims believe that the grave is the entrance to paradise. In Libya the house is often referred to as the "Life grave", an earthly paradise. As such, it should be a comfortable haven and a place of security. Unless this is felt the house will never become a home.

(ii) Personalisation - "A house can only be considered a 'home' to the extent the occupiers can give it their own meaning ...it may even be said that 'homes' develop 'in spite of' rather than 'because of' the house design." (Ruddick, 1969).

It is very important that people have some means by which they can make their home unique (see fig 15). Everyone likes to identify with their own property and to give it a character different from neighbouring properties. Particularly in public schemes where houses are of standard shape, size and

colour. This is something that helps to give pride of ownership. "Most people need, if not to design their dwelling, at least to give them some touch of uniqueness that says: 'This is mine; it is a reflection of me/my family; and I/we are worthy and unique beings'" (C. C. Marcus and W. Sarkissian, 1988.)

These touches of individuality can have great psychological significance to an owner. They are often inexpensive to achieve and cause no disruption to neighbours. Additionally, they help to give life and interest to an area.

In traditional villages, houses were whitewashed with a mixture of ash and water to reflect the light. Woodwork was usually green, this being an important colour signifying paradise. Each community had its own style of doorways and knockers worked by local craftsmen.

New materials and shortage of skills in the modern areas has led to standardisation. People therefore try to use different colours of concrete forms to add personal touches to their homes. The wealthier they are, the more elaborate these will be.

To maintain the appearance of an area there should ideally be some control over such external alterations and people should be given greater opportunities to work internal personal adaptations. In traditional homes this was achieved by use of palms and vines, addition of archways and local crafts. Extensive individual alterations to the elevation can be offensive or unsightly for neighbours. The elevations of modern houses within a scheme are all the same. It is therefore important that features such as the doors be given particular thought. Archways and traditional craftsmanship could be used to make a psychological link with traditional ways and customs. For courtyard houses the door is usually the only break in a blank wall. Decoration should be concentrated here and ramshackle additions avoided.

(iii) Territory – Personalisation helps to identify and give meaning to the house but people also like to know the bounds of their own property. Even in the desert, the nomadic tribes marked an area outside their tents with stones to make it private so that others would know not to intrude (see fig 16, Chapter 4).

In Libyan society, people like to be absolutely sure where they can go, which places are for men and which for women. In front of their houses they like a semi-public area so that they do not move straight from public to private when entering the house. This is a psychological boundary which is understood by the community. In traditional areas everyone knew which areas were public and which were private. Such understanding is lacking in modern areas where new designs do not have any obvious significance for society. The pavement outside a doorway will not be used by pedestrians who will step in the road to pass. Planners should note this when the area is being developed.

Traditional homes often had buttressed walls so that the buttress created an area private to the house where the owners could store things, keep rubbish to clear away and collect water. In modern areas markers such as ladders may be used for a similar purpose. It is necessary to "give residents the option of increasing the sense of privacy around their homes" (C. C. Markus and W. Sarkissian, 1986).

Respect for territory among the community helps to build understanding and makes families feel comfortable. The public space is often marked off with stones to indicate which areas can be used for storage or for animals. All the neighbours have access to this and know that they can use it.

Anything in the space which causes neighbours' territory to be invaded or overlooked will be moved. For this reason public buildings such as the shop or mosque, where men gather, will have to be sited at a distance from house

entrances.

(iv) Management – This is an area which has been sorely neglected to date and is not recognised as important. Its lack of provision in public housing areas has led to the kind of maintenance problems which were outlined in the survey. The tendency at present is for the authorities to hand over a house after construction to the new owner and to abdicate from any further involvement or responsibility.

Management should commence before construction takes place to control allocation of units, taking account of the background of the new residents. Thus it would be possible to build a community where people had similar previous experience and to make sure that a cohesive society of neighbours resulted. It would also mean that new tenants could be involved at the building stage – a point already emphasised in this chapter.

At an early stage also, management should attempt to teach new owners the use of house fittings and show them how best to prevent deterioration of property. They should be educated by involvement, learning where electricity and water pipes run, and encouraged to take care of the area. Once the space becomes run down and unattractive, people are depressed and disillusioned. It is then too late to start trying to rebuild pride. If an area is kept clean and pleasing to the eye, it is more likely that greater care will be taken and that people will enjoy living there.

Being able to carry out their own repairs gives a sense of belonging to an area and of ownership. Co-operation between neighbours to carry out these jobs, as shown by the survey on the private schemes, makes an area lively and cements relationships.

The role of the Sheikh Mahallah is important in management. He should be

involved at an early stage to get to know the families taking up residence. His role has already been described in the study and can help to produce a harmonious atmosphere by mediating in any disputes over territory, ensuring that private areas are respected and negotiating between neighbours and authorities. In order to have confidence in him, people must feel that he has the power to act on their behalf and that the whole community will respect his decisions. This is only possible if he is allowed to meet owners and their families easily and to be involved when any problems are most likely to occur, i.e. before building commences.

The Sheikh Mahallah is also important in ensuring that public buildings are sited suitably and do not encroach on private property or cause offence to anyone.

Management should be continuous so that an area is never allowed to deteriorate. This will help to maintain the value of property encouraging people to keep their homes up to standard and protecting their security, making the house an investment for the future. "Management and maintenance of publicly provided housing has a special significance in relation to occupant satisfaction" (N. Essayed, 1981).

These points were gathered from experience and from the surveys carried out. In comparing the areas examined in the case study, it became clear that the symbolic meaning and psychological aspects of the house had as great a significance as the physical structure. If the authorities could take them into account when constructing public schemes it would put the wrapping on the gift of a house.

7.8 BUILDING CONTROL AND RECOMMENDATIONS

Part of the ongoing research of the local authority should concentrate on

controlling the distribution, scale and continuity of building. With the help of the Sheikh Mahallah, it would not be difficult to establish, in each area, the number of inhabitants and to assess exactly how many families needed to be rehoused at each stage. Statistics of this kind, regularly supplied to the Municipality Centre, would allow it to advise the regional centre of the level of expenditure required. The regional centre would report back the amount of financial help that could be provided and figures could be accordingly adjusted before building began.

If this process were carried out continually, building could be a non-stop activity. Ambitious plans to build a large number of units within a certain timescale should be avoided. They require the import of labour, costly and soon lost, and cause huge fluctuations in the market for materials. A steady programme would regulate the market and build up local experience, keeping costs down. The control of materials and regular use of a local labour force would also eventually help to produce higher standards, and make maintenance cheaper and easier.

The technical department responsible for a scheme should assess the timescale of each aspect of the work to be carried out; building, plumbing, electricity and roadways. These jobs should all be completed at the same time. People should not have to move into homes which have no proper access, drainage or electrical supply. All stages of construction should be co-ordinated so that no such lapse is possible.

These improvements would be unlikely to show immediately. Patience in nurturing skills and balancing supply and demand would be needed before an ideal regular plan can be developed. Concentration on steady production of quality homes should be the initial aim dealing first with the most urgent cases rather than attempting to move an entire village at once.

The long term objective should be to produce houses as living environments reflecting society and its needs. New technology should be introduced as appropriate and all basic amenities automatically provided to a high standard.

All new designs should have potential for adaptation, modernisation and extension. Designers should be encouraged to look to the future as well as the present. Long term needs would be revealed by on-going research. Houses would therefore be permanent places to settle rather than transitional dwellings.

Education is a vital part of the process. Not all families have the same expectations but we have already seen that modernity is desirable and similar facilities should be offered to all. Families from rural villages do not always understand the use of new technology and electrical gadgets. Thus education at an early age should help to introduce the use of kitchen instruments and machinery, modern hygiene facilities and basic knowledge of 'do-it-yourself' for the modern house. Damage could be kept to a minimum by this early introduction to life in the new house and maintenance costs kept down.

7.9 SUMMARY

At this stage, the study has demonstrated what was once successful, in housing terms, for the coastal zone in Libya. Needs for present day housing have been analysed and modern schemes examined to show how they fail to meet the climatic, social and physical needs of the users.

This chapter demonstrates a means whereby the traditions of the population can be kept alive and vital in modern day society. The aim is to achieve this while ensuring that standards are maintained for people from every income group and background. All should have the opportunity to live in

the manner to which they are accustomed and yet not excluded from the advantages offered by technology.

The government desires this, but has looked only at the physical aspects of housing. Psychological factors, as we have seen, must be given equal consideration. Mass public housing and high rise flats are not the solution. Protection of land and costs cannot be used as an excuse for the latter, which were shown in the study to be socially unsuitable.

Problems highlighted in the case study (Chapter 6) have led to the present poor image of public housing and to the consequent divisions in society. Everyone needs a home but if they have no choice or no chance to voice their wishes, the home can become a burden and be damaging to the individual. Dissatisfied individuals soon become a problem section of the community of a city. By involving owners in the building process and increasing their options, the author hopes to eliminate such distress.

Sir Robert Grieve, in a seminar given at Heriot-Watt University (1988), stated that architects should act as shock absorbers. They should introduce new ideas subtly and slowly and not use the house for expressions of their own imagination or experimentation. The modern versions of courtyard houses given in this section are an attempt to reverse their low esteem in the public eye by showing that they can be as technologically advanced in terms of internal provision of amenities, but allow the family to live comfortably with their traditional ways of life.

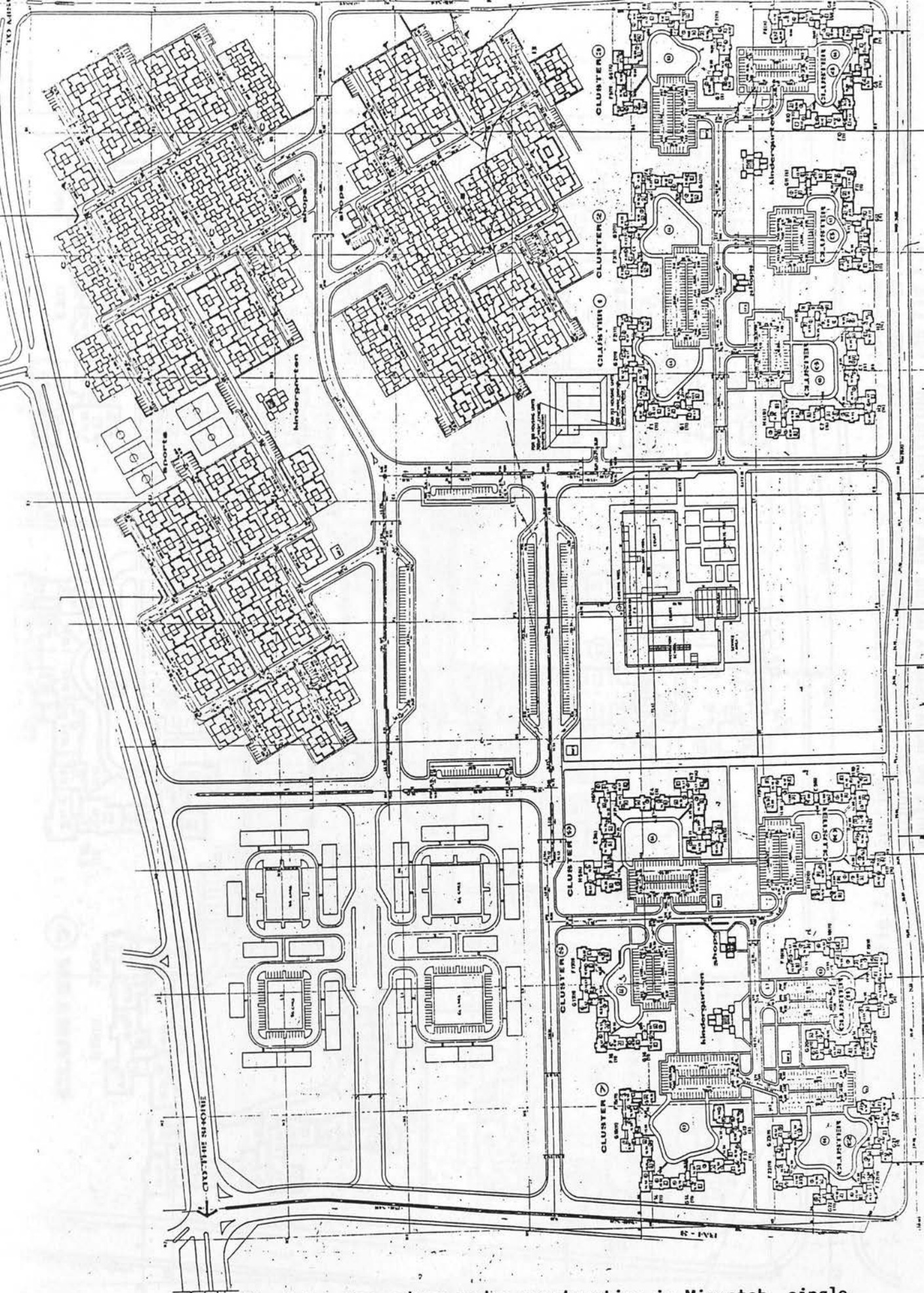


Fig 7.2: New scheme under construction in Misratah, single storey houses are positioned close to four storey blocks

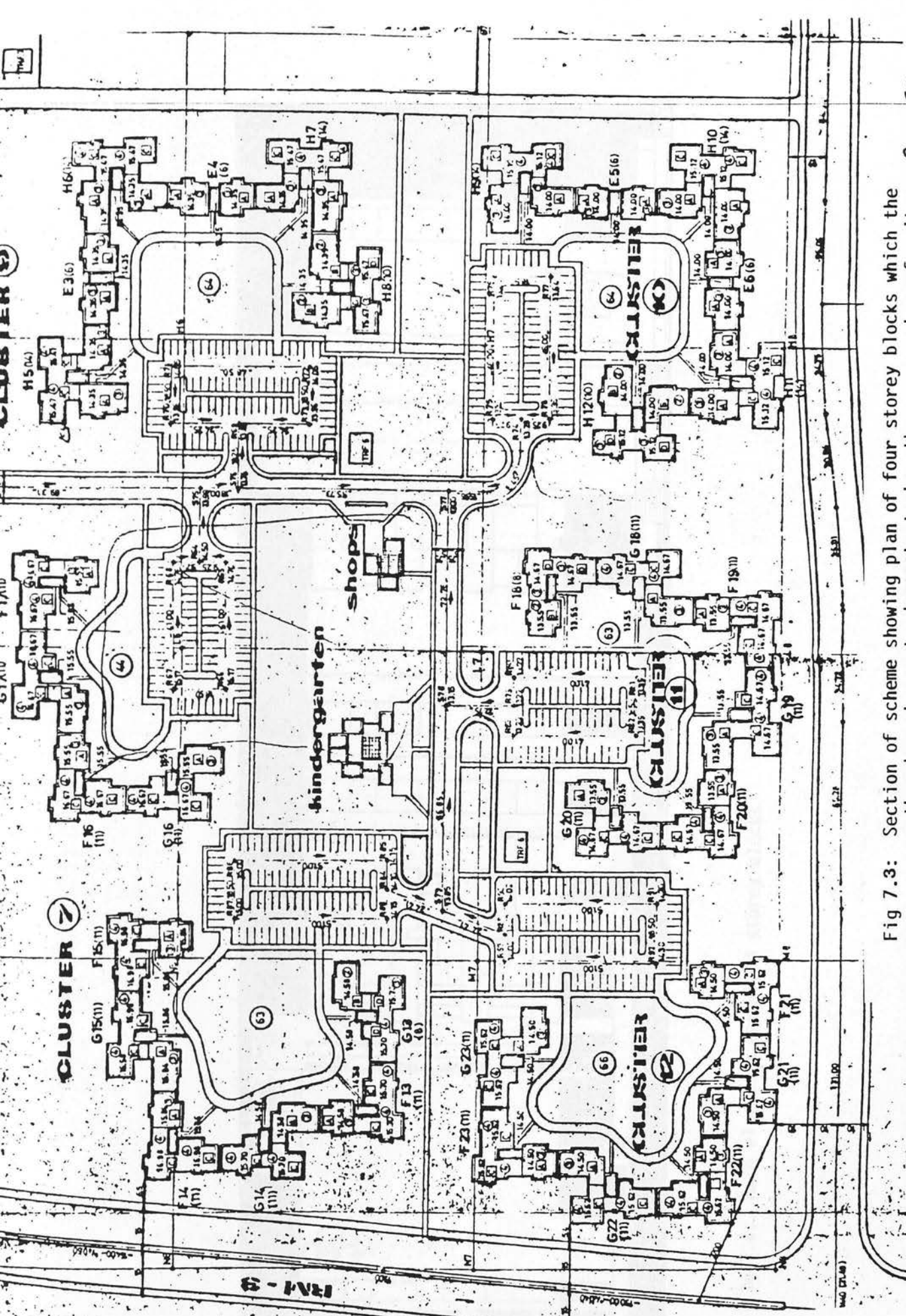


Fig 7.3: Section of scheme showing plan of four storey blocks which the author has chosen to demonstrate how the same number of units could be provided by using low rise building. See Fig 7.5

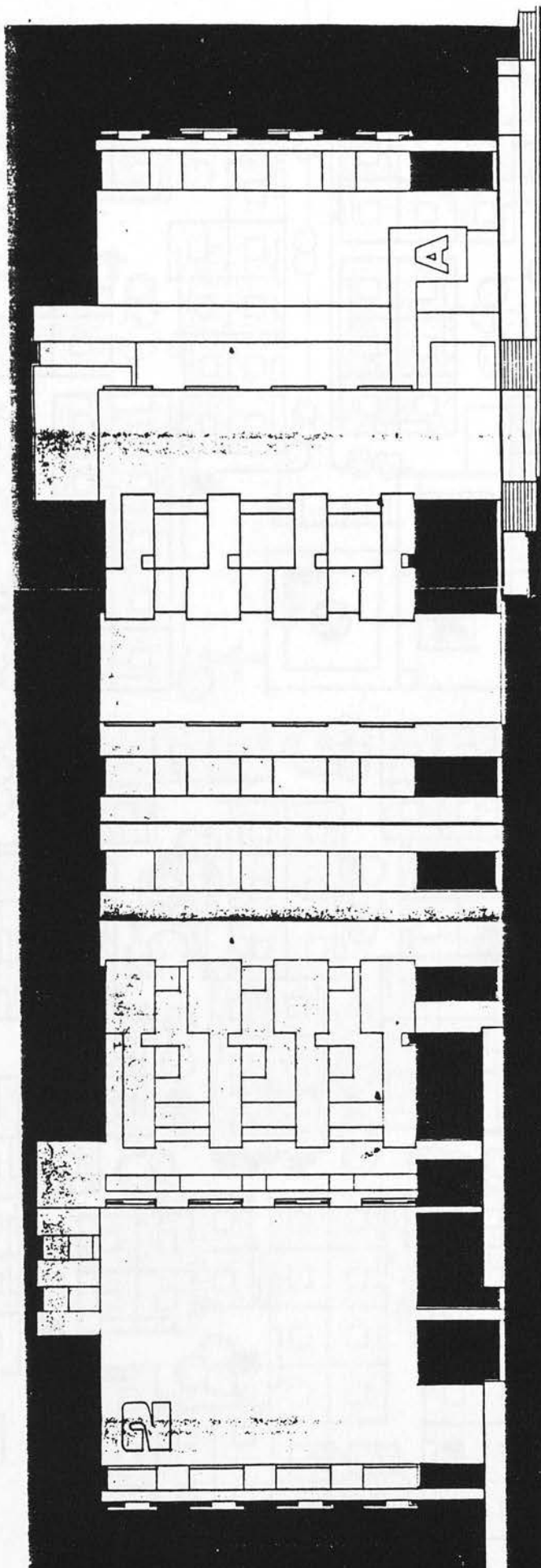
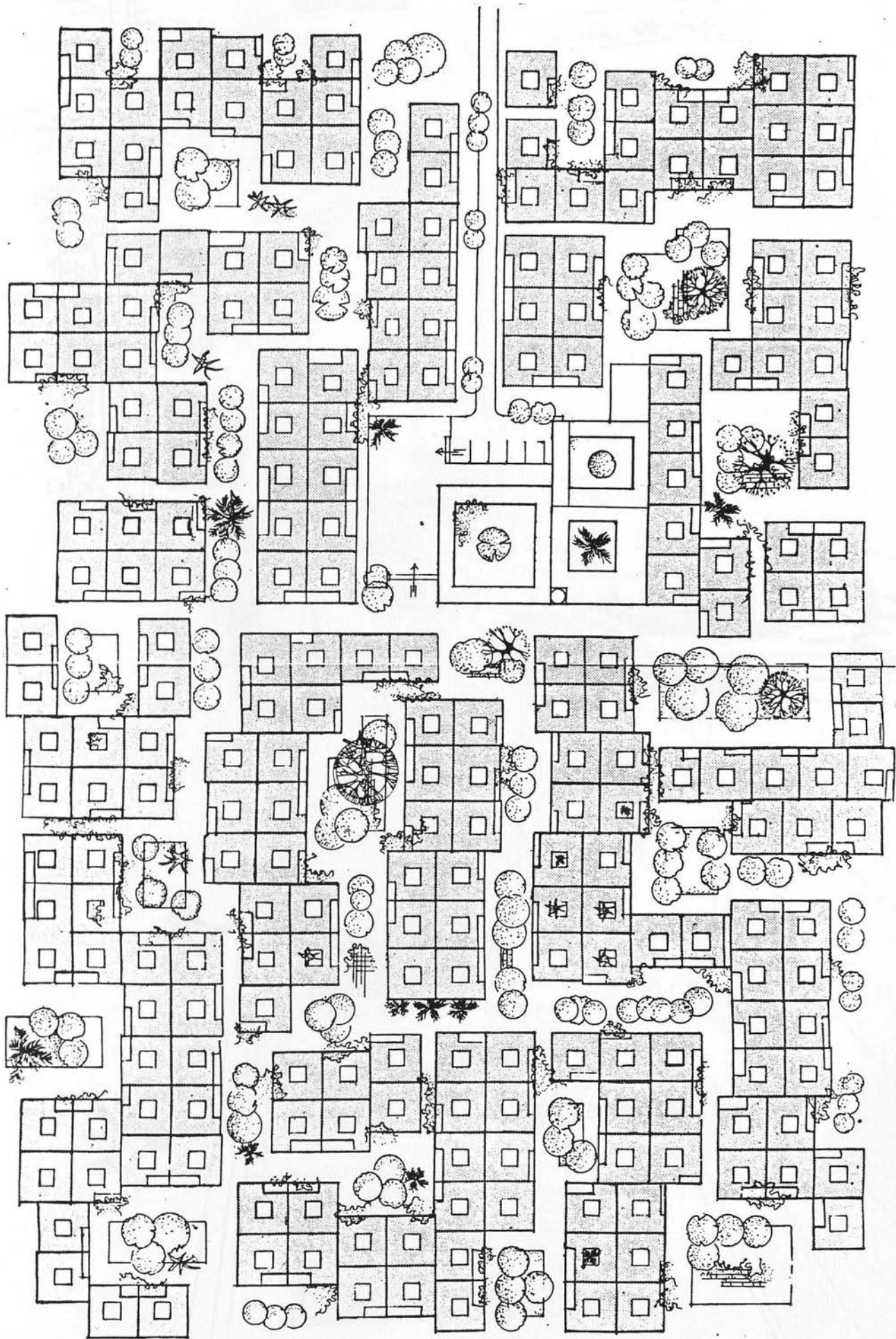


Fig 7.6: Main elevation for the 4 storey blocks



0 15 m.

Fig 7.5: Author's proposal for low rise courtyard housing which could be fitted with section of new plan Fig 7.3 which presently has four storey blocks

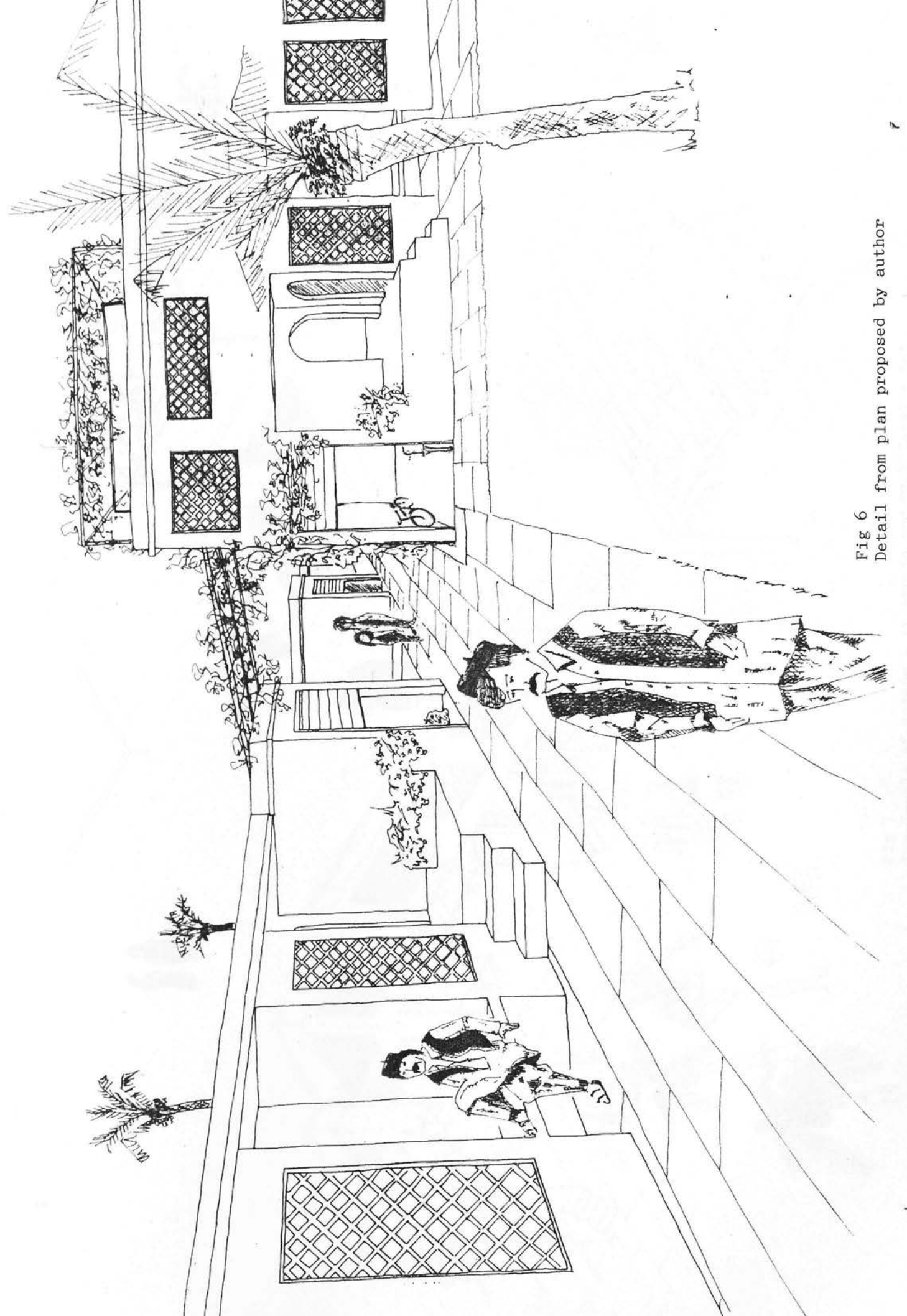


Fig 6
Detail from plan proposed by author

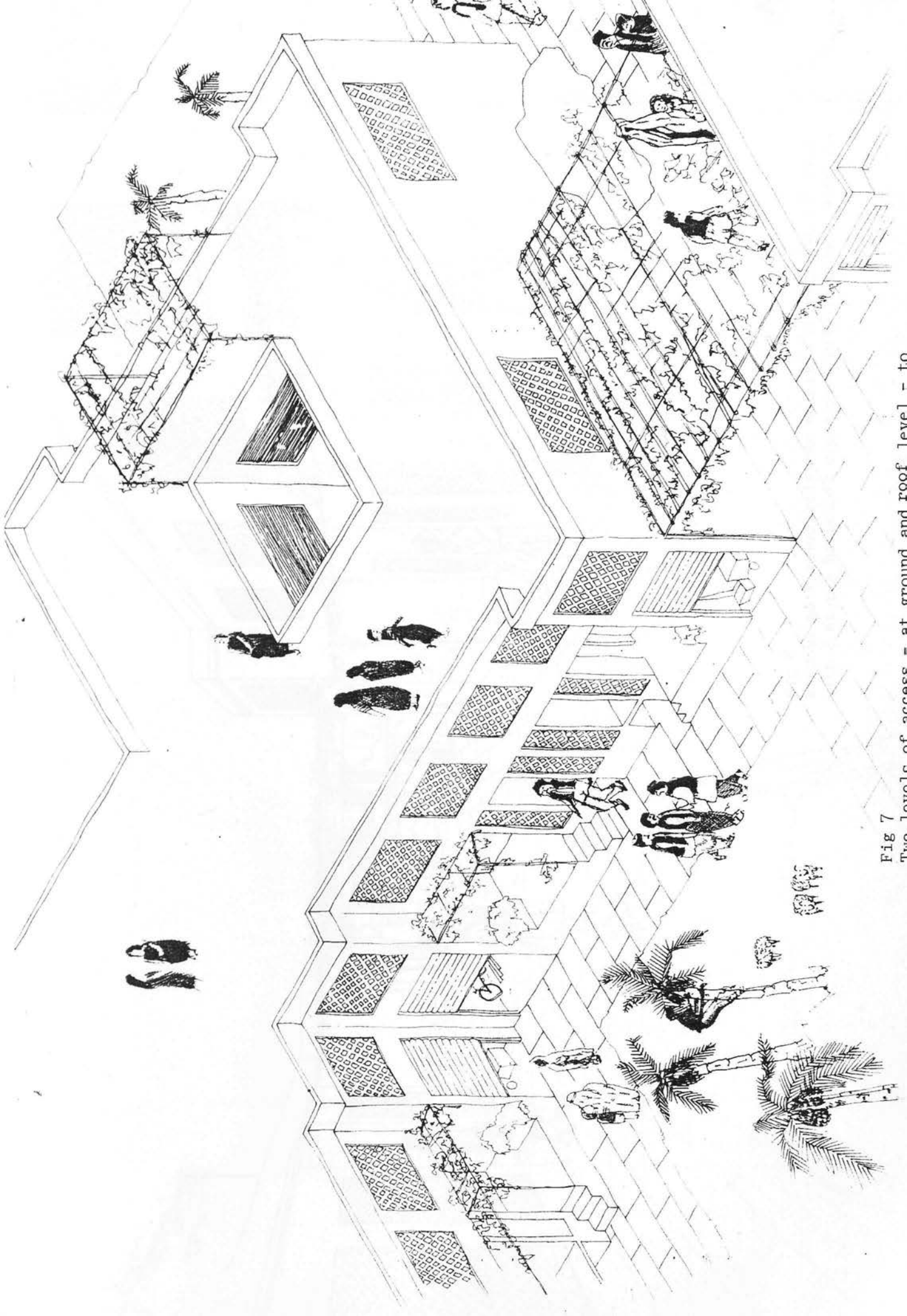


Fig 7
The levels of access from ground level to

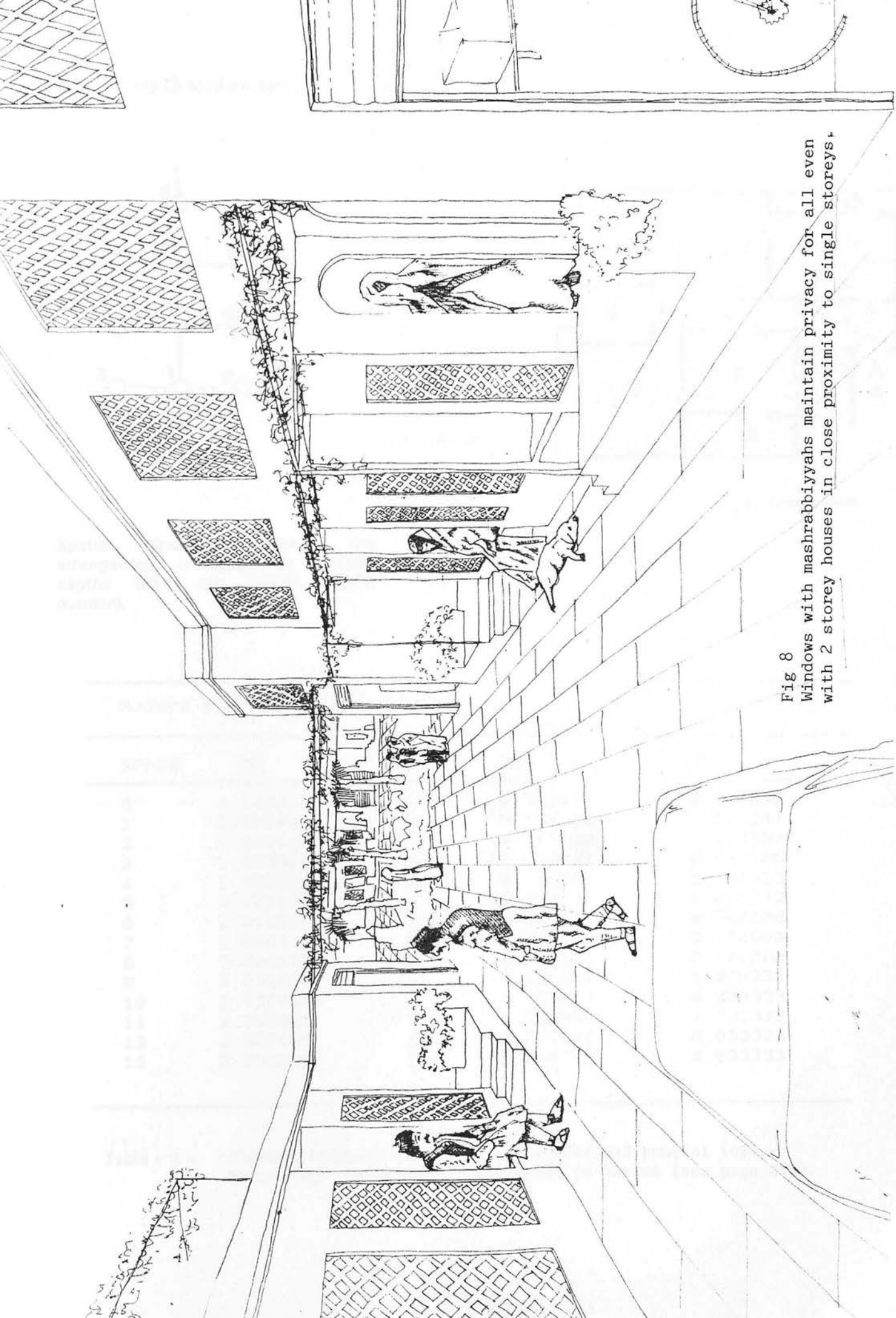
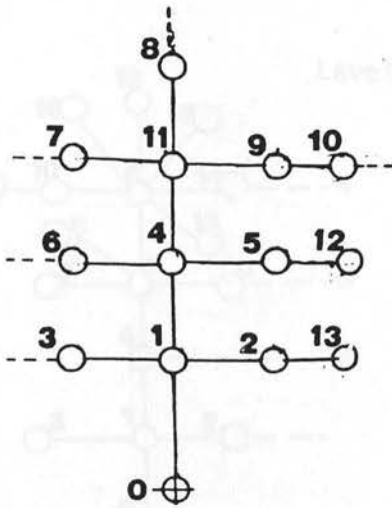
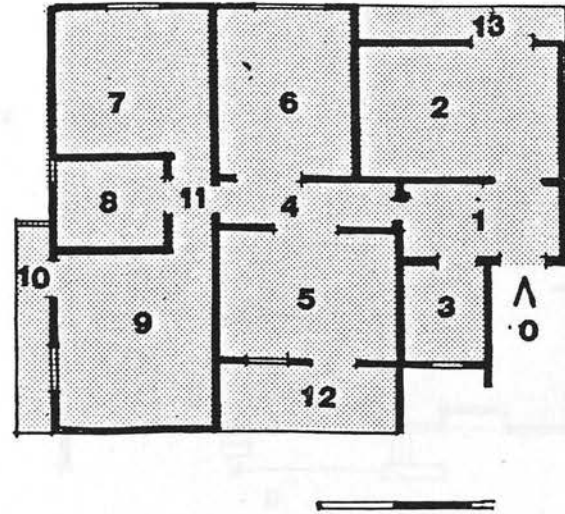


Fig 8
Windows with mashrabiyahs maintain privacy for all even
with 2 storey houses in close proximity to single storeys.

(Fig 9) Modern flat in public housing



- 1-ENTRANCE LOBBY
- 2-MEN'S SITTING ROOM
- 3-WC
- 4-CORRIDOR
- 5-FAMILY LIVING ROOM
- 6-KITCHEN
- 7-BEDROOM
- 8-FAMILY WC
- 9-BEDROOM
- 10,12,13-BALCONY
- 11-LOBBY



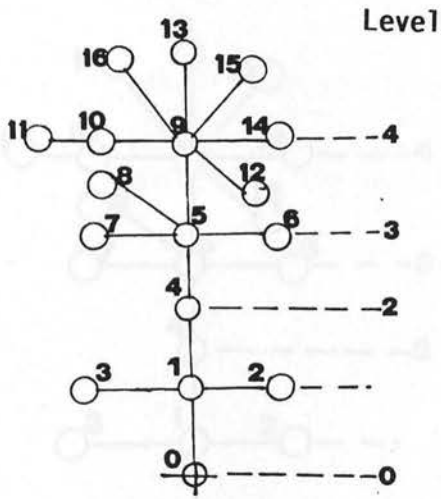
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Modern Flat in Public Housing

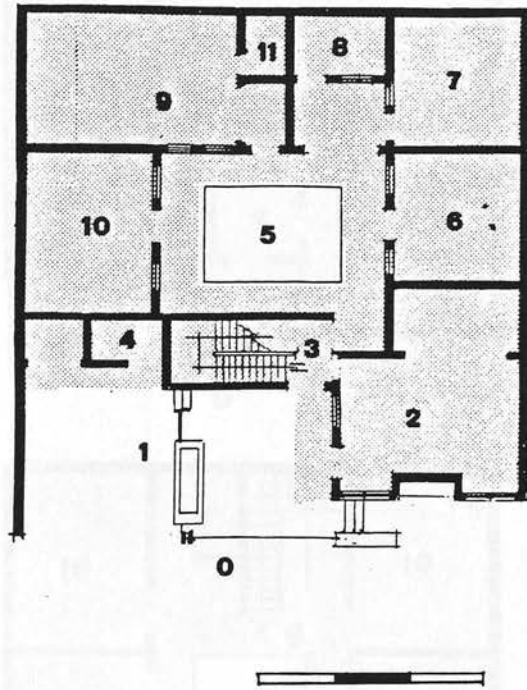
SPACE	MD	CN	RA	CV
0	3.153846	2	0.358974	0.750000
1	2.153846	4	0.192308	1.283333
2	2.846154	3	0.307692	1.083333
3	3.000000	2	0.333333	0.750000
4	1.769231	5	0.128205	1.483333
5	2.461538	3	0.243590	1.033333
6	2.615385	2	0.269231	0.700000
7	2.846154	2	0.307692	0.700000
8	2.846154	2	0.307692	0.700000
9	2.692308	3	0.282051	1.033333
10	3.538462	2	0.423077	0.833333
11	2.000000	5	0.166667	1.733333
12	3.307692	2	0.384615	0.833333
13	3.692308	2	0.448718	0.833333

Table . 2 . Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

(Fig 10) Single storey courtyard house (proposal)



- 1- OUTER COURT & GARAGE
- 2- MEN'S SITTING ROOM
- 3- SAQUIFAH & STAIR
- 4- WC (MEN)
- 5- INNER COURT
- 6- BEDROOM
- 7- KITCHEN
- 8- FAMILY WC
- 9,10- BEDROOM
- 11- PRIVATE WC



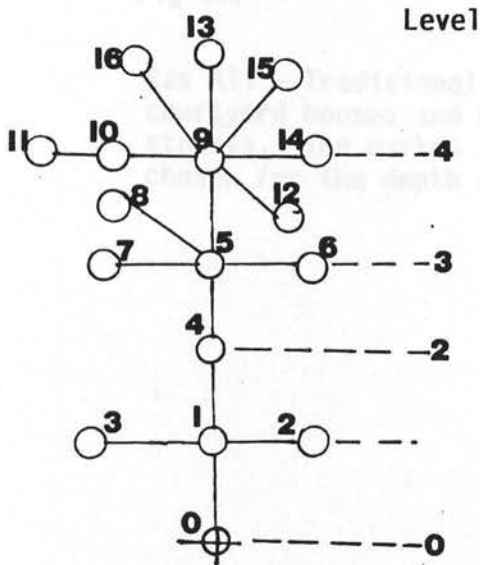
Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).

Single Storey Courtyard House (Proposal)

SPACE	MD	CN	RA	CV
0	3.272727	2	0.454545	0.700000
1	2.363636	5	0.272727	2.033333
2	3.272727	2	0.454545	0.700000
3	2.000000	3	0.200000	0.676190
4	3.272727	2	0.454545	0.700000
5	1.818182	7	0.163636	2.809524
6	2.727273	2	0.345455	0.642857
7	2.727273	2	0.345455	0.642857
8	2.727273	2	0.345455	0.642857
9	2.545455	3	0.309091	0.976190
10	2.727273	2	0.345455	0.642857
11	3.454545	2	0.490909	0.833333

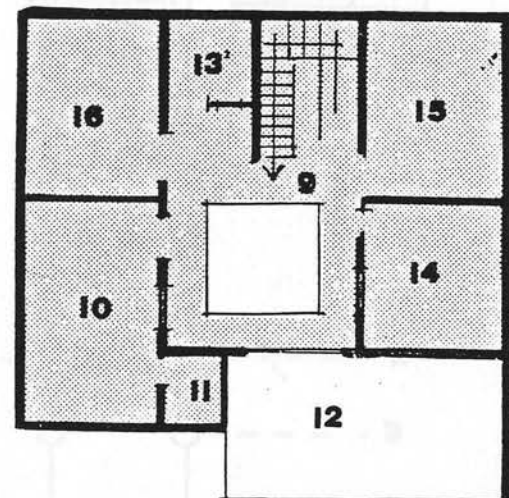
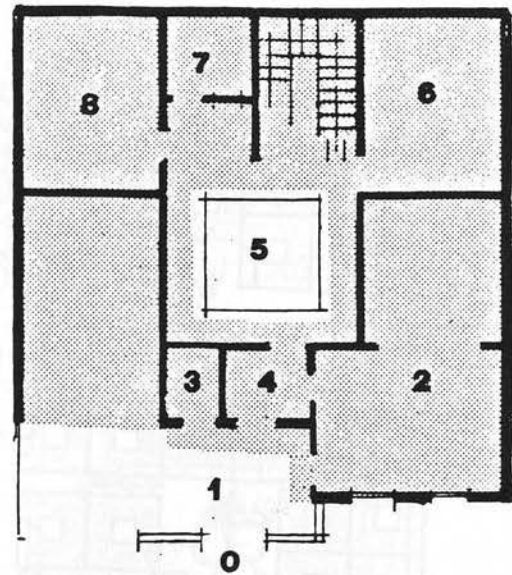
Table . 3 . Showing Integration values (MD or RA) and control (CV).
Note: High integration corresponds to low RA (see page 216).

(Fig 11) Two storey courtyard house (proposal)



- 1-outer court
- 2-men's sitting room
- 3-men's WC
- 4-saquifah
- 5-inner court
- 6,10,14,15,16-rooms
- 7-family WC
- 8-kitchen
- 9-corridor
- 11-private WC
- 12-terrace

Spatial structure showing the arrangement of spaces at different depths from the carrier (public domain).



Two storey Courtyard House (proposal)

SPACE	MD	CN	RA	CV
0	3.937500	2	0.391667	0.700000
1	3.000000	5	0.266667	2.033333
2	3.937500	2	0.391667	0.700000
3	3.937500	2	0.391667	0.700000
4	2.437500	3	0.191667	0.700000
5	2.000000	6	0.133333	2.125000
6	2.937500	2	0.258333	0.666667
7	2.937500	2	0.258333	0.666667
8	2.937500	2	0.258333	0.666667
9	2.062500	8	0.141667	3.125000
10	2.875000	3	0.250000	0.958333
11	3.812500	2	0.375000	0.833333
12	3.000000	2	0.266667	0.625000
13	3.000000	2	0.266667	0.625000
14	3.000000	2	0.266667	0.625000
15	3.000000	2	0.266667	0.625000
16	3.000000	2	0.266667	0.625000

Table 4 .

Showing Integration values (MD or RA) and control (CV).

Note: High integration corresponds to low RA (see page 216).

Fig 12:

Ras Ali - Traditional village with courtyard houses and narrow irregular streets. The marked space is that chosen for the depth diagram below

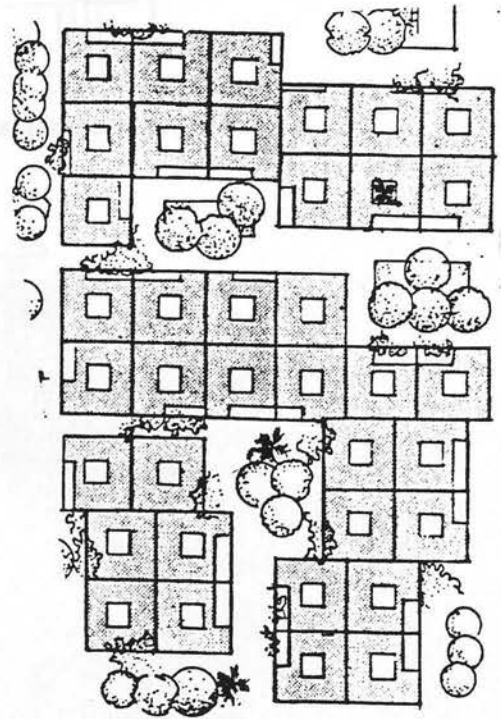
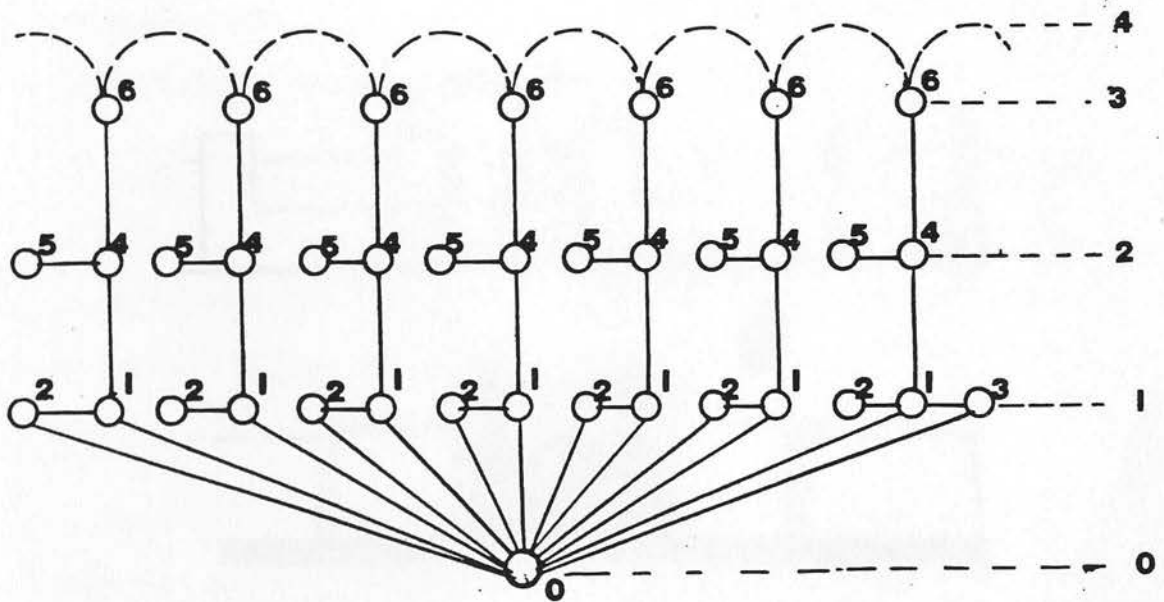


Fig: 13.



Shallow

Level 0 - the street - public

Level 1 - outer court and sitting room
semi private for men

Level 2 - Saquifah - transitional area between
semi private and private for men and women

Level 3 - Inner Court - private for women

Level 4 - Top roof contact

Deep

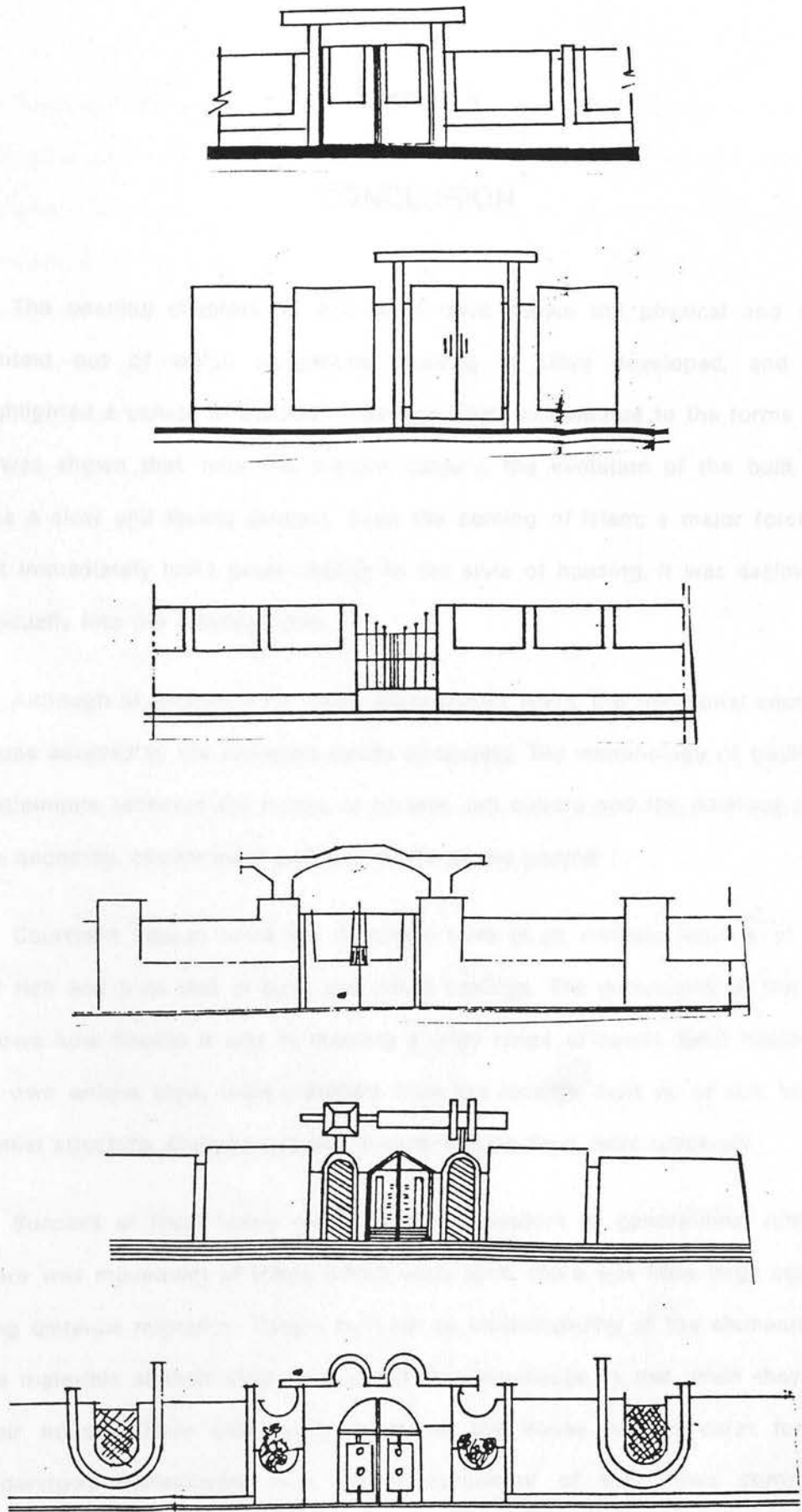


Fig : 7:14 Ideas for personalisation of entrances

CHAPTER 8

CONCLUSION

The opening chapters of this study have shown the physical and social context out of which indigenous housing in Libya developed, and have highlighted a variety of outside influences which contributed to the forms used. It was shown that, until the present century, the evolution of the built form was a slow and steady process. Even the coming of Islam, a major force, did not immediately bring great change to the style of housing. It was assimilated gradually into the existing form.

Although in existence for many years before Islam, the traditional courtyard house adapted to the changing needs of society. The morphology of traditional settlements reflected the forces of climate and culture and the dwelling suited the economy, environment and way of life of the people.

Courtyard houses were the dominant form in all climatic regions of Libya for rich and poor and in rural and urban settings. The dominance of the form shows how flexible it was in meeting a wide range of needs. Each region had its own unique style, used materials from the locality, built up or out; but the spatial structure, components and inward-looking form were universal.

Success of local forms relied upon the wisdom of generations. Although there was movement of tribes within each zone, there was little large scale or long distance migration. People built up an understanding of the elements and the materials at their disposal and put this knowledge to use when they built their houses. They knew what functions the house had to cater for and understood instinctively how the socio-culture of their own community operated in relation to space.

Islam did not provide guidelines for builders, it taught people how they should conduct themselves, both in terms of personal and interpersonal behaviour. Every aspect of daily activity is covered and it is this code of conduct that has shaped housing since Islam. The structure was the least important aspect, what concerned people was that space should be organised to facilitate adherence to the code. The vital considerations which the study identified in Chapter Three were those for segregation, to allow the family and women maximum privacy; and integration, to allow both men and women to socialise freely but on separate levels.

These considerations have contributed to the form of dwellings even down to the finer points of positioning of doors and windows. Every space has its own particular function for particular people and each barrier or boundary was there for a reason. People understood where they could go because they shared the same beliefs and the houses fulfilled the same functions. Those who were not devout in their observations of the Muslim religion were constrained by the traditions and culture of the community to conform. There were changes in the economy and a wide variety of environmental differences throughout the country, but Islam does not change and consequently, the codes of behaviour do not change.

The status quo was maintained until the early twentieth century when the Italians took control of Libya. An examination of this period is important for an understanding of the present situation. The colonists irrevocably altered the economy, political structure and homogeneous nature of Libyan society. Their philosophy and culture were radically different from those of Libya. No longer could the indigenous dwelling evolve at its slow pace. Changes in the economy led to divisions in society. Wealthy families in the city mimicked the built forms of the colonial masters and the rural, poorer people, lost their land and the freedom to build for themselves.

Great hardship and poverty followed the departure of the Italians and continued until the discovery of oil. New wealth opened a window to the western developed nations. People became aware of new opportunities to have a higher standard of living and the indigenous houses appeared to typify all the backward, primitive and underdeveloped aspects of their existence.

The rapid movement of large sections of the population from rural to urban areas which has been described, gave rise to an urgent need for new houses. The authorities had no experience in this field and, since all recent new building had been carried out by the Italians, it was to them and other western countries that they looked for help. Not only did they see the need to provide houses for people, they saw the opportunity to declare to the world that Libya was now a powerful, emerging nation, by creating an elaborate, modern and striking infrastructure to symbolise a renaissance.

The appearance of structures became overwhelmingly important and speed of construction overtook considerations of quality and appropriateness. Instead of the form adapting to people's needs, people had to adapt to the form. A picture of the centres of Libya's main cities gives no indication of the culture or way of life of the occupants. There was no continuity or link with traditional forms. The buildings were designed by Western architects in and for a socio-culture completely at odds with Libyan society. It is against this background that the present housing situation is assessed in the case study.

Housing is a universal need throughout Libya but we learn from the background notes that a universal solution is not advisable. Each area must be separately examined in terms of its environmental and social conditions. A structure that works well for people in the desert regions will not necessarily meet the needs of those in the coastal zone. The author therefore chose one city in the coastal zone where there is a greater population density on which

to concentrate the study.

It may appear that the variety of housing forms available gives people greater choice than previously however, there are a number of limiting factors to be considered. Firstly, people are now categorised by the authorities and allocated houses according to their standing in society: low rise public housing for professional and civil servants, and high rise for migrant workers. For those who can afford to build privately, if they can obtain land, there are now new building regulations and standards which make it difficult for them to build for themselves. They must rely on imported help for design and construction. Scarcity of materials also limits them to what can be found in the markets.

Three sectors of housing were identified: traditional, modern public low rise and high rise, and modern private. The case study showed that deterioration and lack of amenities were a problem in the traditional areas and that, in modern housing, social problems caused dissatisfaction. Because distress is most widely felt in public housing schemes, it is in this sector that the author wishes to bring recommendations.

It is necessary to be realistic in recognising that perceptions about housing have changed and that family structure and the economy are changing. People want appropriate new houses and they want to live in nuclear family units rather than within the extended family. We must also accept that needs for segregation and integration and the sanctity of the family are immutable.

Relevance is not an issue which the authorities have taken to heart. The study has often stressed the urgency of need for housing but the response of the authorities has been to look for methods and means of construction which are speedy and easy. Immediacy of production of the structure is the paramount consideration. The ancient guidelines described in Hakim's study have been left far behind. Even if they are not now applicable within the

framework of a modern society, no one has taken the time to find out or to bring new guidelines to meet needs.

Tied in with the need for a house and for family privacy is the deep-seated feeling that all Libyans have for the land. If you do not have land you do not have a house or any heritage. Territory is a factor missing from public housing schemes. One tenant commented to the author that they used to keep pigeons in boxes and now they live like the pigeons.

The observations in these areas make it clear what physical aspects of the house are likely to be problematic. The new forms are not flexible nor do people understand the way they were built. Maintenance problems and makeshift alterations are obvious and unattractive features of the public schemes.

Social and psychological problems are less easy to identify but the observations indicated that space in the modern schemes did not work well for people when compared with activities taking place in the traditional areas. Reasons for this breakdown are explained in terms of the failure of space to meet psychological needs.

Traditional houses had the capacity and flexibility to absorb slow changes and were controlled by the users, who understood them. The halt in their development and their present state of decay has made them unappealing to the new generations and unsuitable for a modern way of life.

It cannot be argued that people should not have access to all that technology can offer but we should recognise that technology is still a mixed blessing in Libya. There is no provision of ready and inexpensive help when machinery and equipment breaks down, nor any significant back-up or local expertise. Planners and designers must work within the confines of the present

situation and ensure that what is supplied is appropriate not only socially and psychologically but also in a practical sense.

In a harsh climate, if the house does not naturally control heat or wind, the lack of air conditioning or insulation can make the environment extremely unpleasant. If a natural means of control can be found it is better that we use it and not presume that another solution can quickly or easily be applied. Lessons learnt from early indigenous forms can be put to use. Similarly, in kitchens and bathrooms, total reliance on western styles has not been successful and we must go back to traditional areas to look at what people really want to make a blend of the good points from old and new forms.

Design for both individual units and for the streets and community should not start with the structure. Space and its functions should first be examined in relation to the socio-culture. The aim should be to allow for change but to accommodate tradition. The home should give a feeling of belonging, reflecting needs and symbolising culture.

The problem will not however be solved simply by providing compatible units. Space around the house and within the area is equally important. The case study showed how isolated people became when these spaces did not fit their needs. The tendency has been for houses and streets to be provided by contractors working separately. Co-operation in these areas should be encouraged and an area planned, with community needs in mind, as a totality and not a sum of parts.

Two factors contributing to the present housing crisis are urbanisation and migration. The study examined these processes and the reasons for them. As long as rural areas continue to be depressed and the development of cities provides better opportunities, these trends will continue.

Libya has a very small population relative to its size compared with European and neighbouring nations. There is no need to centralise development in a few major cities. By providing an efficient, wide ranging communications network and housing bases comparable with city housing, one could stem the flow of people from rural to urban areas. Thus pressure on land and resources could be alleviated in the crisis areas.

Housing authorities should use the motto from Roman times "festina lente" as their byword. Any policy should be tempered by an assessment of the availability of money, materials and skills. Building should be gradual, based on the requirements of the client. The network of research committees suggested by the author would help to make sure that advice on these matters for the authorities and for designers and builders was readily available.

The result of over-hasty building has been the emergence of what the study described as transitional housing. This merely puts off the problem. The people in these areas are still looking for houses. They see their stay in the public sector as a temporary one.

No longer can people with money build houses for rent. The authorities have said that if you own a man's home you own his life. They therefore bear the entire responsibility for housing and have met this responsibility by providing mass public housing. Houses are offered to people to own or to buy but no one wants to own a council house. The solution given in the author's recommendations is to avoid such schemes and to give mortgages for purchase of land to build on. Public housing would be for emergency use only.

Priority areas for the authorities should be in the provision of facilities and amenities and a management and maintenance network. Time should be taken to develop skills in building and design to avoid the necessity of importing aid. Above all, continual monitoring by research groups should be given high

prominence.

Should all the recommendations be carried through, we still need to educate and involve people. All the good will of the authorities and design research teams is worthless if people do not understand the provision that is made for them or have a hand in the process of design and building. Individuals have unique preferences. Wherever possible these should be catered for but only by consultation can they be discovered. As the case study showed, non-flexible forms cause frustration. If a form cannot be manipulated according to needs, it creates social and family tensions.

Reliance on western styles was shown to dominate every aspect of the new houses. Thus western technology became equated with western forms. However, the brief look at Andalusian courtyard houses, which have been successfully and attractively modernised, and the new courtyard houses in Prestonpans, showed that this equation is not valid. It is possible to create harmonious space side by side with new technology.

Idealistic notions of a built environment that advertises power and wealth do not maintain an ideal society and culture. Having given a critical analysis of modern forms however, a decision must be taken on how to proceed. Do we continue to build along western lines and hope that society will fall into line, or do we find an alternative? The author's view is clear on this point. Erosion of the socio-culture and traditions of Libya must be stemmed. The difficulty in the past has been that those opposed to the present housing policy have been seen as reactionary or repressive. The author has shown that progress can take place without the sacrifice of continuity.

The background and observations of this study should give us the courage of our convictions. Hillier's means of looking at how space works for people reinforced the findings that the courtyard form provided more appropriate

space than modern forms and we can use this method to test new designs. The problems of integration and segregation were solved by the inward looking house. Taking all these points together we can look at the next step forward.

Housing that will be valid for the users cannot be found easily or quickly. The authorities are committed to progress but reliance on foreign aid, Italian ideology and large scale mass housing plans has been shown to be the wrong approach. Continuation along these lines will only increase social unease.

The study has attempted to give an understanding of the past and of how housing and urban space worked in previous centuries. It has also made an in-depth examination of the present situation and the reasons for the changes that have taken place. The investigation and observation of activities has attempted to explain how people live and what space they require to meet their socio-cultural needs.

Lessons from the past should equip us to deal with the future and give confidence to planners, designers and the authorities to accept that present policy has failed and that a change of direction is necessary. Criticisms of modern forms, given in Chapter 6, mainly concentrated on negative aspects, but this does not mean that we should revert to traditional forms and reject everything the modern ones offer. It is largely on the grounds of space and quality that these forms fail, as in the Prestonpans scheme, which was lacking in quality of construction, but met other needs. Positive points from Libya's modern housing schemes should be taken into account – hygiene, sanitation and the ability to accommodate modern fittings and furnishings.

In looking at any new design it is *needs* that must be considered first. Young people now include cleanliness and a measure of sophistication among their traditional needs. Cars are very important to Libyans, who for psychological and practical reasons like to park outside their houses. Such

wishes should not be ignored, but the impulse to build for cars rather than for people should be resisted.

The design of houses and layout suggested by the author has tried to combine the traditional values with the modern ideal socially, psychologically and physically. This study has been limited to the coastal zone of Libya and it is clear that much greater research is required before we can categorically state what would suit other regions. However, it is hoped that the thorough investigation of Libya's present housing situation given in this study will give all those involved in housing policy and design, a clearer understanding of society's needs in relation to the built environment and encourage them to carry out similar research involving individuals or groups of clients for whom they are making provision.

A sudden access to money and no experience of spending it can lead quickly to poverty and distress. Oil is a finite resource and it should not be presumed that the present favourable economic climate will last forever. The neighbourhoods, cities and towns being built now must be long lasting. They can only serve us and our children if we are comfortable with them. It is not just the physical fabric we must sustain but the fabric of society.

GLOSSARY

Ejtihad	اجتِهاد	scholarly opinion.
Ahkam	احكام	verdicts
al-Juma	الجمعة	Friday
bayt	بيت	"somewhere to stay overnight"; a term used for "house".
Jami	جامع	mosque "to gather"
hadith	حديث	The corpus of sayings and practices of the prophet Muhammed which forms one of the main sources of Islamic law.
Harim	حريم	a sacred, inviolable place, and also means the female member of the family.
haouch	حوش	"The courtyard" - a term used for "house".
mashrabiyyah	مشربية	wooden grillwork used to cover the windows of traditionally built houses.
maskan	مسكن	"peace and tranquility"; a term used for "house".
sedah	سدة	a recessed niche in the courtyard house used for sleeping.

"Assalamu alaikum wa rahmat Ulla" - The traditional Moslem greeting.

Saquifa	سقيفة	a lobby area to transfer from semi-private to private space.
Sheikh Mahallah	شيخ	The tribal chief.
darb-bab	ظرب باب	a large metal mold for forming construction materials (a term used in Misratah).
kadi	قاضي	a judge who administers religious law.
Muadhin	مؤذن	caller to prayer.
manwier	منور	unroofed area to give light and ventilation.
marboa	مربوعة	a room for guests
Fikha	فقه	The explanations of the Qur'an.

A P P E N D I X

امانة البلديات
بلدية مصراته
القسم الفني



لاديمقراطية بدون
مؤتمرات شعبية

دمغة ضرائب	دمغة البلدية
٥٠ درهم	٥٠ درهم

Date
التاريخ

١٣

Ref
رقم

٢١٩

الموافق

STATEMENT OF WORTHINESS OF DWELLING

شهادة عدم صلاحية مبني للاستعمال

Name of Applicant

بناء على الطلب المقدم من :

Region

Village

بنطقة

من محلة

Date

Date

الموافق

١٣

بتاريخ

Description of Building

وبالكشف على المبنى الذي يتكون من :

Reasons for unsuitability

نظرا لما يأتي :

Suitable for
occupation

Unsuitable
for occupation

/Finding

Report from Surveyor

وبناء على تقرير المهندس / المساح اتضح أن المبنى (غير صالح للسكن / صالح للسكن) .

أعطيت له هذه الشهادة بناء على طلبه لاستعمالها في الأغراض المسموح بها قانوناً .

Signature: Head of Planning Department

رئيس قسم التخطيط

Signature of Engineer

توقيع المهندس أو المساح المختص

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

الجمهورية العربية الليبية
الشعبية الاشتراكية

اللجنة الشعبية لبلدية مسرة
اللجنة الشعبية للمرافق

القسم الفني



لا صهيونية
لا صهيونية
لا صهيونية

الدمنة
رقم ٢٠٠

التاريخ / / ١٣ ور
الموافق / / ١٩ م

BUILDING LICENCE

ترخيص بناء

Owner's name اسم مالك العقار
Secondor او من ينوب عنه
Address عنوان
Date بتاريخ
Licence No. ترخيص بناء رقم
Permission to build بالموافقة على بناء
No رقم Plot تقسيم Street شارع Village على قطعة الارض الكائنة بمنطقة
حيث ان المستندات المقدمة من المالك (او من ينوب عنه) مستوفاة وان المشروع المقدم مطابق للشروط والايضاح المنصوص عليها في لوائح المباني واستعمالات وتصنيف المناطق ومتفقا مع الشروط الفنية ومقتضيات الامن العام والقواعد الصحية وقد تم سداد الرسوم والبالغ قيمتها دينارا بقسيمة رقم
Licence Validity Date
يعتبر هذا الترخيص ساري المفعول لمدة
اعتبارا من تاريخ
تاريخ الموافقة على الترخيص والا اعتبرت الرخصة ملغية ولا تعتبر اعمال حفر الاساسات شروعا في التنفيذ
رئيس القسم الفني

Signature, Technical Department

ويجب على المرخص له طلب اجراء الكشوفات للاتية :-

١ - اعتماد خط التنظيم قبل الشروع في البناء

تاريخ الاعتماد توقيع المهندس او المساح المسئول

٢ - هند الارتفاع بالمبنى مترا واحدا على الاكثر من منسوب سطح الطريق

تاريخ الكشف توقيع المهندس او المساح المسئول

٣ - عند اتمام الهيكل العام للمبنى او جزء منه بما في ذلك التقسيمات الاساسية وقبل اجراء البياض والطلاء وتركيب المرافق

تاريخ الكشف توقيع المهندس او المساح المسئول

٤ - عند اتمام البناء كليا

تاريخ الكشف توقيع المهندس او المساح المسئول

Renewal Licence
- لتمديد الترخيص :-

Date

Date

يحدد هذا الترخيص اعتبارا من تاريخ ١٣ ور الموافق ١٩ م

ولدة ستة اشهر بنفس الشروط السابقة رئيس قسم التخطيط

Signature, Planning Department

وفي حالة انقضاء مدة التجديد دون الشروع في البناء يعتبر هذا الترخيص لاغيا ولا بد من اجراءات جديدة للتجديد

الجمهورية العربية الليبية الشعبية الاشتراكية

الاجنه الشعبيه لبلديه مصراته

الاجنه الشعبيه للمرافق

بلديه مصراته

القسم الفني

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



مئة ٢٠٠
درهم

Date
التاريخ / / ١٣ ود
الموافق / / ١٩ م

APPLICATION FOR PERMISSION TO BUILD

طلب الحصول على خط تنظيم وشروط استعمال وتصنيف قطعة ارض

« خارج المخطط »

OUTSKIRTS

Seconder

او من ينوب عنه

Address

عنوانه

Name of Applicant

اسم مالك العقار

Address

عنوانه

I request permission to build on the following land:

ارجو الموافقة على منحني خط تنظيم وشروط استعمال وتصنيف قطعة الأرض الكائنة بمنطقة

number

plot

street

village

رقم

تقسيم

شارع

حالة

Applicant's signature

توقيع مقدم الطلب

For Technical Department

لاستعمال القسم الفني :

Description of site and surrounding area

حدود القطعة وأبعادها طبقاً للطبيعة

Signature of Surveyor
توقيع المهندس او المساح المسئول

Building limitations and land use

استعمال وتصنيف وشروط المنطقة

Signature, Technical Department

توقيع رئيس القسم الفني

Signature of Engineer

توقيع المهندس او المساح المسئول

مدة صلاحية خط التنظيم ستة أشهر من تاريخ صدوره .

only valid for 6 months from date of issue



UNIVERSITY OF EDINBURGH
DEPARTMENT OF ARCHITECTURE

20 CHAMBERS STREET EDINBURGH EH1 1JZ Telephone 031-667 1011
Professor I Metzstein Professor C B Wilson
Head of Department: Andrew Gilmour

AG/IR

16th August 1988

Mr. Suleiman El Fortea,
Department of Architecture,
Heriot-Watt University/Edinburgh
:College of Art,
Lauriston Place,
EDINBURGH,
EH3 9DF.

Dear Mr. Fortea,

Thank you for your letter of 9th August. I am pleased to grant you permission to quote from the two courtyard housing studies we carried out in the Architecture Research Unit, concerning Inchview, Prestonpans, and the Ardler Estate in Dundee. I am sure you will observe the usual courtesies in citing both studies according to normal conventions.

You must be aware of Reg Gray's involvement in the design at Inchview, but if you wish to disvuss either report with their authors, especially Connie and John Byrom, I would suggest you might contact John at this Department.

Best wishes with your studies,

Yours sincerely,

ANDREW GILMOUR
Head of Department

RMJMP
14 OCT 1988
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Edinburgh College of Art

Heriot-Watt University

ARCHITECTURE

Head of School of Architecture

Professor James D Dunbar-Nasmith CBE BA DA RIBA PPF

RGS/ND/2.90

Lauriston Place, Edinburgh EH3 9DF
031-229 9311

15 October 1987

Partnership Manager
Robert Matthew Johnson-Marshall & Partners
10 Bells Brae
EDINBURGH 4

Dear Sir,

Suleiman El Fortea, PhD student

The above named student is carrying out research into housing in Libya, looking at the advantages and disadvantages of the traditional house types and building and examining the new work that has been carried out over the last few years. He is anxious to examine the brief formed between the client and the architect and the development of the ideas with due regard to design and economy that produced recent developments in Libya.

As your firm was quite heavily involved and may still be, would it be possible for Mr. El Fortea to see the files and look at the resultant work and discuss this with the Job Architect if available?

I trust this will not take too much time, but it is important that he balances his study of housing between the old and the new.

I trust he will pass on any findings to you in due course.

Yours faithfully

Robert G. Smart

RMJMP
19 OCT 1987
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10 Bells Brae
Edinburgh EH4 3BJ
Telephone 031-225 2532
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Telex 727411 RUMJUM

26 October 1987

R G Smart Esq
Heriot Watt University
Lauriston Place
Edinburgh
EH3 9DF

Dear Mr Smart

SULEIMAN EL FORTEA, PhD STUDENT

Thank you for your letter of 15 October regarding Suleiman El Fortea's research into housing in Libya. I confirm that we shall be pleased to assist Suleiman in every way possible and I suggest he make contact with Alastair Telford who is currently responsible for the technical performance of our overseas work.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'T Brian Stewart', written over a horizontal line.

T Brian Stewart

cc AJT, GJB

CARDO

CENTRE FOR ARCHITECTURE RESEARCH AND DEVELOPMENT OVERSEAS

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الجمهورية العربية السورية الشعبية الاشتراكية

أمانة البلديات

بلدية مصراته



لا ديمقراطية
بلا مؤتمرات شعبية

رقم الهاتف ٢١٣٤٩-٢١٣٤٧-٢١٣٠٦

ص.ب ٥٥٥

الرقم الاشارى

التاريخ / / ٨١٣

الموافق / / ٢١٩

Mr Suleiman Fortea
Edinburgh College of Art
Heriot-Watt University
Lauriston Place
Edinburgh
U.K.

Dear Mr Fortea

We are pleased to enclose the information, maps and charts on housing in Musarata which you requested.

We hope this will be sufficient for your research and wish you success in your studies.

Yours sincerely

Head, Technical Department





CENTRE FOR ARCHITECTURAL RESEARCH AND DEVELOPMENT OVERSEAS

School of Architecture, The University, Newcastle upon Tyne NE1 7RU England
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NW/JP

28 April, 1989.

Mr. S. Fortea,
Herriot-Watt University,
Art College,
Laureston Place,
EDINBURGH.
EH3 5DF.

Dear Mr. Fortea,

This confirms our telephone conversation concerning your article on Libyan Courtyard housing for possible publication in Open House International in 1989.

Please send your article quickly as it has to be refereed and there may be changes to be made. It should not exceed 3,000 words and should have a maximum of 10 illustrations.

Yours sincerely,

p.p. Nicholas Wilkinson



CENTRE FOR ARCHITECTURAL RESEARCH AND DEVELOPMENT OVERSEAS

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NW/JP

11 May, 1989.

Mr. El Fortea,
Herriot Watt University,
Architecture Department,
The Art College,
Lauriston Place,
EDINBURGH.

Dear Mr. EL Fortea,

I have pleasure in sending you an invitation to attend our conference on Quality in the Built Environment, on July 3rd, 4th and 5th 1989.

The organisers would also be interested if you could give a paper relating to your Ph.D. research. It would be a good contribution to the debate on the question of quality. Your paper would be published in the proceedings in September 1989. Unfortunately we have no funds to pay your fares or accommodation and registration costs.

Since you qualify as a 'student' you would have to find only the lower rate of £100 for registration. I hope you are successful in obtaining support.

Yours sincerely,

Nicholas Wilkinson

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