

# THE GLASGOW SCHOOL OF ART

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**THE SAUDI HOUSE IN THE PAST,  
PRESENT AND FUTURE  
(A STUDY OF CHANGES.)**

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*THIS DISSERTATION IS SUBMITTED IN FULFILMENT OF THE DEGREE OF  
DOCTOR OF PHILOSOPHY IN ARCHITECTURE  
AND URBAN DESIGN.*

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IN THE NAME OF ALLAH,  
THE BENEFICENT, THE MERCIFUL



Dedicated to:

My best friend, my wife, HANAN.



## ABSTRACT

The Kingdom of Saudi Arabia is a country with history, values and traditions. The traditional houses all over the country reflect the sensitivity of the people who constructed them toward their needs, environment and resources.

The change which affects every aspect of life in Saudi Arabia also affected the type of houses which people now construct. The traditional houses and neighbourhoods became a victim of ignorance and an idealized condition of the past.

The present contemporary built environment produced forms which are not applicable to the country's environment and lead to many problems which the people who have not had to deal with it before.

This study is an investigation of the changes which occurred to the houses and the built environment in the country. It identifies the different characteristics of the traditional houses, the change process and the different related factors, the contemporary built environment and its problems, and the peoples perception towards their built environment. As a result of the findings of this work, concepts for new developments are made for the improvement of the built environment in Saudi Arabia.

The Study comprises five parts; the first part introduces the study, the country and the Islamic values related to the built environment. The second part discusses the different traditional buildings with a special look at Riyadh, Makkah and Jeddah houses. The third part is an investigation of the process of the change in the built environment and the role of the different agencies in that process until the existing contemporary environment was formulated. The fourth part was field work in Saudi Arabia when a substantial social survey was carried out backed up by extensive interviews. The fifth part presents the recommendations of the study toward the improvement of the built environment (especially houses and neighbourhoods designs).



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# PART I

## INTRODUCTION

CHAPTER 1	INTRODUCTION AND STUDY DESCRIPTION
CHAPTER 2	THE KINGDOM OF SAUDI ARABIA
CHAPTER 3	ISLAM AND THE BUILT ENVIRONMENT



## CHAPTER 1

### INTRODUCTION AND STUDY DESCRIPTION

1.1 INTRODUCTION

1.2 STUDY HYPOTHESIS

1.3 STUDY OBJECTIVES

1.4 STUDY METHODOLOGY

1.5 STUDY STRUCTURE



## 1.1. INTRODUCTION

In the Arabian Peninsula where the Kingdom of Saudi Arabia is located, there used to be traditional forms of houses. These forms were for a long period the identity of this part of the world<sup>1</sup>. It is not only the design and building techniques which satisfied the environmental needs, but also the accumulation of cultural and religious requirements which are recognised<sup>2</sup>.

For hundreds of years the inhabitants of Arabia have been building up a collective knowledge on ways of dealing with the same environmental factors that prevail today. Architecture in the Arabian Peninsula started in the past by using the local material such as mud, sand and wood. The use of these materials reflected on the form of buildings in this area. Houses generally consisted of one or two stories but were known to reach five stories where the techniques of using stone was managed<sup>3</sup>.

The inward design of the courtyard houses was to protect the inhabitants from the harsh desert environment and to preserve the solid interaction among the family in particular, and the community in general. On a large scale, the neighbourhood was designed in a way to reflect sharing and caring among the members of the community. The different zones and paths in the neighbourhood show the concern of the people towards their environment and to others. It is considered that the Arabs reached a level of sophistication in Urban Development<sup>4</sup>.

The situation now is totally different, the bulldozer of modern development is gridding its way across the urban centres of the Middle East and the Arabian Peninsula in particular. It is destroying the traditional atmosphere of most cities and replacing it with a different character.

The form of the house as a unit witnessed great change. The traditional concepts are being ignored. The old pattern is now



reversed where as before, the house surrounded the open space and presented a blank facade and entrance door to the narrow public streets, the recently adopted and alien pattern of wide streets, with the house forming a rectangular block in the middle of its own plot, sharing only a fence or a boundary wall with its neighbours. This means that all the external walls of the house are exposed to solar radiation. Similarly what is called a "garden" is exposed to the sun and the dust.

With the new technology, the majority response to the harsh climatic conditions has been the creation of an artificial environment that exists within the opposing elements of a natural environment, with the consequent complete dependence on electrical power and mechanical devices.

Air conditioning units may become responsible for changing the basic concept of a house. The courtyard may be replaced by a central salon without windows. The enclosed "Mashrabbiah" is replaced by an open balcony. Houses become concrete boxes containing some spaces, aluminium windows, and air conditioning units. The automobile becomes responsible for a new pattern of town development. The increased use of motor cars in residential areas produces a layout that has all the character of suburban Europe and America. Shopping malls in most cities of Saudi Arabia are in the process of replacing the old shops<sup>5</sup>.

So, the link between the past and present is completely broken. Forms of houses are imported along with television, cars, pepsi-cola, popcorn and chewing gum. Even the terms have changed, for example, instead of (Byet on Manzel) (Home, House) the term "villa" is being used. Also, new elements were introduced to the house without any function, or they contradict with the life of the inhabitants, such as balconies and swimming pools.



It is a situation where the process of change had started and never stopped. The change was the result of many causes during the last decades since the formation of the Saudi State and the discovery of oil. Originally the individual chose to change their own dwelling as they saw fit, but it has reached the stage where regulations and requirements force everyone to build in a particular pattern which is not part of the people's way of life. The design of a building can not be separated from the life style of those who live in them, and the living environment being built today will influence generations of Saudi's to come.

The Saudi Arabian Society is an Islamic society. The Muslim Society is an accumulation of individual Muslims. Hence, the Islamic settlement is an accumulation of individual houses. The house is an institution, created for a complex set of purposes, not just a structure. Because building a house is a cultural phenomenon, its form and organisation are greatly influenced by cultural milieu. There is a direct link between social and physical decisions in society. Many decisions made in the context of physical requirements become socially debilitating<sup>6</sup>.

Among the serious obstacles to the improvements of planning activities in the Arab countries and Saudi Arabia in particular, is the conceptual gap between research and practice, which resulted from the lack of communication between theory and implementation. It is understood that there is a difference between logical and practical planning. The logical one is the type which depends on rules and requirements which are initiated from theoretical studies. Also, in practice it seeks models from advanced countries. The practical planning is the type which depends on people who are on site with the problem, also it seeks models from what the people do to try to fit their needs<sup>7</sup>.

Saudi Arabia's case needs practical planning and design. It could be noted that "logical planning" requires an excellent



understanding of the peoples life style and requirements, if planning is to serve those people. When there is a different viewpoint between the people and the local planners this method is unlikely to succeed, resulting in the people making effective but often unexpected alternatives to the environment<sup>8</sup>.

This study will examine the housing situation in Saudi Arabia. The concern of the study is the rapid change which is occurring all over Saudi Arabia and its affect on physical structure. Change by itself is not rejected, but a lot of efforts are needed to be contributed to evaluate what is good and what is bad, what is acceptable and what is unacceptable. The aim of the study is to provide guidelines for future houses and urban development in Saudi Arabia.

## 1.2 STUDY HYPOTHESIS

The general hypothesis of the study is generated from the author observations that inspite of the present wealth of the country there is a poor fit between the housing being built and the people's life style.

The author contention is that this is the result of the present building regulations which appear to be against the traditional lifestyle of the people.

This dissertation sets out to test this contention by studying the individual house types and present lifestyles, the study will enable an appropriate house to evolve from within the Saudi society.



### 1.3 STUDY OBJECTIVES

The main objectives of this study could be summarised as follows:

1. To investigate the changes which occurred in the Saudi houses and its causes and the different problems associated with it.
2. To study the existing situation of housing today and the behaviour of the residents towards their physical environment.
3. To develop design guidelines and independent alternatives through examining the above.
4. To project future requirements in the housing and urban section for the case of Saudi Arabia.

### 1.4 STUDY METHODOLOGY

The study methodology is represented by the study framework in (Fig 1-1).

To reach the objectives of this research, the theoretical approach which resulted in formulating the problem started at the beginning of 1988.

The pilot study which was in March 1989 helped in constructing the data collection plan.

The main two elements of data collection through questionnaires and interviews, as well as other assigned works were achieved during the field trip (June to September 1989).

Analysis of the data by computer developed the sequence in which the design guidelines were established.

The recommendations were the result of the above cycle which was joint theoretical and practical work.



## 1.5 STUDY STRUCTURE

The study which is presented in this dissertation consists of five parts (Fig 1-2).

The First Part is an introduction to the study, the country and the relation of Islam with the built environment.

The Second Part is an investigation about the traditional accommodation in Saudi Arabia starting with the tents and followed by Riyadh houses, Makkah houses, Jeddah houses and other houses.

The Third Part is an investigation about the changes which occurred in the built environment and the different factors which helped the change to process in the Saudi Society. The investigation started with the early changes and then looked at the different factors which were the Development Plans, Ministry of Municipal and Rural Affairs, Real Estate Development Fund, Ministry of Public Works and Housing and the other projects in the Kingdom. At the end of this part, an investigation was made into the present contemporary built environment and the different related problems.

The Fourth Part is to present the people perception toward their environment. This was through a field study in which survey (questionnaire) was conducted beside face to face interviews. The findings of these surveys and interviews are presented in this part.

The Fifth Part is the recommendations which were generated as a result of the different findings of the above investigations.

The dissertation follows the following system:

Each Part is identified by a title page.

Each Chapter is identified by a title page.

Each Chapter consists of text, tables, Figures and Footnotes.

The text of the Chapter is presented first, Tables and Figures are presented after the text of each Chapter. Footnotes are added at the end of each Chapter.



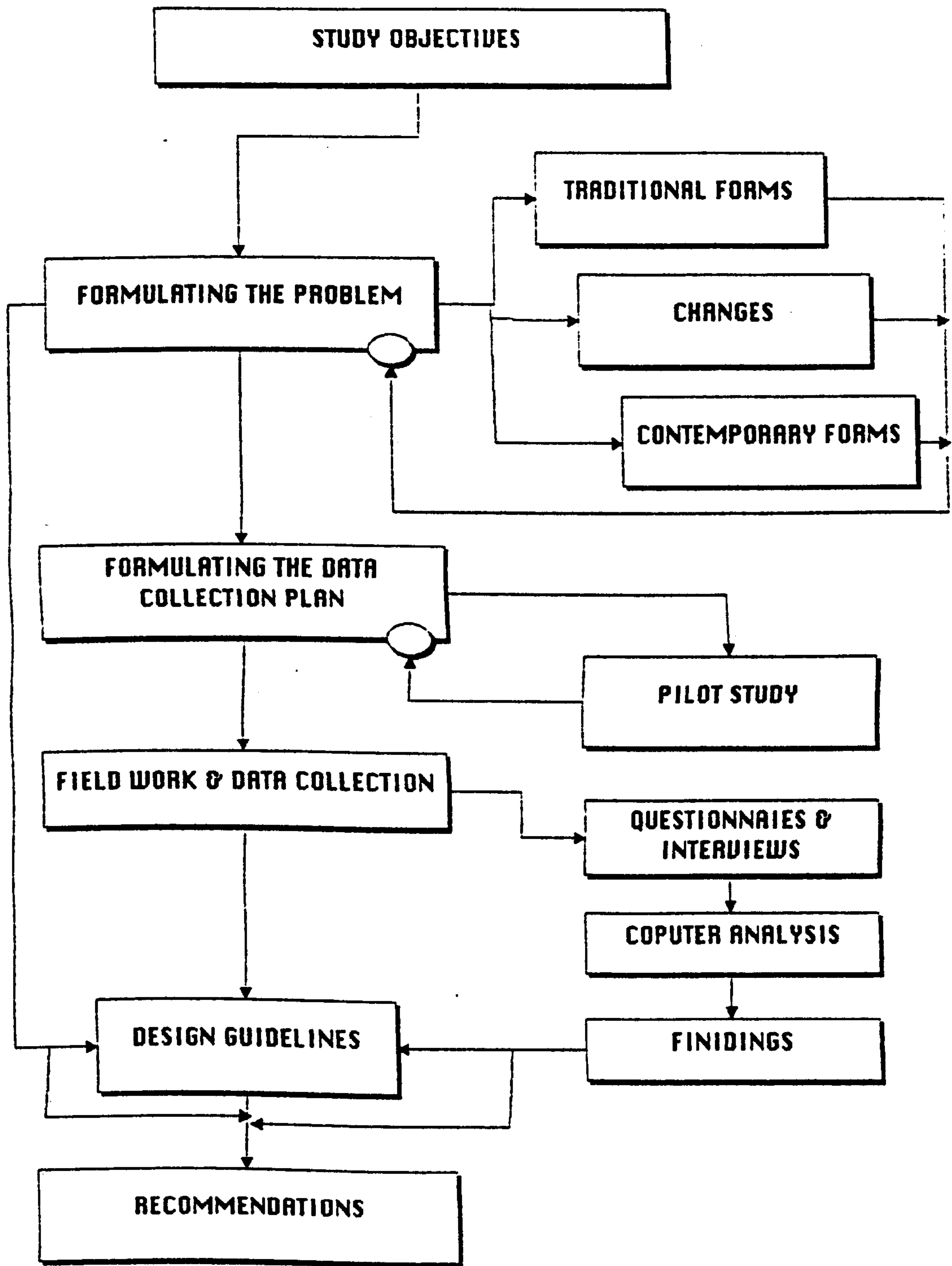


Fig 1-1 STUDY FRAMEWORK.

Source: Author (A.S. Alafghani).



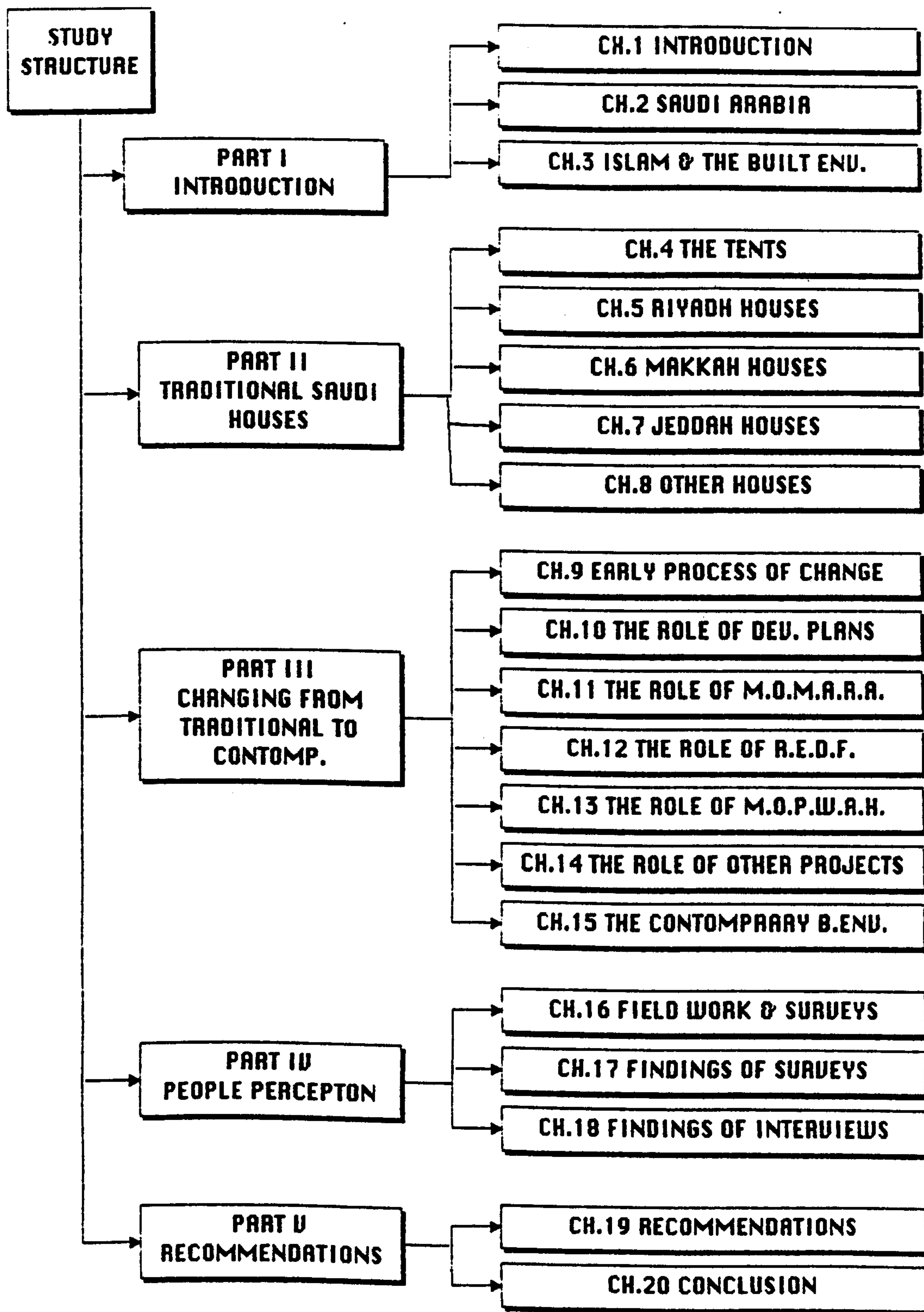


Fig 1-2 STUDY STRUCTURE.

Source: author (A.S. Alafghani).



## Footnotes: Chapter 1

1. Tents for example are the type of accommodation which used to identify Arabia.
2. Islam is the religion of the people in Saudi Arabia.
3. Traditional houses of Makkah and Jeddah are the best examples of tall buildings.
4. DANBY, Miles. "The Islamic Architectural Tradition and the House: with Special Reference to the Middle East." 'Islamic Architecture and Urbanism.' GERMAN (ed.) A symposium 5-10 January 1980, organised by the College of Architecture and Planning, King Faisal University, Damman Saudi Arabia, 1983, p.200.
5. KULTERMANN, Uda. Contemporary Arab Architecture: The Architecture of Saudi Arabia, Mimar Magazine No.16, April-June 1985, p.47.
6. Setback requirements are the best example.
7. AL-MUSHABBI, Omar. Altahtite ALUmrani Bayn ALMantiq Wa ALWaqu (Arabian Planning between Logic and Practice), AL-Baladiyat, No.1, Year 1, April 1988, p.40 (Arabic).
8. See Section 15.8.1 for such an example.



## CHAPTER 2

### THE KINGDOM OF SAUDI ARABIA

- 2.1 COUNTRY PROFILE.
- 2.2 GEOGRAPHY.
- 2.3 TOPOGRAPHY
- 2.4 CLIMATE.
- 2.5 HISTORY.
- 2.6 POPULATION.
- 2.7 ECONOMY.
- 2.8 RELIGION.
- 2.9 LAWS AND GOVERNMENTS.



## 2. THE KINGDOM OF SAUDI ARABIA.

Rick Galt describes Saudi Arabia in the following statement: "Saudi Arabia is a land with an incredibly rich heritage, a land of proud and strong people, a land of harsh beauty and immense variety."<sup>1</sup>

Saudi Arabia plays an important role in the Islamic world. For over fourteen centuries, the nation has been a leader of Islamic culture and traditions<sup>2</sup>. As custodians of the holy cities of Makkah and Medina, the Kingdom attracts each year a massive flow of pilgrims from all over the world.

### 2.1 COUNTRY PROFILE

Formal Name: Kingdom of Saudi Arabia.  
Short Form: Saudi Arabia.  
Terms of Nationals: Saudi(s) or Saudi Arabian(s).  
Capital: Riyadh.  
Flag: Horizontal sword beneath inscription in Arabic - white on green field - proclaiming "There is no God but Allah, and Mohammad is the Messenger of God."<sup>3</sup>

### 2.2 GEOGRAPHY

The Kingdom of Saudi Arabia is located in the Arabian Peninsula which is southwest of Asia (Fig 2-1). Saudi Arabia covers about 22° of longitude and 17° of latitude. The northern west point 34° 17' north, and the western most point is 34° 56' E.<sup>4</sup>

It is bounded by the Red Sea on the west, by Jordan, Iraq and Kuwait on the north, by the Arabian Gulf<sup>5</sup>, Qatar, United Arab Emirates and Oman on the east and by the Democratic Republic of Yemen on the south.

Saudi Arabia with an area of about 2,300,000 square kilometres nearly 900,000 square miles,<sup>6</sup> occupies the largest part of the Arabian Peninsula. (Fig 2-2)



The most important cities in the Kingdom are the following in alphabetical order: Abha, Badana, Bishah, Dhahran, Al Qassim, Gurayat, Guisumuh, Hail, Jeddah, Jizan, Jawf, Makkah, Medina, Rafha, Riyadh, Tabuk, Taif, Turaif and Waajh<sup>7</sup>.

### 2.3 TOPOGRAPHY

The topography of Saudi Arabia could be placed into seven major categories<sup>8</sup> (Fig 2-3):

1. Tihama Plain, a low coastal sandy plain on the Red Sea of variable width with sedimentary rocks. The width ranges from several kilometres to 65 Km.
2. Sarawat Mountains, the main feature of the peninsula, consists of a series of mountains parallel to the Red Sea. They are of igneous and metamorphic rock of variable width. Some of these mountains reach 8415 feet over Taif, and some mountains of Asir even reach 10,000 feet high.
3. The Central Plateau (Najd) extends between the lava flow in the west and the Dahna Desert in the east, covering 640 Km. It also extends from the Nafud Desert in the north and the Rubaal-Khali Desert in the south for a distance of 800 Km. The average height of the Plateau is 4,000 to 6,000 ft.
4. The Northern Plateau extends from the Sarhan Valley in the north to the Kuwait frontier in the east.
5. The Great Nafude is an extensive area of sand about 56,320 square kilometres. Its two sides are bordered in the west by the Najad Plateau.
6. Plateaux and Plans of the Eastern Province are hills of variable heights dipping towards the east. They are followed by a series of elevated sandhills.
7. The Rubaal-Khali (The Empty Quarter), a main feature of Saudi Arabia, is a sand ocean extending between 16 and 22 degrees north latitude and between 45 and 56 degrees east longitude. Its area is about 640,000 square kilometres.

### 2.4 CLIMATE

Saudi Arabia is located in the dry tropical desert range where it is exposed to dry continental winds and its climate is characterised by dryness throughout the year and high temperatures in the summer<sup>9</sup>. (Figs 2-4, 2-5)

The four seasons of Saudi Arabia are as follows:



Summer (June, July and August). This resulted from the continental tropical air-mass. No change occurs until September, when the weather around the country is clear, very warm and dry, except in the southern region, where the moist tropical air-mass is accompanied with rain.

Winter (December, January and February). The Kingdom is dominated by cold, dry, continental air-mass extending from Central Asia and Siberia, which decreases the temperature and makes the weather clear and dry. Frost is formed particularly in the northern part of the Kingdom.

Spring and Autumn (March to May/September to November). During these seasons, the main dominating factors are the maritime air-masses and tropical continental air-masses. Surface winds generated under the effects of the air-masses are mostly severe and create dust and sand storms in most areas.

"Keizer Talib" divided the Kingdom into four different climatical regions<sup>10</sup>.

1. Hot-Dry Region (with ineffective perception). Cities as Riyadh, Medinah, Gassim and Makkah.

Average Daily Maximum:

May to September - 40°C  
Maximum average - 43°C in July.

Average Daily Minimum:

November to January - 10°C  
Lowest average - 7°C in January

Average Relative Humidity:

40% to 50% during November to February  
15% to 16% during June to August.

Rainfall:

Annual average of 59 mm.

2. Hot-Humid Region (light but ineffective perception). Cities as Jeddah, Jizan and Yanbu.

Average Daily Maximum:

May to August - 42°C

Average Daily Minimum:

December to January - 15°C

Average Relative Humidity:

75% to 80% throughout the year.



Rainfall:

Annual average of 120 mm.

3. Composite Region (light and ineffective perception). Cities as Dharan, Qatif, Alkhobar and Dammam.

Average Daily Maximum:

35-42°C during May to October.

40°C during June to September.

Average Daily Minimum:

29°C during January to February.

12.5°C during December to February.

Average Relative Humidity:

41% to 67%

Rainfall:

Average annual of 79 mm.

4. Upland Region (light but effective perception). Cities as Abha, Khamis Mishit and Taif.

Average Daily Maximum:

24 to 28°C during July and August.

Average Daily Minimum:

10-12°C during January.

Average Relative Humidity:

80% throughout the year.

Rainfall:

Average of 300 mm. per year.

## 2.5 HISTORY

In the Arabian Peninsula before the advent of Islam, most of the people belonged to the Bedouin tribes. The Bedouin's were known for their loyalties to their tribe. Their survival depended upon their flocks of sheep and their ability to find water and food. This involved moving from one place to another in search of an oasis with pastures of their herds<sup>11</sup>.

Saudi Arabia is located on the ancient routes which connected it with varied civilisations including those of Mesopotamia, Egypt and Greece. (Fig 2-6) The Quran (The Holy Book) was revealed to the prophet Mohammed about 610 A.D. in Makkah<sup>12</sup>. That was the birth of a new faith 'Islam'.



During Messenger Mohammed's lifetime, the first social and political system was created on the Arabian Peninsula. This system grew, developed and flourished during the era of his successors, Chaliphs, until it became an organised State.

The history of modern Saudi Arabia with the family of As-Saud. The family who reigned over most of Arabia in the late 18th and early 19th centuries until they lost part of the territory to the Turks and were driven out of their capital, Riyadh, by the rival House of Rashid. In 1902 Ibn Saud recaptured the city and began the reconquest and unification of the country. In 1927 Ibn Saud was proclaimed King. The country's present name, the Kingdom of Saudi Arabia, was adopted in 1932<sup>13</sup>.

## 2.6 POPULATION

The first comprehensive and accurate census carried out in Saudi Arabia in 1974 indicates that the total population of the Kingdom is 7,012,640 distributed into fourteen administration districts<sup>14</sup> (Table 2-1)

Citizens of Saudi Arabia are classified into two categories, fixed populations in urban and rural areas, and migrant Bedouins. The majority of fixed inhabitants live in the main cities of the Kingdom. The Saudi Arabian population is composed of a number of tribes covering the whole country. (Fig 2-7)

Saudi Arabian Government is planning to repeat the comprehensive population census in 1991<sup>15</sup>. The result will be important for both the researchers and the country's future planning.

## 2.7 ECONOMY

Until the 1930's camel caravans traversed the Arabian Peninsula trading at seapoints, Agricultural and income generated from the Hajj were important sources of revenue, along with pearl fishing along



the East Coast. Dates were the main crop and the Bedouin raised sheep, camels and goats. Oil was discovered in 1938, but large scale production did not begin until 1945<sup>16</sup>.

Today Saudi Arabia is one of the world's largest producers, and is the biggest exporter. The Saudi oilfields are concentrated in the Eastern Region. The Ghawar oilfield is the largest in the country. (Fig 2-8) Saudi Arabia's production of oil is about 14.69% of the world oil production<sup>17</sup>. Saudi Arabia has embarked on an ambitious plan to develop its industrial and agricultural sector.

## 2.8 RELIGION

Islam is the religion of the Kingdom and all the people of the country. The heritage of the Kingdom is based on the Islamic faith.

The Quran and the Sunna, (the traditions of the Prophet Mohammed), are sources of legislation in the country. the Arabic calender year is based on the date of the prophet's migration from Makkah to Medina. (Table 2-2)

Islam, which means submission to the will of God is one of the world's great religions. Muslims are the followers and believers of Islam. Islam is not only a system of religious believers and devotions, but also provides rules for behaviour in private, social and business.

A muslim has five duties called the pillars of Islam<sup>18</sup>: First, the profession of faith (there is no God but Allah, Mohammed is the Messenger of Allah); second, pray five times a day facing the Holy Ka'aba in the Holy Mosque in the city of Makkah; third, to pay "Zakat" to the needy people; fourth, to fast during the month of Ramadan; and fifth, to perform Hajj (Pilgrimage to Makkah) at least once in a lifetime if possible.



## 2.9 LAW AND RELIGION

The basis of the legal system of Saudi Arabia is derived from Islam. The legislatives and executive powers are combined and rest in the Council of Ministries in the Crown Prince, who heads the council whenever the King delegates the authority to him. In the absence of the first Depute Prime Minister, the authority is delegated to the Second Deputy Prime Minister. Other members of the Council are all heads of Ministries, and other Members appointed to sit on the council's meetings in an advisory capacity. (Fig 2-9) The Council exercises authority and supervision over various regional government agencies, concluding international agreements and acts independently in all internal matters.



Table 2-1 POPULATION DISTRIBUTION ACCORDING TO THE ADMINISTRATIVE AREAS IN 1974

Source: National Atlas Committee 1981(19) p.11

Administrative Province	Population	Percentage
Makkah	1,760,216	26.1
Riyadh	1,259,145	18.8
Eastern Province	762,037	11.3
Asir	678,679	10.2
Medina	516,636	7.7
Jizan	408,334	6.2
Gassim	324,543	4.9
Hail	265,216	3.8
Tabuk	194,539	2.9
Bahah	185,851	2.5
Najran	144,097	2.2
Northern Province	127,582	1.9
Az Jufe	66,738	1.0
Al.Quriat	32,853	0.5
<b>TOTAL</b>	<b>6,726,466</b>	<b>100%</b>
Rurals on boundaries	210,000	
Saudis outside	72,078	
	<b>7,008,544</b>	

Table 2-2 THE ISLAMIC CALENDAR

Source: Transworld Arabian Library, 1983(6) p.9.

#### Comparative Tables of AH and CE Dates

The Islamic era is based on the Hijrah, the migration of the Prophet Muhammad from Makkah to Medina, which took place on 16 July 622 CE. The Islamic year is lunar, and has 354 days. There are approximately 103 Hijri years to a Gregorian century; AH stands for Anno Hegirae (Hegira being the Latinized form of Hijrah), and CE for Christian Era. The Hijri year begins on the day of the month indicated.

THE HIJRAH MONTHS	AH	CE	AH	CE	AH	CE	AH	CE
Muharram	1	622 16 July	600	1293 10 September	1180	1747 13 January	1362	1943 8 January
Safar	10	631 9 April	610	1213 23 May	1170	1746 26 September	1353	1943 28 December
Rabi' al Awwal	20	640 21 December	620	1223 4 February	1180	1756 9 June	1364	1944 17 December
Rabi' al Thani	30	650 4 September	630	1232 18 October	1190	1766 21 February	1374	1945 6 December
Jumada'l Awwal	40	660 17 May	640	1242 1 July	1200	1775 4 November	1384	1946 25 November
Jumada'l Thani	50	670 29 January	650	1252 14 March	1210	1785 18 July	1394	1947 15 November
Rajab	60	679 13 October	660	1261 26 November	1220	1795 1 April	1404	1948 3 November
Shaban	70	689 25 June	670	1271 8 August	1230	1805 14 December	1414	1949 24 October
Ramadan	80	699 8 March	680	1281 22 April	1240	1814 26 August	1424	1950 13 October
Shawwal	90	708 30 November	690	1291 4 January	1250	1824 10 May	1434	1951 2 October
Dhu'l-Qadah	100	718 8 August	700	1300 16 September	1260	1834 22 January	1444	1952 21 September
Dhu'l-Hijjah	110	728 18 April	710	1310 21 May	1270	1844 4 October	1454	1953 10 September
	120	737 29 December	720	1320 12 February	1280	1853 18 June	1464	1954 30 August
	130	747 11 September	730	1329 28 October	1290	1863 1 March	1474	1955 20 August
	140	757 26 May	740	1339 9 July	1300	1873 12 November	1484	1956 8 August
	150	767 6 February	750	1349 22 March	1310	1883 26 July	1494	1957 29 July
	160	776 19 October	760	1358 3 December	1320	1893 1 May	1504	1958 18 July
	170	786 3 July	770	1368 16 August	1330	1903 20 April	1514	1959 7 July
	180	796 16 March	780	1378 29 April	1340	1913 10 April	1524	1960 26 June
	190	806 27 November	790	1388 11 January	1350	1923 30 March	1534	1961 15 June
	200	816 11 August	800	1397 24 September	1360	1933 18 March	1544	1962 4 June
	210	826 24 April	810	1407 8 June	1370	1943 8 March	1554	1963 25 May
	220	836 8 January	820	1417 18 February	1380	1953 25 February	1564	1964 13 May
	230	846 18 September	830	1426 2 November	1390	1963 14 February	1574	1965 2 May
	240	856 2 June	840	1436 16 July	1400	1973 4 February	1584	1966 22 April
	250	866 13 February	850	1446 29 March	1410	1983 23 January	1594	1967 11 April
	260	876 27 October	860	1455 11 December	1420	1993 13 January	1604	1968 31 March
	270	886 11 July	870	1465 24 August	1430	2003 2 January	1614	1969 20 March
	280	896 23 March	880	1475 7 May	1440	2013 22 December	1624	1970 9 March
	290	906 5 December	890	1485 18 January	1450	2023 11 December	1634	1971 27 February
	300	916 18 August	900	1494 2 October	1460	2033 30 November	1644	1972 16 February
	310	926 1 May	910	1504 14 June	1470	2043 19 November	1654	1973 4 February
	320	936 13 January	920	1514 26 February	1480	2053 8 November	1664	1974 25 January
	330	946 26 September	930	1523 10 November	1490	2063 28 October	1674	1975 14 January
	340	956 9 June	940	1533 23 July	1500	2073 17 October	1684	1976 3 January
	350	966 20 February	950	1543 6 April	1510	2083 7 October	1694	1977 23 December
	360	976 4 November	960	1552 18 December	1520	2093 26 September	1704	1978 12 December
	370	986 17 July	970	1562 31 August	1530	2103 15 September	1714	1979 2 December
	380	996 31 March	980	1572 14 May	1540	2113 4 September	1724	1980 21 November
	390	1006 13 December	990	1582 26 January	1550	2123 24 August	1734	1981 9 November
	400	1016 28 August			1560	2133 14 August	1744	1982 30 October
	410	1026 9 May			1570	2143 3 August	1754	1983 19 October
	420	1036 30 January			1580	2153 22 July	1764	1984 8 October
	430	1046 8 October			1590	2163 13 July	1774	1985 27 September
	440	1056 16 June	1000	1391 19 October	1600	2173 1 July	1784	1986 16 September
	450	1066 28 February	1010	1401 2 July	1610	2183 20 June	1794	1987 6 September
	460	1076 11 November	1020	1411 16 March	1620	2193 9 June	1804	1988 26 August
	470	1086 25 July	1030	1420 26 November	1630	2203 29 May	1814	1989 14 August
	480	1096 8 April	1040	1430 10 August	1640	2213 19 May	1824	1990 4 August
	490	1106 19 December	1050	1440 23 April	1650	2223 7 May	1834	1991 24 July
	500	1116 2 September	1060	1450 4 January	1660	2233 26 April	1844	1992 13 July
	510	1126 16 May	1070	1460 13 September	1670	2243 16 April	1854	1993 2 July
	520	1136 27 January	1080	1469 1 June	1680	2253 8 April	1864	1994 21 June
	530	1146 11 October	1090	1479 12 February	1690	2263 24 March	1874	1995 10 June
	540	1156 24 June	1100	1488 26 October	1700	2273 14 March	1884	1996 31 May
	550	1166 7 March	1110	1498 10 July	1710	2283 3 March	1894	1997 19 May
	560	1176 18 November	1120	1508 23 March	1720	2293 21 February	1904	1998 9 May
	570	1186 2 August	1130	1517 5 December	1730	2303 10 February	1914	1999 28 April
	580	1196 14 April	1140	1527 19 August	1740	2313 29 January	1924	2000 17 April
	590	1206 27 December	1150	1537 1 May	1750	2323 19 January	1934	2001 6 April



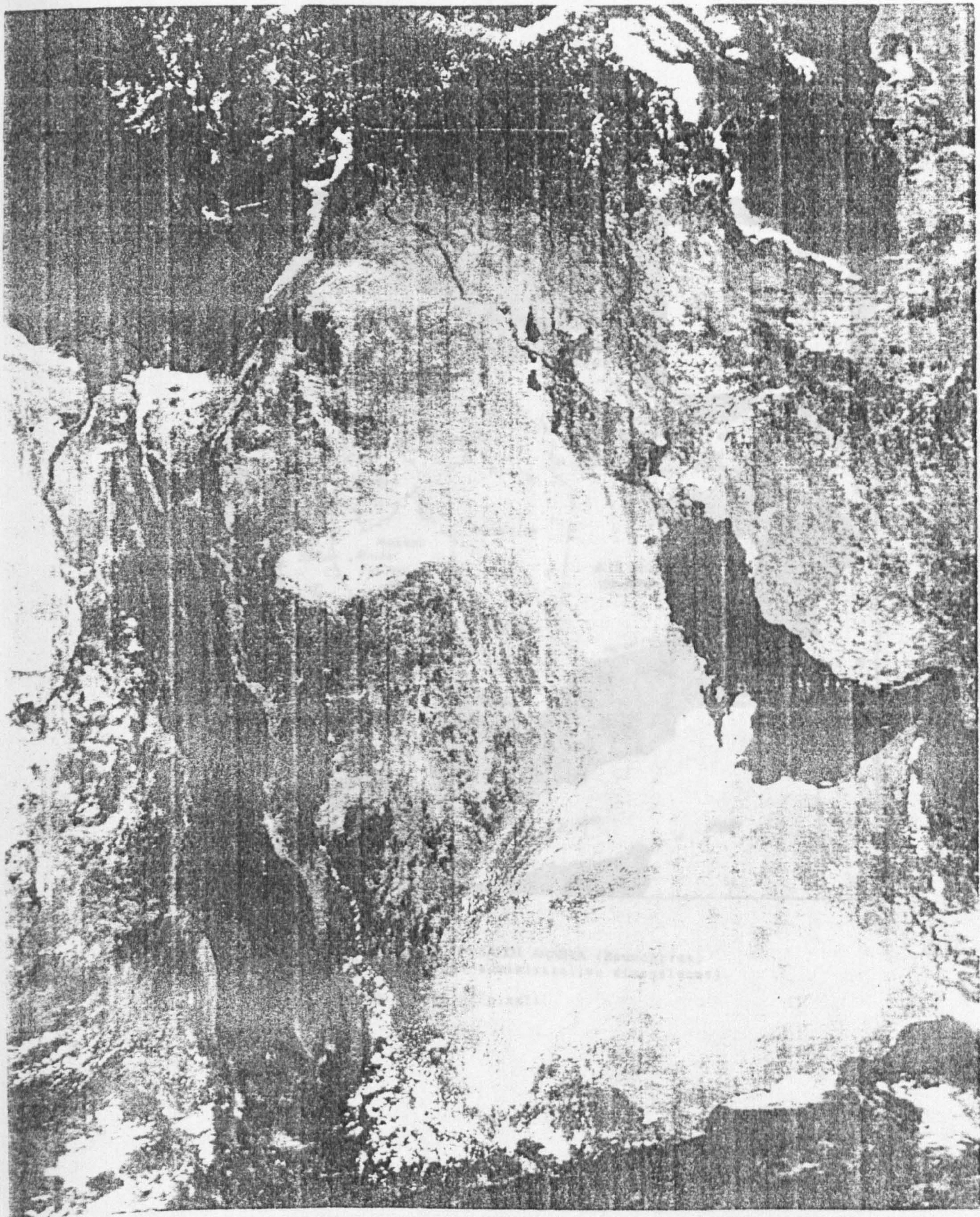


Fig 2-1

THE ARABIAN PENINSULA  
(A Satellite Photo of the Arabian Peninsula).

Source:

King Abdulaziz City for Science and Technology,  
Riyadh.





Fig 2-2 THE KINGDOM OF SAUDI ARABIA (Boundaries)  
(The different administrative dimensions).

Source: Hyrop, 1985(13) p.xxii.



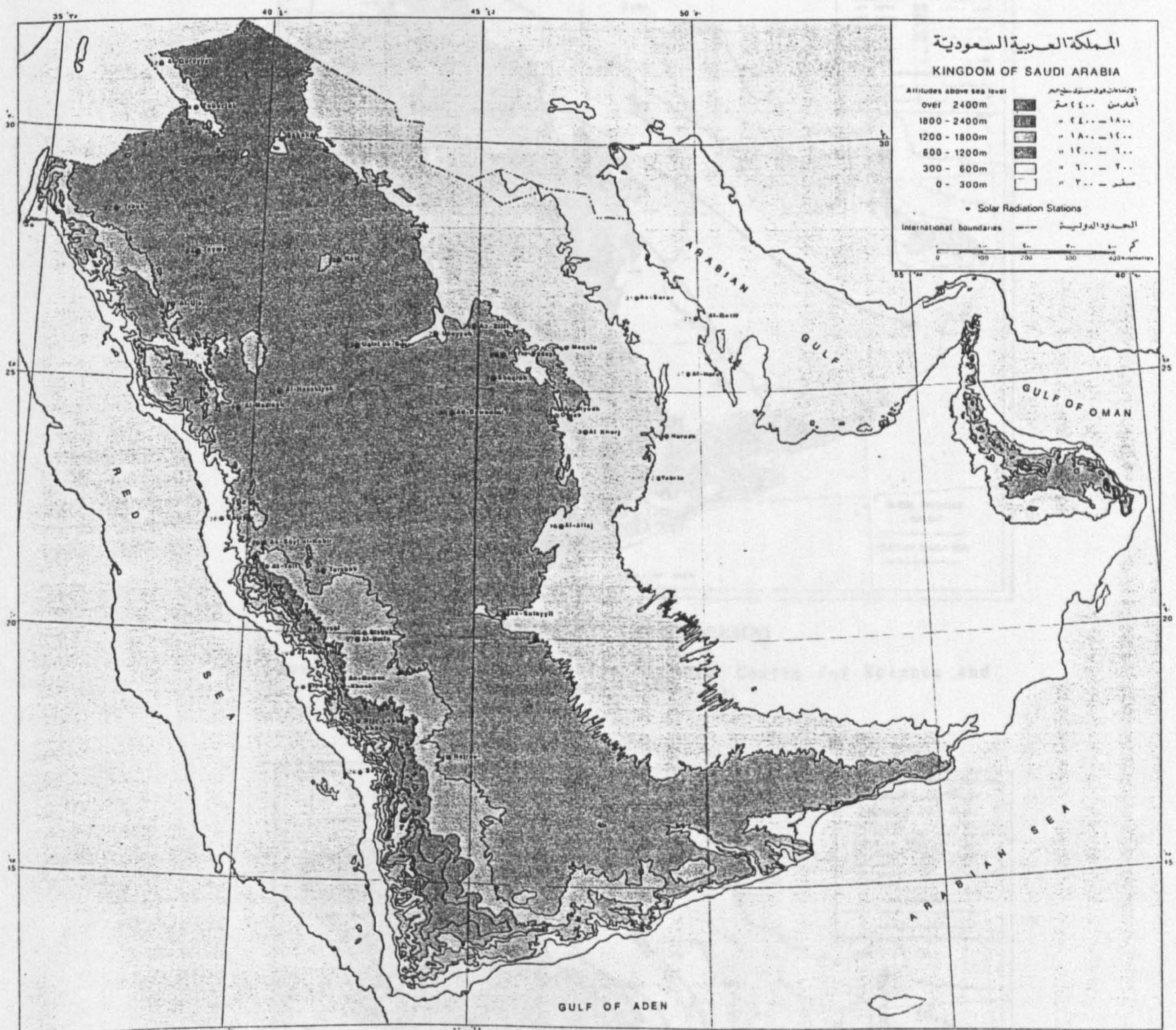


Fig 2-3 THE KINGDOM OF SAUDI ARABIA (TOPOGRAPHY)

Source: The Saudi Arabian National Centre for Science and Technology, 1983 (a-b) p.41.



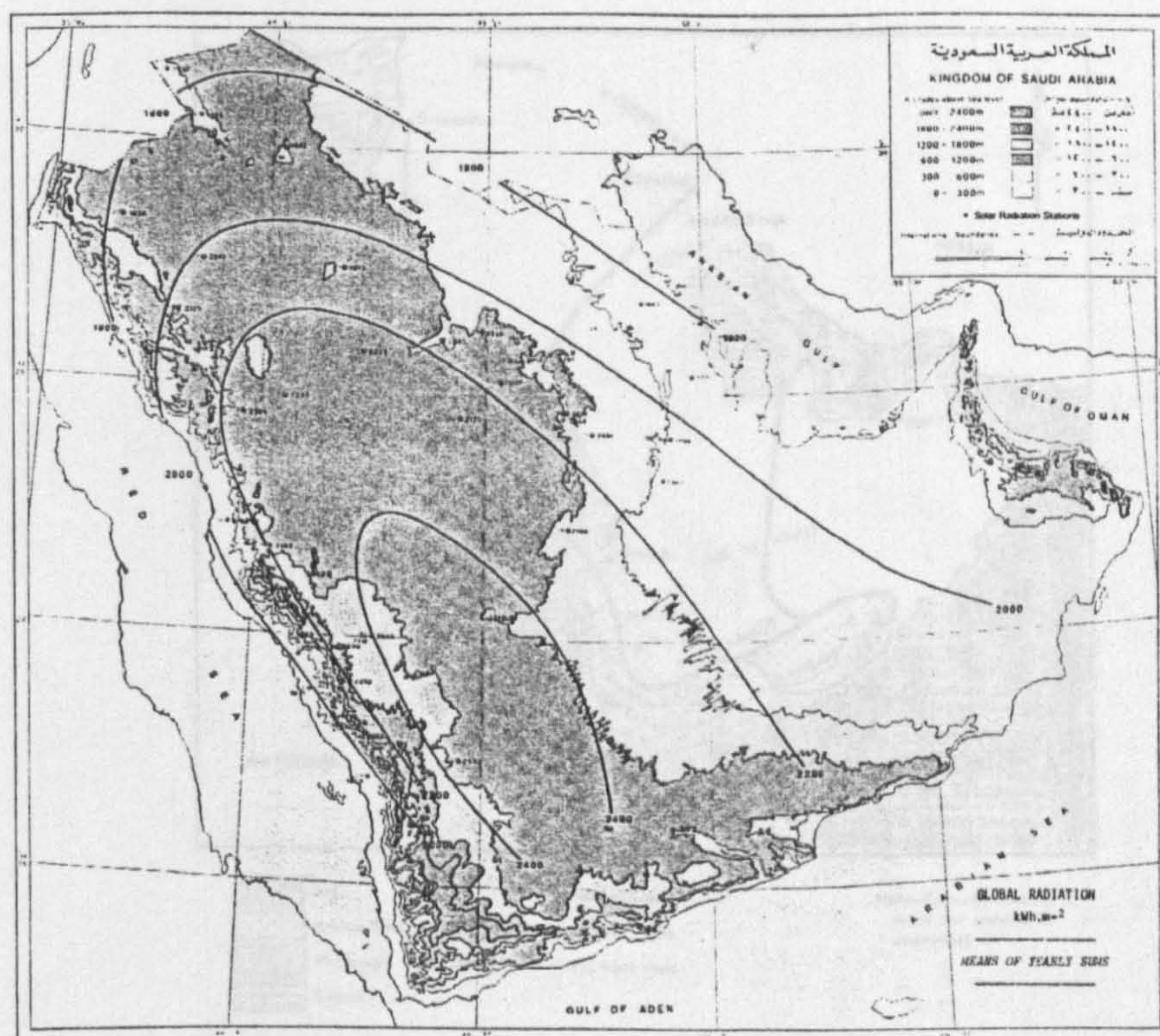


Fig 2-4 GLOBAL RADIATION (SAUDI ARABIA)

Source: The Saudi Arabian National Centre for Science and Technology, 1983 (a-b) p.43.

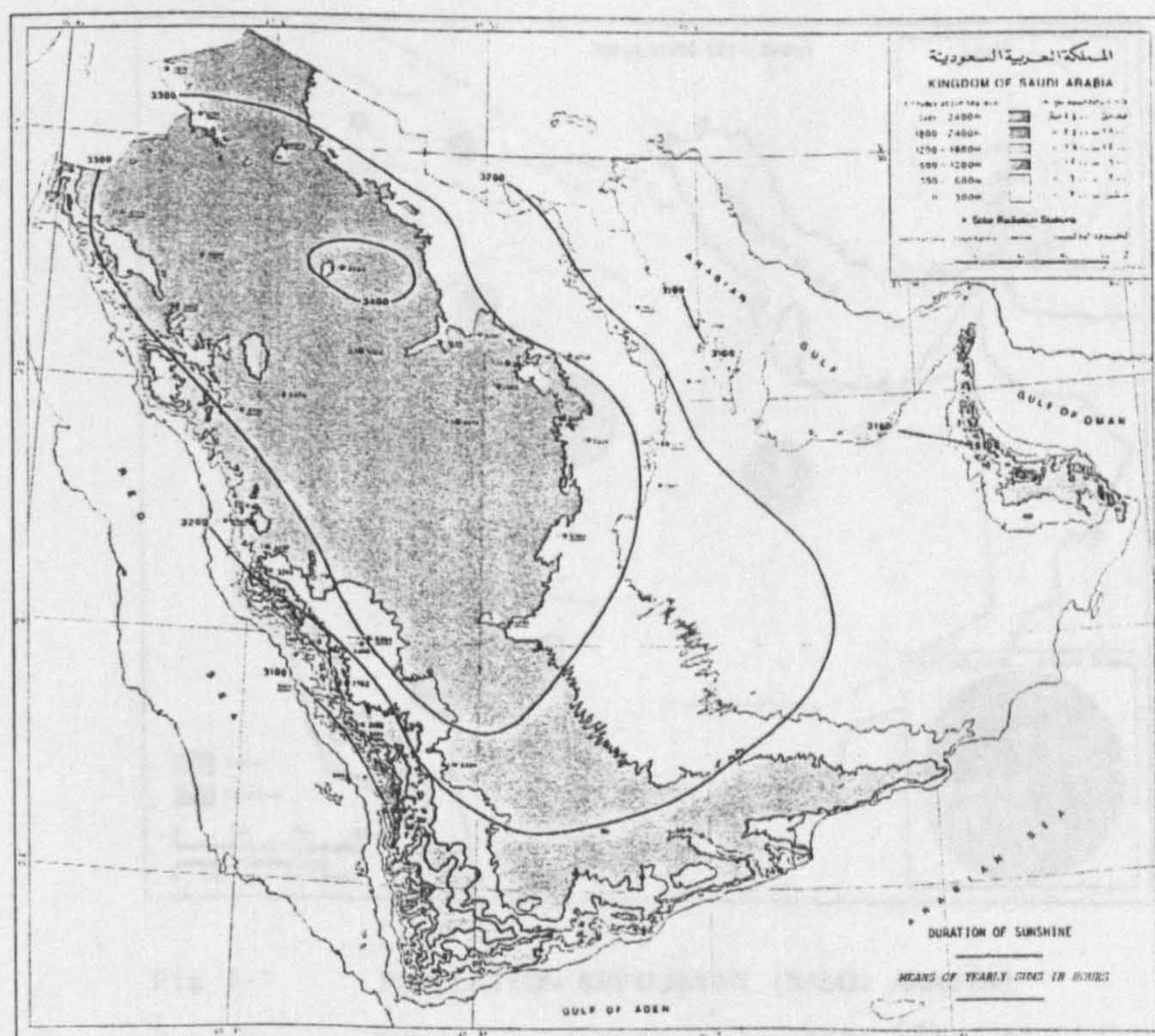


Fig 2-5 DURATION OF SUNSHINE (SAUDI ARABIA)

Source: The Saudi Arabian National Centre for Science and Technology, 1983 (a-b) p.71



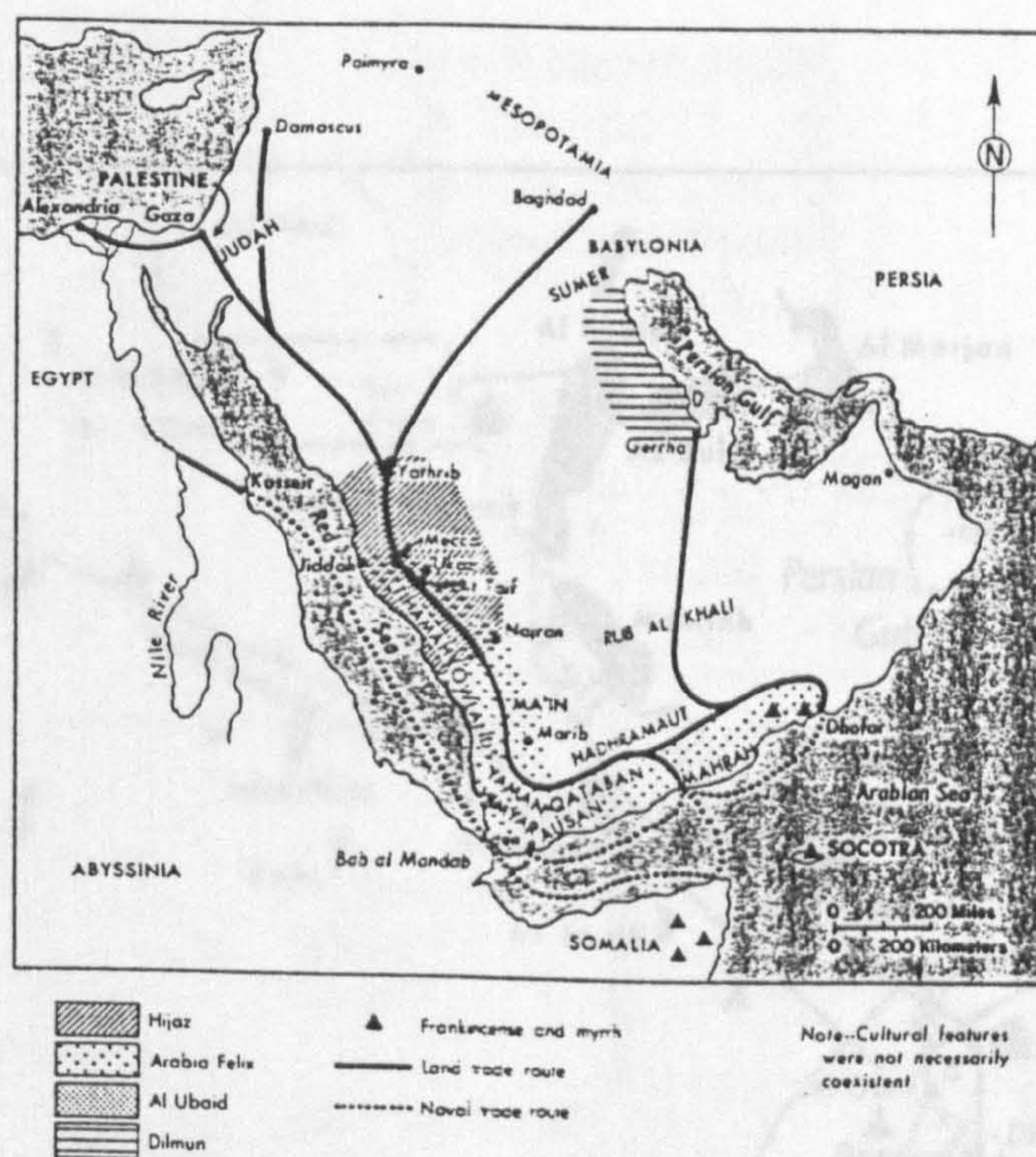


Fig 2-6 ANCIENT ARABIA  
Source: Nyrop. 1985<sup>(3)</sup> p.6.

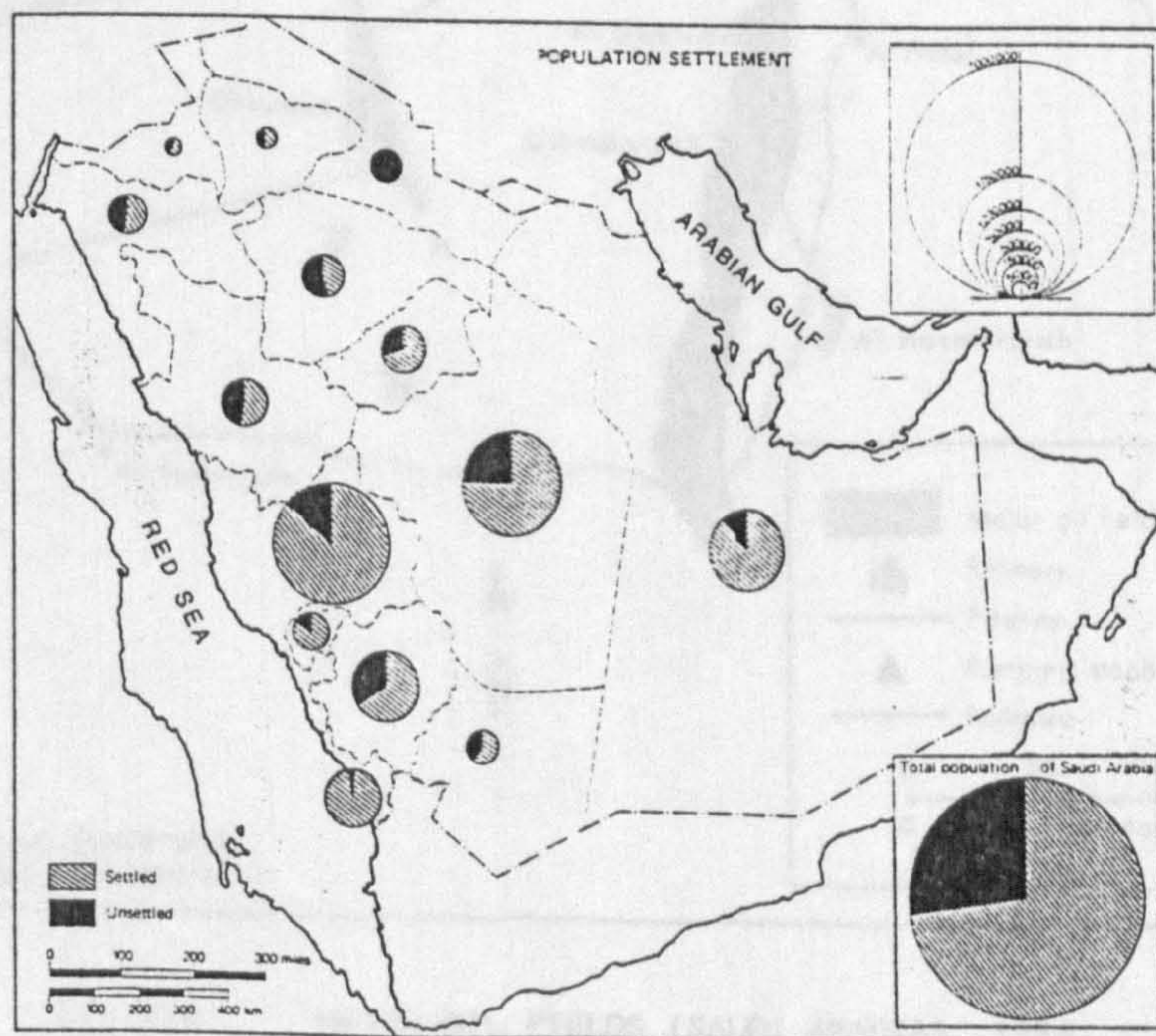


Fig 2-7 POPULATION SETTLEMENT (SAUDI ARABIA)  
Source: Ministry of Information 1979 <sup>(4)</sup> p.23.



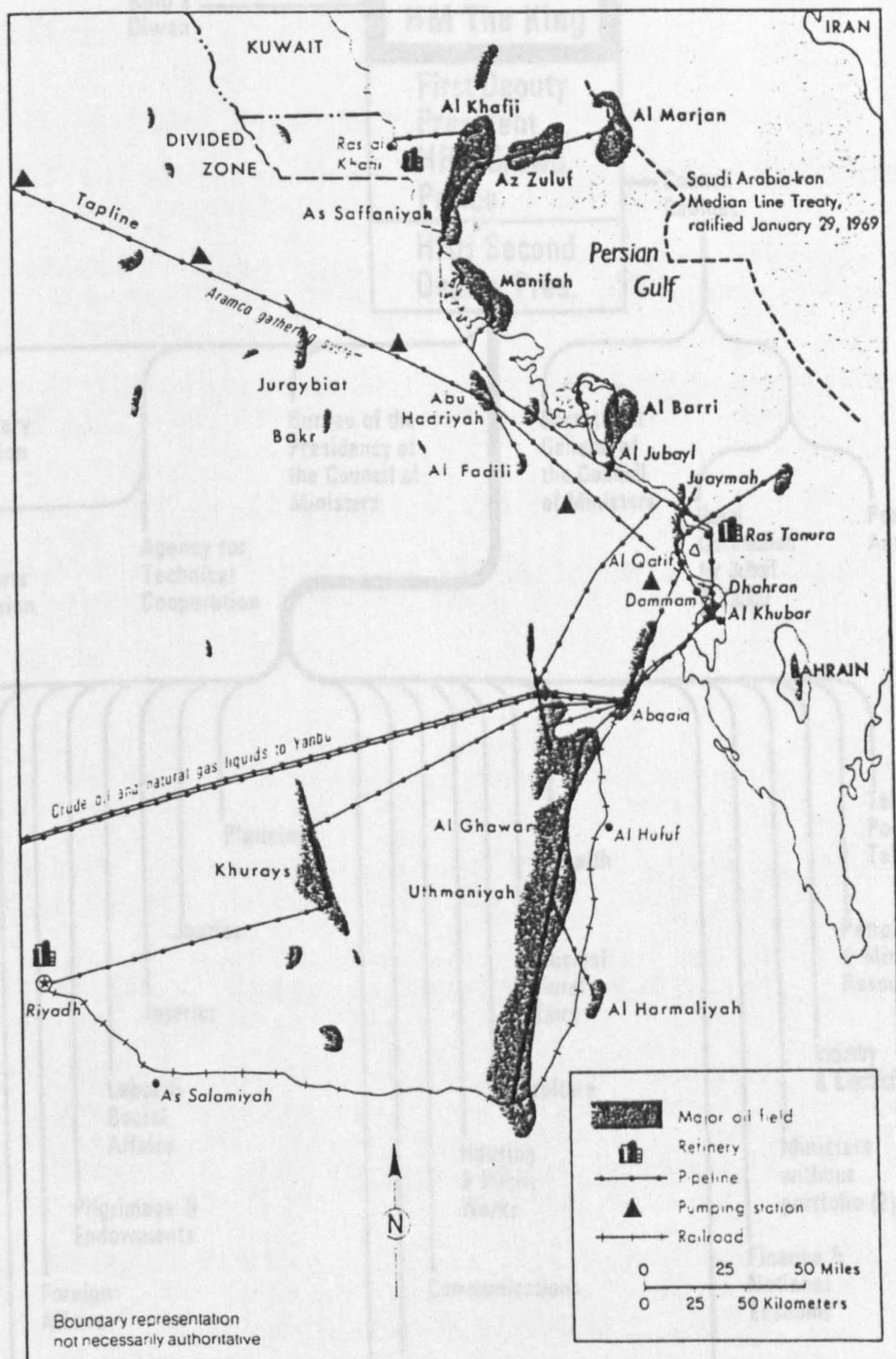


Fig 2-8 MAJOR OIL FIELDS (SAUDI ARABIA), 1984

Source: Nyrop, 1985<sup>(3)</sup> p.144.



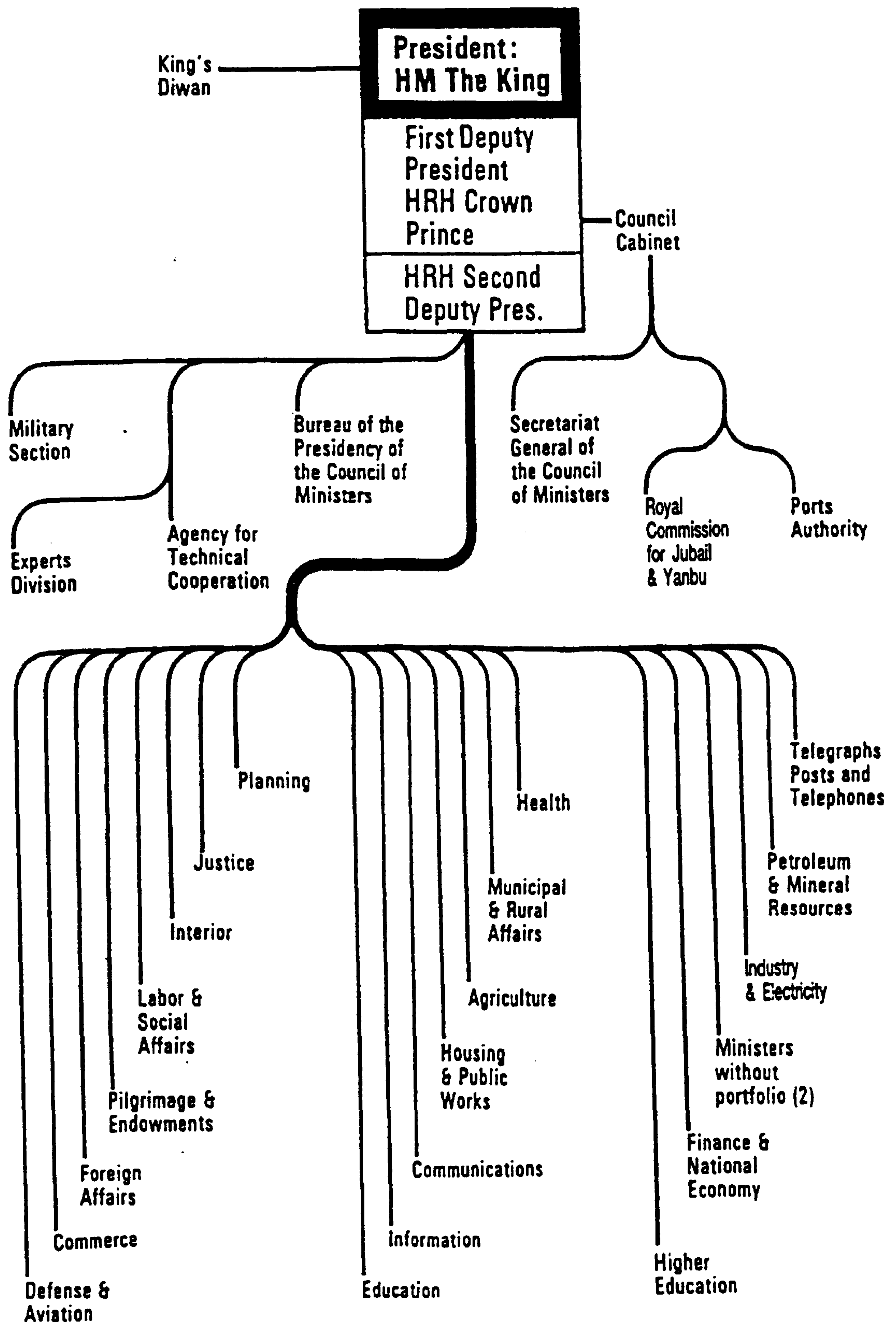


Fig 2-9

# THE SAUDI COUNCIL OF MINISTERS

Source:

Al-Farsy, 1986<sup>(20)</sup> p.103.



Footnotes: Chapter 2

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  - (a) MINISTRY of Agriculture and Water. Climate Atlas of Saudi Arabia, Safir Press, Riyadh, Saudi Arabia.
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## CHAPTER 3

### ISLAM AND THE BUILT ENVIRONMENT

#### 3.1 PRINCIPLES OF SHARIAH

- 3.1.1. THE HOLY QURAN
- 3.1.2 THE SUNNA
- 3.1.3 IJMA AL-UMMAH
- 3.1.4. QIYAS

#### 3.2 HOUSE AND CITY IN THE HOLY QURAN

#### 3.3 TEACHING OF ISLAM REGARDING THE BUILT ENVIRONMENT

- 3.3.1 FAMILY REQUIREMENTS
- 3.3.2 HOSPITALITY REQUIREMENTS
- 3.3.3 DIRECTION REQUIREMENTS
- 3.3.4 ECONOMY REQUIREMENTS
- 3.3.5 GENERAL REQUIREMENTS



There is a unique relation between Islam and the built environment. Islam as a religion is considered among Muslims as a complete religion, everything is clear through its teaching. Whatever is good for human beings and society is "Halal" or it is legal to do it, and whatever is harmful to human beings and society is prohibited<sup>1</sup>. The boundaries of these regulations is called Shariah. From Shariah a Muslim would direct his life and place himself on the correct road to success.

### 3.1 PRINCIPLES OF SHARIAH

For those who design and propose for Islamic communities it is a basic pre-requisite to study the principles of Shariah. Shariah or Islamic law is seen as a protective device designed to preserve and prevent abuse of body and nature. The main sources of the Shariah are the following<sup>2</sup>:

#### 3.1.1 The Holy Book "Quran"<sup>3</sup>.

"Quran" precisely means the book to be read. "Quran" contains the sayings and instructions of God revealed to Prophet Mohammed (Peace be upon Him). The Holy Quran consists of 114 sura i.e. Chapters. Each chapter is divided into verses. The first revelation was in Makkah. The Holy Quran was revealed in portions according to occasions during the twenty-three years of Mohammad's prophethood. The Holy Quran contains the general Islamic legislation of all aspects of life, religious, secular, economic, political, commerce, social etc.

#### 3.1.2 The Sunna, "Hadith"<sup>4</sup>.

"Sunna" which literally means the way or the method, in practice it means the saying and deeds of Prophet Mohammed (Peace be upon Him). Sunna is merely explaining the traditions of the Prophet,



which is needed to explore and demonstrate how Muslims should carry out certain injunctions mentioned in the Holy Quran and furnish them with the explanation of the Quranic verses.

### 3.1.3 Ijma Al-Ummah

Ijma is defined as the consensus of opinion of the nation or Muslim community, producing solutions to specific problems at any given time. Ijma is the basic rule after the Holy Quran and the Sunna. During the period of the four Khaliphs after the death of the Prophet Mohammed, critical legislative and political decisions were taken through "Ijma", therefore, it was and is still considered as one of the most important legal principals in "Shariah".

### 3.1.4 Qiyas

"Qiyas" which literally means in Arabic measuring or comparing. Practically it means the deduction of legal homology or similitude, for example, wine was prohibited in the Holy Quran, correspondingly bad drugs such as Heroin are also prohibited since it has the same effect.

Also Islam preserve one important element which affects the same rules. It is "Urf" (custom of usage). Urf is what people used to do in their communities and among themselves. Since it is within the framework of Islamic values, there is no harm from keeping it or leaving it. Urf also accommodates all regional or personal differences which are acceptable or are a custom of that area (type of foods, clothes and houses).

The following Hadith (saying of the Prophet) establishes the procedure of the Shariah:

60 Ma'adh narrated that when the Prophet sent him to Yemen, he asked him: 'What would you do if you were asked to judge?' Ma'adh replied: 'I judge by what is in God's Book.' The Prophet said: 'What if it is not in God's Book?' He said: 'By referring to the Sunna of the Messenger of God'. The Prophet said: 'What if it is not in the Sunna of the Messenger of God?' He said: 'I will use my reasoning without hesitation'. Ma'adh said: 'The Prophet patted me on the chest and said: "Thank God for providing a messenger to the Messenger of God who is agreeable to the Messenger of God"'. Abu Dawood and al-Termidhi

وفي حديث معاذ ان النبي (ص) لما ارسله الى اليمن قال له :  
« كيف تصنع اذا عرض لك قضاء ؟ » قال  
اقضي بما في كتاب الله . قال : « فان لم يكن  
في كتاب الله ؟ » قال فبسنة رسول الله  
(ص) . قال « فان لم يكن في سنة رسول  
الله ؟ » قال : اجتهد رأيي لا آلو .  
قال معاذ : فضرب رسول الله (ص) صدري  
ثم قال :  
« الحمد لله الذي وفق رسول رسول الله لما  
يرضى رسول الله » .

رواه ابو داود والترمذي  
عن طريق الحارث بن عمرو



So, to establish a judgement about any issue concerning the Muslim life, the following procedures have to be followed:

1. To look in the Holy Quran for a definite answer, if it could not be found.
2. To look in the Sunna for a clear saying of the Prophet, if it could not be found.
3. To look in the Ijma, and the previous decisions by Muslim scholars if it could not be found.
4. Then to use Qiyas within the limitation of Islamic teaching.

### 3.2 HOUSE AND CITY IN THE HOLY QURAN

"Iskan" is the word for housing in Arabic and it is derived from the word "Su Koon" which means rest and quiet. The word "Sakan" and its derivation has been mentioned in Quran about forty three times<sup>6</sup>.

The following are some examples:

25. "Everything will it destroy  
By the command of its Lord!"  
Then by the morning they—  
Nothing was to be seen  
But (the ruins of) their houses!  
Thus do We recompense  
Those given to sin!

لَا يَرَوْنَ إِلَّا مَسَاكِينَ يَنْتَفِرُونَ  
لَهُمْ كَلْبٌ ذِي فَيْفٍ يُفَيْفُ  
الْجَبِينِ

7

15. ~~There~~ There was, for Saba,<sup>7</sup>  
Aforetime, a Sign in their  
Home-land—two Gardens  
To the right and to the left.  
"Eat of the Sustenance (provided)  
By your Lord, and be grateful  
To Him: a territory fair and  
And a Lord Oft-Forgiving!"<sup>8</sup> happy.

لَقَدْ كُنَّا لَكُمْ آيَةً فِي  
بَنَاتِكُمْ الَّتِي كُنَّا نُرِي  
رَبَّكُمْ وَأَنْفُسَكُمْ فِي  
غَنَمِكُمْ

8

38. (Remember also) the 'Ad  
And the Thamud (people):<sup>9</sup>  
Clearly will appear to you  
From (the traces) of their buildings  
(Their fate): the Evil One  
Made their deeds alluring<sup>10</sup>  
To them, and kept them back  
From the Path, though they  
Were gifted with Intelligence  
And Skill.

وَعَادًا وَثَمُودَ الَّذِينَ كَفَرُوا  
مَسَكِينٌ وَرَدَّ لَهُمُ النَّارُ  
أَعْمَالَهُمْ فَسَدَّمَا الْغَايَةَ  
مُنْبَعِثِينَ

9

26. Does it not teach them  
A lesson, how many generations  
We destroyed before them,  
In whose dwellings they  
(Now) go to and fro?<sup>11</sup>  
Verily in that are Signs:  
Do they not then listen?<sup>12</sup>

أَوَلَمْ يَتْلُكُمُ الزَّمَانُ  
الْقُرُونِ يَمْشُونَ فِي مَسَاكِينِهِمْ  
لَا يَتَذَكَّرُونَ

10



45. "And ye dwelt in the dwellings  
Of men who wronged their own  
Souls; ye were clearly shown  
How We dealt with them;  
And We put forth (many) Parables  
In your behoof!"

وَسَكَنتُمْ فِي مَسْجِنِ الَّذِينَ  
ظَلَمُوا أَنْفُسَهُمْ وَبَيْنَكُمْ  
وَبَيْنَهُمُ الْآيَاتُ

11

24. Say: If it be that your fathers,  
Your sons, your brothers,  
Your mates, or your kindred;  
The wealth that ye have gained;  
The commerce in which ye fear  
A decline: or the dwellings  
In which ye delight—<sup>1201</sup>  
Are dearer to you than God,  
Or His Apostle, or the striving  
In His cause;—then wait  
Until God brings about <sup>1202</sup>  
His Decision: and God  
Guides not the rebellious.

قُلْ إِنْ كَانَ آبَاؤُكُمْ وَأَبْنَاؤُكُمْ  
وَأَزْوَاجُكُمْ وَآلُكُمْ وَمَنْ  
أَنْتُمْ مَخْلُوقُونَ كَمَا  
وَسَكُنْتُمْ فِي دِيَارِكُمْ  
أَوْ أَمْوَالُكُمْ الَّتِي  
أَنْتُمْ تَحِبُّونَ أَوْ  
أَمْوَالُكُمْ الَّتِي  
أَنْتُمْ تَحِبُّونَ

12

72. God hath promised to Believers,  
Men and women, Gardens  
Under which rivers flow,  
To dwell therein,  
And beautiful mansions  
In Gardens of everlasting bliss.  
But the greatest bliss  
Is the Good Pleasure of God:  
That is the supreme felicity.

وَعَدَ اللَّهُ الَّذِينَ  
آمَنُوا وَعَمِلُوا الصَّالِحَاتِ  
جَنَّاتٍ تَجْرِي مِنْ تَحْتِهَا  
الْأَنْهَارُ خَالِدِينَ فِيهَا  
وَسَكُنُوا فِيهَا  
وَمِنْ أَلْفٍ مِنْ أَلْفٍ  
أَعْبَادٌ لَهُمْ أُولَئِكَ  
أَصْحَابُ الْجَنَّاتِ

13

City is the other word which has been mentioned in the Holy Quran. The word Madinah and its derivation has been mentioned more than seventeen times.

The following are some examples:

20. Then there came running,  
From the farthest part  
Of the City, a man,<sup>1203</sup>  
Saying, "O my People!  
Obey the apostles:

وَمِنْ أَرْضِ الْمَدِينَةِ  
بَقِيَّةٌ مِنَ الْمُنَافِقِينَ  
يَقُولُونَ

14

60. Truly, if the Hypocrites,  
And those in whose hearts  
Is a disease, and those who  
Stir up sedition in the City,<sup>1204</sup>  
Desist not, We shall certainly  
Stir thee up against them:  
Then will they not be  
Able to stay in it  
As thy neighbours  
For any length of time:

لَقَدْ آتَيْنَا الْكَافِرِينَ  
الَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ  
وَالَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ  
وَالَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ

15

18. So he saw the morning  
In the City, looking about,  
In a state of fear, when  
Behold, the man who had,  
The day before, sought his help  
Called aloud for his help  
(Again). Moses said to him:  
"Thou art truly, it is clear,  
A quarrelsome fellow!"<sup>1205</sup>

فَاصْبِرْ فِي الدِّينِ  
وَالَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ  
وَالَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ  
وَالَّذِينَ فِي قُلُوبِهِمْ  
دَاءٌ يَغْوِيهِمْ

16

30. The ladies said in the City:  
"The wife of the (great) 'Aziz"<sup>1206</sup>  
Is seeking to seduce her slave  
From his (true) self:  
Truly hath he inspired her  
With violent love: we see  
She is evidently going astray."<sup>1207</sup>

وَقَالَ يَسِّرْ لِي  
الدِّينَ أَمَّا الزَّانِرُ  
فَرَاوِدَ أَهْلَهُ  
عَنْ نَفْسِهِ  
فَدَسَّاسًا

17



123. Said Pharaoh: " Believe ye  
In Him before I give  
You permission? Surely  
This is a trick which ye  
Have planned in the City  
To drive out its people:  
But soon shall ye know  
(The consequences).<sup>123</sup>

قَالَ رَافِعُونَ لَهُ إِنَّكَ تَأْتِيكَ  
لَكُمُ الْبَيْتُ الْمَدِينَةُ لِيُؤْتِيَكَ  
الَّذِينَ فِيهَا أَمَلْتَ تَأْتِيكَ  
تَكُونُ

18

48. There were in the City  
Nine men of a family,  
Who made mischief in the land,  
And would not reform.<sup>48</sup>

وَكَانَ فِي الْقَرْيَةِ تِسْعَةُ رَهْطٍ  
يُفْسِدُونَ فِي الْأَرْضِ وَلَا يَتُوبُونَ

19

120. It was not fitting  
For the people of Medina  
And the Bedouin Arabs  
Of the neighbourhood, to refuse  
To follow God's Apostle,  
Nor to prefer their own lives  
To his: because nothing  
Could they suffer or do,  
But was reckoned to their credit  
As a deed of righteousness,—  
Whether they suffered thirst,  
Or fatigue, or hunger, in the Cause  
Of God, or trod paths  
To raise the ire of the Unbelievers,  
Or received any injury<sup>120</sup>

مَا كَانَ لِأَهْلِ الْمَدِينَةِ وَمَنْ حَوْلَهُ  
مِنَ الْأَعْرَابِ أَنْ يَتَخَلَّفُوا عَنْ رَسُولِ اللَّهِ  
وَلَا يَرْغَبُوا بِأَنفُسِهِمْ عَنْ قَوْلِهِ  
ذَلِكَ وَأَنَّهُمْ لَا يُمِيلُونَ عَنْهُ وَلَا يُفِيقُونَ  
وَلَا يَتُوبُونَ عَلَيْهِمْ وَلَا يُفِيقُونَ  
وَلَا يَتُوبُونَ عَلَيْهِمْ وَلَا يُفِيقُونَ

20

### 3.3 TEACHING OF ISLAM REGARDING THE BUILT ENVIRONMENT

There is a unique relation between Islam and the built environment. This is derived from the Holy Quran:-

161. Say: " Verily, my Lord  
Hath guided me to  
A Way that is straight,—  
A religion of right,—  
The Path (trod) by Abraham  
The true in faith,  
And he (certainly)  
Joined not gods with God."

قُلْ إِنِّي مَدَنِيٌّ يَتْلُو  
تَسْتَبِيرُ دِينًا قَدِيمًا  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ

162. Say: " Truly, my prayer  
And my service of sacrifice,  
My life and my death,  
Are (all) for God,  
The Cherisher of the Worlds:

قُلْ إِنِّي مَدَنِيٌّ يَتْلُو  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ

163. No partner hath He:  
This am I commanded,  
And I am the first  
Of those who bow  
To His Will.

لَا شَرِيكَ لِي وَبِذَلِكَ  
أَتْلُو

164. Say: " Shall I seek  
For (my) Cherisher  
Other than God,  
When He is the Cherisher  
Of all things (that exist)?  
Every soul draws the meed  
Of its acts on none<sup>164</sup>  
But itself: no bearer  
Of burdens can bear  
The burden of another.  
Your goal in the end  
Is towards God: He will tell  
You the truth of the things  
Wherein ye disputed."

قُلْ أَفَأَتُوبُ إِلَى اللَّهِ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ

165. It is He Who hath made  
You (His) agents, inheritors<sup>165</sup>  
Of the earth: He hath raised  
You in ranks, some above  
Others: that He may try you  
In the gifts He hath given you:  
For thy Lord is quick  
In punishment: yet He  
Is indeed Oft-forgiving,  
Most Merciful.

وَمَا كَانَ مِنَ الشُّرُكِيِّينَ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ  
وَمَا كَانَ مِنَ الشُّرُكِيِّينَ

21



This is the basic meaning of the relation where everything in this life is for the purpose of God. For Muslims it is not only the prayer or fasting or other forms of worshipping in the relation with God, it is the whole life which Muslims practice day and night which should meet God's agreement.

109. Which then is best?—he that  
Layeth his foundation  
On piety to God  
And His Good Pleasure?—or he  
• That layeth his foundation  
On an undermined sand-cliff <sup>1200</sup>  
• Ready to crumble to pieces?  
And it doth crumble to pieces  
With him, into the fire  
Of Hell. And God guideth not  
People that do wrong.

23

So, it is important to understand the direct teaching and requirements of Islam regarding the built environment. It should be noted that Islam is not a narrow religion which requires the Muslim to enclose on himself alone. It is a religion which lets the Muslim enjoy his life without harming himself and others.

1. Family requirements.
2. Hospitality requirements.
3. Direction requirements.
4. Economy requirements.
5. General requirements.



### 3.3.1 Family Requirements

Those requirements could be organised in the following:-

- a) The holy relationship of the marriage.
- b) Responsibility of parents towards other members of the family.
- c) The relationship between parents and children.
- d) Separation between boys and girls.
- e) Separation between unrelated men and women.

#### a) The Holy Relationship of the Marriage:

This is derived from the holy Quran.

21. And among His Signs  
Is this, that He created  
For you mates from among  
Yourselves, that ye may  
Dwell in tranquillity with them,<sup>188</sup>  
And He has put love  
And mercy between your (hearts):  
Verily in that are Signs  
For those who reflect.

وَمِنْ مَّآثِرِهِ أَنْ خَلَقَ لَكُمْ مِنْ أَنْفُسِكُمْ  
أَزْوَاجًا لِيَتَسَكَّنَ إِلَيْهَا وَتَكُونَ  
بَيْنَكُمْ مَوَدَّةٌ وَرَحْمَةٌ إِنَّ فِي ذَلِكَ لَآيَاتٍ  
لِقَوْمٍ يَتَفَكَّرُونَ

24

189. It is He Who created  
You from a single person,  
And made his mate  
Of like nature,<sup>189</sup> in order  
That he might dwell with her  
(In love). When they are  
United, she bears a light  
Burden and carries it about  
(Unnoticed). When she grows  
Heavy, they both pray<sup>190</sup>  
To God their Lord, (saying):  
"If Thou givest us  
A goodly child."<sup>191</sup>

• مَوْلَايَ خَلَقَكُمْ مِنْ نَفْسٍ  
وَاحِدَةٍ وَجَعَلَ مِنْهَا زَوْجَهَا  
لِيَسْكُنَ إِلَيْهَا فَلَمَّا تَوَلَّيَا  
حَمْلًا خِفَتَا حَمْلَ بَعْضُهُمَا  
أَنْفَكَ دَعَا اللَّهَ رَبَّهُمَا لَئِنْ  
ءَاتَيْنَا صَبًّا

25

The family is the basic unit of the society. This family needs a place where its member could have a nice and quiet life. Sharing and caring are the basic elements of family relationship.

#### b) Responsibility of parents towards other members of the family:

This is derived from the Holy Quran:

6. O ye who believe!<sup>192</sup>  
Save yourselves and your  
Families from a Fire  
Whose fuel is Men<sup>193</sup>  
And Stones, over which  
Are (appointed) angels  
Stern (and) severe,<sup>194</sup>  
Who flinch not (from  
Executing) the Commands  
They receive from God,  
But do (precisely) what  
They are commanded.

يَا أَيُّهَا الَّذِينَ آمَنُوا أَنْتُمْ كُفْرٌ  
وَأَمْثَلِكُمْ نَارُ آفُوقٍ مِمَّا الْإِنْسُ وَالْجِبَارَةُ  
عَلَيْهَا مَلَائِكَةٌ غِلَاظٌ شِدَادٌ لَا يَعْصُونَ اللَّهَ  
مَا أَسَرَّهُمْ وَفَعَلُوا مَا يُؤْمَرُونَ

26



The Muslim is responsible for the welfare of his family members, raising his children, loving them, working for them, and teaching them Islam. He also requires to take care of his parents.

23. **Why** 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 thy life,<sup>224</sup>  
Say not to them a word  
Of contempt, nor repel them,  
But address them  
In terms of honour.

24. And, out of kindness,  
Lower to them the wing<sup>225</sup>  
Of humility, and say :  
" My Lord I bestow on them  
Thy Mercy even as they  
Cherished me in childhood."<sup>226</sup>

وَقَضَىٰ رَبِّي أَلَّا تَعْبُدُوا إِلَّا إِيَّاهُ  
وَالْوَالِدَيْنِ إِحْسَانًا إِنَّمَا بَيْنُكُمْ  
وَالْكَبِيرِ أَحْذَفُ مَا أَوْحَيْنَا فَلَا تَقُولُوا  
لِأَبِي وَلَا لِهَيْبَتِهِمَا قَوْلًا كَرِيمًا

وَلَا تَخْفِضْ لَهُمَا جَنَاحَ الذِّلِّ مِنَ الْإِحْسَانِ  
وَقُلْ إِنِّي بَرِّئُ مِمَّا تُشْرِكُونَ

27

Also, the respect of a woman and its great position in this life.

33. And stay quietly in  
Your houses, and make not  
A dazzling display, like  
That of the former Times  
Of Ignorance; and establish  
Regular Prayer, and give  
Regular Charity; and obey<sup>227</sup>  
God and His Apostle.  
And God only wishes  
To remove all abomination

وَرَزَقْنَا فِي يَوْمِ الْبُكْرِ  
وَلَا تَتَّبِعْنَ سَبِيلَ الْفَاسِقِينَ الْأُولَىٰ  
وَأَقِمْنَ الصَّلَاةَ وَآتِينَ الزَّكَاةَ  
وَأَطِعْنَ اللَّهَ وَرَسُولَهُ إِنَّمَا  
يُرِيدُ اللَّهُ لِيُذْهِبَ عَنْكُمُ الرِّجْسَ

28

### c) Relationship between parents and children:

This is derived from the Holy Quran.

31. **Kill** not your children<sup>228</sup>  
For fear of want : We shall  
Provide sustenance for them  
As well as for you.  
Verily the killing of them  
Is a great sin.

وَلَا تَقْتُلُوا أَوْلَادَكُمْ خَشْيَةَ إِمْلَاقٍ  
مَنْ رَزَقْنَاهُمْ لَنَا بِكُمْ إِنَّا فَعَلْنَاهُمْ كَاتِبِينَ

29

Here is could be seen that the relationship between parents and children is to reflect the meaning of caring and protection. The life in the House requires respect from each member of the family to others, especially the privacy of parents in the bedrooms. This privacy needs to be protected from children at different times of the day and night.



58. ﴿٥٨﴾ ye who believe! <sup>300</sup>  
 Let those whom your right  
 hands <sup>300</sup>  
 Possess, and the (children) among  
 you <sup>300</sup>  
 Who have not come of age <sup>300</sup>  
 Ask your permission (before  
 They come to your presence),  
 On three occasions : before  
 Morning prayer; the while  
 Ye doff your clothes  
 For the noonday heat ;  
 And after the late-night prayer :  
 These are your three times <sup>300</sup>  
 Of undress : outside those times  
 It is not wrong for you  
 Or for them to move about  
 Attending to each other :  
 Thus does God make clear  
 The Signs to you : for God  
 Is full of knowledge and wisdom.

﴿٥٨﴾ يَا أَيُّهَا الَّذِينَ آمَنُوا اسْتَأْذِنُوا  
 الَّذِينَ مَلَكَتْ أَيْمَانُكُمْ وَالَّذِينَ  
 لَمْ يَلْبِسُوا الْحُلُمَ بِكُمْ ثَلَاثَ مَرَّاتٍ مِنْ قَبْلِ  
 صَلَاةِ الْفَجْرِ وَبَيْنَ صَلَاةِ الْفَجْرِ  
 وَمِنَ الْمَسَاءِ ذَلِكَ  
 عَوَازُكُمْ لَيْسَ عَلَيْكُمْ جُنَاحٌ  
 بَعْدَ ذَلِكَ مِنْهُ فَمَنْ فَعَلَ  
 بِهِنَّ ذَلِكَ فَإِنَّهُ يَكْفُرُ بِالْآيَاتِ وَاللَّهُ  
 عَلِيمٌ حَكِيمٌ

59. But when the children among ,  
 you <sup>300</sup>  
 Come of age, let them (also)  
 Ask for permission, as do those  
 Senior to them (in age) : <sup>300</sup>  
 Thus does God make clear  
 His Signs to you : for God  
 Is full of knowledge and wisdom. <sup>300</sup>

﴿٥٩﴾ وَإِذَا بَلَغَ الْإِنْسَانُ مِنْكُمْ الْحُلُمَ فَلْيَسْأَلْ  
 كَمَا اسْتَأْذَنَ الَّذِينَ مِنْ قَبْلِهِ كَذَلِكَ  
 يُبَيِّنُ اللَّهُ لَكُمْ آيَاتِهِ وَاللَّهُ عَلِيمٌ حَكِيمٌ

30

This is a clear limit in which the privacy of the parents is protected from the eyes of their children. This is what Islam teach Muslims to respect and only bright sides should be observed.

#### d) Separation between boys and girls:

This is derived from Sunna:

«مروا أولادكم بالصلاة وهم أبناء سبع سنين، واضربوهم عليها وهم أبناء عشر سنين، وفرقوا بينهم في المضجع،...»

31

This Hadith is an order from the Prophet to the Muslims to order their children to pray when reach 7 years old and to punish them if they do not pray when reach 10 years. Also to separate between boys and girls during sleeping time after 10 years of age.

This is to define the critical time in which boys and girls reach an age when different sex is noticed. The separation in beds which require different rooms or spaces is the simple solution to a lot of problems.







36. 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 way-farer (ye meet),  
And what your right hands  
possess :—

For God loveth not  
The arrogant, the vainglorious ;—

• وَأَنْبِذُوا آفَاقَهُ وَلَا تَتَّبِعُوا بِهِ مَتَابِعًا  
وَيَا أَيُّهَا الَّذِينَ آمَنُوا وَبِزَيِّفِ الْفُرْقَىٰ وَأَلْبَسُوا  
وَالسَّكِينِ وَالْجَارِ ذِي الْقُرْبَىٰ  
وَالْجَارِ الْبُيُوتِ وَالْمَتَّعِينَ بِتَمَتُّعٍ  
وَأَتَى السَّبِيلِ وَمَا مَلَكَتْ أَيْمَانُكُمْ  
إِنَّ آفَاقَهُ لَا يُحِيطُ بِمَا كَانَ مَخْتَارًا

33

### Also from the Sunna.

'He whose neighbour is not safe from his harm and dishonesty, will not enter Paradise.' Muslim via Anas

« لا يدخل الجنة من لا يأمن جاره بوائقه »  
مسلم عن انس

34

'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 Aisha

« ما زال يوصيني جبريل بالجار حتى ظننت انه سيورثه »  
البخاري عن عائشة

35

'He who believes in God and the Day of Judgment should not hurt his neighbour, and he who believes in God and the Day of Judgment should be hospitable to his guest, and he who believes in God and the Day of Judgment should speak goodness or else not say anything.' Abu Hurairah

« من كان يؤمن بالله واليوم الآخر فلا يؤذ جاره ، ومن كان يؤمن بالله واليوم الآخر فليكرم ضيفه ، ومن كان يؤمن بالله واليوم الآخر فليقل خيرا أو ليصمت »  
ابي هريرة

36

'God will not provide security to the person who sleeps with a full stomach while his adjacent neighbour is hungry.' Abu Hurairah

« والله لا يؤمن من بات شبعان وجاره جائع الى جنبه »  
ابي هريرة

37

'To God, the best friends are those who are good to each other and the best neighbours are those who are good to each other.' al-Termidhi via Abdullah Ibn Omar

« خير الاصحاب عند الله خيرهم لصاحبه وخير الجيران عند الله خيرهم لجاره »  
الترمذي عن عبدالله ابن عمر

38

Via Ibn Mas'ud spoke of a man who said to the Prophet: 'How do I know that I have done good or bad?', and the Prophet said: 'If you hear your neighbours saying that you have done good, then you have done good, and if you hear them saying that you have done bad then you have done bad.' Ibn Majah

عن ابن مسعود قال قال رجل للنبي (ص) كيف لي ان اعلم اذا احسنت او اذا اسأت ، فقال النبي (ص) :  
« اذا سمعت جيرانك يقولون قد احسنت فقد احسنت واذا سمعتمهم يقولون قد اسأت فقد اسأت »

39

ابن ماجه

Via Aisha who asked the Prophet: 'O Messenger of God, I have two neighbours, to which one I should give this present?' The Prophet said: 'To the one whose door is nearest to yours.' al-Bukhari

عن عائشة قالت يا رسول الله ان لي جارين فالى ايها اهدى قال « الى اقربها منك بابا »  
البخاري

40

'Do you know the rights of the neighbour... you must not build to exclude the breeze from him, unless you have his permission...'. Ibn Adi and al-Kharati

« اتدرون ما حق الجار .... ولا تستعمل عليه بالبناء فتحجب عنه الريح إلا بأذنه ..... »  
ابن عدي في الكامل والخرطاطي في مكارم الاخلاق عن عمرو بن شعيب عن ابيه عن جده

41



'A neighbour should not forbid his neighbour to insert wooden beams in his wall.' Abu Hurairah « لا يمنع جار جاره أن يفرز خشبة في جداره »  
ابي هريرة ( متفق عليه ) 42

'A neighbour has pre-emption rights over his neighbour's property. If they share common access and the neighbour is absent, then the other should wait for his return.' Narrated from a number of sources via Jabir « الجار احق بشفعة جاره ، ينتظر بها وان كان غائبا إذا كان طريقتهما واحدا »  
رواه اصحاب السنن باسناد صحيح عن جابر 43

'The neighbour has rights of priority.' al-Bukhari via Abu Rafi « الجار احق بسبقه »  
البخاري عن ابي رافع 44

This is a clear indication of what neighbours relations in an Islamic community should be. It is a unique relationship in which caring and sharing is the basic identity of this relation. There should be no selfishness, a person should like to his Muslim brother as he likes for himself. Never disturb him, nor harm him or his family.

#### b. Guests Receptions:

This is derived from Sunna.

'He who believes in God and the Day of Judgment should not hurt his neighbour, and he who believes in God and the Day of Judgment should be hospitable to his guest, and he who believes in God and the Day of Judgment should speak goodness or else not say anything.' Abu Hurairah (Ref. 6, p. 465) « من كان يؤمن بالله واليوم الآخر فلا يؤذ جاره ، ومن كان يؤمن بالله واليوم الآخر فليكرم ضيفه ، ومن كان يؤمن بالله واليوم الآخر فليقل خيرا او ليصمت »  
ابي هريرة 45

A Muslim is required to receive guests at his place. He is required to smile in front of his friends and other people.

#### 3.3.3 Direction Requirements

Those requirements could be organised into the following:-

- a. Qibla direction (prayer).
- b. Toilet direction.

##### a. Qibla Direction:

This is derived from the Holy Quran.



144. We see the turning  
Of thy face (for guidance)  
To the heavens: <sup>147</sup> now  
Shall We turn thee  
To a Qibla that shall  
Please thee. Turn then  
Thy face in the direction  
Of the sacred Mosque: <sup>148</sup>  
Wherever ye are, turn  
Your faces in that direction.  
The people of the Book <sup>149</sup>  
Know well that that is  
The truth from their Lord.  
Nor is God unmindful  
Of what they do.

قَدْ رَأَى ثَلَاثَ مَرَّاتٍ وَجْهَكَ فِي السَّمَاوَاتِ  
فَلْيَتَوَكَّلْ عَلَى قِبْلَتِكُمْ رَبِّكُمْ  
فَإِنَّكُمْ لَعِنْدَ رَبِّكُمْ أَتَمُّ الْقَائِمِينَ  
وَمَا كَانَ لَكُمْ فِيهِ مَسْكَنَةٌ  
فَإِنَّ الْكَافِرِينَ لَيَعْلَمُونَ أَنَّ  
الْحَقَّ مِنْ رَبِّهِمْ  
وَمَا أَفَاءَ رُسُلِهِمْ لَكُمْ يَسْكُرُونَ

46

87. We inspired Moses and his  
brother  
With this Message: "I provide <sup>150</sup>  
Dwellings for your people  
In Egypt, make your dwellings  
Into places of worship,  
And establish regular prayers:  
And give Glad Tidings  
To those who believe!"

وَأَوْحَيْنَا إِلَىٰ مُوسَىٰ وَأَخِيهِ  
أَتَوَكَّلْ عَلَىٰ رَبِّكَ  
فَإِنَّكَ بِعَيْنِنَا  
وَلَقَدْ وَفَّيْنَاكَ  
وَلَقَدْ وَفَّيْنَاكَ

47

This is not a required element, it would be better if it could be achieved. Muslims pray in their houses. They have to face Makkah during prayer.

#### b. Toilet Direction:

This is derived from Sunna.

'Do not face the qibla when you defecate or urinate, but face east or west.' and  
'If you want to defecate, then do not face the qibla or turn your back to it, but face east or west.' Sahih al-Bukhari (Ref 2, Vol. I, p. 109) Note: I

« لا تستقبلوا القبلة بفائط أو بول ولكن شرقوا أو غربوا »  
« إذا أنيتم الفائط فلا تستقبلوا القبلة ولا تستدبروها ولكن شرقوا أو غربوا »  
صحيح البخاري

48

This is an order from the Prophet (Peace be upon Him), not to face or give back to Qibla when sitting in toilets. This is to respect the Holy Qibla.

#### 3.3.4 Economy Requirements

Those requirements could be organised in the following:-

- a. Prohibition of high-rise buildings.
- b. Medium spending.

#### a. Prohibition of high-rise buildings:

This is derived from Sunna.







### 3.3.5 General Requirements

Those requirements could be organised in the following:

- a. Enjoyment of life.
- b. Health and Cleanliness.
- c. Not to harm others.
- d. Whatever lead to illegal is illegal.

#### a. Enjoyment of Life:

This is derived from the Holy Quran.

32. Say : Who hath forbidden  
The beautiful (gifts) of God,<sup>100</sup>  
Which He hath produced  
For His servants,  
And the things, clean and pure,  
(Which He hath provided) /  
For sustenance ?  
Say : They are, in the life  
Of this world, for those  
Who believe, (and) purely<sup>101</sup>  
For them on the Day  
Of Judgment. Thus do We  
Explain the Signs in detail  
For those who understand.

33. Say : The things that my Lord  
Hath indeed forbidden are :<sup>102</sup>  
Shameful deeds, whether open  
Or secret ; sins and trespasses  
Against truth or reason ; assigning  
Of partners to God, for which  
He hath given no authority ;  
And saying things about God  
Of which ye have no knowledge.

91. Eat of the things which  
God hath provided for you,  
Lawful and good ; but fear  
God, in Whom ye believe.

31. O Children of Adam !  
Wear your beautiful apparel<sup>103</sup>  
At every time and place  
Of prayer : eat and drink :  
But waste not by excess,  
For God loveth not the wasters.

﴿ قُلْ مَنْ حَرَّمَ زِينَةَ اللَّهِ الَّتِي  
آخَرَجَ لِبَيَّاتِهِ وَلِطَوَّابَتِهِ مِنَ الرِّزْقِ  
قُلْ مَنْ لَّيْزَنَ مُطْعَمًا فِي الْغَوَاةِ الذَّنْبَا  
خَالِصَةً يَتَوَدَّ الْعَالَمِينَ كَذَلِكَ نَقْصِلُ  
الْأَبِينَ لِقَوْمٍ يَعْلَمُونَ ﴾

﴿ قُلْ إِنَّمَا حَرَّمَ رَبِّي الْفَوَاحِشَ  
مَا ظَهَرَ مِنْهَا وَمَا بَعَثَ فِي الْأَرْوَاحِ  
وَالْبَغْيَ يَقْتَرِفُ الْمُنَافِقِينَ وَإِنْ تَشْرِكُوا  
بِاللَّهِ مَا لَهُ مِنْ شَيْءٍ يَنْزِلُ بِهِ سُبْحَانَ  
وَأَنْ تَقُولُوا عَلَى اللَّهِ مَا لَا تَعْلَمُونَ ﴾

55

﴿ وَكُلُوا مِنَّا رَزَقْنَاهُ حَلَالًا طَيِّبًا  
وَاتَّقُوا اللَّهَ الَّذِي أَنْتُمْ بِهِ مُؤْمِنُونَ ﴾

56

﴿ يَا أَيُّهَا النَّاسُ خُذُوا زِينَتَكُمْ عِندَ  
كُلِّ مَسْجِدٍ وَكُلُوا وَاشْرَبُوا وَلَا تُسْرِفُوا  
إِنَّهُ لَا يُحِبُّ الْمُسْرِفِينَ ﴾

57

This is an indication of how a Muslim is supposed to think in the creation of God of this life. Also, how to get benefits from all the fruits and good things in the boundaries of Islam. A Muslim has to eat well, wear good clothes, ride in nice transportation and live in a suitable house.

#### b. By Health and Cleanliness:

This is derived from the Holy Quran.



222. **They ask thee**  
Concerning women's courses.  
Say : They are  
A hurt and a pollution :<sup>100</sup>  
So keep away from women  
In their courses, and do not  
Approach them until  
They are clean.  
But when they have  
Purified themselves,  
Ye may approach them  
In any manner, time, or place<sup>101</sup>  
Ordnained for you by God.  
For God loves those  
Who turn to Him constantly  
And He loves those  
Who keep themselves pure and  
clean.

وَيَسْأَلُونَكَ عَنِ الْمَحِيضِ  
قُلْ مَا أَدْرِي

فَاعْزِلُوا النِّسَاءَ فِي الْمَحِيضِ وَلَا تَقْرُبُوهُنَّ  
حَتَّى يَطْهُرْنَ فَإِذَا تَطَهَّرْنَ  
فَأْتَوْهُنَّ مِنْ حَيْثُ أَمَرَكُمُ اللَّهُ  
إِنَّ اللَّهَ يُحِبُّ الْمُتَذَكِّرِينَ  
وَيُحِبُّ الْمُتَطَهِّرِينَ

58

Also from the Sunna.

1 'Keep yourselves clean as Islam is  
clean.' Ibn Habban (Ref. 7, p. 79)

« تنظفوا فان الاسلام نظيف »

ابن حبان

59

2 'Cleanliness encourages believing, and  
the believer's place is in Paradise.' al-  
Tabarani (Ref. 7, p. 79)

« النظافة تدعو إلى الايمان ، والايمان مع  
صاحبه في الجنة »

الطبراني

60

3 'God be praised is good and He loves  
goodness, clean and He loves clean-  
liness, generous and He loves  
generosity, perfect and He loves  
perfection, so clean your "fina" ...'  
al-Termedhi (Ref. 7, p. 94). Note: For

« إن الله تعالى طيب يحب الطيب ، نظيف  
يحب النظافة ، كريم يحب الكرم ، جواد يحب  
الجود ، فنظفوا أنفسكم .... »

الترمذي

61

The Wadow is a symbol of a clean Muslim when he or she  
performs wadow five times daily. Muslims clothes should be  
clean all the time. His environment should be pure from any  
bad elements.

### c. Not to harm others:

This is derived from the Holy Quran.

90. **God commands justice, the doing**  
Of good, and liberality to kith  
And kin, and He forbids  
All shameful deeds, and injustice  
And rebellion : He instructs you,  
That ye may receive admonition.<sup>102</sup>

إِنَّمَا أَمْرُهُ بِالْعَدْلِ وَالْإِحْسَانِ

وَأَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ  
وَأَطِيعُوا أَمْرَ رَبِّكُمْ وَأَطِيعُوا  
أَمْرَ الْمُرْسَلِينَ

62

Also from the Sunna.

34 'Do not harm others or yourself, and  
others should not harm you or  
themselves.' Ahmad and Ibn Majah  
(Ref. 7, p. 77)

« لا ضرر ولا ضرار »

احمد وابن ماجه

63

This is a basic rule in Islam, every Muslim has the right to  
be protected from the harm of others. He should not harm  
others in any way. This harming could be in material forms or  
non-material forms.



- d. Whatever lead to illegal (Haram) is illegal (Haram):  
This is derived from Sunna.

29 'He who looks into a house without the occupants' permission, and they puncture his eye, will have no right to demand a fine or ask for punishment.' Ahmad and al-Nisai' via Abu Hurairah (Ref. 3 Vol. II, p. 576)

« من اطلع في بيت قوم بنذر انهم . ففقتاوا  
عينه فلا دية له . ولا قصاص »  
احمد والنسائي عن ابي هريرة

64

31 'On the Day of Resurrection lead will be poured in the ears of anyone who eavesdrops on others who dislike him.' al-Bukhari (Ref. 7, p. 307)

« من استمع الى حديث قوم وهم له كارهون  
صب في اذنيه الا انك يوم انتباهة »  
البخاري

65

This is another basic rule in which the explanation of harming. It rules that whatever leads to illegal things is illegal by itself which requires punishment for it.

From the previous sections it could be concluded that the relation between the Muslim and his built environment is a unique relation if he or she absorbs the real teaching of Islam. This requires a good and clear belief and a practice which reflects that belief.

It is my understanding that Islamic Architecture in the built environment in which Muslims could practice their religion and their life without harming other people. It is the Architecture of the Muslim people who build to achieve this goal without spending too much.

### Footnotes: Chapter 3

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8. The Holy Quran, Surah 34, verse 15.
9. The Holy Quran, Surah 29, verse 38.
10. The Holy Quran, Surah 32, verse 26.
11. The Holy Quran, Surah 14, verse 45.
12. The Holy Quran, Surah 9, verse 24.
13. The Holy Quran, Surah 9, verse 72.
14. The Holy Quran, Surah 36, verse 20.
15. The Holy Quran, Surah 33, verse 60.
16. The Holy Quran, Surah 28, verse 18.
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25. The Holy Quran, Surah 7, verse 189.
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27. The Holy Quran, Surah 17, verses 23 and 24.
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30. The Holy Quran, Surah 24, verses 58 and 59.
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- 56.The Holy Quran, Surah 5, verse 91.
- 57.The Holy Quran, Surah 7, verse 31.
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- 60.Ibid. p.79.
- 61.Ibid. p.79.
- 62.The Holy Quran, Surah 16, verse 90.
- 63.Op. cit (53) p.77.
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- 65.Op. cit (53) p.307.



## PART II

### TRADITIONAL HOUSES IN SAUDI ARABIA

CHAPTER 4	THE TENTS
CHAPTER 5	RIYADH HOUSES
CHAPTER 6	MAKKAH HOUSES
CHAPTER 7	JEDDAH HOUSES
CHAPTER 8	OTHER HOUSES



## II. THE TRADITIONAL SAUDI HOUSES

Saudi Arabia like any other country in the world has traditions in everything relating to the life of the people. The habit of eating, the way of marriage, the type of clothes and the different type of houses in which people used to live, all of these and more are the traditions of Saudi Arabia.

Houses in the past in Arabia did not arise by themselves, they were built by people who believed and built according to the needs of their resources.

The Kingdom of Saudi Arabia is a vast territory, each part has its own distinguished architecture that suites the environment climate, natural resources and the human and social needs of its people<sup>1</sup>. Traditional structures; therefore, differ greatly from region to region in Saudi Arabia, depending upon how the population adapted to the many challenges posed by nature<sup>2</sup>.

For the purpose of this study, a selection of main traditional houses in different locations is presented and examined to formulate the different aspects of designs of the Saudi houses.

The sequence of presenting these forms will be as follows:-

- The Tents<sup>3</sup>.
- Riyadh Houses.
- Makkah Houses.
- Jeddah Houses.
- Other Houses

(Medinah, Oatif, Asir, Jizan).

The following definition of a building by "Geoffery Broadbent"<sup>4</sup> will be the basic frame to examine the form of houses.

What is a building?

First: A building is a climatic modifier and within this broad concept, it acts as a complex environmental filter between the inside and the outside, it has a displacement effect on external climate and ecology and it modifies it



by increasing, decreasing and specifying, the sensory inputs into the human organism.

Second: A building is a container of activities and within this is both inhibits and facilitates activities, perhaps occasionally promoting them on determining them. It also locates behaviour and in this sense it can be seen as a modifier of the total behaviour of the society.

Third: A building is a symbolic and cultural object, not simply in terms of the cognitive set of those who encounter it. It has a similar displacement effect on culture of society.

Fourth: A building is an addition of value of raw materials (like all productive processes) and within this it is a capital investment, a maximisation of scarce resources of materials and manpower, and a use of resources over time.

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## CHAPTER 4

### THE TENTS

#### 4.1 THE BEDOUIN TENTS

- 4.1.1 CLIMATICAL REFERENCE
- 4.1.2 ACTIVITIES REFERENCE
- 4.1.3 CULTURAL REFERENCE
- 4.1.4 MATERIALS REFERENCE

#### 4.2 THE HAJJ TENTS

- 4.2.1 THE ORGANISATION OF THE HAJJ
- 4.2.2 CLIMATICAL REFERENCE
- 4.2.3 ACTIVITIES REFERENCE
- 4.2.4 CULTURAL REFERENCE
- 4.2.5 MATERIALS REFERENCE

#### 4.3 THE TENTS ASSESSMENT



#### 4. THE TENTS

One of the traditional accommodation found in the Arab region is the tent<sup>1</sup>. It is the simplest dwelling in Saudi Arabia which is used and still stands in some parts of the country. Tents in Saudi Arabia could be classified into two categories, the first one is the Bedouin tents and second one is the Hajj tents. Both of them are used for different functions, time and locations.

##### 4.1 THE BEDOUIN TENTS:

By strict definition, a Bedouin is a desert nomad who speaks Arabic, lives in a tent, raises camels and belongs to a tribe<sup>2</sup>. Deserts are areas which vegetation is sparse or absent, where the land surface is left exposed to the atmosphere and associated physical forces<sup>3</sup>. Without the tents the people of Arabia and the Middle East might never have ventured into the desert. The Bedouin Tent is the most wide spread form of the black tent and refined for desert use. (Fig 4-1)

Until the early years of the 20th century, the Bedouin were a major political and military force in the Arabian Peninsula. As camel herders they supplied pack animals to the caravan trade that brought the land the wealth. As nomads they patrolled the trade routes and gave military protection to the caravan cities. In return for these services they executed payments in the form of rice, dates, clothing, jewellery, coffee pots and bowls made of copper and brass, and swords and rifles<sup>4</sup>.

"These are the black tents which balance in the wind, on the summit of the mountains and neither earthquakes nor thunder can manage to uproot their slightest branch, the least piece of wood."<sup>5</sup>



#### 4.1.1 Climatical Reference.

The tent is climatically suitable for the environment of Arabia. The main climate function of the black tent is to give protection from the sun, and in doing so, acts as a most effective wind break, reducing glare, and tempers the cold nights<sup>6</sup>. (Fig 4-2) A black cover gives more shade and while black absorbs more heat, the loose weave lets the heat disperse so that the interior may be twenty to thirty degrees cooler than outside<sup>7</sup>. The roof is flattened and gives an aerodynamic shape so that the wind cannot take hold<sup>8</sup>. The cloth of tents is thick enough to work like partial insulation from the heat of the day and the cold of the night.

#### 4.1.2 Activities Reference.

The tent is important as shelter, but not in the same way as our homes and work places are important to us. The nomads spend a great deal of time living and working under the open sky, for herding is by nature an outside activity. Even the women do most of their work outside the tent if the weather permits. Looms, churns, and querns are more often seen outside the tent than in it<sup>9</sup>. The tent does not erect a clear boundary between the inside and outside such as we use to in our own housing.

The tent is designed from the basic needs of the bedouin. It is divided into two sections - one for men and the other for women. They are separated by a cloth. The women's section is made longer with space provided for cooking and storage for bedding, baggage and food.

The men's section is smaller and may contain a sitting area and riding gear. Towards the outside, in the front of the women's section, there may be places for a weaving loom and water storage. In front of the men's section there is a facility for making coffee, for which an open hearth fire may be used<sup>10</sup>.



#### 4.1.3 Cultural Reference.

The Bedouin are known with their natural hard and lovable way of life. In places where rain falls at intervals of several years, human beings can survive only by using the habits of the nomads. They have to keep moving around in search of pasture and water for their animals<sup>11</sup>. (Fig 4-3) One property of the tent is the ease of erecting, dismantling and transporting by persons accustomed to moving their dwelling place frequently overland<sup>12</sup>. The Bedouin settle for one reason which is water. They have never been owners of lands. If the land gives them, they give in return. The form of tent with its scale and ground and the surrounding is like a tree. If there is water, there is a tree. So, building the tent means something to others who pass on that hard route, it is an indication of water and life. The Bedouin has been taught to be hard as the land and soft as the water. One of the hallmarks of their society is unstinting generosity to friends and stranger alike<sup>13</sup>.

The traditional ritual is a strictly observed routine among Bedouins<sup>14</sup>. It is a time honoured tradition which is reflected in the location. A single tent or groups of tents serve as a landmark in the empty desert.

#### 4.1.4 Materials Reference.

By looking at the tent and examining its material, it would be clear how Bedouins used their resources in intelligent ways to accommodate their needs. The main capital of the Bedouins is the sheeps, camels, and goats. So, they used it, the professional hands of women produced the different cloths of the tents, the quality of the final production is satisfactory, it could be maintained easily at any time. The tent as used by Bedouins is in fact a "hanging roof" supported by masts, which are tied down to the ground by ropes<sup>15</sup>. The pillars for the tent are from wood



which could be maintained from trees. The tent itself could be maintained at any time. It is an independent process according to the materials available through time. (Fig 4-4; 4-5, 4-6 and 4-7).

## 4.2 THE HAJJ TENTS:

These are the tents cities of Arafat, Muzdalifah and Mina. They stand during the Hajj period to accommodate the pilgrims from all over the world. A description of the Hajj follows to illustrate the original needs of these tents.

### 4.2.1 The Organisation of the Hajj.

Pilgrimage (Hajj to Makkah) (Fig 4-8, 4-9) in Islam is not a touristic activity in which a tourist chooses when to go on his journey<sup>16</sup>. Pilgrimage in Islam has its specific time and place. The Hajj is essentially a series of rites performed in Makkah<sup>17</sup> and nearby Arafat<sup>18</sup>, Mazdalifah<sup>19</sup> and Mina<sup>20</sup>. (Fig 4-10)

Hajj is the pilgrimage to the "House of God" in Makkah which is compulsory on every adult Muslim in any part of the world who has the means to undertake the journey<sup>21</sup>. It is an incumbant religious duty to be performed once during a life-time<sup>22</sup>. It is a divine institution founded upon the following express injunctions in the Quaran<sup>23</sup>.

96. The first House (of worship)  
Appointed for men  
Was that at Bakka : " "  
Full of blessing  
And of guidance  
For all kinds of beings : " "

97. In it are Signs  
Manifest ; (for example),  
The Station of Abraham ; " "  
Whoever enters it  
Attains security ; " "  
Pilgrimage thereto is a duty  
Men owe to God, —  
Those who can afford  
The journey ; but if any  
Deny faith, God stands not  
In need of any of His creatures.

﴿ إِنَّ أَوَّلَ بَيْتٍ وُضِعَ لِلنَّاسِ لَلَّذِي  
بِبَكَّةَ بَارَكَا  
وَمَدْيَ لِلْعَالَمِينَ ﴾

﴿ فِيهِ آيَاتٌ بَيِّنَاتٌ مِّمَّا  
إِبْرَاهِيمَ وَمَنْ دَخَلَهُ كَانَ آمِنًا  
وَلِلَّهِ عَلَى النَّاسِ حِجُّ الْبَيْتِ مَنِ  
اسْتَطَاعَ إِلَيْهِ سَبِيلًا وَمَنْ كَفَرَ  
فَإِنَّ اللَّهَ غَنِيٌّ عَنِ الْعَالَمِينَ ﴾



Historically, the first pilgrimage was made by the prophet Abraham, his wife Hager and son Ismail<sup>24</sup>. The Arab before Islam continued on performing the pilgrimage to Arafat<sup>25</sup>. Pilgrims come from different Islamic and non-Islamic countries<sup>26</sup>.

The following are the required rites of Hajj:

1. White cloth for all male pilgrims.  
All male Muslims wear the same kind of cloths. Each male pilgrim wears two white and seamless pieces of cloth. As for women, they can perform pilgrimage in their normal clothes.
2. Donning of Ihram.  
At the moment of donning the Ihram the pilgrims enter a state of grace and purity in which they may not wear jewelry or use perfume or other personal adornment.
3. Performing the Tawaf.  
The pilgrims then proceed directly to the Holy Mosque to circle the Kaaba on foot seven times.
4. Performing Saay.  
After the tawaf, the pilgrims perform the Saay which is walking between the hills of Al-Safa and Al-Marwa seven times.
5. Going to Mina.  
In the morning of the eighth day of the last lunar month all pilgrims move to Mina where they pray five prayers and then they move to Arafat.
6. To Arafat. (Fig 4-11)  
On the ninth day of that month, all pilgrims move to Arafat. Pilgrims spend that day worshipping. This period in Arafat is called the day of standing.
7. Toward Muzdalifah. (Fig 4-12)  
After sunset, the pilgrims proceed from Arafat to a place called Muzdalifah, in this place pilgrims worship and sleep. There they gather a number of pebbles for use during the rites on the following days.
8. Going to Mina. (Fig 4-13)  
In the morning of the tenth day, the pilgrims move from Muzdalifah to Mina, where they remain three days.  
On the first day<sup>27</sup>:-
  - The pilgrims throw seven pebbles at the great Jamara.
  - The pilgrims who can afford they sacrifice a sheep, goat, cow or camel. Some pilgrims share in the sacrifice of a single animal.



- Both men and women cut off and clip some of their hair. For men it is recommended that they have their heads shaved.
- The pilgrims go to the Holy Mosque and circle the Kaaba seven times.
- The pilgrims go back to Mina.

#### 9. Staying at Mina.

The pilgrims sleep at least two nights in Mina. During the two days they throw twenty one pebbles a day at the Jamarat.

At the end of these days they return to Makkah.

The influx of a large number of people whether in Makkah or in any other place that hosts such gatherings, results in a serious strain on the urban resources of the host cities. Pilgrims must be provided with food, water, transportation, health care, guidance and housing<sup>28</sup>. For such a large number and for such a short period, the tent cities of Arafat, Muzdalifah and Mina are characteristics part of the Hajj<sup>29</sup>. The "once-in-a-lifetime" note is plainly thrilling in the impact<sup>30</sup>. The tent of the Hajj is one of experience of a life-time for those who have never been in a tent before. (Fig 4-14, 4-15, 4-16 and 4-17) For the duration of the Hajj there are about 350-400,000 tents in use<sup>31</sup>.

#### 4.2.2 Climatical Reference.

Makkah and the Holy environs (Arafat, Muzdalifah and Mina) are located in very hot areas<sup>32</sup>. The tents are basically to provide shade and an acceptable environment. The white colour of most tents helps in reducing the heat. Most of the tents are double skin, this provides partial insulation.

#### 4.2.3 Activities Reference.

Since the organisation of the Hajj require from the pilgrim to concentrate on his or her worshipping, there are little activities inside the tent. The pilgrims either praying, reading, eating or sleeping. All of these activities are



accommodated in one space which is more than enough for one family in one tent or for a group of male pilgrims.

The Hajj tent itself, a square 4m x 4m tent is an ideal room size providing the main function of privacy<sup>33</sup>. One tent could accommodate up to eight people sleeping<sup>34</sup>.

The tents in Arafat are erected for the use of one day only, about 14 hours, before and after that short period the valley lies abandoned. Mina shelter the pilgrims for four times as long, about 56 hours or two and a half days.

#### 4.2.4 Cultural Reference.

The Hajj and its meaning of peace in covering space, time and all living things<sup>35</sup>. The reward for a pure and untainted Hajj is Paradise itself and nothing short of it<sup>36</sup>.

The Hajj itself contain greater values, it lets the Muslim think of the final day (the day of judgement) where everyone will stand without any material except his good deeds. The rich and the poor Muslims share those days during Hajj in tents. It represents the similarity and the degree of preference is only the work of each one. The tent represents the basic requirements of a shelter as the two pieces of white cloths represent the basic requirement to cover someone's body when they die.

#### 4.2.5 Material Reference.

For such a short period every year what would be the easy way to accommodate about two million inhabitants? The tent works well for that purpose. It is flexible and requires little effort to build, and it is easily stored till the next season.



The cloth of the tent is made of natural cotton. Most of them are double skinned. The inside cloth consists of a rough and light cotton fabric, dyed bright red, green and yellow. This and the white outer fabric are sewn together. The tents currently used are made in Egypt, but is also manufactured in Pakistan and some other countries<sup>37</sup>. Together with the wooden pole it weighs about 30 Kg. and folds into a bundle 2m in length with a 40 cm. diameter when it is stored. The cloth of the tent is costly to repair if damaged. (Fig 4-18)

#### 4.3 The Tent Assessment.

Both Bedouin and Hajj tents are examples of simple accommodation in the desert environment. The tent provides the basic needs of shelter and privacy.

There are some problems with these tents in reference to the present requirements. During the rainy times the tents do not perform well<sup>38</sup>. Also, fire hazards is another problem, for example, during the Hajj of 1975 there was a conflagration in Mina which cost many lives<sup>39</sup>.

The Bedouin tent is in the process of disappearing through the settlement of the Bedouins themselves. The Hajj tents still stand as a remarkable cities each Hajj but it is changing with the addition of accessories, like air conditioning<sup>40</sup>.

The tent concept although very ancient in origin, could be used again and again. We cannot ask the people to live in tents permanently. The people have to be aware that a tent does not mean poor. It represents our traditions and reflects the reality of our life in this land. Tents have the means to direct our thinking in the way we could manage our resources. A lot of effort is needed to develop suitable materials and techniques to introduce the tent concept with the design of houses.



In Saudi Arabia there are some examples of large-scale projects in which the tent was the main concept of the design:-

- The Jeddah Sport Centre for King Abdulaziz University.
- The Riyadh International Stadium.
- The Hajj Terminal in Jeddah.

These projects were achieved by the availability and development of modern steel cable and the modern "skin" material such as the teflon-coated fiberglass<sup>41</sup>. (Fig 4-19, 4-20 and 4-21)

The Saudi Arabian government through the Hajj Research Centre and other agencies at Umm Al-Qura University in Makkah are working on projects to develop Hajj tents which are fire resistant and ropes-free for future seasons of Hajj<sup>42</sup>. (Fig 4-22)

Today people use the tent when they go on a picnic either in open lands outside cities or on the seashore, afterwards they store it.

The tent could be mixed in the design of the house to be a major element of the structure. It could be used to cover part of the roofs or open yards. Also it could partially cover the open spaces in the neighbourhood. This will increase the shaded area within the urban environment.

On the other hand, tent materials could develop the local industry in an open market especially in the construction section.

Finally the tent all the time reminds us with the true of our life on this land.



Table 4.1 Foreign and Resident Pilgrims 1390-1408.

YEAR	FOREIGN PILGRIMS	RESIDENT PILGRIMS	TOTAL
1390	431,270	648,490	1,079,760
1391	479,339	562,688	1,042,027
1392	645,182	571,769	1,216,951
1393	607,755	514,790	1,122,545
1394	918,777	566,188	1,484,975
1395	894,573	663,294	1,557,867
1396	719,040	737,392	1,456,432
1397	739,319	888,270	1,627,589
1398	830,236	1,069,184	1,899,420
1399	862,520	1,217,169	2,079,689
1400	812,892	1,136,742	1,949,634
1401	879,368	1,063,812	1,943,180
1402	854,000	1,158,000	2,012,000
1403	1,004,000	1,498,000	2,502,000
1404	920,000	745,000	1,665,000
1405	852,000	738,000	1,590,000
1406	857,000	744,000	1,601,000
1407*	960,000	659,000	1,619,000
1408*	763,000	617,000	1,380,000

Source:

\*General Statistics on Hajj, Hajj Research Centre, Umm AL Qura, University, Makkah, Saudi Arabia.

\*\*Central Department of Statistics, The Statistical Indicator, 13th Issue, Ministry of Finance and National Economy, S.A. 1988.

Table 4.2 Forecasts of Total Pilgrims till 1420H

	<u>High</u>	<u>Annual Growth Rate</u>	<u>Low</u>	<u>Annual Growth Rate</u>
1400	1.950,000		1.950,000	
1405	2.496,000	4.5	2.302,000	3.4
1410	3.057,000	4.1	2.617,000	2.6
1415	3.684,000	3.8	3.097,000	3.4
1420	4.327,000	3.3	3.531,000	2.7

Source:

\*Pasha, Hafiz A. Forecasting Demand for Hajj up to 1420 A.H. (Hajj) Research Centre, Umm AL Qura University Makkah, S.A.



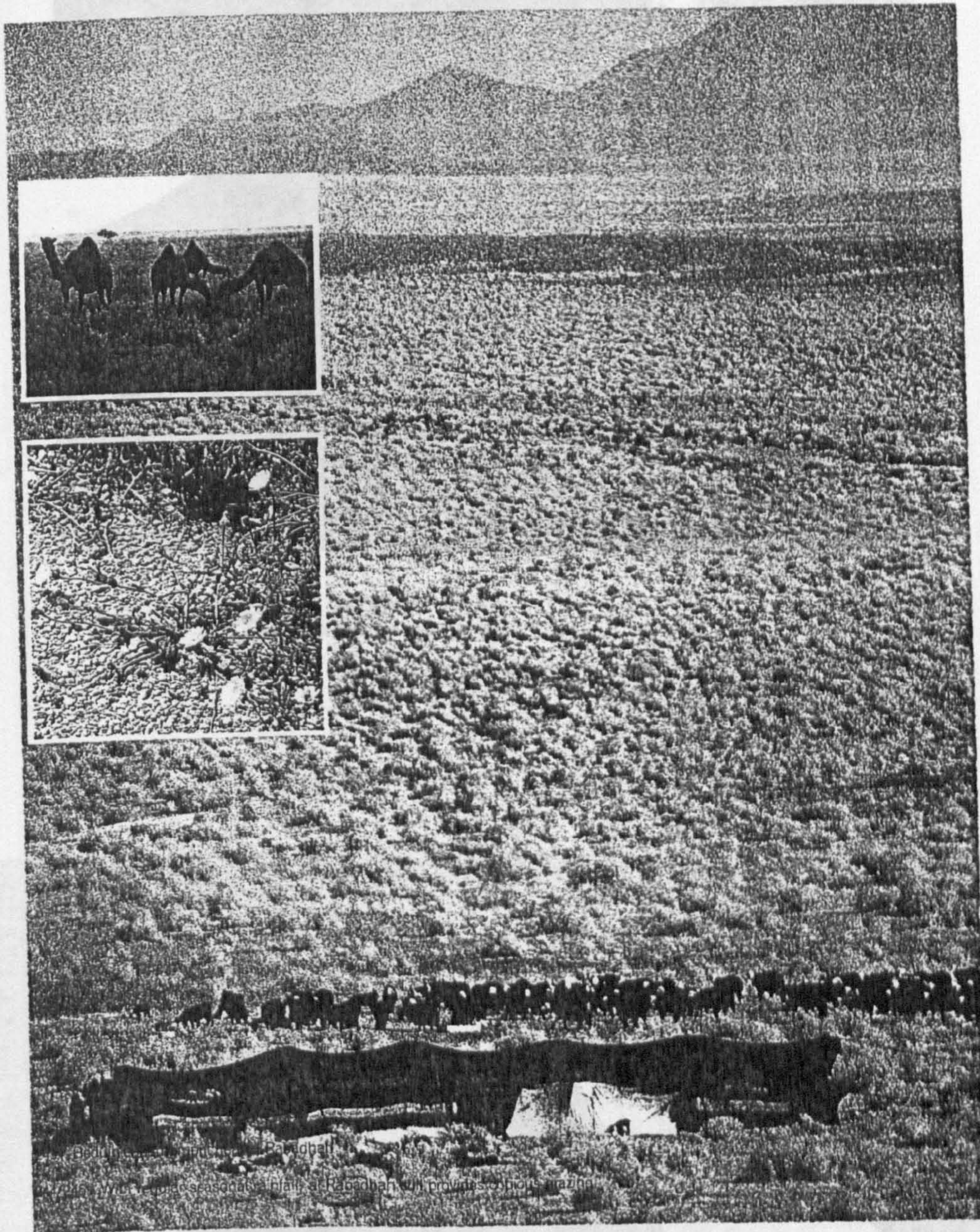


Fig 4-1 VIEWS OF BEDOUIN ENCAMPMENT  
(The Bedouin tent in the desert during the spring season)

Source: Al Rashid (43)





Fig 4-2 VIEW OF BEDOUIN TENT  
(The tent provides the shade).

Source: Editors of Time-life Books, 1985<sup>(2)</sup> p.83.

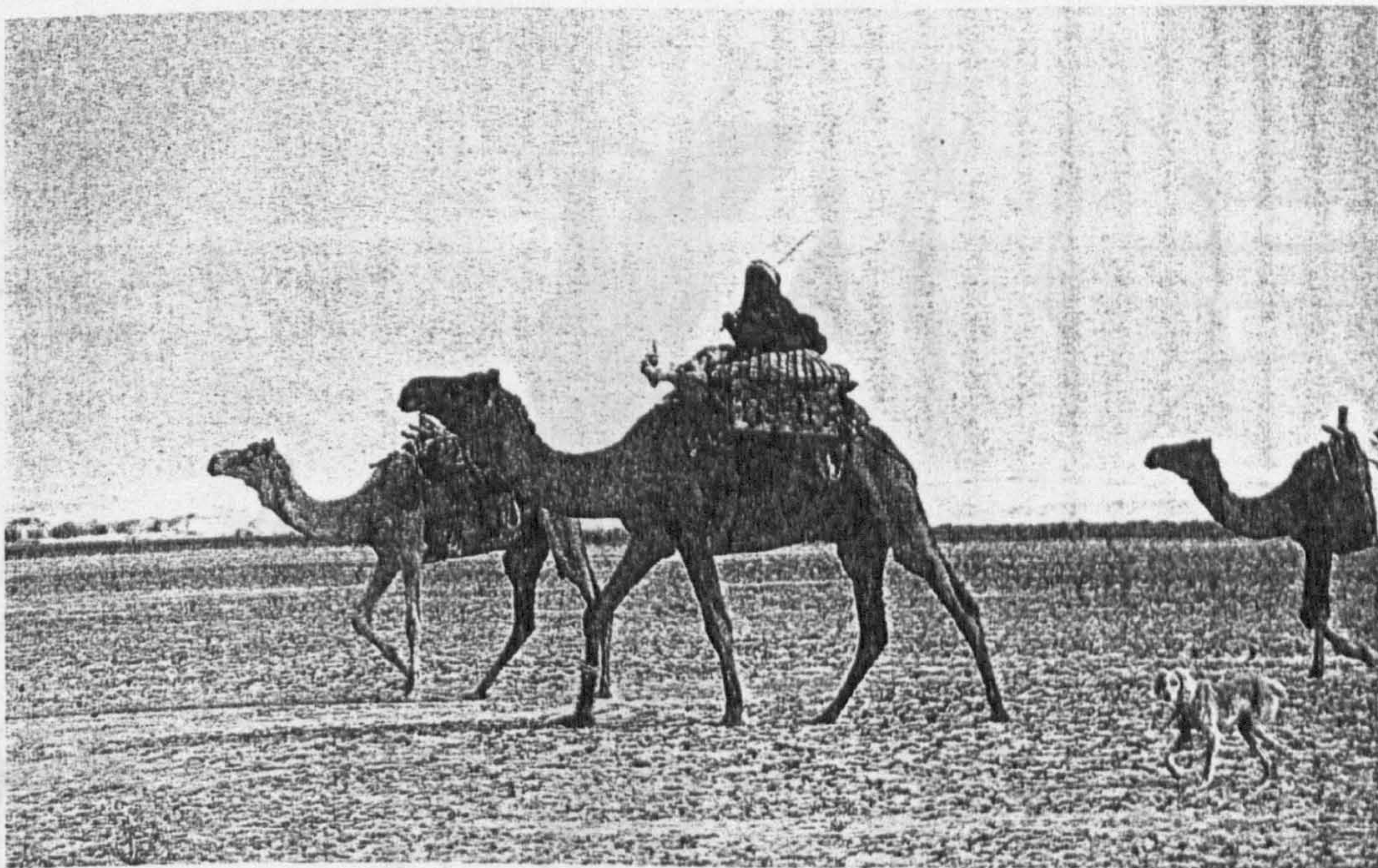


Fig 4-3 VIEW OF MIGRATED BEDOUINS  
(Those are moving to new area for water).

Source: Editors of Time-life Books, 1985<sup>(2)</sup>, p.67.



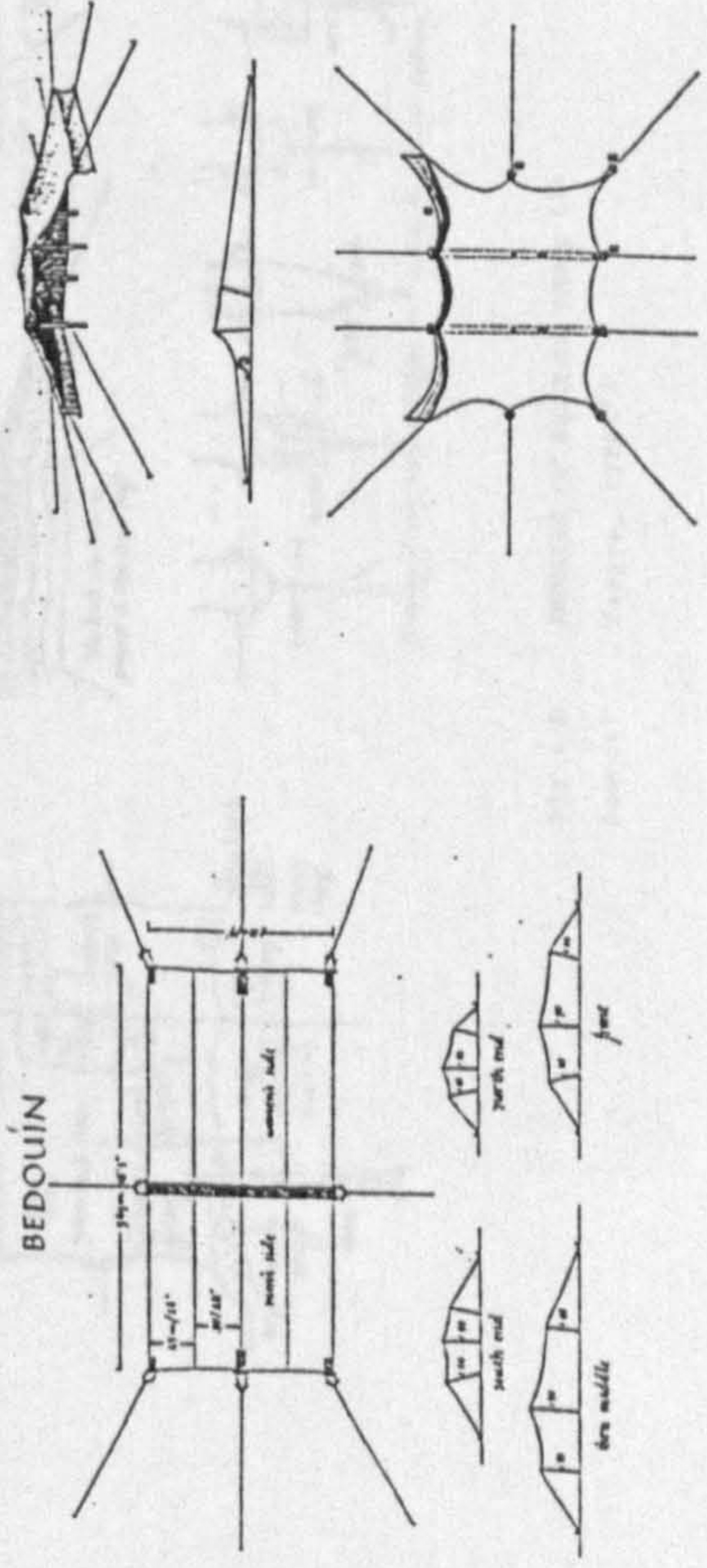
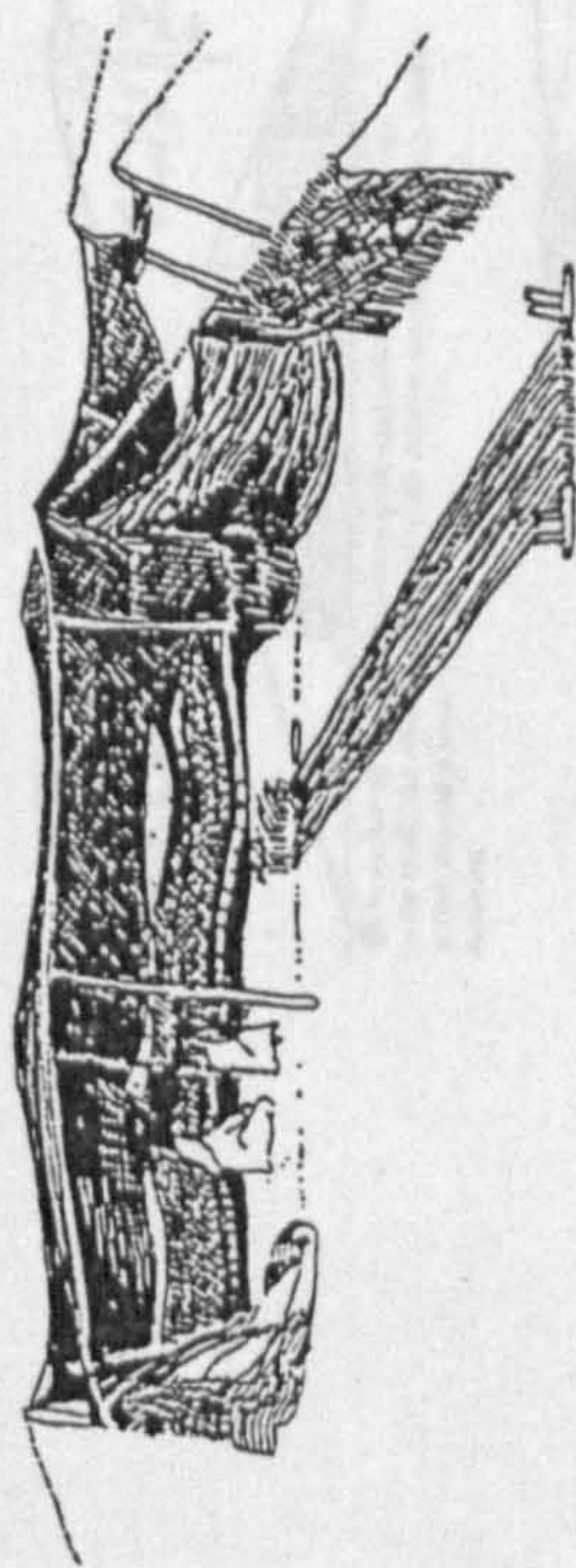
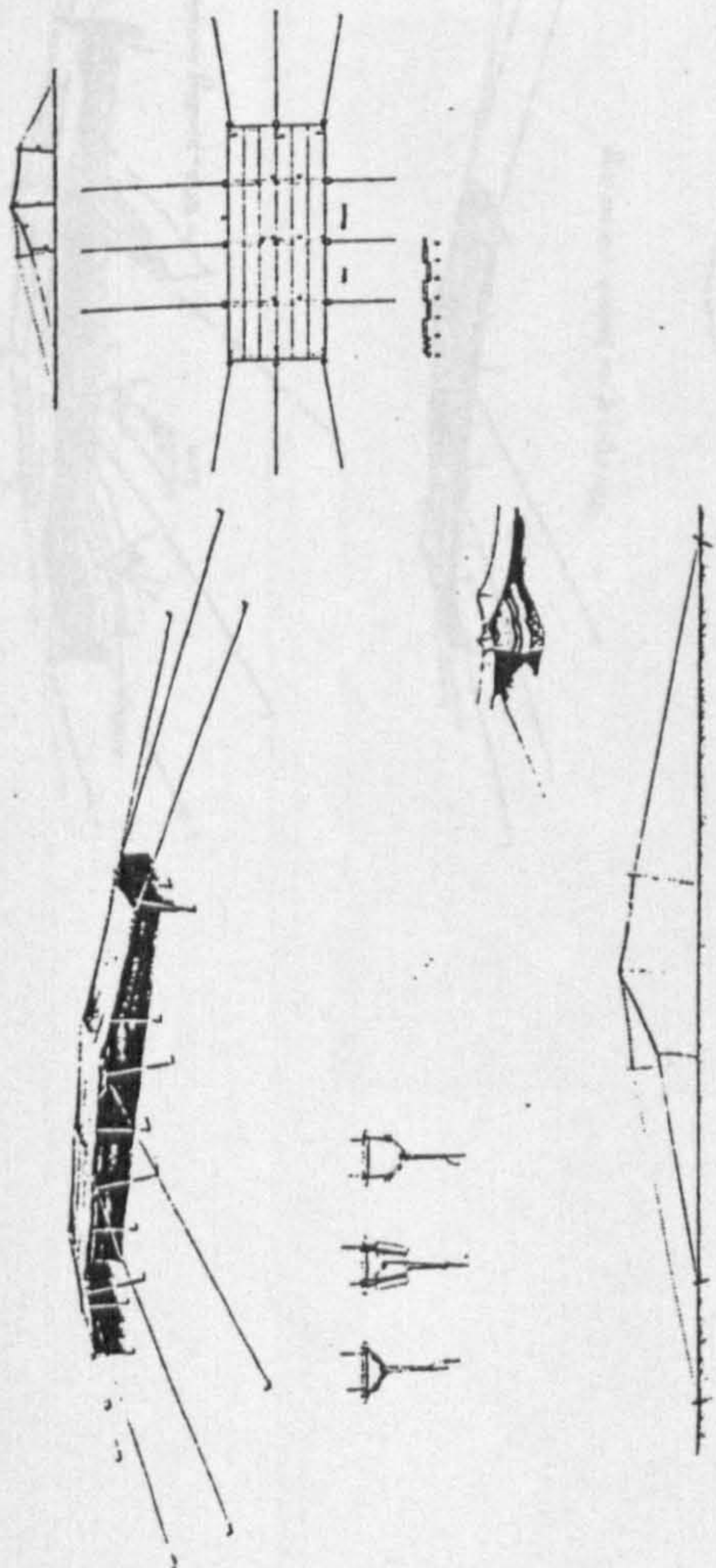


Fig 4-4 DETAILS OF BEDOUIN TENTS (1)  
Source: Drew, 1979 (5)

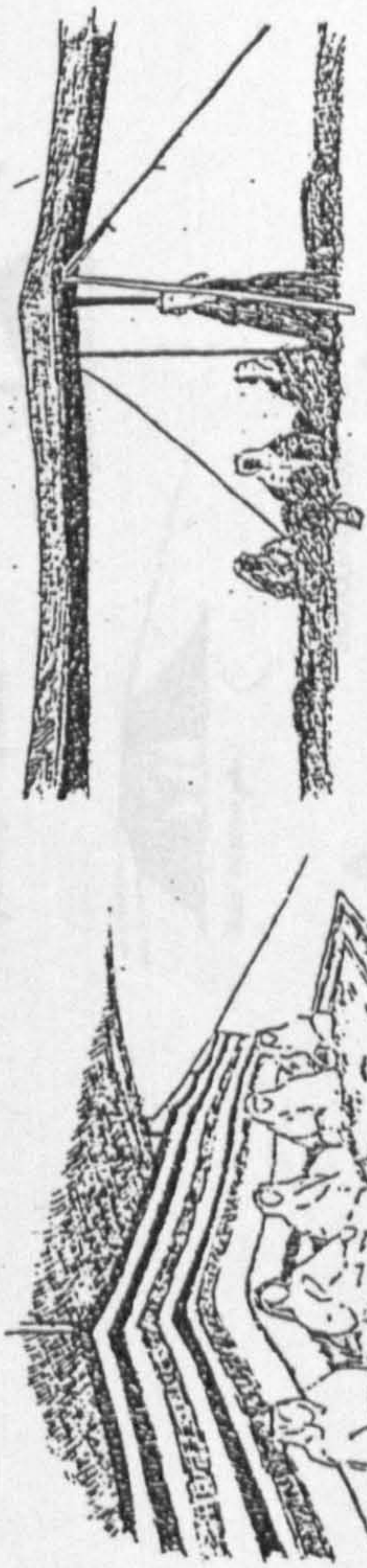
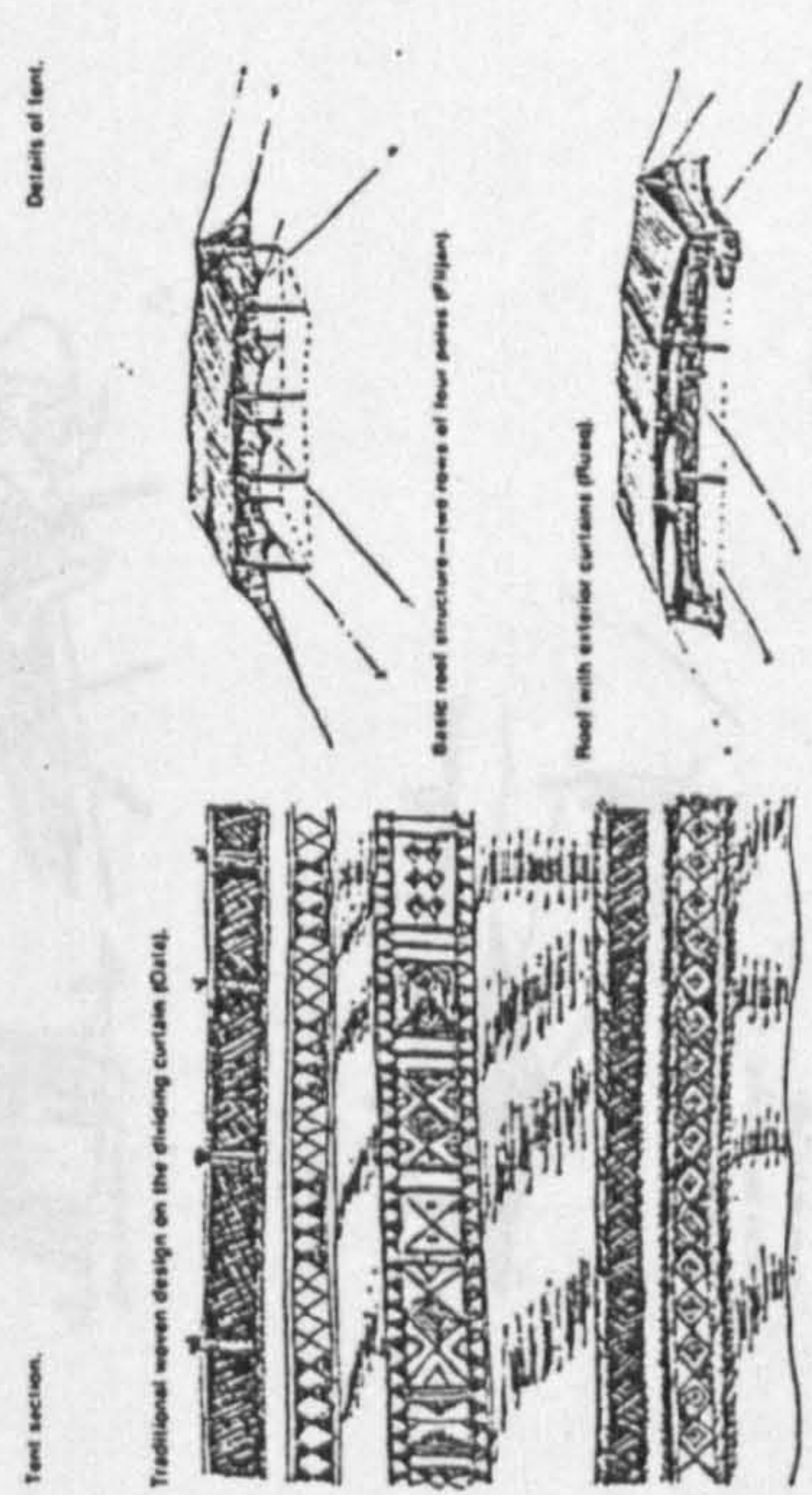
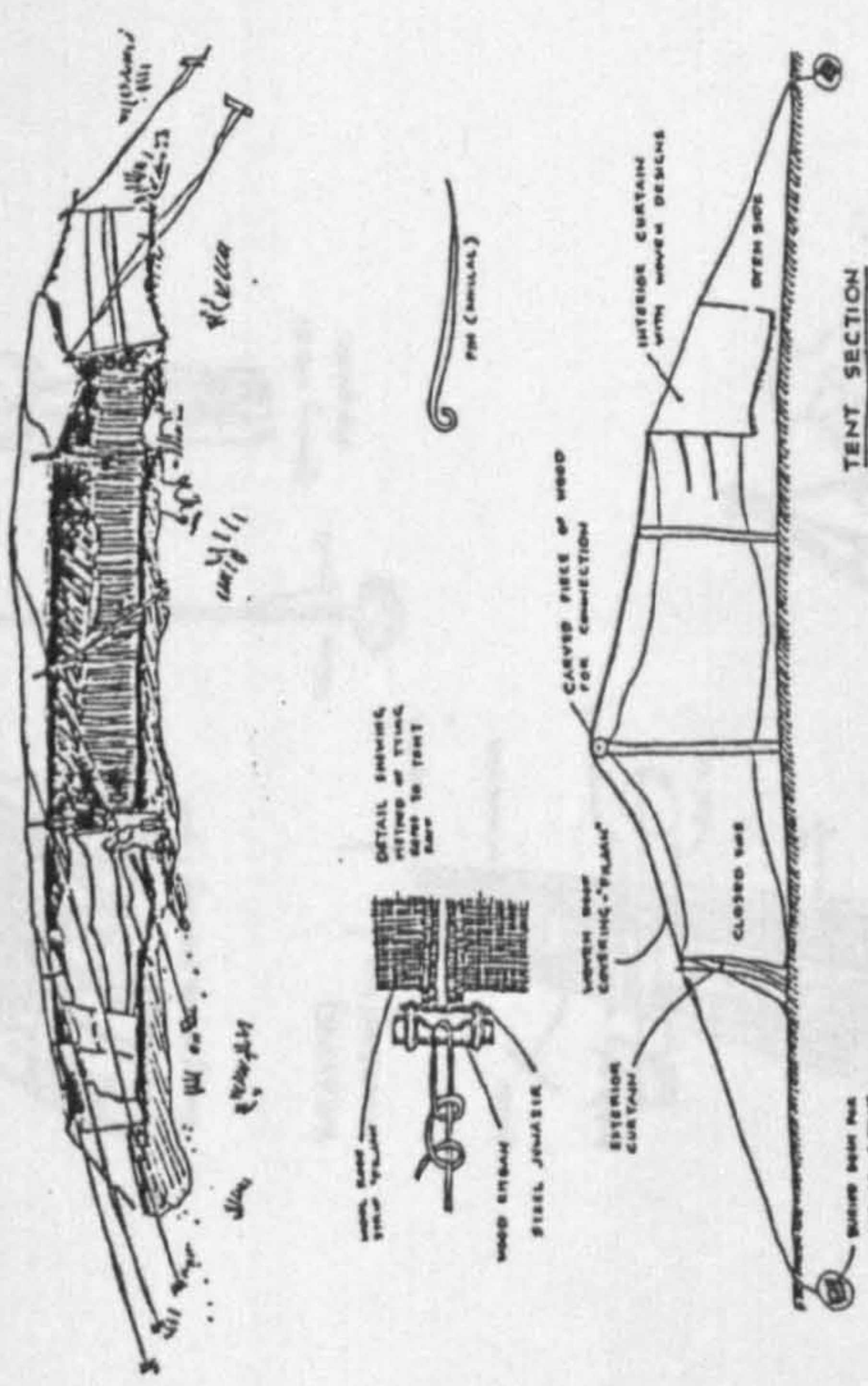


Fig 4-5 DETAILS OF BEDOUIN TENTS (2)  
Source: Fagere, 1979 (7)



A Three-Pole Shammar Tent

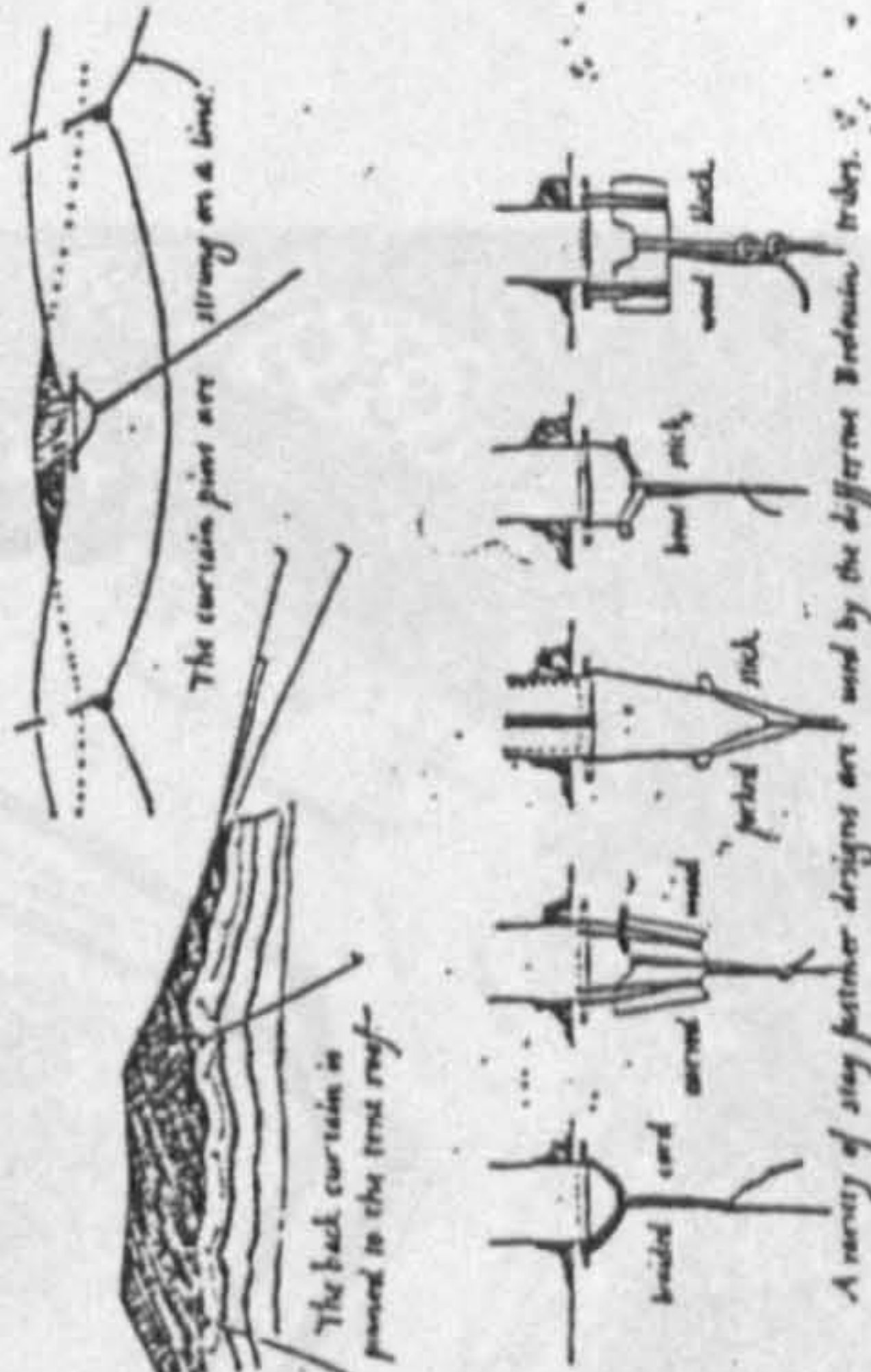
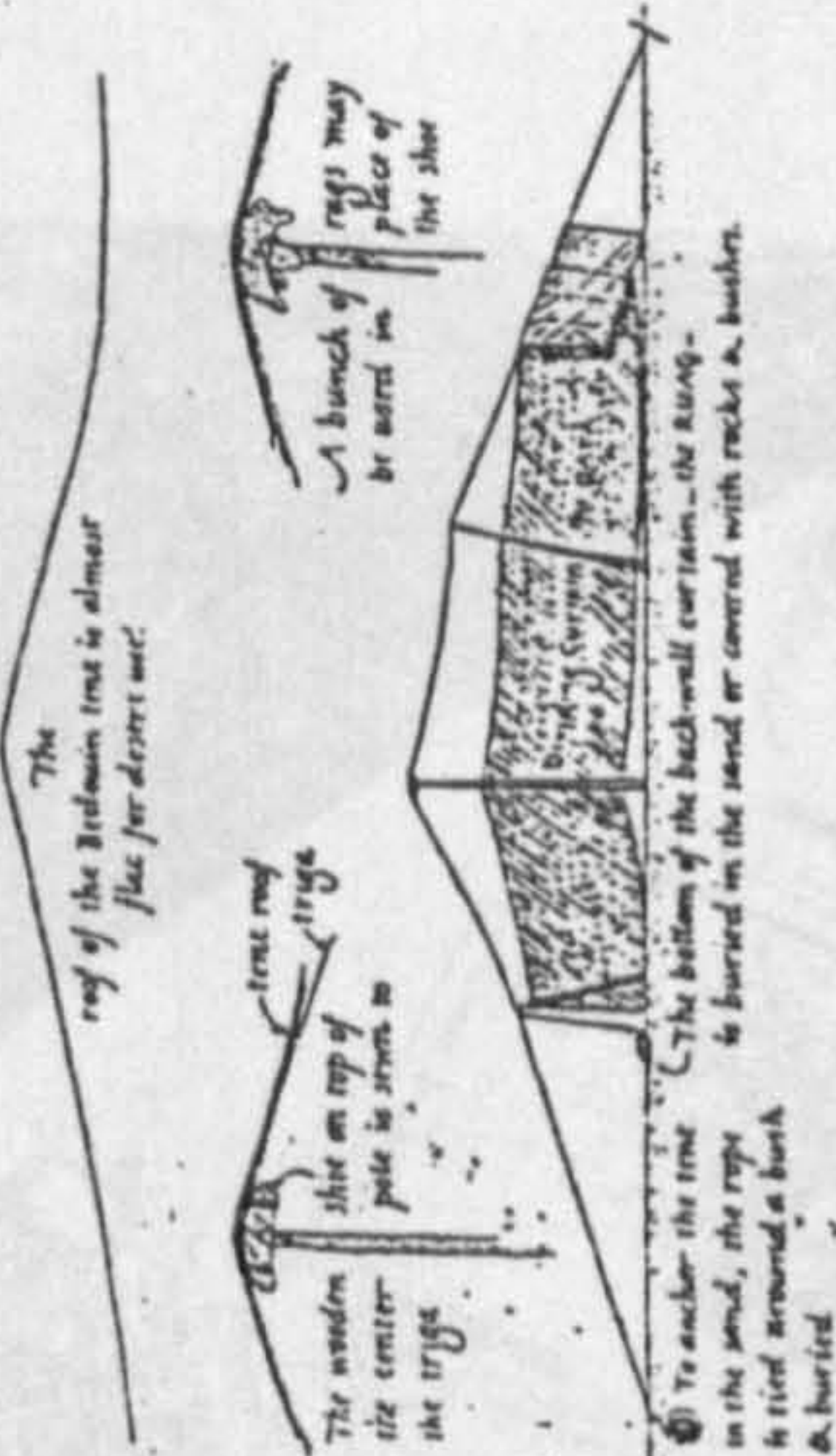
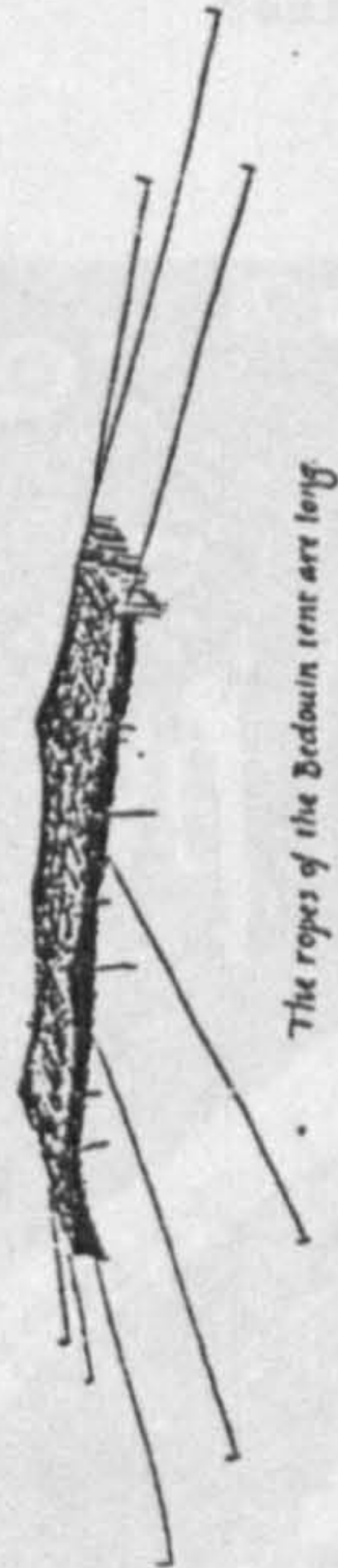
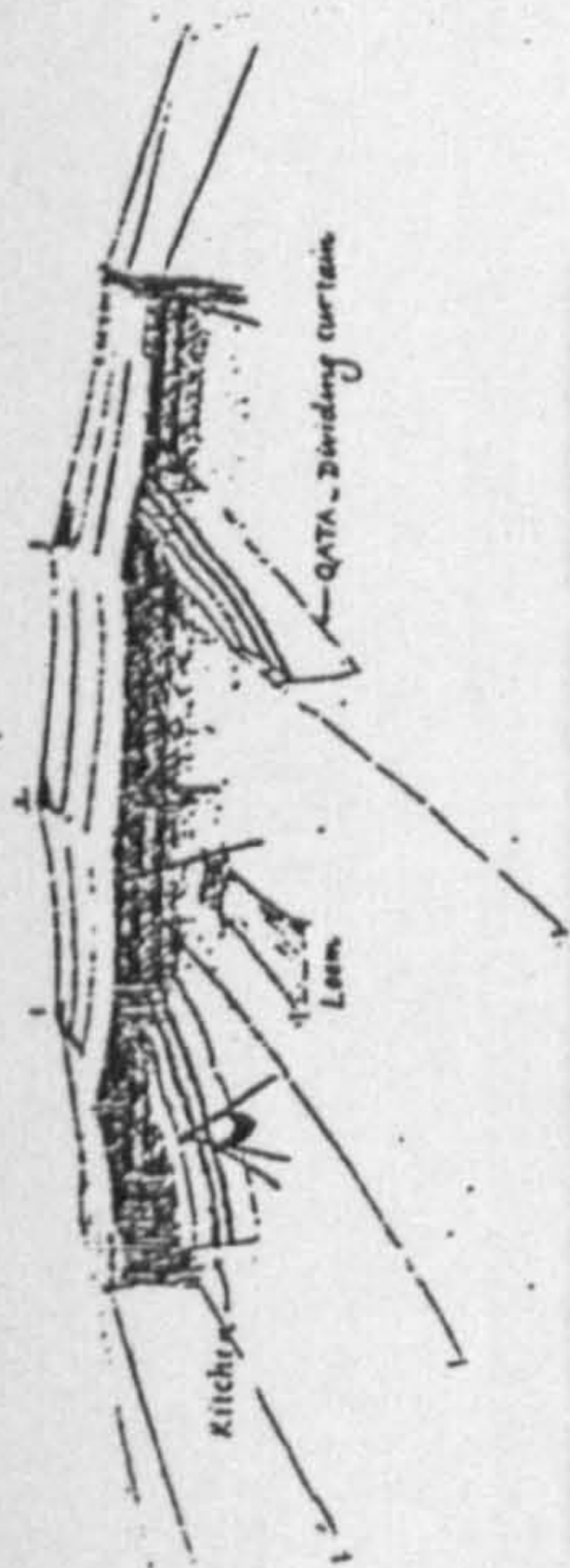
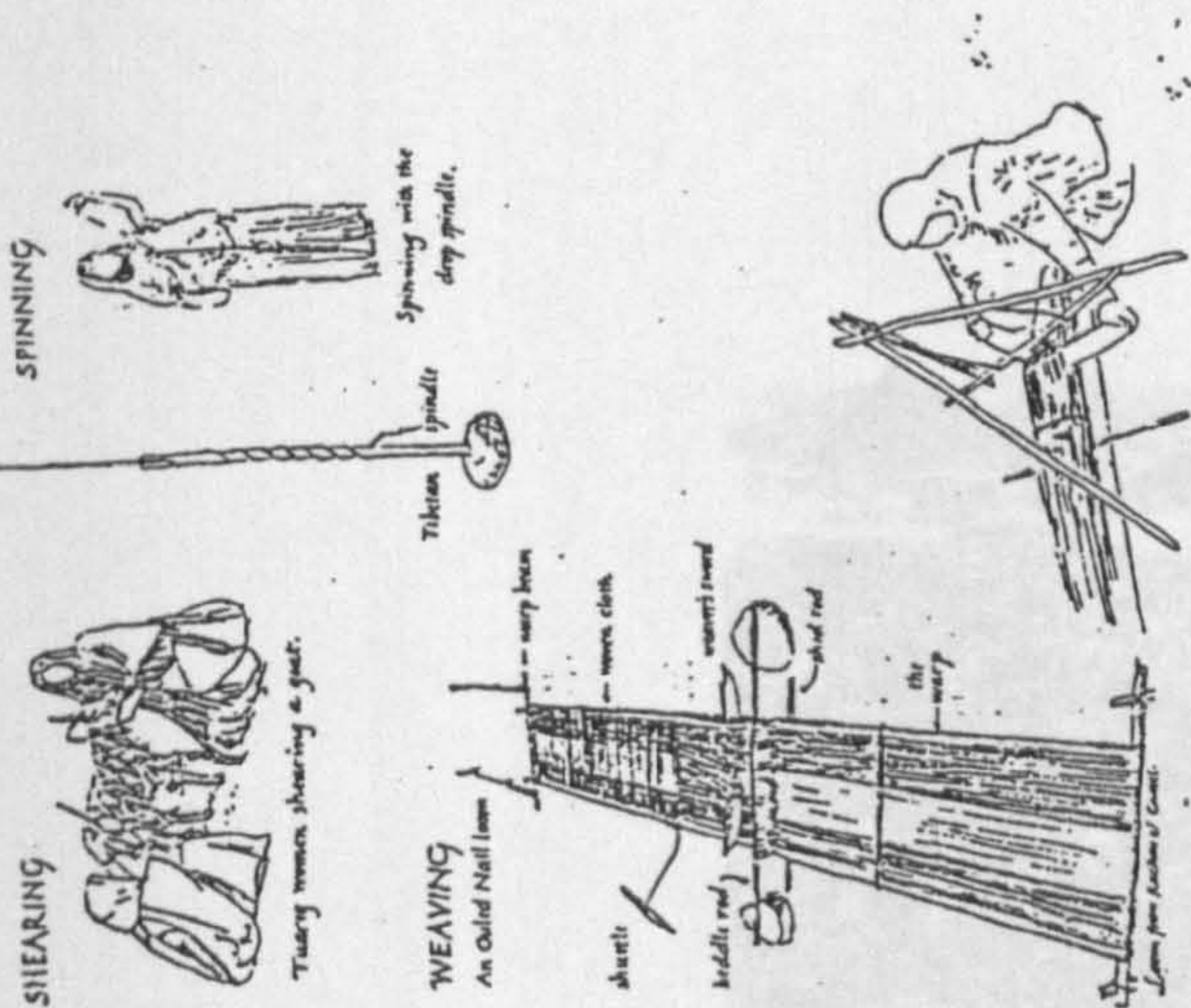
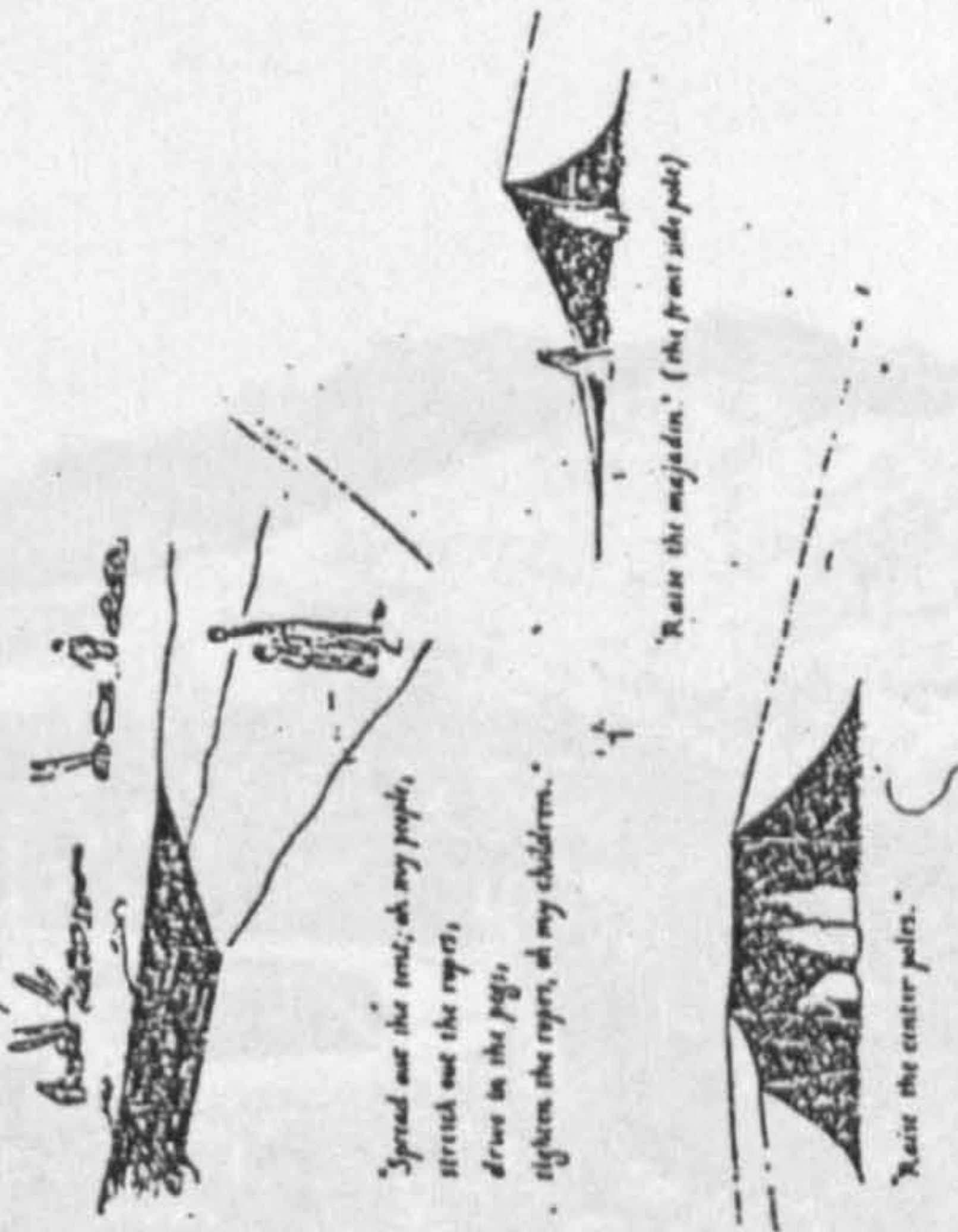


Fig 4-6 DETAILS OF BEDOUIN TENTS (3)  
Source: Faegre, 1979 (7).

MAKING THE BLACK TENT



SETTING UP CAMP



BREAKING CAMP



Fig 4-7 DETAILS OF BEDOUIN TENTS (4)  
Source: Faegre, 1979 (7).





Fig 4-8 VIEWS OF THE CITY OF MAKKAH  
(The Holy Mosque in the Middle).

Source: Ministry of Information, 1979<sup>(44)</sup> p.51.

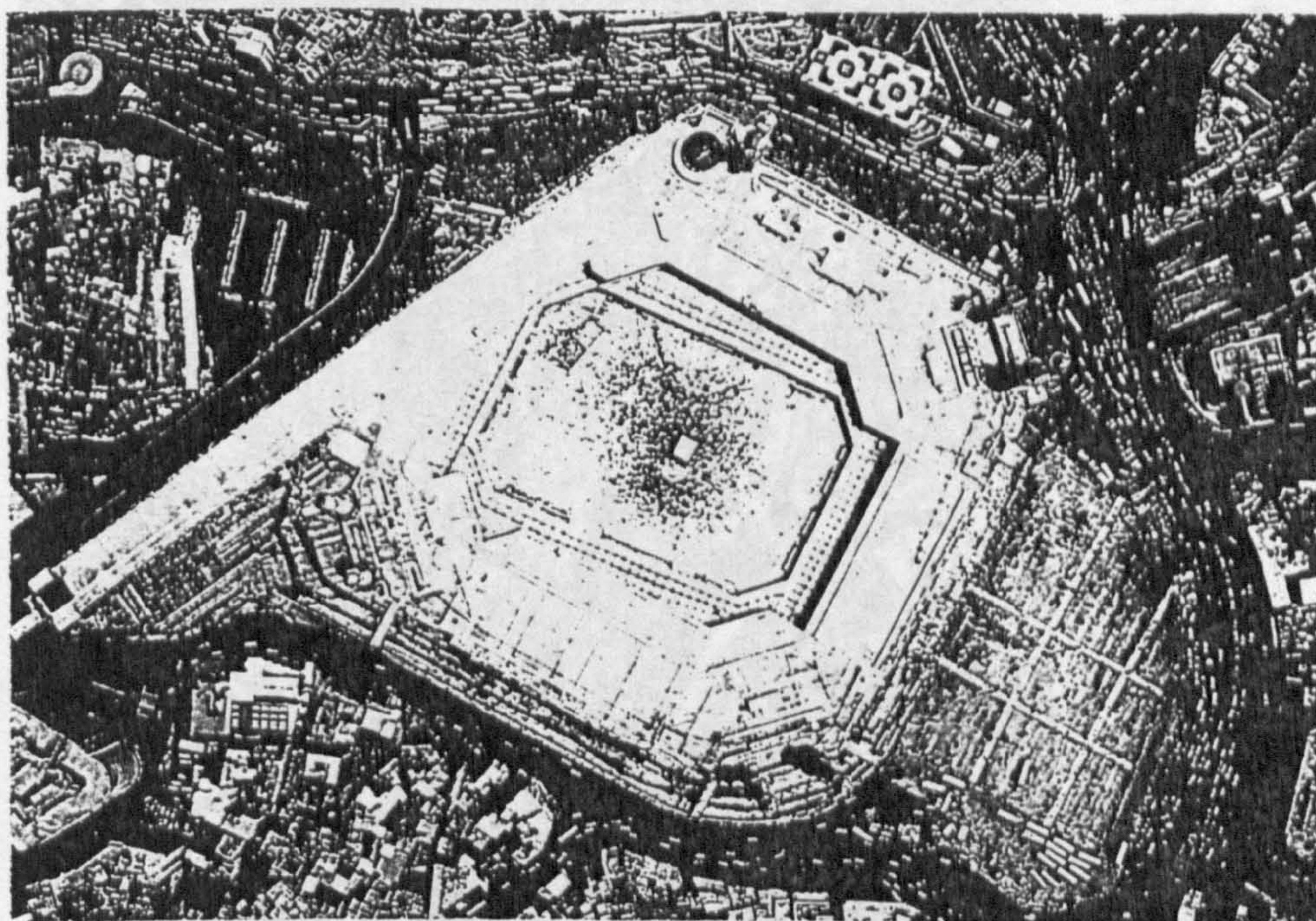


Fig 4-9 VIEWS OF THE HOLY MOSQUE  
(An aerial photograph of the Holy Mosque).

Source: Hajj Research Centre, 1986<sup>(45)</sup>, p.41.



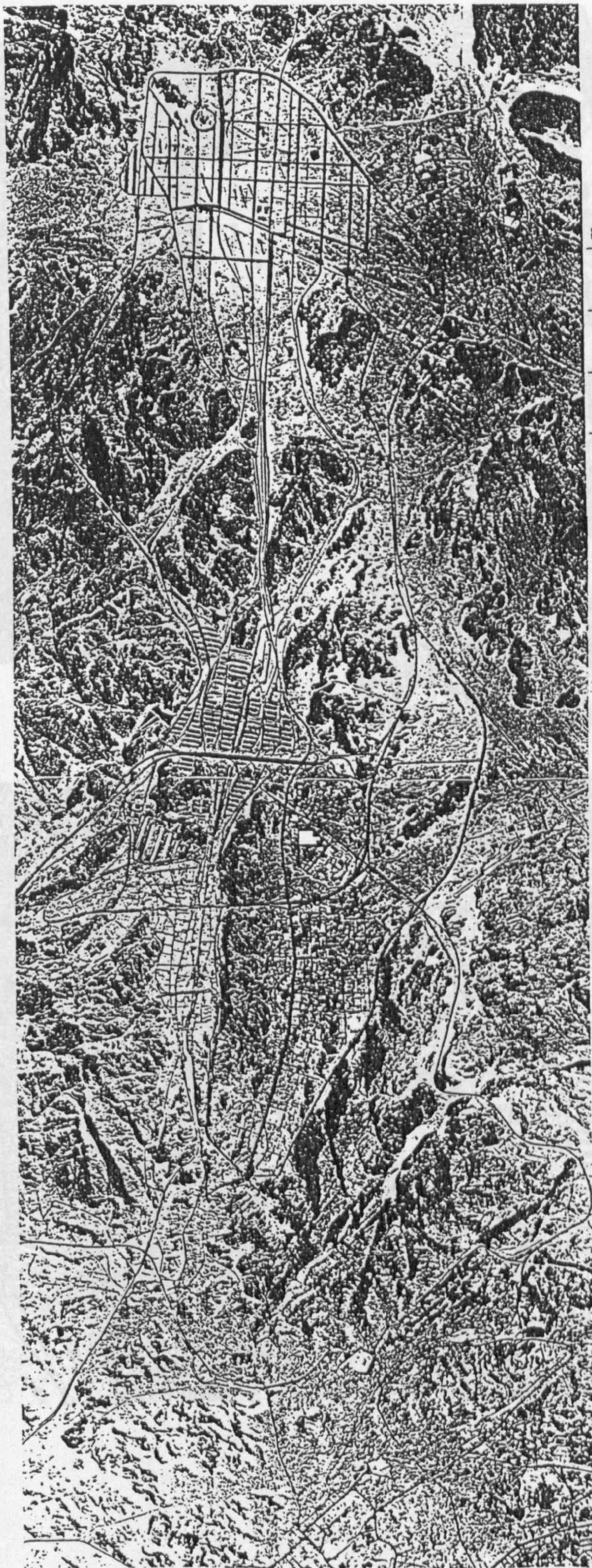


Fig 4-10 VIEW OF THE HAJJ SITES  
(An aerial photograph shows the relation of Makkah city with Mina, Muzdalifah and Arafat).

Source: Bodo Rasch, 1980(31), p.40.





Fig 4-11  
VIEW OF ARARAT SITE  
(An aerial photograph of Ararat Site).

Source: Bodo Rasch, 1980(31), p.44.

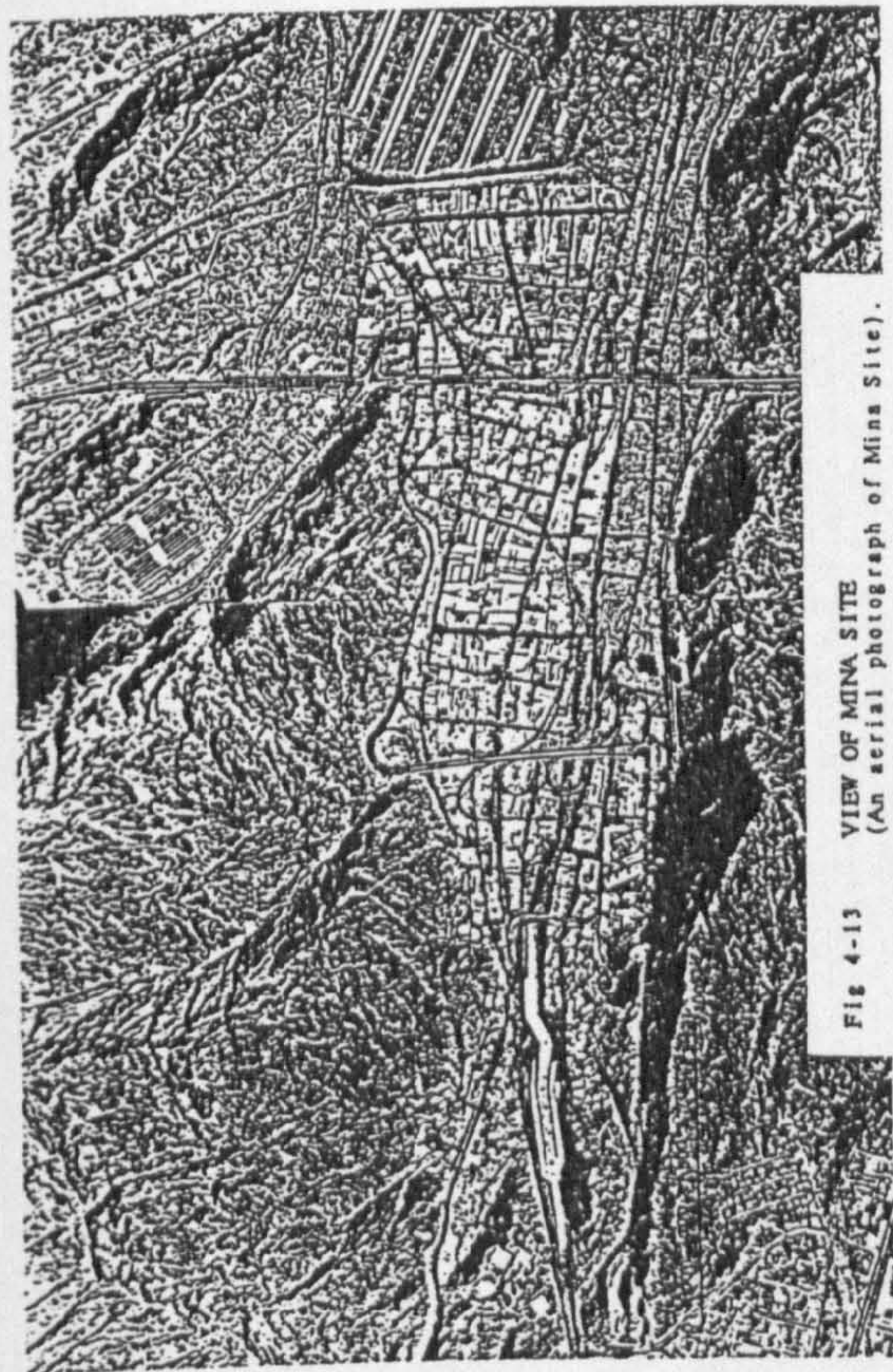


Fig 4-13  
VIEW OF MINA SITE  
(An aerial photograph of Mina Site).

Source: Bodo Rasch, 1980(31), p.51.

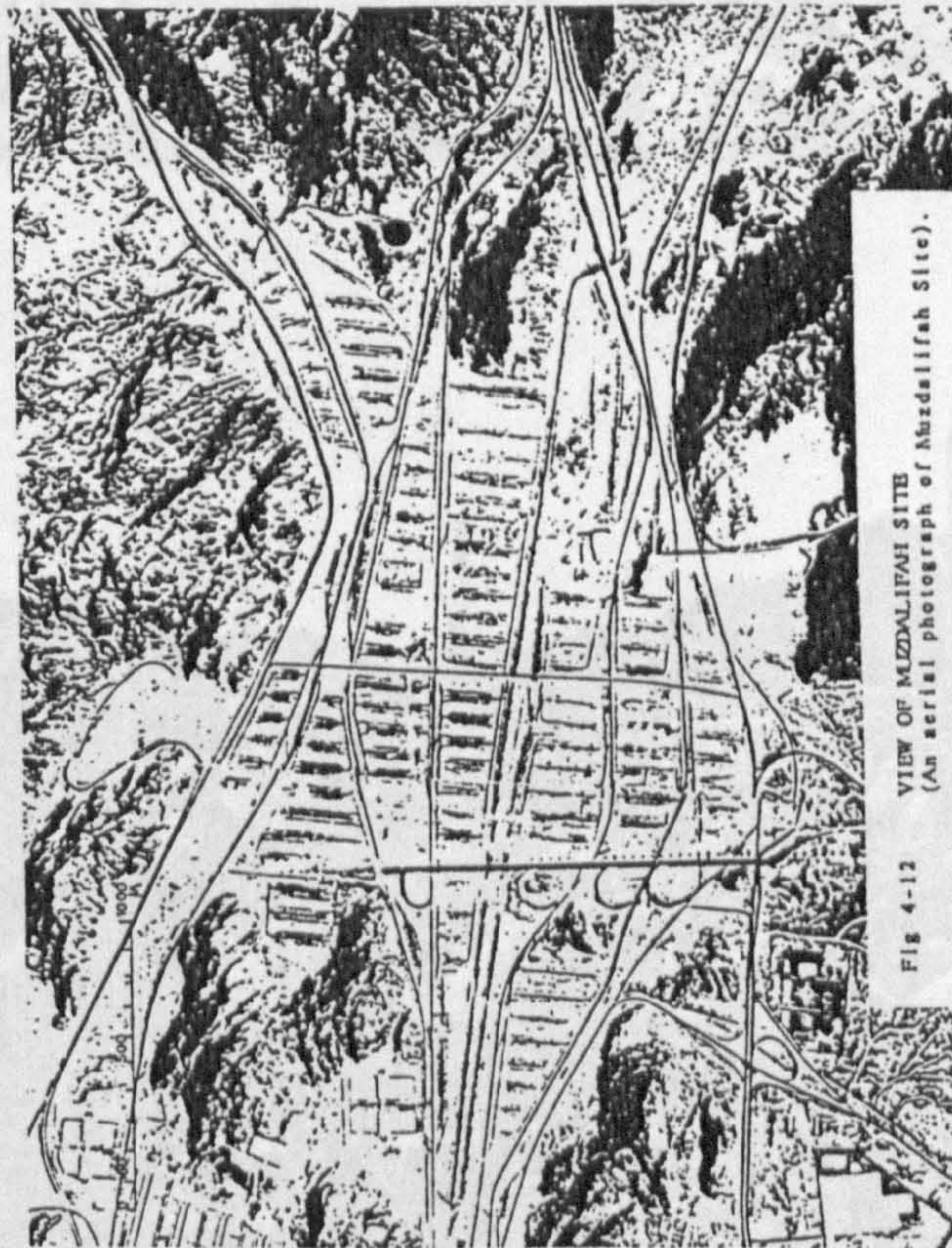


Fig 4-12  
VIEW OF MUZDALIFAH SITE  
(An aerial photograph of Muzdalifah Site).

Source: Bodo Rasch, 1980(31), p.49.

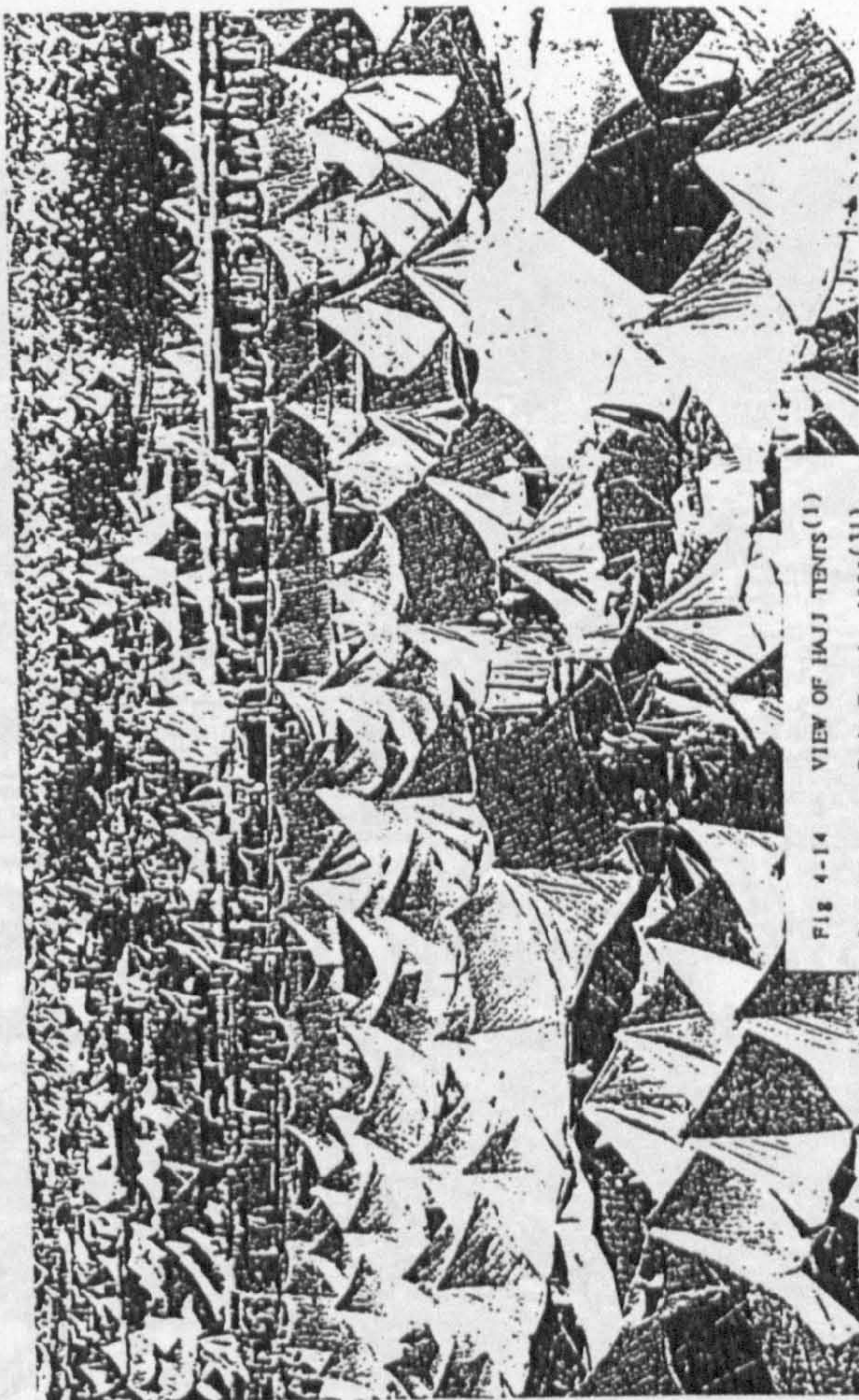


Fig 4-14  
VIEW OF HAJJ TENTS (1)

Source: Bodo Rasch, 1980(31)



Fig 4-15 VIEW OF HAJJ TENTS (2)  
(Arafat Site).  
Source: MIO, 1978<sup>(46)</sup>, p.130.

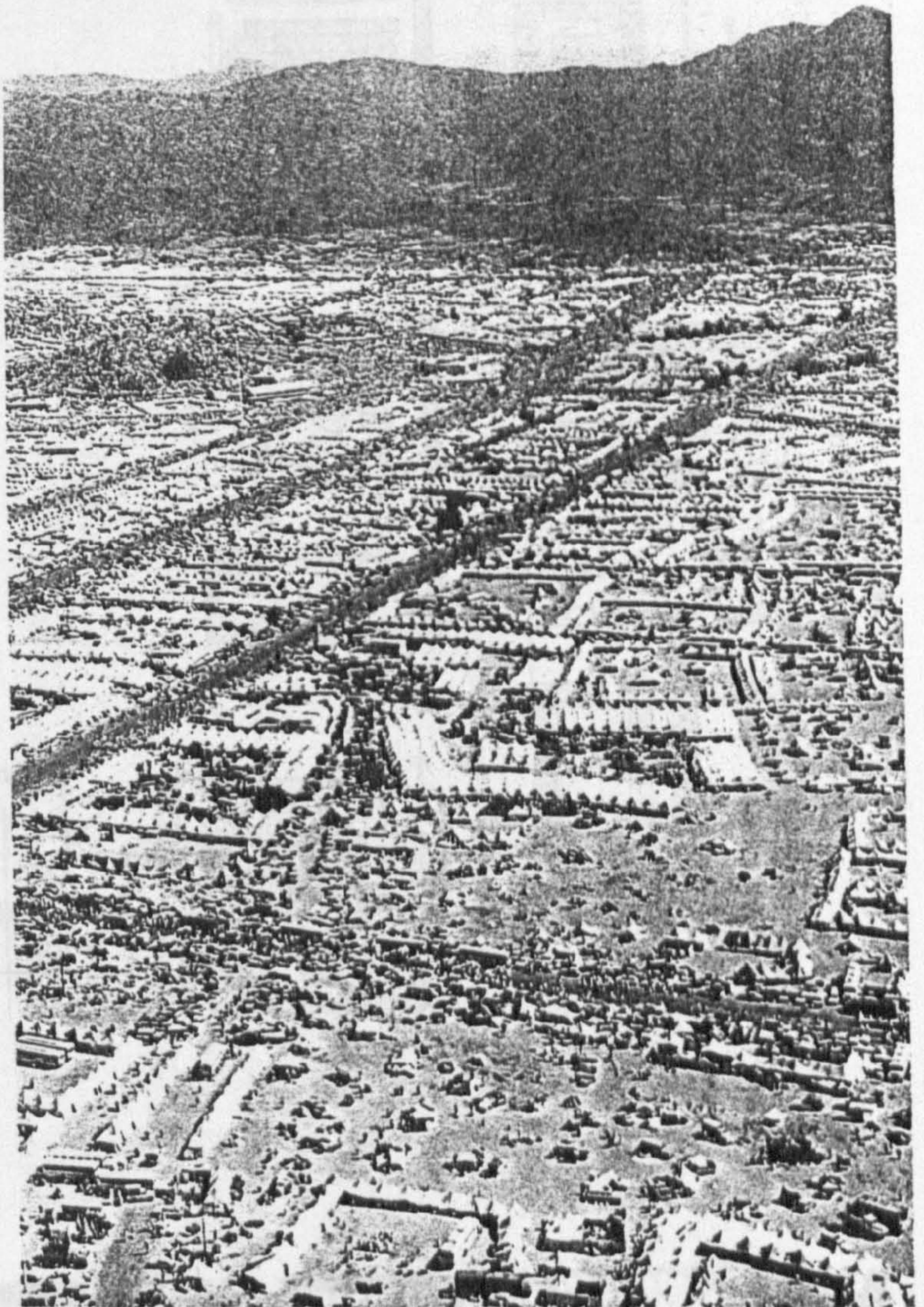


Fig 4-16 VIEW OF HAJJ TENTS (3)  
(Arafat Site).  
Source: MIO, <sup>(47)</sup> p.60.





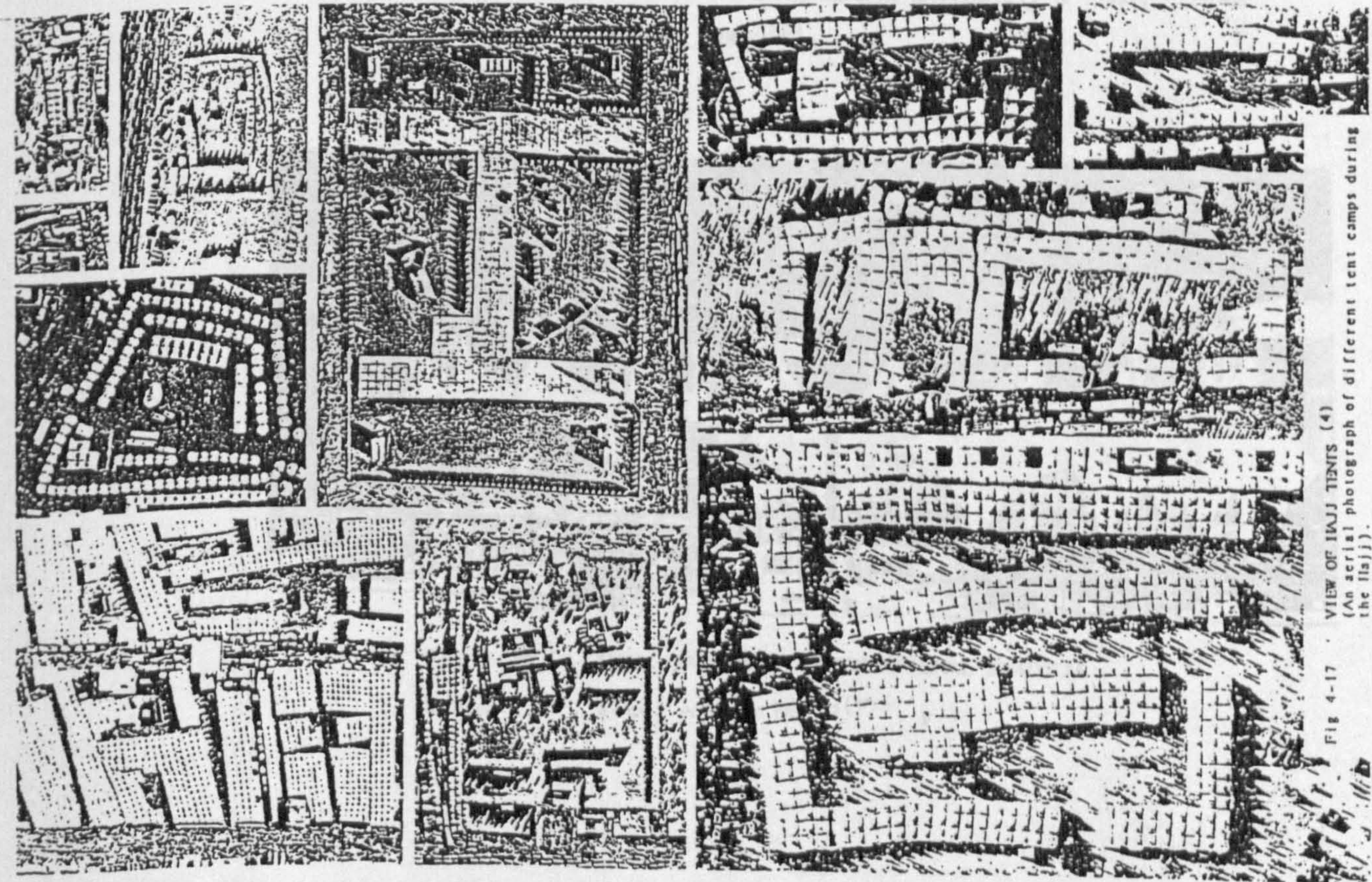
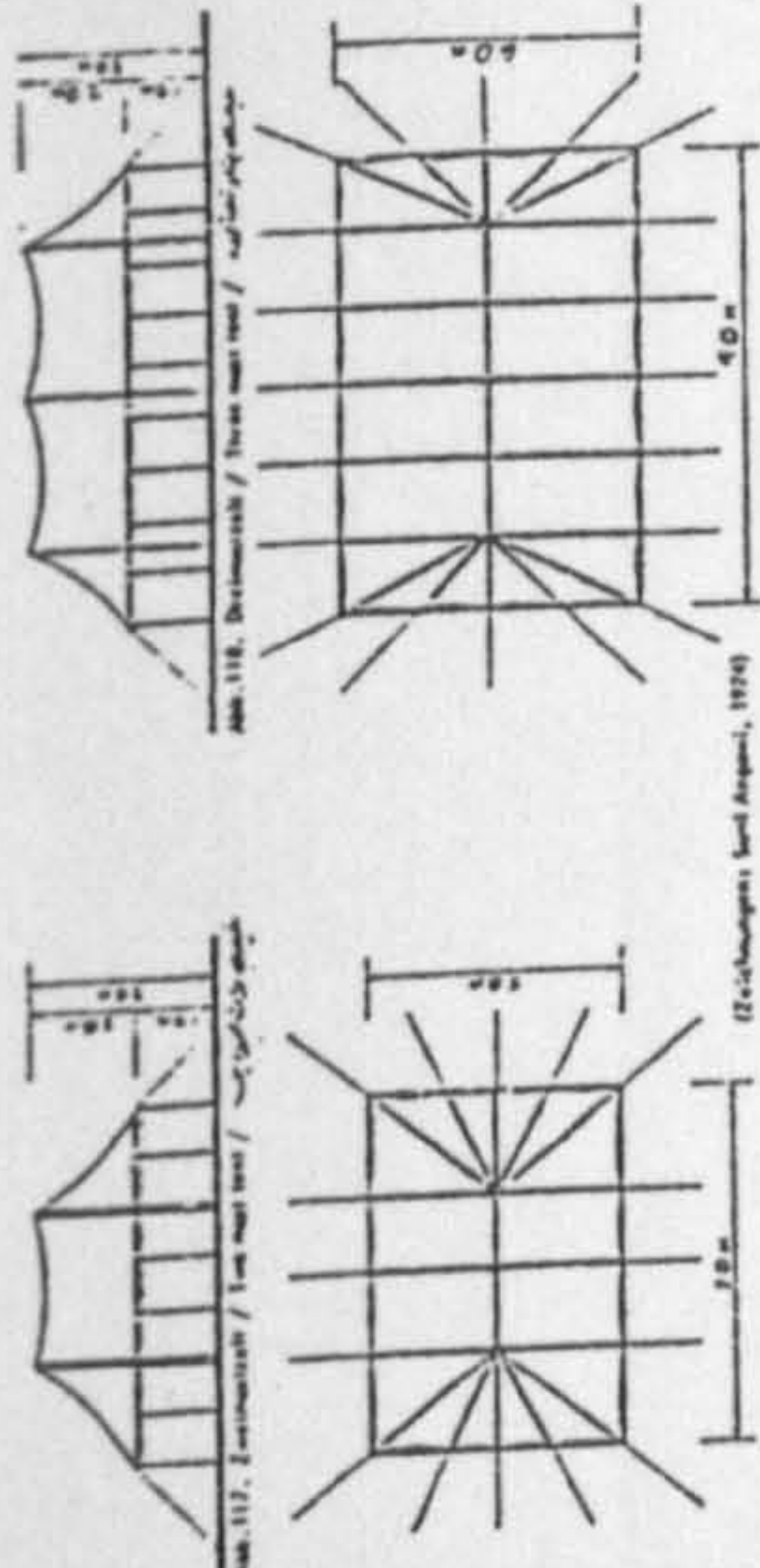
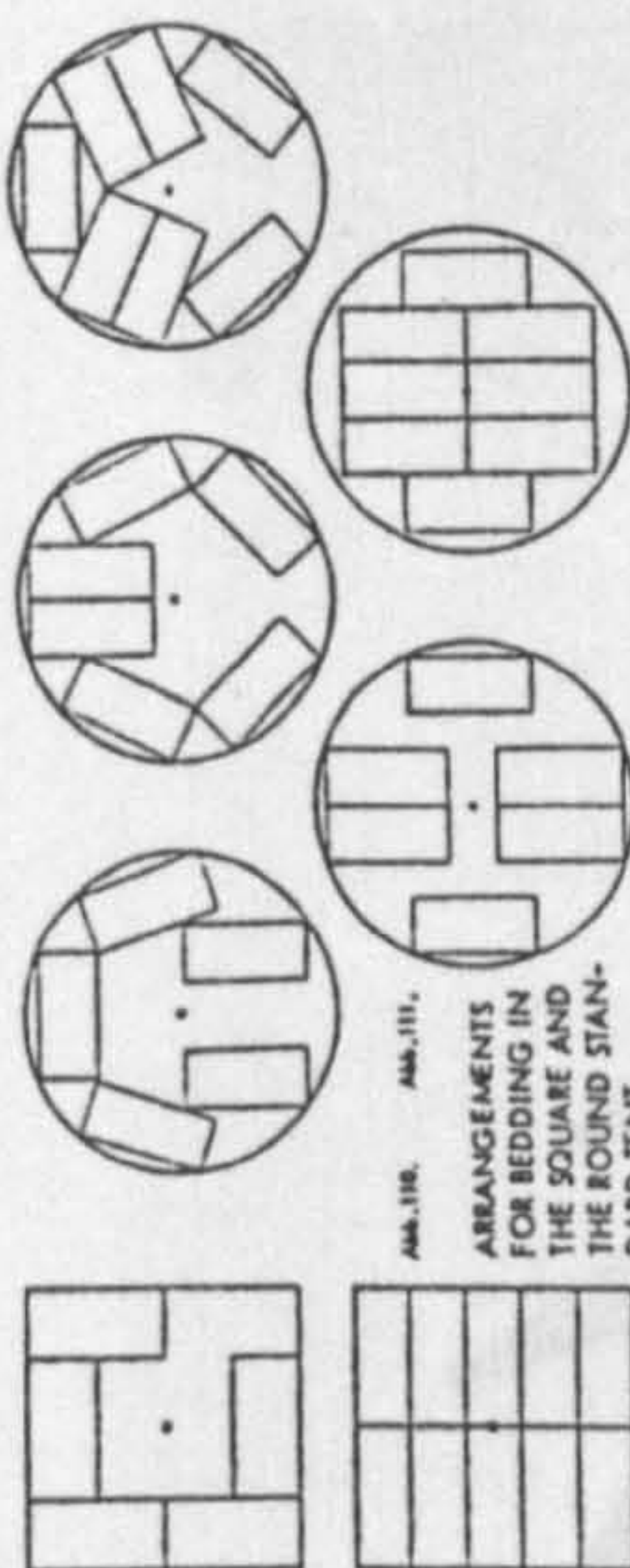
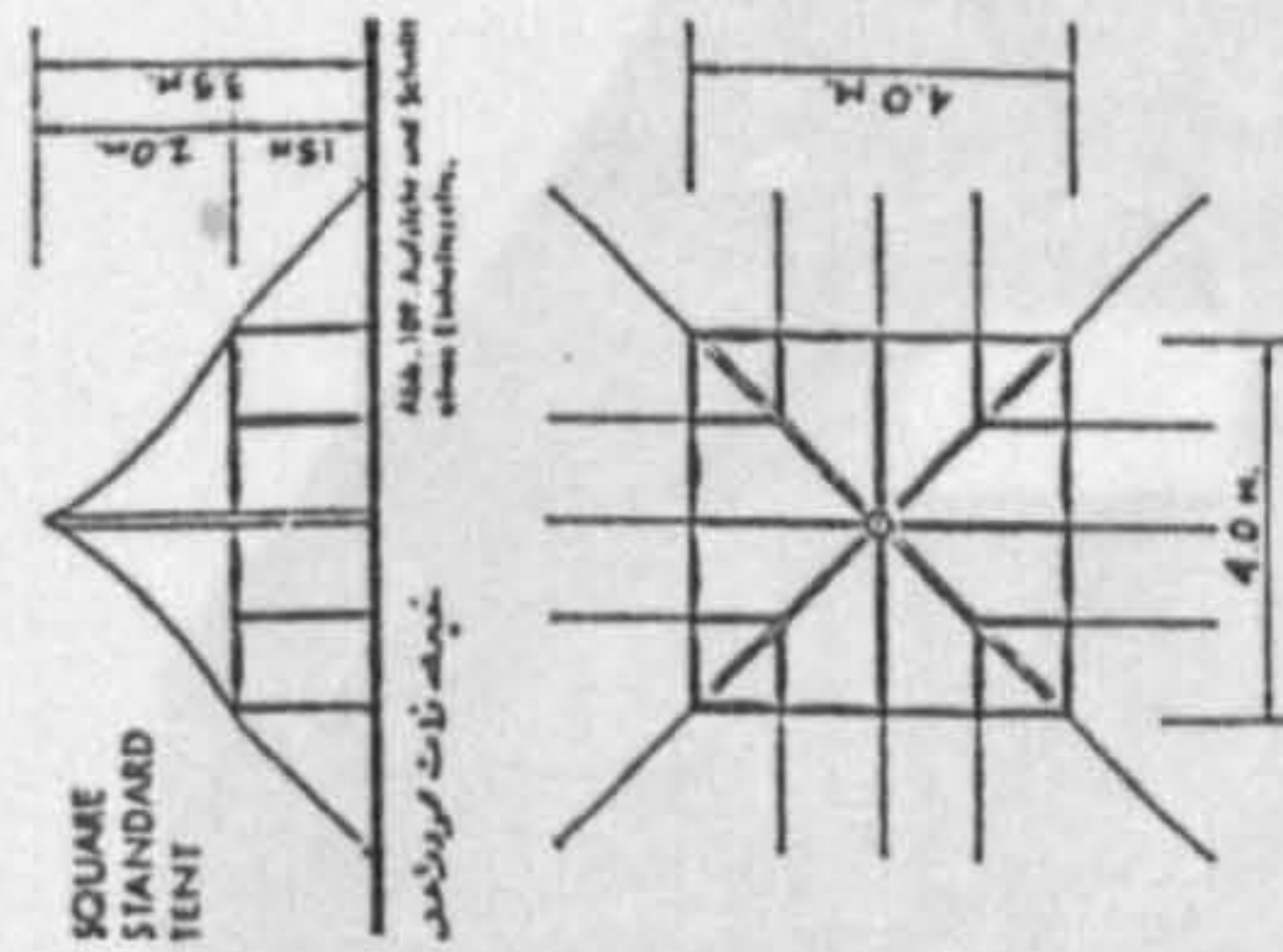


Fig 4-17 VIEW OF HAJJ TENTS (4)  
(An aerial photograph of different tent camps during the Hajj).

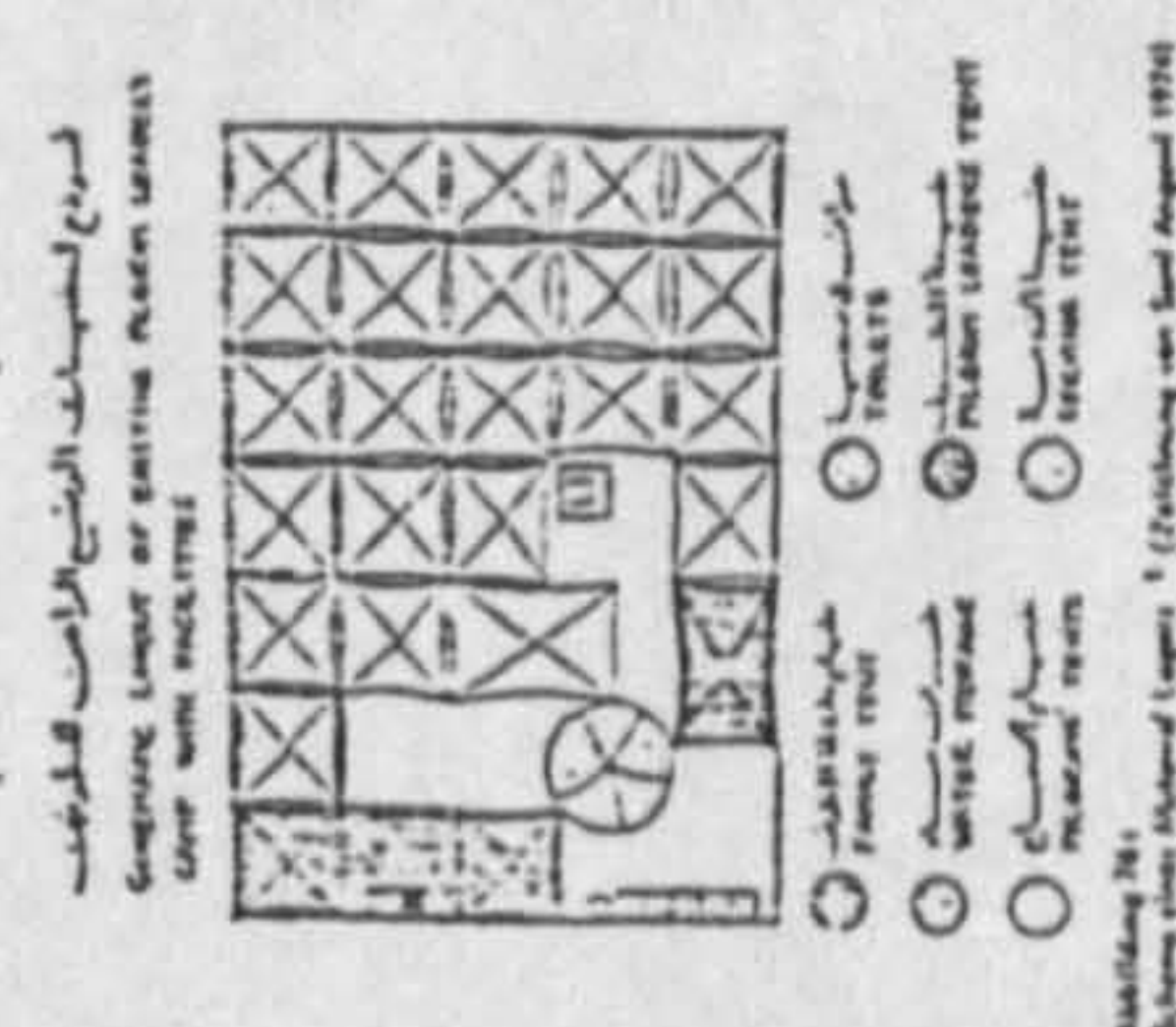
Source: Bodo Rasch, 1980(31), p.56.



Large tents for Assembly and accommodation



ARRANGEMENTS FOR BEDDING IN THE SQUARE AND THE ROUND STANDARD TENT



Typisches Lager eines Hajj Pilgers für etwa 600 Pilger in Arafat und Muna.  
Typical Hajj tent camp for about 600 pilgrims in Arafat and Muna.

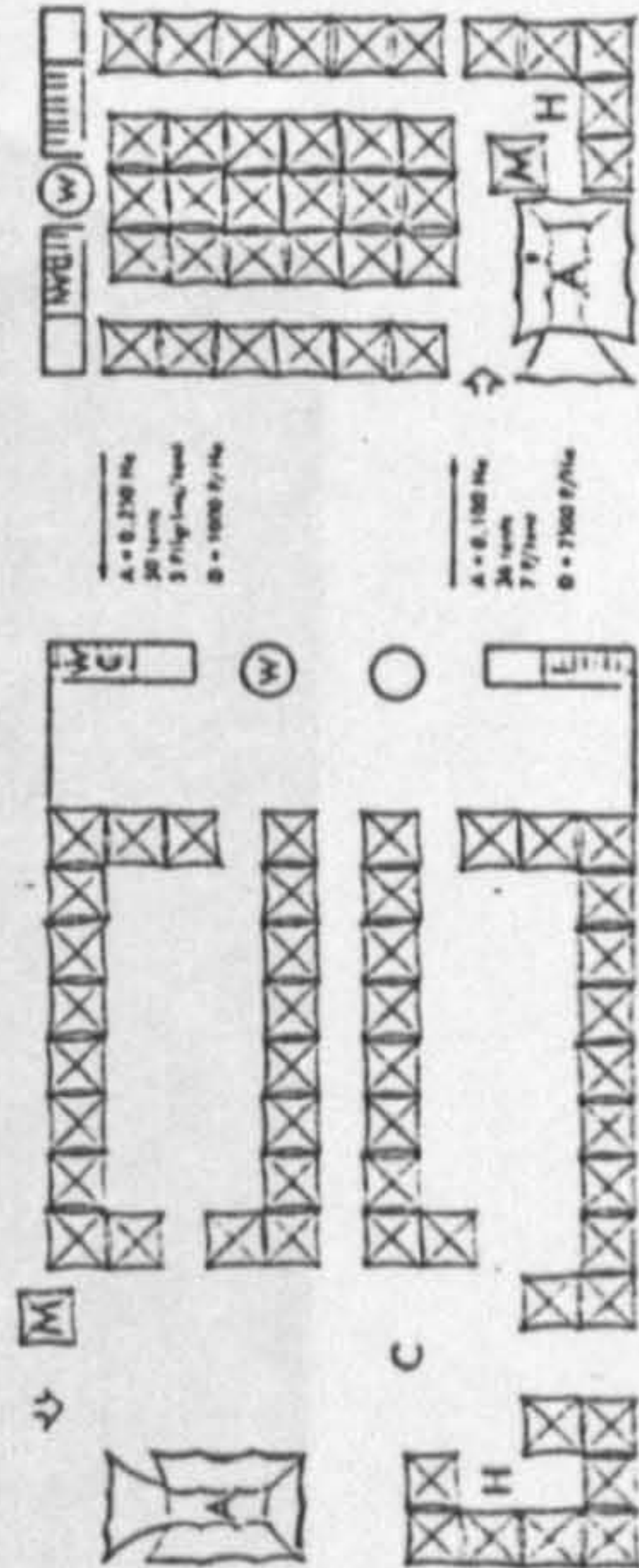
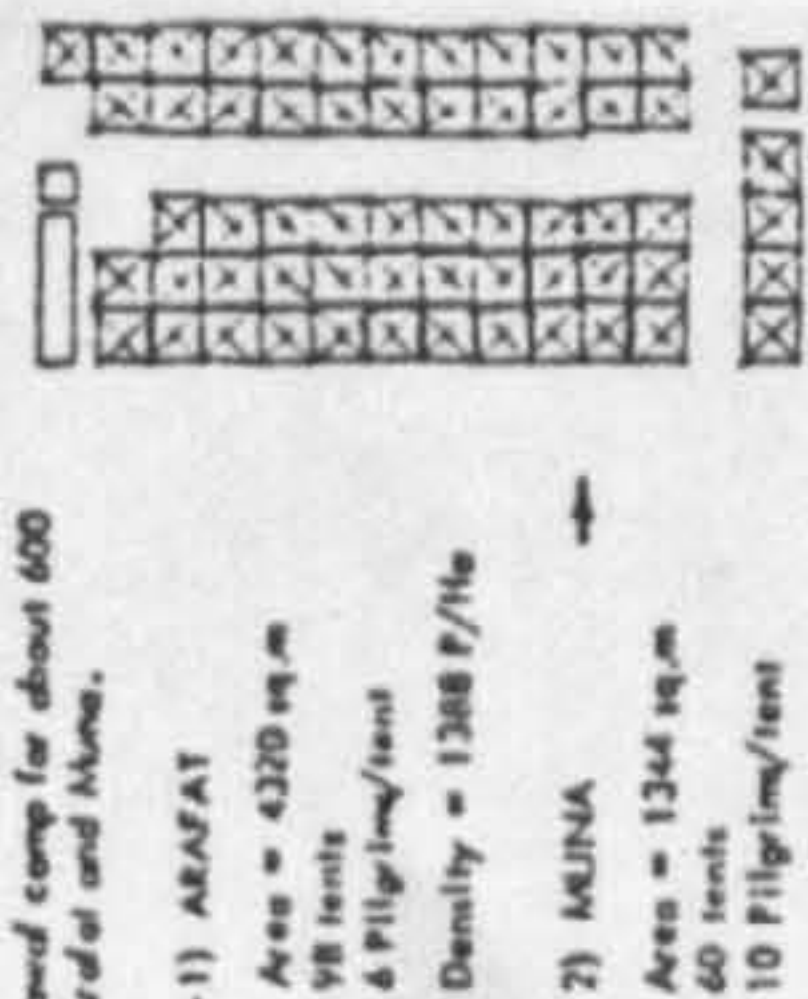


Abb. 77, 78, 79:  
Lager eines Hajj Pilgers für 250 Pilger.  
Camp of different quality, each accommodating about 250 pilgrims.

- A = Assembly tent (Versammlungszelt)
- M = Hajj tent
- H = Hajj tent
- C = Hajj tent
- W = Hajj tent

Fig 4-18 DETAILS OF HAJJ TENTS

Source: Bodo Rasch, 1980(31), p.64.





Fig 4-19 VIEW OF KING ABDULAZIZ UNIVERSITY'S SPORT CENTRE  
Source: Mimar, 1982<sup>(12)</sup>, p.1.

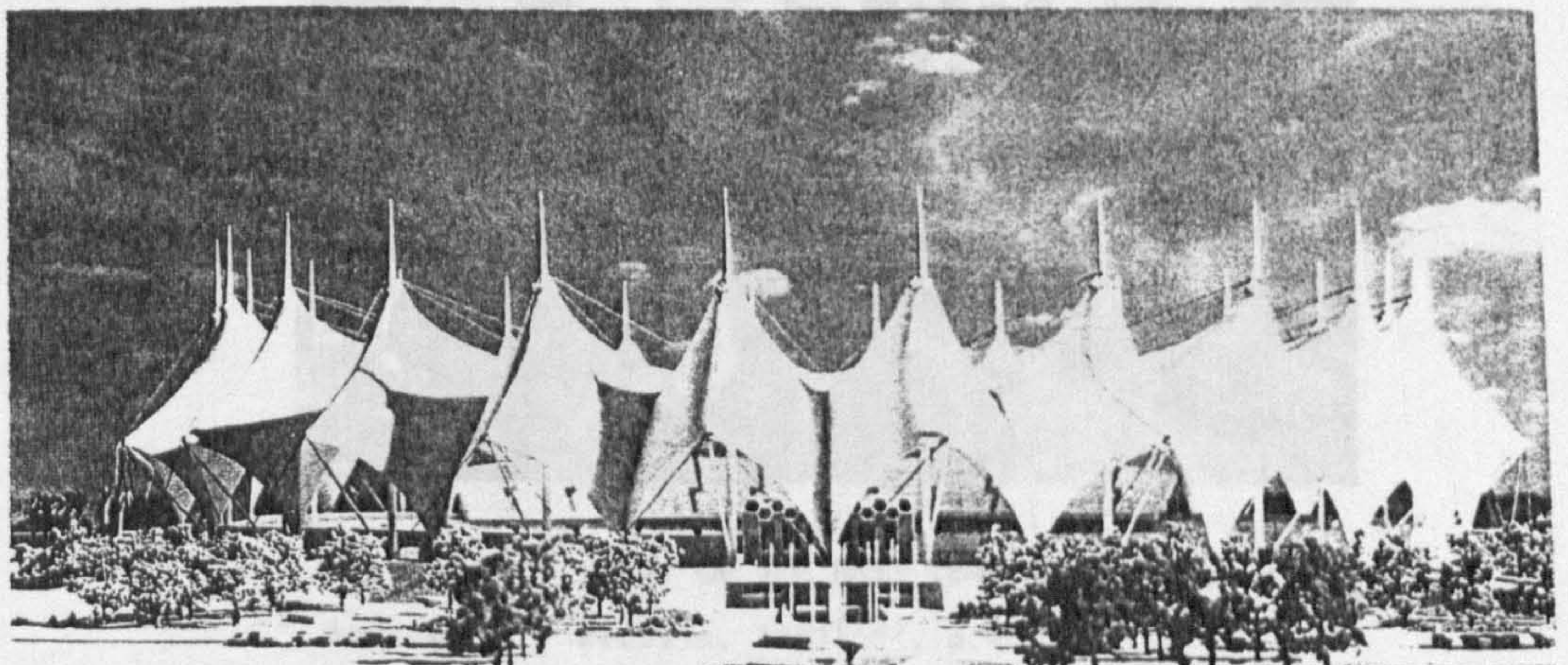


Fig 4-20 VIEW OF RIYADH INTERNATIONAL STADIUM  
Source: Saudi Arabia No. 2<sup>(41)</sup>, p.4.



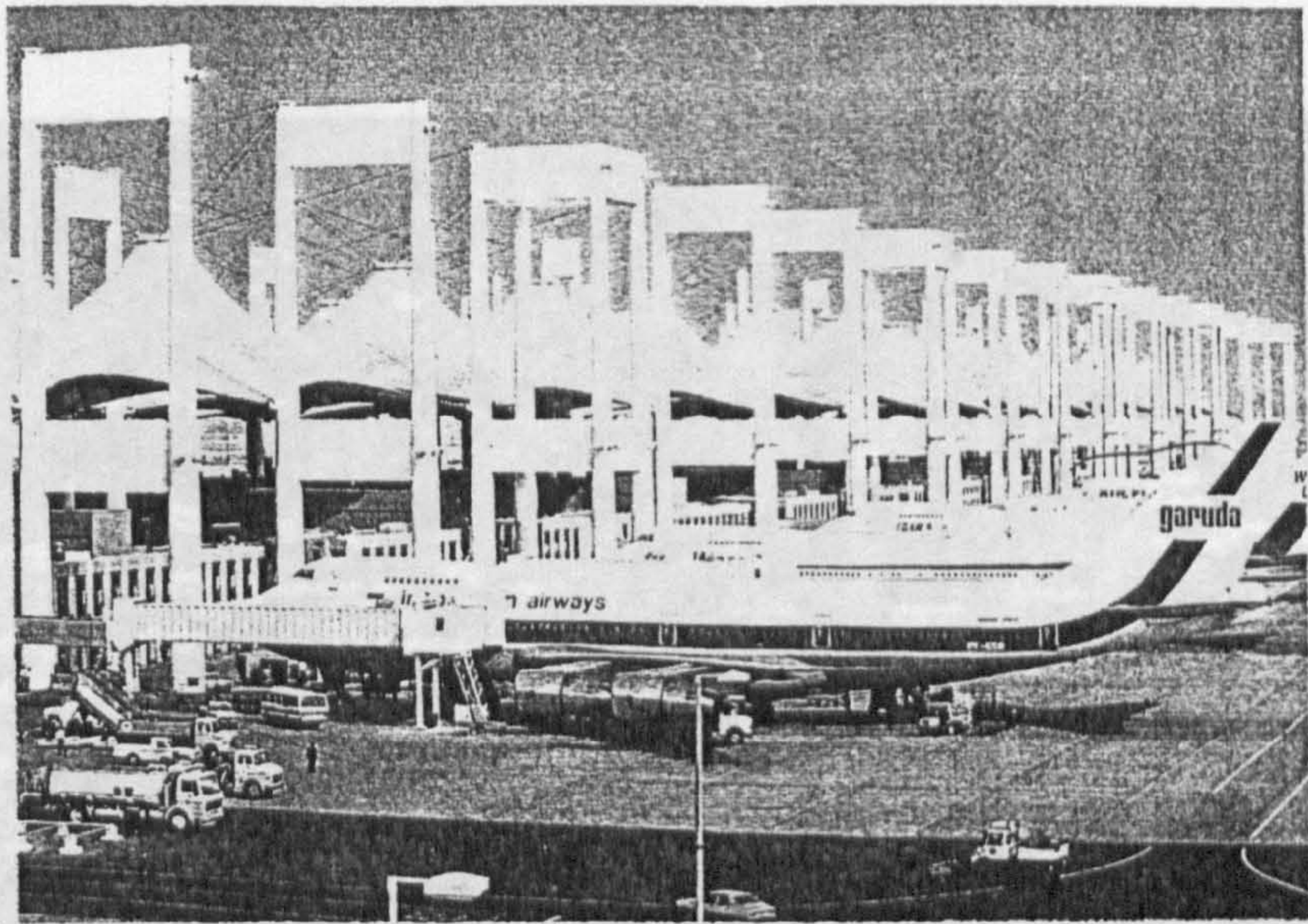


Fig 4-21 VIEWS OF THE HAJJ TERMINAL IN JEDDAH

Source: Prussin, 1982<sup>(12)</sup>, p.40.



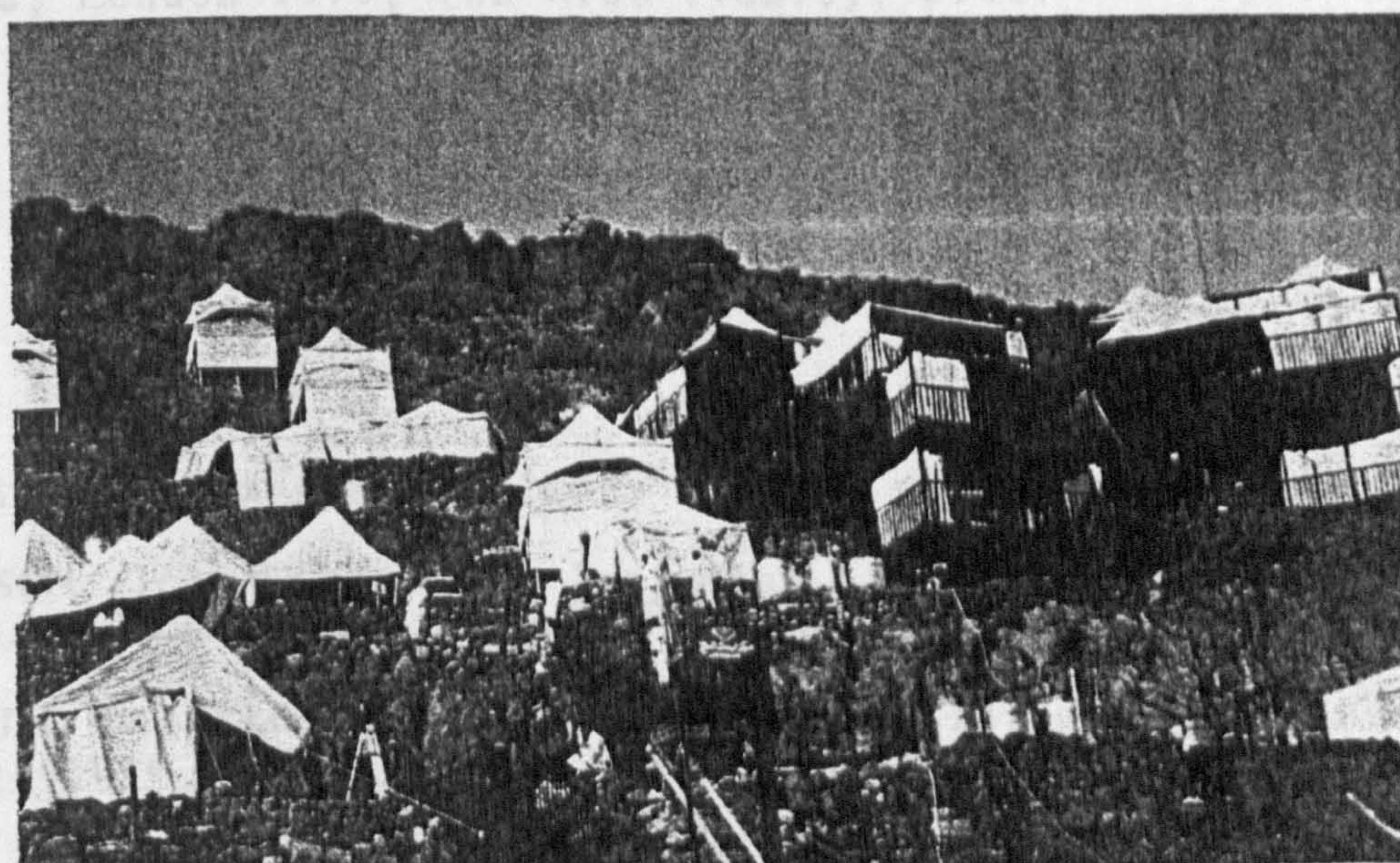
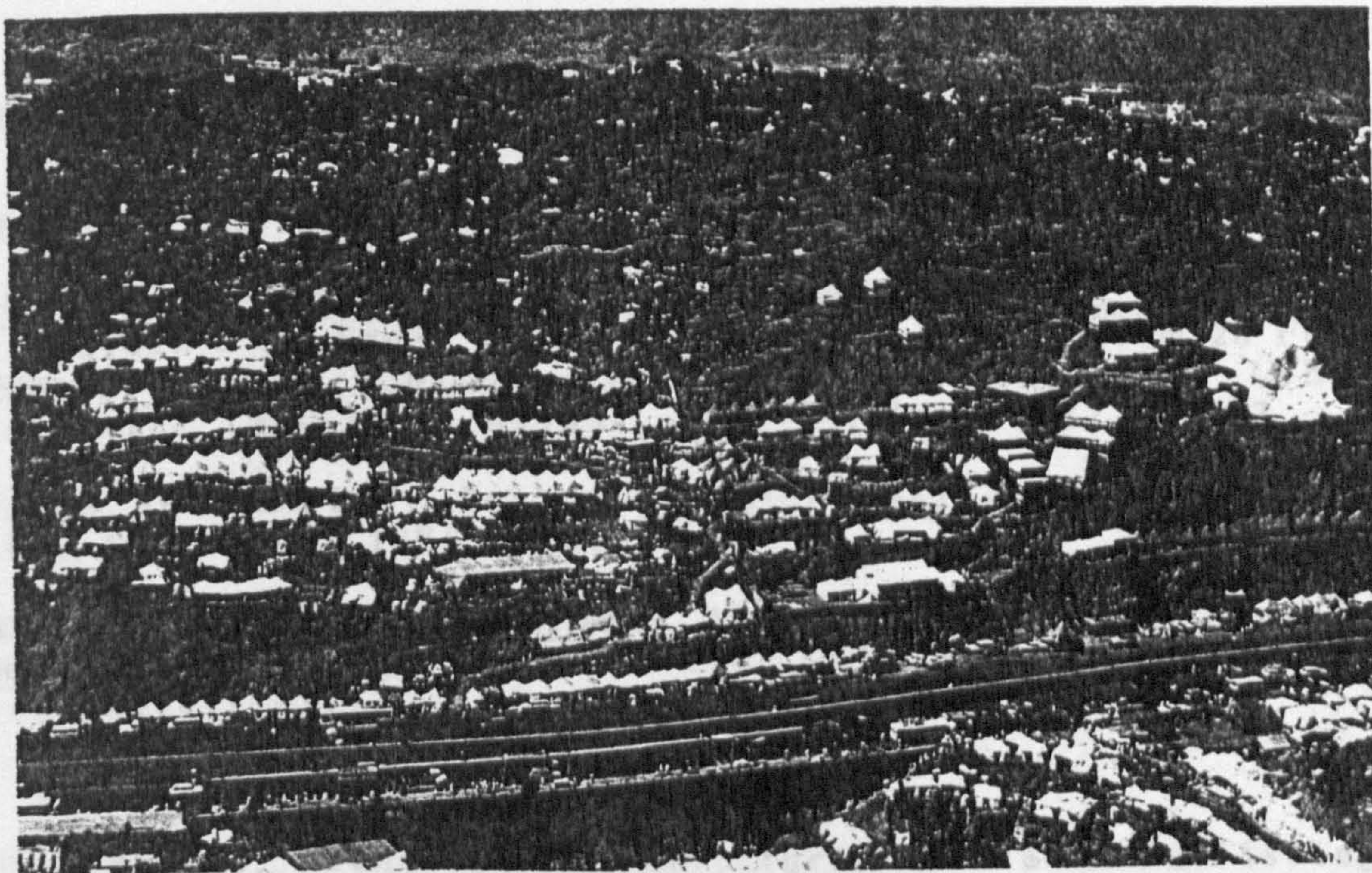


Fig 4-22 VIEW OF HAJJ RESEARCH PROJECT

Source: Ingawi<sup>(42)</sup>, p.17.



Footnotes: Chapter 4

1. KENDEL, Herman. Key element of the design of contemporary buildings that respect the Arab Muslim cultural heritage. The Arab City, its Character and Islamic Culture Heritage. (Serageldin & EL-Sadek ed.). Proceeding of symposium 28 Feb-5 March, 1981, Medina, Saudi Arabia. The Arab Urban Development Institute, Riyadh, Saudi Arabia, 1982, p.287.
2. EDITORS of Time-Life Books. Arabian Peninsula. Time-Life Books, Amsterdam, 1985, p.61.
3. MABBUTT, J.A., Desert Landforms, An Introduction to Systematic Geomorphology, Volume Two, The MIT Press, Cambridge, Massachusetts, 1977, p.1.
4. Op. cit (2) p.61.
5. DREW, Philip, Tensille Architecture, Granada Publishing Limited, London 1979, (an Arab riddle), p.41.
6. Ibid p.42.
7. FAEGRE, Torvald, Tents, Architecture of the Nomads, John Murray, London, 1979, p.12.
8. Ibid p.18.
9. Ibid p.7.
10. Op. cit (Ch. 2) (10), p.28.
11. THOMPSON, John Clandsley, Just Look At Living in the Desert. Macdonald Education, London, 1985, p.14.
12. PRUSSIN, Labelle, Tents, Lady of the Buildings, Mimar Architecture in Development. No. 4, April-June, 1982. Concept Media, Singapore, 1982, p.28.
13. Op. cit (2) p.77.
14. A WARM Tradition: The Coffee Ceremony Epitomises Arabic Hospitality. Saudi Arabia Volume 1, No. 4, Information Office, Royal Embassy of Saudi Arabia, Washington, Winter 1985, p.14.
15. Op. cit (1) p.287.
16. For more detail of the Hajj and its teaching in Islam see the following:



- (a) AL-JAZAERI, Ibn Baker. Minhaj AL Muslim, Dar Al-Fiker, Eighth Edition, 1976. Chapter 12, p.p.274-290 (in Arabic).
- (b) ALHARIRI, Abdulrahman. ALFiqh Alaa AL Mazahib ALArbaah,, Worship Section, Volume I, Dar AL-Fiker, The Hajj Book, p.p.631-715 (in Arabic).
- (c) ISLAHI, S.D. Islam at A Glance. Islamic publication Ltd., Lahore, Pakistan. The pilgrimage (Hajj), p.p.82-96.

17. See Chapter 6 about the City of Makkah.

18. The boundary of Arafat encompass 1368 ha. About 190 ha of mountainous area lies in the northeast. Arafat has two landmarks, one is the mountain of Mercy - Jabal al-Rahmah, the other is Namirah Mosque.

THE DEPUTY Ministry for City Planning. Makkah Region Comprehensive Development Plans, Master Directive Plans, Holy Environs Hajj Supplement. Project No. 208, Report 4, Shawal 1405 H. p.25.

19. Muzdalifah is located between Mina and Arafat, and is bonded by mountains. The area of Muzdalifah is about 963 ha - 656 ha of open area and 307 ha of mountainous area.

Ibid. p.25.

20. Mina is situated on the southeast of Makkah. Its smooth, flat area is bottle shaped plain lying between two ranges of mountains. The total area is about 812 ha, the plain areas covers 392 ha, while the rest (about 52%) is mountains.

Ibid. p.24.

21. HAMID, Abdul Wahid. Islam the Natural Way. MELS, London, 1989.

22. AL-KHAYYAT, Abdullah. The Muslim's Guide to Faith and Purification. Muslim World League. Makkah, Saudi Arabia. p.45.

23. The Holy Quran S.III 96-97.

24. HAJJ: The Pilgrimage to Makkah. Saudi Arabia. Volume 1 No. 1. Information office, Royal Embassy of Saudi Arabia, Washington, Spring 1984, p.15.

25. ANDRAE, Tom. Mohammed; the Man and His Faith. George Allen & Unwin Ltd., London, 1936 p.18.



26. In (1403) the pilgrims came from 99 countries.  
Abu Alfutooh, H.A., AL-Hassan, M.S. Internal Pilgrims, Hajj Research Center, Umm. AlQura University, Makkah, S.A. p.1 (in Arabic).
27. The first day in Mina is considered to be (Ead ALadha) the Feast of Sacrifice.
28. MAKKY, Ghazy Abdulwahed. Characteristics of Pilgrim Accommodation in Mecca and Recommendation for Improvements. Ph.D. Dissertation, Department of Geography, Michigan State University, U.M.I. Michigan, 1985. p.55.
29. The tents are not a duty of the Hajj, it is only as a shelter, people could perform the Hajj in their car or under a tree or any other form of shelter.
30. CRAGG, Kenneth Islam and the Muslim, Unit 20-21 The Open University Press, Manchester, 1978, p.57.
31. BODO RASH, Mohammed. The Tent Cities of Hajj, Institute of Lightweight Structures, University of Stuttgart, Germany, 1980, p.63.
32. See Chapter 6 for detail of Makkah's climate.
33. AL-GOHARI, O.M., Bedorash, M. Sheltering of Pilgrims: ALBENAA. No. 29-30, Riyadh June-September 1986, p.65.
34. Op. cit (31) p.64.
35. KHALIFA, Saida Miller. The Fifth Pillar, the story of a pilgrimage to Mecca and Medina. Exposition Press, New York, 1977. p.xiii.
36. KIDWAI, Mohammed Asif. What Islam Is? Academy of Islamic Research and Publications. Nadwat ul ULAMA. Lucknow, India, 1976, p.32.
37. Op. cit (31) p.63.
38. Op. cit. (5) p.42.
39. Op. cit. (31) p.112.
40. It is observed that a lot of advertisements in the local news paper for Hajj camps emphasise an air conditioning and modern accessories.  
  
OKAZ Newspaper No. 8724, date 14/11/1410, p.20.
41. TENTS - a new trend in Architecture. Saudi Arabia, Volume 3, No. 2. The Information Office, the Royal Embassy of Saudi Arabia, Washington, Summer, 1986.



42. For more information see the following:

- a) INGAWI, Sami, Studies of Hajj Seasons 1401 A.H. Hajj Research Centre, Umm AL Qura University, Makkah, S.A. p.17.
- b) INGAWI, Sami, Studies of Hajj Season 1402 A.H. Hajj Research Centre, Umm AL Qura University, Makkah, S.A.

43. AL-RASHID, S.A. Al-Rabadhah. King Saud University, Riyadh, p.165.

44. Op.cit Chapter 2 (8).

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46. MINISTRY of Information, Pilgrimage to Mecca. Sud Publishers, Tunis, 1978.

47. MINISTRY of information, The Holy Sites. Falcon Press, Production Italy.



## CHAPTER 5

### RIYADH HOUSES

- 5 . 1            GENERAL VIEW
- 5 . 2            CLIMATICAL REFERENCE
- 5 . 3            ACTIVITIES REFERENCE
- 5 . 4            CULTURAL REFERENCE
- 5 . 5 .          MATERIAL REFERENCE
- 5 . 6            RIYADH HOUSES ASSESSMENT



## 5.1 GENERAL VIEWS

Riyadh is the capital city of the Kingdom of Saudi Arabia<sup>1</sup>. All political, diplomatical, commercial and internal affairs are centralised in Riyadh.

### Physical Characteristics<sup>2</sup>:

- Geographical location. (Fig 5-1, 5-2)

Riyadh is located on 24° 42' of altitude and 46° 42' longitude.

- Regional setting.

Riyadh is approximately the centre of the country. It is on the main roads to different parts of the Kingdom.

- Climate.

Hot-dry in summer, in which temperatures reach 45°. Cold in winter in which low temperatures reach 5°. The average temperature is 25°. Rain reaches 134mm, and the average humidity is 35%.

- Topography and Geology.

Riyadh is located on part of Najd Plateau 600 meters above sealevel. Its sands consist of sedimentary rocks, limestone and some other materials which are used in glass manufacturing. The city area in 1407 AH reached 49550 hectares.

### History<sup>3</sup>:

- Riyadh was found on an area which used to be the land of Hijr the capital of Yamamah. In 1240 it was the capital of the first Saudi period, and in 1319 King Abdulaziz recaptured the city to be the centre of his Kingdom (Fig 5-3).

### Socio-economic<sup>4</sup>:

- Population:

In 1407 the population was about 1,417,000 cap. The density of population averaged at 28.6 persons/hect.



## Riyadh Traditional Houses

Traditional Urban pattern of Riyadh is identified by solid masses of connected houses through which roads cut to provide access<sup>5</sup>. Spaces are carefully organised in a sequence progressing from public open spaces, to private roads leading to houses and courtyards within.

The dense development is linked with narrow, winding streets which continuously change direction. The streets are curved and angular and sometimes culminate in dead-ends or open into public spaces. A visitor very easily loses his sense of direction in such alleyways. However for a person living in the development, the barahas, the curves, angles of the streets, and the arched decorative entrances all become point of a reference system that is easily comprehended. (Fig 5-4, 5-5, 5-6, 5-7, 5-8 and 5-9)

### 5.2 CLIMATICAL REFERENCE

In hot-dry hinterland the courtyard houses are the solution to the severe weather. The house is a container for people who desperately need it in climate.

The courtyard functions in three regular cycles, taking the advantage of the diurnal range of temperature during summer. (Fig 5-10, 5-11, 5-12 and 5-13)

During the first cycle, the cool night air descends into the courtyard and fills the surrounding rooms, walls, floors, columns, roofs, ceilings, and furniture. They are cooled at night and remain so until the late afternoon. The courtyard loses heat by irradiation to the sky.

During the second cycle, around noon, the sun directly strikes the courtyard floor. Some of the cool air begins to rise and also leaks out of the surrounding rooms. This action sets up



convection currents in the rooms which may afford further comfort. The courtyard now begins to act as a chimney. At this hour the ambient temperature is very high outside.

During the third cycle, the courtyard floor and the inside of the house get warm and further convection currents are set up by the late afternoon. Most of the cool air trapped within the rooms spills out by sunset.

In the winter colder months, doors and windows are shuttered, and the house keep warm during the cold nights from the reradiated heat that is stored in its thick adobe structure.

The ground floor has massive walls to provide thermal stores. Thick walls do not permit the external heat to penetrate to the inside of the house. The adobe walls are excellent insulators, and the time-lag for an external wall of average thickness may be as much as twelve hours.

Three out of four external walls on an average are party walls; thus the house remains enclosed on all sides and is insulated from heat gain during the day.

In multi-storey courtyard buildings, the courtyard acts mainly as a ventilation shaft and may help bring adequate daylight to the upper floors of the building only.

The neighbourhood as a larger unit provided certain elements which also reflected the response to the harsh climate of Riyadh. Compactness by which buildings were adjacent to each other in a compact form. This reduces the surfaces which are facing the direct sun.

Narrow Roads, these narrow roads gave shade to the pedestrians and forced the high dusty wind to lose its intensity helping cool the narrow winding streets.



### 5.3 ACTIVITY REFERENCE

The family in Riyadh as any other family in Saudi Arabia practice the daily life inside the house. The women are the focal point of activities in the house. All rooms front onto the courtyard, which is shaded during the day but open to the sky at night. (Fig 5-14, 5-15, 5-16 and 5-17)

The elements of the house are as follows:

- Single entrance
- Solid wall in front of entrance
- Small openings onto the street, mainly in upper floors
- Large openings onto the courtyard
- Two staircases, one next to the entrance for men, the other towards the back of the family.
- Store room at the ground level for grain and other foods
- Store room at the upper level for bedding as sleeping takes place on the roof in certain seasons
- Kitchen is on the ground floor
- Toilets are also located in the ground floor

The neighbourhood also provided the means by which people enjoyed certain activities outside their houses. The cul-de-sac provided the sense of security to the people who live in this particular area. The road network encouraged the residents to move by foot and reach different areas such as the Mosque or Suqe by the different shady routes which were provided. (Fig 5-18, 5-19, 5-20 and 5-21)

### 5.4 CULTURE REFERENCE

The hard nature of the land, the hot dry climate of the area, the hostile environment of the tribes, and the privacy requirement of the family produced a form of house which is known as the courtyard house.



Thick adobe walls act as above-ground earth shelter while the courtyard provides the necessary daylight and air change. Courtyard houses, when grouped together sharing as many as three walls with each other with only narrow streets in between, create an environmentally consistent solution. A community where neighbours share these walls necessarily develops its own intimate life style<sup>5</sup>. A decorative entrance to the house is placed in the wall of the facade to enable each house to be identified.

### 5.5 MATERIAL REFERENCE

The courtyard houses may be looked upon as earth sheltered spaces for living. Thick adobe walls act as above-ground earth shelter while the courtyard provides the necessary daylight and air-change.

The houses are constructed on a foundation of sand or lime-stone, making a continuous wall about a meter above and below ground. The walls are of solid mud brick, more than half a meter thick at the ground level and tapering inward at higher level. Flat floors and roofs are made by laying heavy tree trunks and branches stripped of bark across the space between walls and spanning these with sticks, upon which is laid woven palm-leaf matting covered with a thick layer of mud. (Fig 5-22, 5-23, 5-24 and 5-25)

### 5.6 RIYADH HOUSES ASSESSMENT

The house as a unit formed an envelop which contained and protected several needs of the living for the people who settled in it. The internal space (courtyard) provided the air and light shaft, also the social space in which the family practiced their daily life activities. The use of local material also reflected the knowledge of the people in managing their resources and the



understanding of the different ways in which the insulation factor plays a major role. It could be considered that the different concepts of Riyadh traditional houses represent the best solution for the hot-dry areas. The neighbourhood as a whole also presents the same idea.

These houses used to be the accommodation of Riyadh population, but now it is totally different. Most of these houses are not used as they used to be. Through observation during the field trip<sup>6</sup> to the neighbourhoods of old Riyadh it could be concluded that the original people are not living any more in these houses. Foreign labours (Pakistani, Indian, Yemeni, etc.,) are noticeable in these neighbourhoods.

Some of the houses are at the stage of deterioration, there was no signs of maintenance and they present a hazardous situation for children and pedestrians.

The new residents do not understand the original micro-climate of the traditional houses<sup>7</sup>. Air-conditioning units were fitted into the windows and walls of the house. Alterations are happening inside the houses by putting new partitions, doors and electrical devices.

The neighbourhood quietness also had been affected by the noise of vehicular traffic. The heat of the air generated from air-conditioning, cars and asphaltting the streets affected the life in this neighbourhood. New roads required the demolition of traditional houses.

New housing and commercial project was constructed in this traditional neighbourhood. Traditional houses were demolished to prepare the site for the project. Now, a high-rise building stands up to 30 storeys high in this neighbourhood. This project destroys the traditional zoning of the neighbourhood.



As a result of this project, the terraces of the traditional houses have lost their function since their privacy is invaded<sup>8</sup>. (Fig 5-26, 5-27)

The traditional neighbourhood stands now as a page of the past. It is left for those who study its different elements to use them in their present and future designs. New industry could be developed (for example the mud industry)<sup>9</sup> to produce building materials from this traditional context.



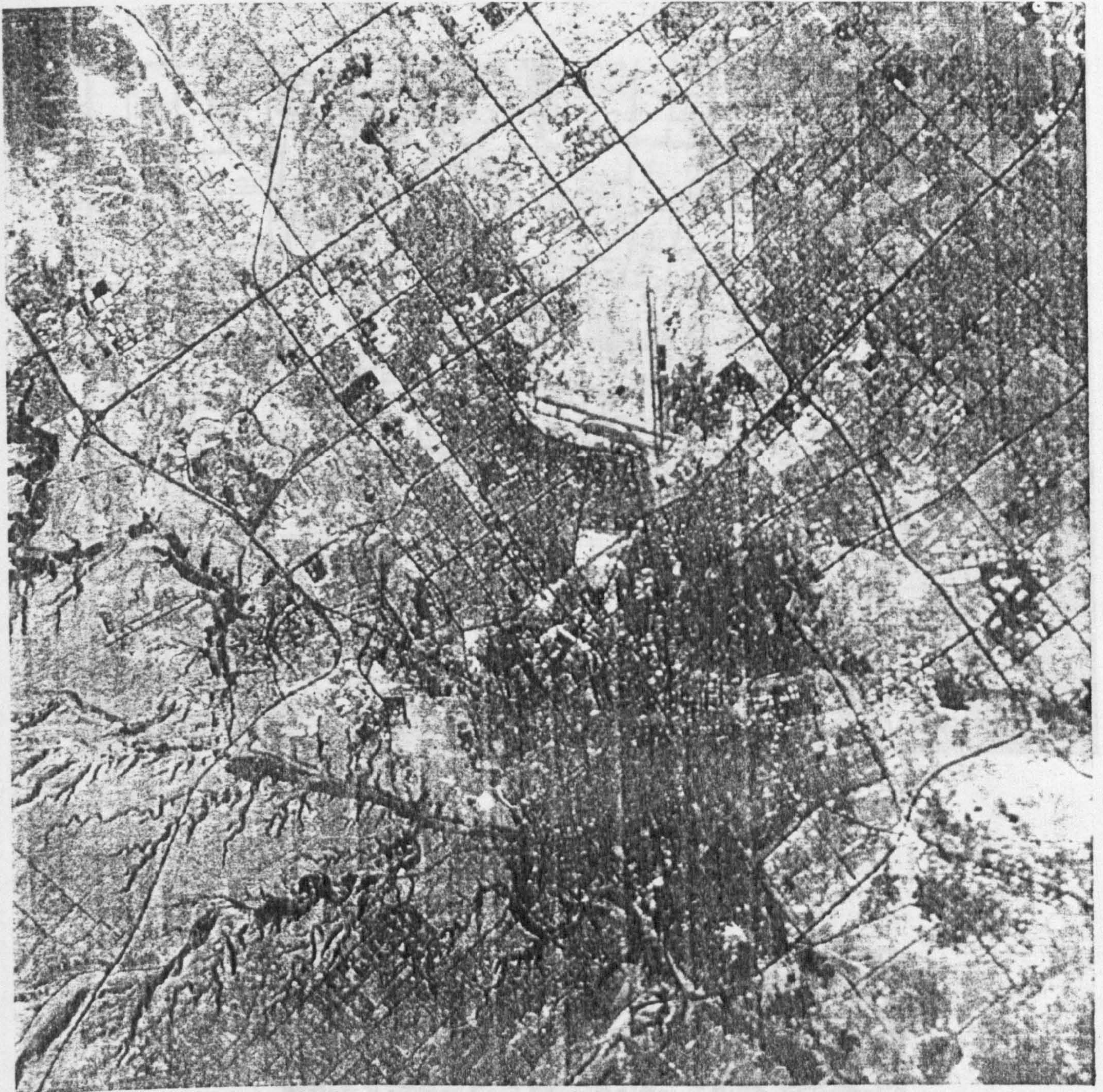


Fig 5-1 RIYADH CITY  
(A Satalite Photograph of Riyadh City).

Source: King Abdulaziz City for Science and Technology,  
Riyadh.





Fig 5-2 MAP OF RIYADH CITY

Source: Zaki Farsi, Jeddah.

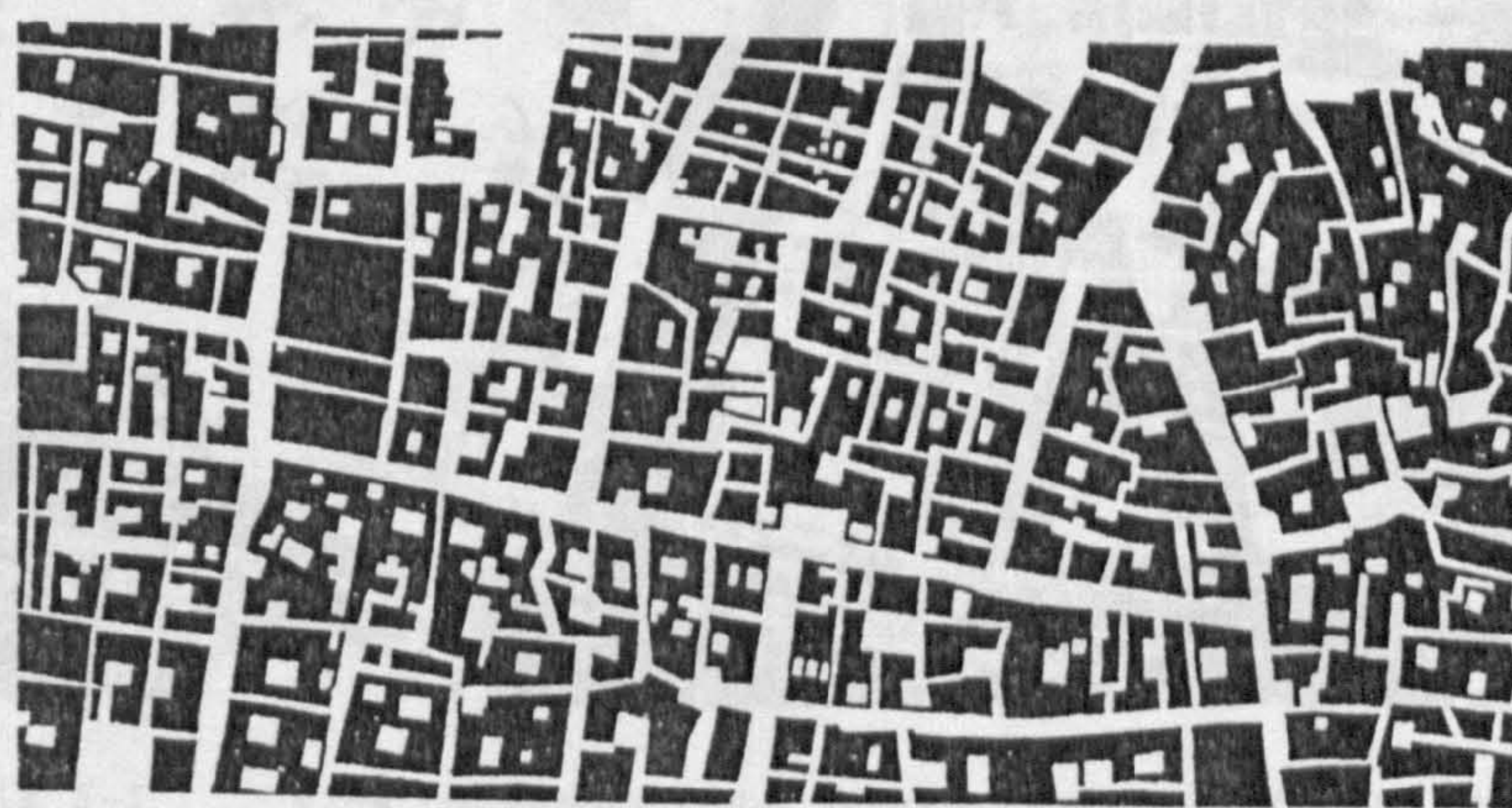


Fig 5-3 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN RIYADH

Source: Daghistani, 1985, p.129.





Fig 5-4 VIEW OF TRADITIONAL NEIGHBOURHOOD IN RIYADH (1)

Source: Author (A.S. Alafghani).

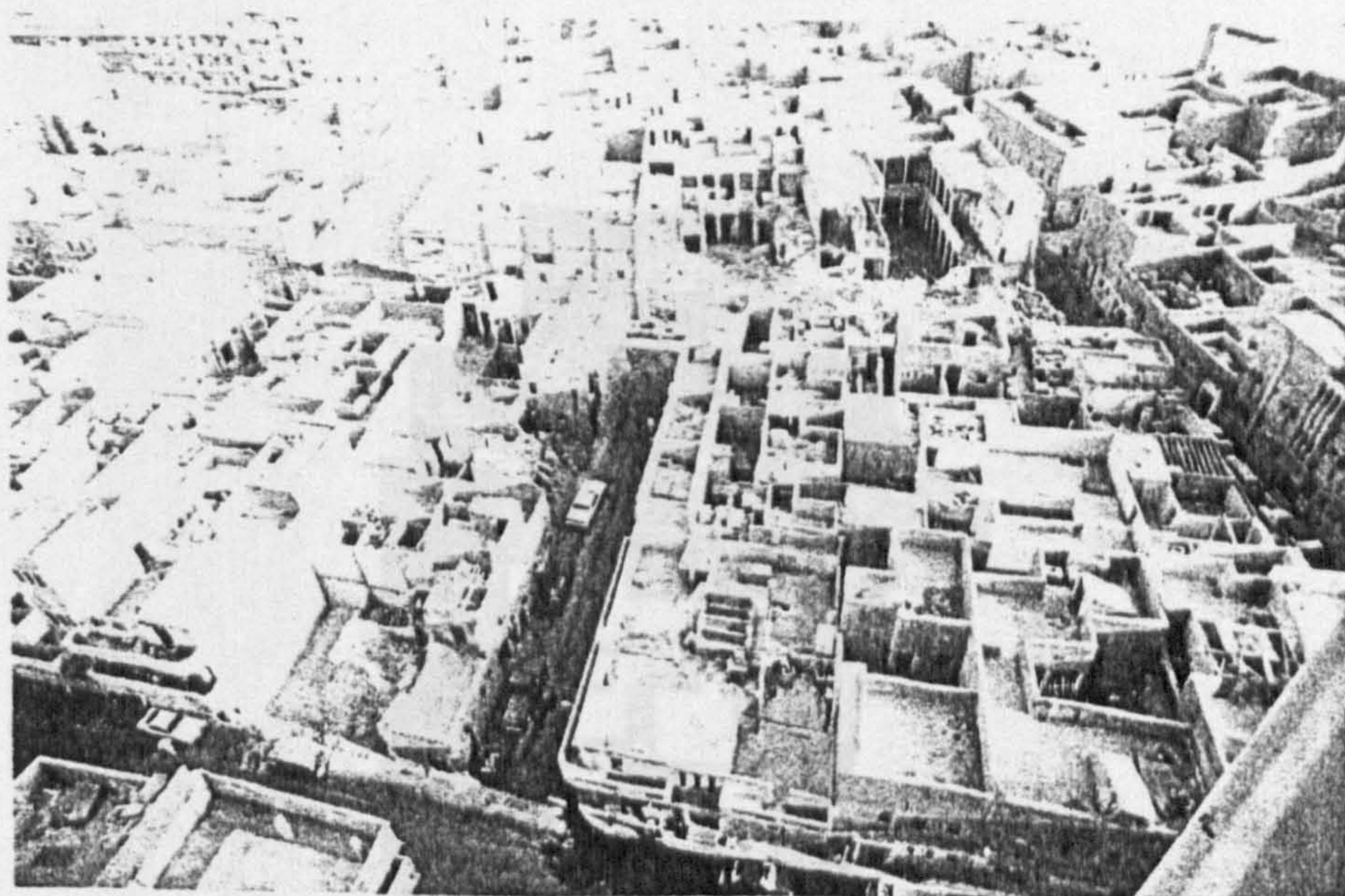


Fig 5-5 VIEW OF TRADITIONAL NEIGHBOURHOOD IN RIYADH (2)  
(Courtyards are in most houses).

Source: Author (A.S. Alafghani).



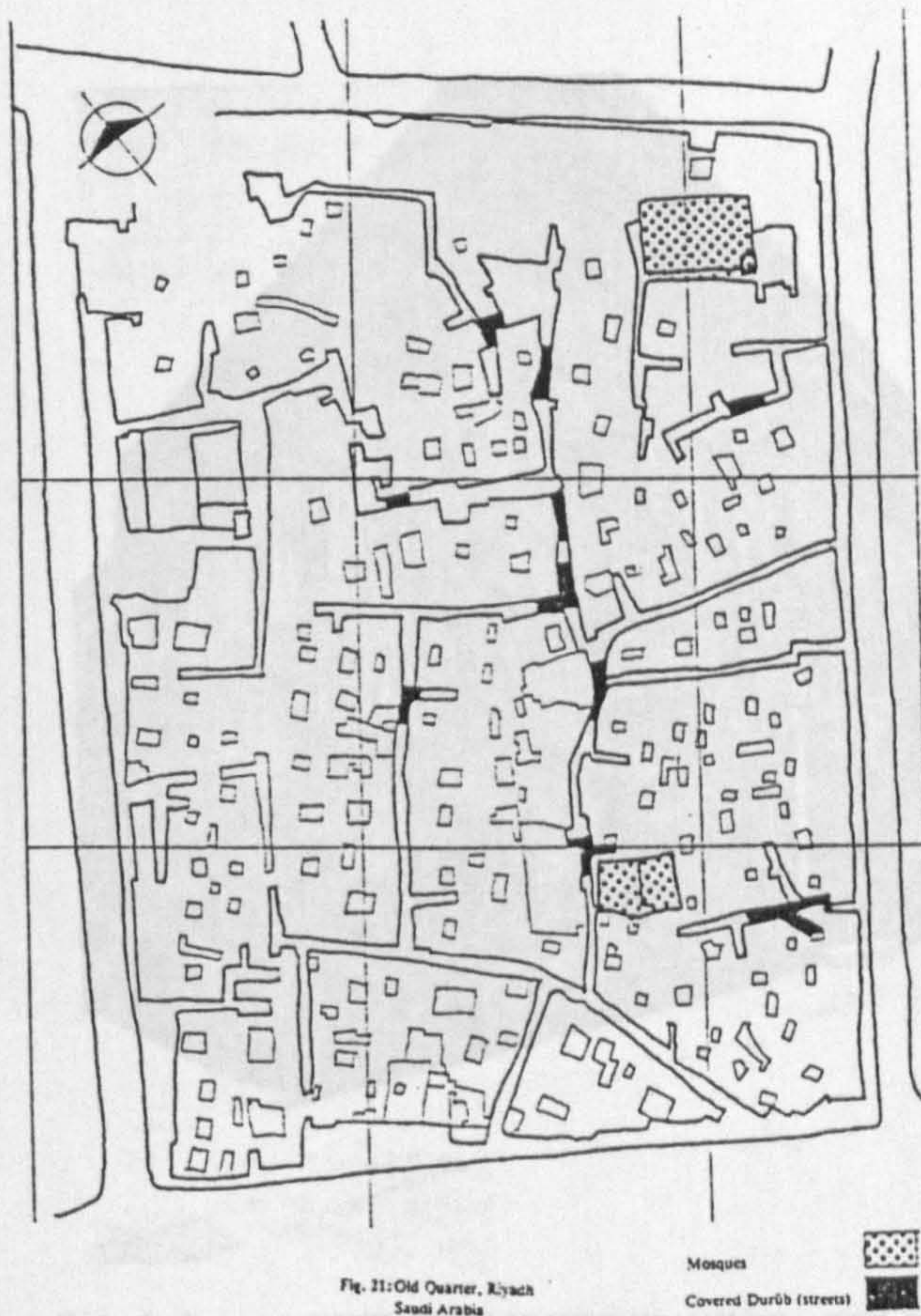


Fig 5-6 OLD QUARTER, RIYADH  
Source: Fadan, Yousef, 1983, p.316.

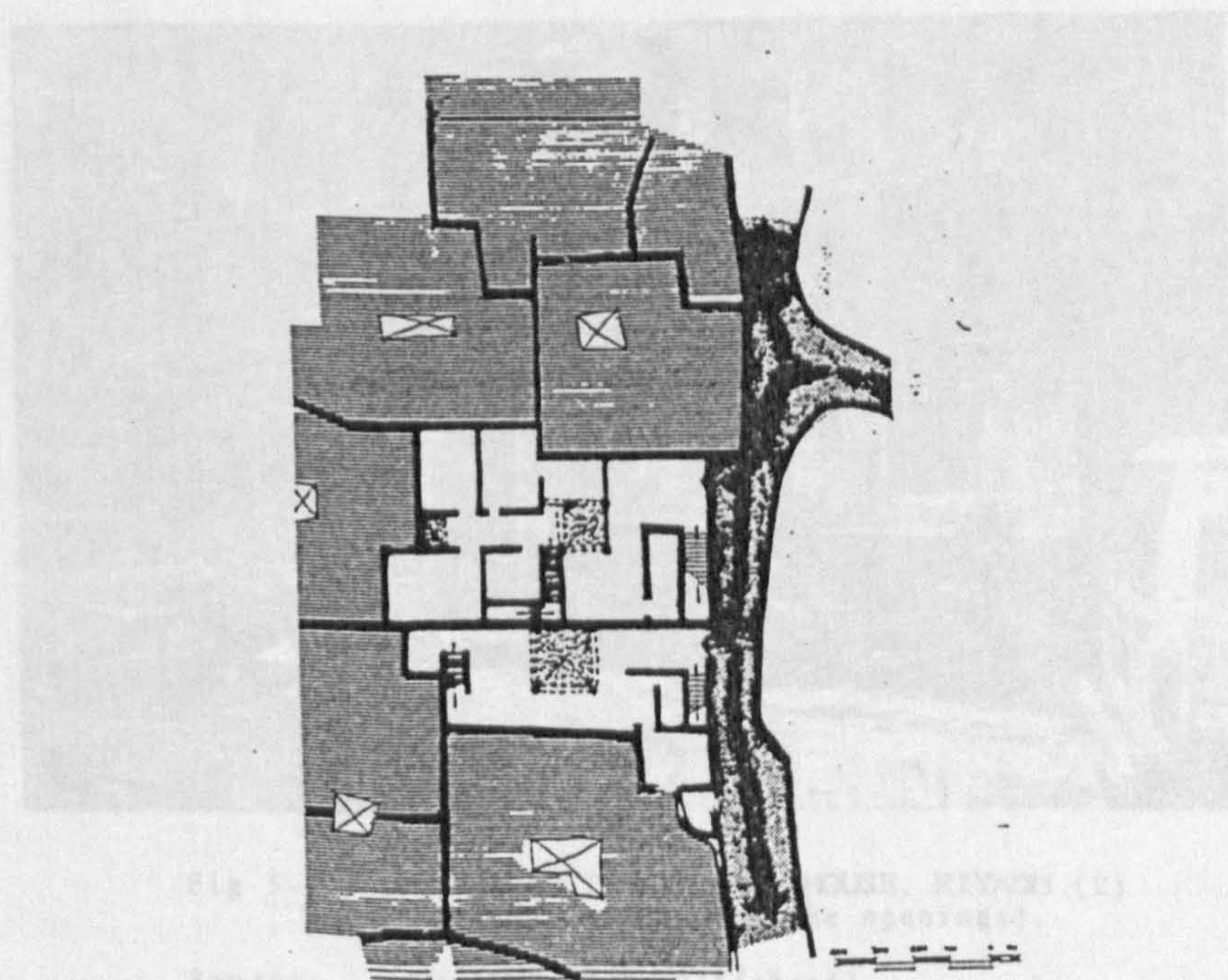


Fig 5-7 CLUSTER OF HOUSES, RIYADH  
Source: Mousalli and others, 1977, p.25.



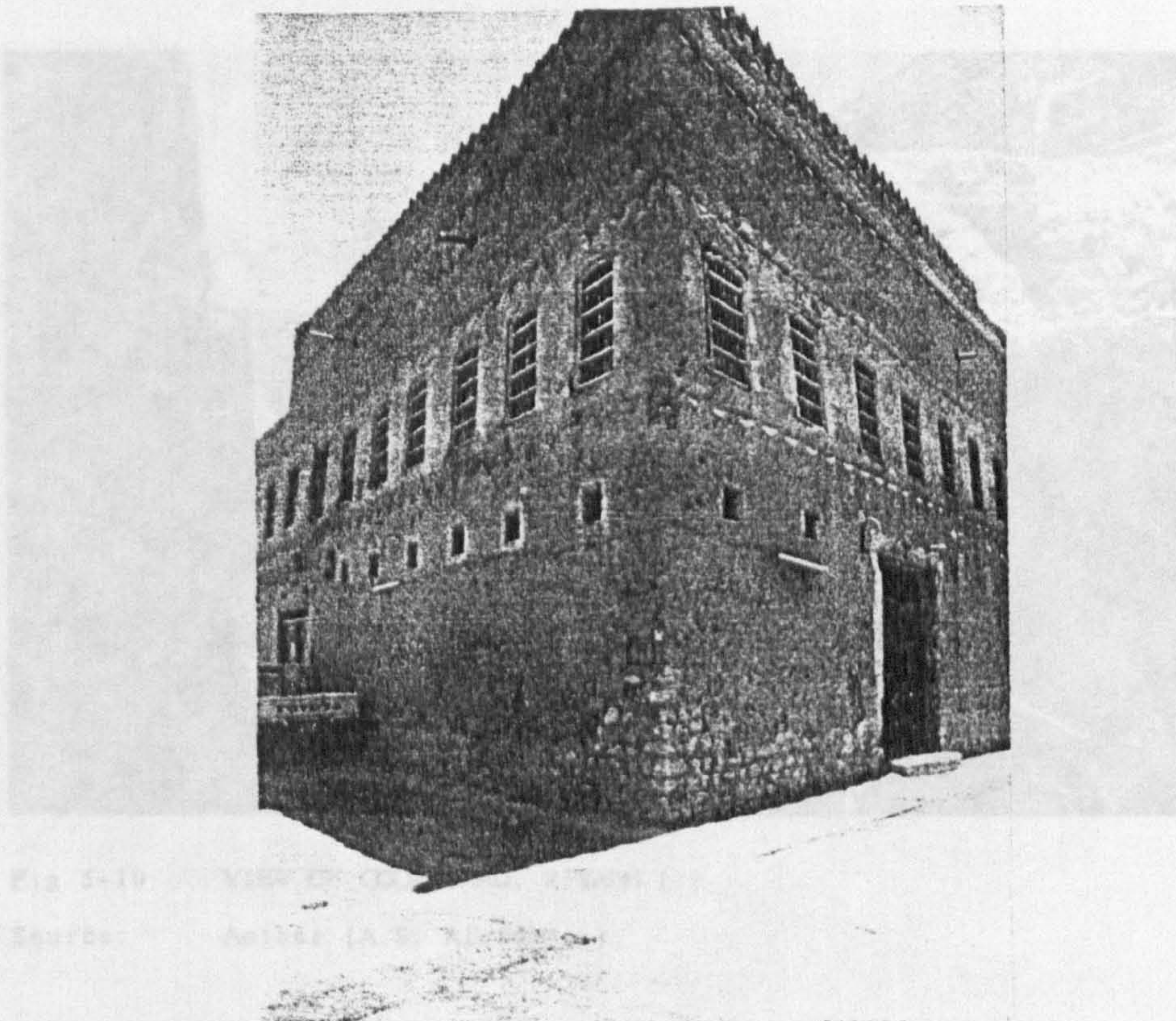


Fig 5-8 VIEW OF TRADITIONAL HOUSE, RIYADH (1)  
(Small opening in ground floor).

Source: Author (A.S. Alafghani).

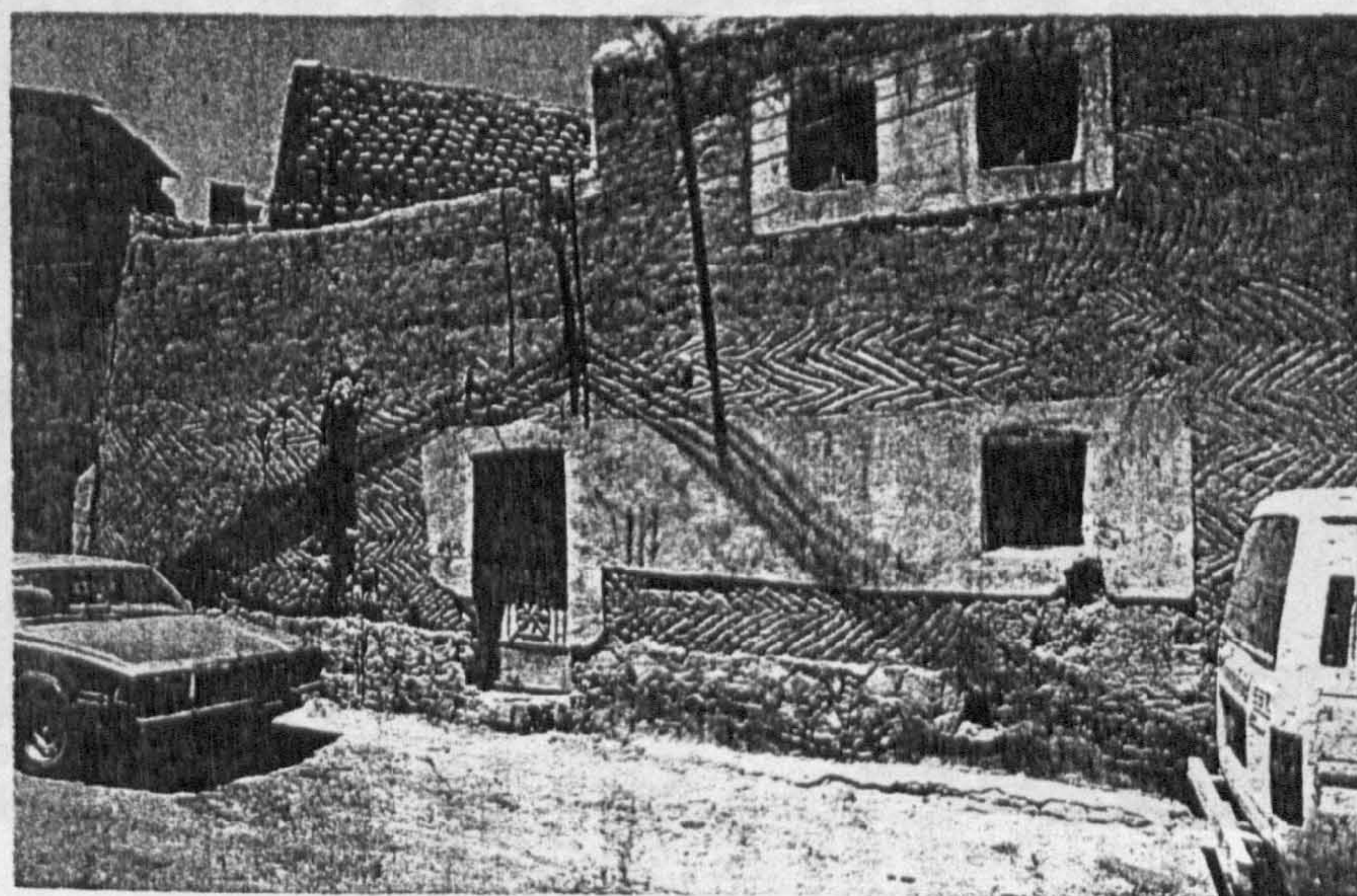


Fig 5-9 VIEW OF TRADITIONAL HOUSE, RIYADH (2)  
(Plastering around the openings).

Source: Author (A.S. Alafghani).



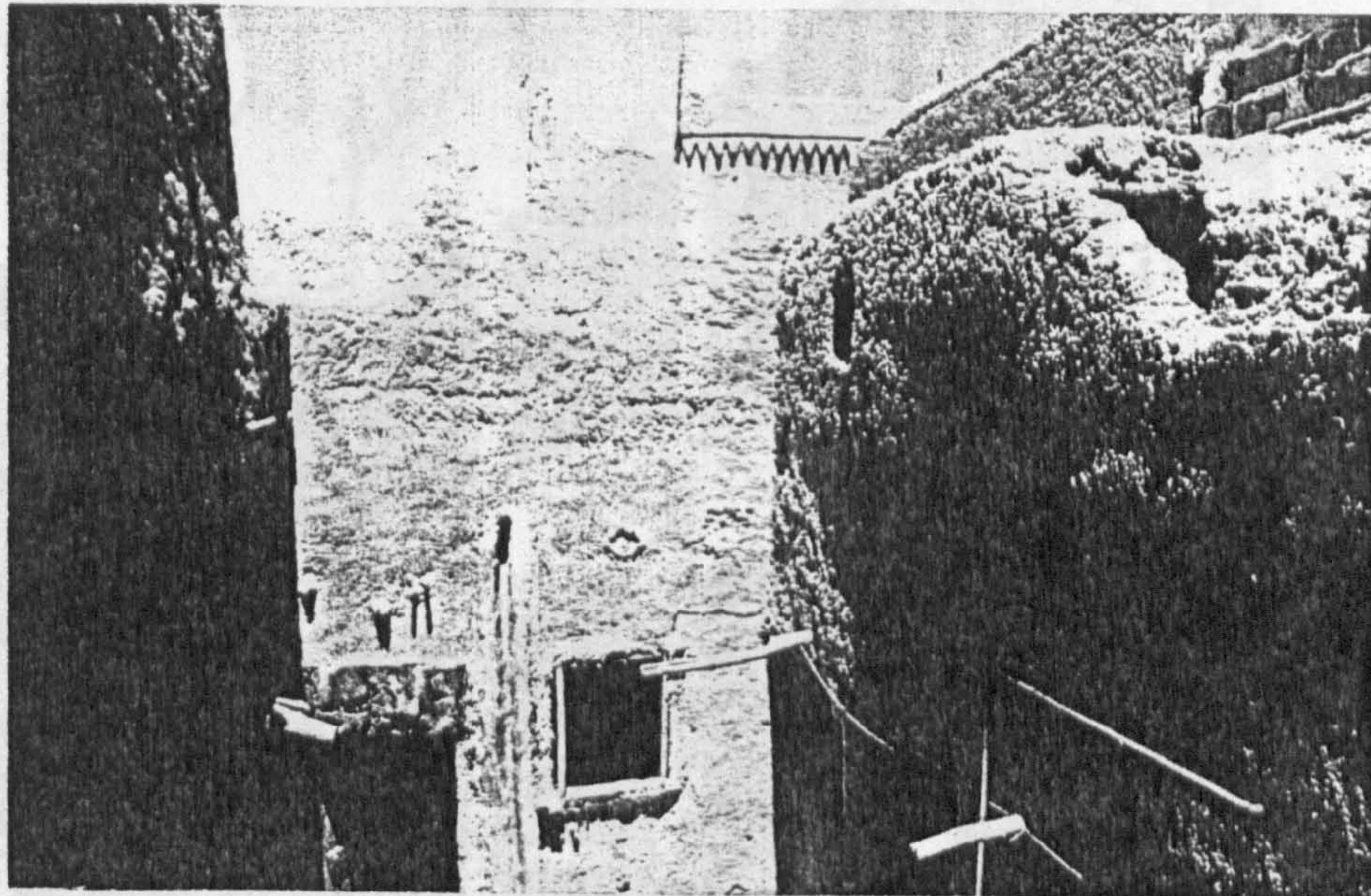


Fig 5-10 VIEW OF COURTYARD, RIYADH (1)

Source: Author (A.S. Alafghani).

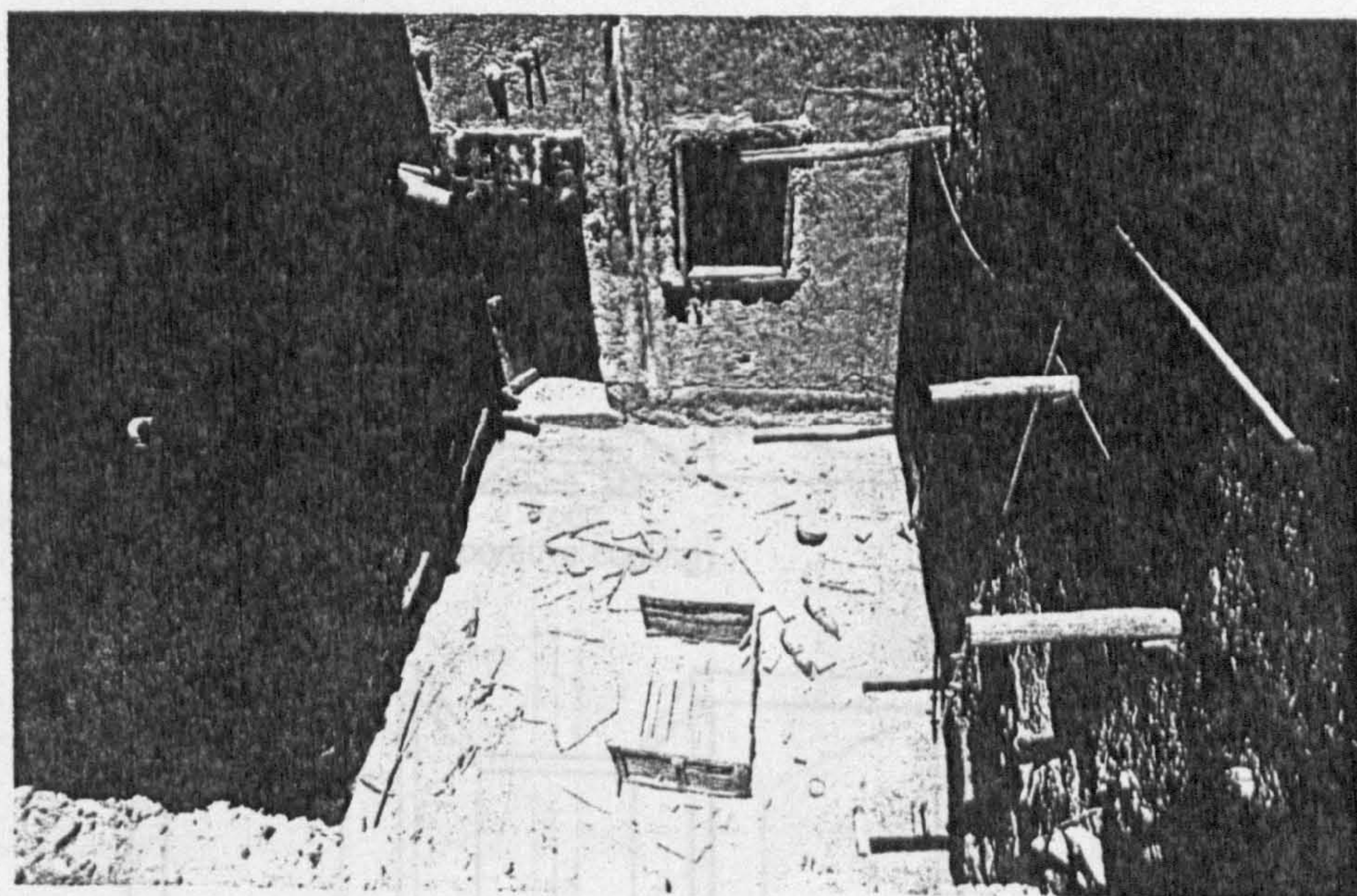


Fig 5-11 VIEW OF COURTYARD, RIYADH (2)  
(Wood beams out of the walls).

Source: Author (A.S. Alafghani).



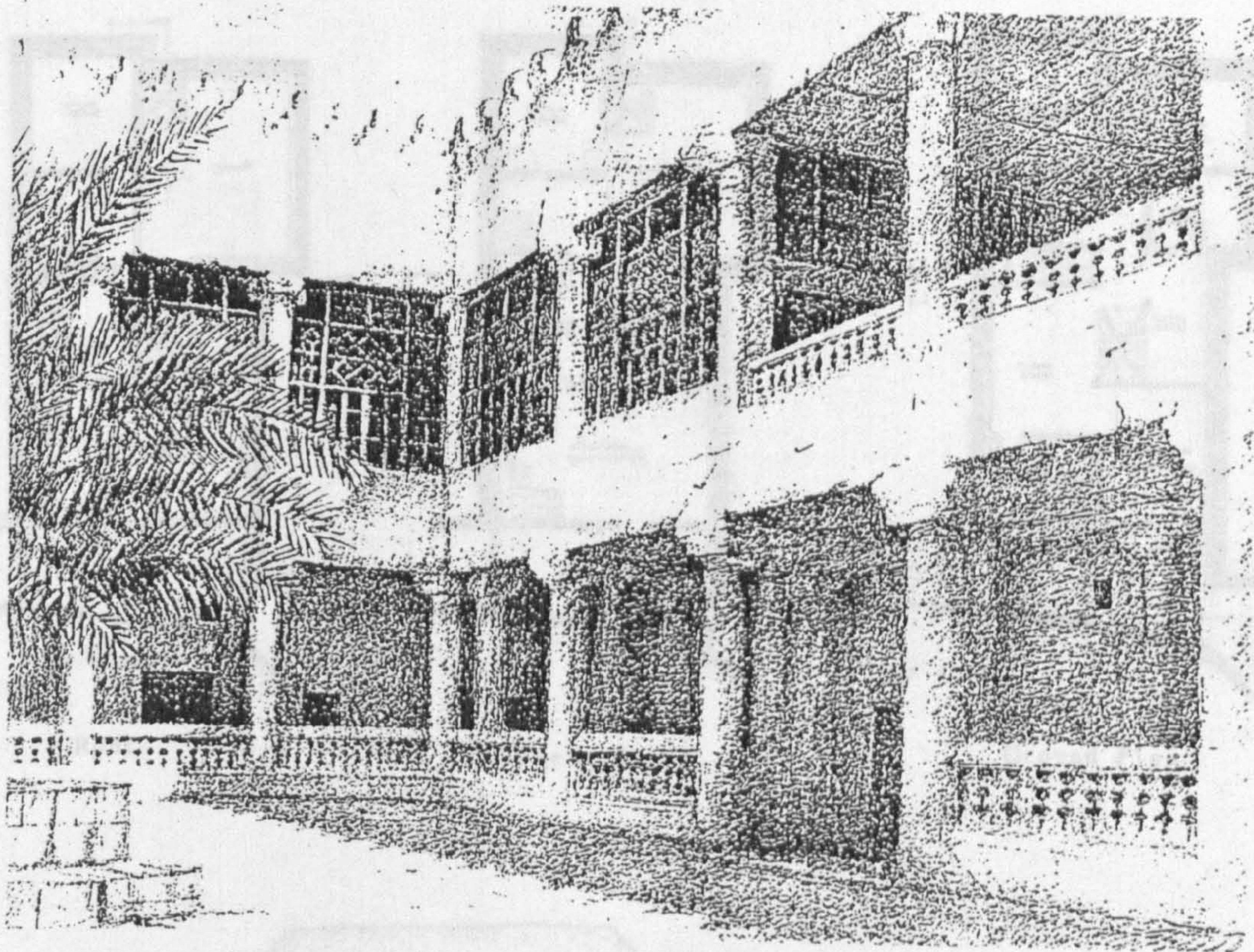


Fig 5-12 SKETCH OF INTERNAL COURTYARD, RIYADH

Source: Al Hariri., M.W., 1981.

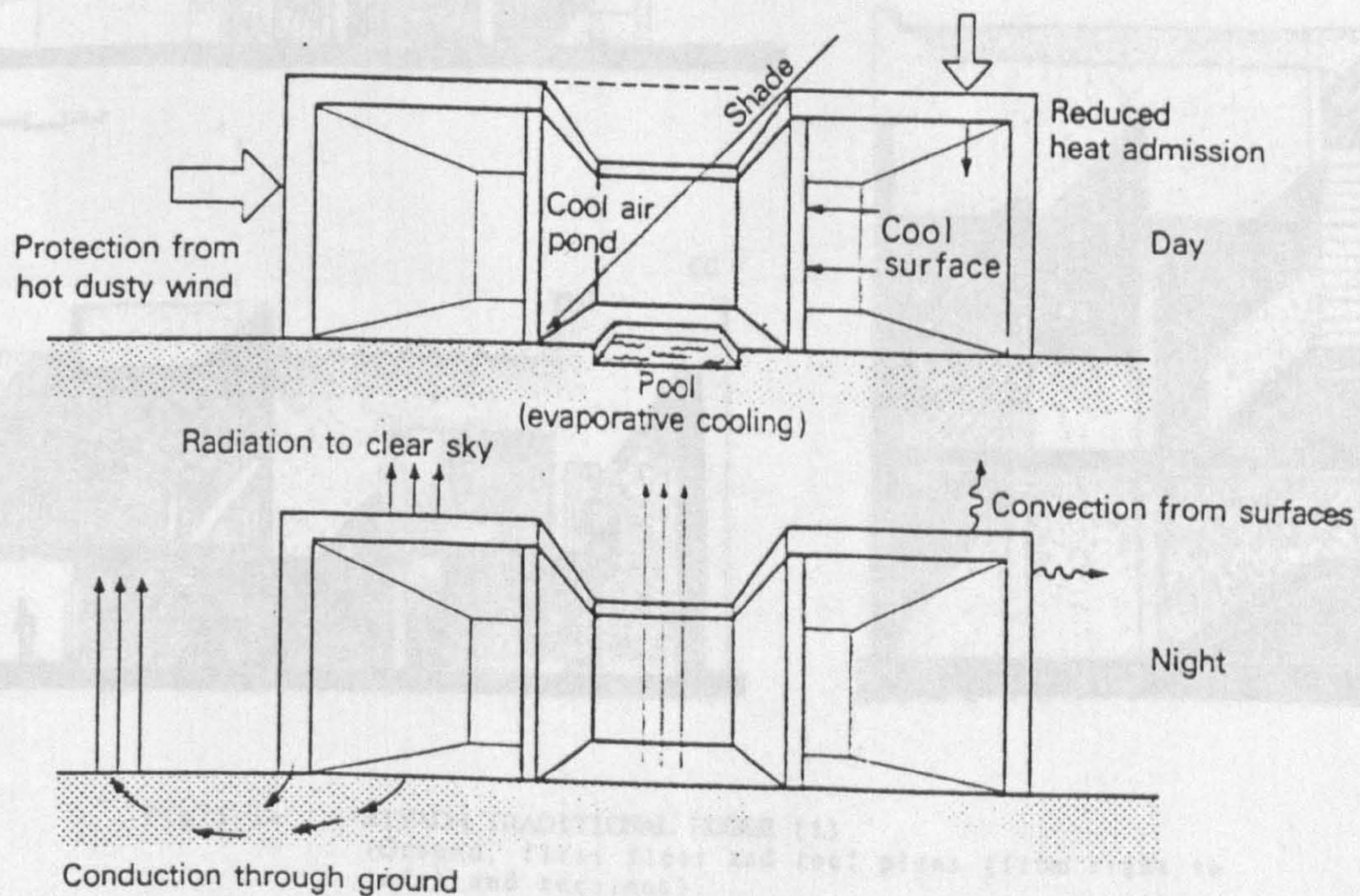


Fig 5-13 THE THERMAL SYSTEM OF A COURTYARD HOUSE

Source: Koenigsberger and others, 1974, p.205.



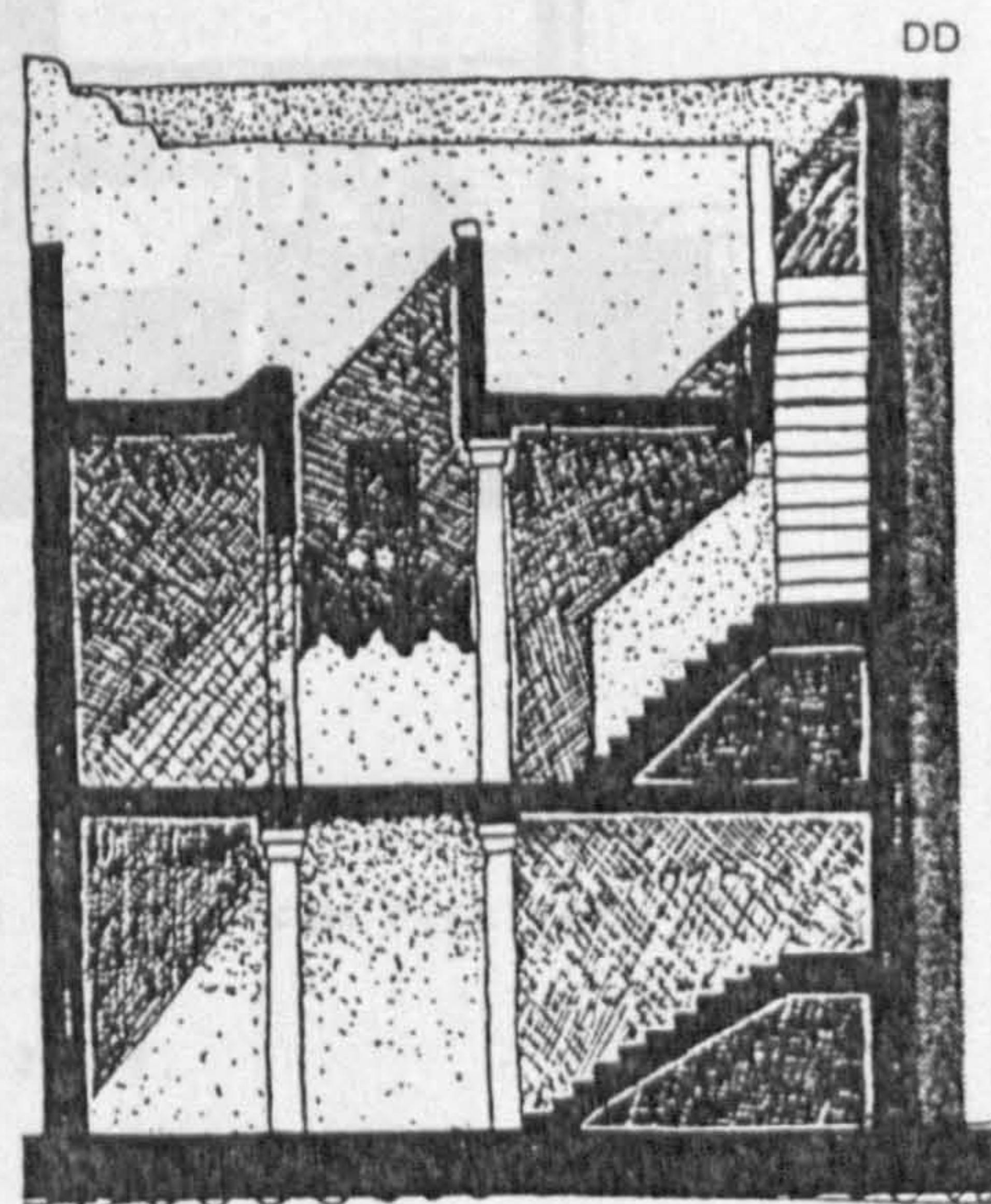
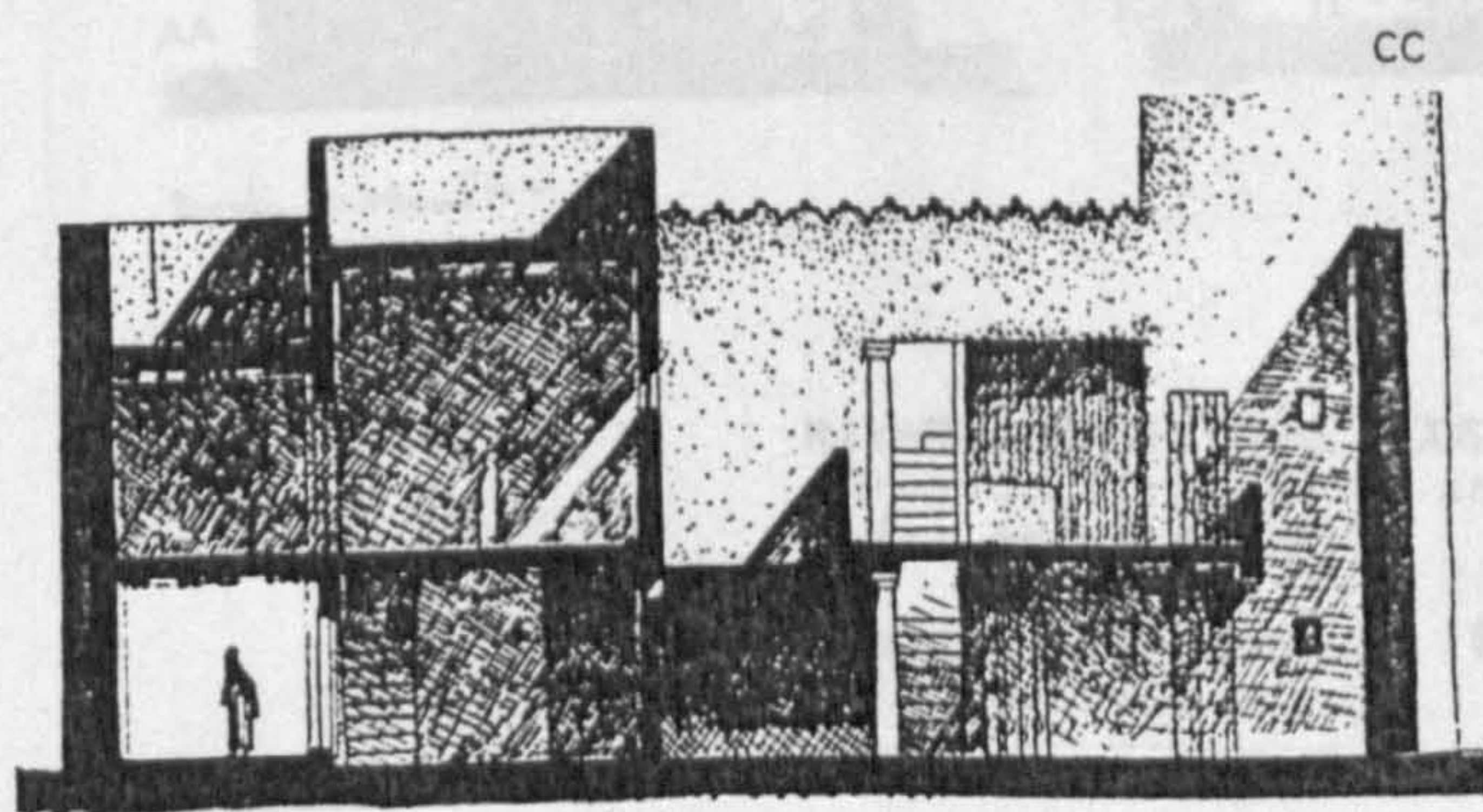
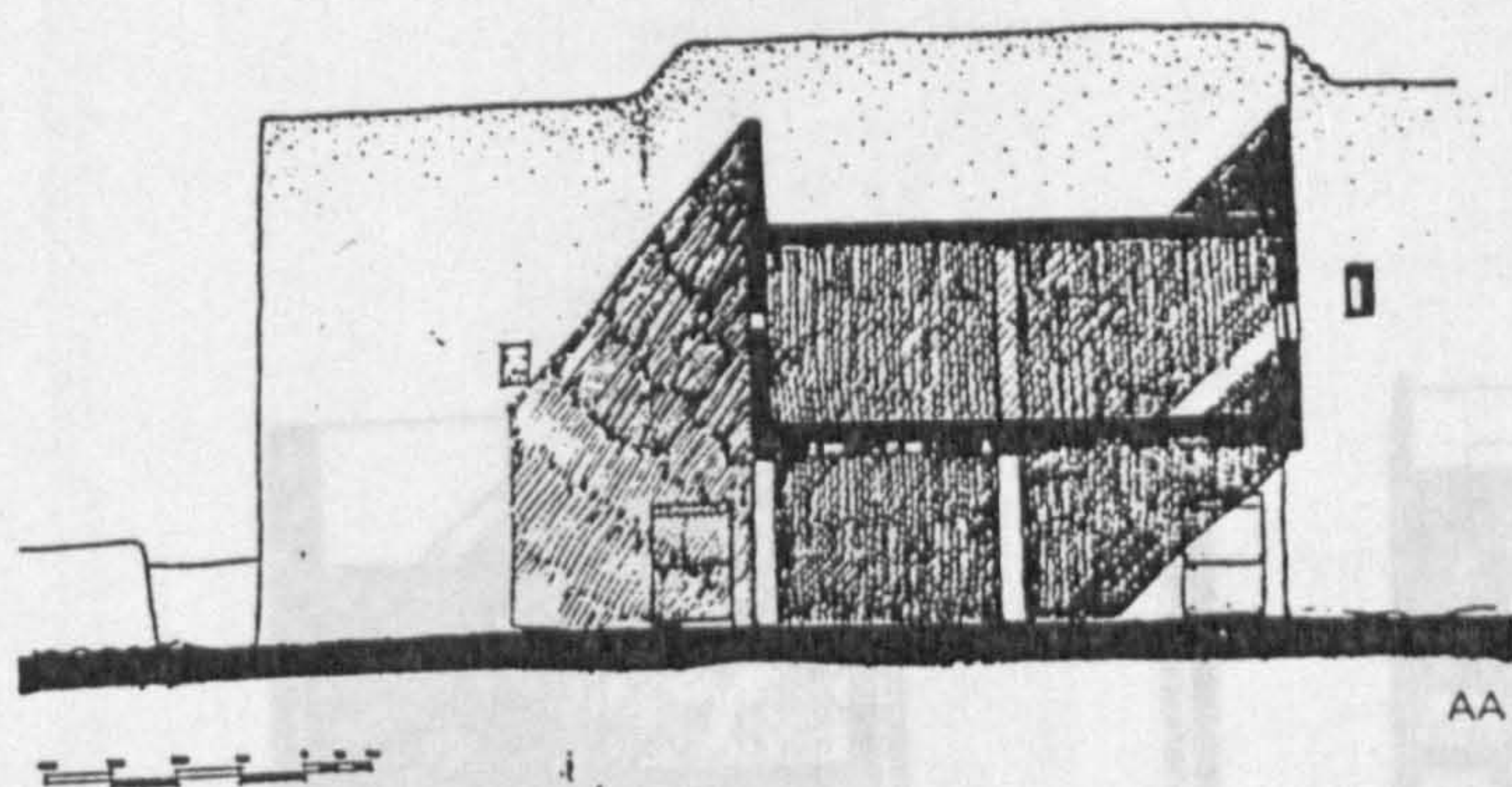
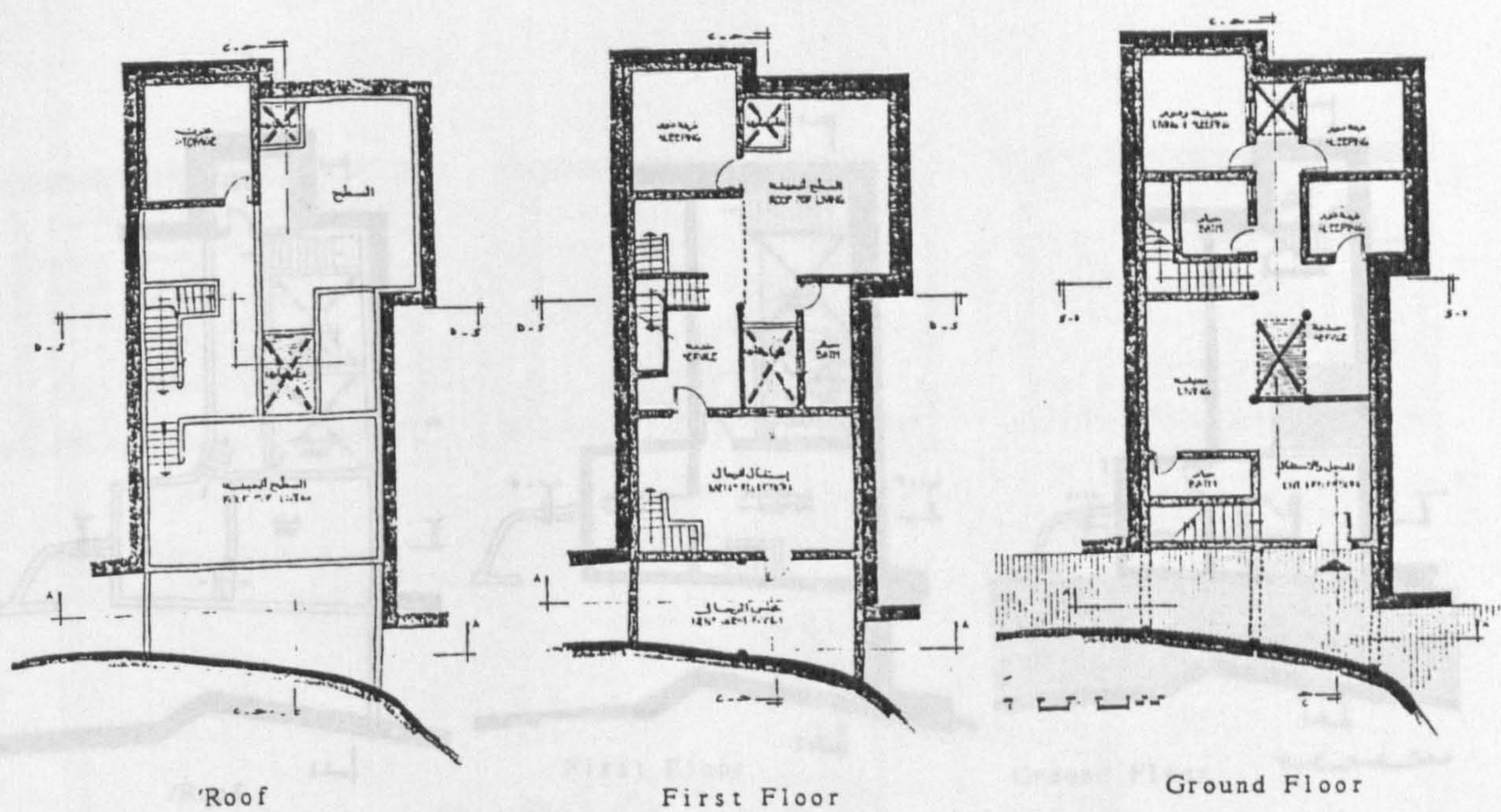


Fig 5-14 RIYADH TRADITIONAL HOUSE (1)  
(Ground, first floor and roof plans (from right to left) and sections).

Source: Mousalli and others, 1977, p.26-27.



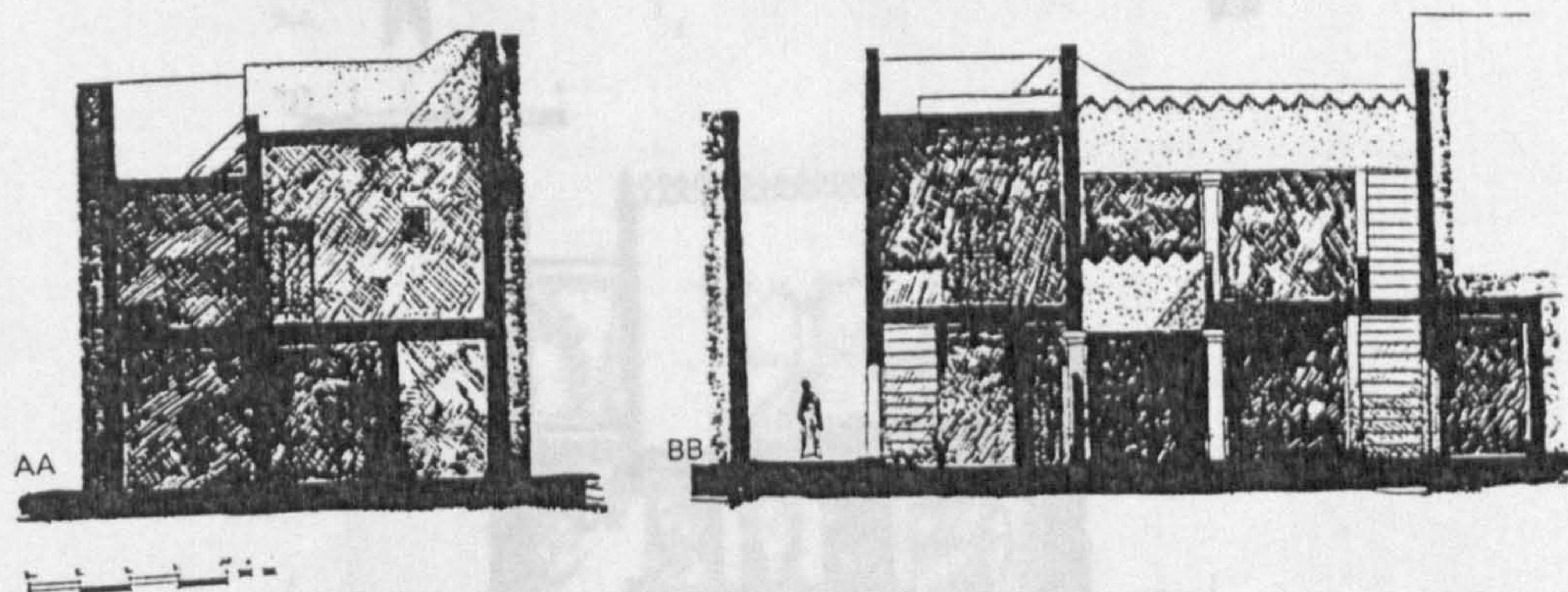
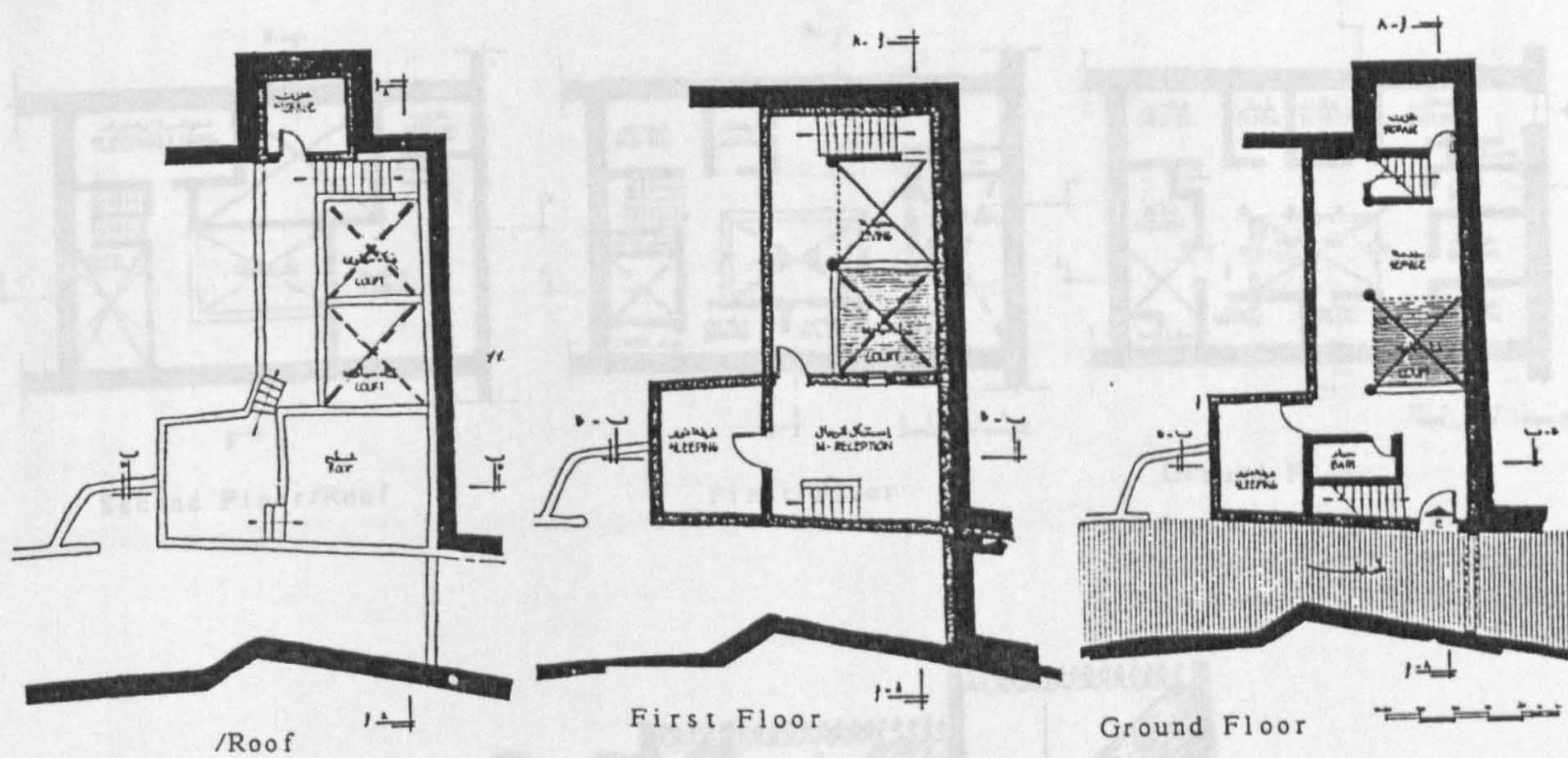


Fig 5-15 RIYADH TRADITIONAL HOUSE (2)  
(Ground, first floor and roof plans (from right to left) and sections).

Source: Mousalli and others, 1977, p.28-29.



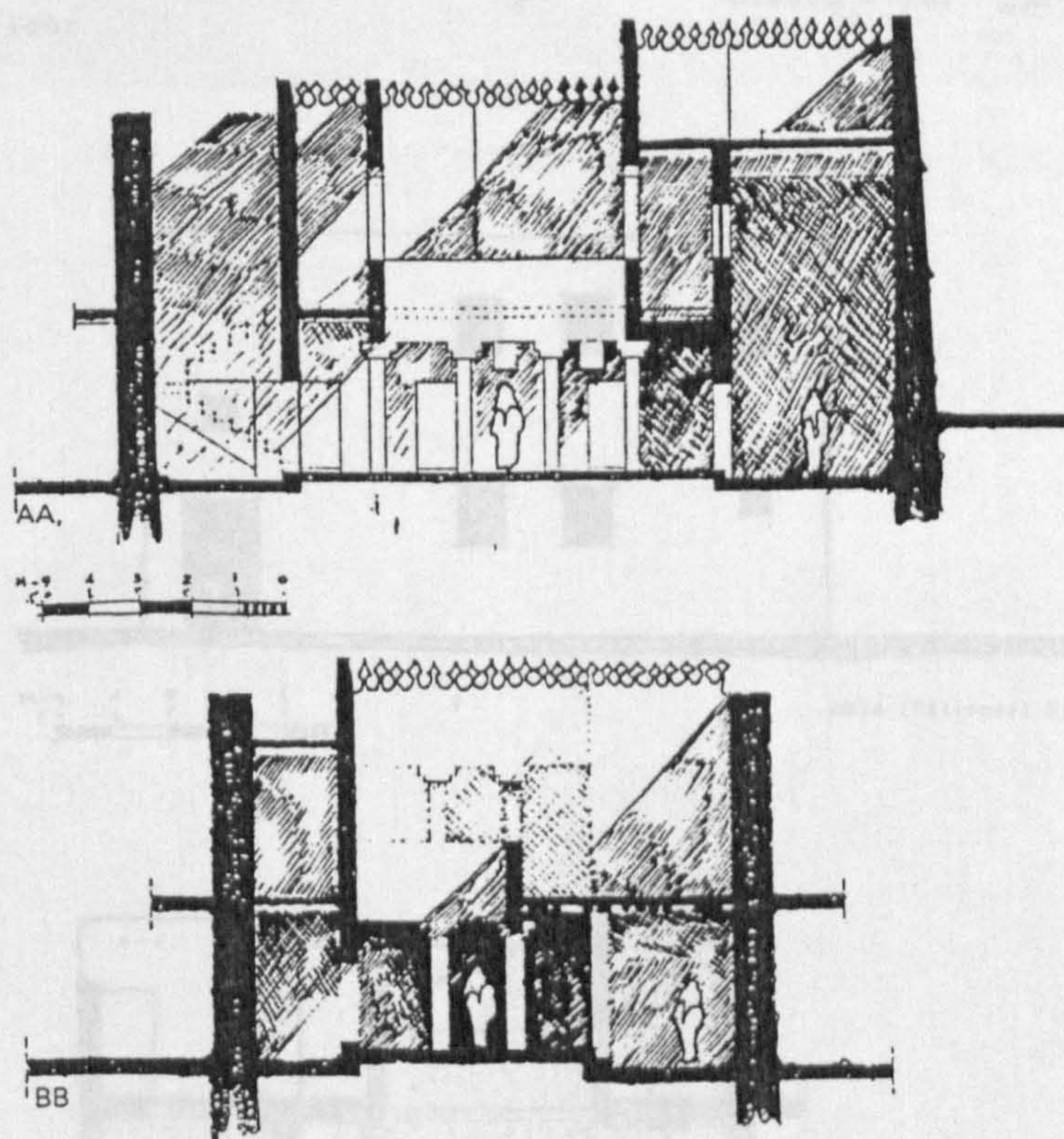
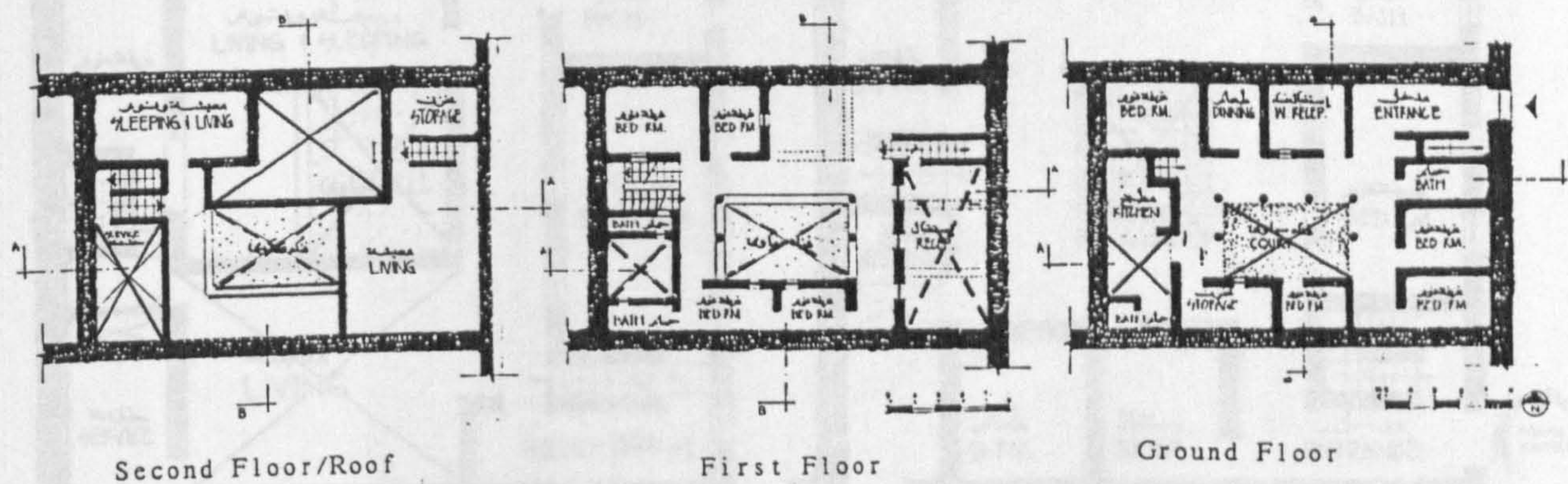


Fig 5-16 RIYADH TRADITIONAL HOUSE (3)  
(Ground, first floor and roof plans (from right to left) and sections).

Source: Mousalli and others, 1977, p.p. 30-31.



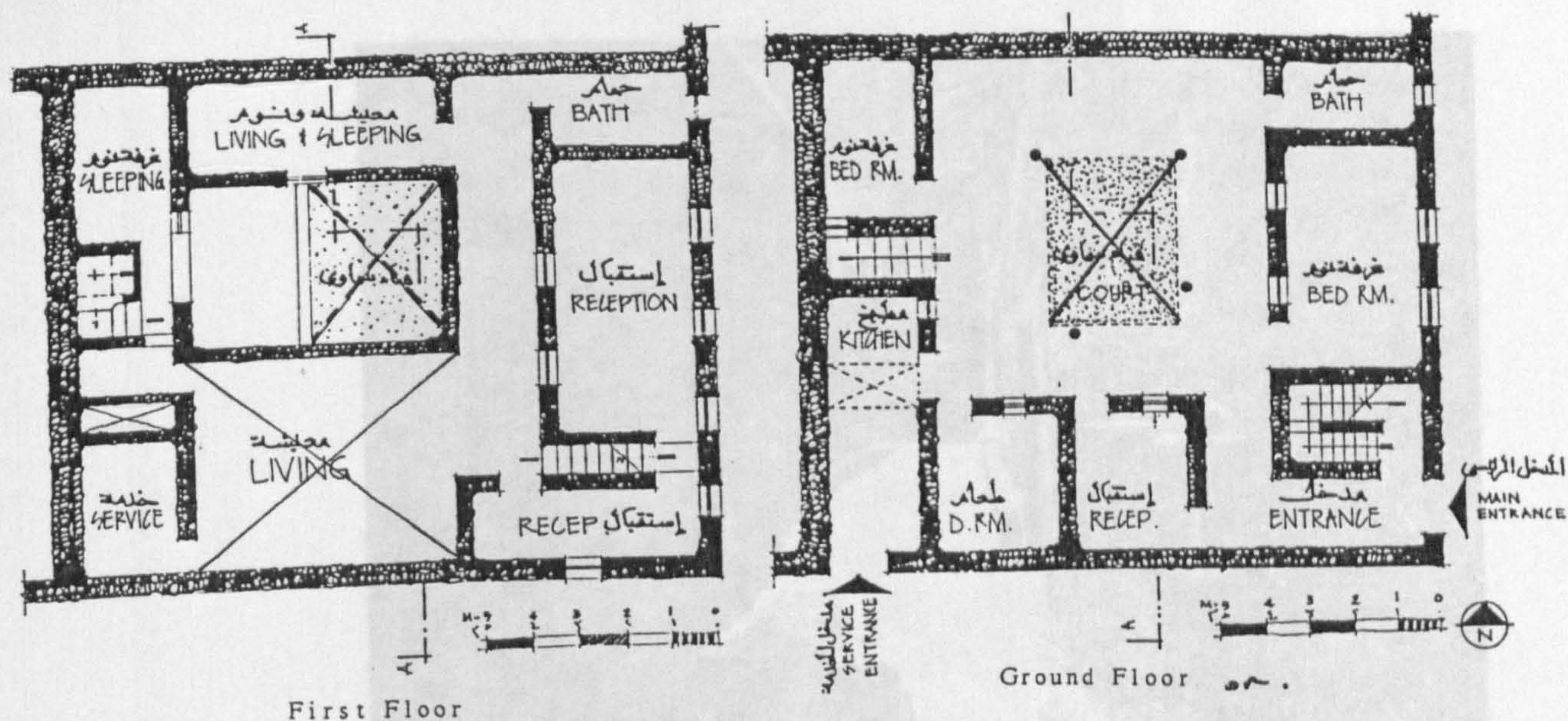


Fig 5-17 RIYADH TRADITIONAL HOUSE (4)  
(Ground and first floor (from right to left) and elevation section).

Source: Mousalli and others, 1977, p.p. 32-33.



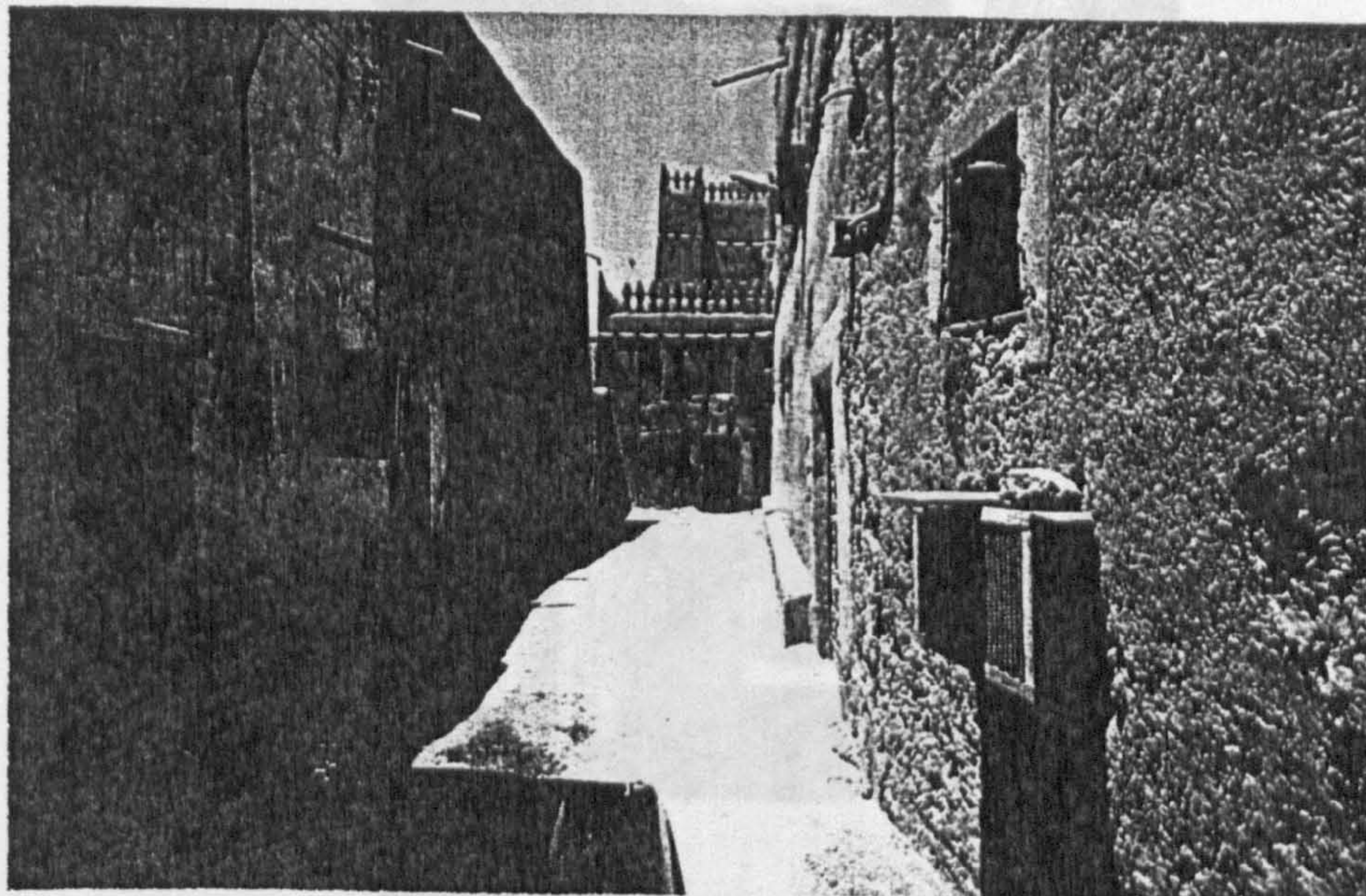


Fig 5-18 VIEW OF CUL-DE-SAC (DEAD END STREET) RIYADH  
(Air conditioning unit in the mud wall).

Source: Author (A.S. Alafghani).

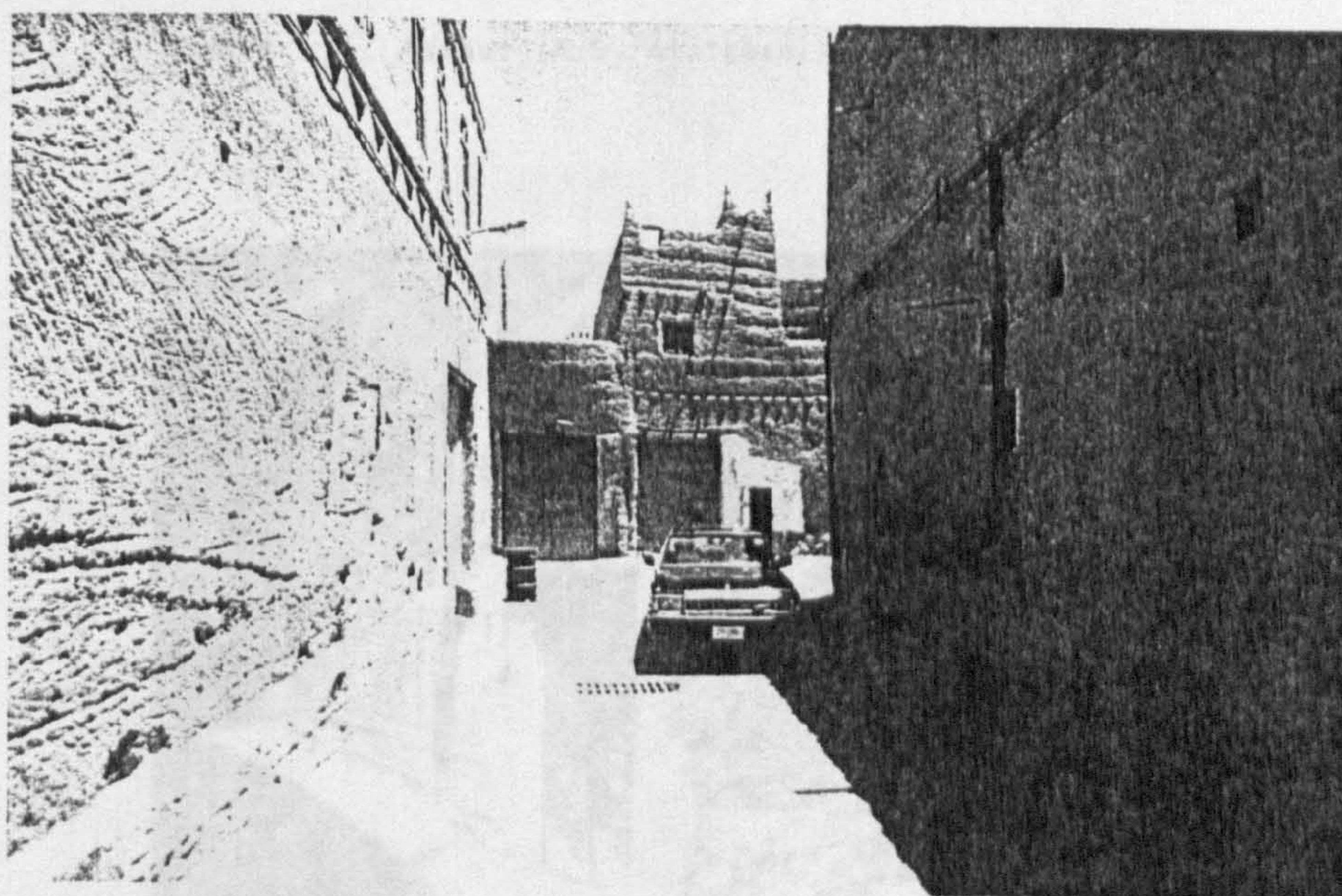


Fig 5-19 VIEW OF STREET IN OLD RIYADH  
(Cars invade the traditional neighbourhood).

Source: Author (A.S. Alafghani).





Fig 5-20 VIEW OF NARROW PATH IN OLD RIYADN (1)  
(Saqifah provide shade. Air conditioning units in mud wall).

Source: Author (A.S. Alafghani).

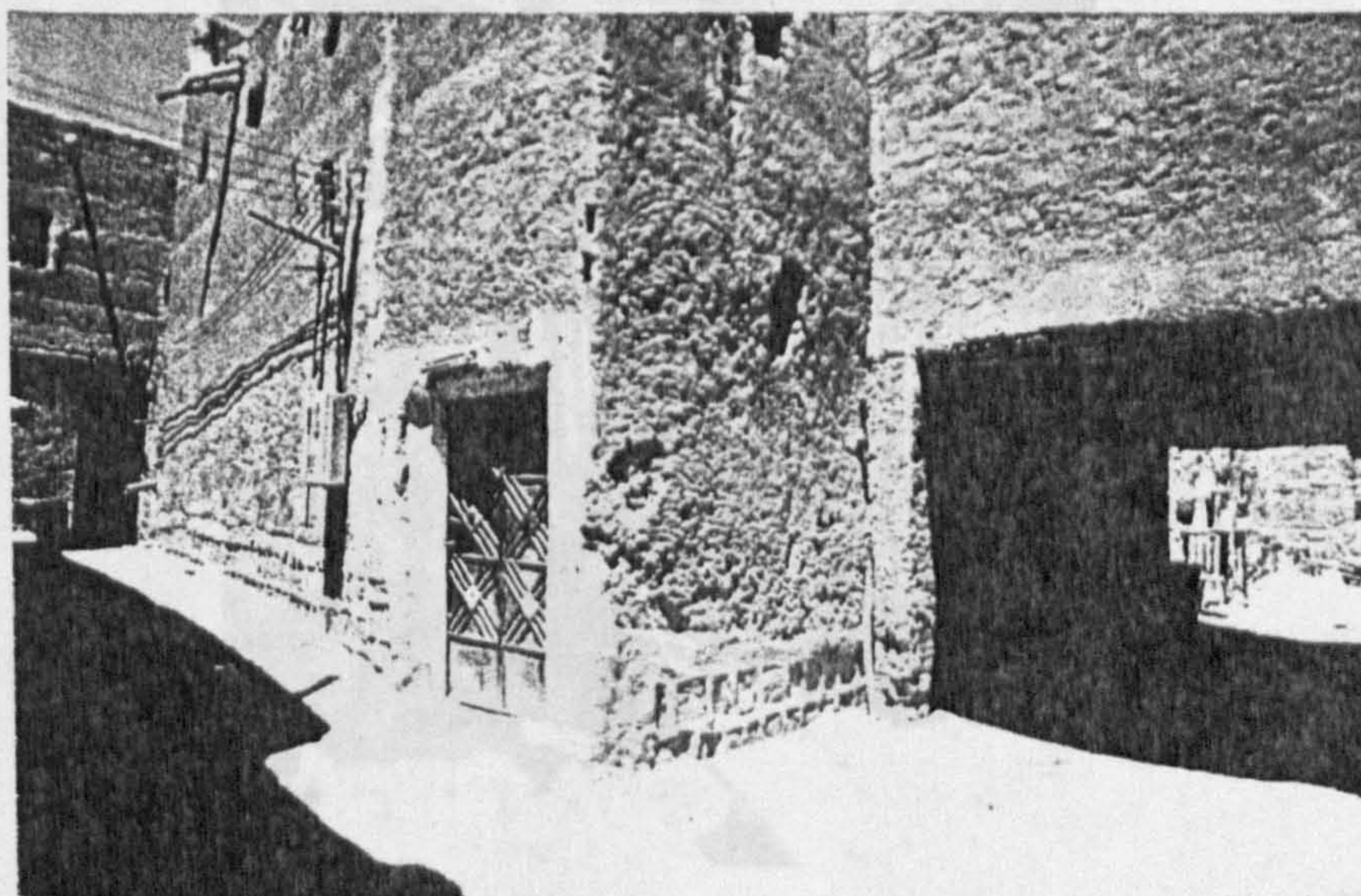


Fig 5-21 VIEW OF NARROW PATH IN OLD RIYADH (2)  
(Saqifah provide shade. Metal door replaced the wooden door).

Source: Author (A.S. Alafghani).





Fig 5-22 VIEW OF ALRGE COURTYARD HOUSE, RIYADH (1)  
(The house is falling, no maintenance).

Source: Author (A.S. Alfghani).

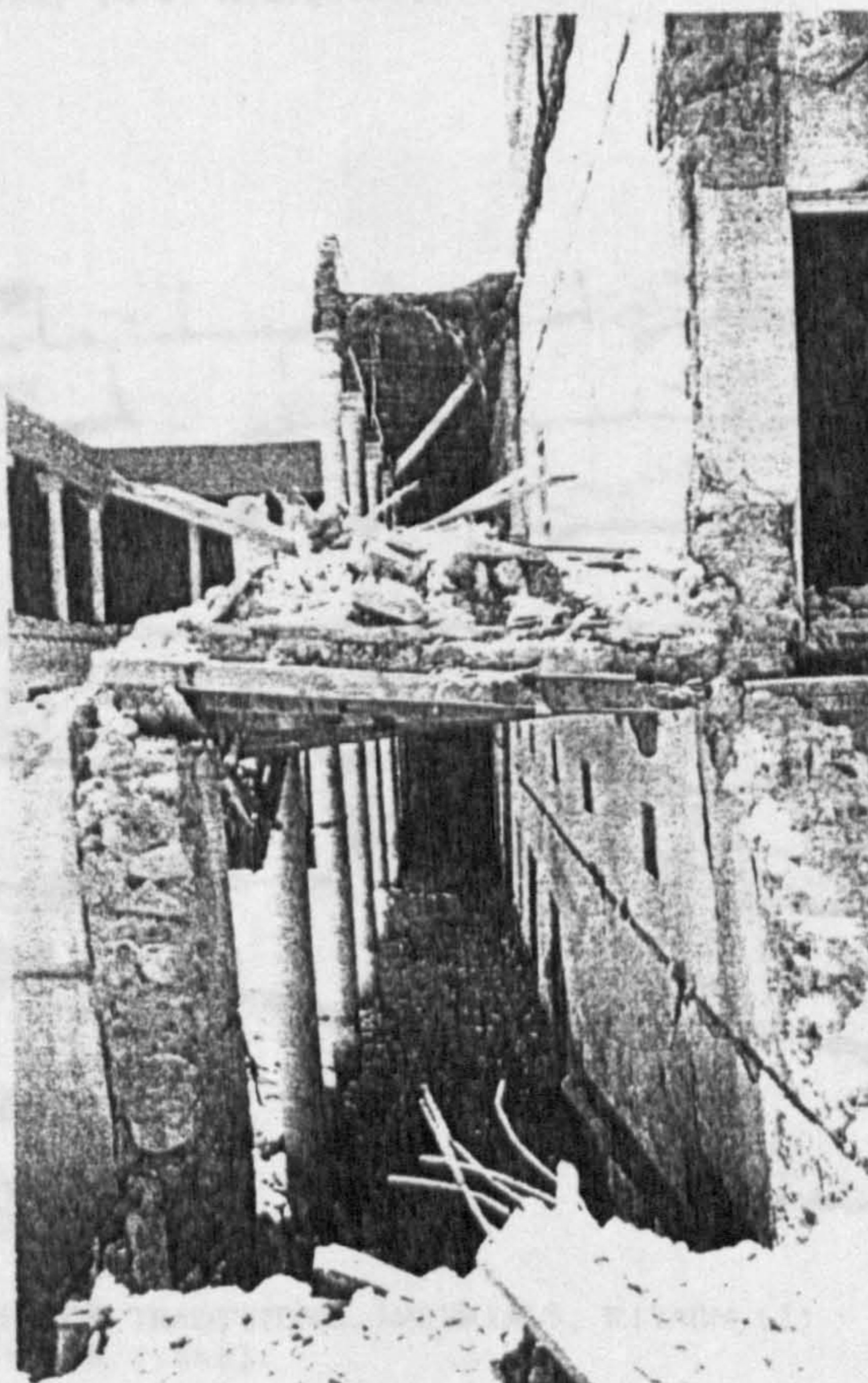


Fig 5-23 VIEW OF LARGE COURTYARD HOUSE, RIYADH (2)  
(The section of the house present the different materials used in the construction).

Source: Author (A.S. Alafghani).





Fig 5-24 VIEW OF TRADITIONAL MATERIALS, RIYADN (1)  
(Mud, wood and earth).

Source: Author (A.S. Alafghani).



Fig 5-25 VIEW OF TRADITIONAL MATERIALS, RIYADN (2)  
(Riyadh stone).

Source: Author (A.S. Alfghani).



## Footnotes: Chapter 5

1. For more information about the following:

(a) AL-SHARIEF, Abdullrahman, Malik Abdalaziz, Riyadh, 1981.

(b) THE ARABIAN Institute for the future City, King Saudi Arabic).

(c) SCBT INTERNATIONAL, Riyadh Report No. 16. Dirah-Manfouh Planning.

Fig 5-26 VIEW OF TRADITIONAL RIYADH  
(High rise project in the middle of traditional quarter).

Source: (a) Author (A.S. Alfghani).  
Report No. 6. Riyadh Ex-Physical Development. Department of Ministry of Municipal and Rural Affairs, Riyadh 1989.

(e) SCBT INTERNATIONAL, Riyadh Report No. 17. Areas of Ministry for Town Planning Rural Affairs, Riyadh 1991.

(f) SCBT INTERNATIONAL, Riyadh Report No. 8. The revised Ministry for Town Planning Rural Affairs, Riyadh 1992.

2. DISPUTE Ministry for Town Planning Cities, Ministry of Municipal and Rural Affairs, Riyadh 1991.

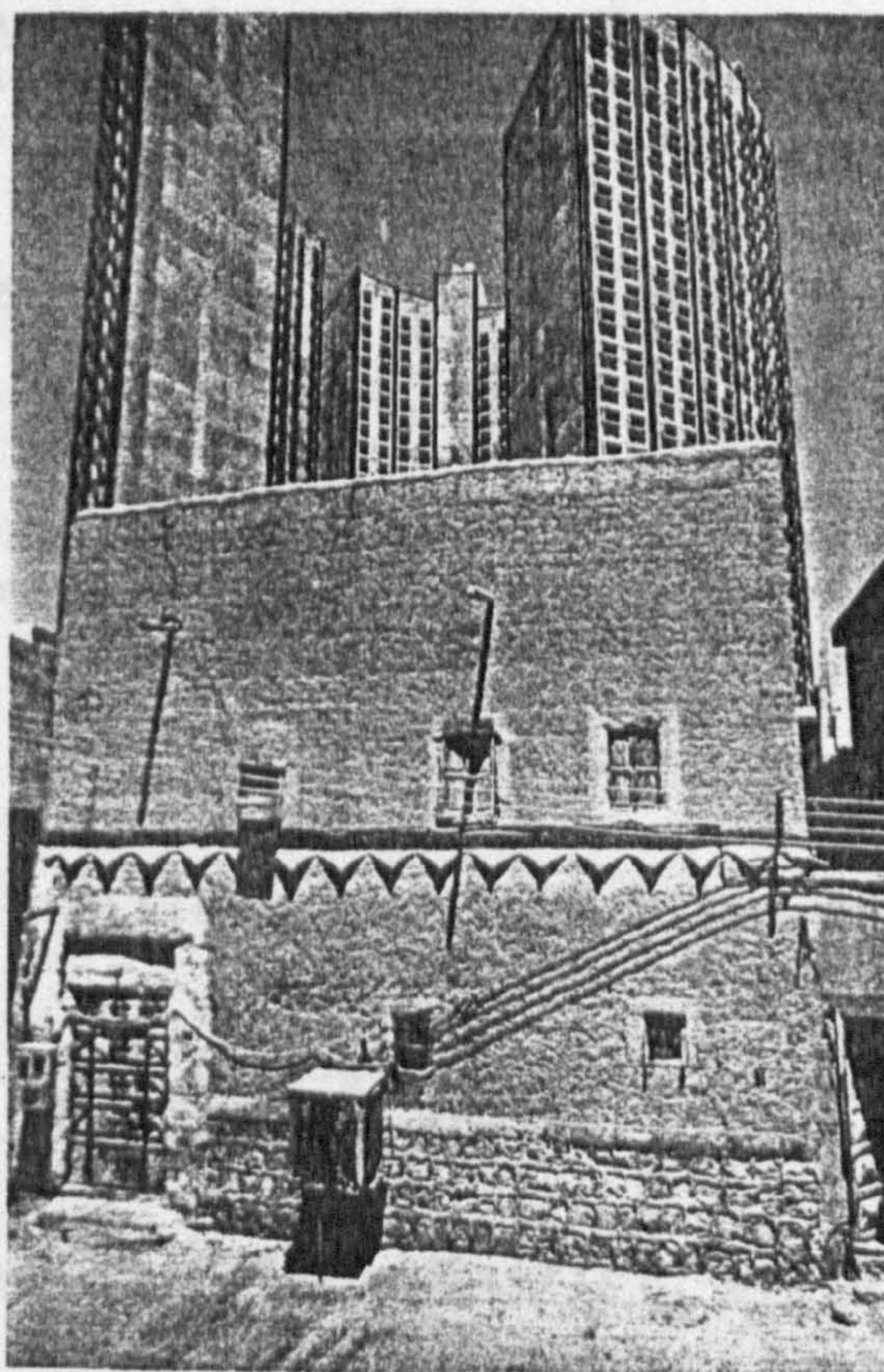
3. Ibid p.2.

4. Ibid p.2.

5. For more information about the see the following:

Fig 5-27 VIEW OF TRADITIONAL AND CONTEMPORARY HOUSING, RIYADH  
(High rise project invades the privacy of traditional houses, air conditioning unit in mud houses).

Source: (b) Author (A.S. Alfghani).  
Design High Competition Riyadh Chapter 1.





## Footnotes: Chapter 5

1. For more information about the City of Riyadh see the following:
  - (a) AL-SHARIEF, Abdullrahman, The City of Riyadh, Darat Al Malik Abdulaziz, Riyadh, 1395 (in Arabic).
  - (b) THE ARABIAN Institute for City Development, Ar-Riyadh, the future City. King Saudi University Press, Riyadh (in Arabic).
  - (c) SCET INTERNATIONAL, Riyadh Action Master Plans Technical Report No.16. Dirah-Manfouha-Munakhiyah-Batha. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh 1402.
  - (d) SCET INTERNATIONAL, Riyadh Action Master Plans Technical Report No. 6. Riyadh Existing Conditions Vol. III. Physical Development. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh 1399.
  - (e) SCET INTERNATIONAL, Riyadh Action Master Plans, Technical Report No. 17. Areas of cultural significance. Depute Ministry for Town Planning. Ministry of Municipal and Rural Affairs, Riyadh 1401.
  - (f) SCET INTERNATIONAL, Riyadh Action Master Plans, Technical Report No. 8. The revised plan of Riyadh City. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh 1402 (in Arabic).
2. DEPUTE Ministry for Town Planning. The Atlas of the Saudi Cities. Ministry of Municipal and Rural Affairs, Riyadh, p2.
3. Ibid p.2.
4. Ibid p.2.
5. For more information about the traditional built environment see the following:
  - (a) MOUSALLI, Shaker, Mandily, An Introduction to Urban Patterns in Saudi Arabia, The Central Region. AARP, London 1977.
  - (b) BEEAH Group Consultants, Justice Palace District, Urban Design. High Commission for Development of Riyadh, Riyadh Chapter 2.



- (c) BEEAH Group Consultants. Urban Pattern in the Centre of Islamic Cities (Najd). Al Benna Magazine No. 17, 18. Riyadh, Saudi Arabia. p.p.(24-35).
  - (d) AKBAR, Jamel, Courtyard Houses: A Case Study from Riyadh, Saudi Arabia. The Arab City. Its Character and Islamic Cultural Heritage. Proceedings of a symposium held in Medina, Saudi arabia 28 Feb - 5 March, 1981. The Arab Urban Development Institute, Riyadh 1982 p.p.(162-172).
  - (e) ALHATHLOAL, Al-Hussayen, Shuaibi, Urban Land Utilisation, Case Study, Riyadh, Saudi Arabia, Urban Settlement Design Programme, M.I.T. 1975.
6. This field trip was conducted during the period June to September 1989. For more information see Chapter 17.
  7. This was concluded as a result of interviews with some of the residents.
  8. This high-rise project is considered the modern high tech building in which most of its building materials were imported. Even the structure was a steel frame structure.
  9. ABA-ALKHAIL Ibrahim. ALTEEN (Mud) As a Contemporary Building Material. AlBenna Magazine No. 37. Riyadh 1987 p.60.



## CHAPTER 6

### MAKKAH HOUSES

- 6.1 GENERAL VIEWS
- 6.2 CLIMATIC REFERENCE
- 6.3 ACTIVITIES REFERENCE
- 6.4 CULTURAL REFERENCE
- 6.5 MATERIAL REFERENCE
- 6.6 MAKKAH HOUSES ASSESSMENT



## 6.1 GENERAL VIEWS

MAKKAH ALMUKARRAMAH (The Blessed) is the centre of the Islamic world for its Haram, or the Great Mosque<sup>1</sup>. The Muslims all over the world face Makkah five times daily during their prayer.

### Physical Characteristics<sup>2</sup>:

- Geographical location. (Fig 6-1, 6-2 and 6-3)

Makkah is located on  $21^{\circ} 27''$  of altitude and  $39^{\circ} 49''$  longitude.

- Regional setting.

The regions of Makkah is located on the western part of the Kingdom. It is located within the Sarawat Mountains inland from the Red Sea. Makkah is located about 75 kilometres from the Red Sea and about 277 meters above mean sea level.

- Climate.

Hot-dry in summer, in which temperatures reach  $40^{\circ}\text{C}$ . Moderate in winter in which temperatures reach  $15^{\circ}\text{C}$ .

Rain reaches 115mm.

- Topography and Geology.

The city lies amid a complex of mountains and alluvial valleys. The Holy Mosque is situated in a low part of the city called the Valley of Ibrahim and it is surrounded by a number of hills. The land consists of different types of stones, granite, flint granite, volcanic rocks and metasedimentary rocks. The city area in 1407 reached 5900 hectares.

### History<sup>3</sup>:

- The city was initiated when Prophet Ibrahim (Peace be upon him) moved to this area with his family. There was no community life in this area. The order from God to build the Holy House (AlKaba) was the start of its religious character of this area. The advent of Islam was the most important thing in the history of Makkah. (Fig 6-4)



#### Socio-economic<sup>4</sup>:

##### - Population:

In 1407 the population was about 700,000 cap. The density of population averaged at 131 persons/hectares. The advent of Hajj causes Makkah to have seasonal occupations for many people

#### Makkah Traditional Houses

Shams Al-Din Abd Allah Al-Magaddasi described Makkah houses in the tenth century A.D. as follows<sup>5</sup>:

The Houses of Makkah are built of block, smooth stones and also of white stones, but the upper parts are of brick. Many of them have large projecting windows of teak wood and are several storeys high, white washed and clean<sup>6</sup>. (Fig 6-5, 6-6, 6-7 and 6-8)

## 6.2 CLIMATICAL REFERENCE

The traditional houses of Makkah present the form which managed to deal with the hot-dry climate of Makkah. The use of available materials and the location of Makkah near the city of Jeddah allowed wood to be more handy in the construction. Stone was used to create the massive walls. The thick layered roof and the introduction of the Mashrabiya allowed the house to work as an insulated volume by which people could enjoy living in such hot weather.

The terrace also provided the means for the people to get advantage of the different times of the day. At night especially when the temperature falls, the people used to sleep on the terrace and enjoy the sky.

The neighbourhood could also be seen as a model which responds to the climatic needs. The compactness, by which buildings were adjacent to each other. This reduced the surface area which



is facing direct sun. The narrow winding roads provided the shaded paths for pedestrians. The arrangement of the neighbourhood was focusing on its relations with the Holy Mosque. The people need protection from the hot sun on their way to the Mosque. The narrow streets gave them the necessary shaded paths.

### 6.3 ACTIVITIES REFERENCE

The traditional houses of Makkah provided the spaces needed for the family activities and the seasonal activities such as accommodating the pilgrims during the Hajj season.

The house reflected the sensitivity of the old builders to the needs of the family, this was observed in the different elements of the house. The entrance hall (Dihliz), is located next to the main entrance door. It is considered a traditional area between public and private. Sitting room (Magad), next to the entrance hall on the first level. This room served as business office and for receiving male friends. Reception room (Majlis), usually it is located towards the main facade and it is used for receiving family guests. Ante-room (Suffh), it works as an ante-chamber to the reception room, it is small, with the same breadth as the reception room. Family-rooms, usually these are located on the upper floor levels, they are multi purpose spaces, which serve various aspects of family life, such as sitting, eating and sleeping. Some of the houses had basements which used to store tents and large equipment which were used during the Hajj season.

The terrace also presented a space for the family activities. The terrace provided the space for sleeping and clothes drying. There is a night room (Mabit) located in one side of the terrace usually used for storing the beds, and to be used for sleeping during rainy, stormy and cold nights.



The people of Makkah used to rent their houses to the pilgrims during the Hajj time. The residents used to leave the lower floors and move to the upper floors and the terrace a temporary situation while the pilgrims live in the lower part of the house. (Fig 6-9, 6-10 and 6-11)

The neighbourhood also provided the different spaces for different activities by the formation of the semi-public areas (Barahas). The children get advantage of these areas while their families (Mothers) could observe them. The formation of the networks of pedestrian roads also allowed the people to reach the Holy Mosque at any time. (Fig 6-12, 6-13)

#### 6.4 CULTURAL REFERENCE

Makkah as a city represents the heart of the Muslim World. The people of old Makkah felt the position of their city and acted to preserve the religion and cultural traditions.

The architectural heritage of Makkah reflected the understanding of the builders to preserve the family traditions. The mashrabiyyah gave the protection of the family privacy.

The use of different construction techniques and outside materials reflected the culture interaction with those pilgrims who settled in the city and put their expertise under the people of Makkah to transform their needs into structural forms.

#### 6.5 MATERIAL REFERENCE

The primitive early builders in Makkah used the limited materials available to create a harmonious urban development which satisfied both the climatic and cultural requirements. Houses were built from granite stones available in the area, hand made burnt clay, and teak wood.



The stones were used traditionally for load bearing walls and partitions where the thickness varied from 40 to 120cm. The mortars employed were silty clay, loam enriched with lime, and semi hydraulic lime in which fine granite silicoes limestone was mixed with clay and burnt together.

Generally any thick wall consisted of exterior and interior parts, with flat cut facing stones, and the centre part consisted of odd shaped stones. Stones were fixed together using mortars and wedges like stone chips and the inner joints to give more stability. All the houses were plastered internally. (Fig 6-14, 6-15)

The upper floors were made of wooden joints and beams, the wooden joints support smaller members laid diagonally. On top of that a layer of a mixture of mud and lime formed the hard surface.

#### 6.6 MAKKAH HOUSES ASSESSMENT

The traditional built environment of Makkah reflected the type of city which could be characterised as an Arabian-Islamic city. The Holy Mosque was the focal point of the city and the residential neighbourhoods were compacted around the Mosque. All roads and paths were directing the movement towards the Holy Mosque.

The present situation of the traditional city of Makkah reflects a totally different picture. New roads for traffic at the cost of demolishing traditional houses. The expansion of the Holy Mosque also required the demolition of more houses.

With the situation of the city as the place of Pilgrimage and with the increase in pilgrims number since transportation became easy world wide, the necessity of accommodation increases. What



is happening now is only to meet the need of pilgrims accommodation. Traditional houses around the Holy Mosque were demolished and replaced by high rise buildings. It became an investment, rich people took advantage of the situation of the original residents, who could not afford to maintain their houses by offering them the full price at once. As far as can be observed Municipality did not make any attempt to preserve the traditional houses. (Fig 6-16, 6-17 and 6-18)

The new commercial company (Makkah Company for Construction and Development)<sup>7</sup>, reflects the new trends for developing old Makkah. This company buys Lands and Houses to demolish and rebuild with modern projects which are intended to put a new face on old Makkah. (Fig 6-19)

The new environment of old Makkah is totally different from what the past showed us. The new generation do not feel what the old generation felt. Even walking to the Holy Mosque today is different, the narrow streets disappeared and wide streets for cars are characterising the city.



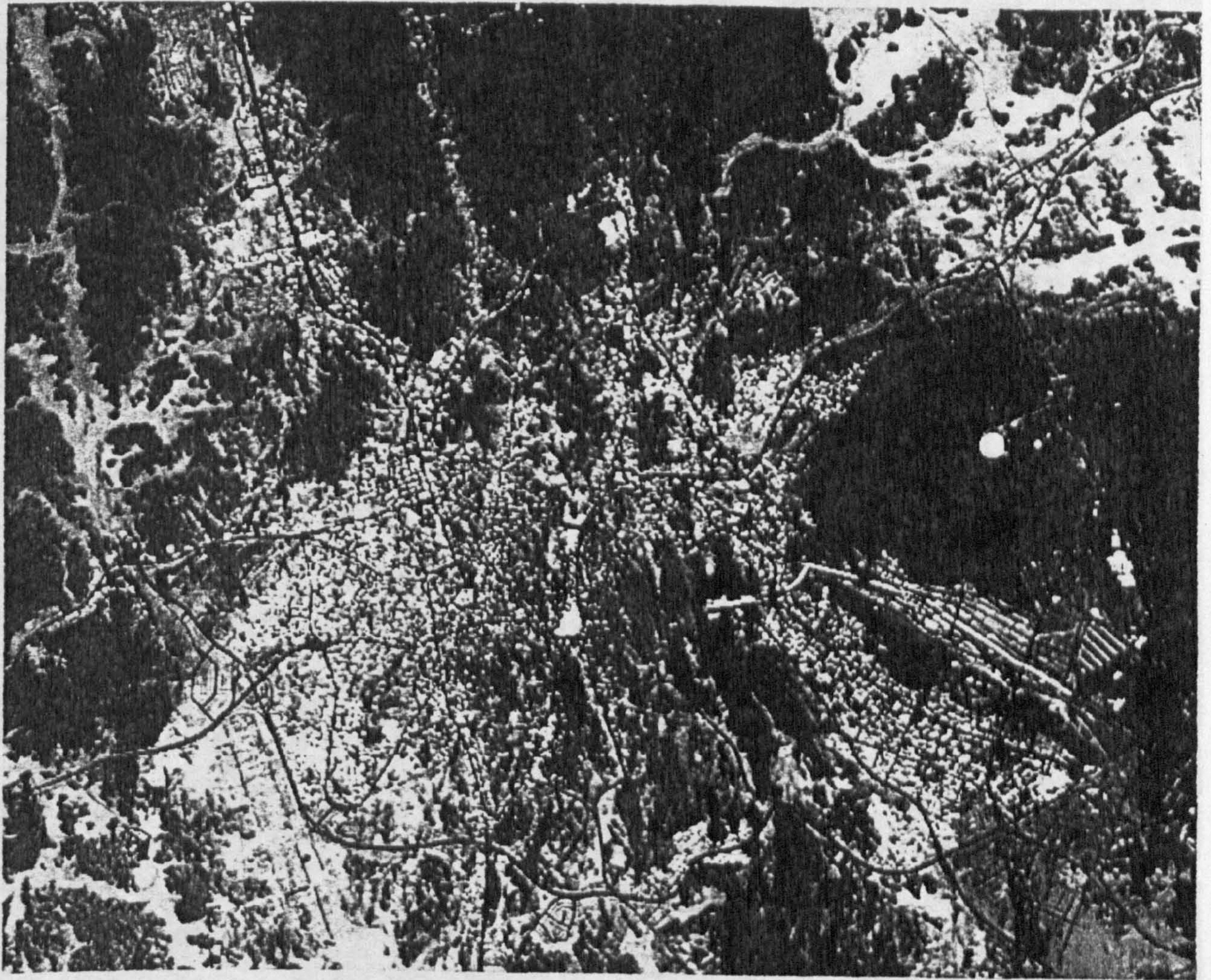


Fig 6-1      MAKKAH CITY  
 (A Satalite photograph of Makkah City).

Source:      King Abdulaziz City for Science and Technology,  
 Riyadh.



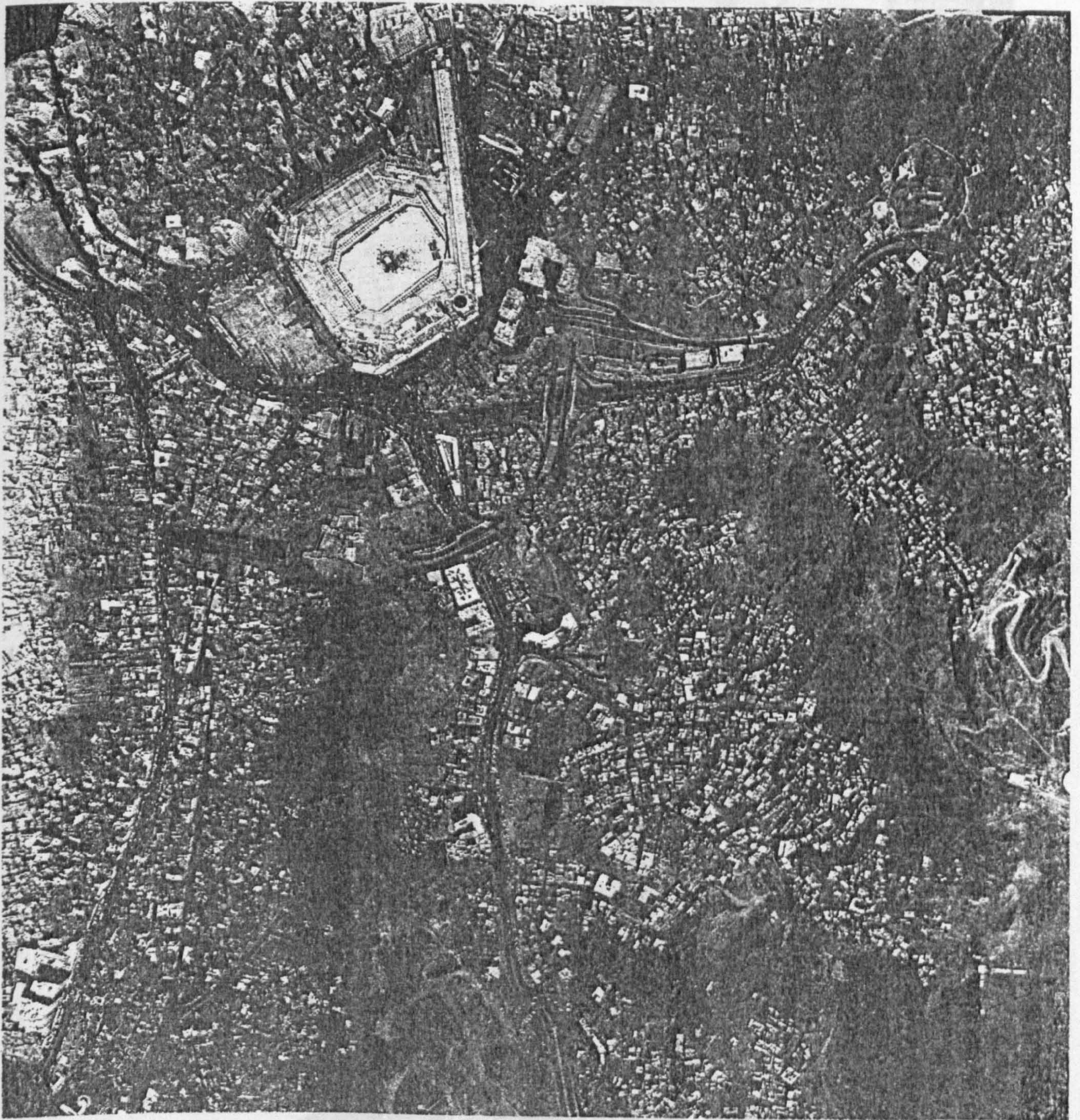


Fig 6-2 VIEW OF MAKKAH CITY  
(A aerial photograph of the central area. The Holy Mosque and its relation to the different neighbourhoods).

Source: Author (A.S. Alafghani), 1987.



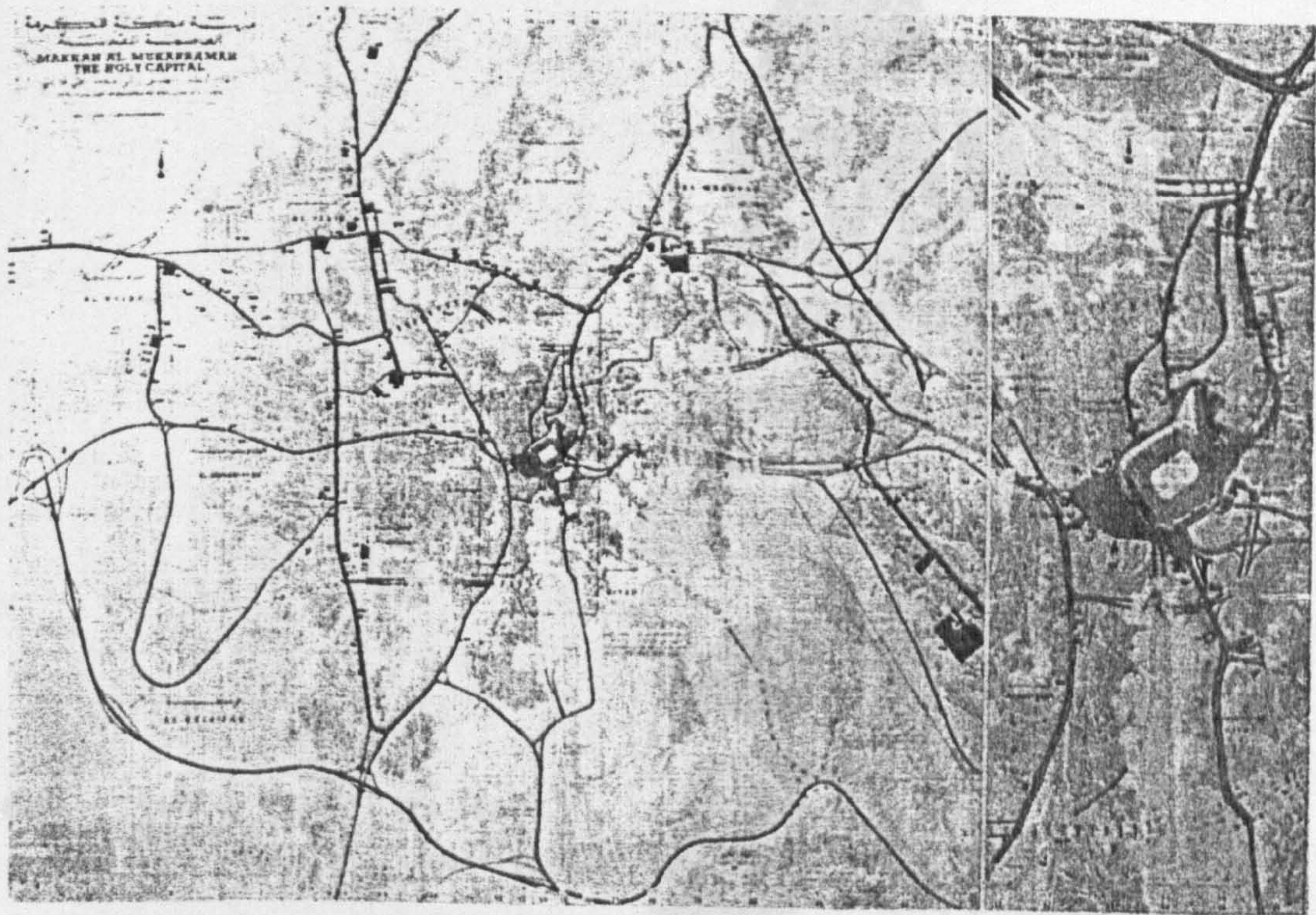


Fig 6-3 MAP OF MAKKAH CITY  
Source: Zaki Farsi, Jeddah.



Fig 6-4 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN OLD MAKKAH  
Source: Fadan, 1983, p.300.



Fig 6-5

VIEW OF TRADITIONAL HOUSE,  
MAKKAH (1)  
(Elevation, air conditioning  
unit in Mushrabiya).

Source:

Author (A.S. Alafghani).

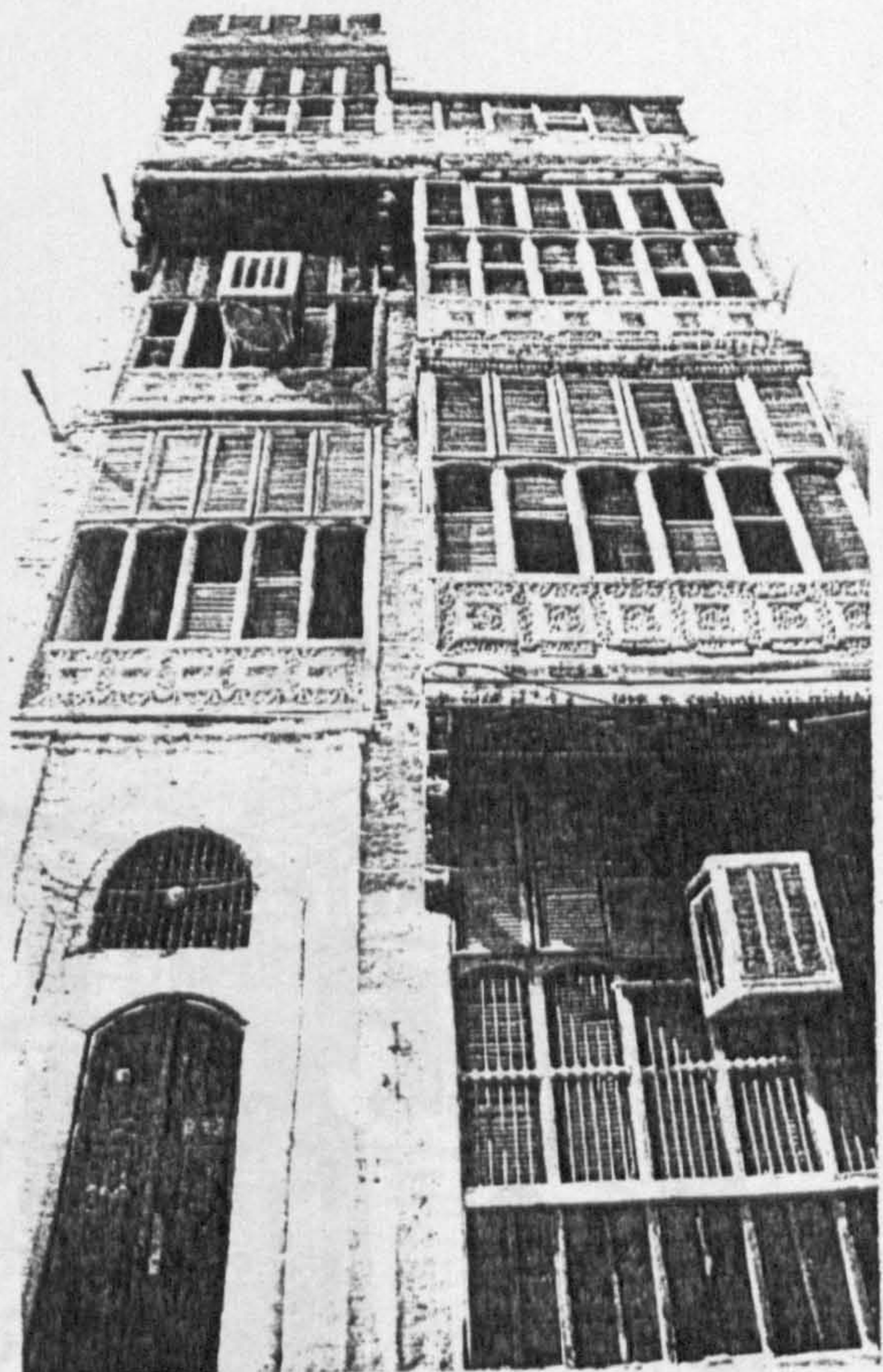
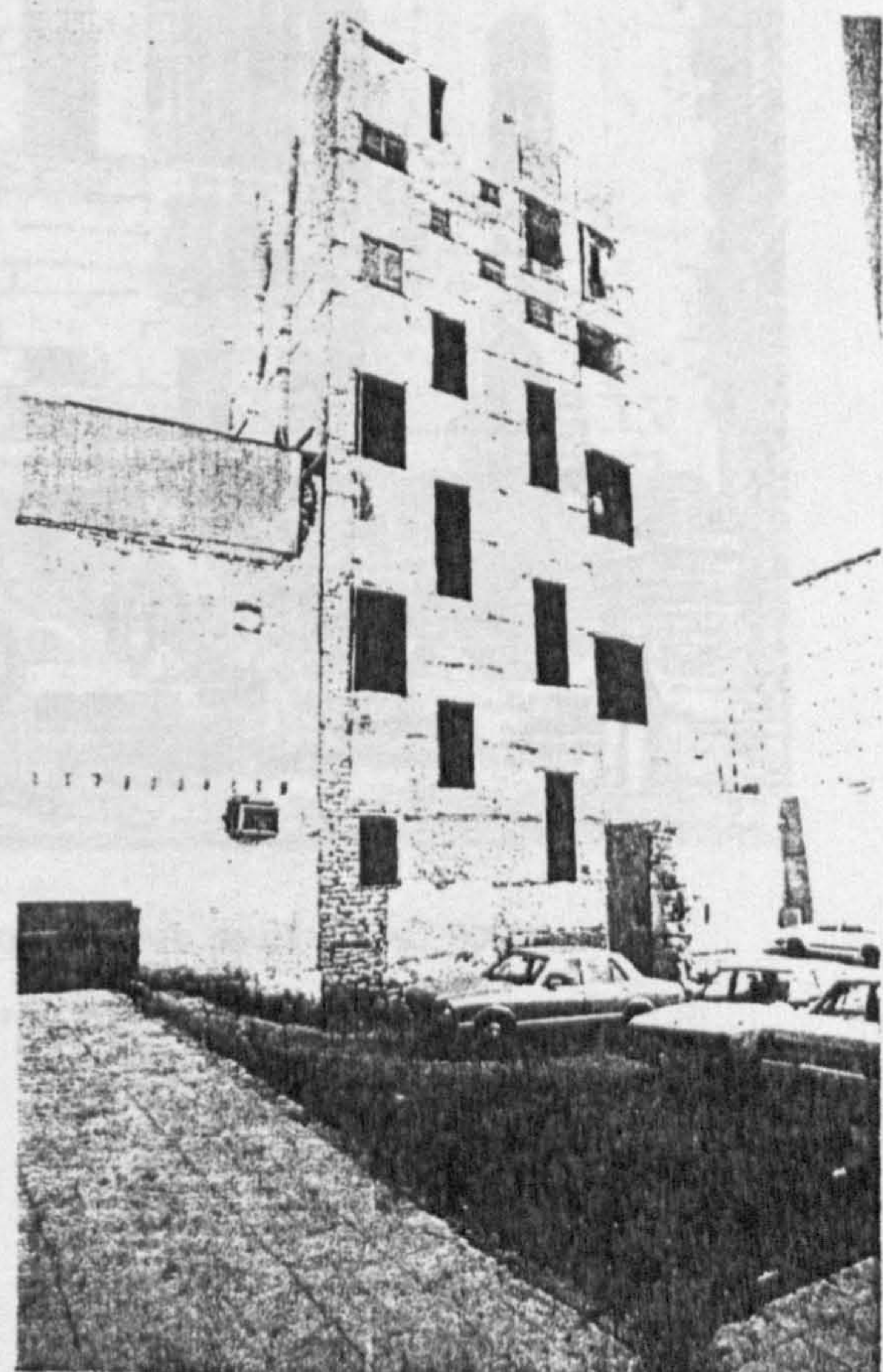


Fig 6-6

VIEW OF TRADITIONAL HOUSE,  
MAKKAH (2)  
(Rear of the house. The  
empty area used to place  
traditional house, now it is  
used to park cars).

Source:

Author (A.S. Alafghani).





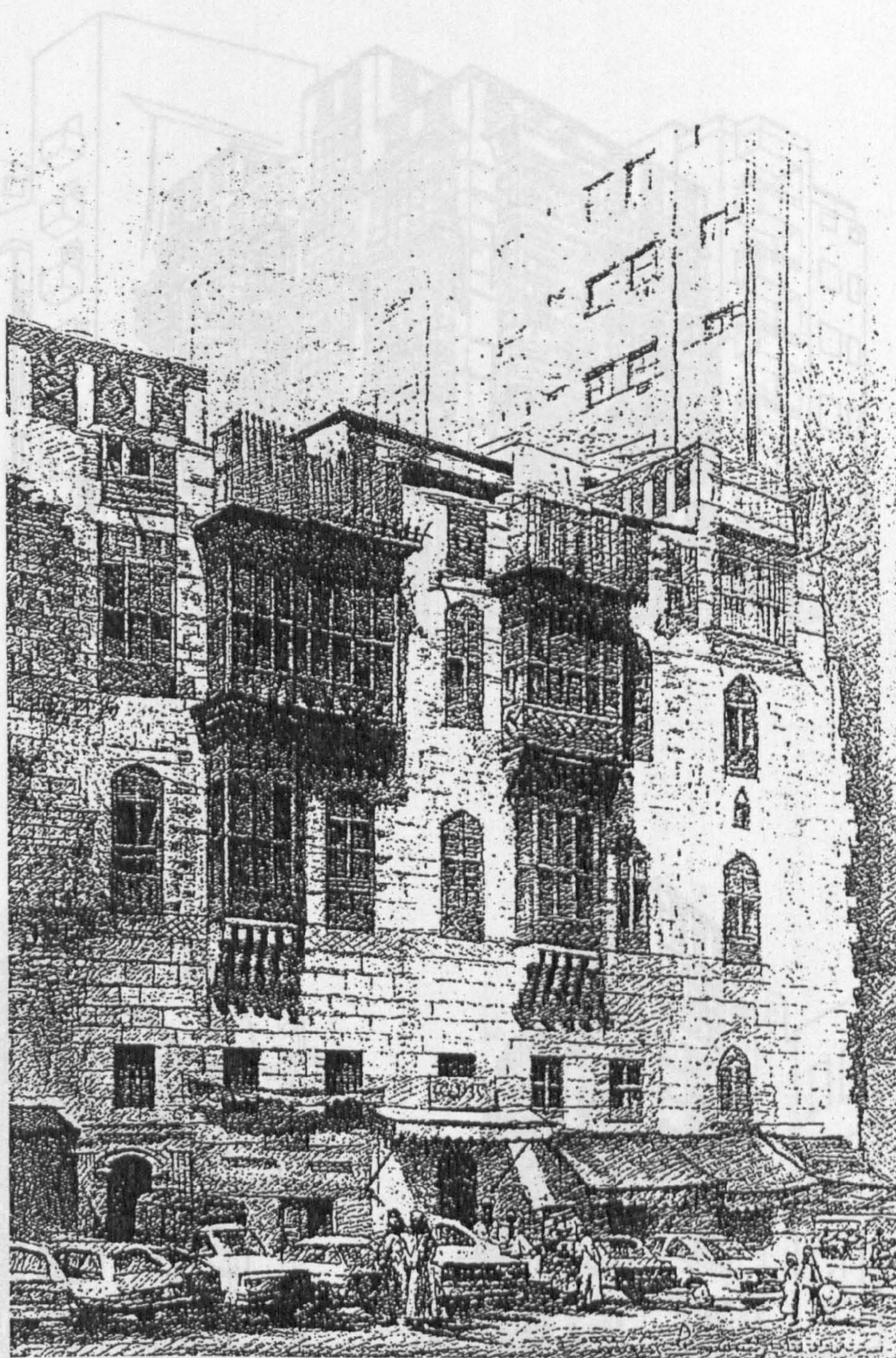


Fig 6-7 SKETCH OF MAKKAH TRADITIONAL HOUSE

Source: Al Hariri, M.W., 1981.



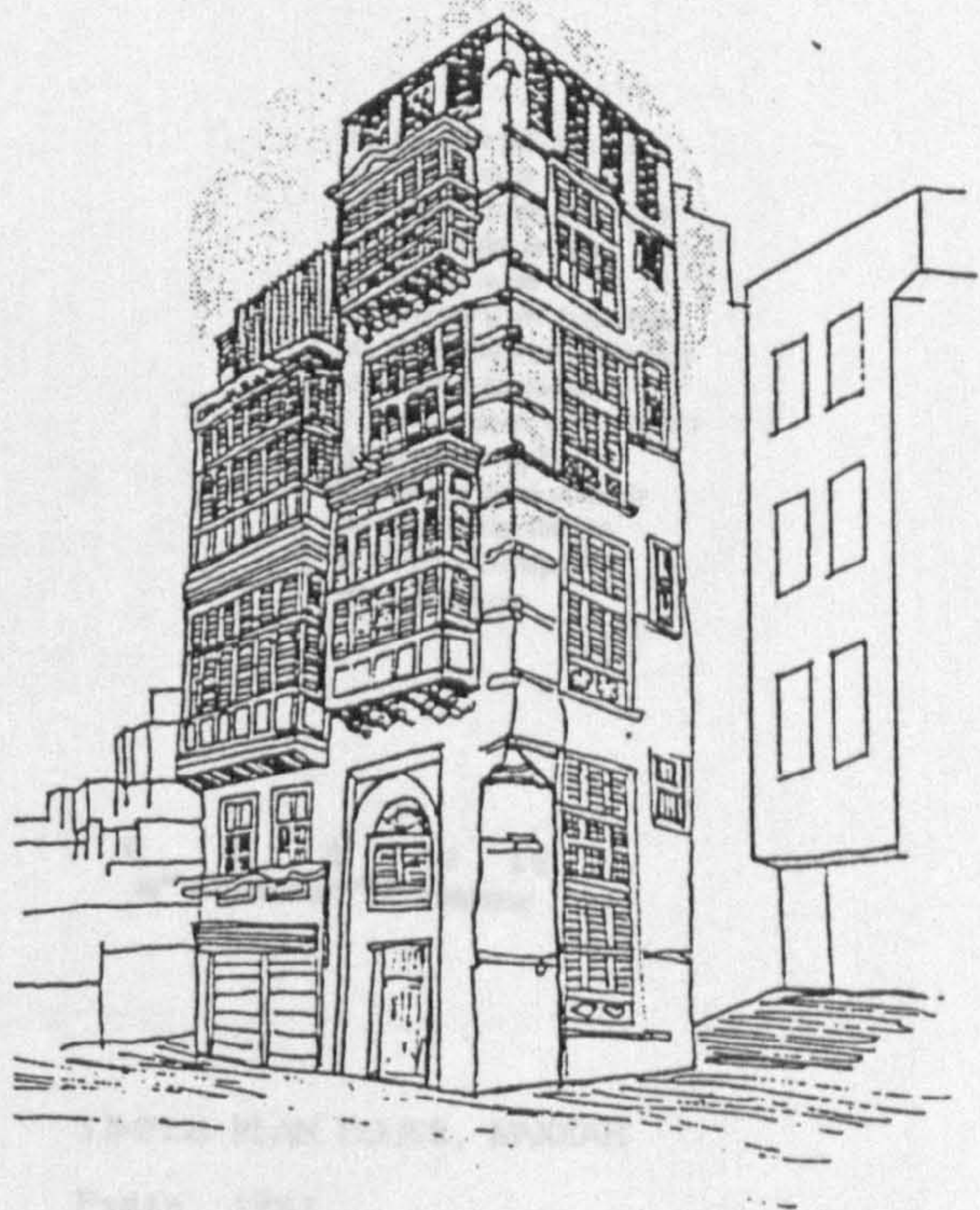
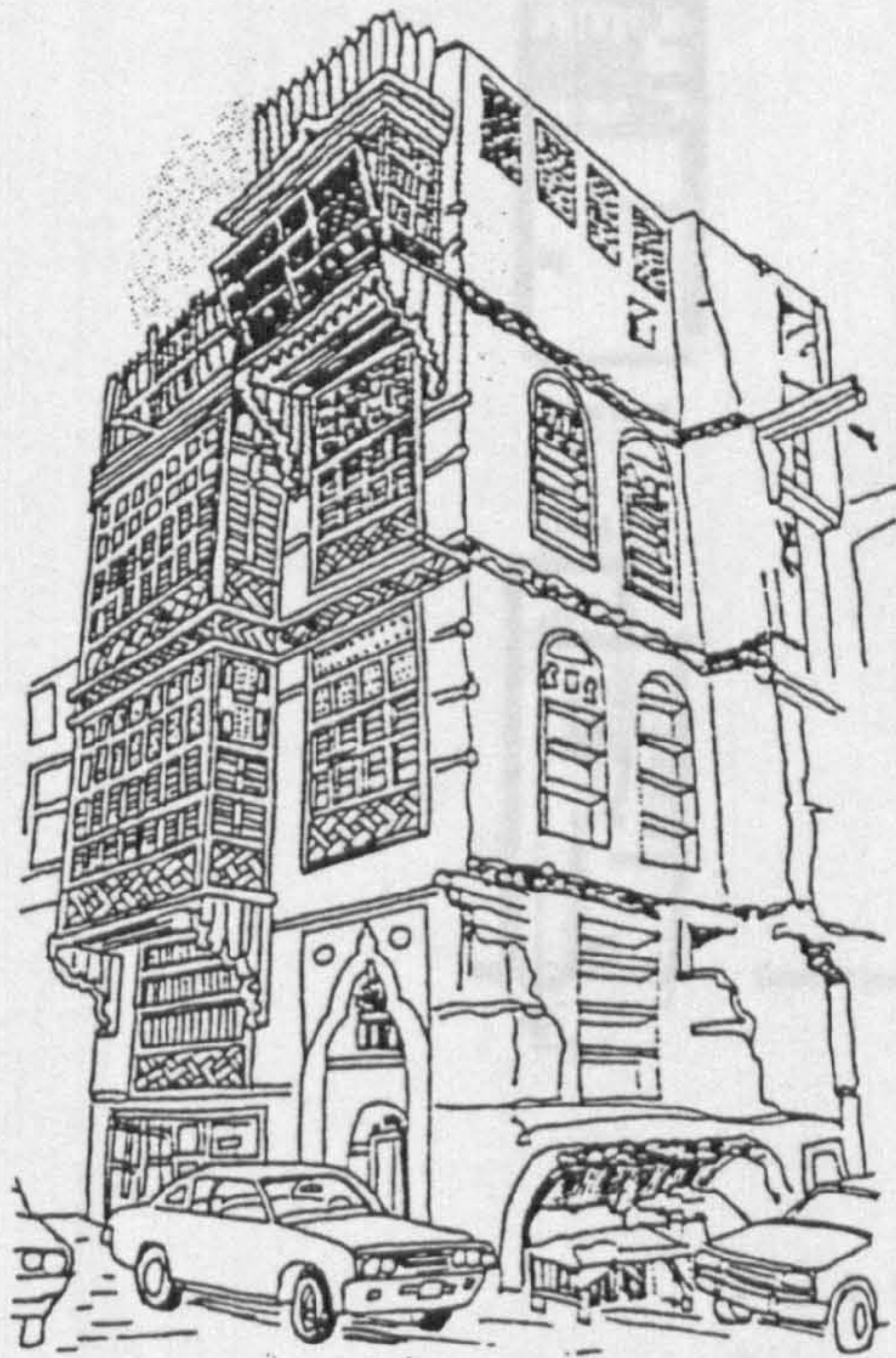
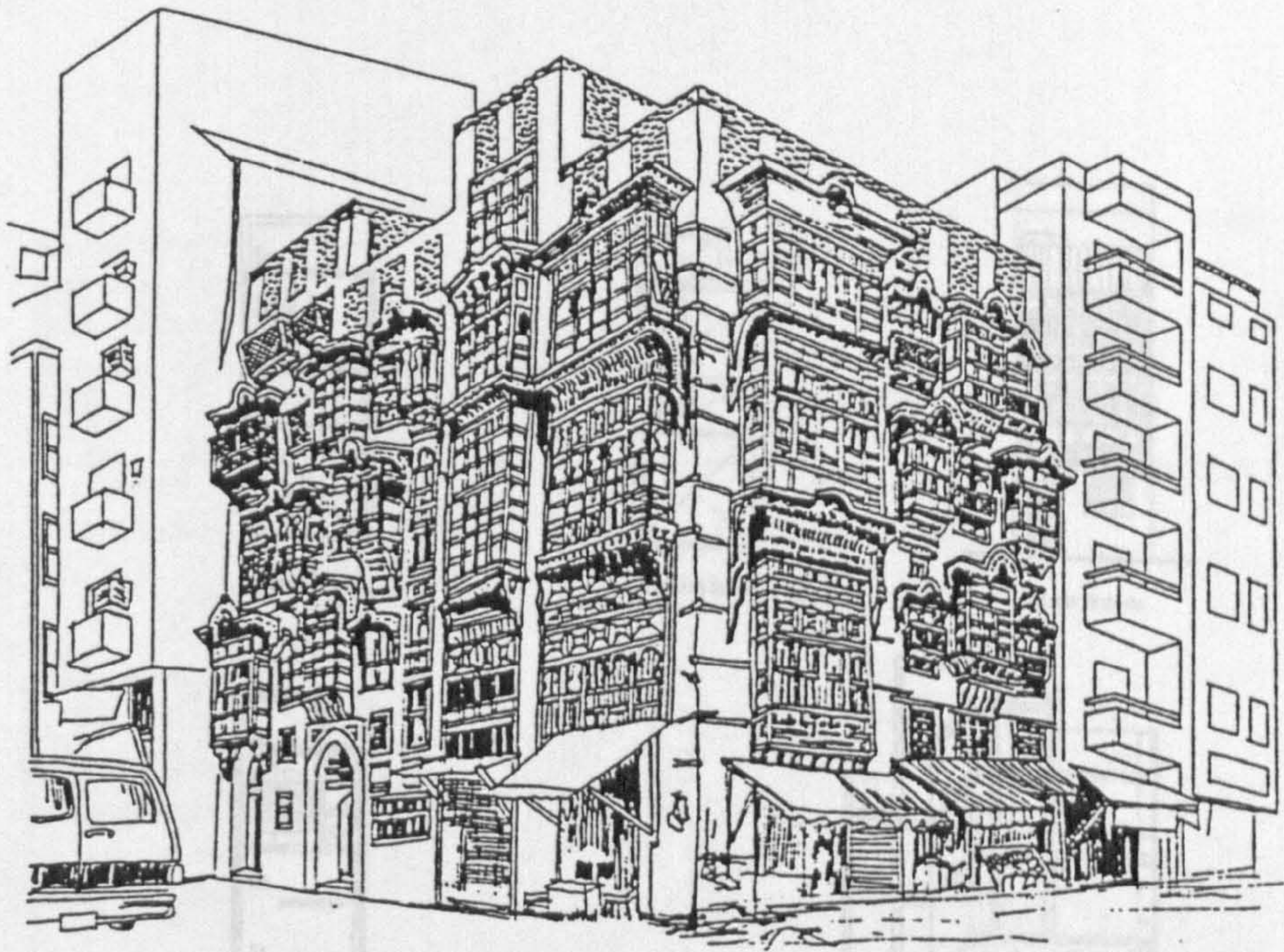
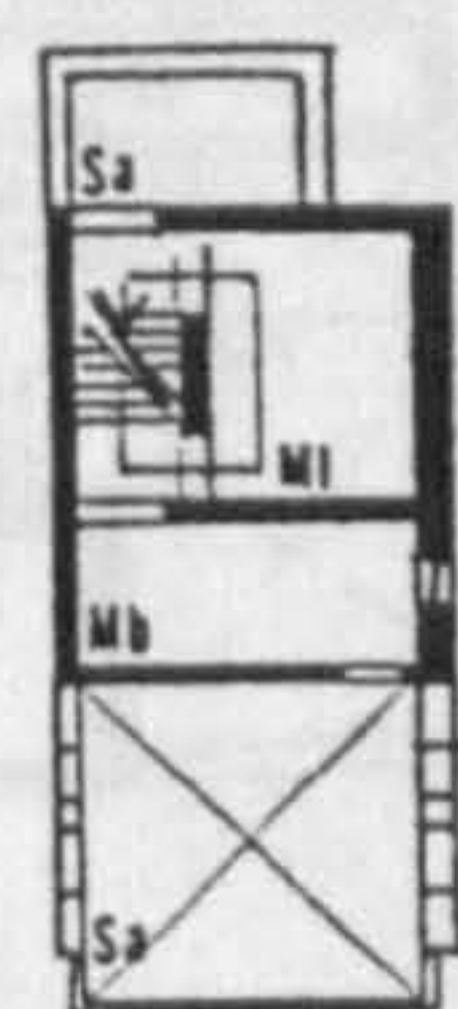
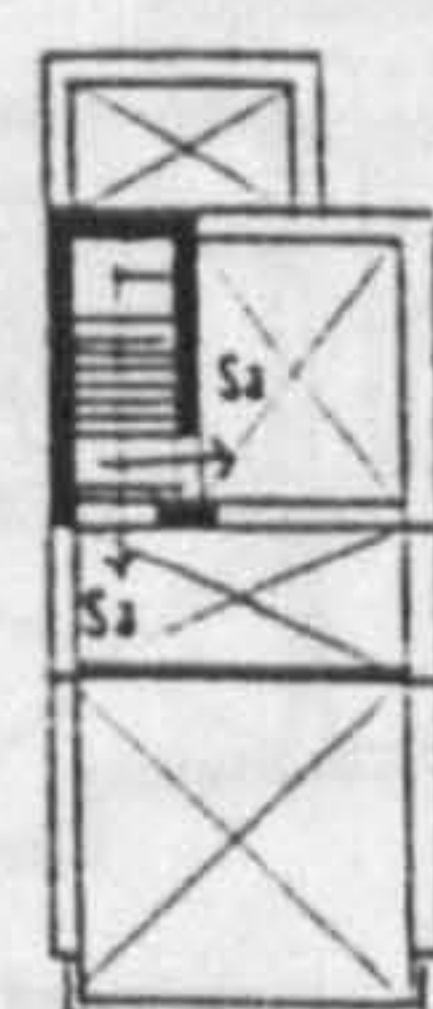


Fig 6-8 SKETCHES OF DIFFERENT MAKKAH TRADITIONAL HOUSES  
Source: Fadan, 1983, p. 302 and 312.

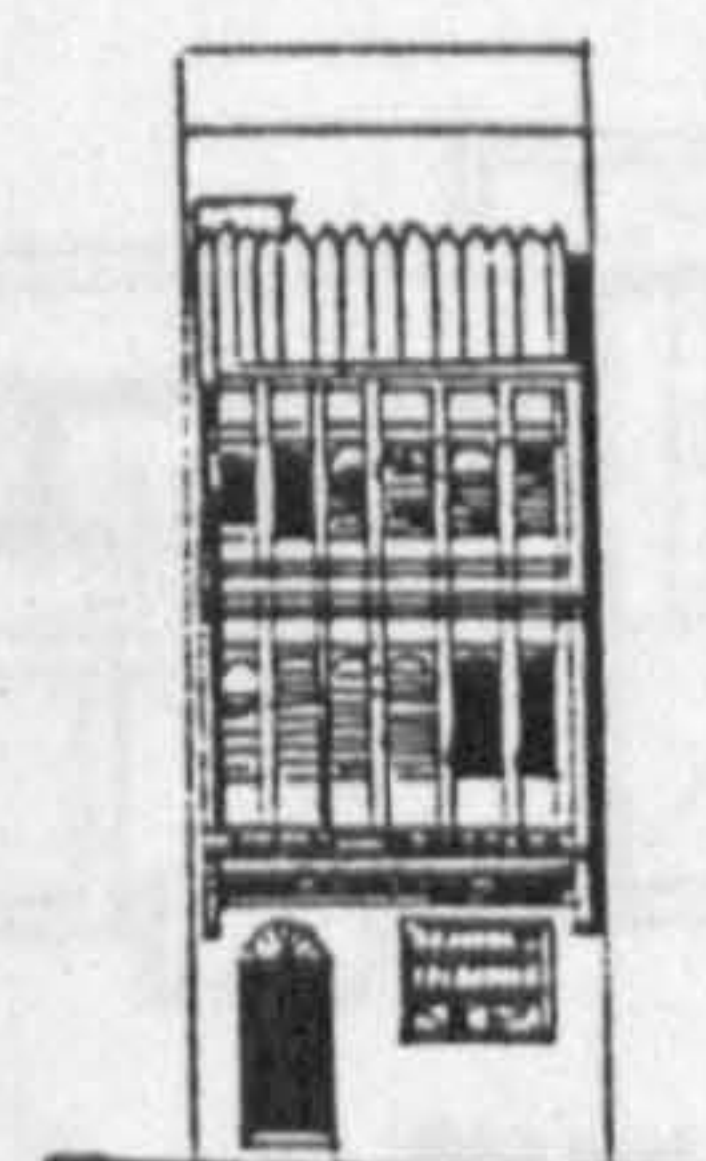




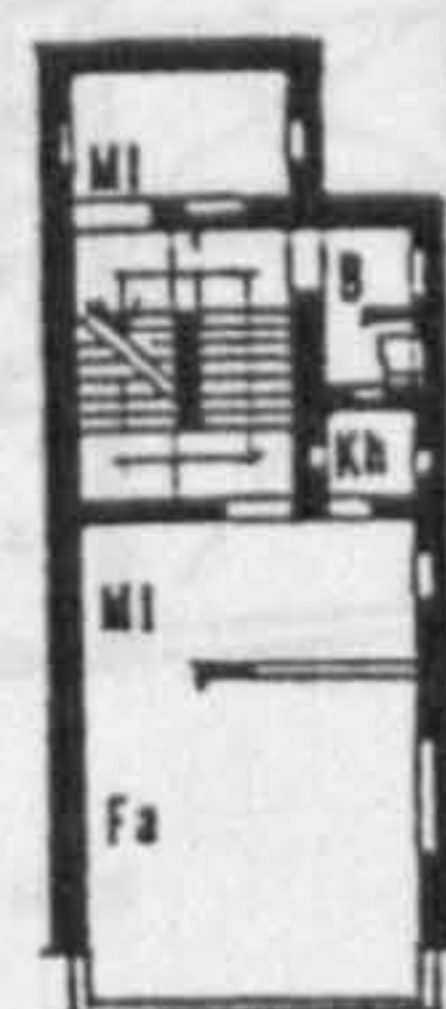
Third level



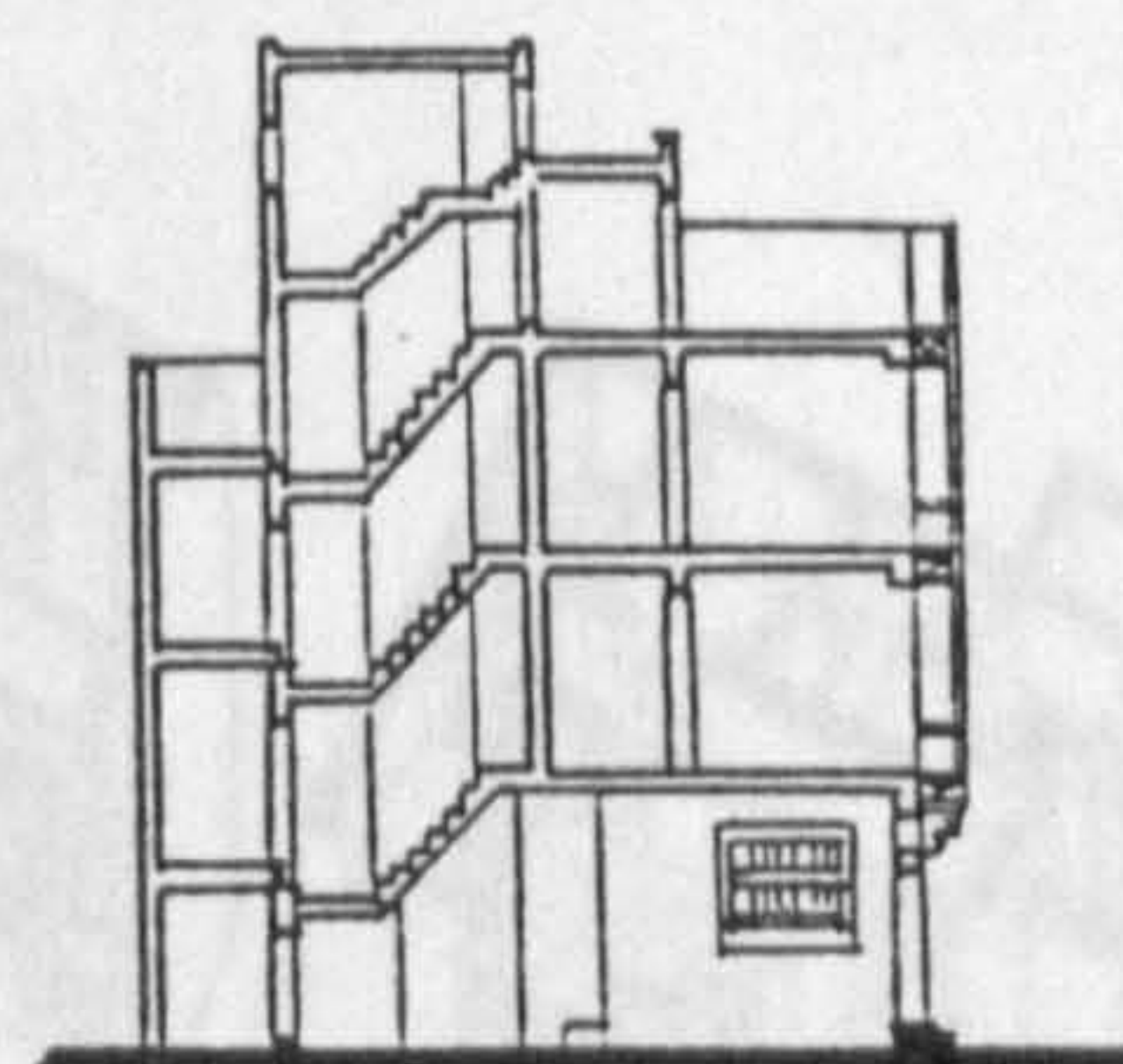
Fourth level



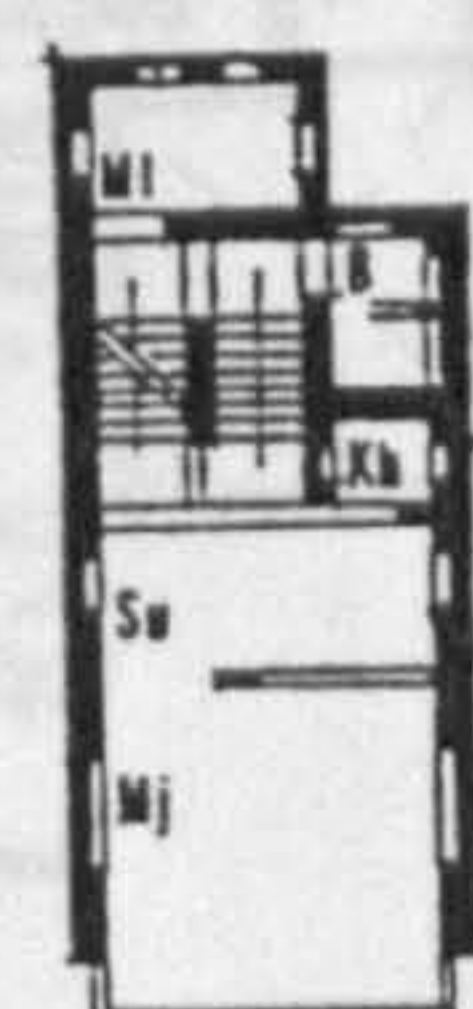
Main facade



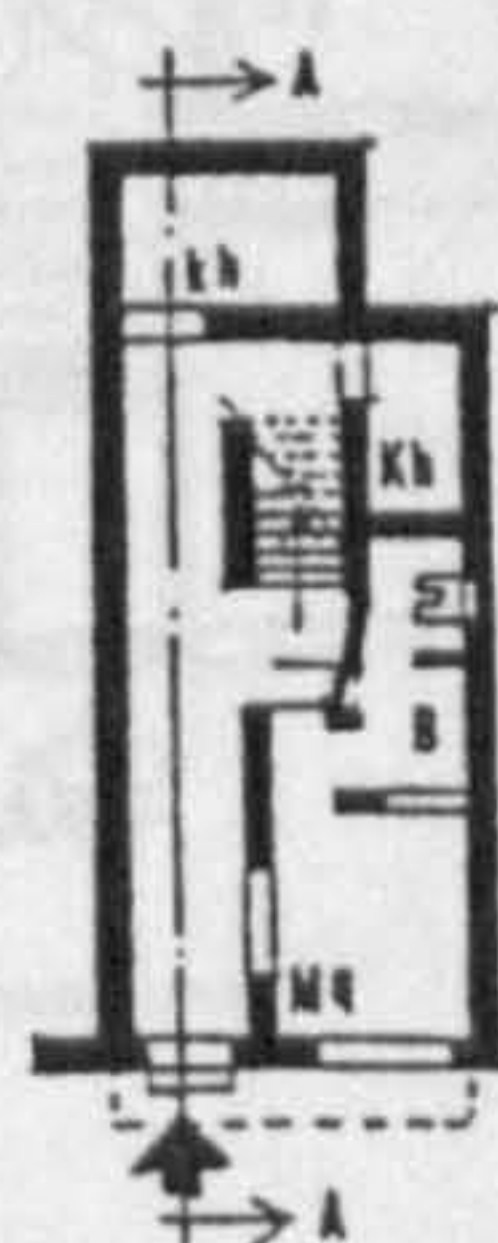
Second level



Section A.A



First level



Ground level

- Da Entrance hall (dihlīz)
- Mq Sitting room (maq'ad)
- Mj Reception room (majlis)
- Su Ante-room (şuffa)
- Fa Family room
- Kh Storage space (khuzāna)
- Mu Small room (mu'akkhar)
- Mt Kitchen (maṭbakh)
- B Water closet (bayt al-mā')
- Q Basement (qabw)
- Dq Storage space (diqajsi)
- Mb Night room (mabit)
- Sa Terrace (kharja)
- M1 Multiple use



Fig 6-9 SIMPLE PLAN HOUSE, MAKKAH  
Source: Fadan, 1983.



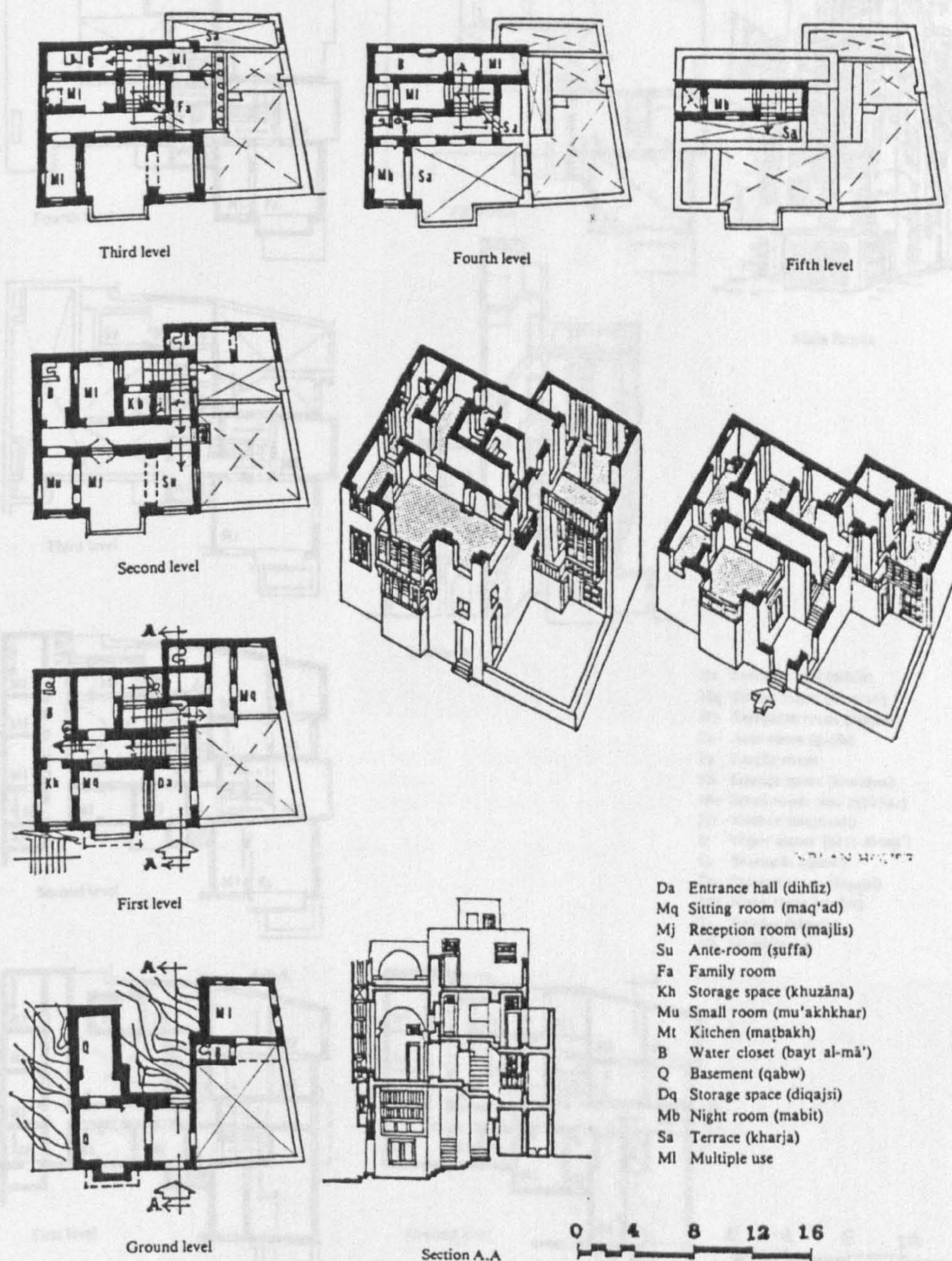


Fig 6-10 COMPOUND PLAN HOUSE, MAKKAH.

Source: Fadan, 1983.



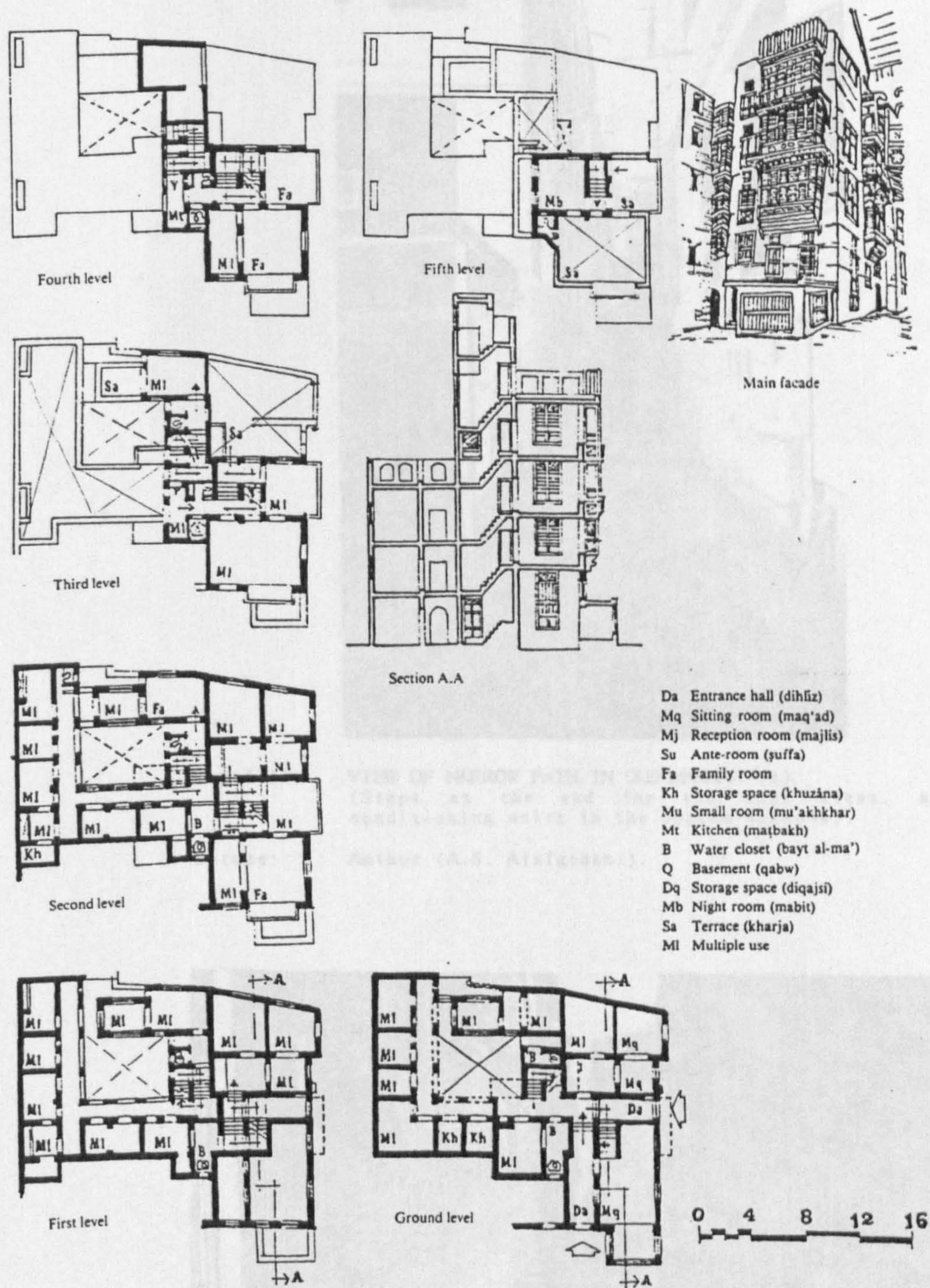


Fig 6-11 COMPLEX PLAN HOUSE, MAKKAH  
 Souce: Fadan, 1983.



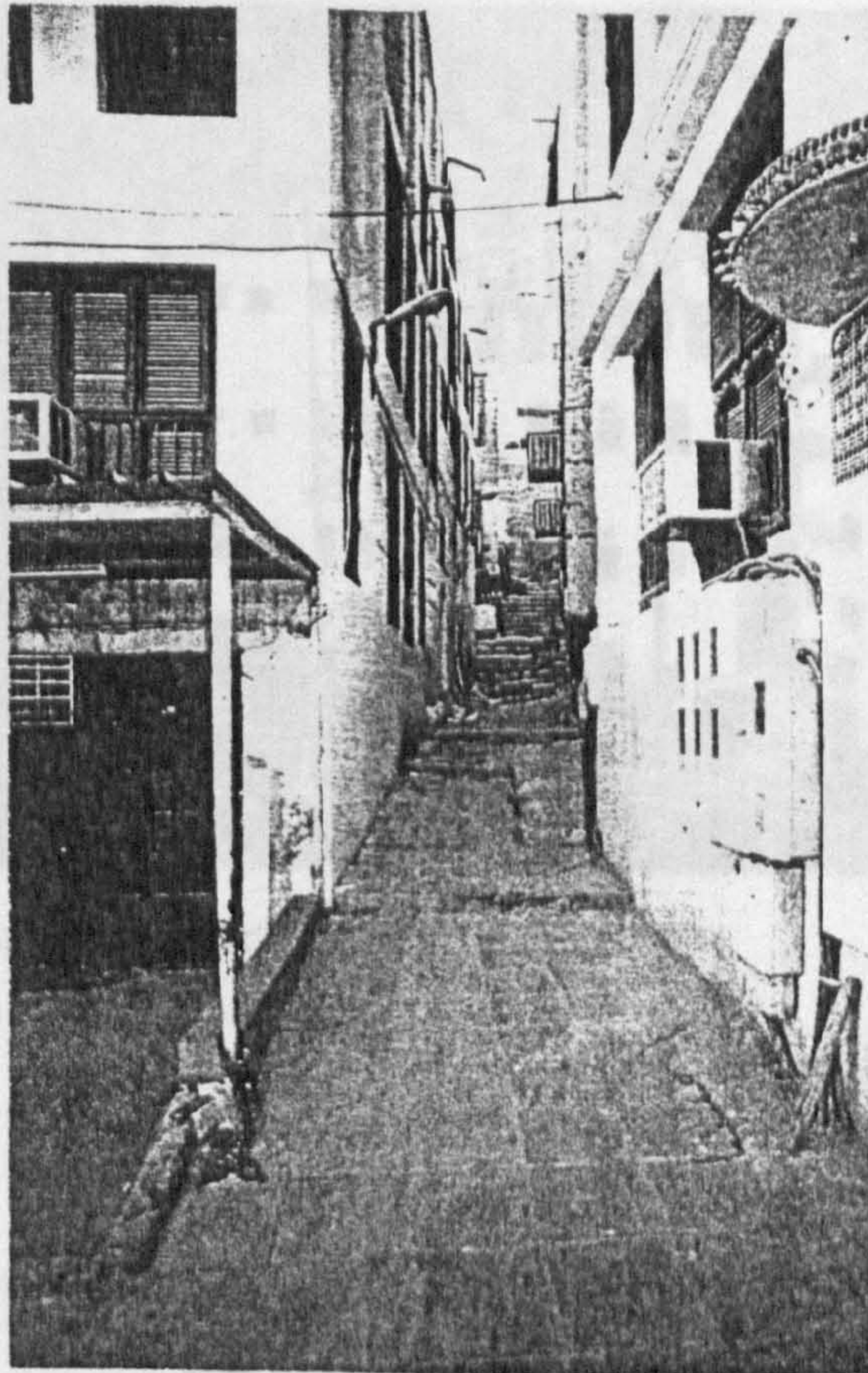


Fig 6-12 VIEW OF NARROW PATH IN OLD MAKKAH (1)  
(Steps at the end for the high areas, air conditioning units in the wooden windows).

Source: Author (A.S. Alafghani).

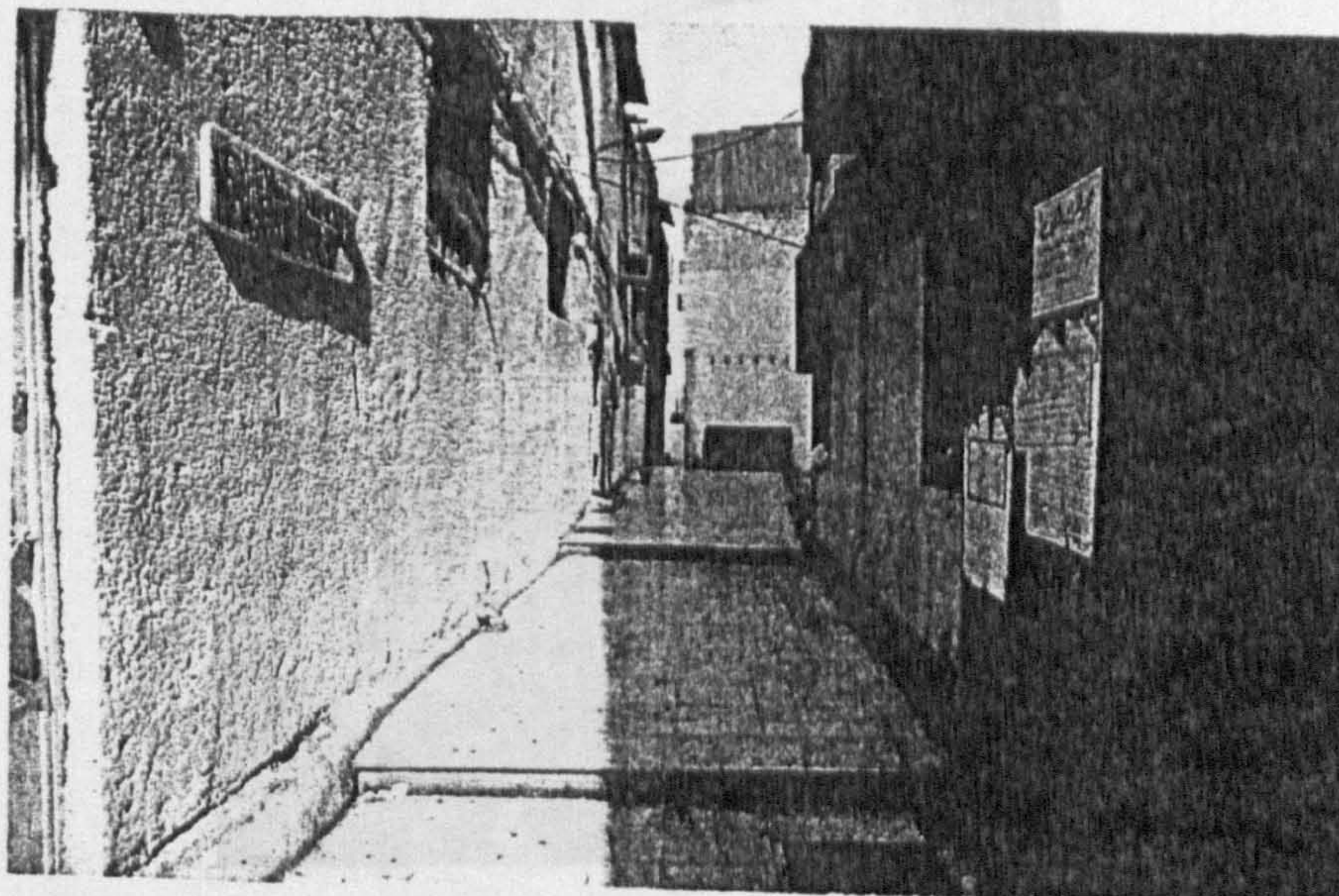


Fig 6-13 VIEW OF NARROW PATH IN OLD MAKKAH (2)  
(Very narrow at the end part of the path).

Source; Author (A.S. Alafghani).



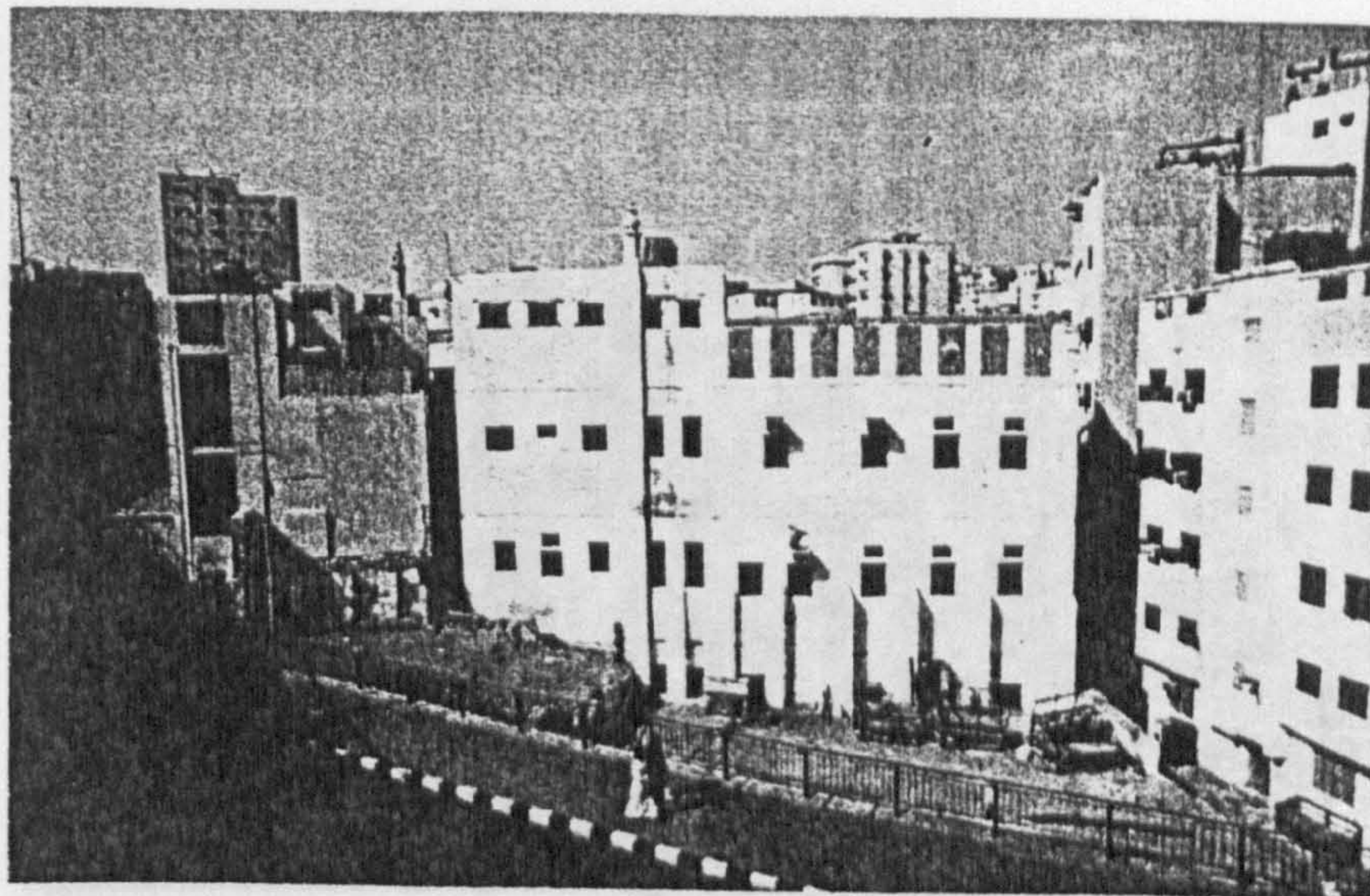


Fig 6-14 VIEW OF TRADITIONAL HOUSE, MAKKAH (3)

Source: Author (A.S. Alafghani).

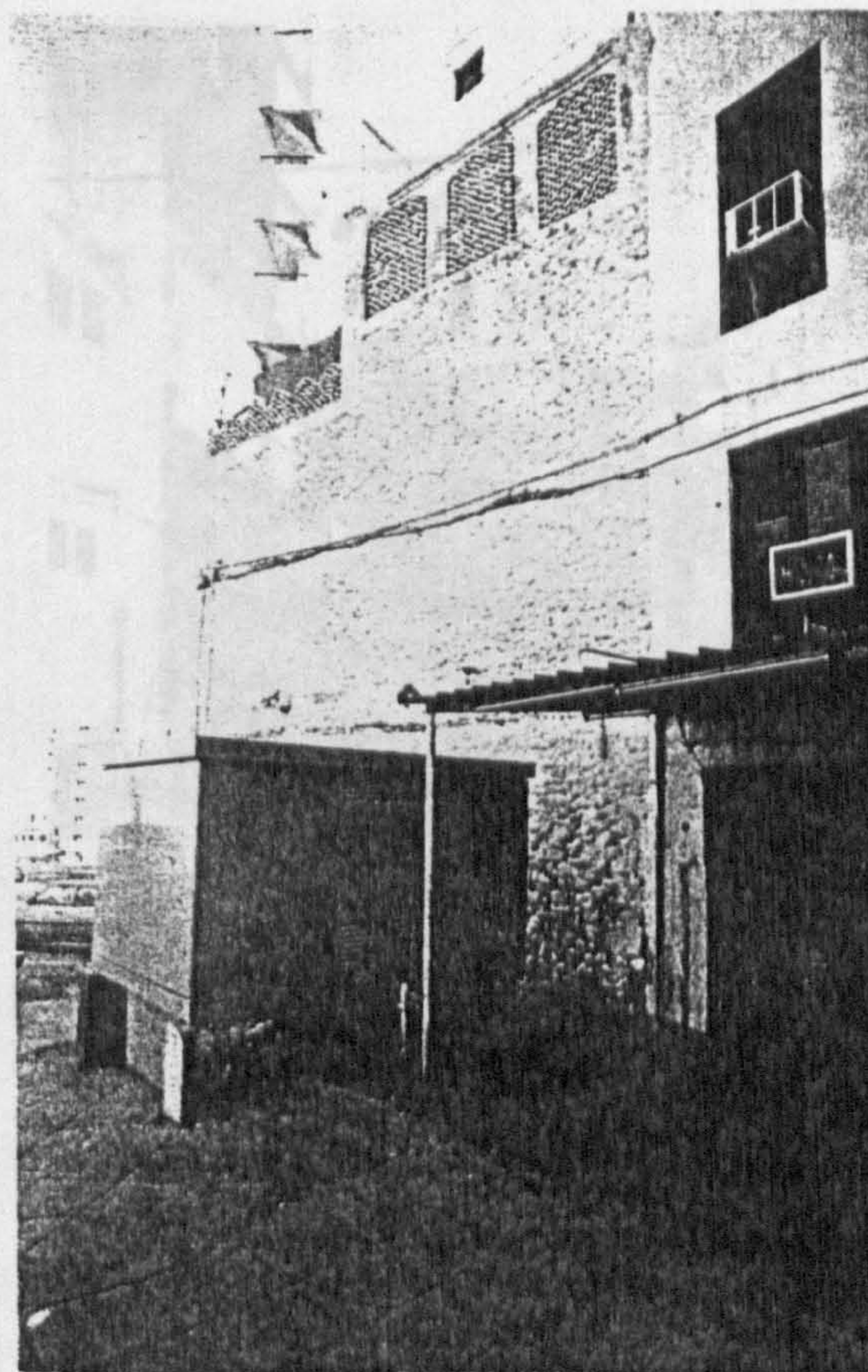


Fig 6-15 VIEW OF TRADITIONAL HOUSE, MAKKAH (4)  
(The use of brick in terrace walls).

Source: Author (A.S. Alafghani).



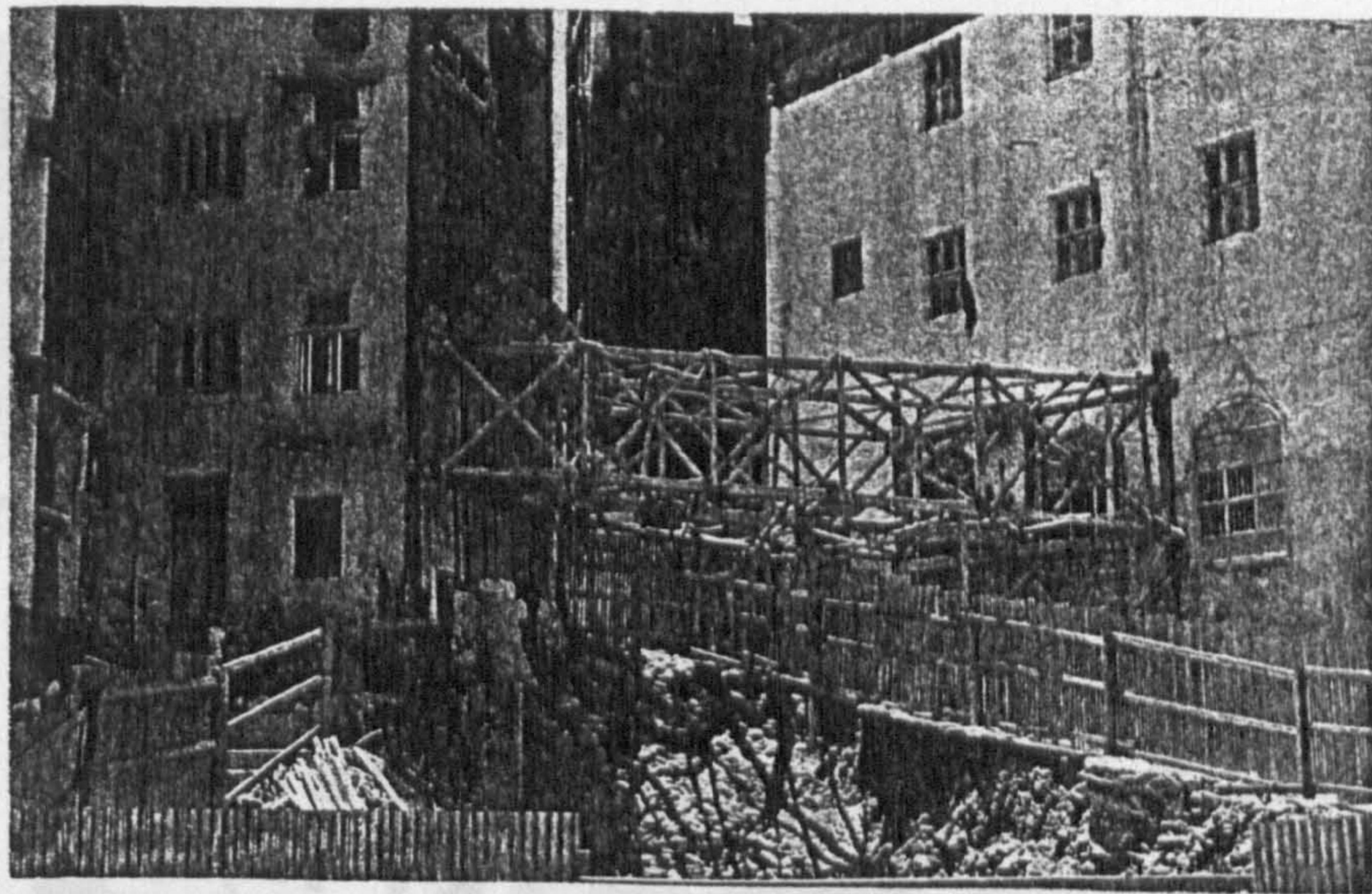


Fig 6-16 VIEW OF DEMOLISHING TRADITIONAL HOUSE, MAKKAH  
(The use of wooden seafolder to protect other houses).

Source: Author (A.S. Alafghani).



Fig 6-17 VIEW OF CHANGES IN TRADITIONAL MAKKAH  
(Site is prepared for high-rise building to replace traditional house).

Source: Author (A.S. Alafghani).



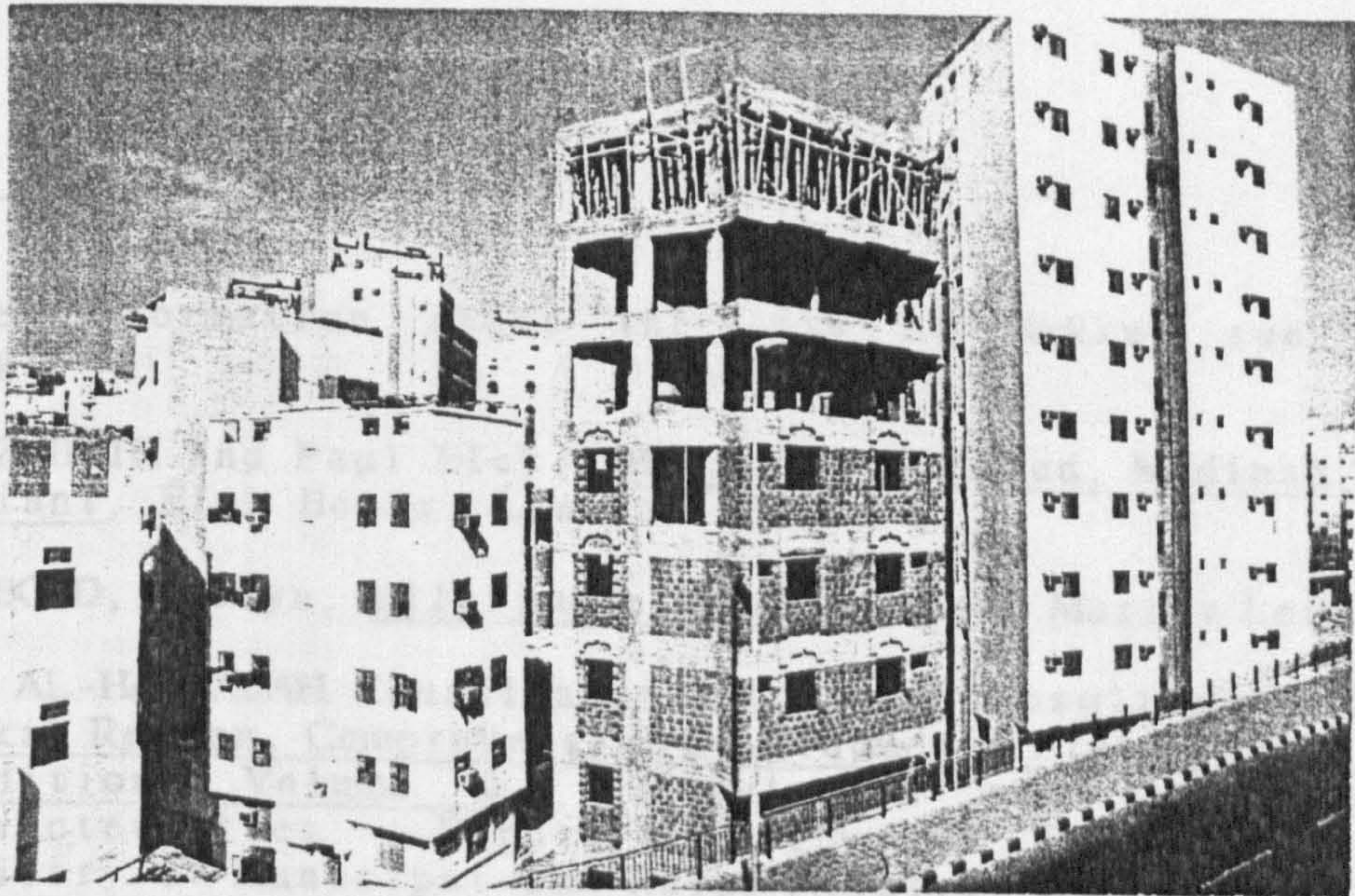


Fig 6-18 VIEW OF NEW MAKKAH  
(High-rise apartments are the character).

Source: Author (A.S. Alafghani).

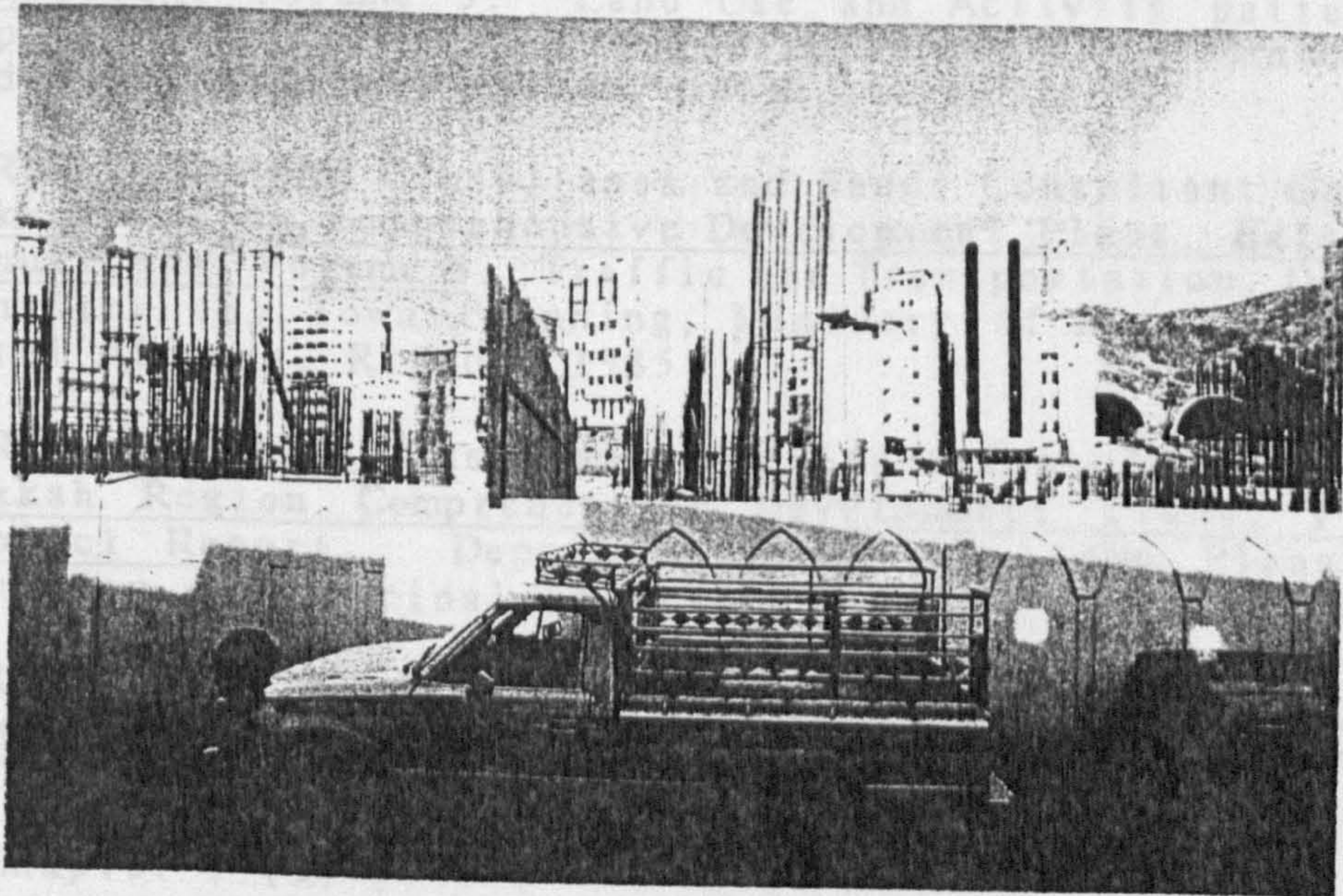


Fig 6-19 VIEW OF NEW PROJECT IN MAKKAH  
(This is the site for the new project (high-rise) to replace the traditional neighbourhood).

Source: Author (A.S. Alafghani).



## Footnotes: Chapter 6

1. For more information about the city of Makkah see the following:

- (a) ELIZABETH and Paul Elek. Mecca The Blessed, Madinah The Radiant, Elek Books, London 1963.
- (b) COBBOLD, Evelyn, Pilgrimage to Mecca. John Murray London.
- (c) DAR AL-HANDASAH Consultants and Saudi Consultant Group. Makkah Region, Comprehensive Developments Plans, Existing Conditions Volume 2. Population and Demographic Characteristics. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh, 1985.
- (d) DAR AL-HANDASAH Consultants and Saudi Consultants Group. Makkah Region Comprehensive Development Plans, Existing Conditions Volume 9. Overview Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh 1985.
- (e) DAR AL-HANDASAH Consultants and Saudi Consultant Group. Makkah Regional Comprehensive Development Plans, Existing Conditions Volume 5. Land Use and Activity patterns, Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh, 1985.
- (f) DAR AL-HANDASAH Consultants and Saudi Consultant Group. Makkah Region comprehensive Development Plans, Existing Conditions, Volume 6. Traffic and Transportation, Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh, 1985.
- (g) DAR AL-HANDASAH Consultants and Saudi Consultant Group. Makkah Region Comprehensive Development Plans, Final Project Report. Depute Ministry for town Planning, Ministry of Municipal and Rural Affairs, Riyadh, 1985.
- (h) MAKKY, Ghazy Abdul Wahed, Mecca: The Pilgrimage City, A Study of Pilgrim Accommodation, Croom Helm Ltd., London, 1978, Chapter 2.

2. Op.cit Chapter 5 (2) p.4.

3. Ibid p.4.

4. Ibid p.4.

5. AL-MUQADDASI Shams Al-Din Abd Allah. Ahsan AlTaqa'im Fi Marifat Al Awalim, Vol. I. Calcutta. The Baptist Mission Press. 1897 p.137.



6. For more information about the Makkah traditional houses see the following:

- (a) Al-OTAIBI, Ghazi Sahal. Urban Dwelling Environments in Rapidly Growing Cities. Mecca, Saudi Arabia. Urban Settlement Design in Developing Countries, MIT. 1980.
- (b) FADAN, Yousef. Traditional Houses of Makkah. The Influence of Socio-cultural Themes Upon Arab-Muslim Dwellings. Islamic Architecture and Urbanism. A Symposium organised by the College of Architecture and Planning. King Faisal University, Dammam, 1983 p.p. (295-313).
- (c) DAR AL-HANDASAH Consultants and Saudi Consulting Group. Makkah Region Comprehensive Development Plans Cultural Area Plans. Volume 1: Al-Haram. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affairs, 1986.
- (d) DAR AL-HANDASAH Consultants and Saudi Consulting Group. Makkah Region Comprehensive Development Plans, Cultural Areas Plans, Volume 2: Al-Mo'Ala, As-Sakkaf, Al-Qashlah, Jabal Al-Now, Jabal Thowr. Depute Ministry for Town Planning, Ministry of Municipal and Rural Affaris, 1986.
- (d) HARIRI, Majdi M. Housing in Central Makkah: The Influence of Hajj. School of Architecture, University of Newcastle Upon Tyne, Newcastle, December 1986, Chapter 2.

7. This is an investment public company which is working for developing the area around the Holy Mosque.



## CHAPTER 7

### JEDDAH HOUSES

- 7.1 GENERAL VIEWS
- 7.2 CLIMATIC REFERENCE
- 7.3 ACTIVITIES REFERENCE
- 7.4 CULTURAL REFERENCE
- 7.5 MATERIAL REFERNECE
- 7.6 JEDDAH HOUSES ASSESSMENT



## 7.1 GENERAL VIEWS

Jeddah is the Port of the Holy City of Makkah, as well as a commercial centre of the west coast of Saudi Arabia<sup>1</sup>.

### Physical Characteristics<sup>2</sup>:

- Geographical location. (Fig 7-1, 7-2)

Jeddah is located on 21° 30" of altitude and 39° 10" longitude.

- Regional setting.

Jeddah is considered the western gate of the kingdom. It is connected to other parts by a network of roads. It is only 73 kilometres between Jeddah and Makkah.

- Climate.

Hot-humid in general. Maximum temperature in summer reaching 43°C and the minimum in winter reaching 12°C. The average temperature is 28°C.

Rain reaching 25mm, and the average humidity reaching 67%.

- Topography and Geology.

Jeddah is located in the Tihamah plain between the Red Sea and the Sarawat Mountains. The area consists of granite stones, sandy lime mud, coral and mud, limestone, mud stones, and fine sands. The city area in 1407 A.H. reached 30809 hectares.

### History<sup>3</sup>:

- Jeddah was established before Islam as the settlement of the Kodah tribe. The city's significant as the Port of the Holy City of Makkah, as well as a commercial centre, was laid by the Caliph Uthman Ibn Affan. With the spread of Islam, the function of Jeddah was strengthened, year after year, as the influx of pilgrims to the Holy City of Makkah grew. (Fig 7-3)



#### Socio-economic<sup>4</sup>:

##### - Population:

In 1407 the population was about 1,312,000 cap. The density of population averaged at 86 persons/hect. Fishing is the most important occupation not found in most Saudi cities that flourishes in Jeddah.

#### Jeddah Traditional Houses

The vernacular architecture of Jeddah evolved into a refined building art and technology. The tall, airy and light handsome structures up to seven stories high that were built for the rich merchants of Jeddah still stand in their magnificence after two or three hundred years<sup>5</sup>. (Fig 7-4, 7-5 and 7-6)

### 7.2 CLIMATICAL REFERENCE

The weather of Jeddah is characterised by the heat and humidity, in this climate cross-ventilation is a necessity in buildings. With the location of the city on the Red Sea, the breezes were one factor which the people of Jeddah took advantage of when they constructed their houses and town.

The house presented different elements which could be related to the needs of the climate.

- The Mashrabiya gave the house the ability to allow cross ventilation to happen inside it. The large openings function was to catch the sea breeze which used to be the coolest air in this area. The wooden screen of the Mashrabiya was to protect the inside spaces from the direct sun and to reduce the intense glare. (Fig 7-7)
- The character of the building material and the technique of constructing which depends on thick walls and many layer roofs. This produced an insulated house.



- The different spaces which were used according to the climate situation such as the terrace use and the different facilities associated with it. This gave the residents a good space to sleep under the cover of the sky and the cool air at night.

The neighbourhoods presented different elements which could be related to the needs of the climate.

- Compactness, the houses were constructed adjacent to each other. As a result of this compactness, the surfaces which are exposed to the sun are reduced.
- The narrow streets provides the shades for the pedestrian who are using these paths. (Fig 7-8, 7-9)

### 7.3 ACTIVITIES REFERENCE

The different parts of the traditional house provided the spaces for the activities of the people. The ground floor usually contain the "Maqaad" (men reception), usually it is used for the head of the family to receive his daily friends. They enjoy sitting, talking, sharing news and playing cards. So, basically the ground floor is used by males for the informal meetings. The family also could use it if there were no guests.

The upper floors comprised a series of sitting rooms "Majlis", to which were attached a number of secondary rooms for cooking and storage. The family usually use the upper floor for all its activities (daily activities). In many cases, the house was divided into self contained compartments occupied by separate branches of the family.

The roof terrace is an important area which the family use for many different activities and most of it is available for sleeping.



The projecting Mashrabiya provided a space where part of the family could enjoy sitting while drinking tea. The house protected the family privacy in each space. The use of the Mashrabiya gave the family the complete privacy protection. It gave the space the light and air it needed. The family enjoyed life inside the house while observing the outside surroundings. (Fig 7-10, 7-11)

The neighbourhood provided certain elements which encouraged certain activities related to the family life. The many dead-end (cul-de-sac) paths with the house arrangement which provides the semi-public area (Baraha) allowed the children to enjoy playing together under the supervision of their parents (mother). Also these arrangements allow the neighbourhood to highlight the security issue within their clear boundaries. Usually only those who live in this cul-de-sac would enter it, if a stranger entered this area he would be noticed. (Fig 7-12, 7-13, 7-14 and 7-15)

#### 7.4 CULTURAL REFERENCE

The location of the city on the Red Sea as the main port on the west coast of the Arabian Peninsula allowed the interaction of the people of Jeddah with other people from outside. Among the countless numbers of pilgrims who landed in Jeddah, many were craftsmen who stayed to practice their skills as masons, woodcarvers, plasterers, metal workers and others within a common cultural milieu which subsequently developed into a coherent architectural vocabulary possessing a rare sense of harmony and proportion.

The people of Jeddah were the traders and merchants who saw in constructing houses the way to present their wealth and prestige. The houses provided the environment in which people could practice their life with respect to themselves and to others. The values of the people were protected.



## 7.5 MATERIAL REFERENCE

The traditional houses were constructed of local building materials, except for the wood which was imported. Coral reef stone (Hajar Mangaby or Cashur)<sup>6</sup> was the main building material. It was used for the construction of walls, partitions and foundations. The wood used for doors, windows, Mashrabiya and as structural elements, gypsum and lime were used to plaster the walls and ceilings. Mud was used as a mortar.

The foundation of the buildings was constructed with coral limestone or sometimes stone with mud mortar. The walls were constructed of blocks of coral limestone. The external walls were reinforced with horizontal wooden beams which were placed equally at every five to six courses of coral stones. The walls were plastered both inside and outside, but the wooden beams were usually left exposed.

The floor was constructed with wooden beams (gandel) on palm trunks. On top of that was laid timber boards, which were then covered with a layer of clay or rubble of coral limestone and lime mortar. (Fig 7-16)

## 7.6 JEDDAH HOUSES ASSESSMENT

The traditional built environment of Jeddah reflects the sensitivity of the old people towards their environment, needs and their resources. This took the advantage of the situation of the city as a port of the Red Sea when they opened their society to the outside people and even material (wood), by which they managed to construct these magnificent houses.

The arrangement of spaces and the different transitions which were produced also shows the ability of the people to find agreement among themselves in maintaining their neighbourhood.



The different social relations which were among the people, were strengthened by the physical structure. The house as a unit preserved the social interaction between the family members and the neighbourhood encouraged the social interaction between the neighbours through the different spaces which allow such interaction to occur.

The present situation of old Jeddah is totally different. The area now is considered one of the unpopular areas among the original residents of Jeddah. Most of the original families already left their houses and moved out the traditional area. They either sold it or divided it into sections by adding doors and partitions to rent to singles at a low rent. This attracted a lot of foreign labours (Pakistanies, Yemenies, Sudanies, etc.) to live in these areas. The new commers did not understand these houses. They altered it in a way to suit themselves and their new needs. Mashrabiyaes were destroyed for the sake of air conditioning unit to be fit in. (Fig 7-17, 7-18, 7-19 and 7-20)

In the neighbourhood itself a lot of changes occurred. The vehicular movement disturbed the quietness of the area. Buildings were demolished for the sake of new roads. Some of the buildings are deteriorating and they present a hazard situation. It seems as if maintenance is costing too much by which people could not maintain their old houses. (7-21, 7-22)

The Municipality of Jeddah has put a lot of effort to preserve the old city character. They assign a branch of the Municipality to this area. Many projects were accomplished by the Municipality in this area such as paving the pedestrian paths and providing electricity lights in all roads and paths. It took on its shoulder the preservation of the housing by not allowing the people to demolish their traditional houses for the sake of constructing new concrete structures. Compared to other cities in the Kingdom, the Municipality of Jeddah is considered to be



the leading municipality in the conservation of traditional neighbourhoods.

A lot of changes occurred to the main structure of the traditional neighbourhood. The area which was adjacent to the sea shore was demolished and a new scheme developed to transform that area to a modern commercial centre for the city of Jeddah. High-rise projects up to 30 storeys were constructed on that area. At present, these projects form an artificial block to the sea breeze. The traditional neighbourhood suffered from this situation, most of the houses do not get the same advantage of the sea breeze which used to help in the ventilation and cooling of the houses. (Fig 7-23)

Many concepts could be derived from the traditional built environment, and many industries could be developed on the basis of manufacturing local building materials.





Fig 7-1 JEDDAH CITY  
(A Satalite phogoraph of Jeddah City).

Source: King Abdulaziz City for Science and Technology,  
Riyadh.



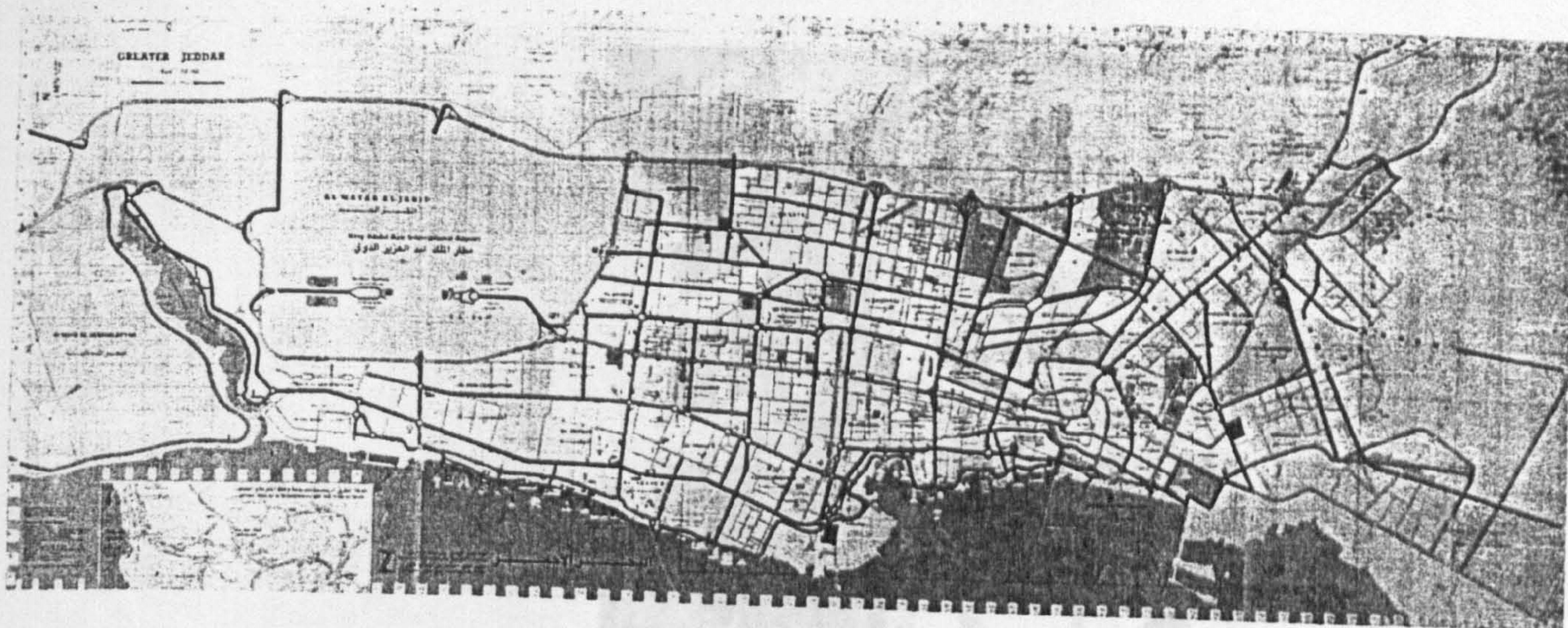


Fig 7-2 MAP OF JEDDAH CITY

Source: Zaki Farsi, Jeddah.

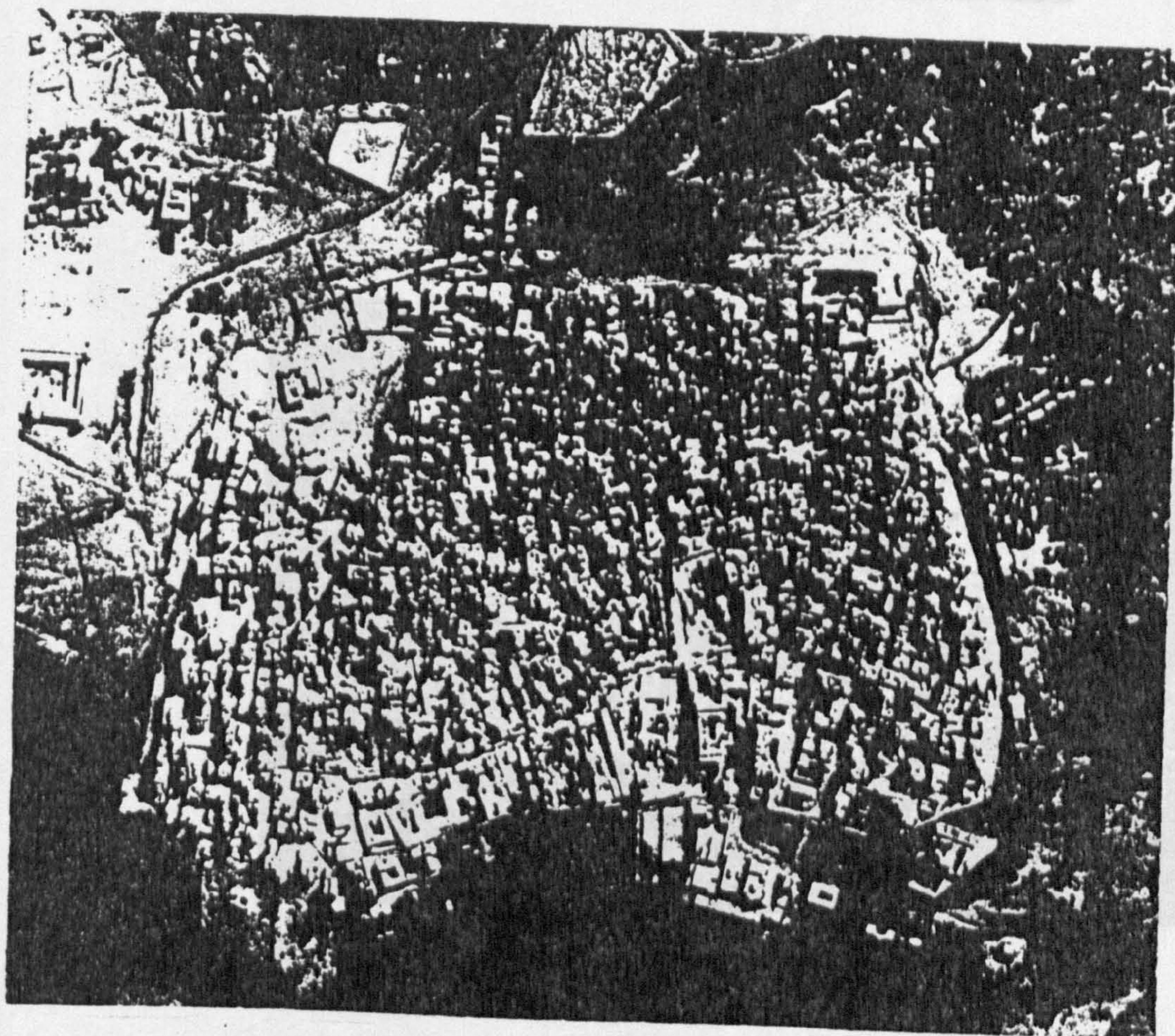


Fig 7-3 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN JEDDAH  
(An aerial photograph of old Jeddah, 1948).

Source: (ACB) p. 4.



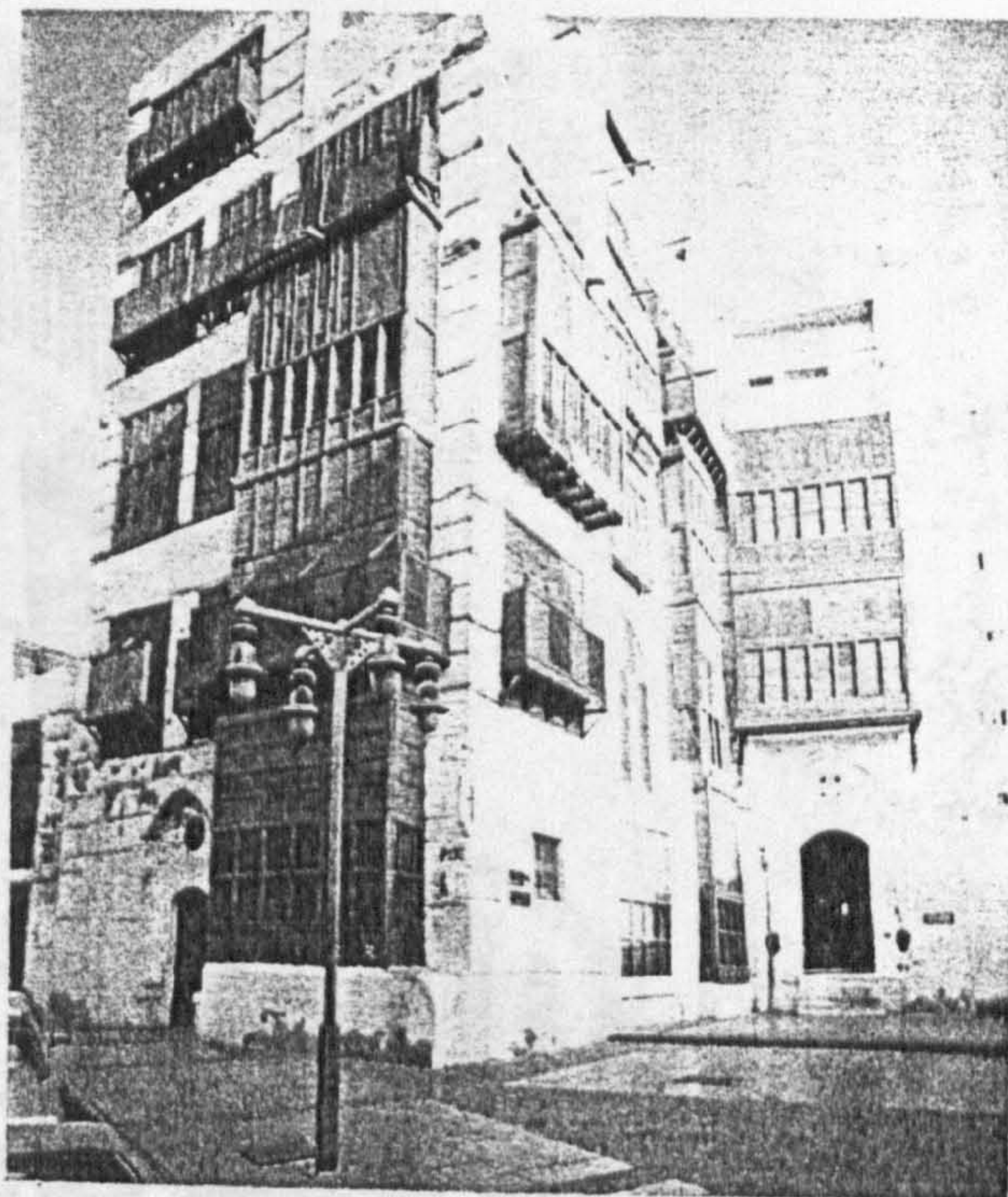


Fig 7-4 VIEW OF TRADITIONAL HOUSE, JEDDAH (1)  
Source: Author (A.S. Alafghani).

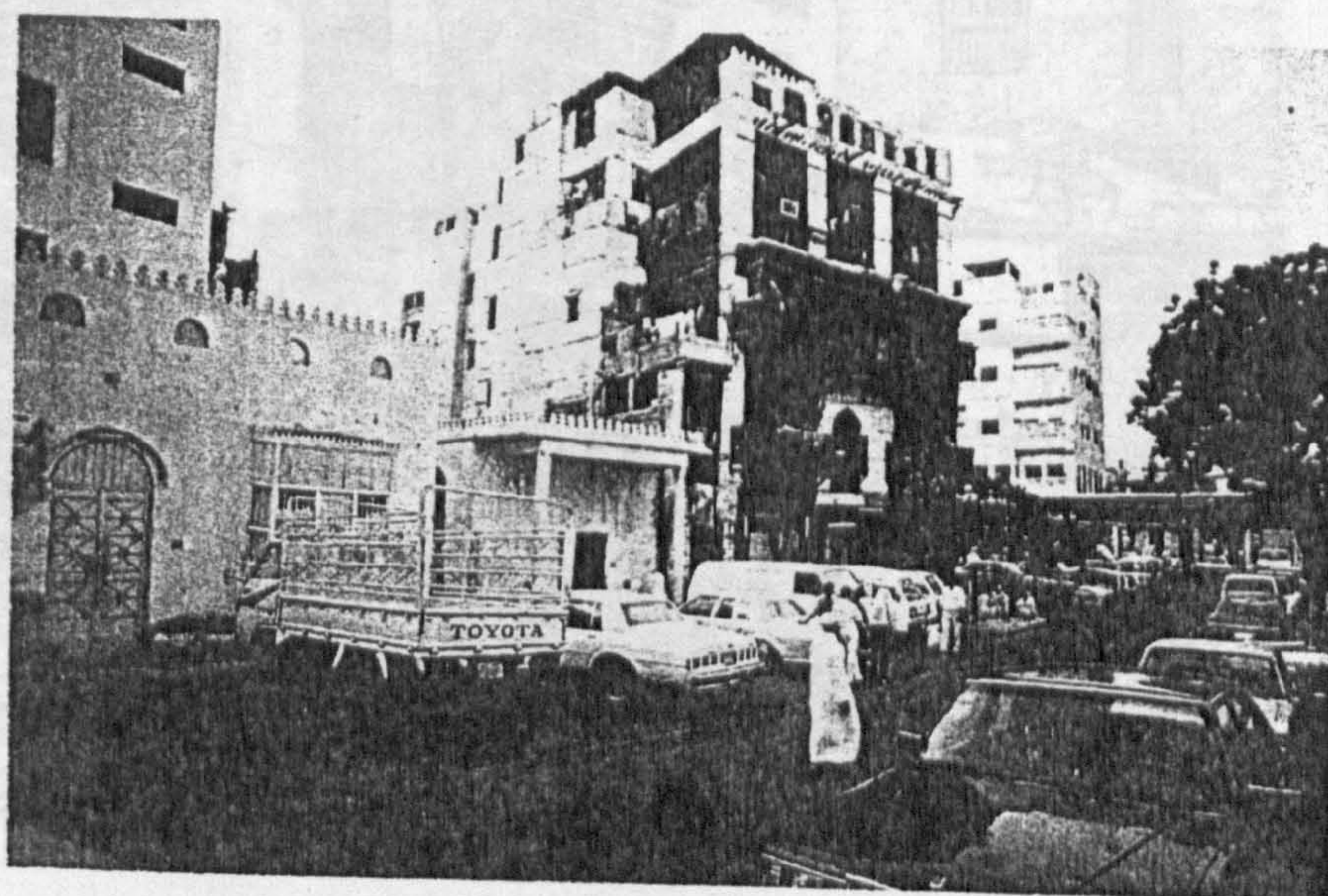


Fig 7-5 VIEW OF TRADITIONAL HOUSE, JEDDAH (2)  
Source: Author (A.S. Alafghani).



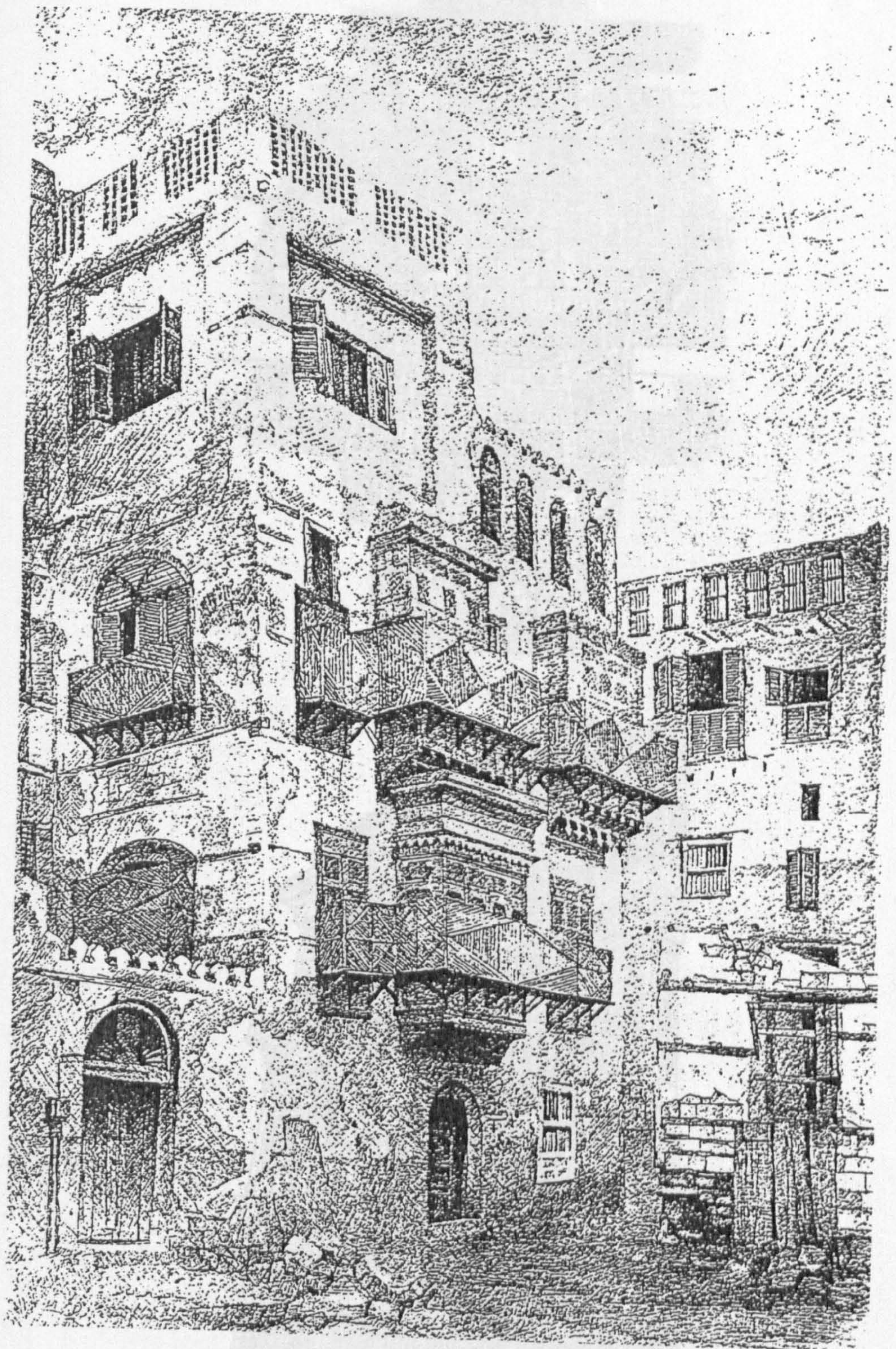


Fig 7-6 SKETCH OF TRADITIONAL HOUSE, JEDDAH  
Source: Al Hariri, M.W. 1981.



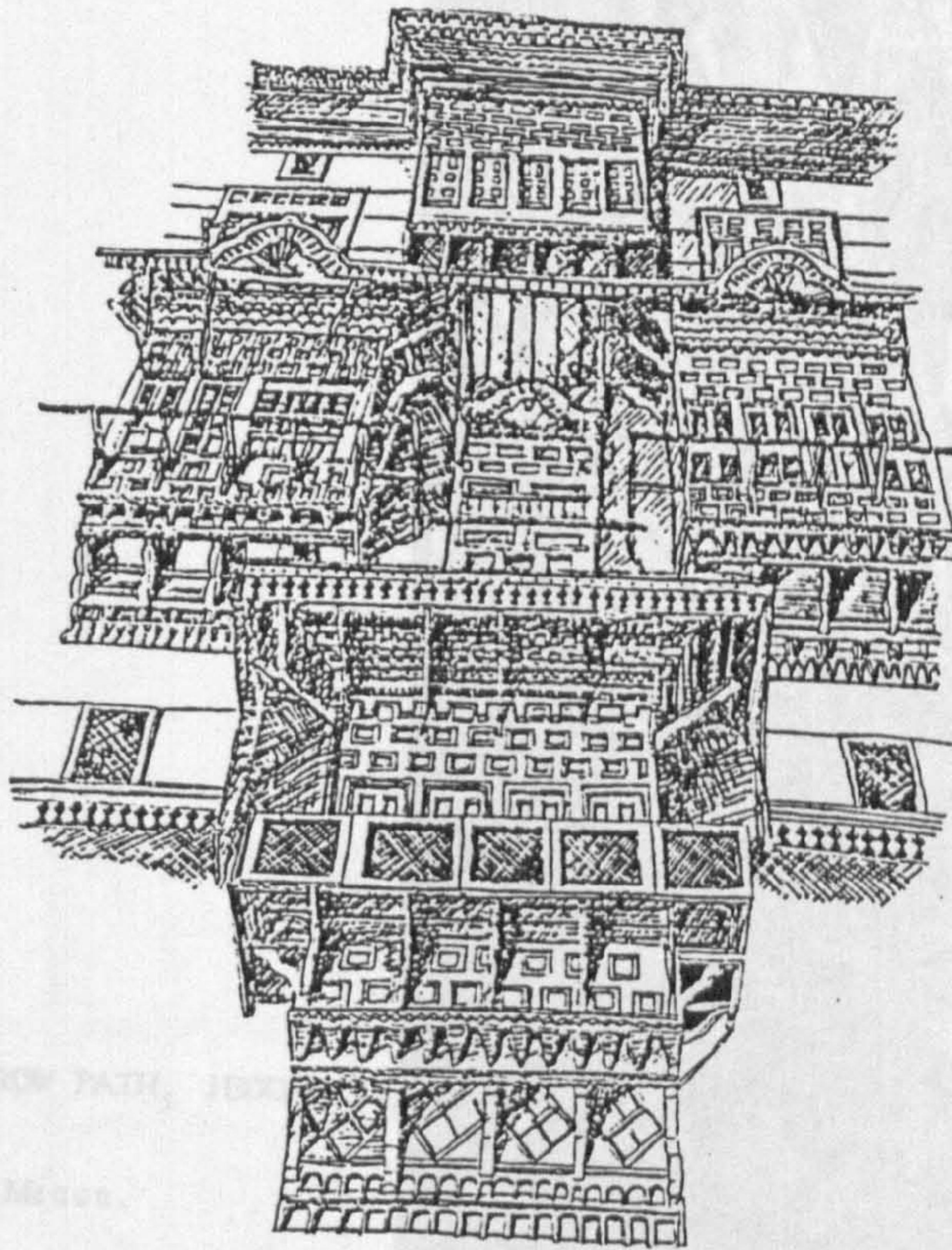


Fig 7-6  
VIEW OF NARROW PATH, 1984  
(Shades)  
Source: Talib, 1984, p. 69.

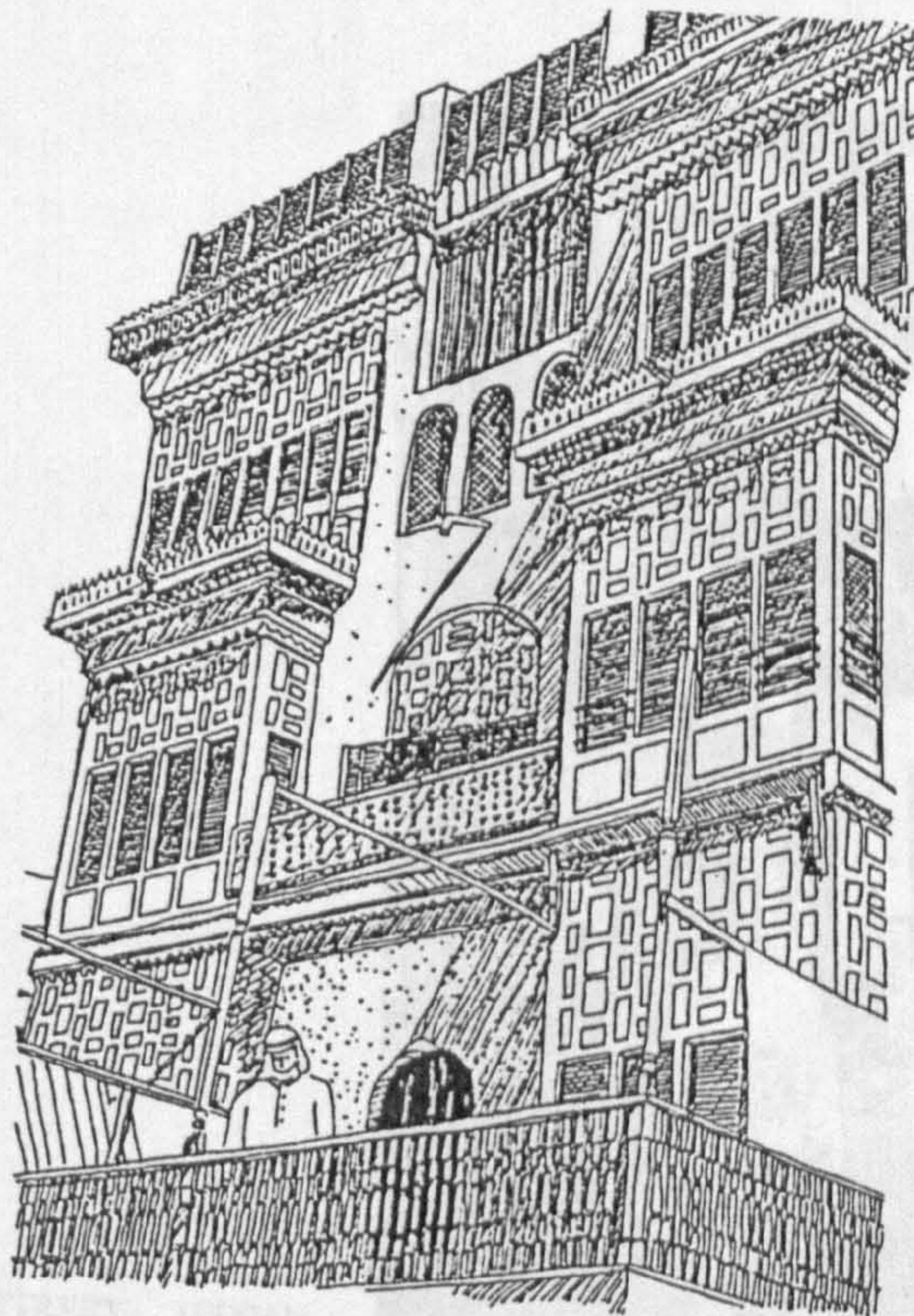


Fig 7-7  
VIEW OF NARROW PATH, 1984  
(One Day, 1984)  
Source: Talib, 1984, p. 70.

Fig 7-7 SKETCHES OF MASHRABIAHS  
Source; Talib, 1984, p.p. (69-70).



Fig 7-8 VIEW OF NARROW PATH, JEDDAH  
(Shades).

Source: Pilgrims to Mecca.

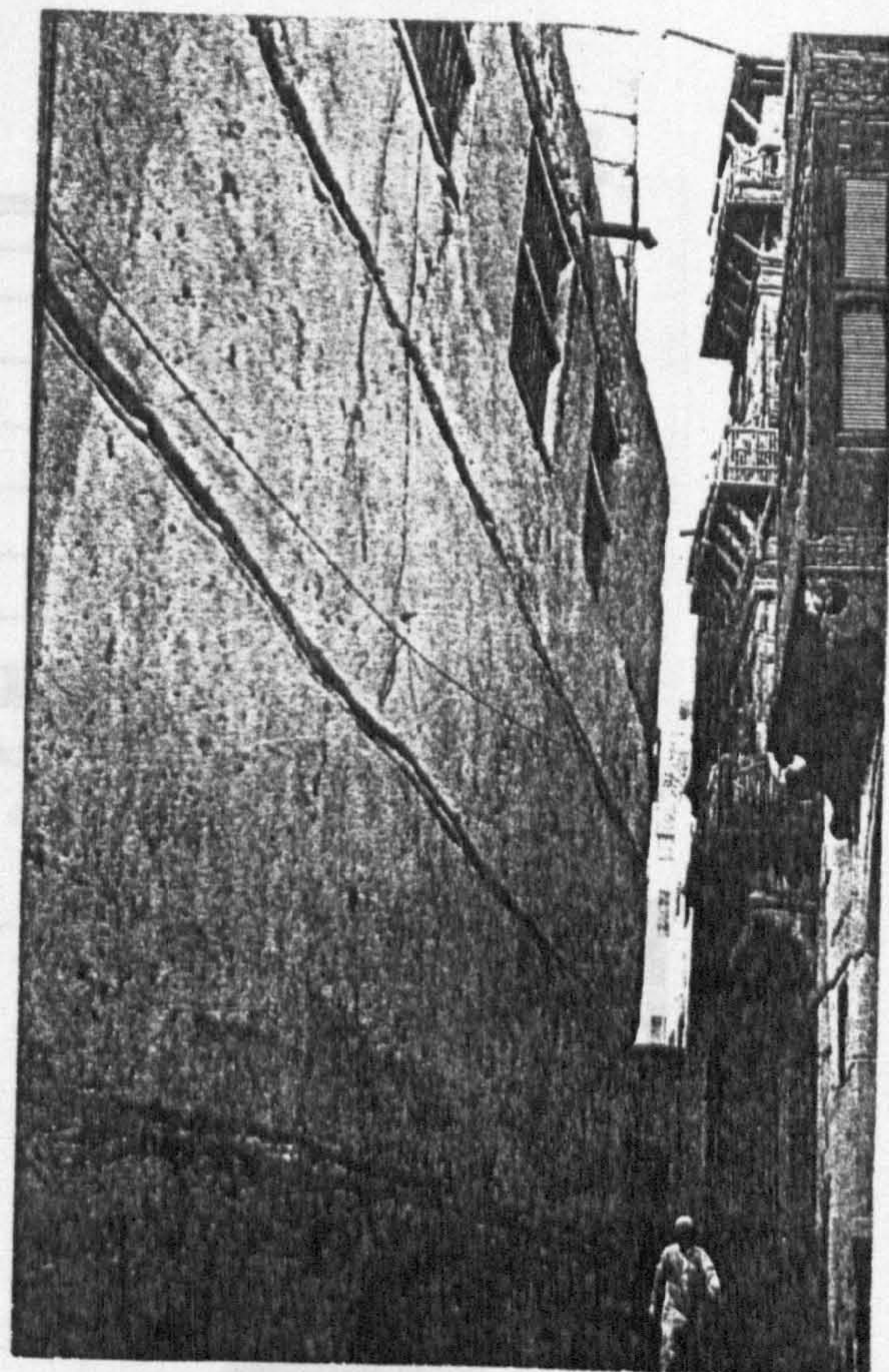
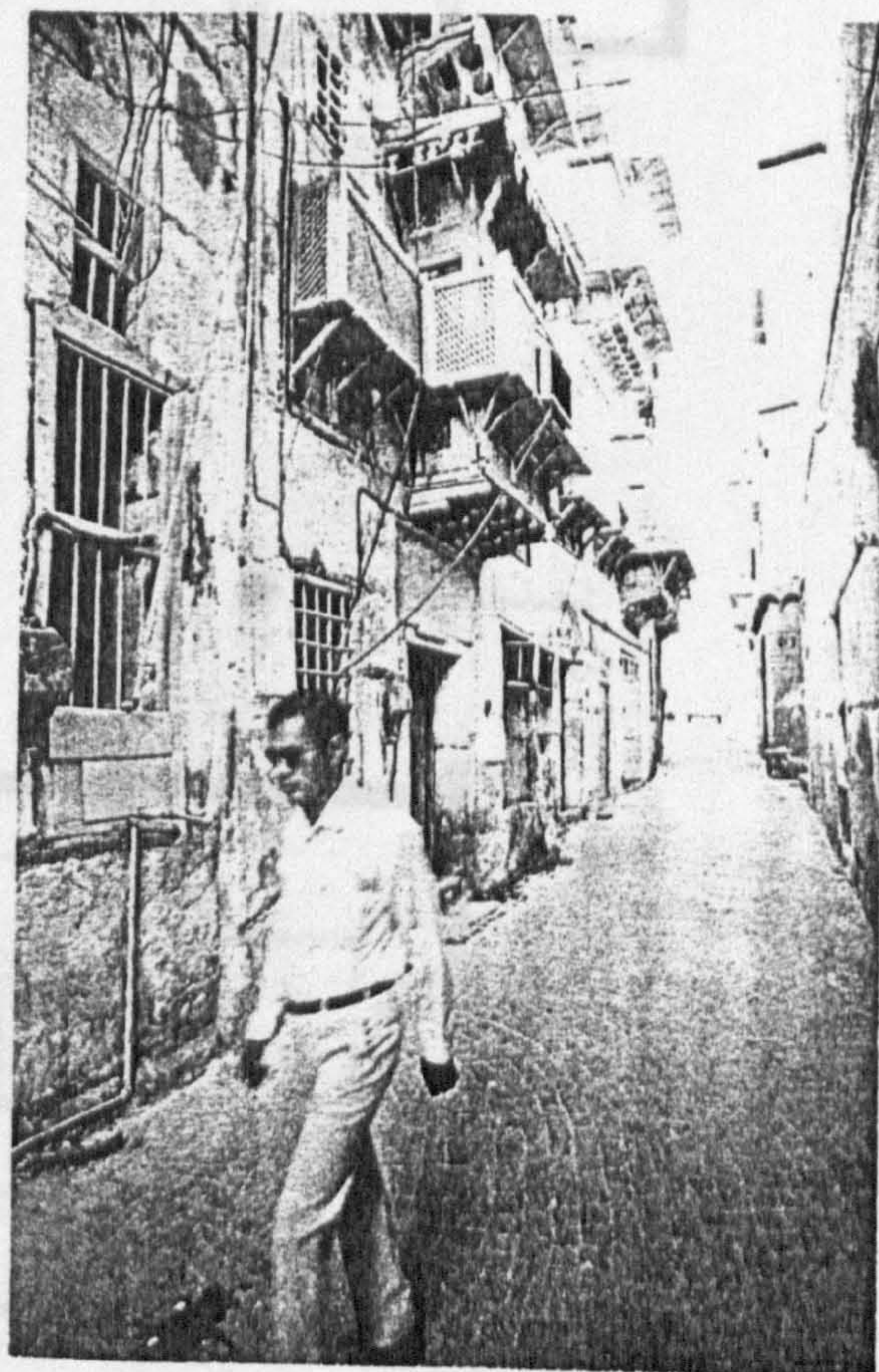
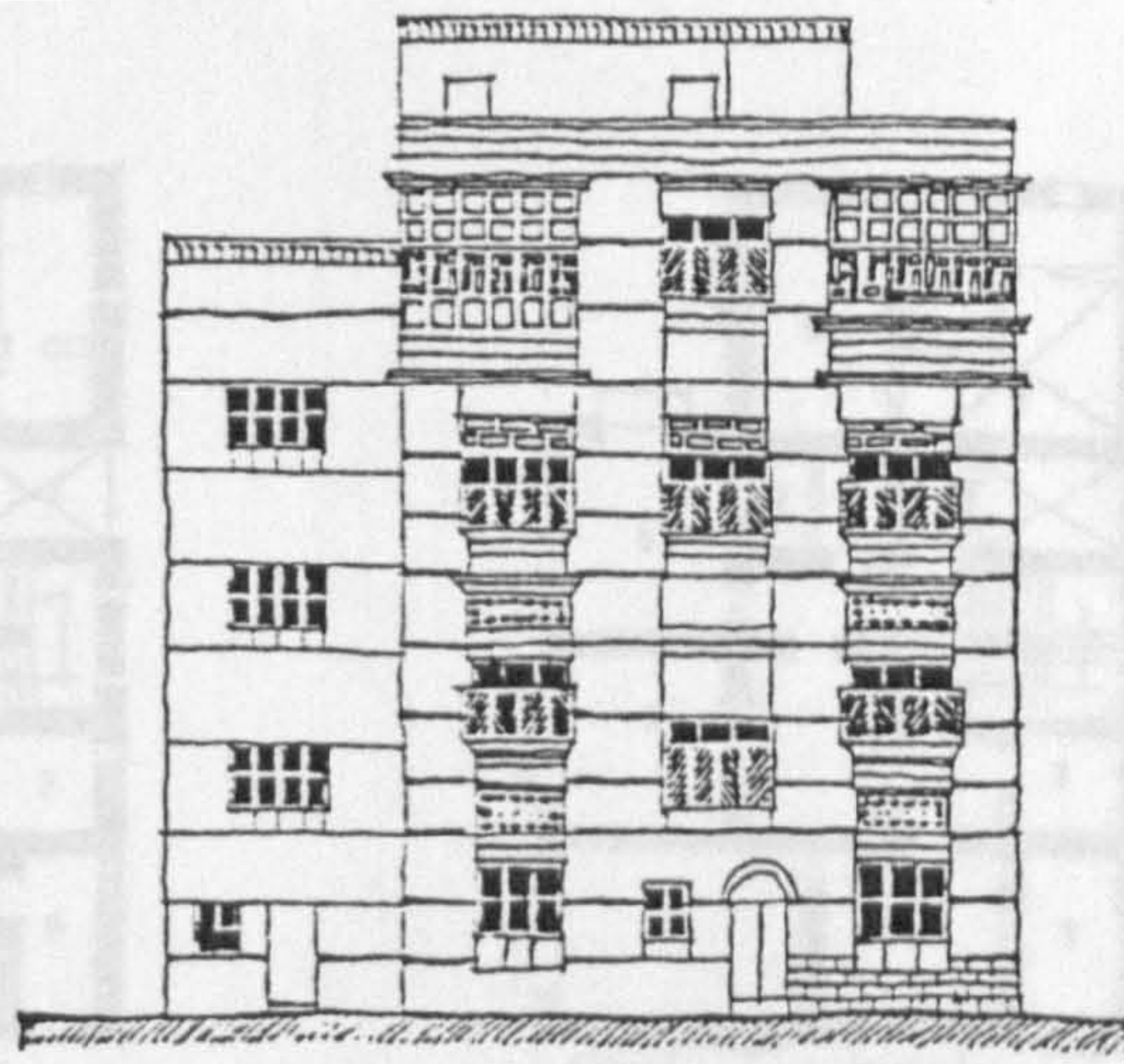


Fig 7-9 VIEW OF NARROW STREET, JEDDAH  
(One car passage only).

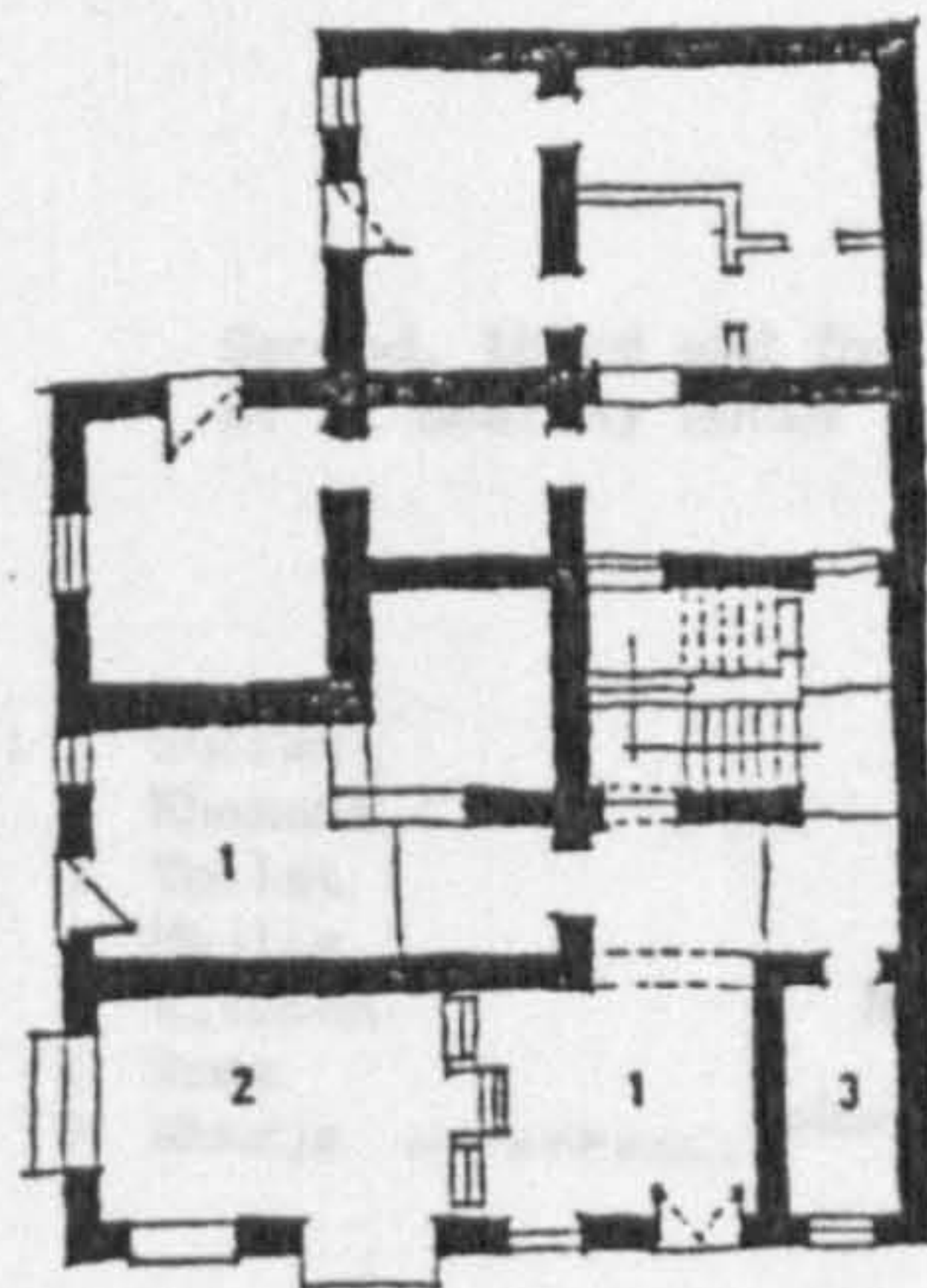
Source: Author (A.S. Alafghani).



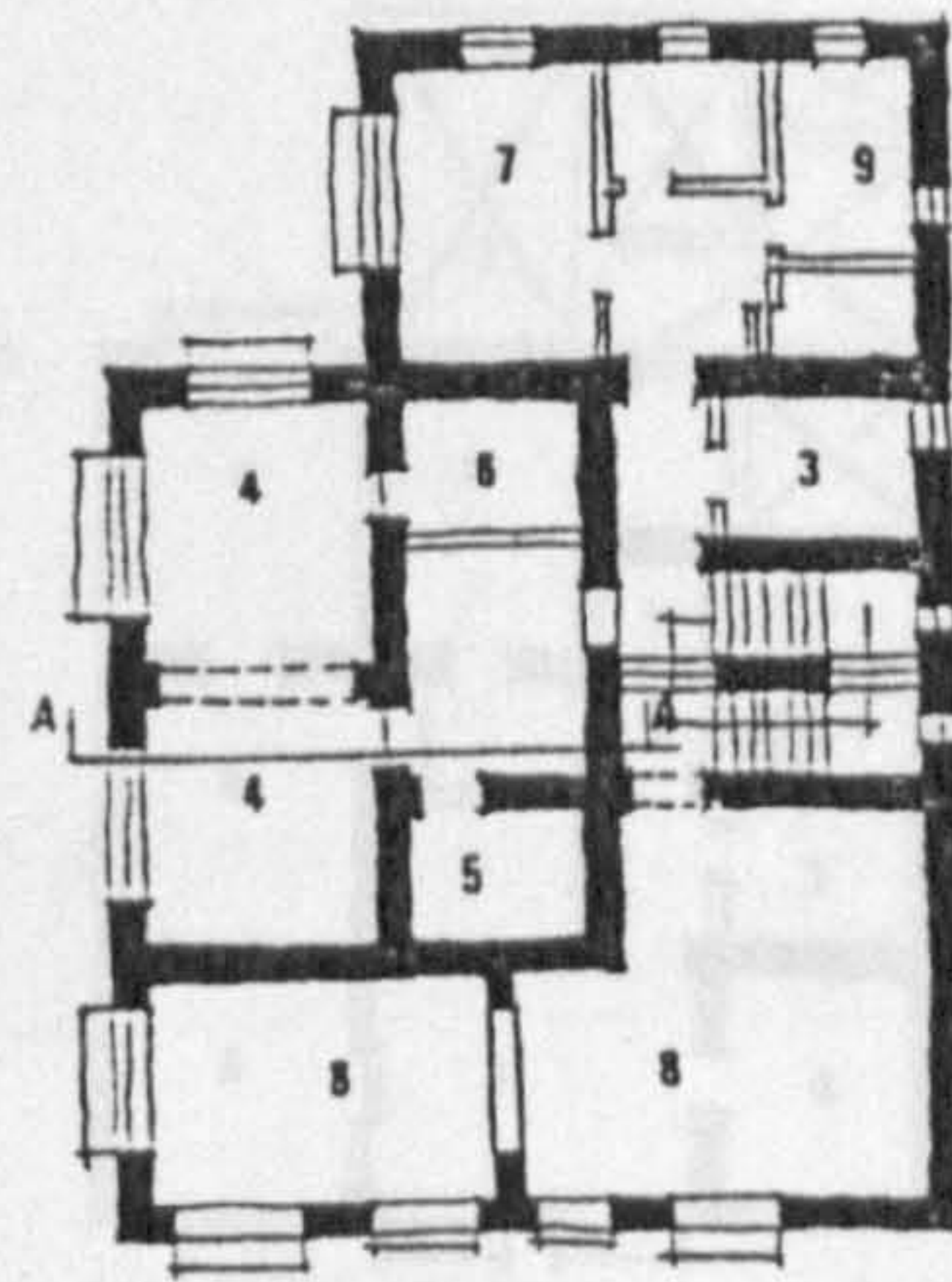




North elevation of Al Shafinay house

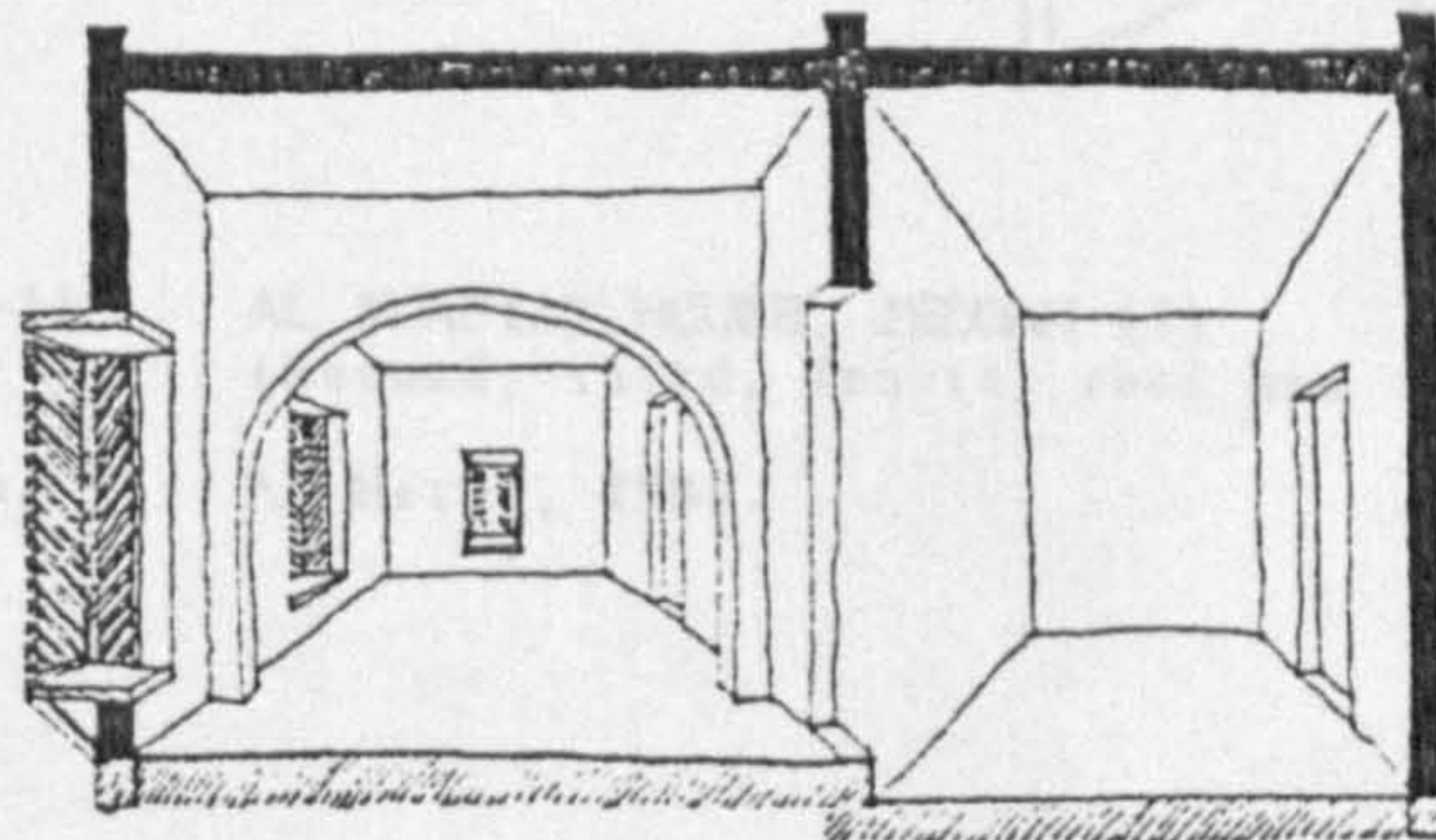
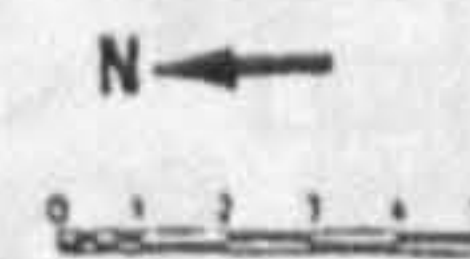


Ground Floor



First Floor

- Key :
- 1 Dahleez
  - 2 Al Maqad
  - 3 Toilet
  - 4 Majlis
  - 5 store
  - 6 Coffee/Tea room
  - 7 Room
  - 8 Suffah
  - 9 Kitchen

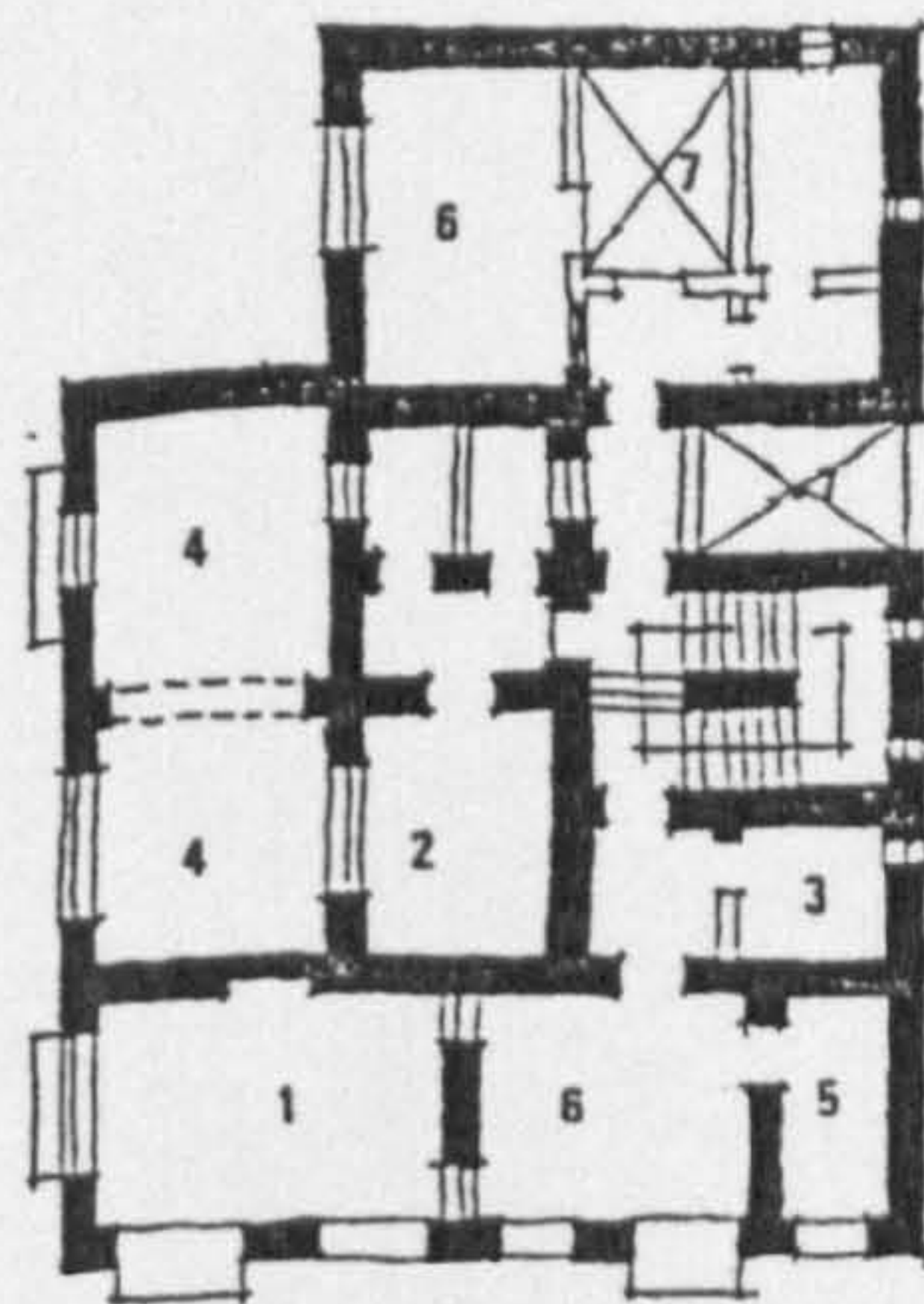


Section through guest area (section AA)

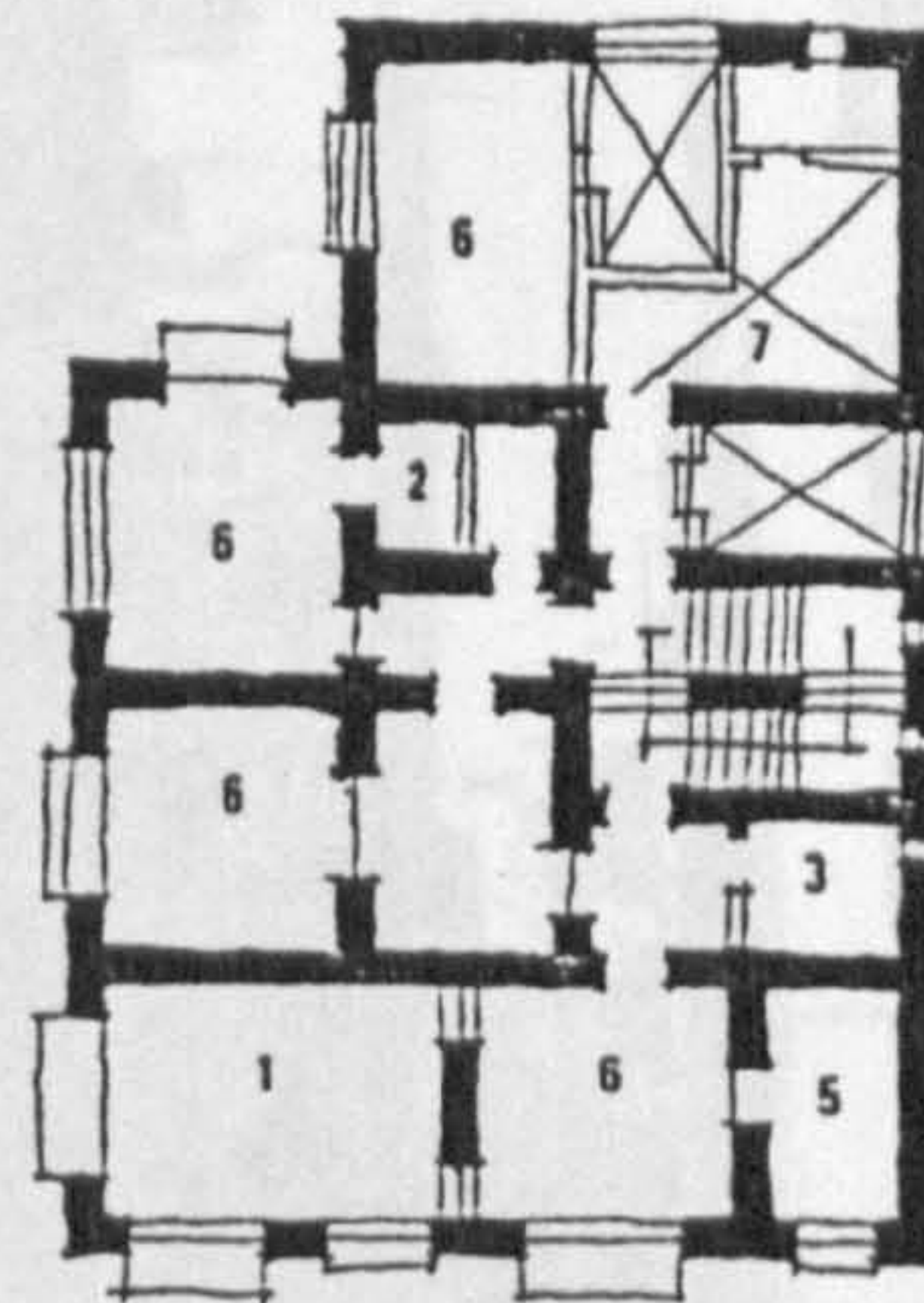
Fig 7-10 AL SHAFINAY HOUSE, JEDDAH (1)  
(Elevation, ground and first floor plans of section).

Source: Al Harbi, 1989.





Second floor plan

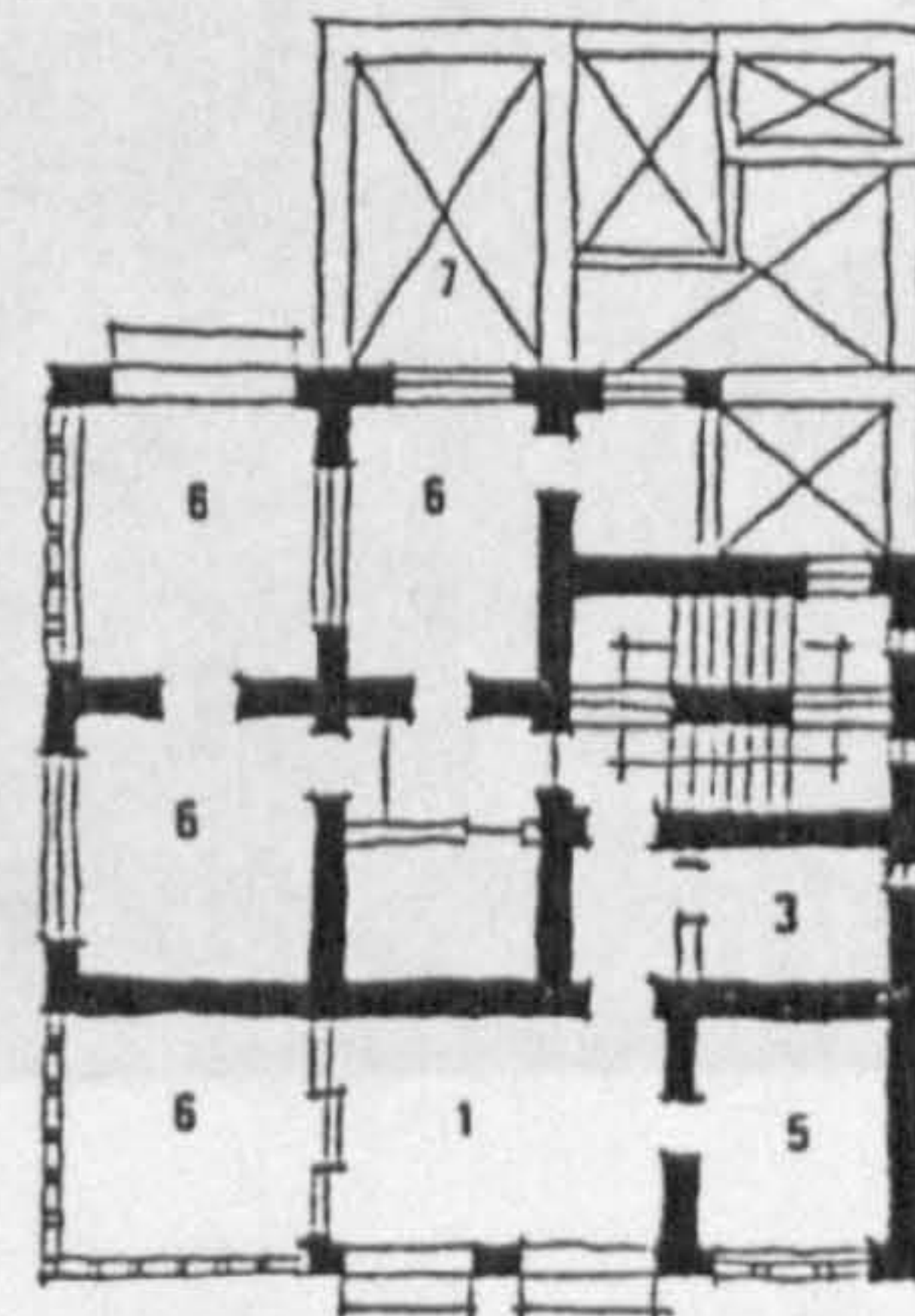


Third floor plan

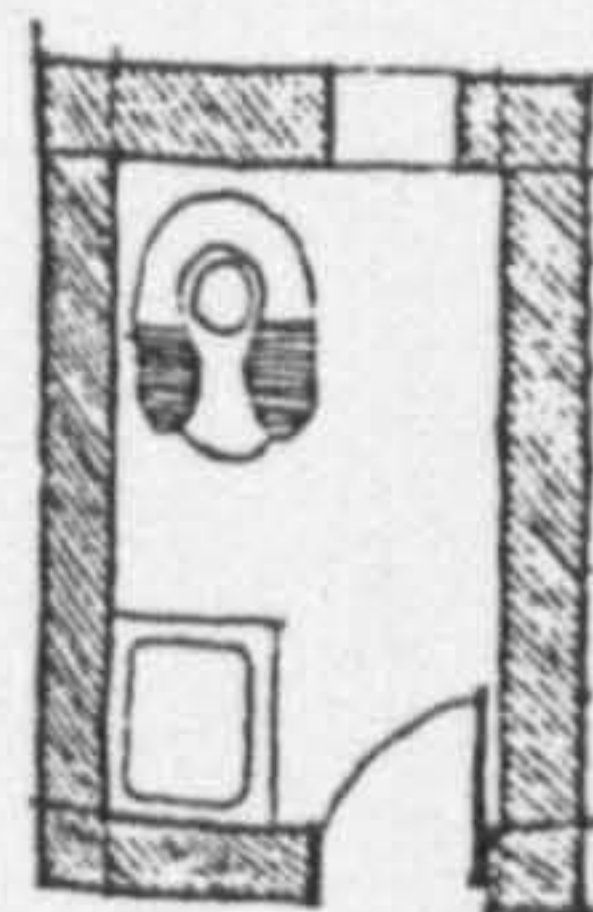
Second, third and fourth floor plan of Al Shafiay house

- Key : 1 Suffah  
2 Khazana .  
3 Toilet  
4 Majlis  
5 Kitchen  
6 Room  
7 Kharja - terrace.

N



Fourth floor plan



Toilet plan

Roof plan

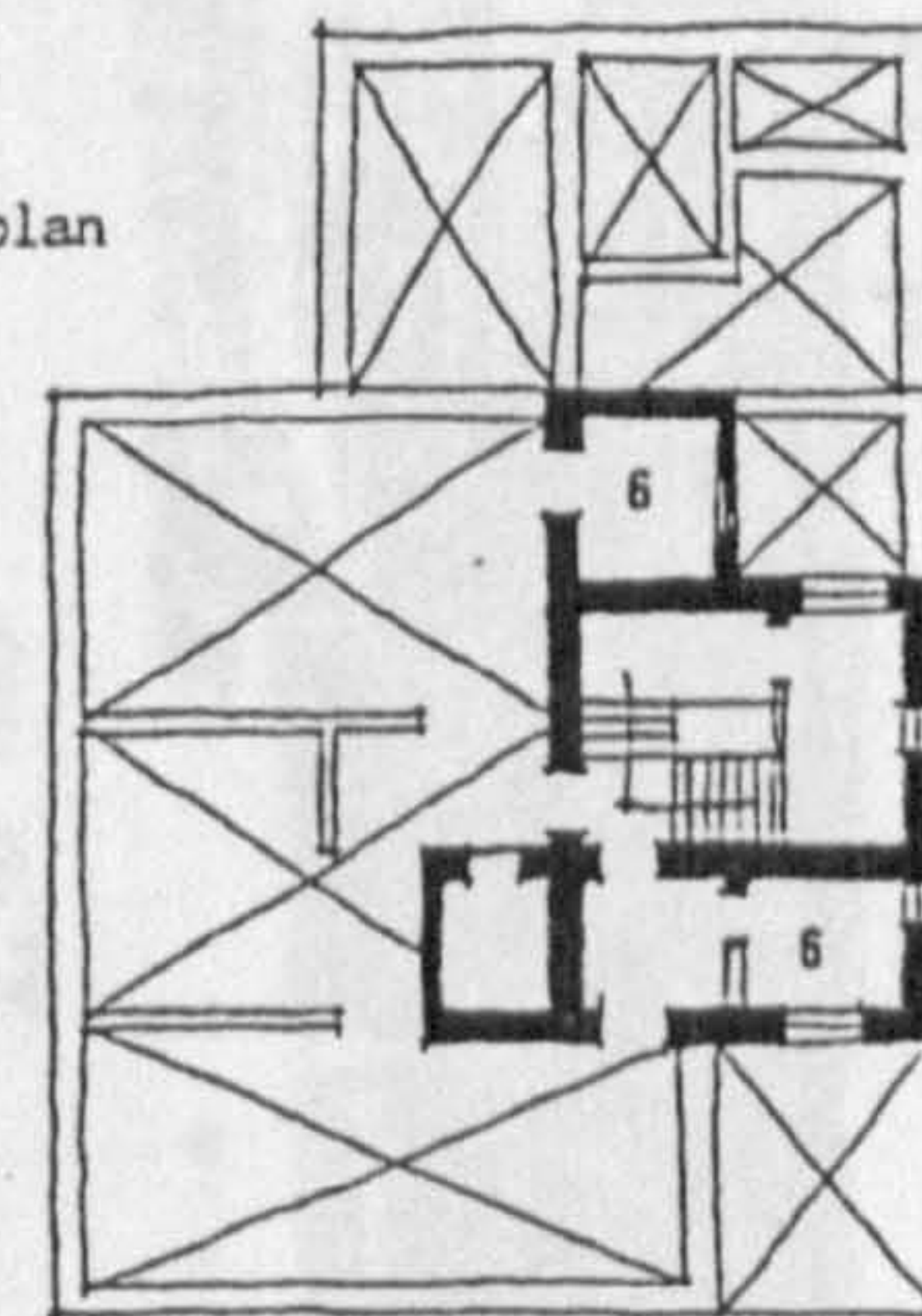


Fig 7-11 AL SHAFIAY HOUSE, JEDDAH (2)  
(Second, third, fourth, roof and toilet plans).

Source: Al Harbi, 1989.



Fig 7-12 VIEW OF PEDESTRIAN STREET,  
JEDDAH  
(The pedestrian street gets  
narrow at the end).

Source: Author (A.S. Alafghani).

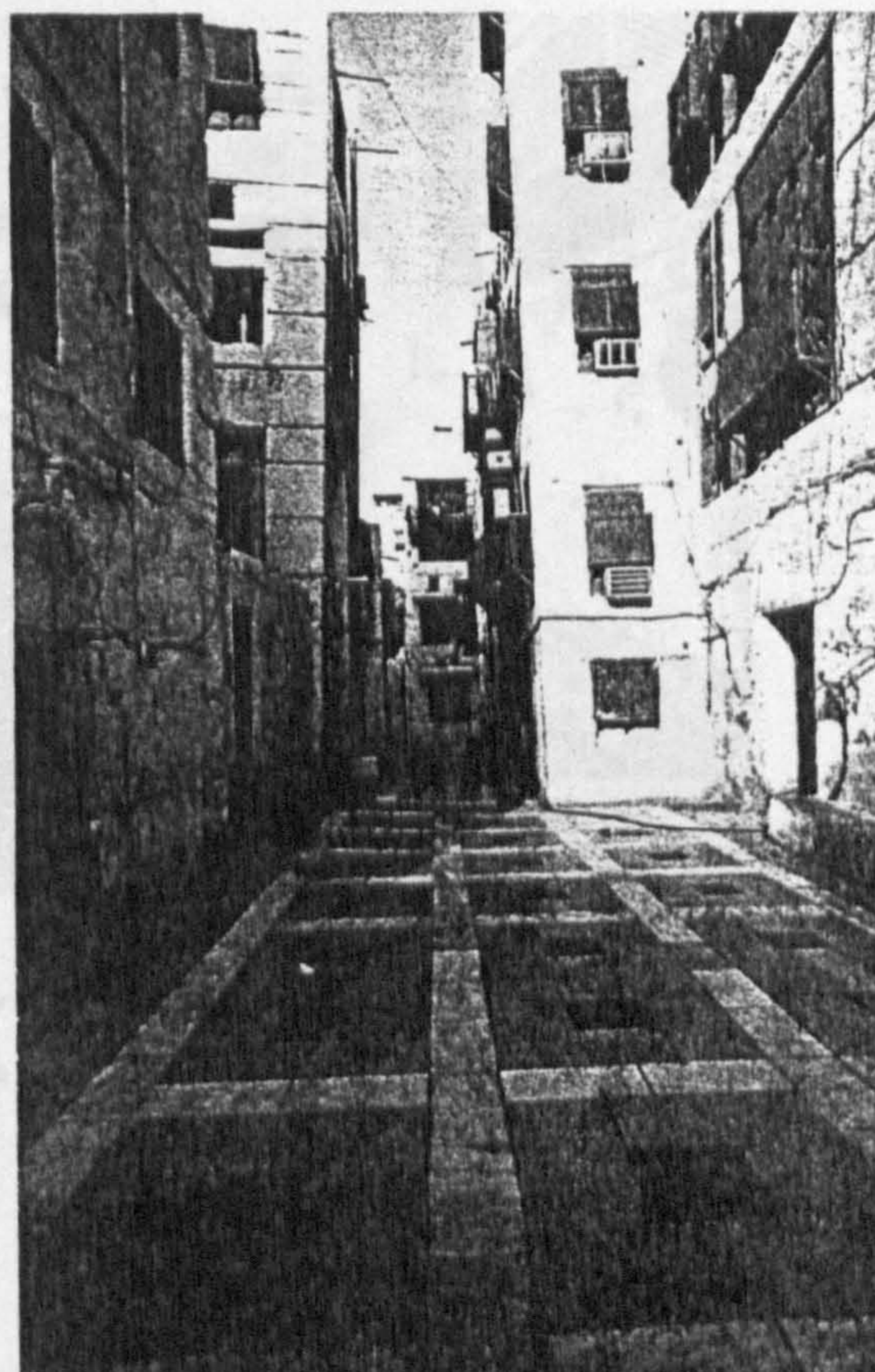
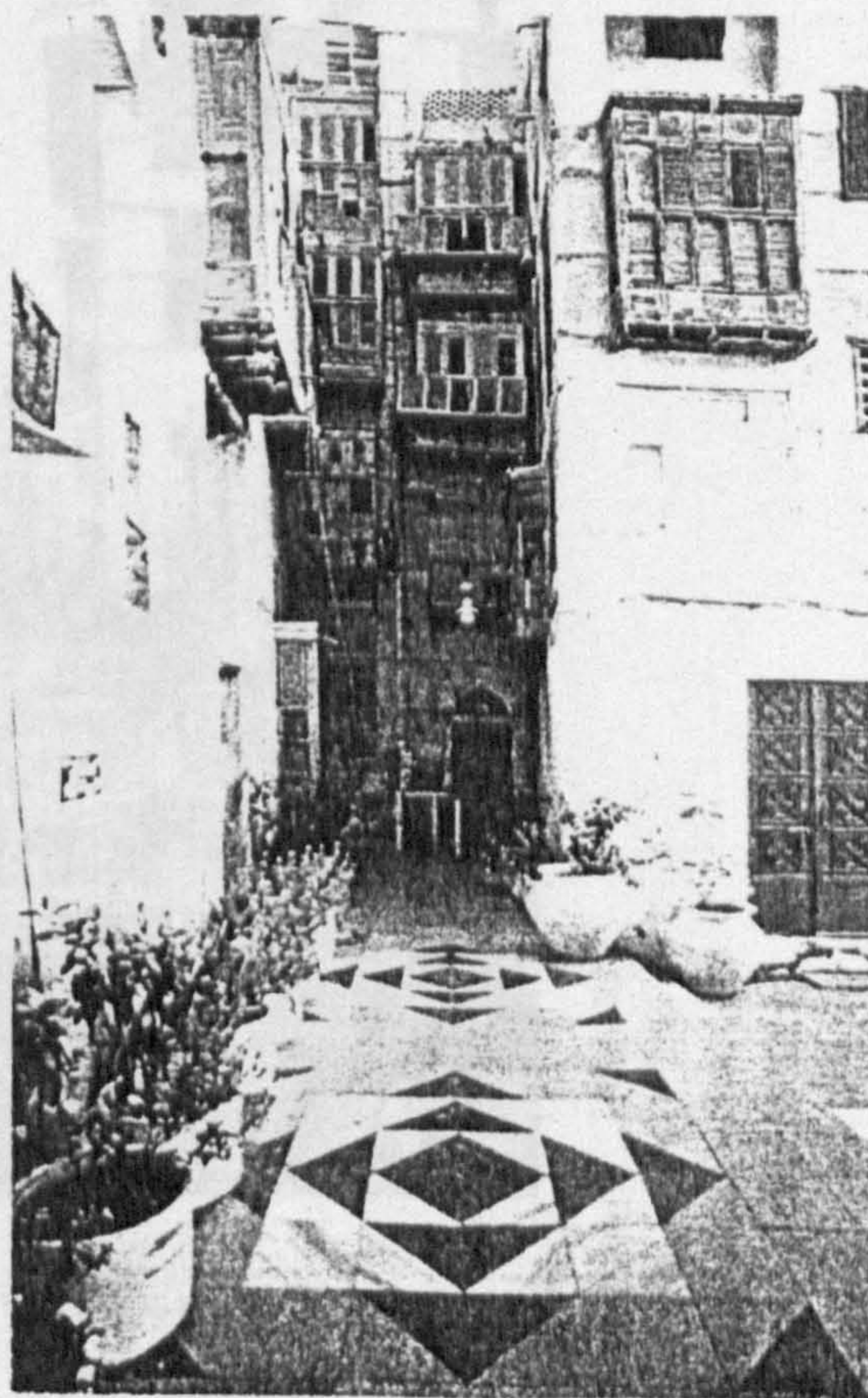


Fig 7-13 VIEW OF CUL-DE-SAC  
(DEAD END STREET), JEDDAH  
(The house at the end is  
deteriorating).

Source: Author (A.S. Alafghani).





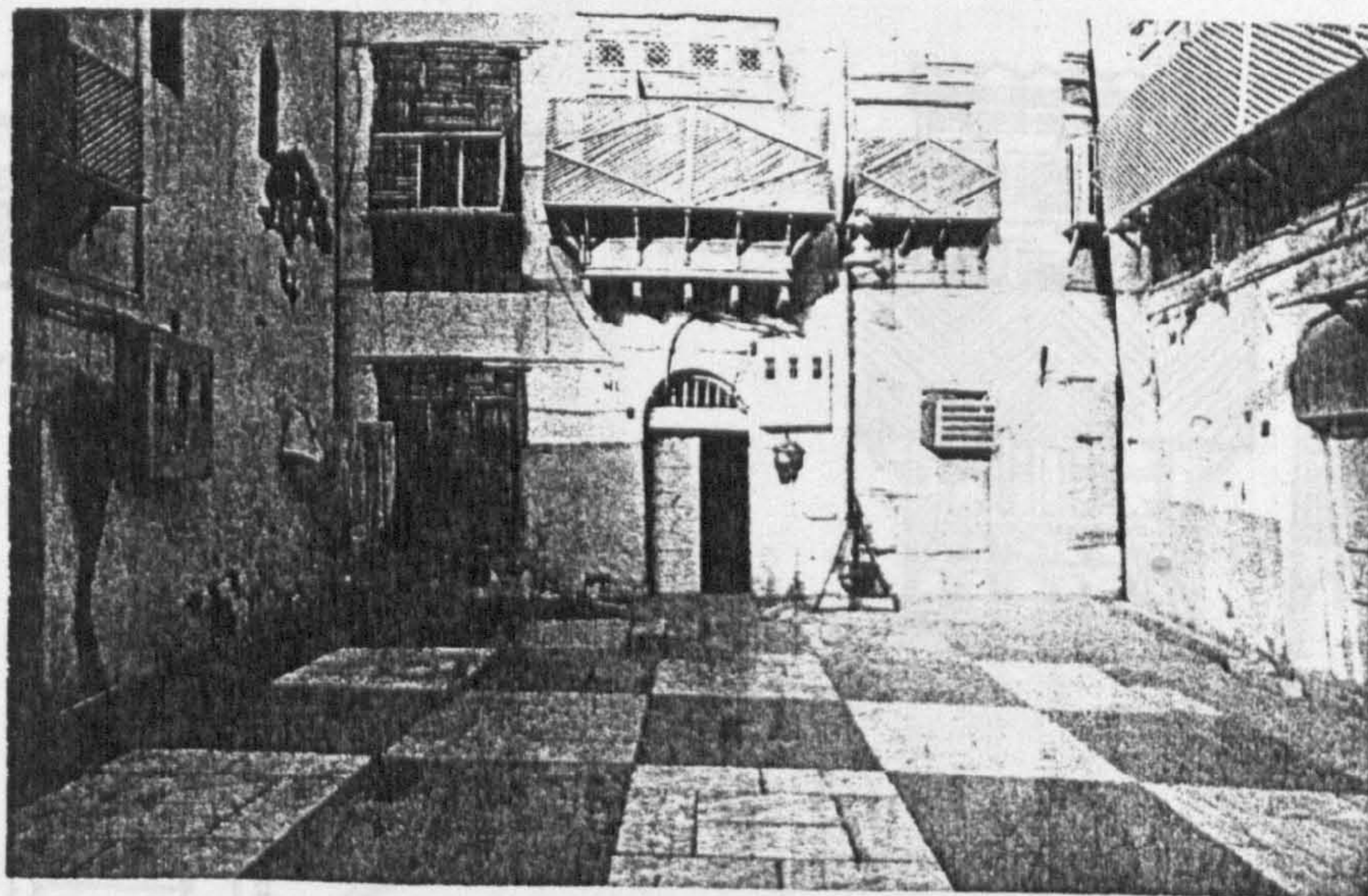


Fig 7-14 VIEW OF BARAHA, JEDDAH (1)  
(The Baraha serve as a cul-de-sac also).  
Source: Author (A.S. Alafghani).

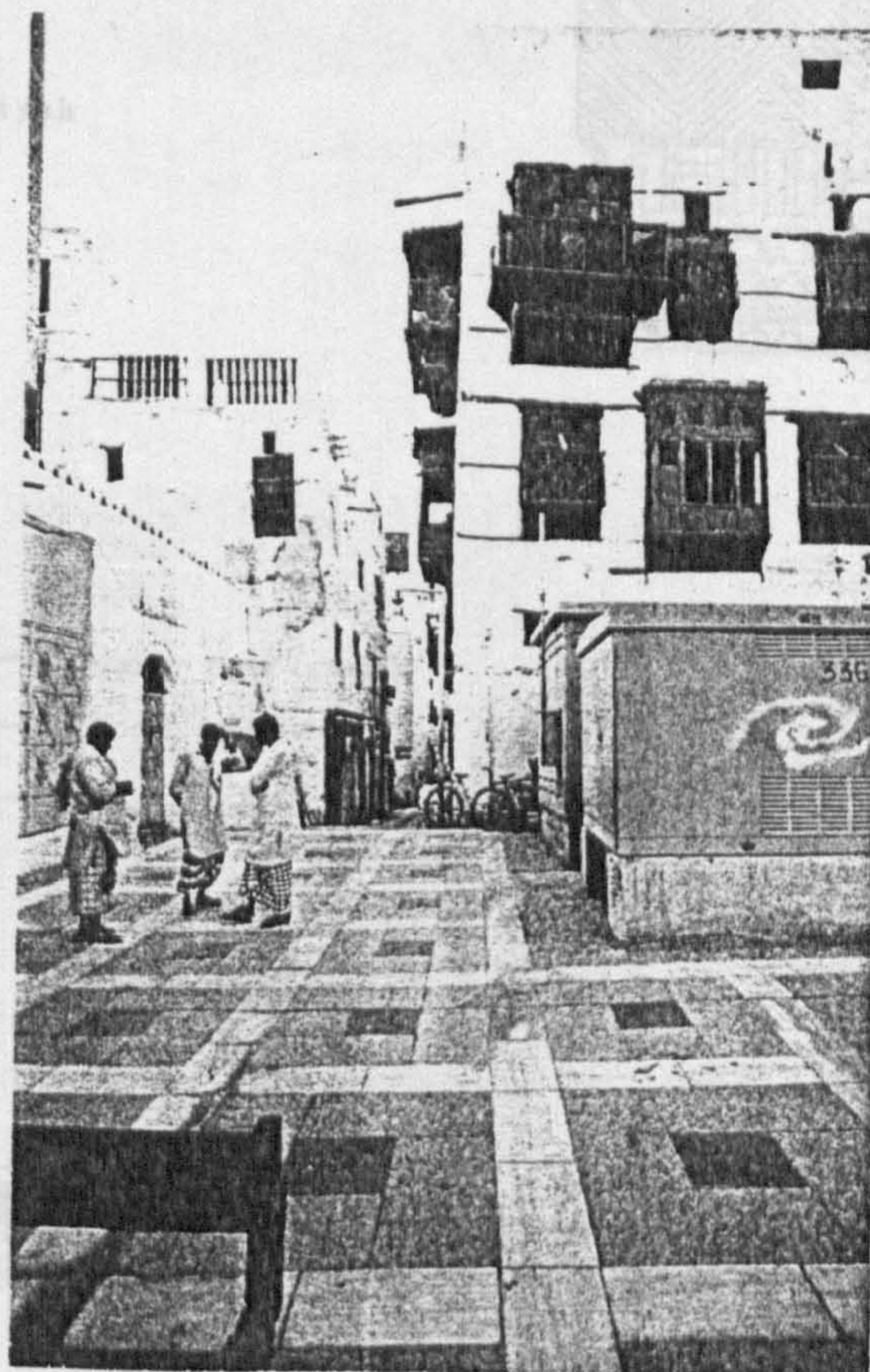
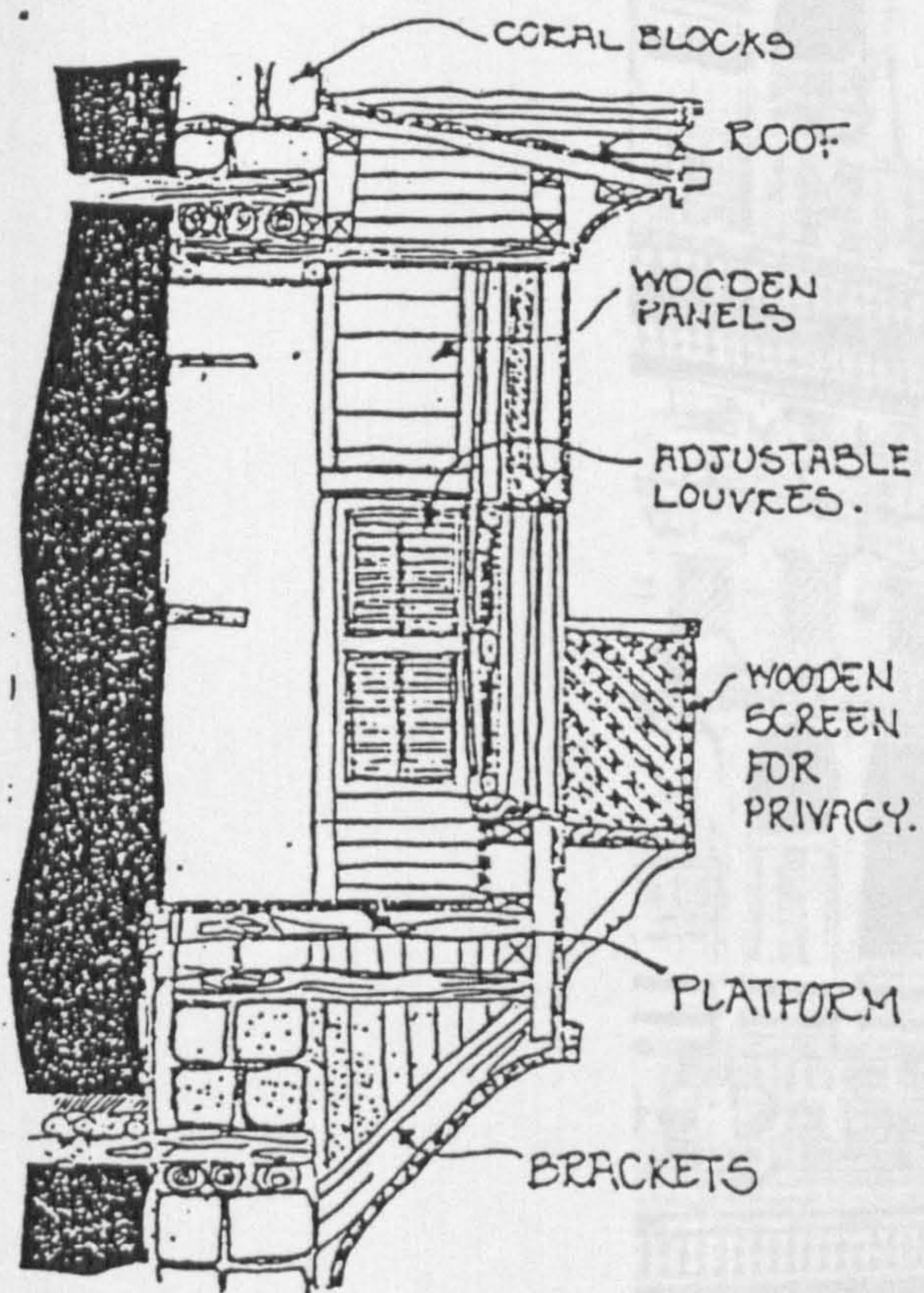
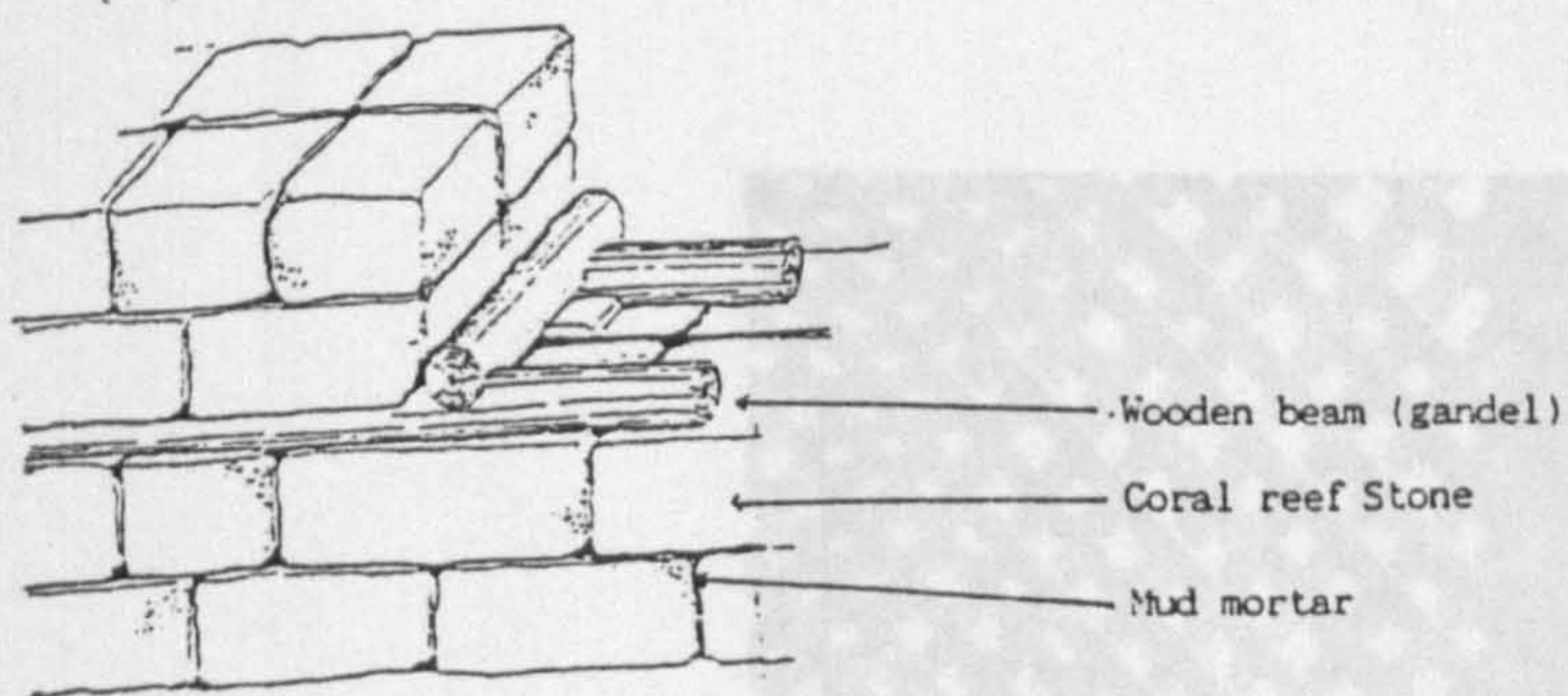
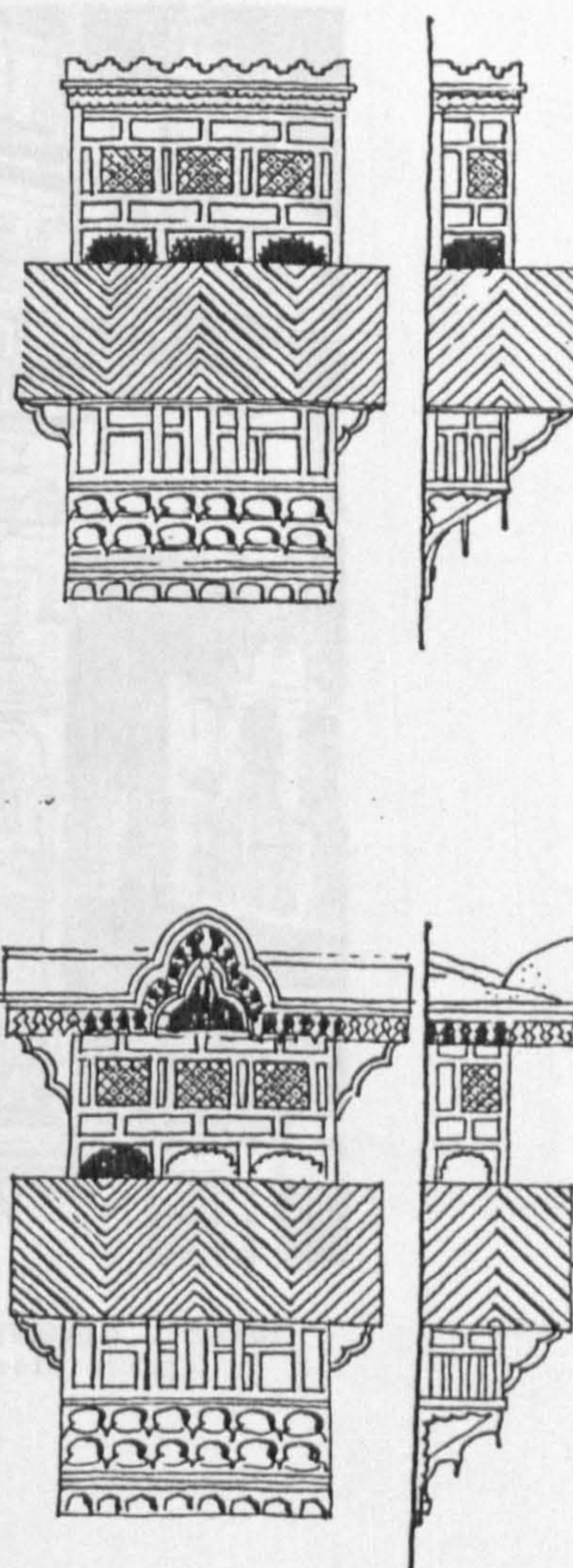


Fig 7-15 VIEW OF BARAHA, JEDDAH (2)  
(The electrical generators taking place in the  
Buraha).  
Source: Author (A.S. Alafghani).

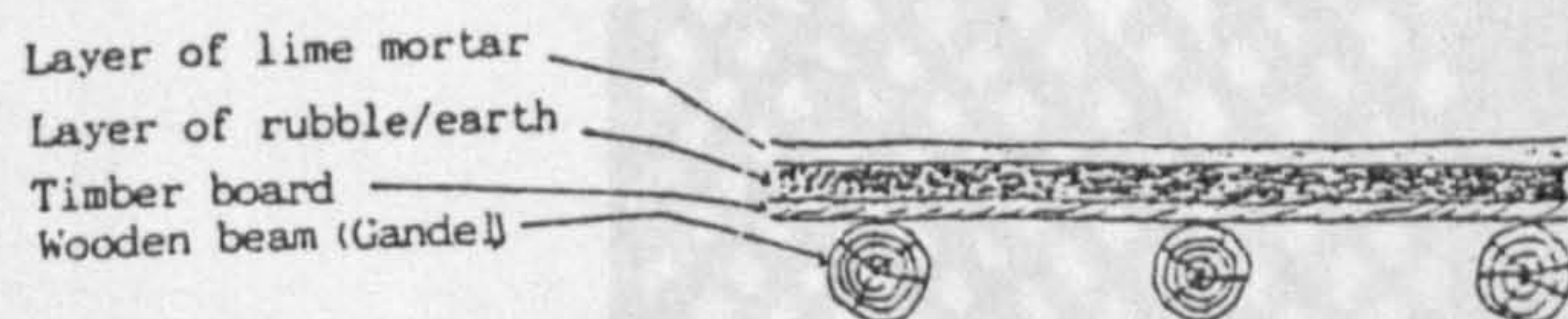




Detail of Mashrabiya



Wall Construction



Floor/Roof Construction

Fig 7-16 DETAILS OF TRADITIONAL BUILDING MATERIALS, JEDDAH  
Source: Al Harbi, 1989.



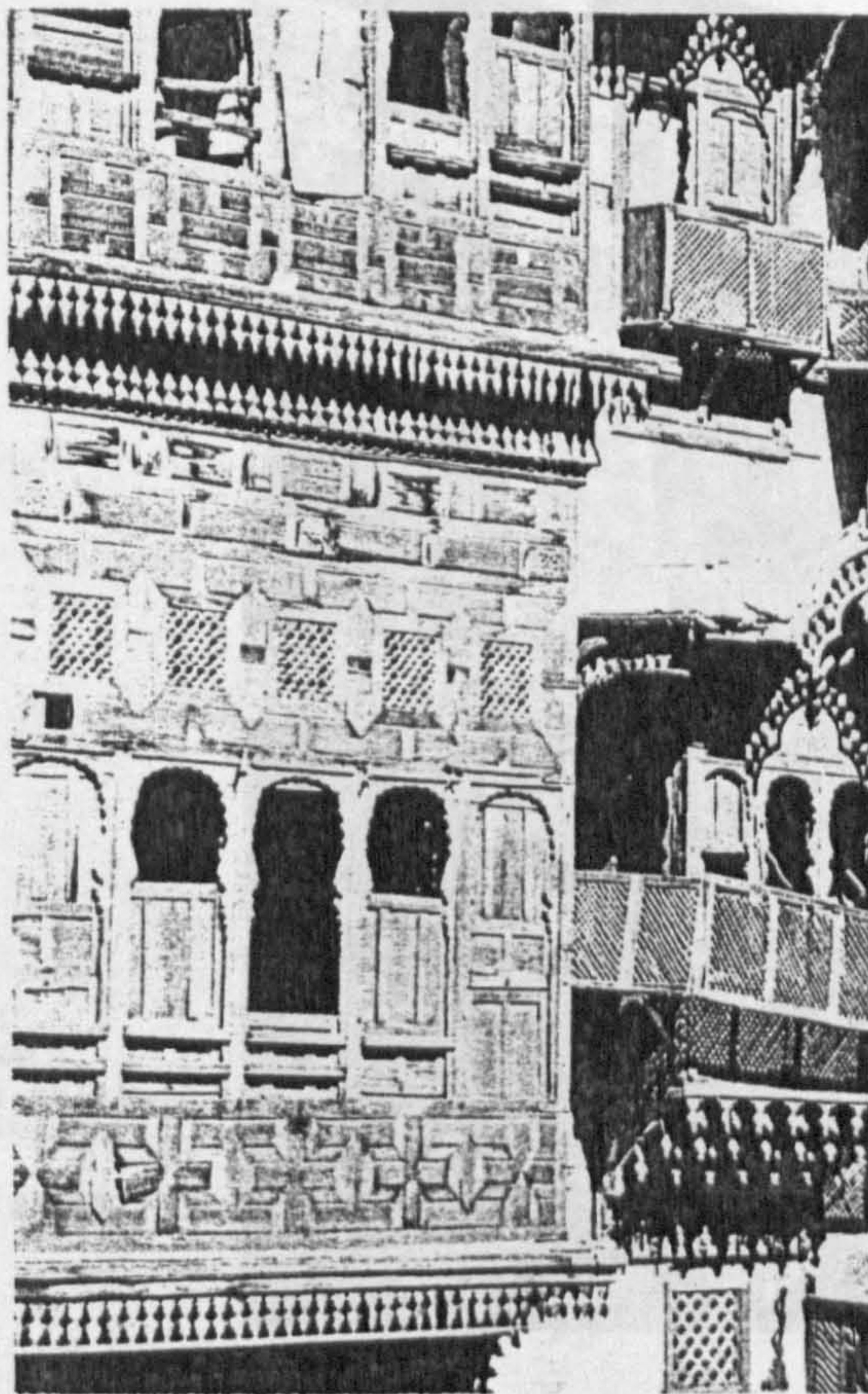


Fig 7-17 VIEW OF MASHRABIAH (EXTERNAL), JEDDAH  
(The Mashrabiya is deteriorating).

Source: Pilgrim to Mecca, p.67.

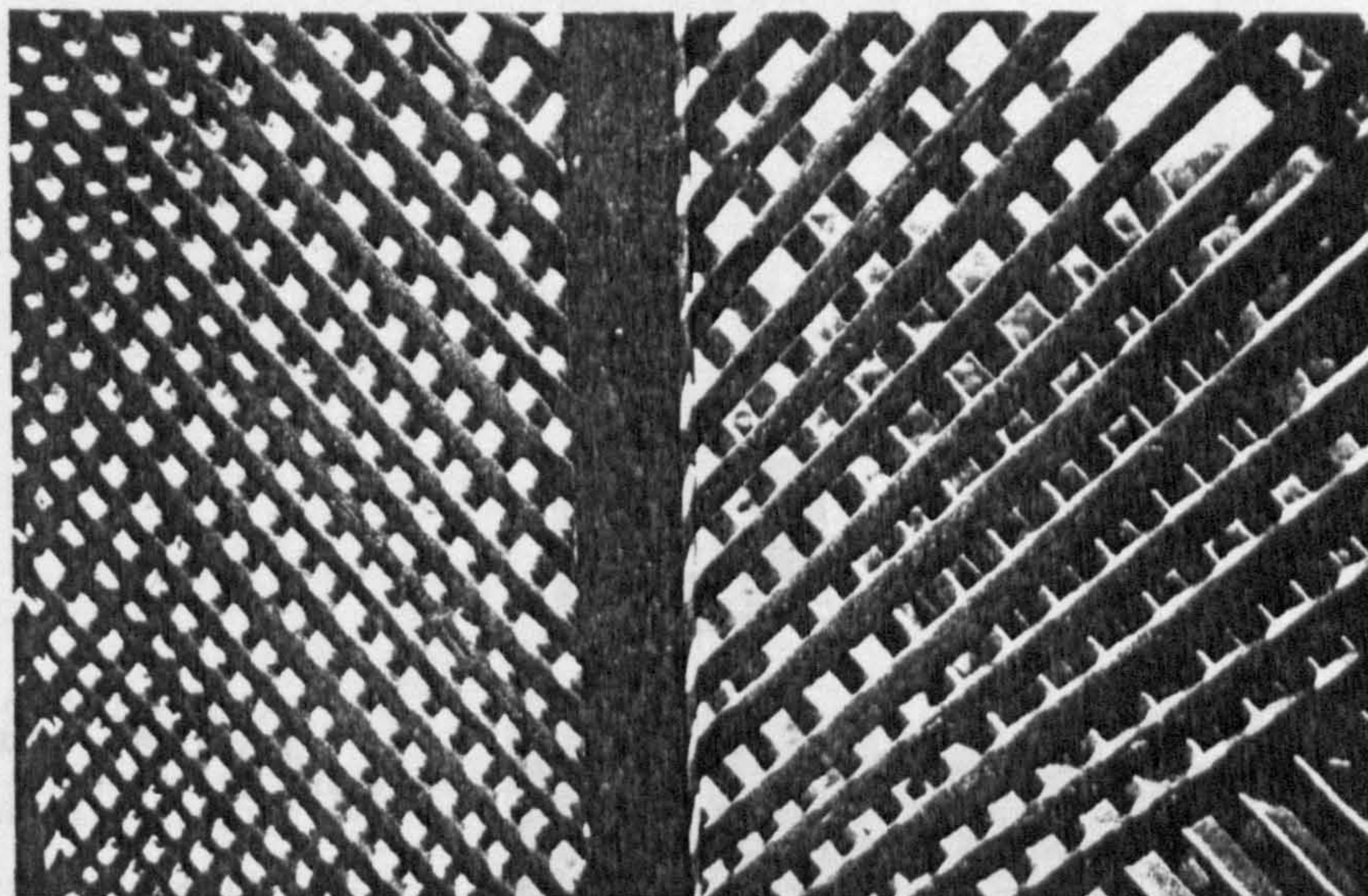


Fig 7-18 VIEW OF MASHRABIAH (INTERNAL), JEDDAH  
(The professional use of wood).

Source: Author (A.S. Alafghani).



Fig 7-19 VIEW OF MASHABIAH  
(CHANGES - EXTERNAL)  
(Air conditioning units  
in the Mashhrabiah).

Source: Author (A.S. Alafghani).

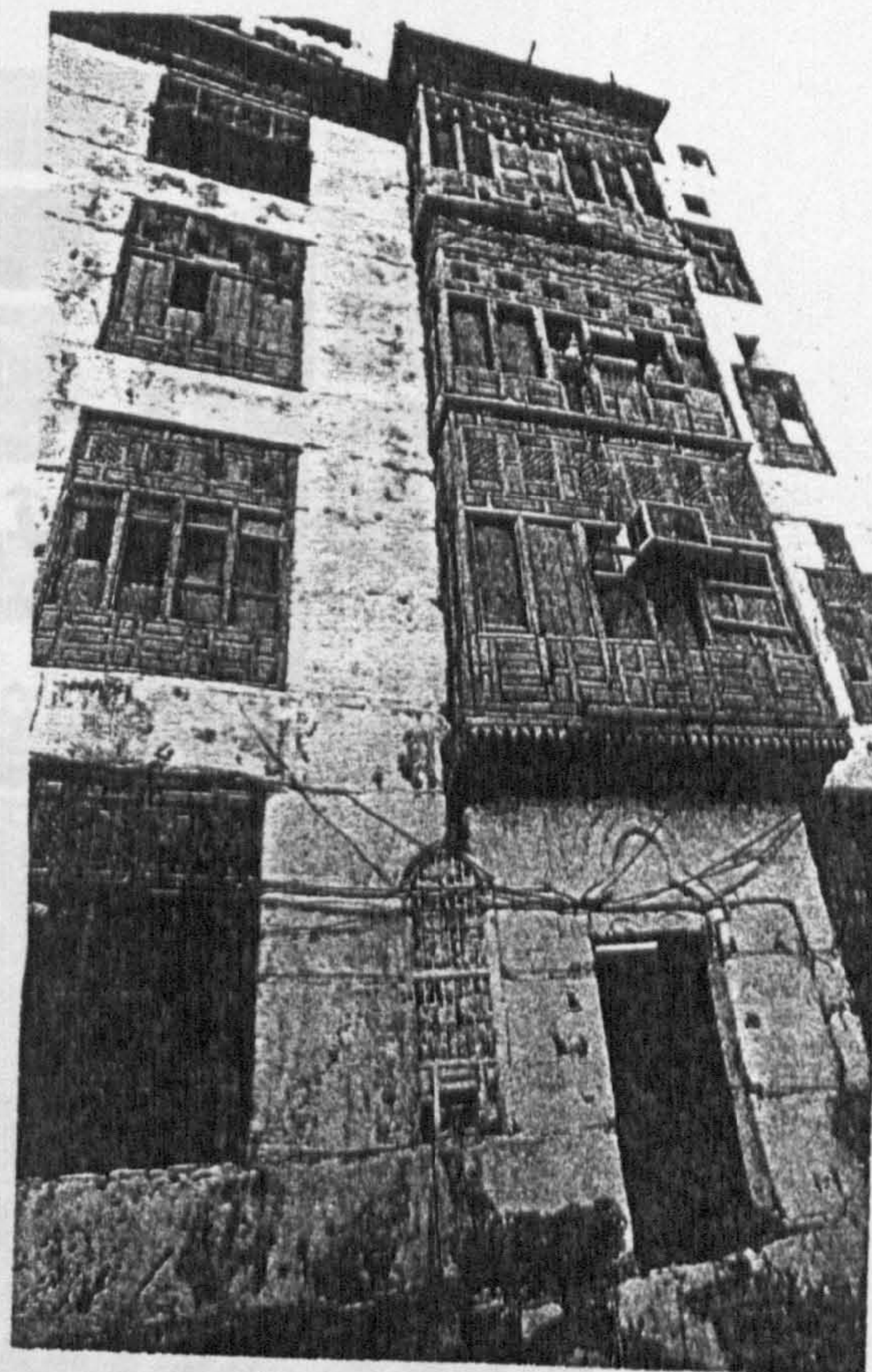
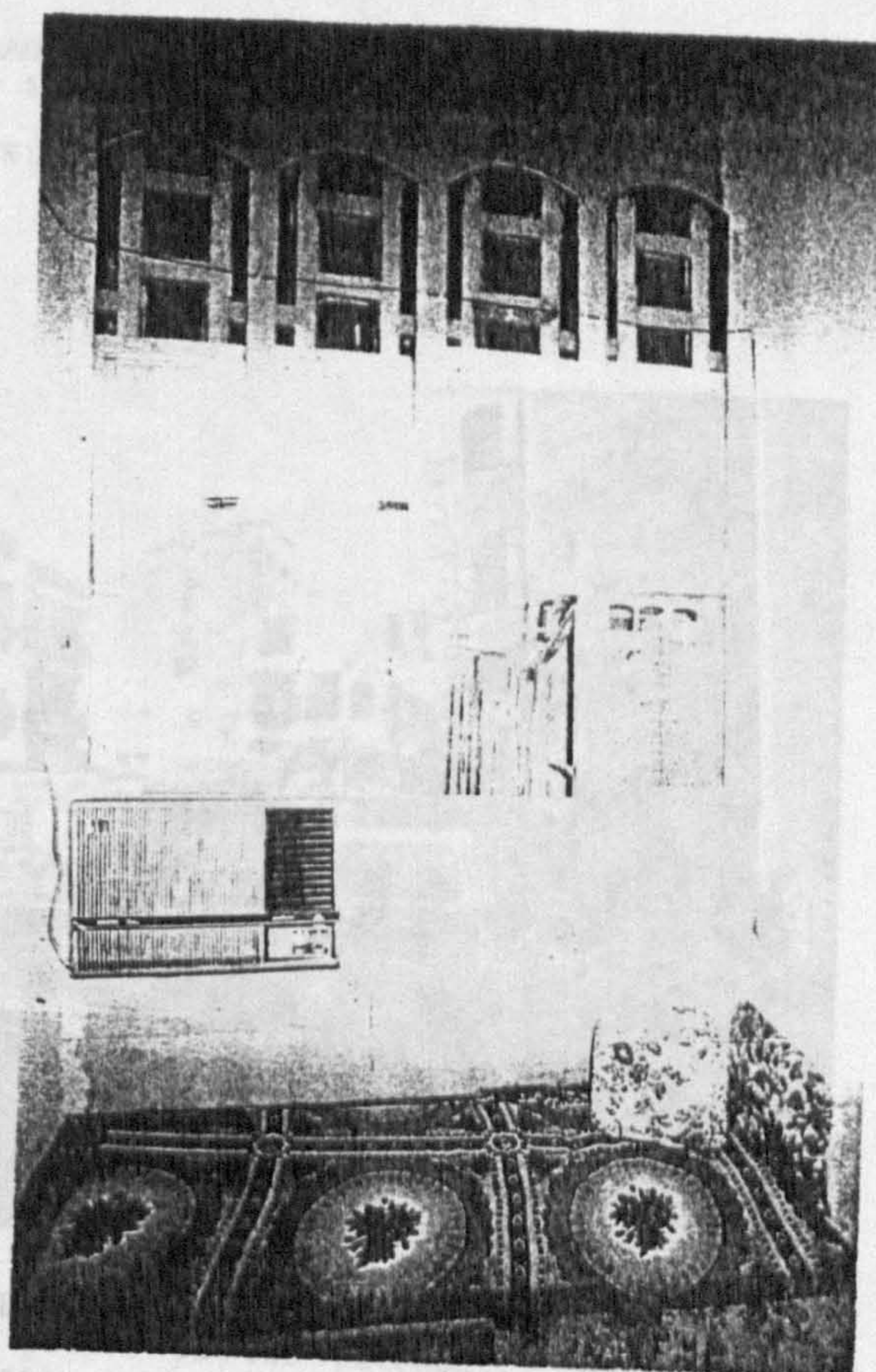


Fig 7-20 VIEW OF MASHHRABIAH  
(CHANGES - EXTERNAL)  
(Air conditioning units  
in the Mashrabia).

Source: Author (A.S. Alafghani).





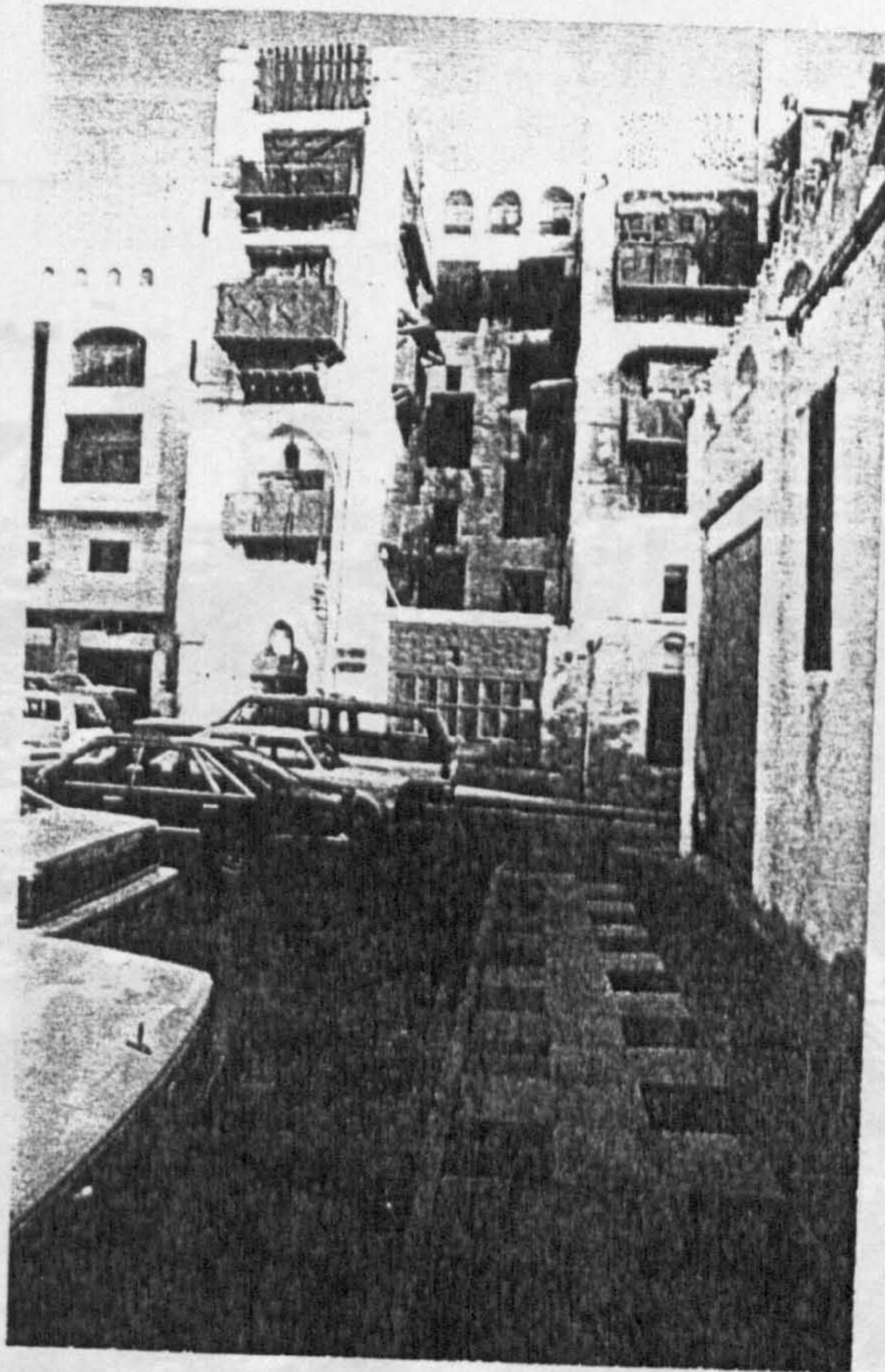


Fig 7-21 VIEW OF TRADITIONAL AREA OF CARS, JEDDAH (1)  
(The hosue at the end also contains courtyard).  
Source: Author (A.S. Alafghani).



Fig 7-22 VIEW OF TRADITIONAL AREA AND CARS, JEDDAH (2)  
(Cars were parked on the pavement. Houses are  
deteriorating).  
Source: Author (A.S. Alafghani).





Fig 7-23 CHANGES IN THE BUILT ENVIRONMENT, JEDDAH  
 (High-rise buildings are blocking the sea breezes).  
 Source: Jeddah old and new, p.19.



## Footnotes: Chapter 7

1. For more information about the City of Jeddah see the following:
  - (a) SERT JACKSON International/Saudi Consult. Jeddah Action Master Plans, Technical Report No. 9. Revision and updating of the Existing Master Plan. Depute Ministry of Town Planning. Ministry of Municipal and Rural Affairs Riyadh 1400.
  - (b) SERT JACKSON International/Saudi Consult. Jeddah Action Master Plan. Technical Report No. 3. Existing Conditions of the Metropolitan Area. Deputy Ministry of Town Planning, Ministry of Municipal and Rural Affairs Riyadh 1399.
  - (c) SERT JACKSON International/Saudi Consult. Jeddah Action Master Plan, Technical Report No. 19. Cultural Area Plans. Depute Ministry of Town Planning, Ministry of Municipal and Rural Affairs. Riyadh 1405.
  - (d) FARSI, Zaki M.A. Jeddah A-Z. Farsi Office, Jeddah.
  - (e) FARSI, M. Said. Jeddah, A Changing Eco-System. Research Department, Municipality of Jeddah, Jeddah.
2. Op.cit Chapter 5. (2) p.7
3. Ibid p.7.
4. Ibid p.7.
5. For more information about traditional Jeddah Houses see the following:
  - (a) KHAN, S.M. Jeddah Old Houses. King Abdulaziz City for Science and Technology, Riyadh 1986.
  - (b) SERT Jackson International, Old and New Jeddah. Sert-Jackson, Jeddah, 1979.
  - (c) FARSI, M. Said. Urban Development of Old Jeddah, Municipality of Jeddah, 1983.
  - (d) FARSI, M. Said Jeddah Old and New. Stacey International London, 1980.
  - (e) ASSOCIATED Consultants Bureau CACB. Old Jeddah Histories Area. 1399-1404. Municipality of Jeddah, Jeddah.



(f) EYUCE, Ahmet. A Comparative Analysis of Solid-void Relationships of Traditional and Contemporary Houses in the Western Region of Saudi Arabia. King Abdulaziz University, Jeddah.

(g) AL-HARBI Thamer H. The Development of Housing in Jeddah Change in Built From the Traditional to the Modern. School of Architecture, University of Newcastle Upon Tyne, Newcastle 1989. Chapter 4.

6. This material could be found beside the seashore in the Jeddah area.



## CHAPTER 8

### OTHER HOUSES

- 8 . 1            MEDINA HOUSES
- 8 . 2            QATIF HOUSES
- 8 . 3            ASIR HOUSES
- 8 . 4            JIZAN HOUSES
- 8 . 5            OTHER HOUSES ASSESSMENT



The previous three chapters looked at the different traditional houses of the three main cities of Riyadh, Makkah and Jeddah. Since the three cities were the focus of the study, a brief analysis was given to each type in terms of the climatical, activities, cultural and material references. This chapter is to illustrate some other traditional houses outside the study area for the purpose of presenting the variety of traditional houses which the people of this country managed to produce according to their needs and resources.

The houses which are presented in this chapter are Medina, Qatif, Asir and Jizan houses. The presentation of these houses will be different from the previous presentation, it will be only general illustrations.

## 8.2 MEDINAH HOUSES<sup>1</sup>

The built environment of old Medina reflected the traditional Arabian-Islamic city. The Prophets Mosque is the focal centre of the city. The residential areas were surrounding the Holy Mosque and the compact formation of the houses provided the narrow winding streets which directed and protected the movement of the people to the Mosque.

The traditional house of Medina as a unit represented the structure by which the people managed to respond to the climate of Medina. The use of the courtyards was one element and the different materials to construct the thick walls (stones and mud). Also some of the houses get advantage of the Mashrabiyyah for ventilation use. The different areas of the house also provide the family members with the spaces they needed for their activities. The ground floor usually used for the males and guest activities. The upper floor is basically for the family



use. The people reflect their tradition and values in protecting their privacy by covering openings with wooden screens. (Fig 8-1, 8-2, 8-3 and 8-4)

## 8.2 QATIF HOUSES<sup>2</sup>

The traditional built environment of the Qatif area was characterised by the traditional close-knit settlement with shaded areas of narrow streets.

The houses contain courtyards and some of them had wind catchers. The thick mud walls and wood framed mud roof were to increase the insulation quality of the house. These elements were as a response to the climate of the area. The house is arranged around the courtyard in a way that the family could enjoy life in it. The terrace was used for sleeping. The outside windows were protected by wooden shutters. (Fig 8-5, 8-6 and 8-7)

## 8.3 ASIR HOUSES<sup>3</sup>

Architecture in Asir is influenced by the design and methods of construction of Yemen and is similar in its tower-like character. The house is a tall three to four storey fortress with small openings.

Such a house stores heat in its thick walls during the winter period, and its windows can be kept closed during the cold nights. During the summer season through ventilation of rooms (especially on the upper floors, where favourite family spaces are located) kept the house pleasantly cool. The houses used to work for the family needs. The family (women) used the upper floors, where the kitchen and family rooms are generally located. Some of the houses have balcony-like terraces on the second or third floors and also a room on the roof. The small opening reflects the defensive use of the house to protect the inhabitants from outside attacking.



The houses are built from stones gathered from nearby hills. Houses are built without using any mortar in most cases. Instead small stones are inserted between longer rubble stones to achieve bonds, they are called "rubble houses". Walls may be as thick as 70cms. on the ground floor.

In Asir it drizzles or rains most of the year around. To protect the walls from the rain, slates are inserted in the mud walls so that the rain does not fall on the walls. This type of mud and slate houses are beautiful and require elaborate building skills. (Fig 8-8, 8-9, 8-10, 8-11, 8-12, 8-13, 8-14, 8-15, 8-16 and 8-17)

#### 8.4 JIZAN HOUSES<sup>4</sup>

Conical huts of African origin are built from dried river reeds, with mud-plastered roofs and walls. The location of the city of Jizan and its access to the sea brought this type of accommodation from the African continent. The African influence is evident in the use of the materials and architectural forms, and they were introduced to the region by people of Sudanese and Ethiopian origin who settled there centuries ago.

Roofs covered with dry thatch and walls of lightly plastered mud are the basic elements of a housing type which has been directly transplanted to Jizan area from Africa. The construction of light, cone-shaped buildings using mud plastered and dried reeds prevents the accumulation of heat. The hut provides comfort conditions similar to those provided by the shade of trees. On the outside the reeds provide a protective shield for the internal mud-plastered domed roof. The mud-plastered walls of the hut are highly decorated and the ceiling of the dome is painted brightly at the apex.



The door is the only opening which is arched. Windows in this kind of light construction are eliminated, but the door provides sufficient light for indoor chores.

Parts of the daily life and household work is also done in the courtyard around the huts. Each mud hut, or groups of two and three is enclosed with an irregular yard made of split bamboo and dried reed half-walls, to form an average household. This form is also used as an extension of the household in which animals are kept. Some of the activities related to farming and outdoor sleeping also took place in this yard. (Fig 8-18, 8-19 and 8-20)

#### 8.5 OTHER HOUSES ASSESSMENT

The people of Saudi Arabia produced a series of houses all over the Kingdom. Each house reflects different techniques of using the building materials. The local materials and their use in the different houses stand as a witness for the possibility of developing its use in today's construction.

Most of these houses are empty, their original residents moved away to new places. The problem of deterioration and falling is noticeable in these areas. The preservation of these houses need to be administrated and funded by the government.



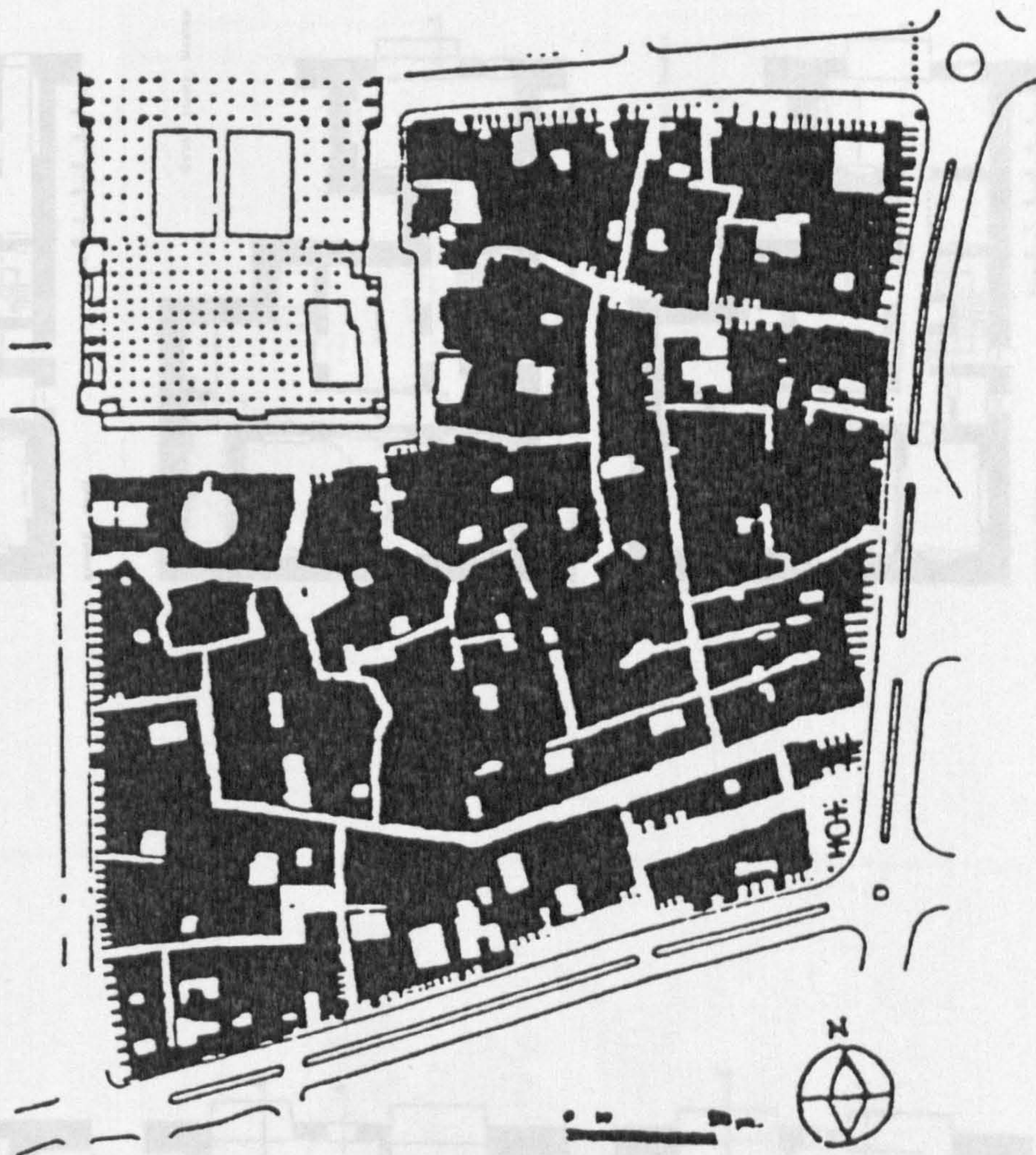


Fig 8-1 TRADITIONAL PATTERN OR URBAN DEVELOPMENT IN MADINAH.  
Source: Kha Shugjee, S.A. 1983, p.51.



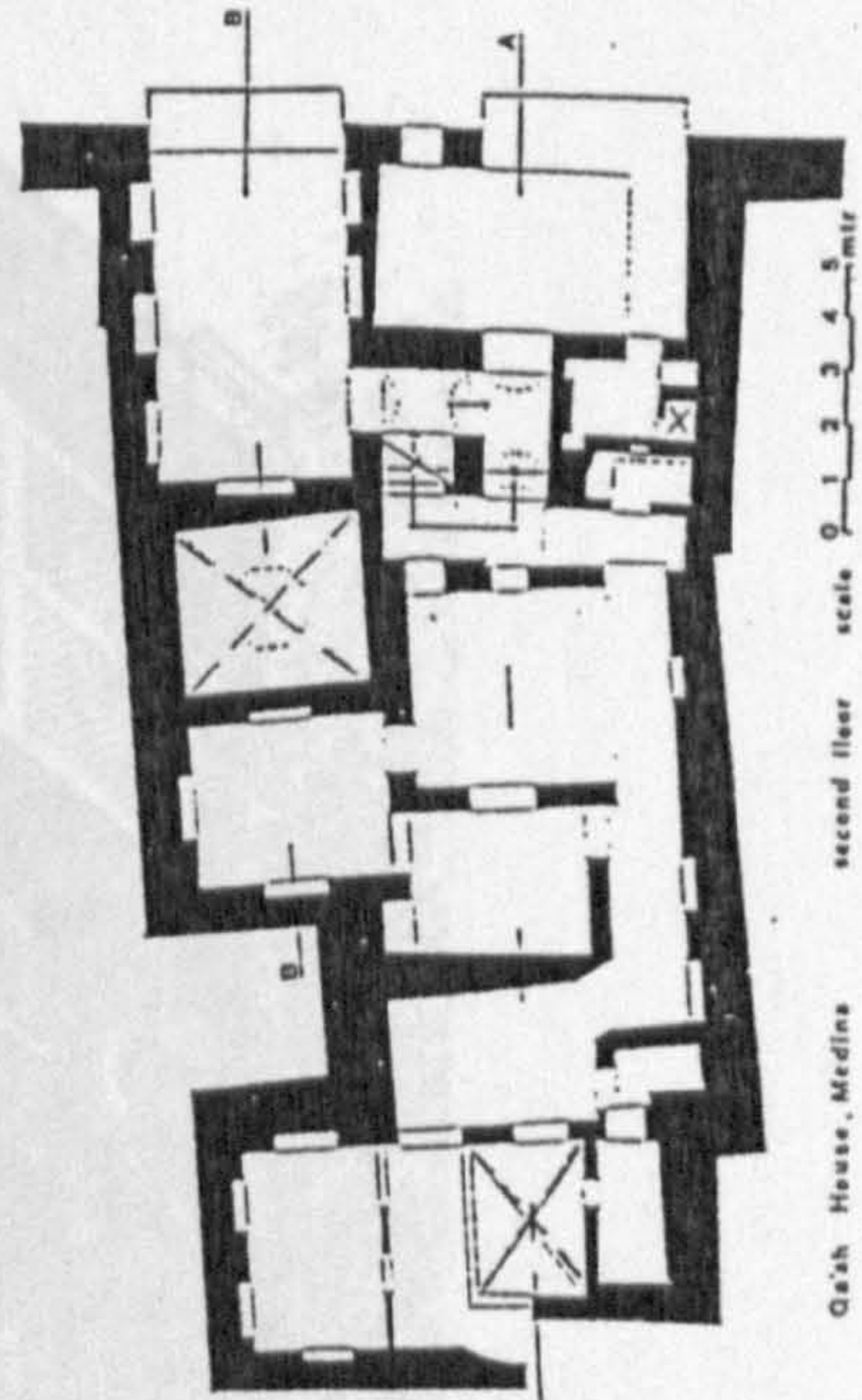
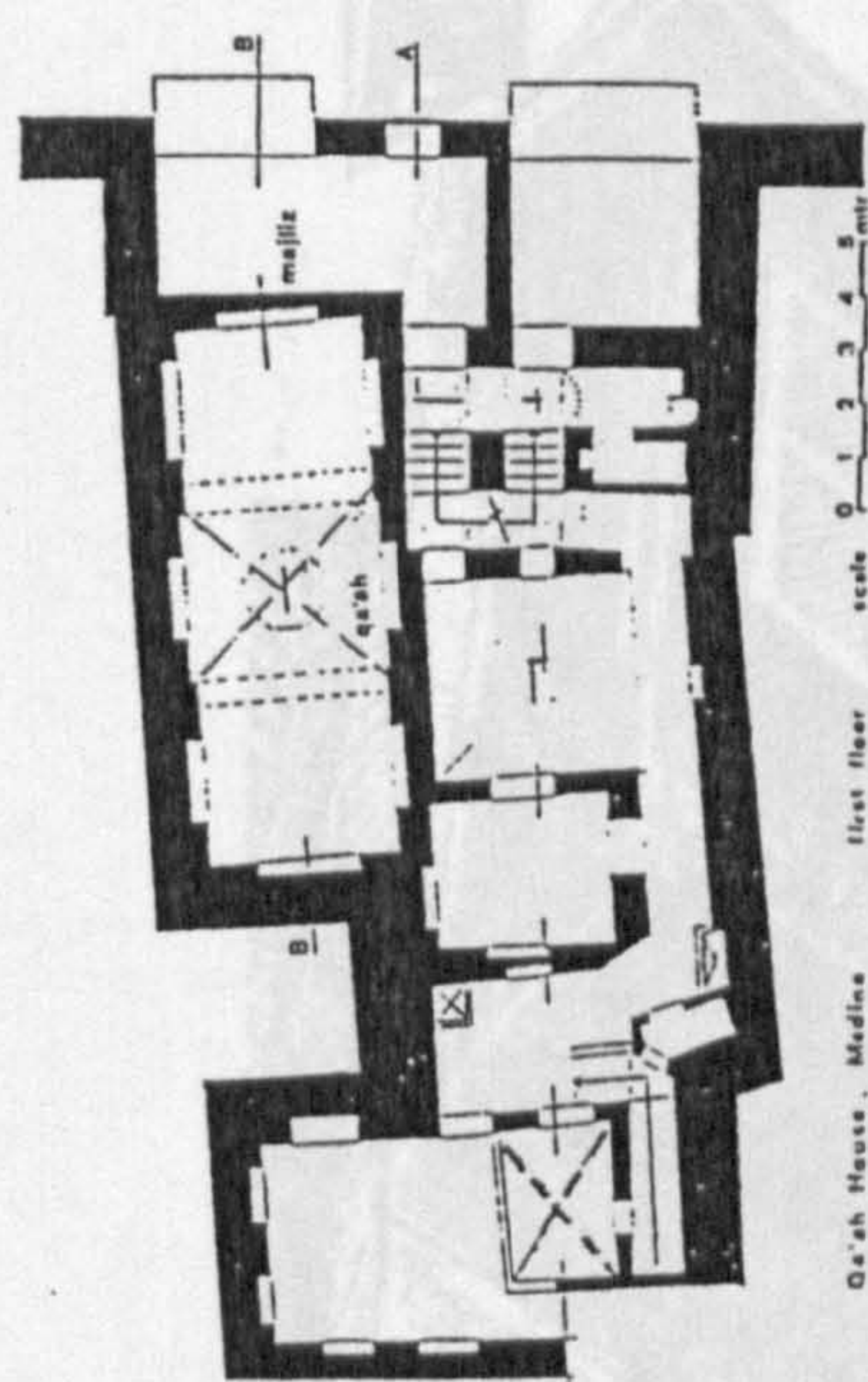
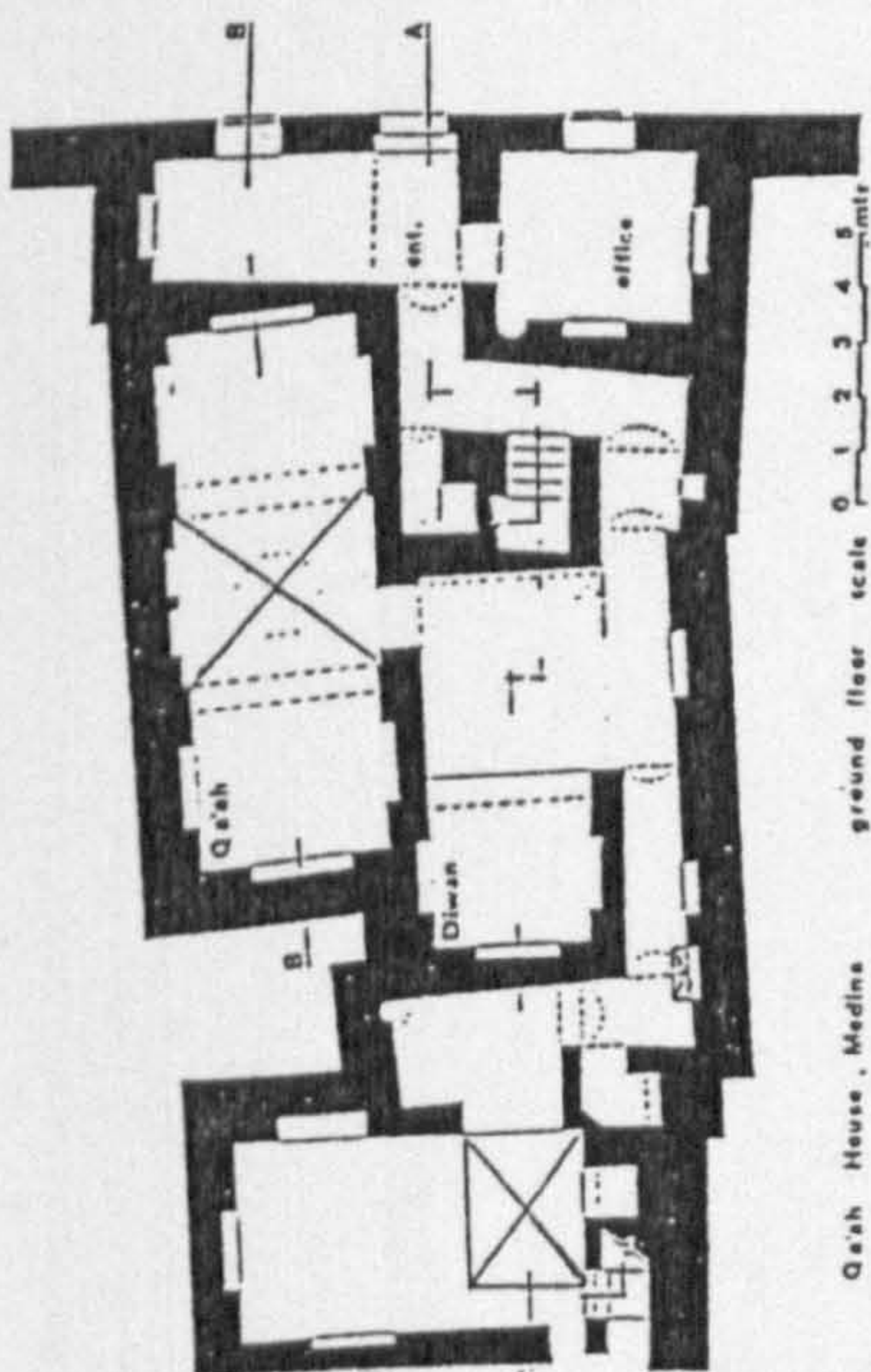


Fig 8-2 QA'AH HOUSE, MEDINA (1)  
(Ground, First and Second floors).

Source: Eyuse, A., p.p. (99-101).

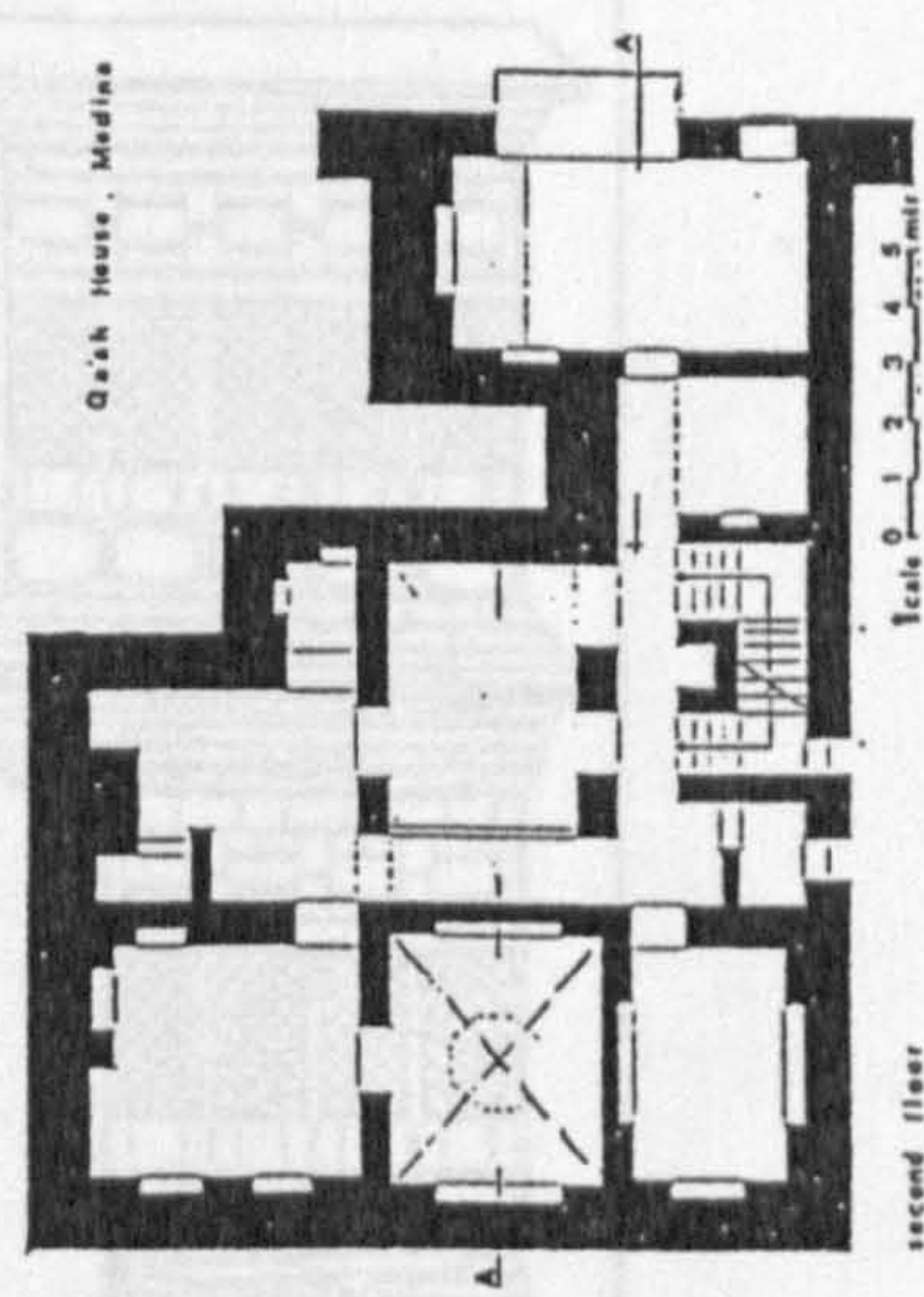
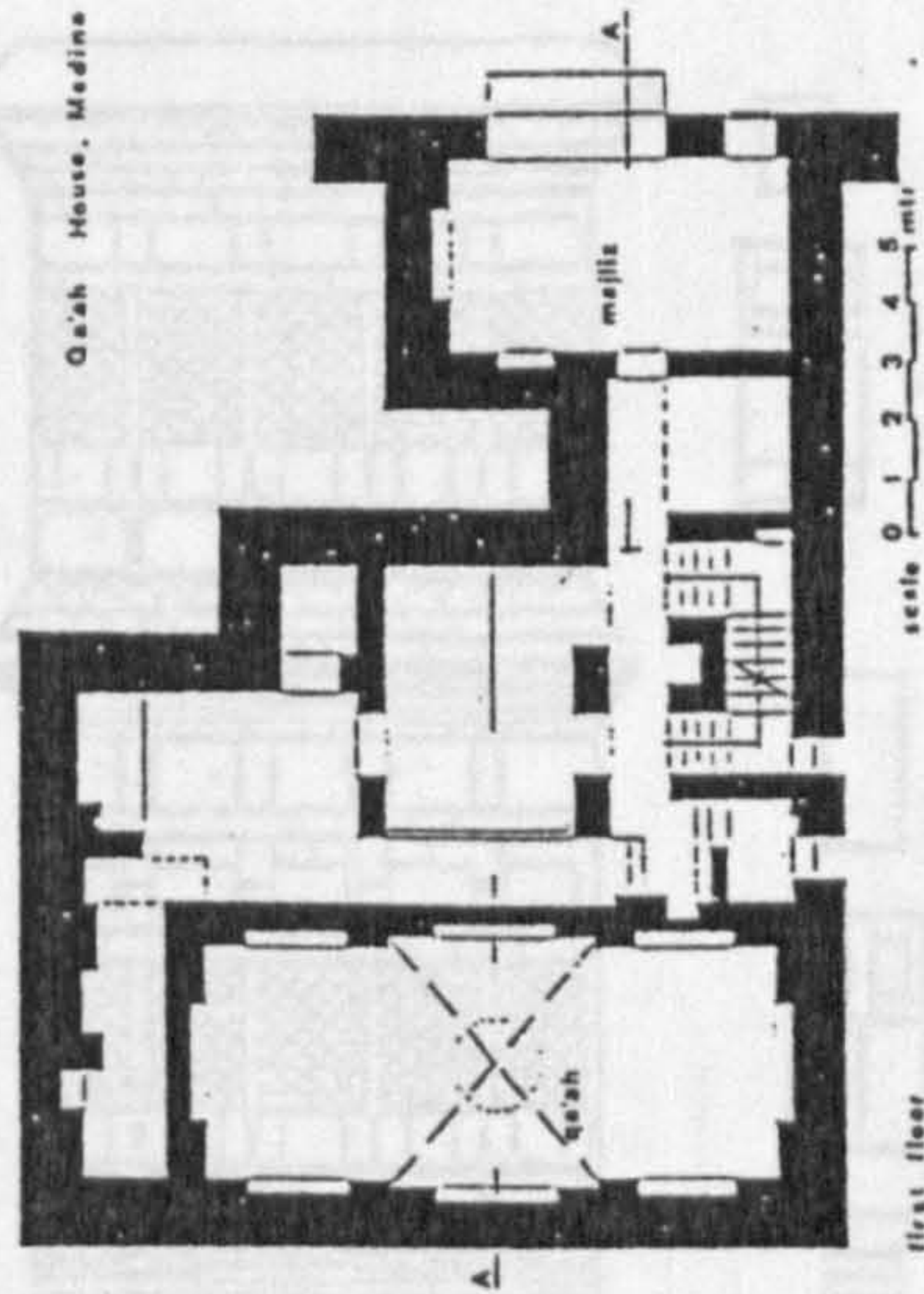
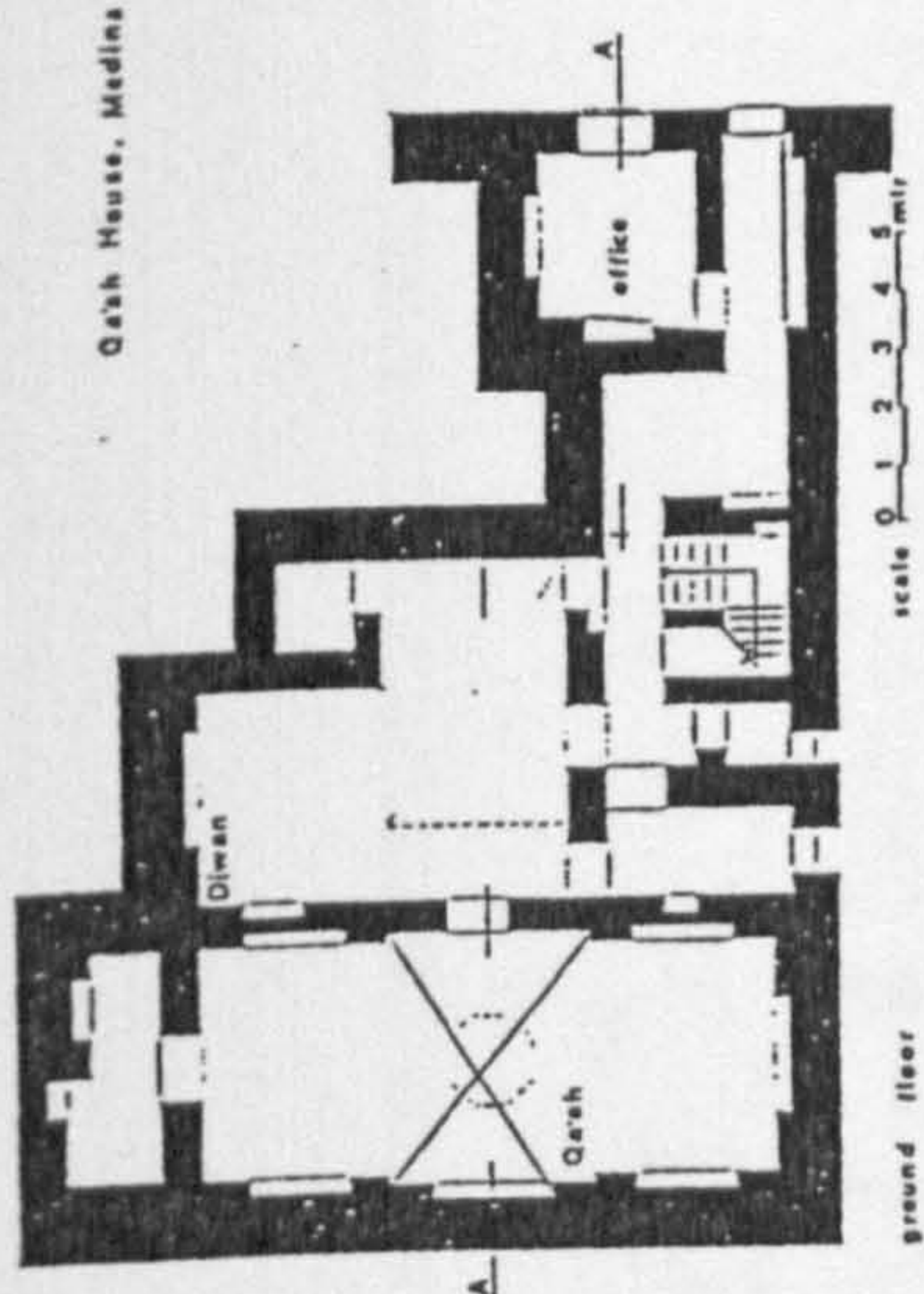
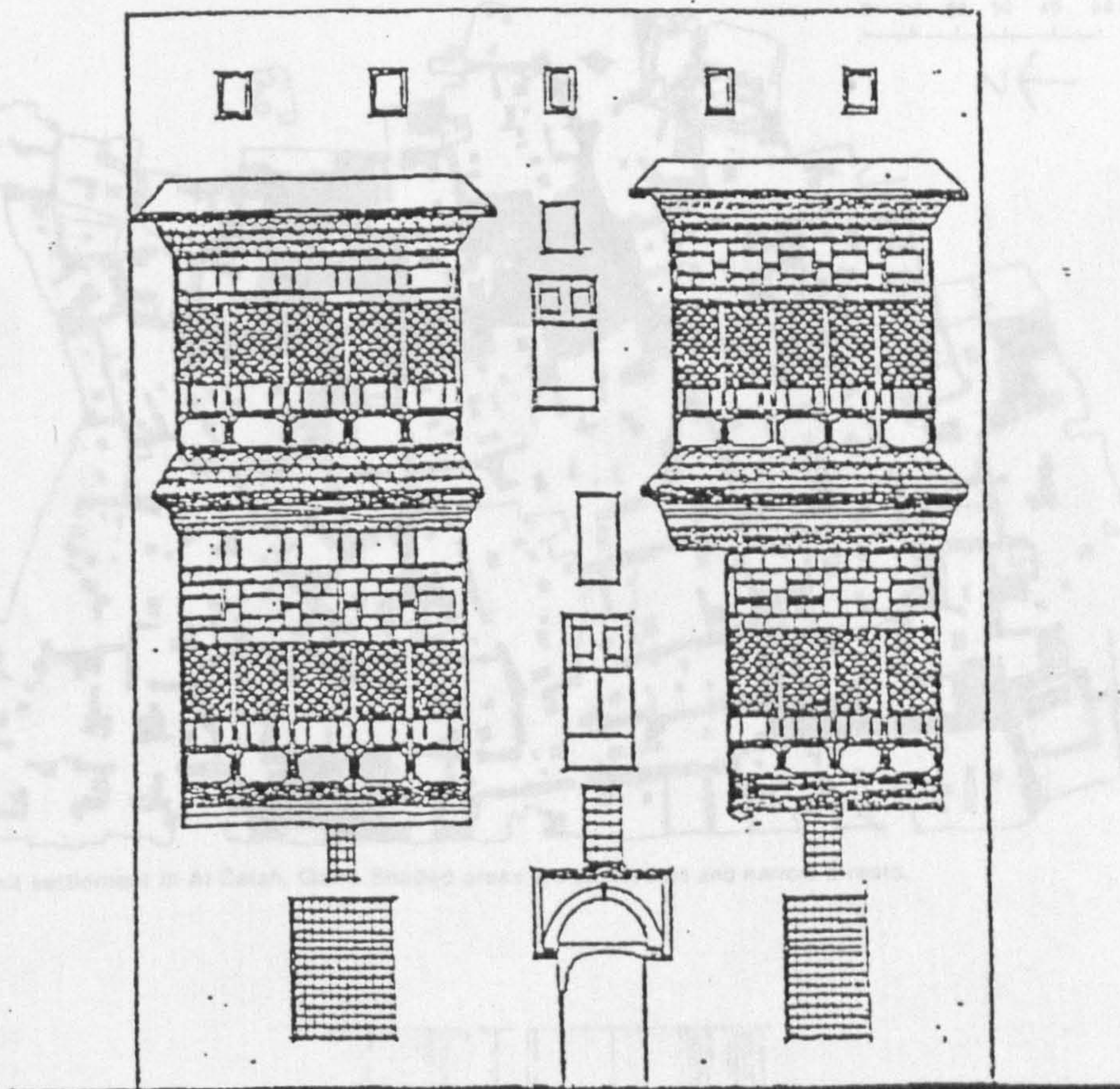


Fig 8-3 QA'AH HOUSE, MEDIAN (2)  
(Ground, First and Second floors).

Source: Eyuse, A., p.p. (104-106).





Elevation

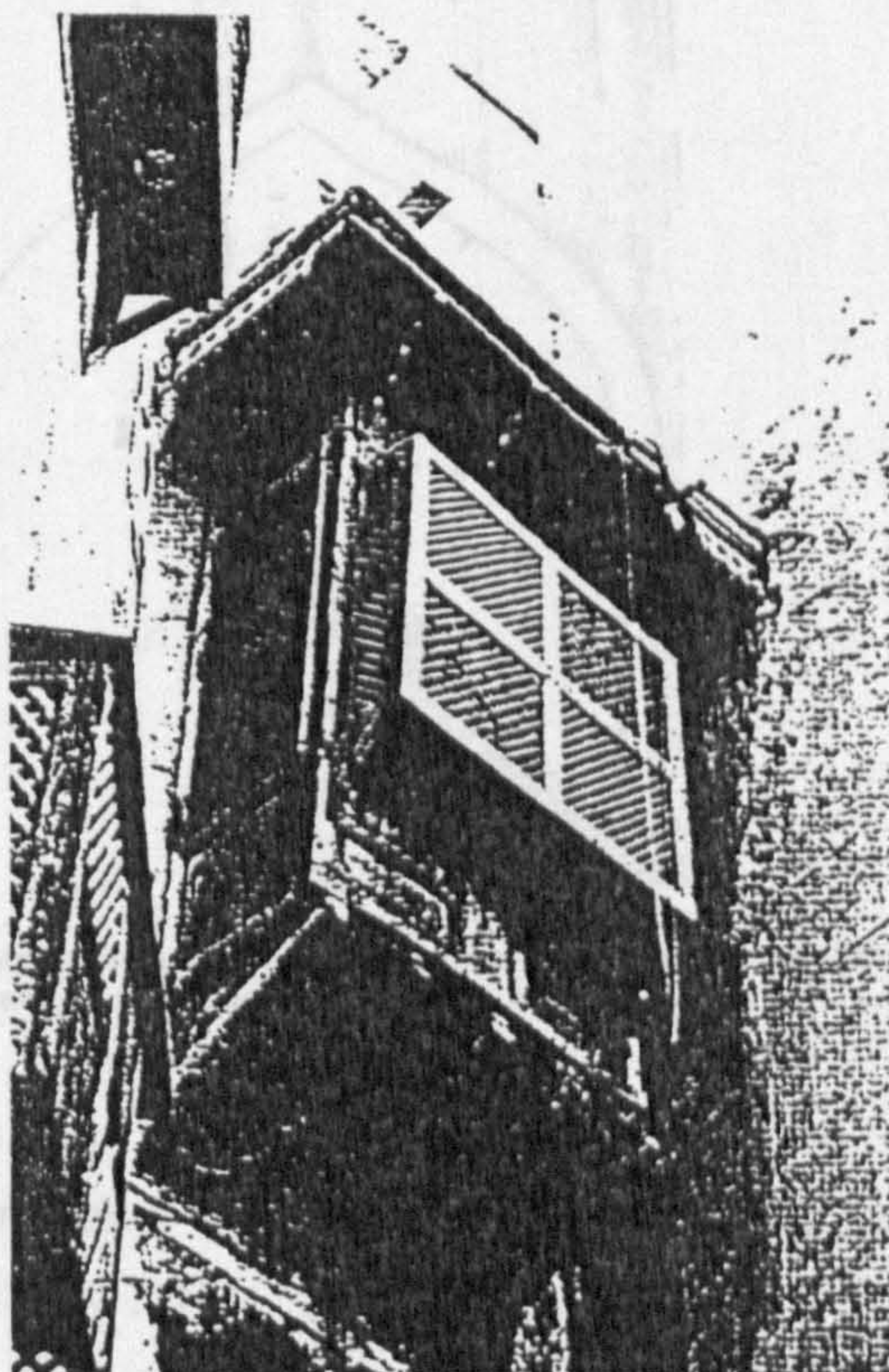
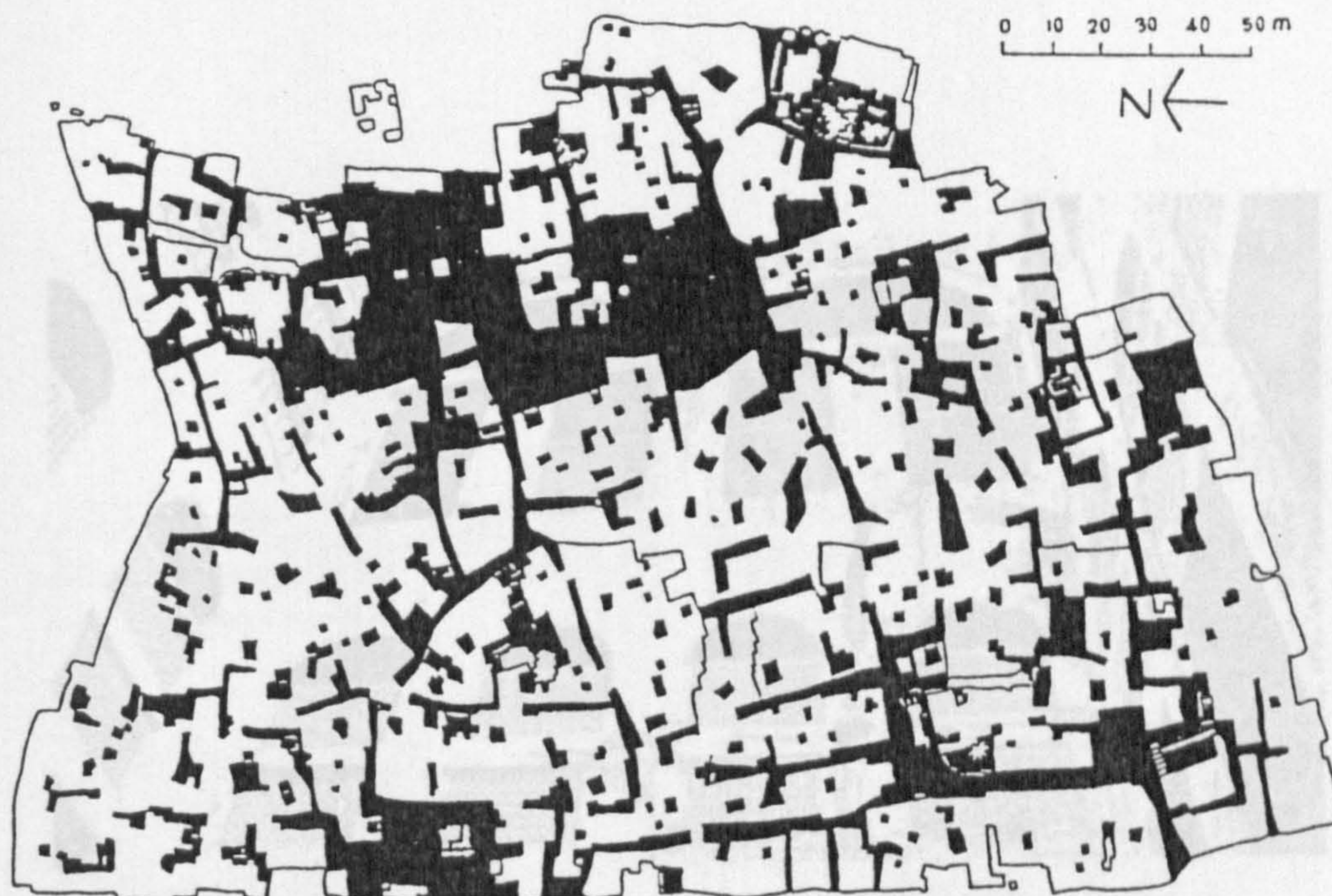


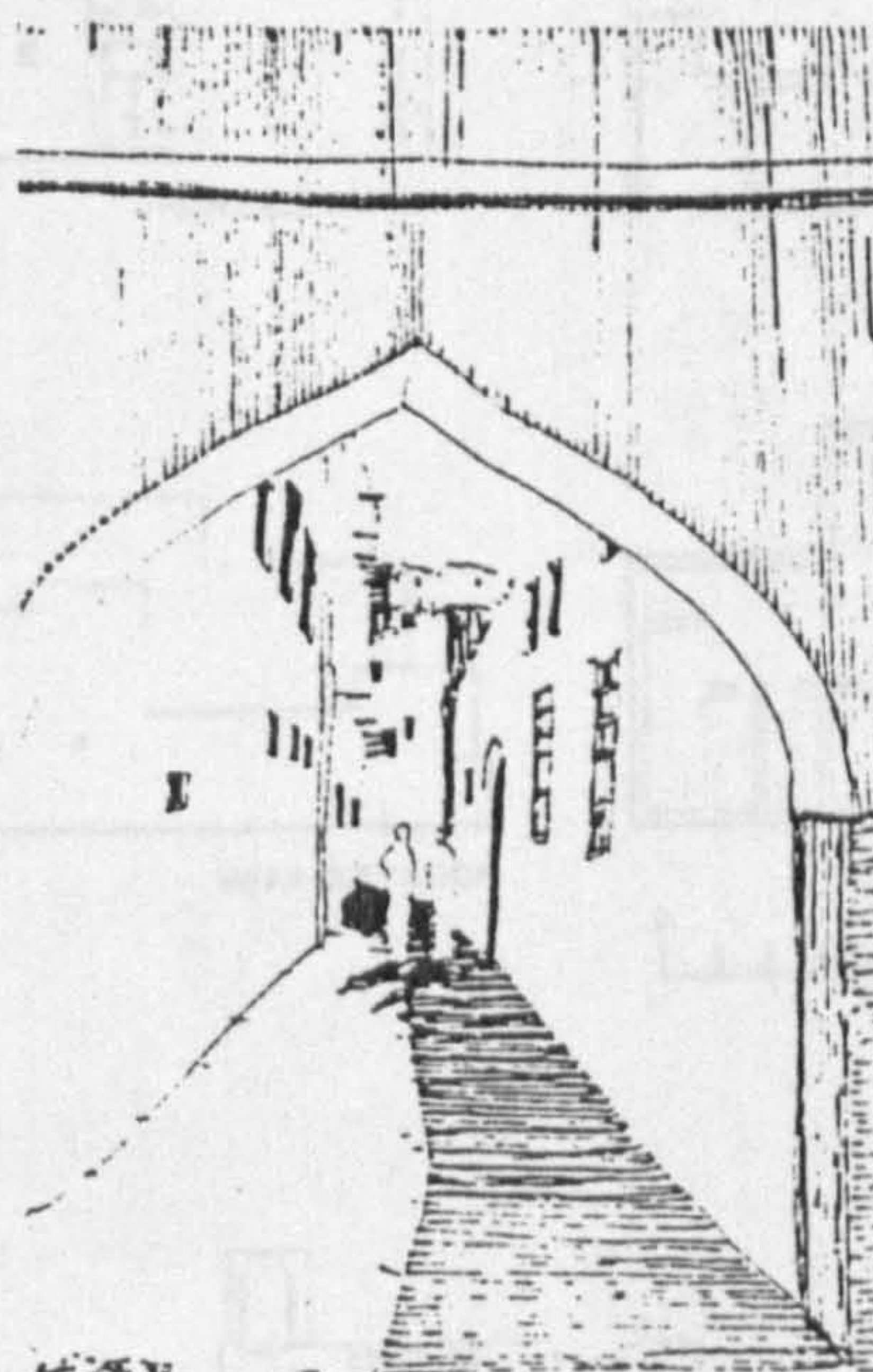
Fig 8-4 VIEWS OF MADINA HOUSE  
(The use of Mashrabiya).

Source: Mustafa, S.L. 1982, p.192.





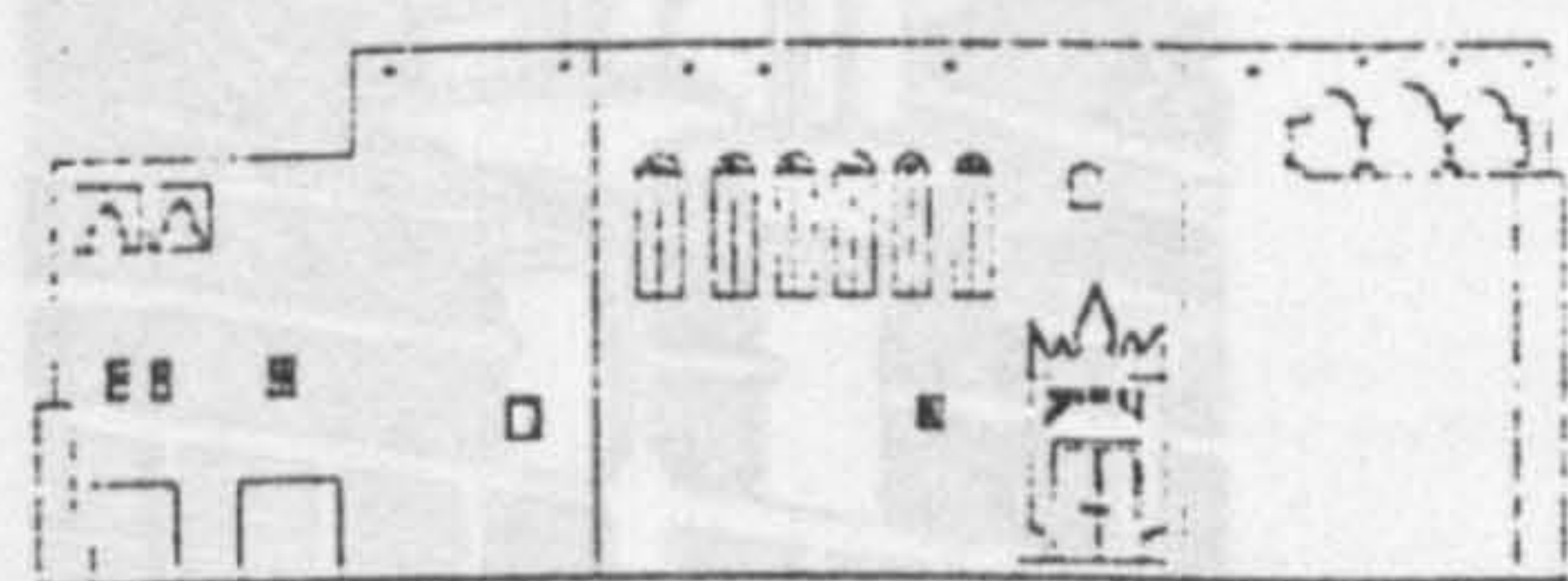
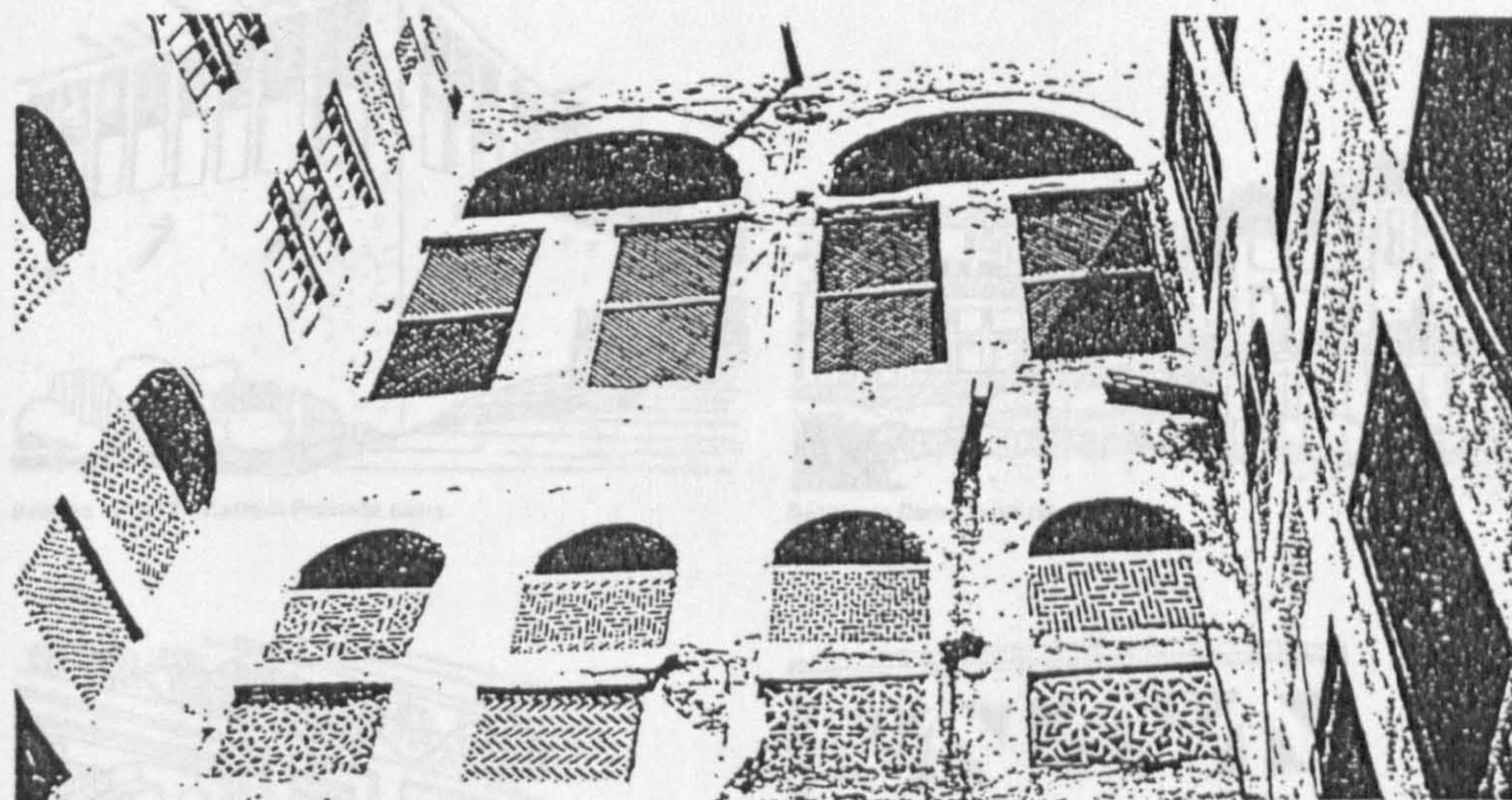
Traditional closely-knit settlement in Al-Qalah, Qatif. Shaded areas are courtyards and narrow streets.



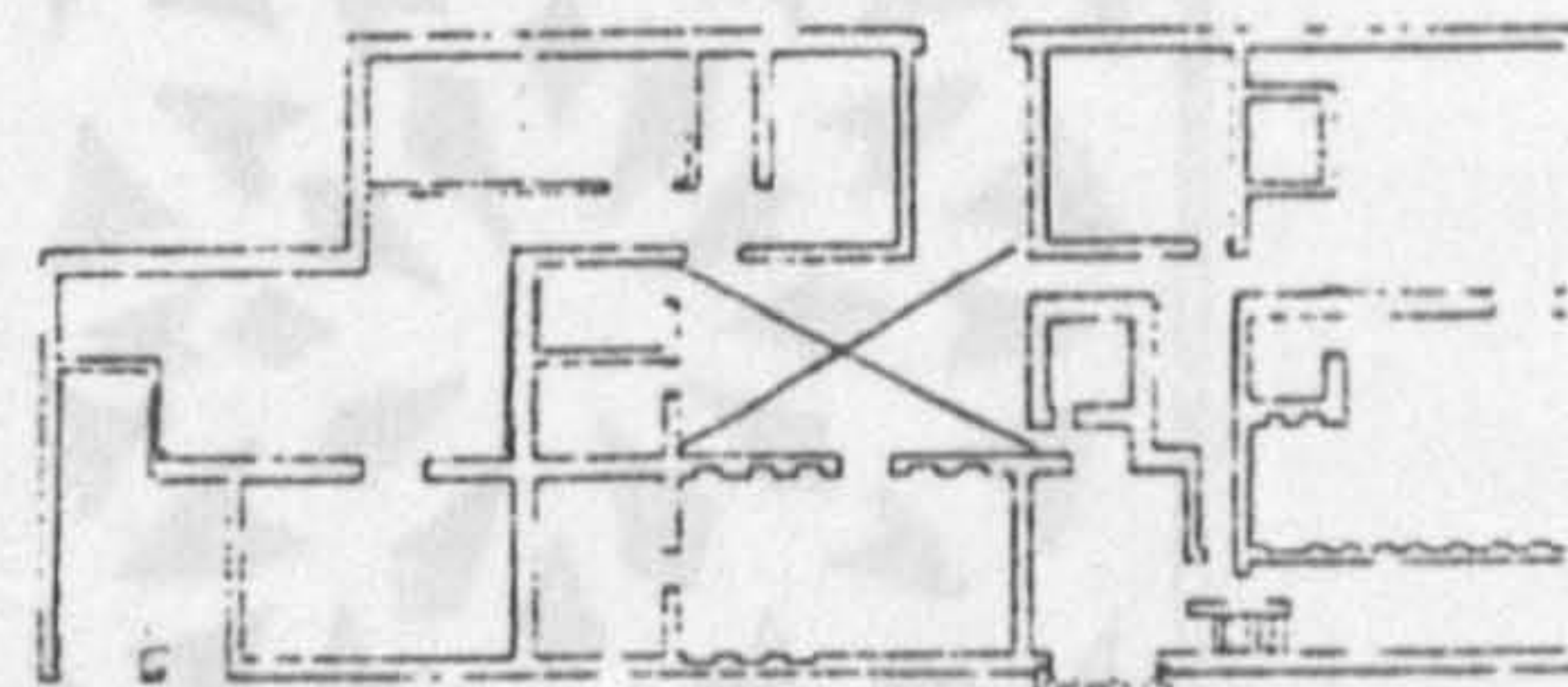
Narrow shaded intimate streets, decorative entrances and carefully arranged openings in Al-Qalah, Qatif, Saudi Arabia.

Fig 8-5 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN QATIF  
Source: Talib, K., 1984, p.84.

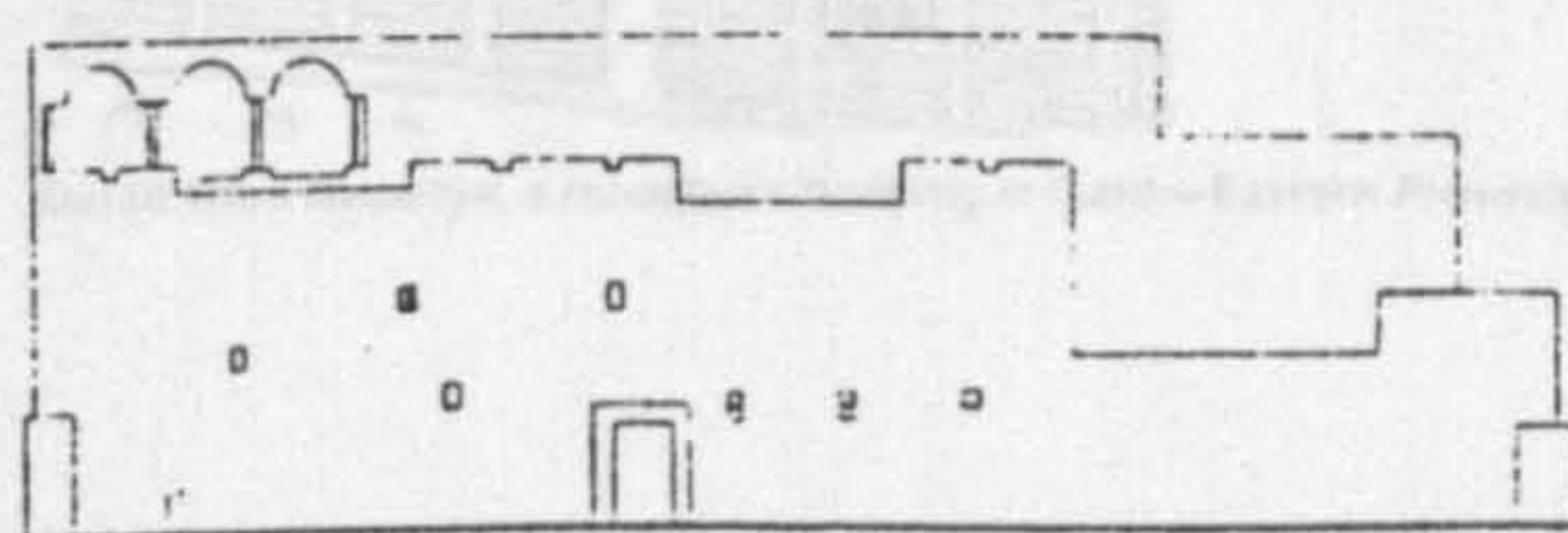




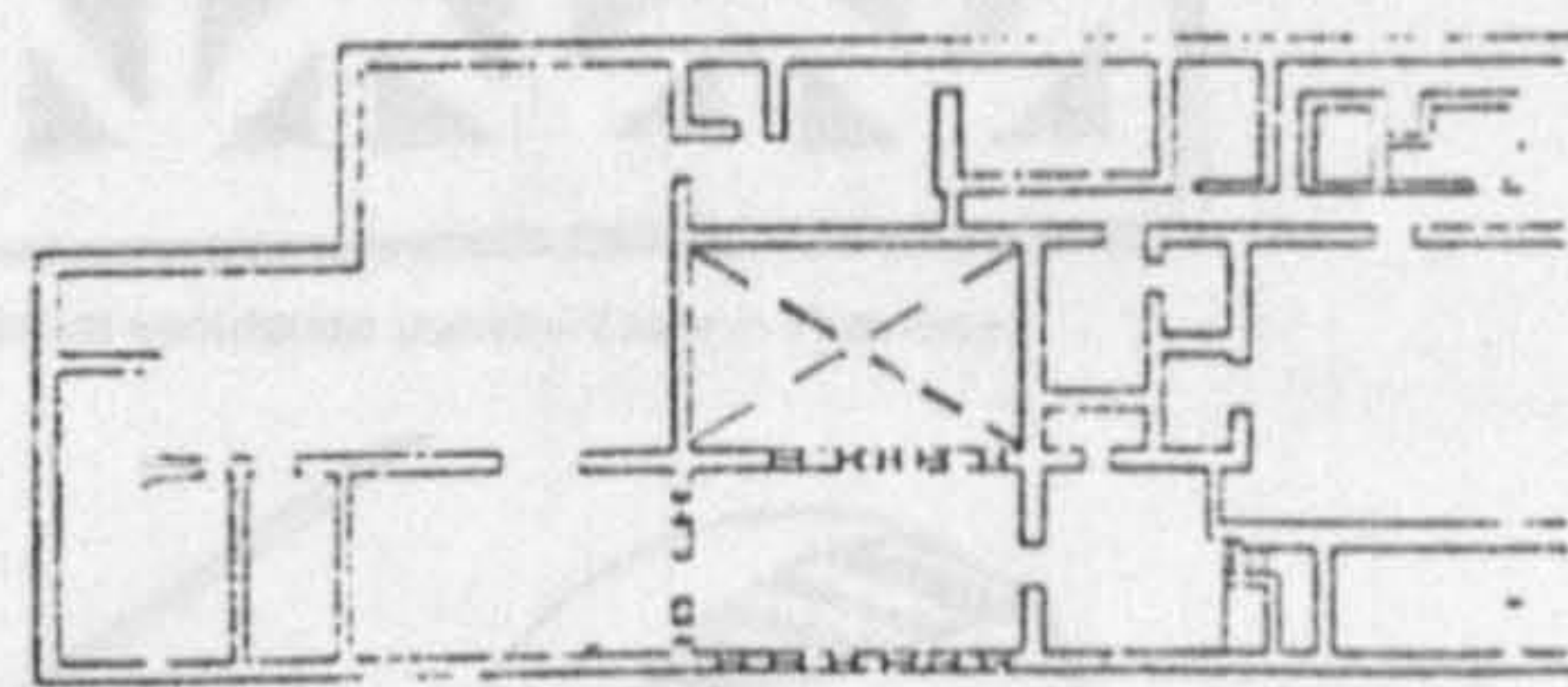
FRONT ELEVATION



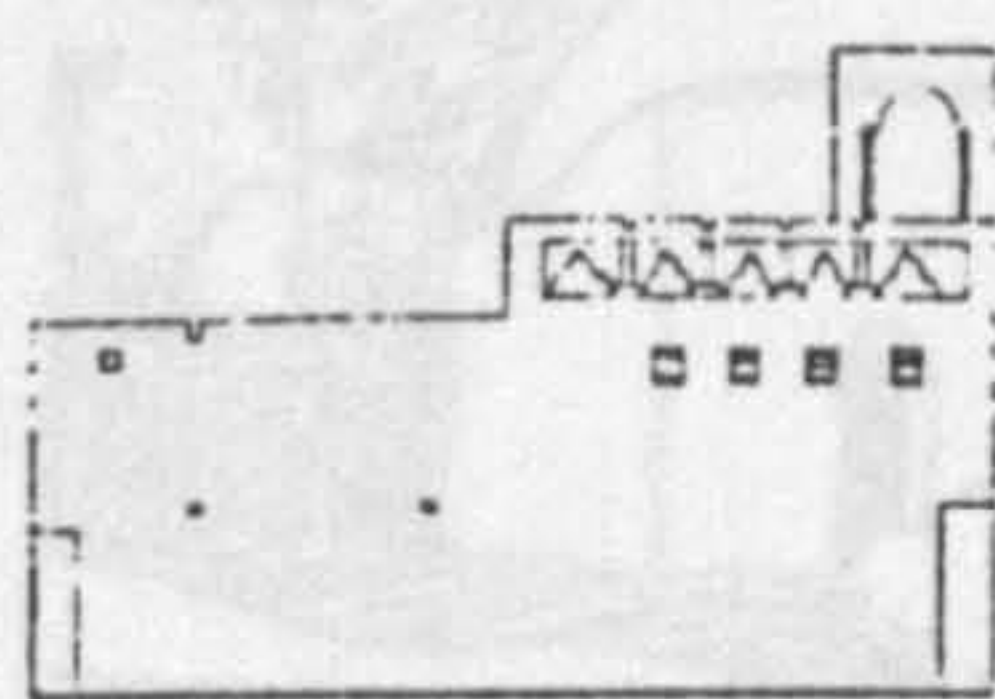
G. FLOOR PLAN



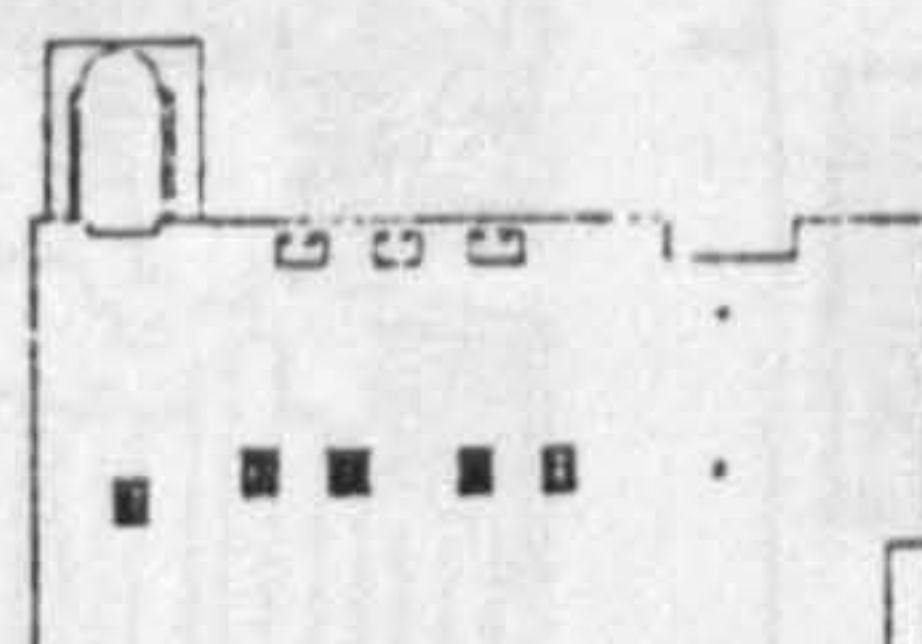
REAR ELEVATION



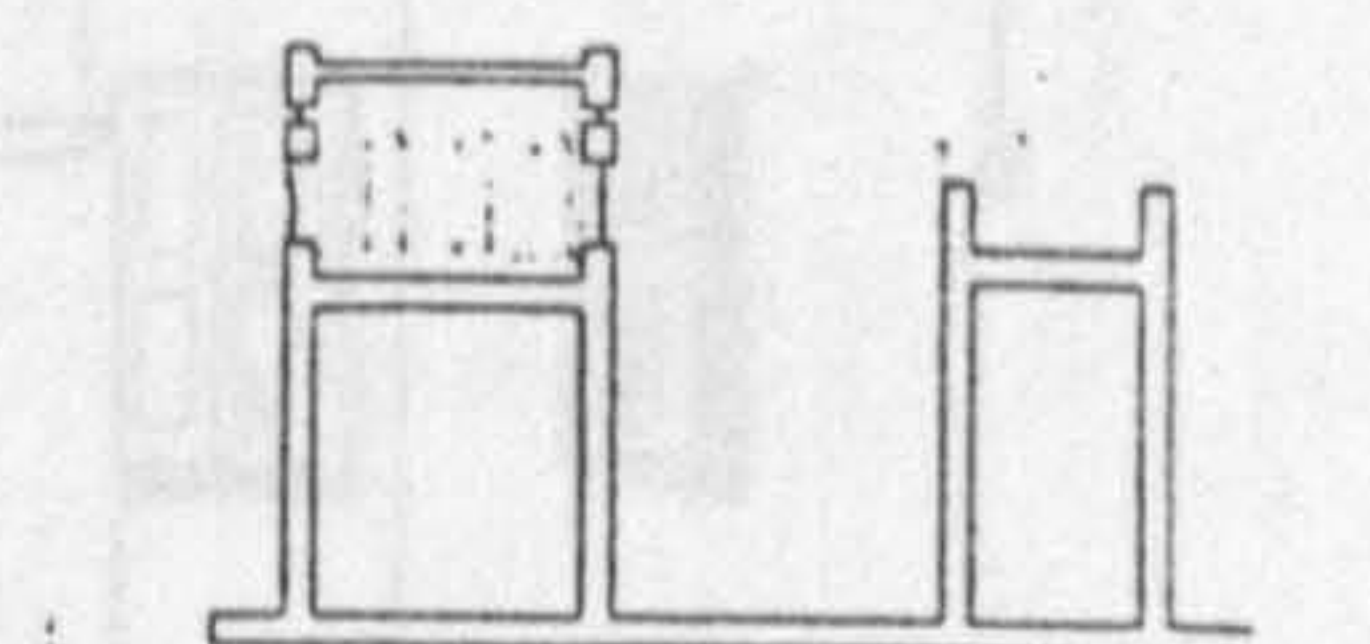
1st FLOOR PLAN



SIDE ELEVATION



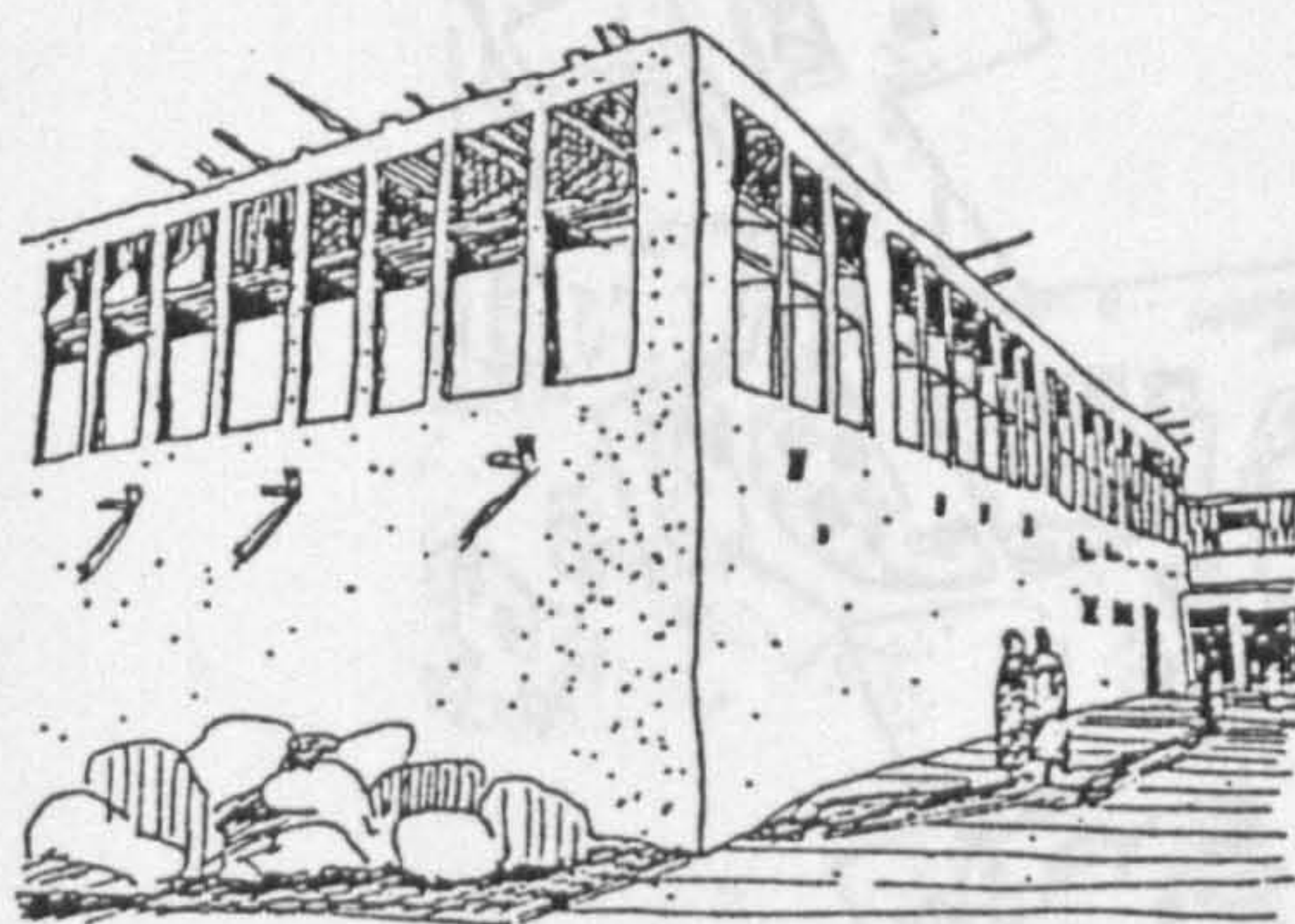
SIDE ELEVATION



SECTION

Fig 8-6 DETAILS OF TRADITIONAL HOUSE, QATIF  
Source: Talib, K., 1984 p.p. (86-87).

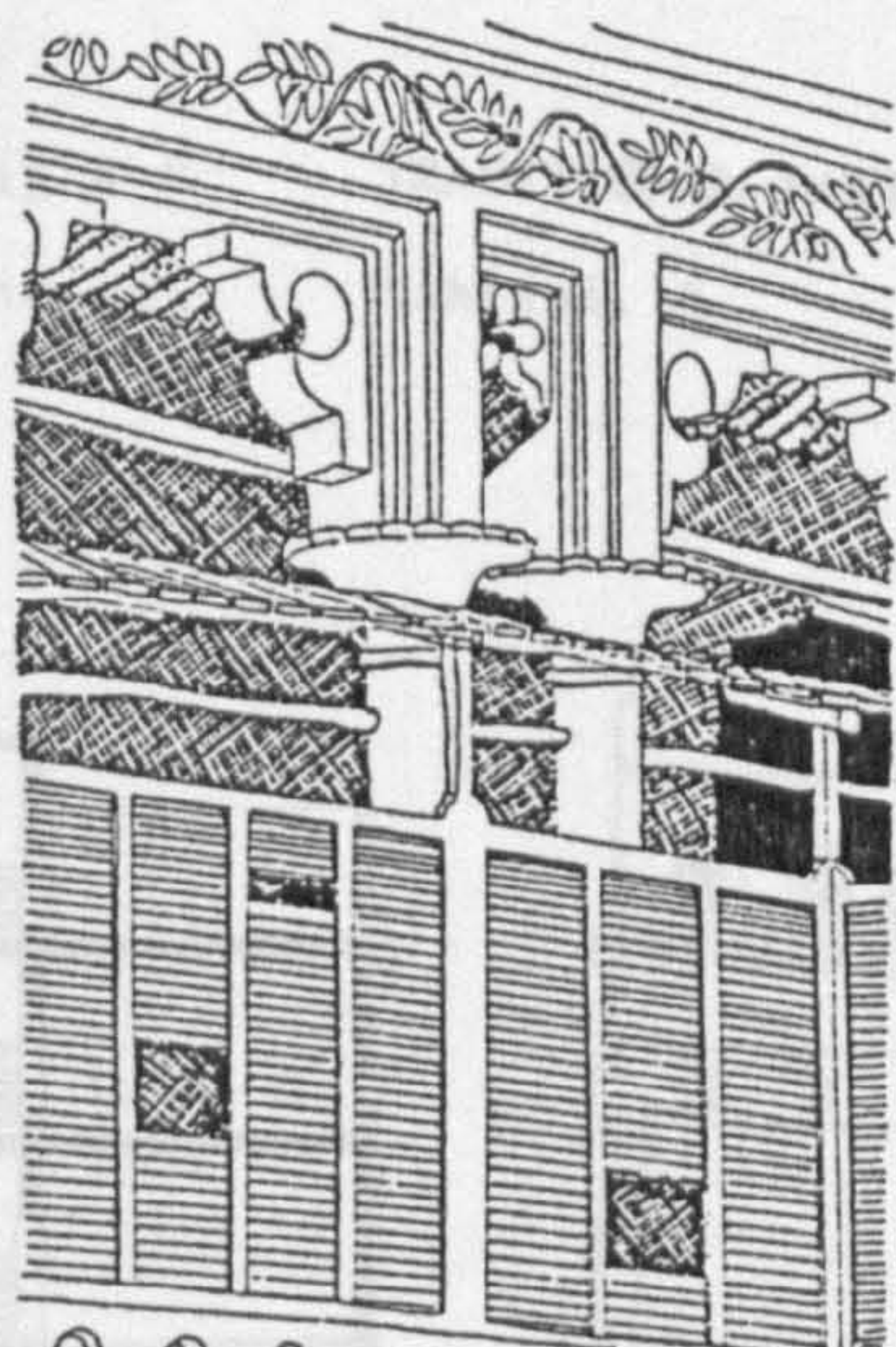




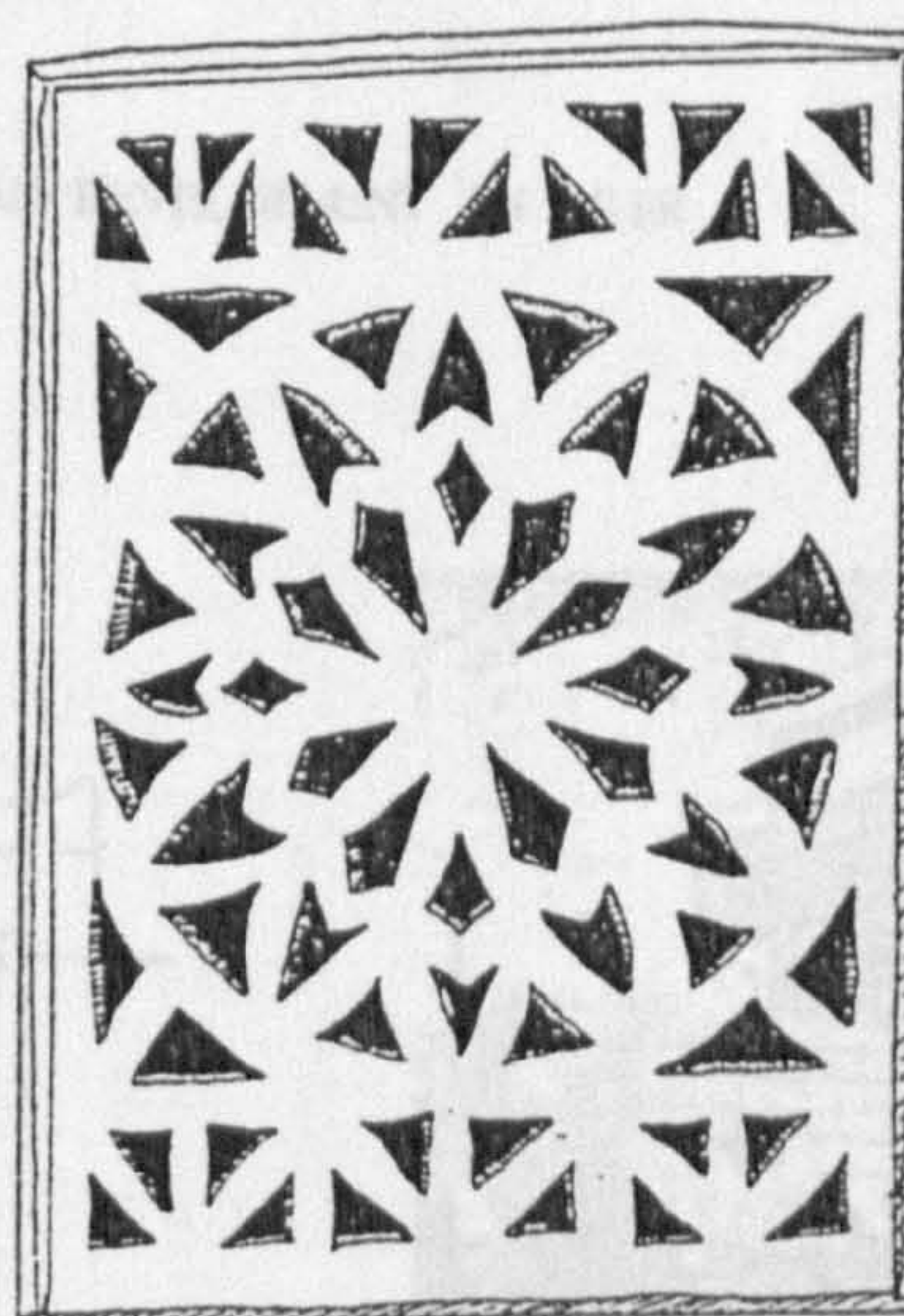
Badgirs in Qatif—Eastern Province oasis.



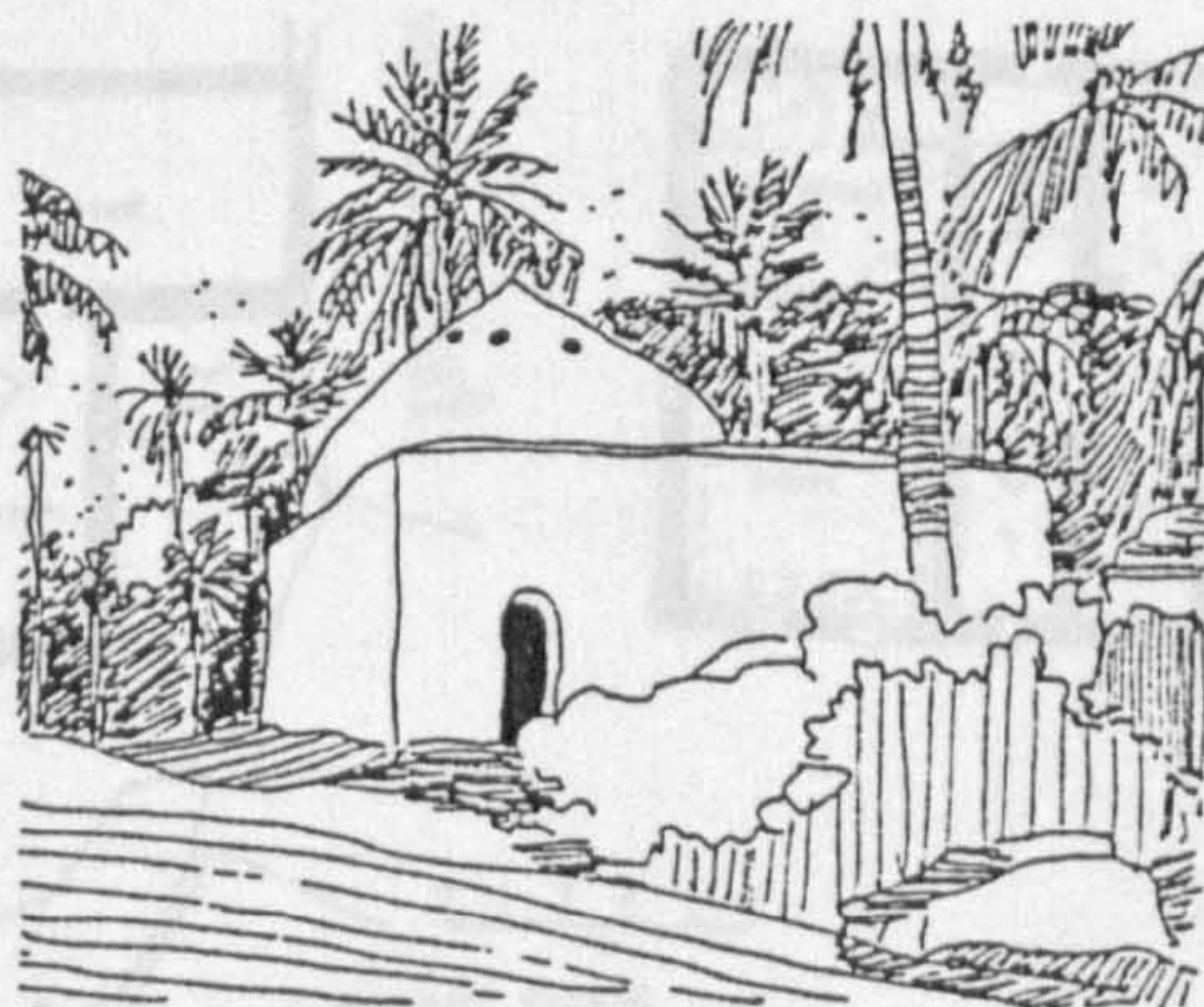
Badgirs in Darin, Tarut island.



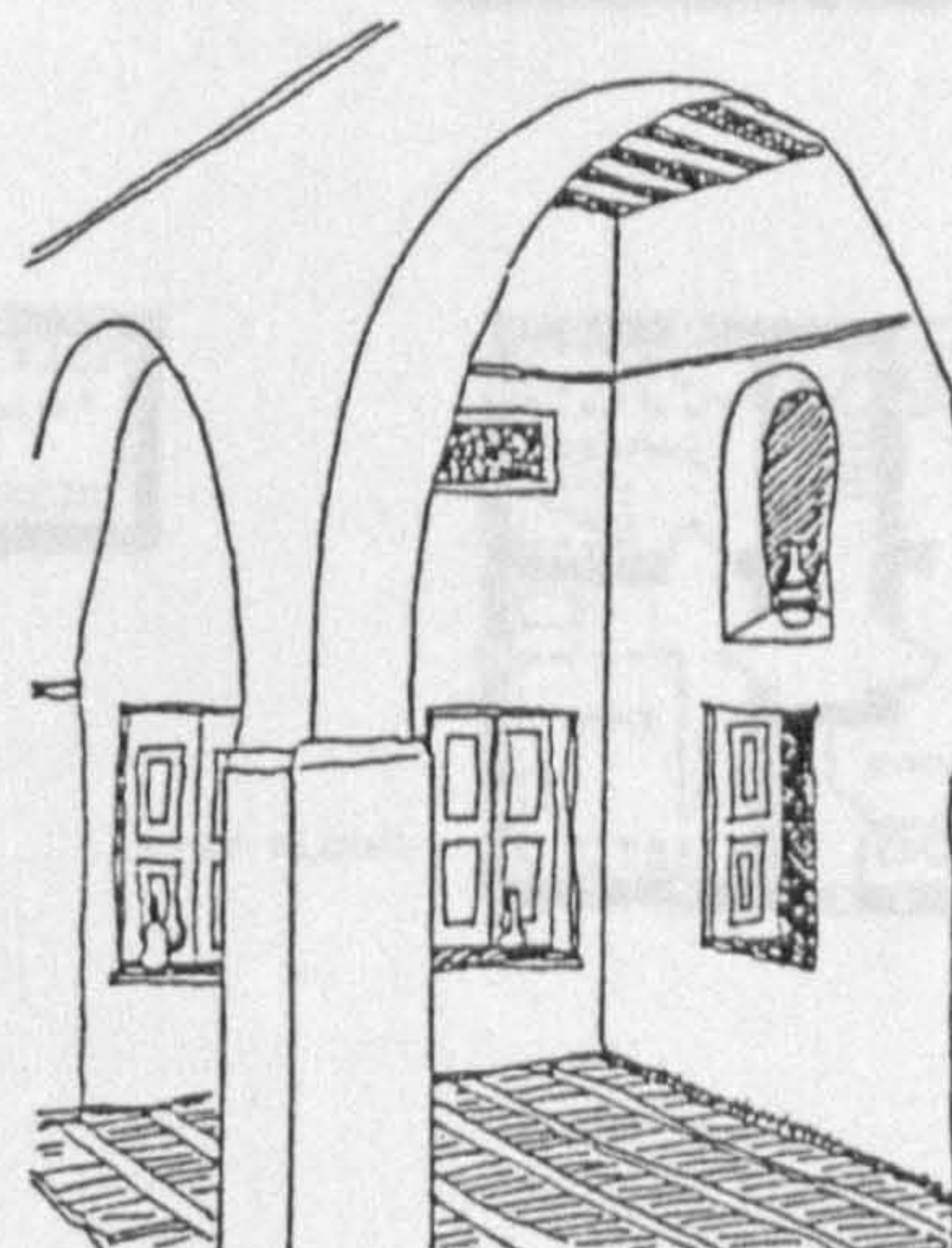
Detail from Qasariya, a mixed-use building in Qatif—Eastern Province.



Gypsum ventilation panel—Eastern Province.



Hammam (public bath-house) in Qatif oasis.



Iwan of a house along the Gulf coast.

Fig 8-7

SKETCHES OF HOUSES, QATIF

Source

Talib, K., 1984, p.p. (88-89).



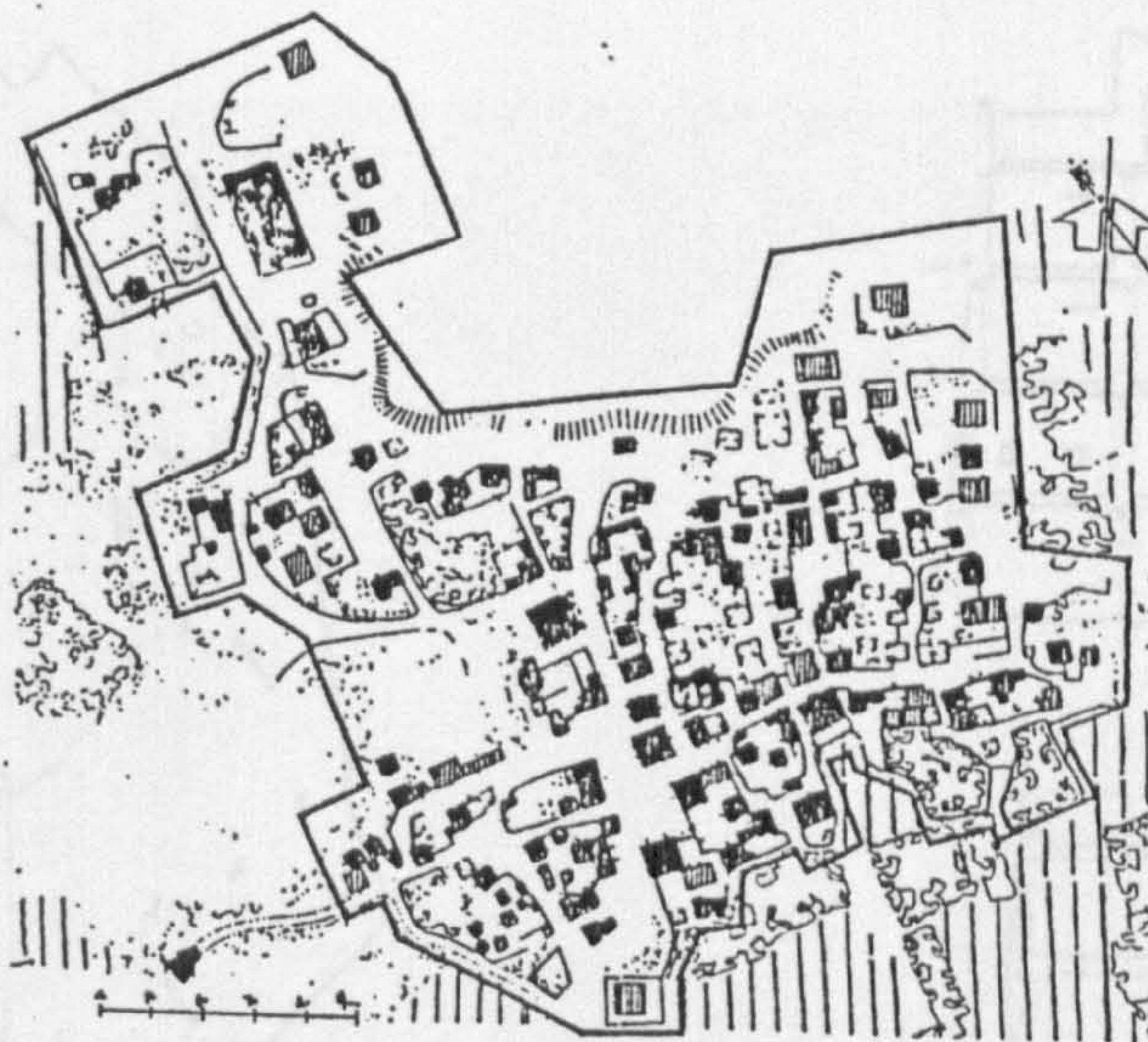
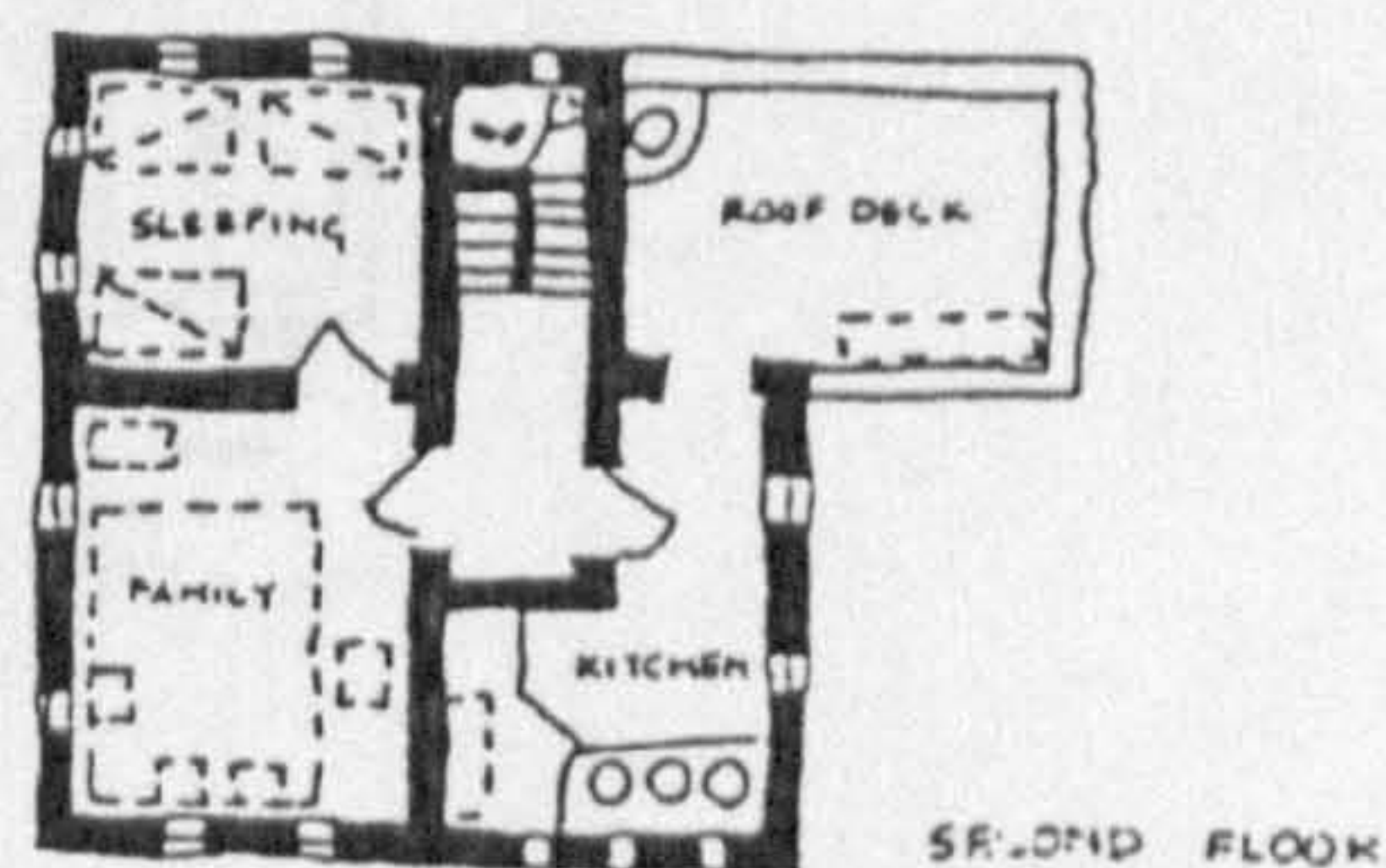
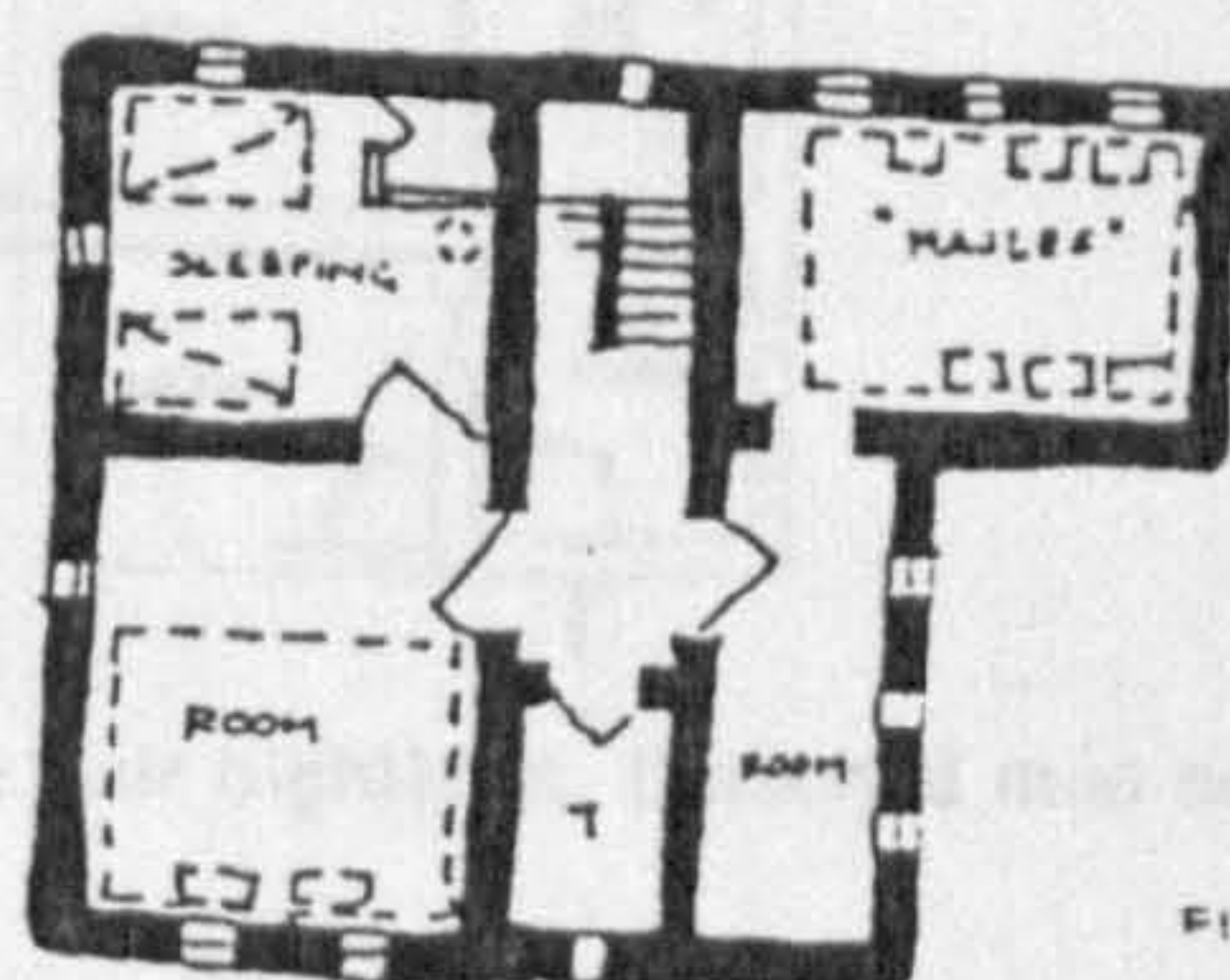
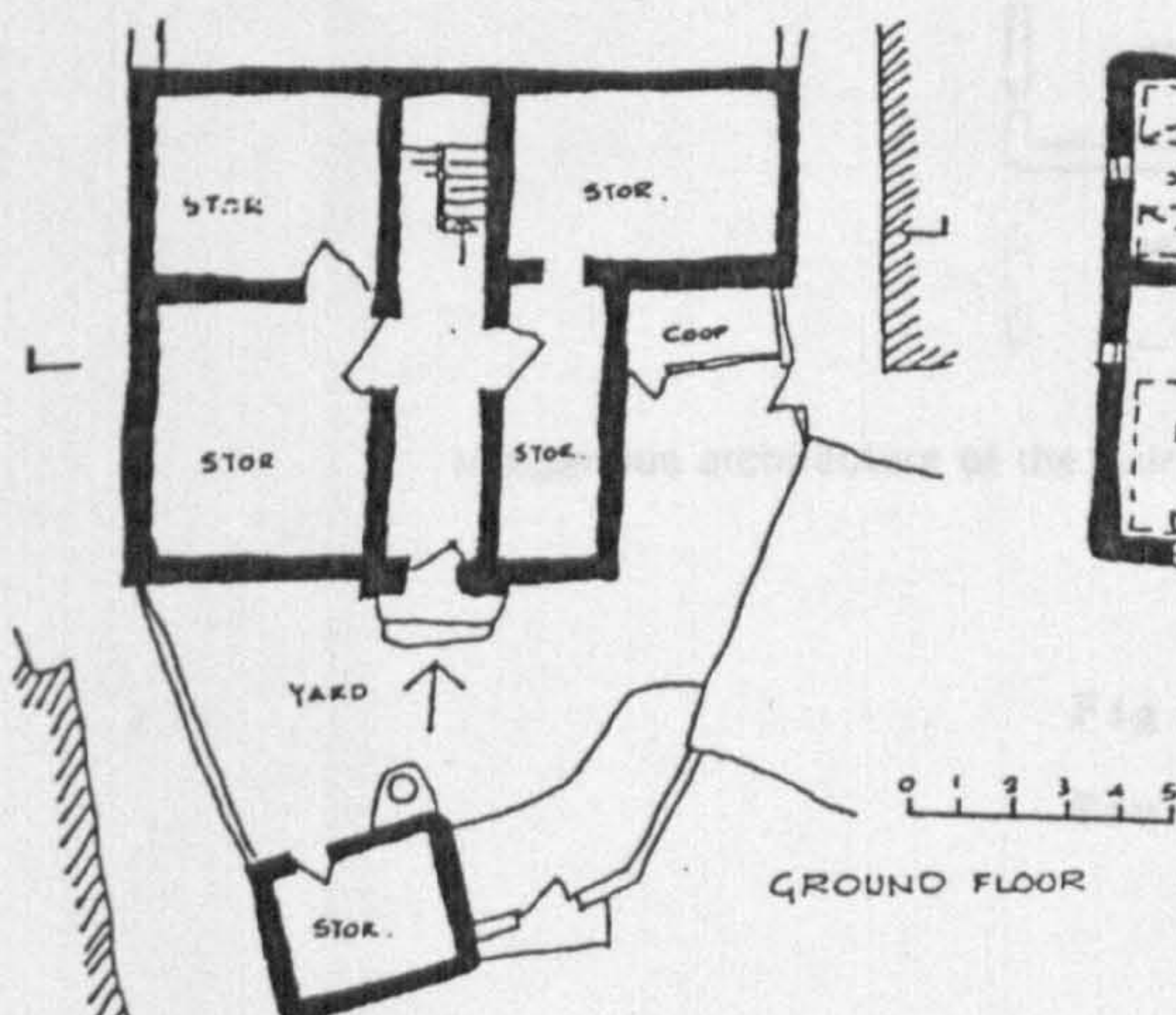
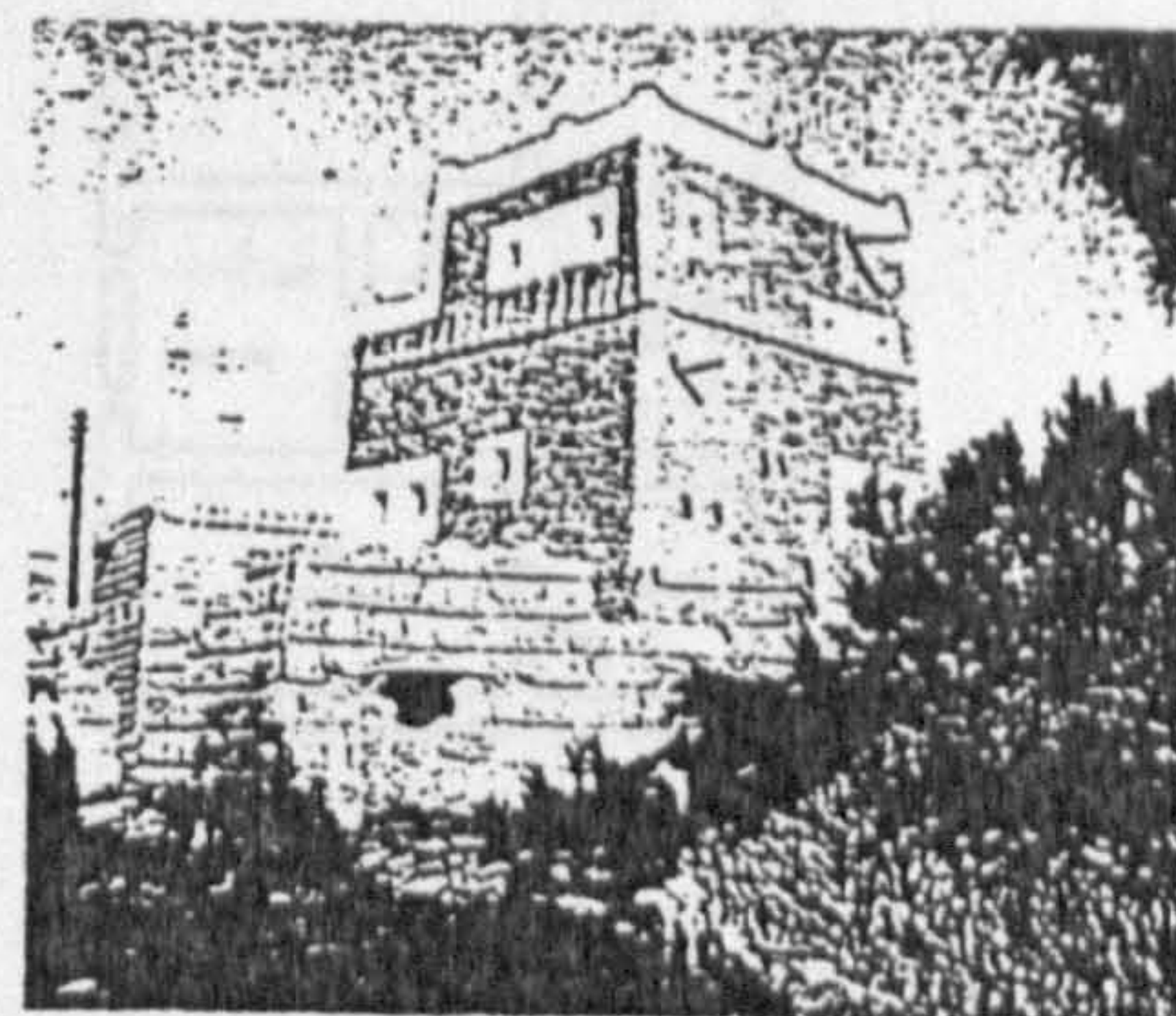
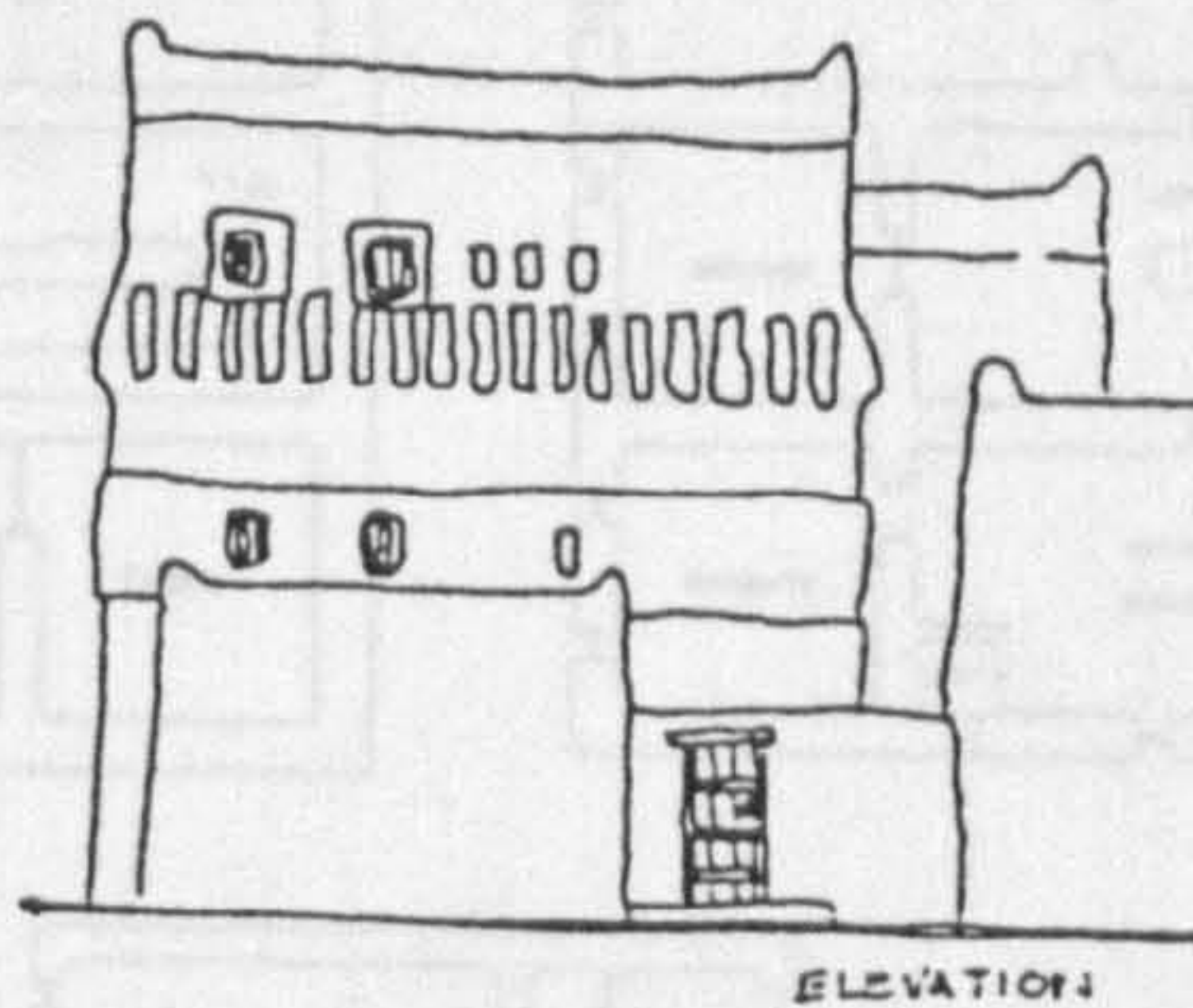
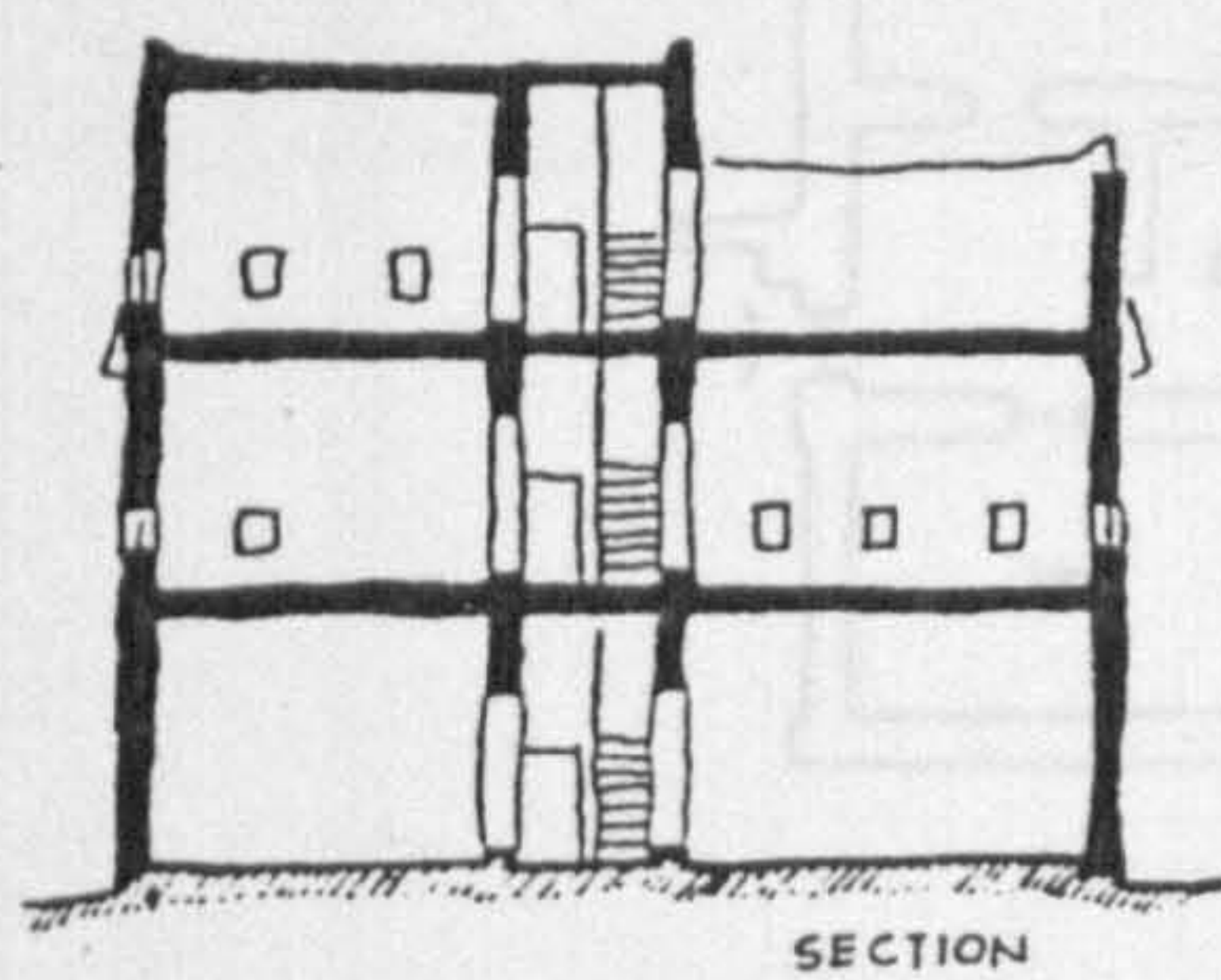


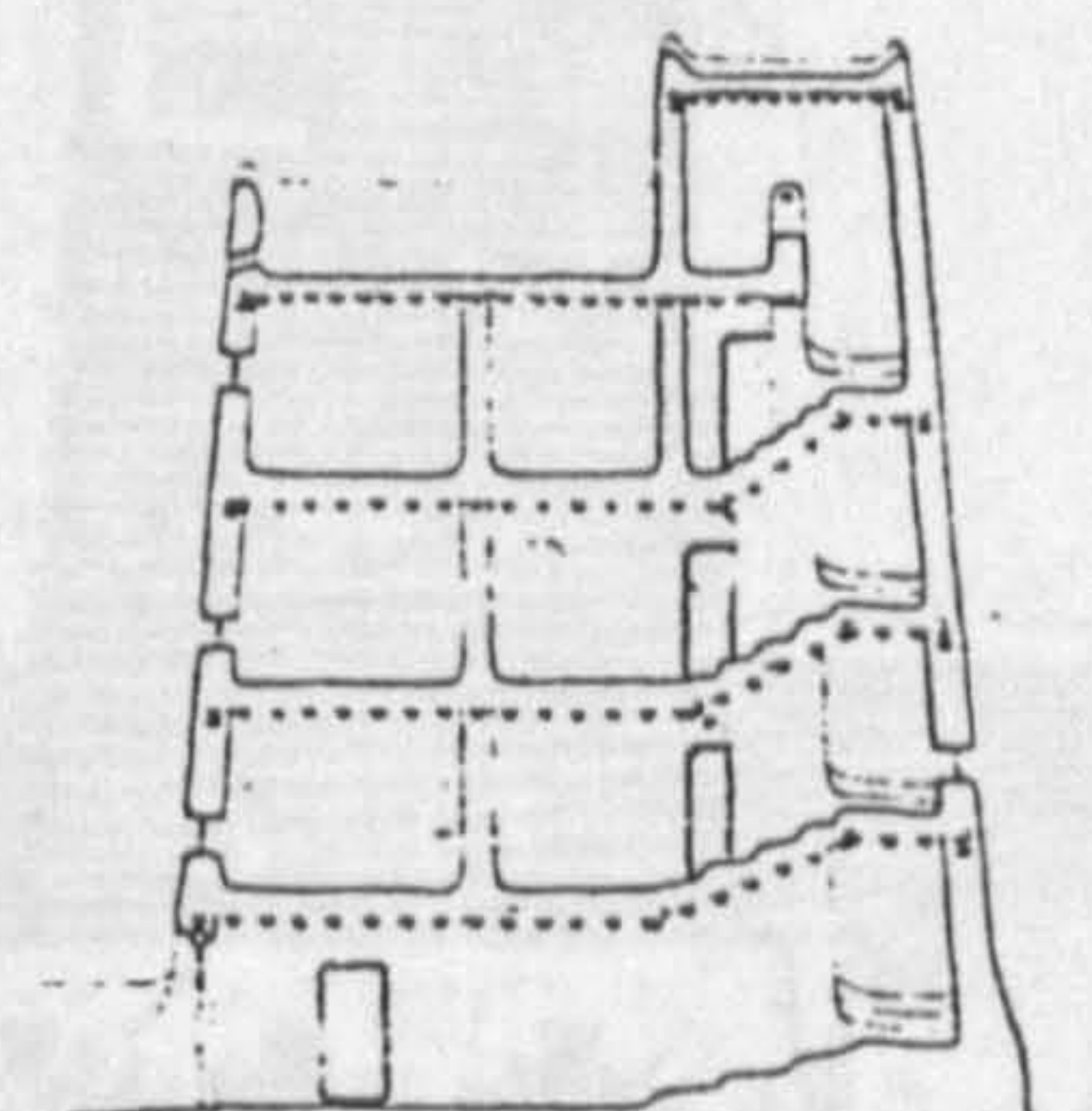
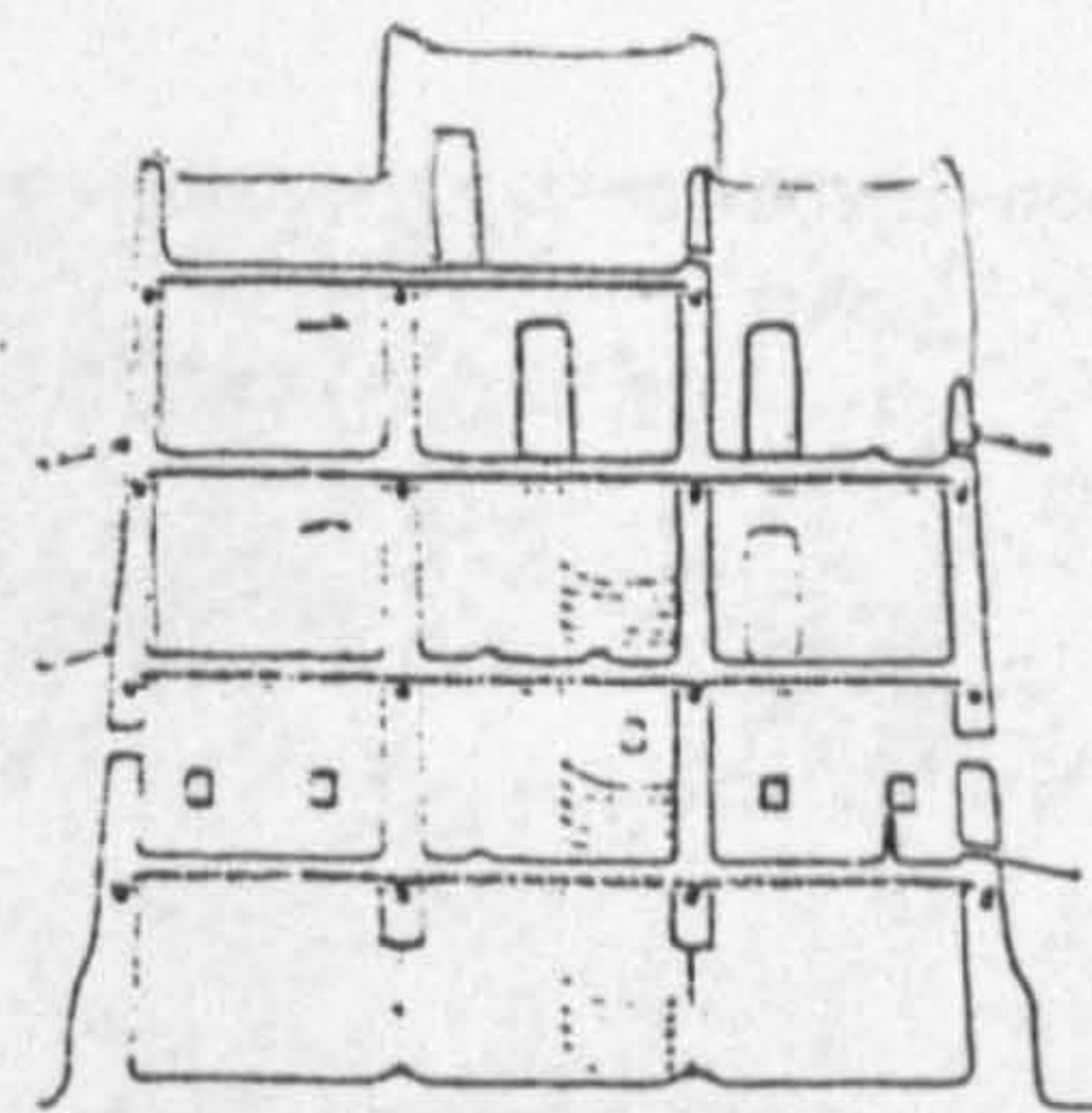
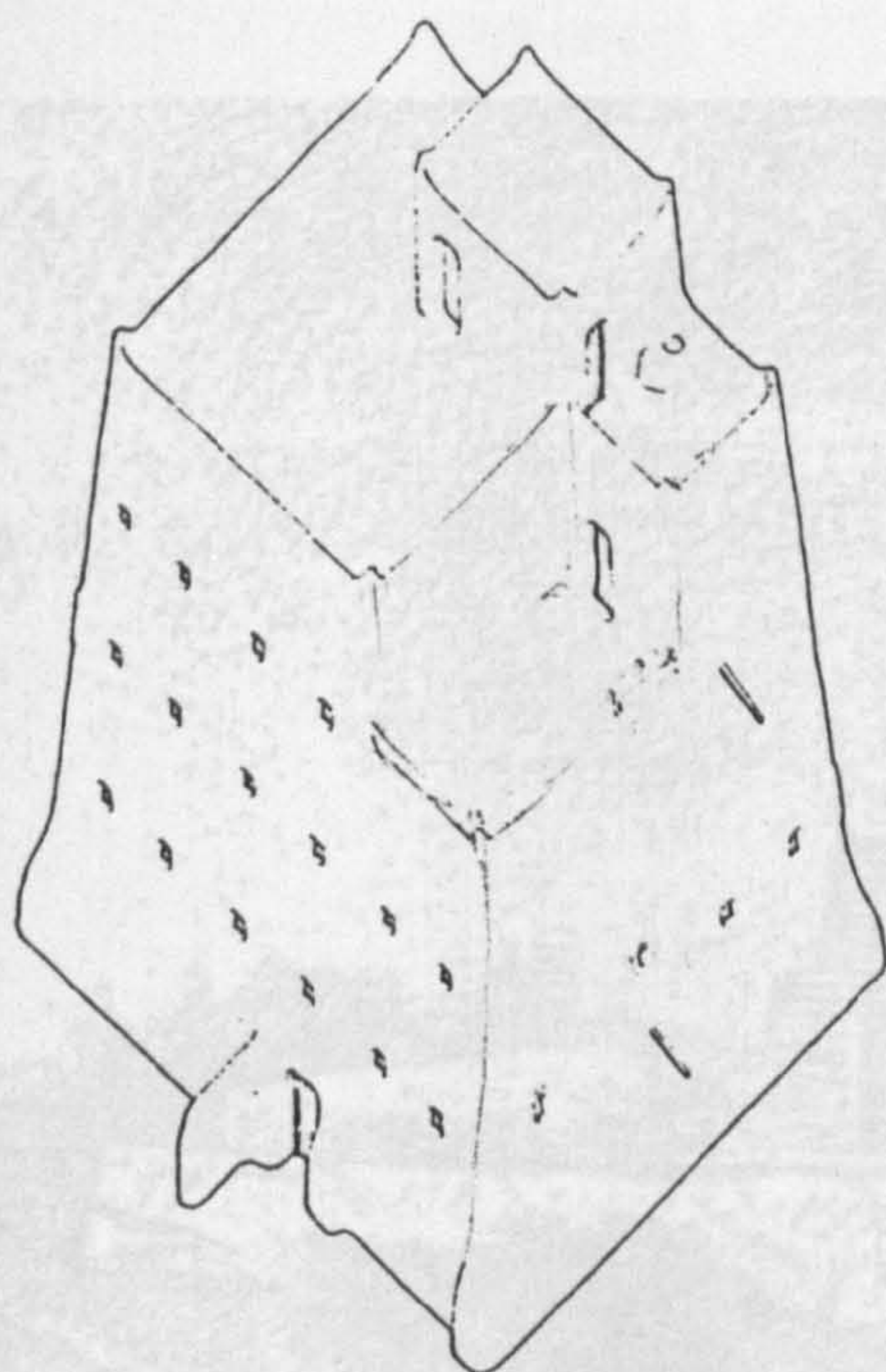
Fig 8-8 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN ASIR  
Source: Kahtani, A.



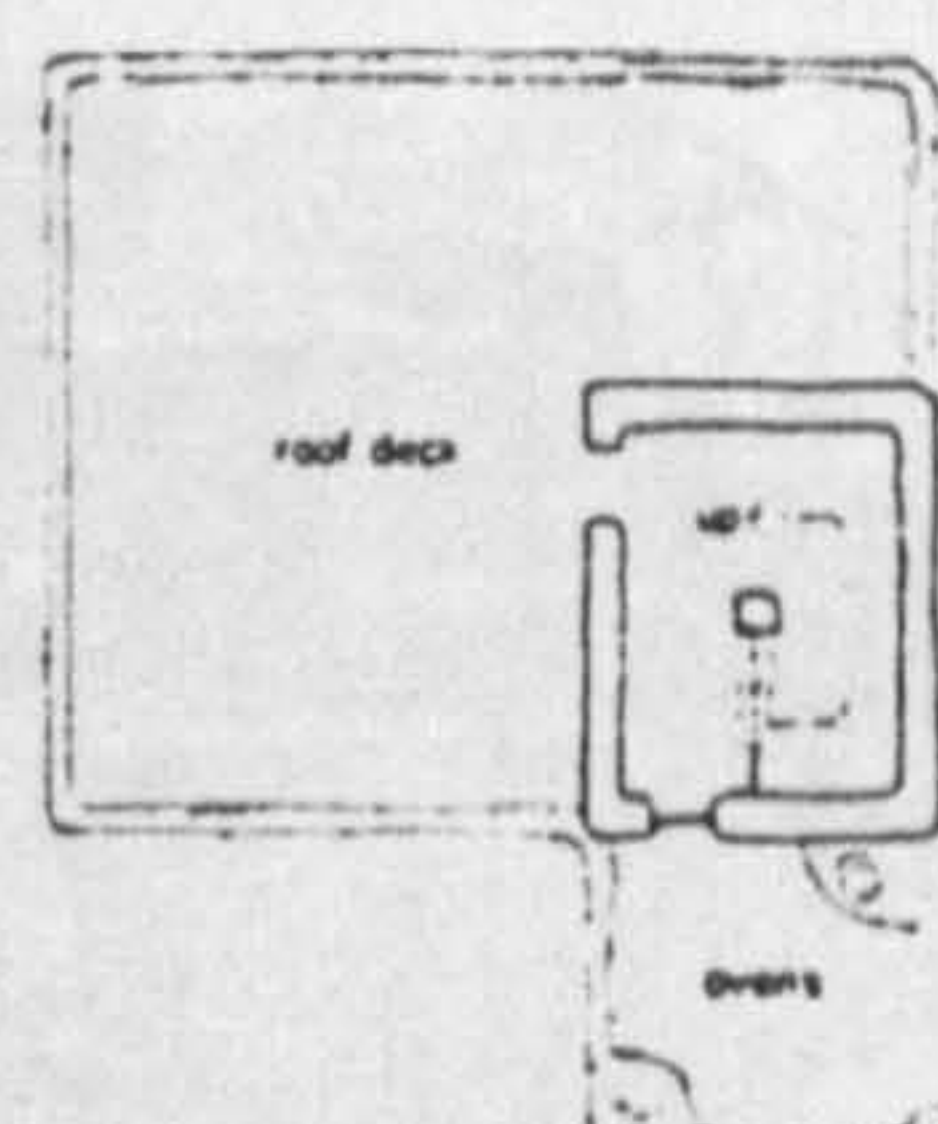
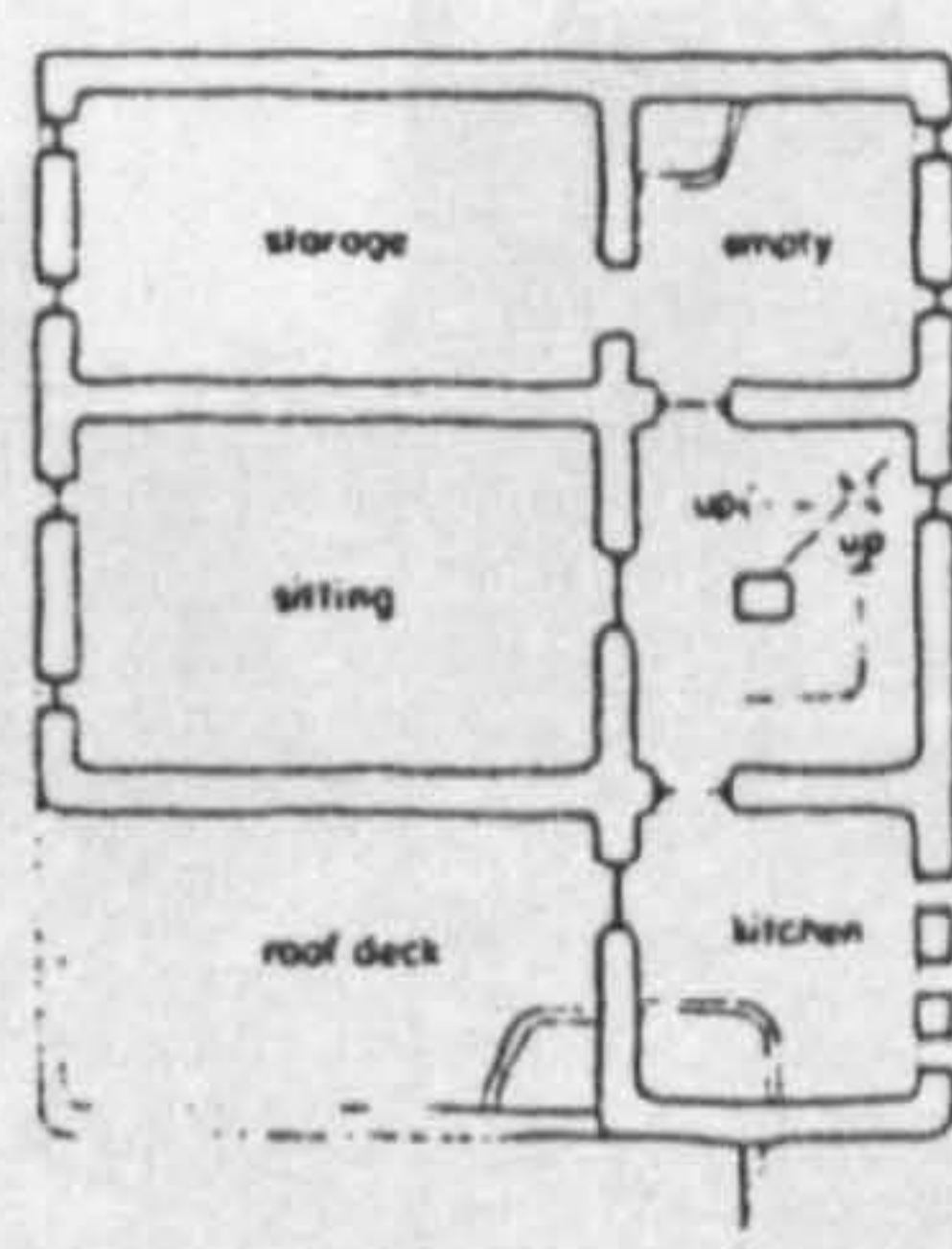
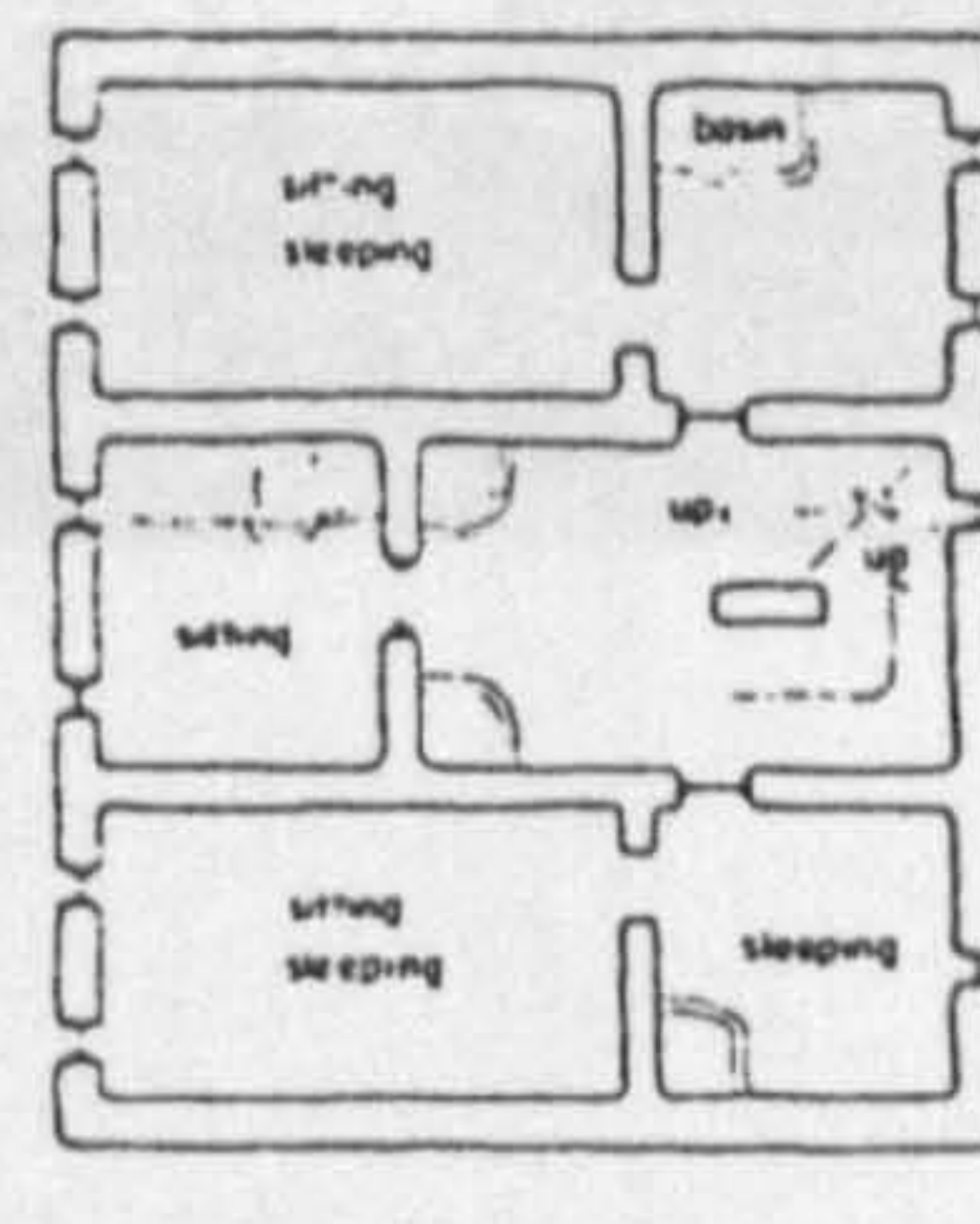
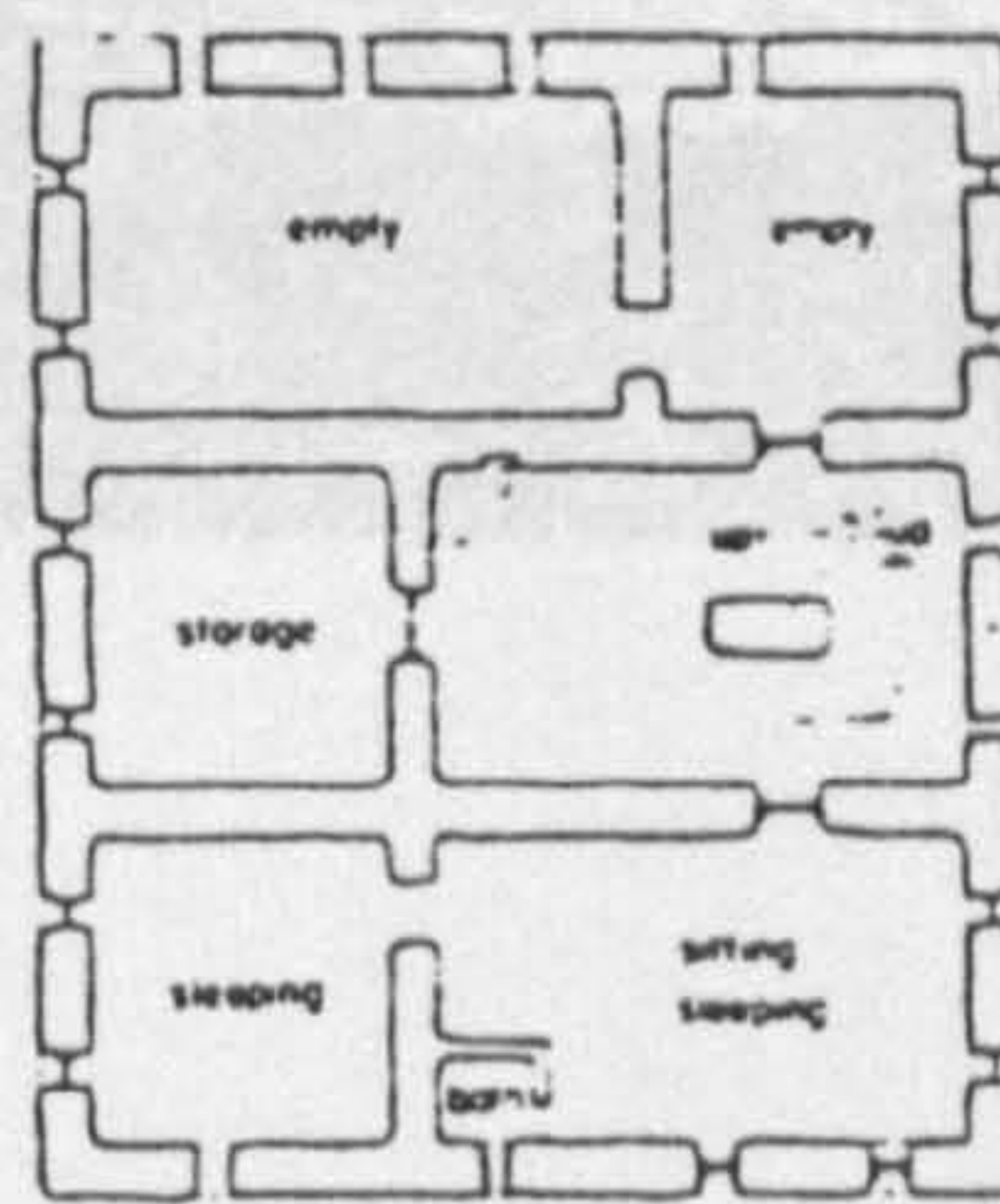
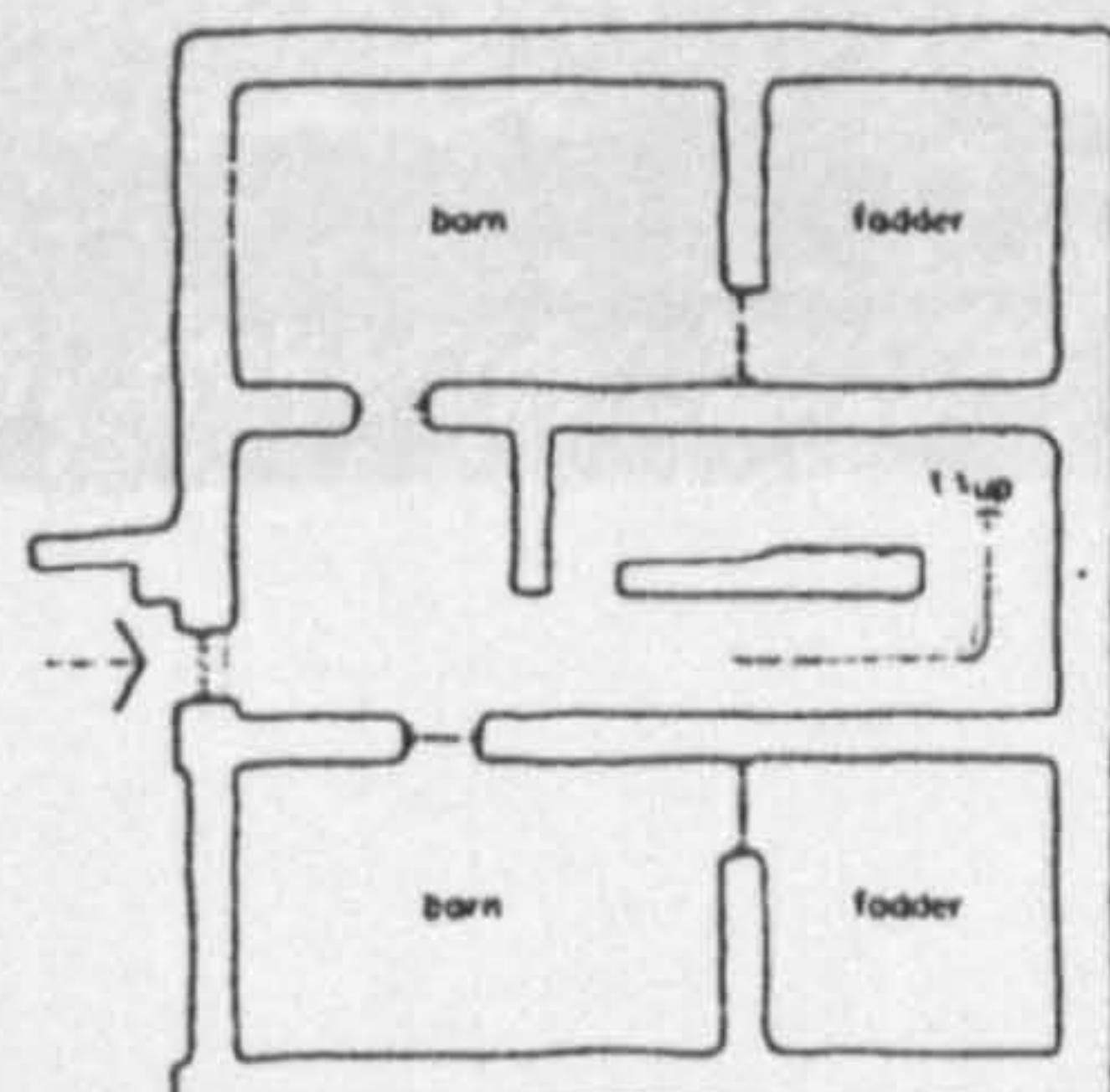
An example of rural Asir house built out of mud.

Fig 8-9 DETAILS OF ASIR HOUSES (1)  
Source: Talib., K. p.97.





Indigenous architecture of the Asir highlands. Detached mud house: isometric, sections and plans.



Indigenous architecture of the Asir highlands. Detached mud house: plans.

Fig 8-10 DETAILS OF ASIR HOUSES (2)

Source: Talib, K. p.101.



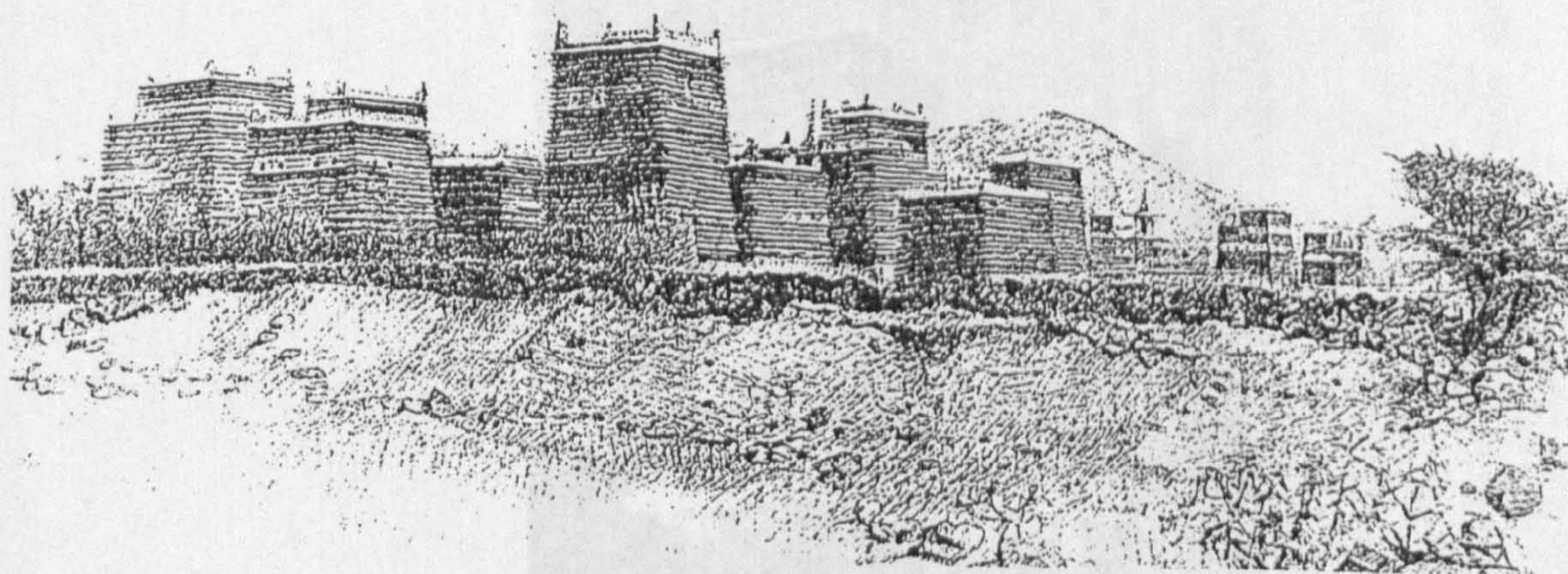
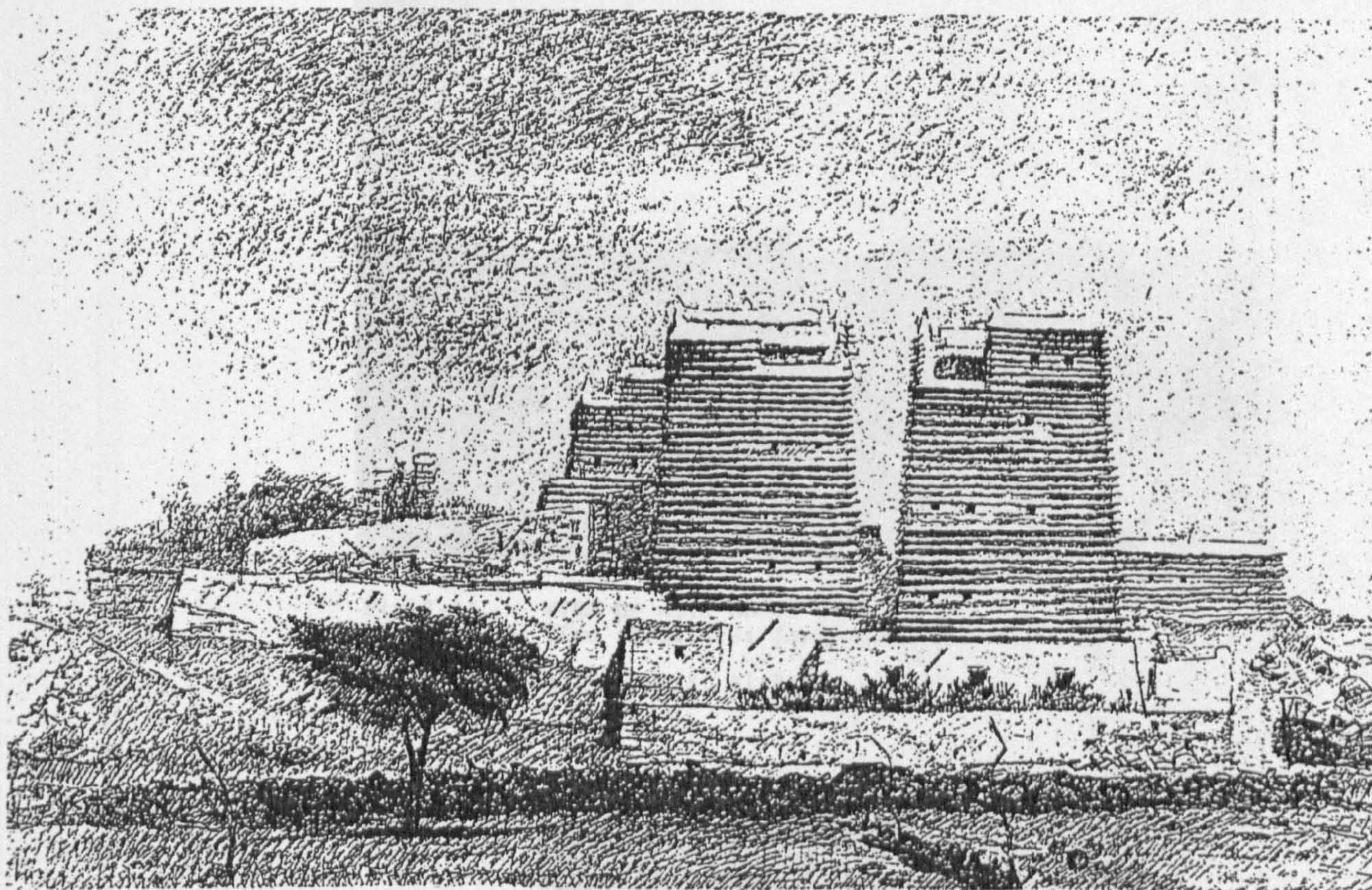


Fig 8-11      SKETCHES OF ASIR HOUSES  
 Source:      Al Hariri, M.W.



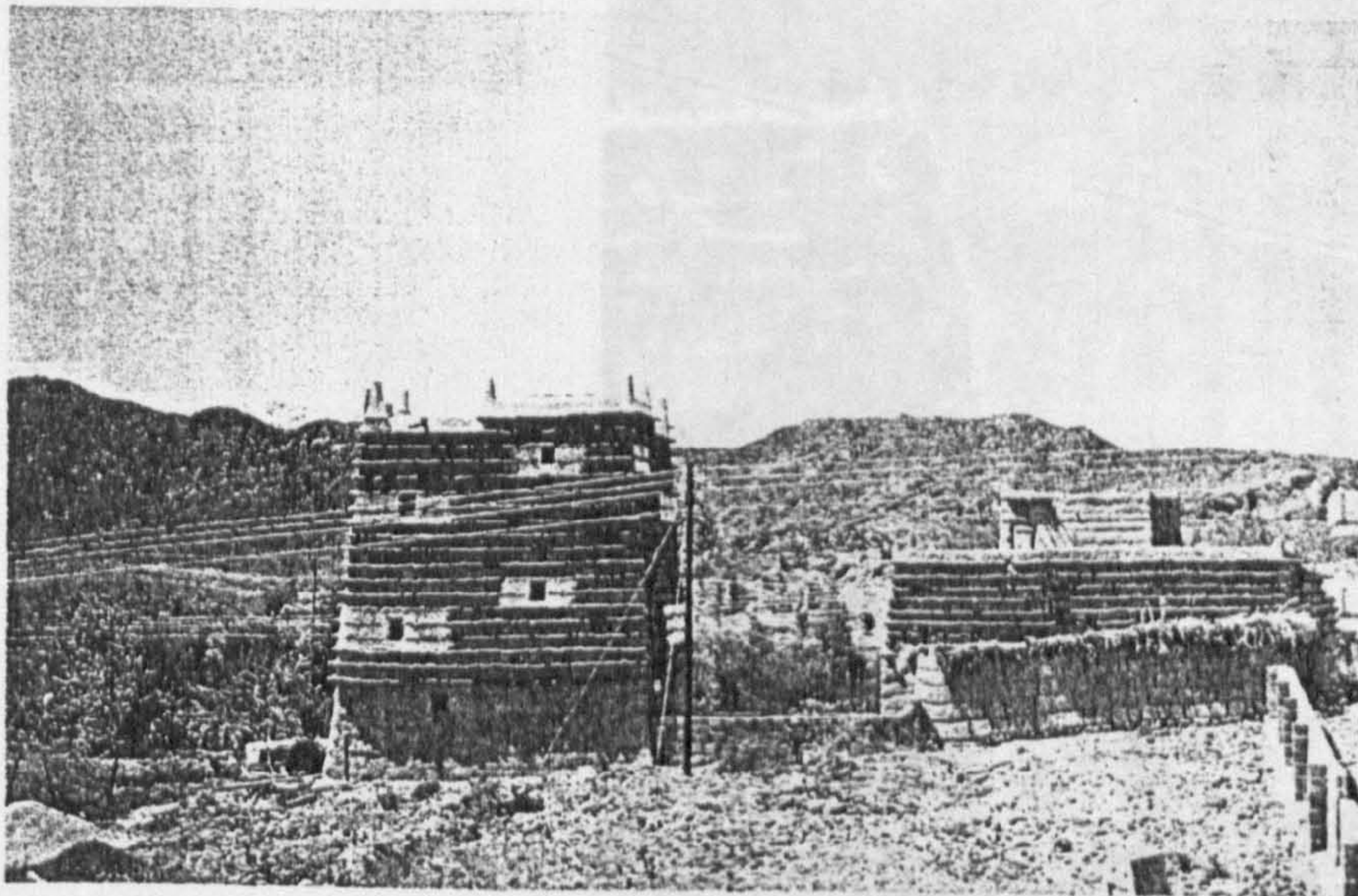


Fig 8-12 VIEW OF ASIR HOUSE (1)  
(Two structures forming one house)

Source: Author (A.S. Alafghani).



Fig 8-13 VIEW OF ASIR HOUSES (2)  
(The use of stone).

Source: Author (A.S. Alafghani).



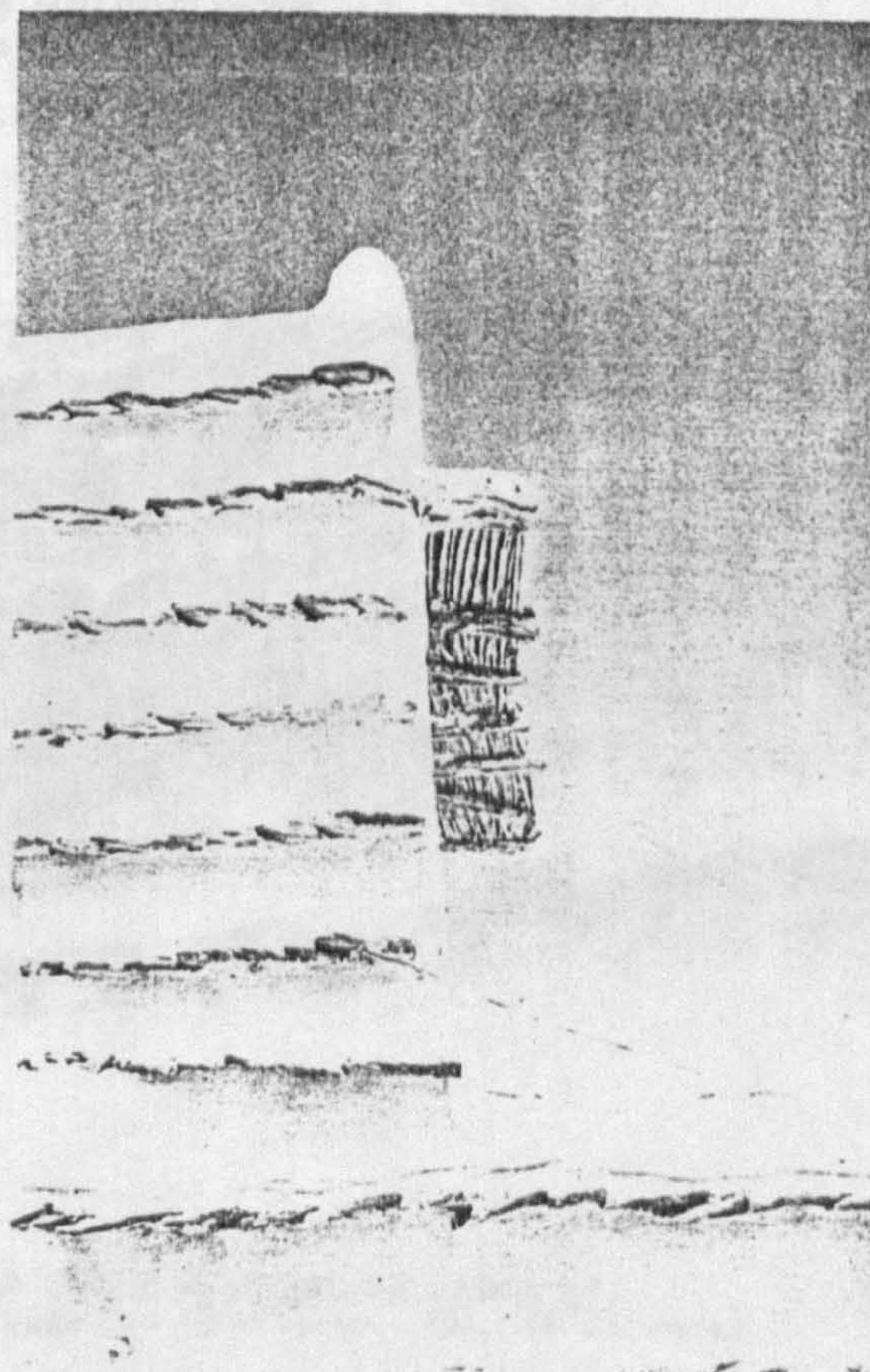
Fig 8-14 VIEW OF ASIR HOUSE (3)  
(Openings are small).

Source: Author (A.S. Alafghani).



Fig 8-15 VIEW OF ASIR HOUSE (4)  
(The use of wood and stone).

Source: Author (A.S. Alafghani).





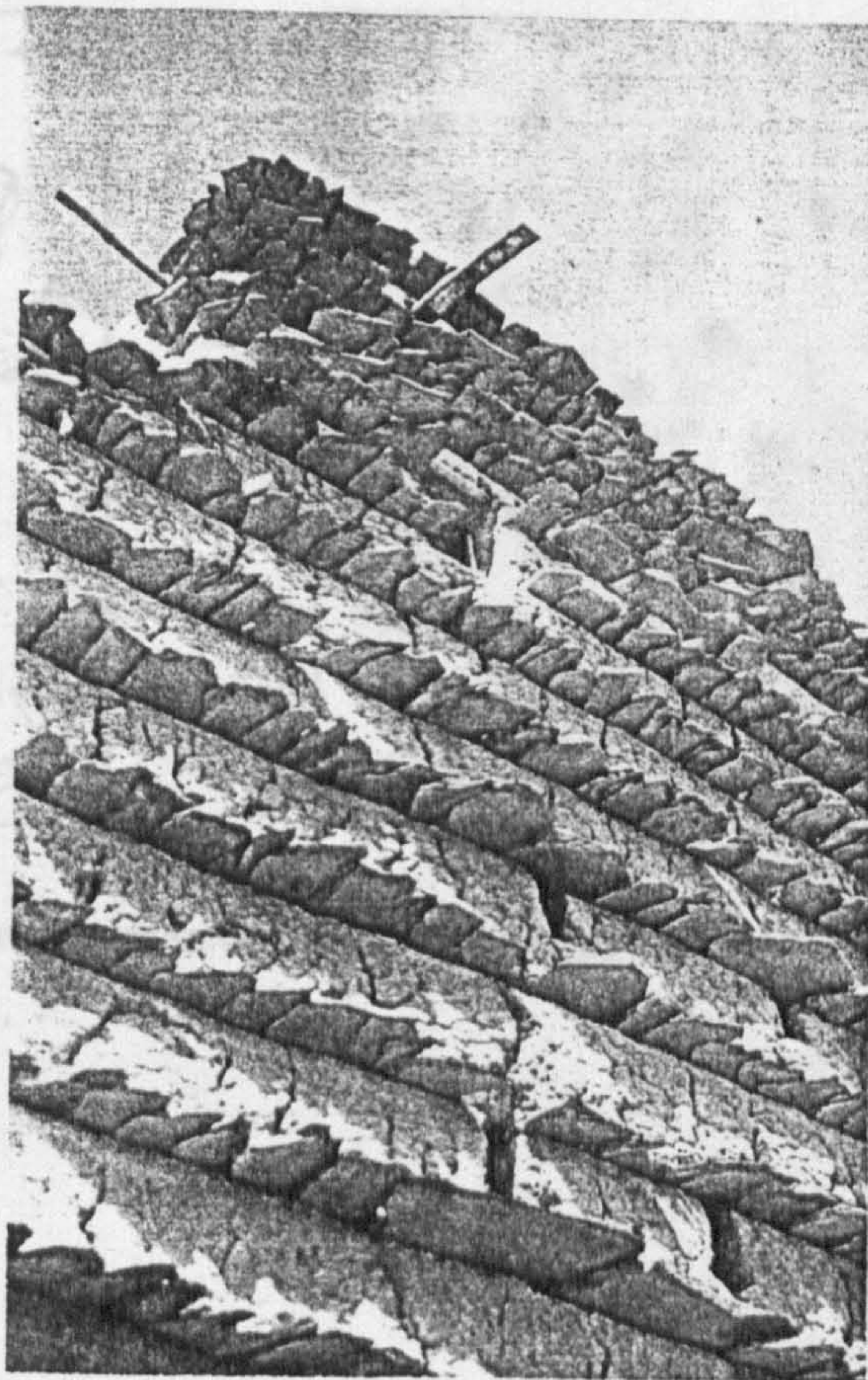


Fig 8-16 DETAILS OF BUILDING MATERIALS, ASIR (1)  
(The Stone to protect mud walls).

Source: Author (A.S. Alafghani).

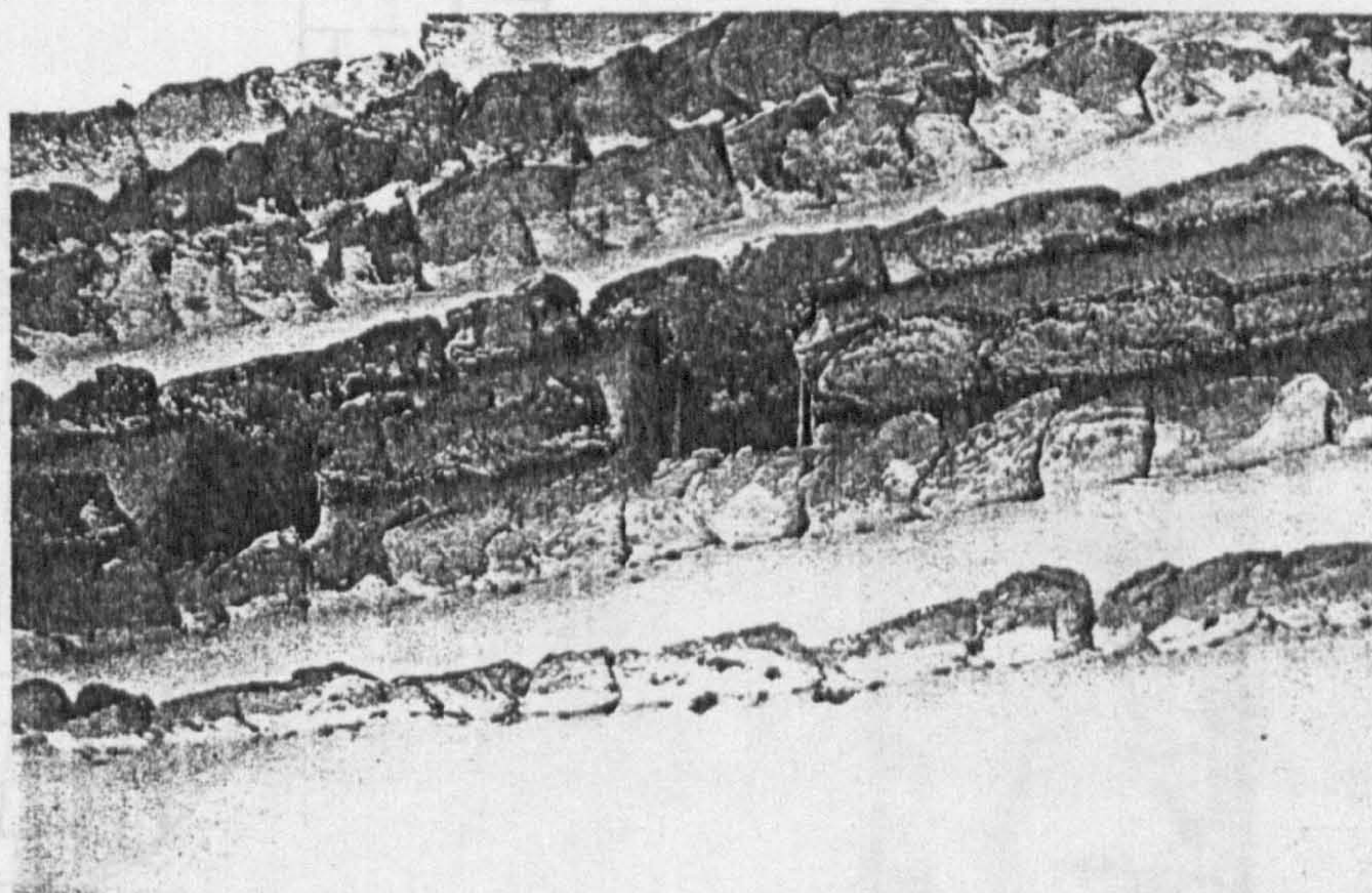


Fig 8-17 DETAILS OF BUILDING MATERIALS, ASIR (2)  
(The openings are protected. Use of colours).

Source: Author (A.S. Alafghani).



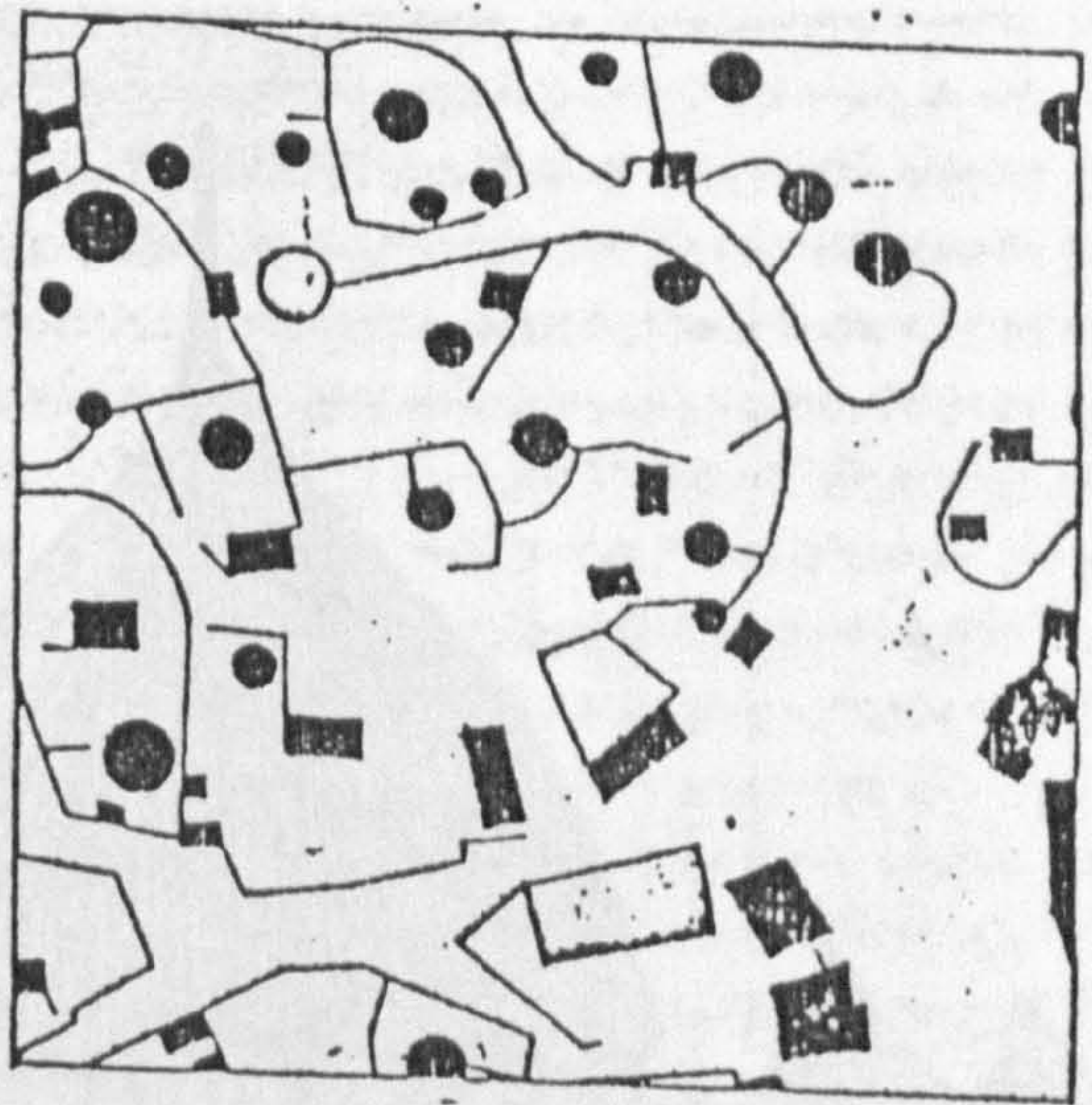
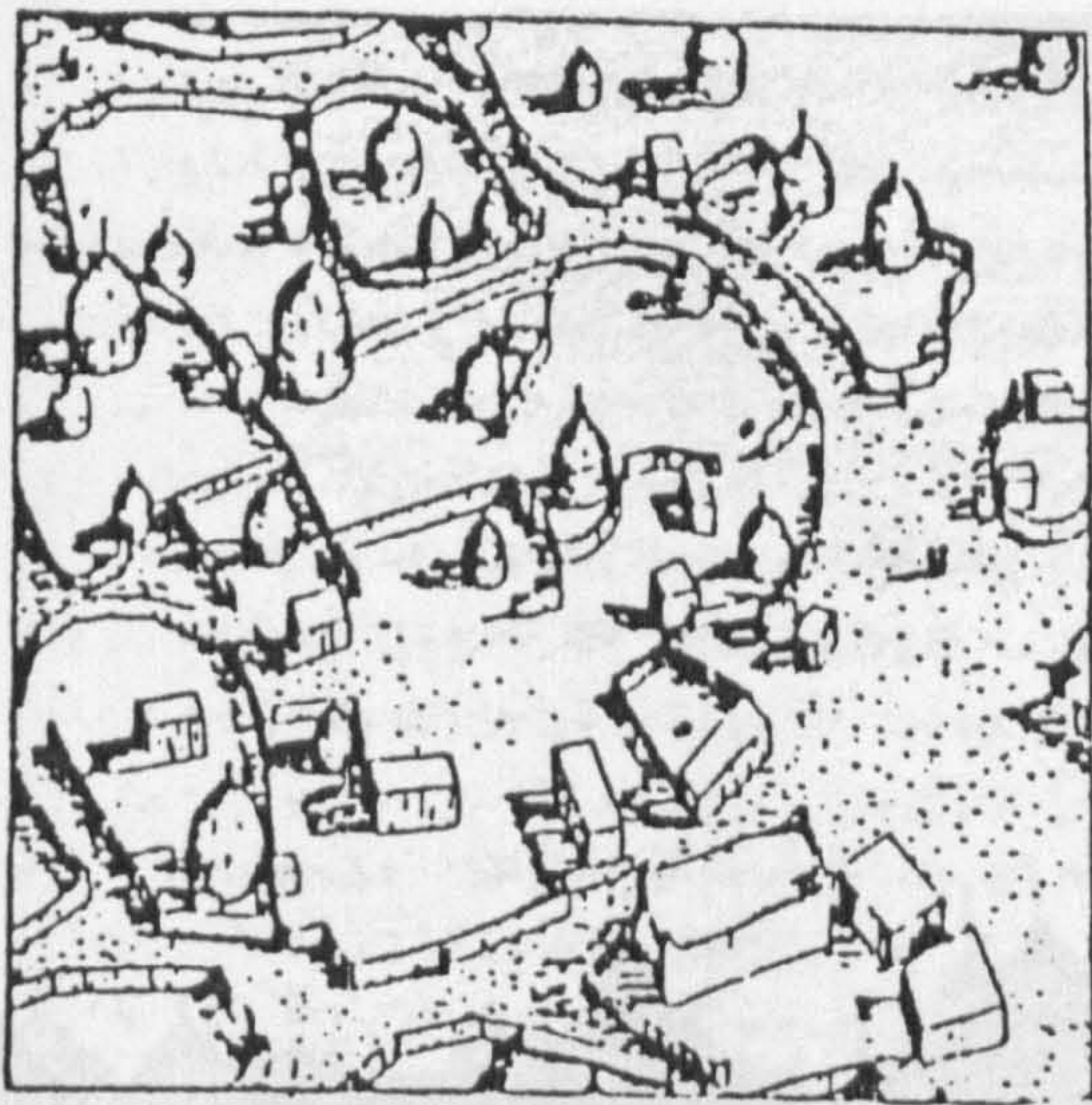
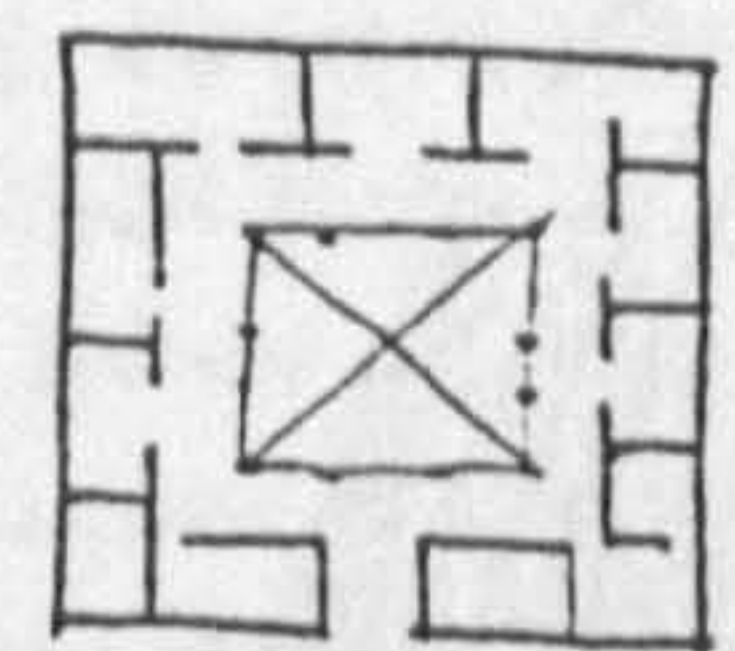
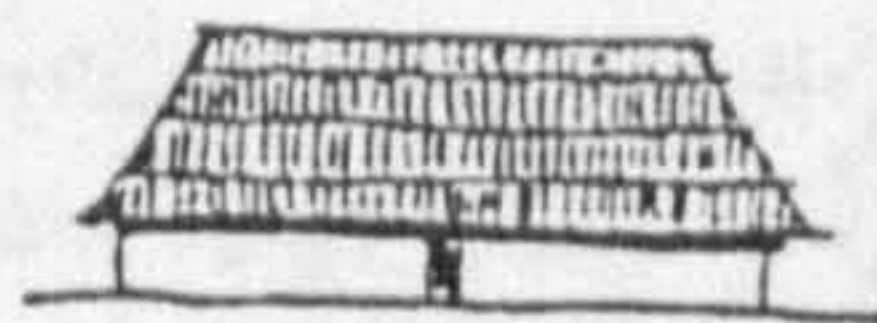


Fig 8-18 TRADITIONAL PATTERN OF URBAN DEVELOPMENT IN JIZAN  
Source: Kahtani., A.



Bamileke compound



Yoruba compound

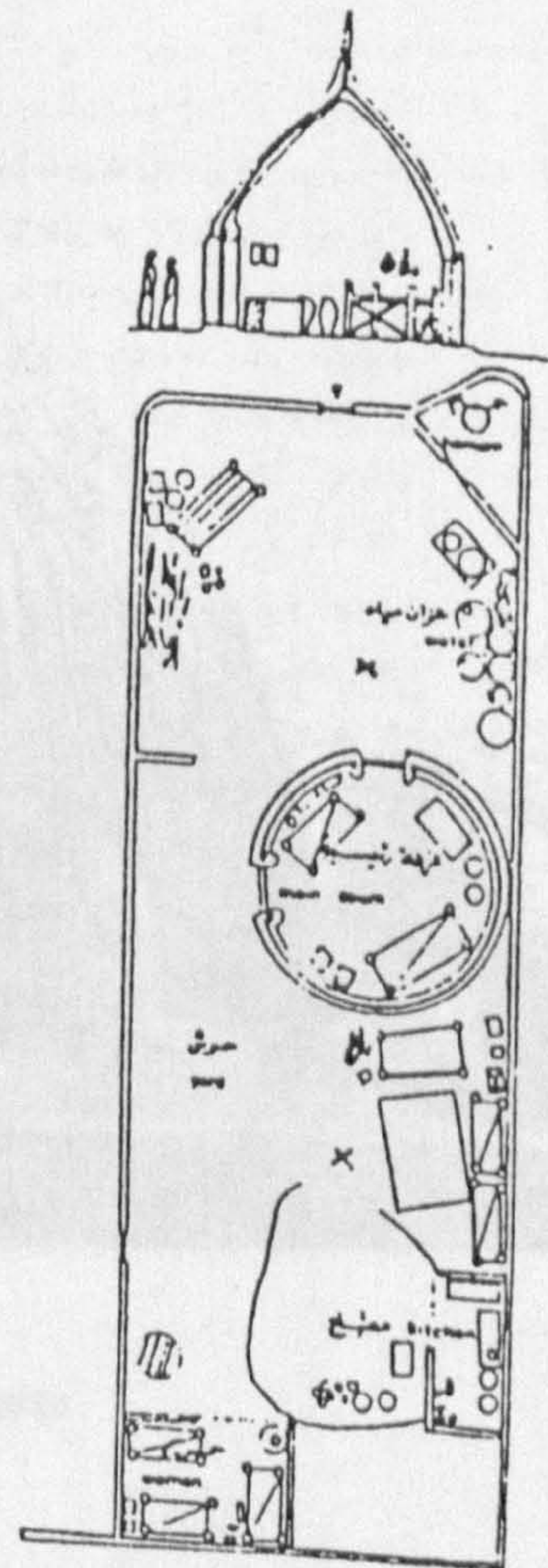
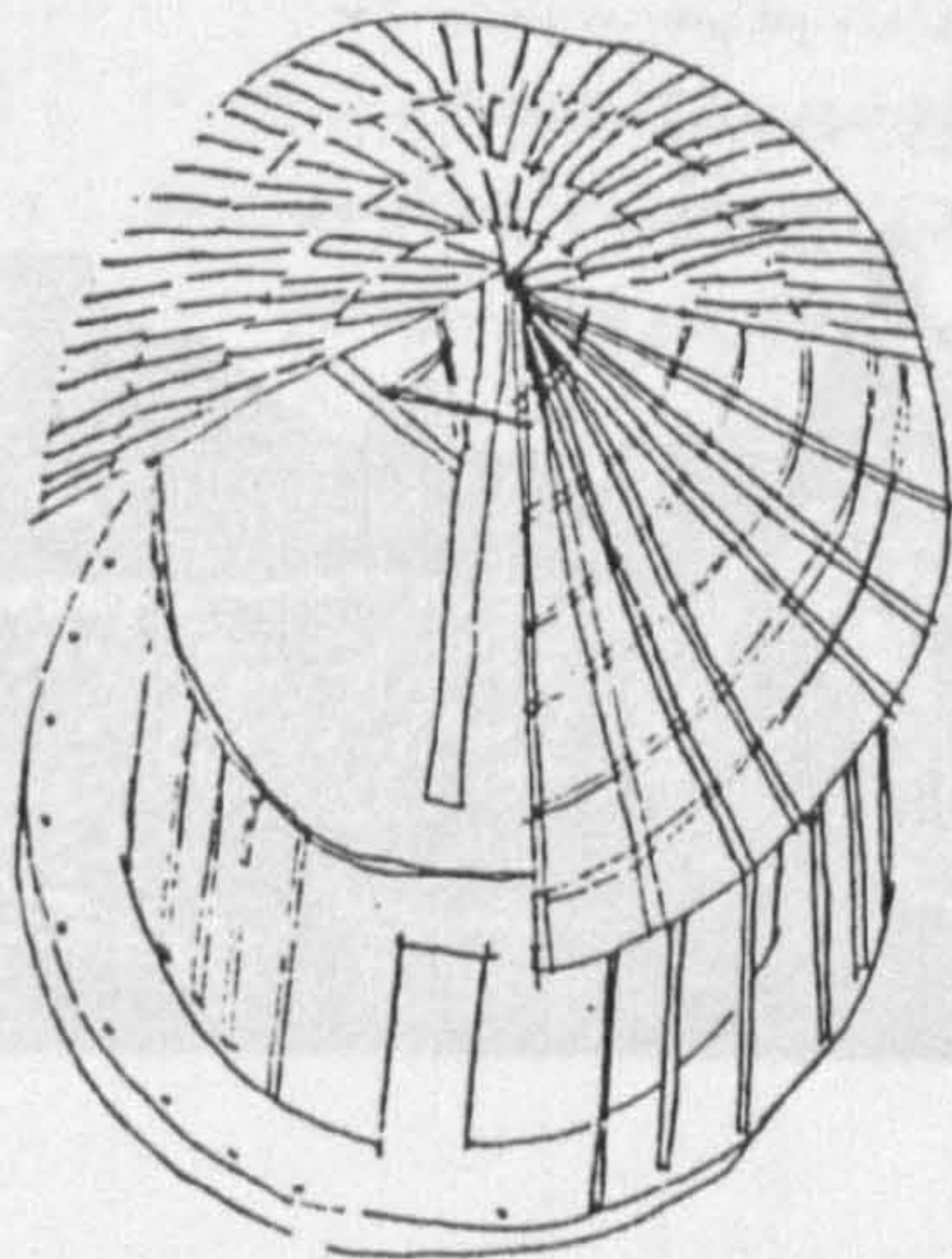


Fig 8-19 DETAILS OF JIZAN HOUSE  
Source; Talib. p.81.



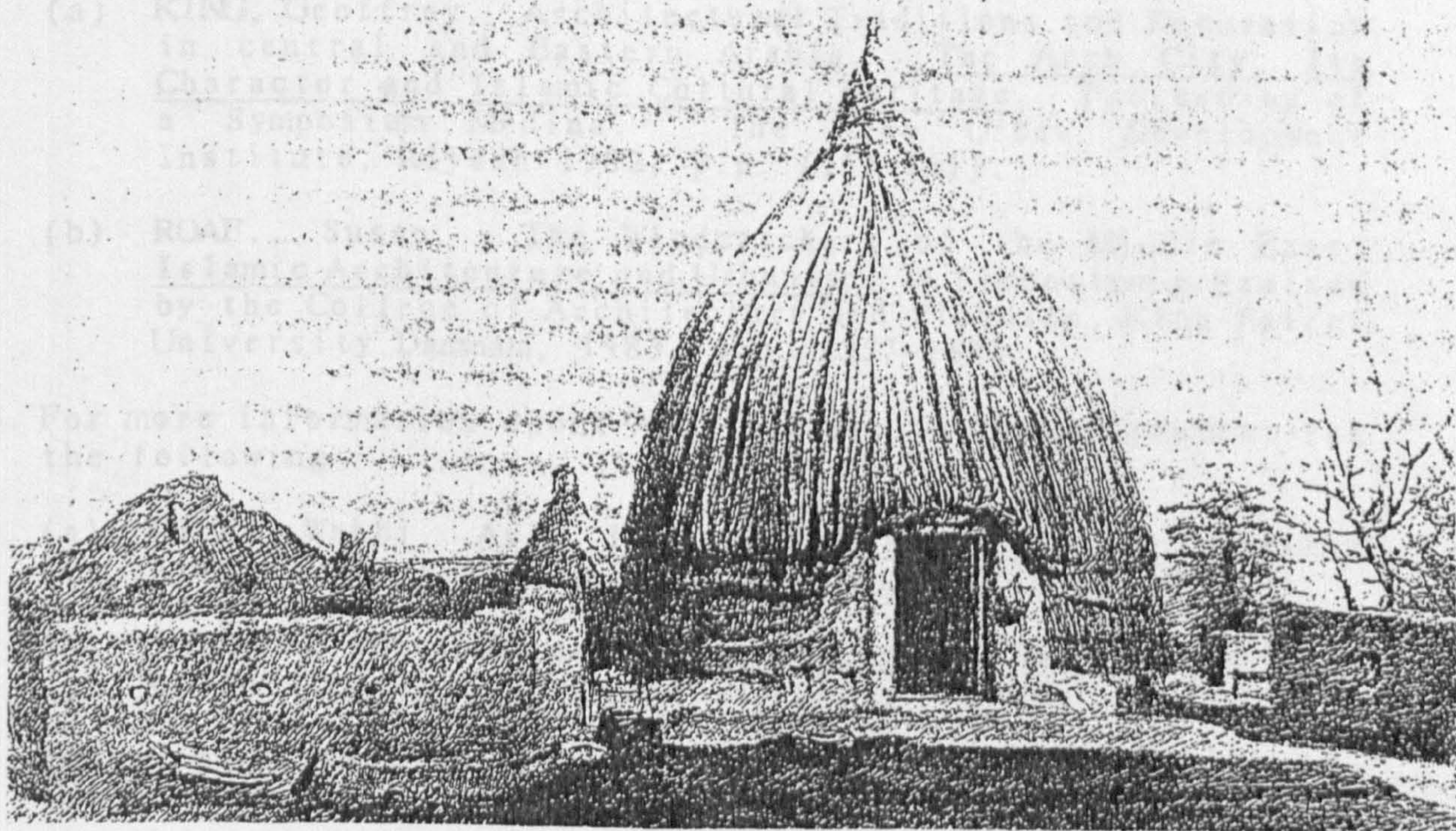
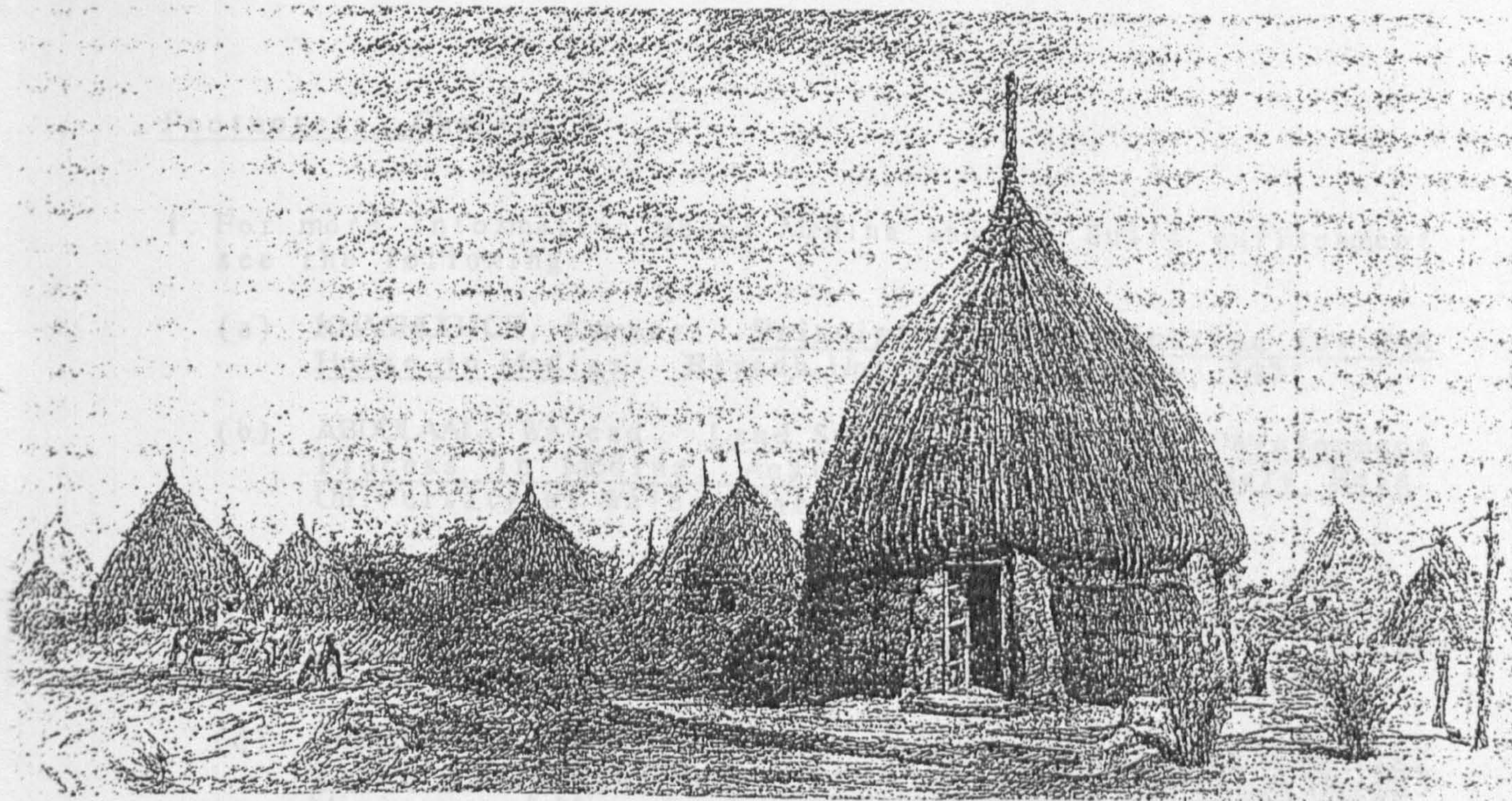


Fig 8-20 SKETCHES OF JIZAN HOUSES  
Source: Al Hariri., M.W.



## Footnotes: Chapter 8

1. For more information about Medina and its built environment see the following:

- (a) KHASHUGJCE, Sameer. Principles and Application for QAA House in Medina. Riyadh University, Riyadh, 1977.
- (b) ABDULAAL, Walead. Land Subdivision and the Development Process in Medina, Analysis of the Landowners Role. University of Wales, Cardiff, 1987, Chapter 5.
- (c) MUSTAFA, Saleh L. Architectural Development and Its Characteristics in Medina. The Arab City, Its Character and Islamic Cultural Heritage. The Arab Urban Development Institute, Riyadh, 1982, p.p. (140-153).
- (d) DEPUTY Ministry For Town Planning. Medina Action Master Plans. Technical Report 12. Central Area-Western Harah. Ministry of Municipal and Rural Affairs, Riyadh.

2. For more information about Qatif and the built environment see the following:

- (a) KING, Geoffrey. Architectural Traditions and Decoration in central and Eastern Arabia. The Arab City, Its Character and Islamic Cultural Heritage. Proceeding of a Symposium Medina. The Arab Urban Development Institute, Riyadh 1982, p.p. (151-161).
- (b) ROAF., Susan. The Windcatchers of the Middle East. Islamic Architecture and Urbanism. A Symposium organised by the College of Architecture and Planning, King Faisal University Dammam, 1983, p.p. (257-268).

3. For more information about Asir and the built environment see the following:

- (a) RIFAI, Wahbi. Asir, Heritage and Civilisation. Obeikan Company for Printing and Publishing, Riyadh, 1987.
- (b) INTERNAL Information. Asir, The Land of Buity. Ministry of Information. National Printing, Riyadh.

4. For more information about Jizan and its built environment see the following:

- (a) KAHTANI, Abdullah. Architectural Heritage Programme. The Southern Province, Asir Area. Deputy Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Riyadh.
- (b) TASHKANDI, Farahat K. Urban Dwelling Environments in Rapidly Growing Cities. Case Study: Khamis Mushait, Saudi Arabia, Urban Settlement Design in Developing Countries, MIT 1979.



## PART III

### CHANGE TOWARDS CONTEMPORARY

- CHAPTER 9: EARLY PROCESS OF CHANGE .
- CHAPTER 10: THE ROLE OF THE DEVELOPMENT PLANS.
- CHAPTER 11: THE ROLE OF M.O.M.R.A.
- CHAPTER 12: THE ROLE OF REDF.
- CHAPTER 13: THE ROLE OF THE MINISTRY OF HOUSING.
- CHAPTER 14: THE ROLE OF OTHER PROJECTS
- CHAPTER 15: THE CONTEMPORARY BUILT ENVIRONMENT.



### III CHANGE TOWARDS CONTEMPORARY

Until the beginning of the 20th Century, the form of the traditional house developed independently in the different regions of Saudi Arabia. However, due to certain important historical events in the country, the evolution of traditional houses ceased abruptly and began a downward swing toward decay. Novel housing forms emerged to replace the traditional form<sup>1</sup>.

Saudi Arabia in recent years has become the very embodiment of a society in transition, caught somewhere between tradition and modernity<sup>2</sup>. (Fig III-1, III-2) It is a unique story of a unique country in the history of the world. Everything is changing even the desert life and the travelling conditions. The changes in desert life are completely insignificant in comparison to the changes which have ravaged the small, quiet walled towns of 60 years ago<sup>3</sup>. In the early cities, the clan or tribal elements of organisation were characteristic<sup>4</sup>.

Before the second world war, there were no cities in the Kingdom except the cities of Makkah, Medina, Jeddah and Taif. All of them were in the middle part of the Western Region. The rest of the urban centres were small towns and villages. In 1932 the urban population of the country was 20% of the total population<sup>5</sup>.

In recent decades, Saudi Arabia has been experiencing an intensive economic and socio cultural development. This development has promoted drastic changes in the pattern of urbanisation of this country. It has also brought about transformation in the physical characteristics of the cities<sup>6</sup>. It started when wealthier citizens began to build outside city walls<sup>7</sup>.

The development of this country and the process of change which drove the country to its existing situation would be classified



into different stages. The first stage which was before the discovery of oil, the second stage which was after the discovery of oil, the third stage which was the period of the economical boom, and fourthly the period which came after the economical boom till now<sup>8</sup>.

In many ways the Kingdom has become as it now is due to the simultaneous experience of wealth and independence. The last decades have seen almost uninterrupted stability of governments and domestic harmony, also have seen the economy transformed<sup>9</sup>. Oil played a major role in the change process in Saudi Arabia. The process of modernisation began to pick up speed in the late 1950's<sup>10</sup>. But prior to 1970, development was financially and geographically limited because of the limited oil revenues and the physical size of the country<sup>11</sup>. In the early 70's matters changed dramatically as Saudi Arabia was thrust into international limelight with a new strategic role as the largest exporter of crude oil and the defacto leader of the organisation of petroleum exporting countries (OPEC)<sup>12</sup>.

Extensive economic development is recent in origin and has been affected at a rapid pace. It could be seen in the population growth of most of the Saudi Cities. For example between 1960-1974 Riyadh population was increased by 294%, Jeddah by 280% and Makkah by 131%<sup>13</sup>.

This part of the study will investigate the different elements and tools of change and to illustrate the process of this change until the emerging of the new house type the (villa).



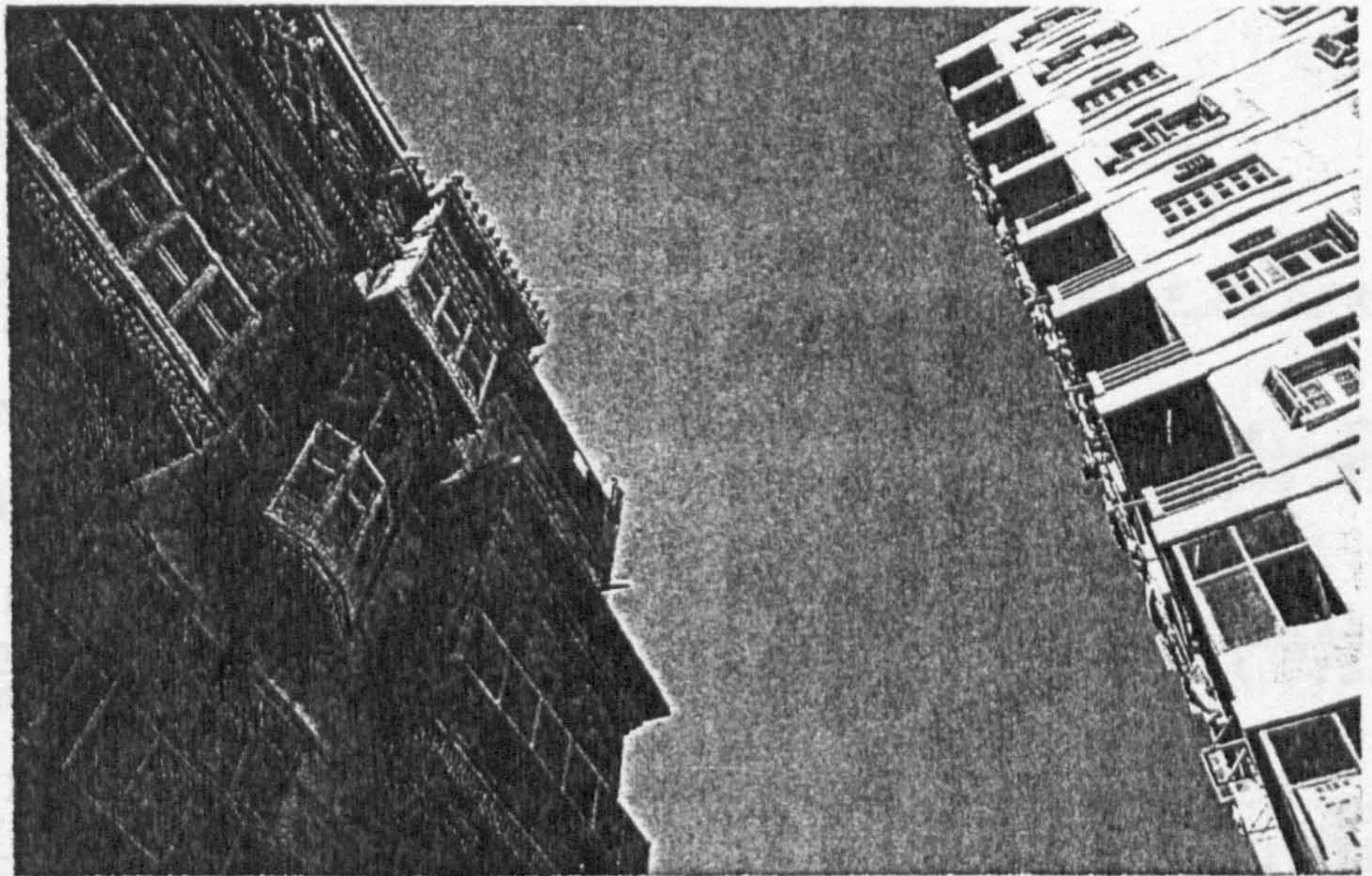


Fig III-1

VIEW OF TRADITIONAL AND CONTEMPORARY  
ARCHITECTURE (1)  
(This is in Jeddah, Mashrabiiah vs. Balconies).

Source; Organ Ministry of Information<sup>14</sup>.

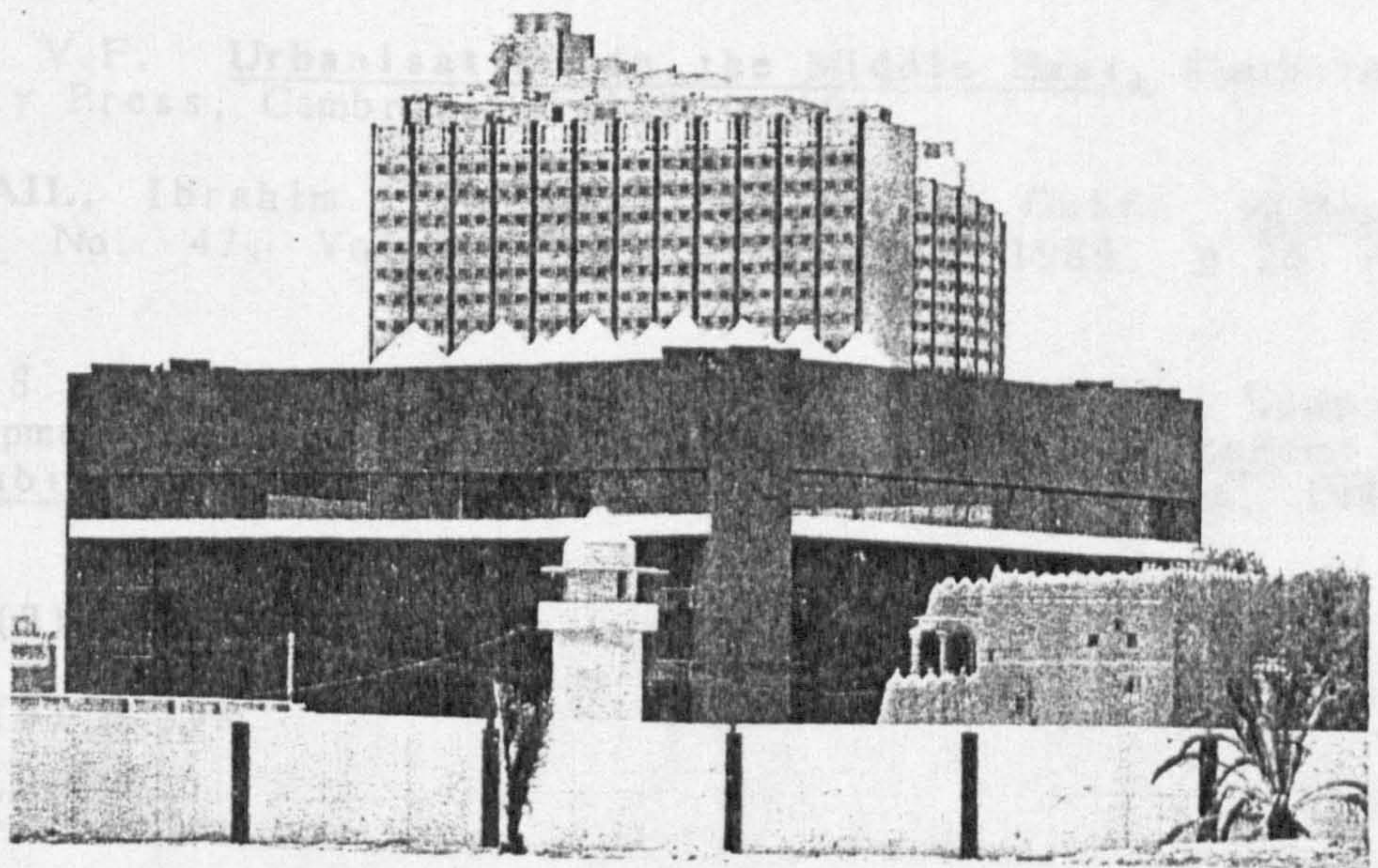


Fig III-2

VIEW OF TRADITIONAL AND CONTEMPORARY  
ARCHITECTURE (2)  
(This is in Riyadh, low rise-mud vs. high-rise  
glass).

Source: Ministry of Information<sup>15</sup>.



### Footnotes: Introduction to Part III

1. FADEN, Yousef, The Development of Contemporary Houses in Saudi Arabia, MIT, Massachussets, 1983, p.61.
2. SIRAGELDIN, Ismail and others, Saudis in Transition, The Challenge of a Changing Labour Market. Published for The World Bank, Oxford University Press, New York, 1984, p.3.
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5. MUSAILHI, F.M. Urban Development and Architectural Growth of Saudi Cities. ALMadinah AL Arabiyyah, Volume 4, No. 15. The Arabian Cities Organisation, Kuwait, April 1985, p.48 (in Arabic).
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7. COSTELLO, V.F. Urbanisation in the Middle East, Cambridge University Press, Cambridge, 1977, p.104.
8. ABA ALKHAIL, Ibrahim. Architecture in the Gulf. ALBenaa Magazine, No. 47, Volume 8, Riyadh, May 1989, p.26 (in Arabic).
9. BIRKS, J.S. & Sinclair, C.A. the Domestic Political Economy of Development in Saudi Arabia. State, Society and Economy in Saudi Arabia, (Tim Niblock, ed.), Croom Helm; London, 1982, p.213.
- 10.Op. cit (2) p.3.
- 11.Op. cit (9) p.198.
- 12.Op. cit (2) p.3.
- 13.SABARINY, M.S. The Directions of Urban Growth in the Arabian Gulf area and its Problems. ALMedinah AL Arabiyyah, No. 10, Volume 2, The Arabian Cities Organisation, Kuwait, October, 1983, p.39 (in Arabic).
- 14.This is a slide from the Ministry of Information, Riyadh.
- 15.Ibid.



## CHAPTER 9

### EARLY PROCESS OF CHANGE

- 9.1 THE UNIFICATION OF SAUDI ARABIA
- 9.2 THE HIDDEN WEALTH
- 9.3 THE MIDDLE CLASS AND NUCLEAR FAMILY
- 9.4 EARLY SIGNS OF CHANGE IN RIYADH CASES
- 9.5 NEW TECHNOLOGY
- 9.6 NEW SOCIETY
  - 9.6.1 SETTLING THE BEDOUINS
  - 9.6.2 WATER
  - 9.6.3 TRANSPORTATION
  - 9.6.4 ELECTRICITY, COMMUNICATION AND MEDIA
  - 9.6.5 EDUCATION
  - 9.6.6 OUTSIDE INFLUENCE OF IMPORTATION
- 9.7 THE HOUSING AND URBAN PROBLEMS



## 9.1 THE UNIFICATION OF SAUDI ARABIA<sup>1</sup>

After the capital of Islam had been transferred from Mediena to Damascus during the Amauid Khalifah, and to Baghdad during the Abbassi Khalafah, and to Cairo during the Ayoubies period, and the Istanbul during the Ottman period, the Arabian Peninsula was forgotten except for the two places Makkah and Medina, which were for the purpose of Hajj and religious visits. At the end of the 19th century, part of the Arabian Peninsula felt under the control of the British (Adan in the south, and the area around the Arabian Gulf). The rest of Arabia was ruled by the tribal forces which divided it into small territories<sup>2</sup>.

The Arabian Peninsula had been unified under the rule of the House of Saudi and approaches started by the agreement between the great religious leader Mohammed Ibn Abdal-Wahab and Mohammed Ibn Saud to work together to enforce a return to the true principle of Islam.

By 1808 AD, 1222 A.H. the process of unification was completed by Saud Ibn Abdulaziz Ibn Mohammed Al-Saud (known as Saud the Great)<sup>3</sup>. But, this first Saudi Kingdom, was not to last long, and by 1880 AD/1297 A.H. the Arabian Peninsula had reverted again to a number of small, independent sates, more or less continuously at war with each other, or at best living uneasily side by side. Two substantial parts of the Kingdom - AL Hasa and Al-Hijaz - were under Ottoman domination. In the far south, the Asir had broken away and was again an independent territory, while closer the Riyadh, the Al-Kharj and Qasim Oasis cast off Saudi rule. In the north of the Peninsula the Al-Rashids were the dominant force, from their capital Hail.

By 1891 AD/1309 A.H. the leader of the Al-Saud, Abdul-Rahman bin Faisal<sup>4</sup> was forced to flee his capital Riyadh with his family and friends.



After four years of travelling and wandering through eastern Arabia during which Abdul-Aziz acquired many of the skills of the desert and the strength which was to serve him so well, later Abdul-Rahman and his family settled in exile in Kuwait, in 1895 AD/1313 A.H.

1902, The Young Abdulaziz Ibn Abdul-Rahman al-Saud with a force of less than fifty men, captured Riyadh which was then ruled by Ibn Rashid. For four years (1902-1906) he battled with Al-Rashid over the right to govern the remaining parts of the Najd.

The limited natural resources of the area together with its harsh natural climate and terrain conditions, presented problems. The drought of 1908, which lasted for many years, heightened Abdulaziz Al-Saud's economic difficulties, which in return affected his ability to maintain the loyalties of tribal leaders.

In 1910 he established a reliable army for the first time in the modern history of Central Arabia<sup>5</sup>.

In 1913, the Al Hasa region which was under the Ottoman control fell to the control of Abdul Aziz. The conquest of Al Hasa alleviated the economic problems of the Ibn Saud region by adding to its resources the date-producing oasis of Hafuf and Qatif and the fishing and pearling industries of the Gulf coast. By expelling Turkish from Al-Hasa, Abdulaziz put himself in direct contact with the British.

Towards the end of 1915, a treaty was signed at Qatif between Abdulaziz and the chief British political officer in Iraq. It gave him the recognition from the British for his hereditary right to govern Najd.

In Hijaz in 1916, an armed uprising against the Ottoman Empire took place. The revolt was led by Sharif Hussain<sup>6</sup>. At that year



Hussain proclaimed himself King of Arab Countries (Malik al-Bilad al Arabiyya).

In 1917, at the Khurma Oasis, early contact between the Hashimites and the forces of Abdulaziz took place. Abdulaziz emerged victorious over the Hashimites.

In 1924, Abdulaziz and his force took over Taif. Next, he marched his forces for a decisive attack on the Hijaz. He marched against Makkah and Medina. Both of them fell to his control also during this time, he sent his son (Amir Faisal) to conquer Asir as a precautionary measure.

The victory over Makkah increased King Abdulaziz's economic base. He now received the revenue generated by the Hajj. However, his inheritance of a more sophisticated form of government than he had previously practised in Najd suggested forthcoming changes in the traditional methods of ruling the unified regions.

In 1927, after settling a frontier dispute with his neighbouring British Protectors, Abdulaziz signed with Sir Gilbert Clayton the Treaty of Jeddah. The treaty recognised Abdulaziz's authority from the Arabian Gulf to the Red Sea.

The British recognition of King Abdulaziz's independence led to major European powers to follow suit and set up consulates in Jeddah. It was the starting point of diplomatic relations with other countries.

During the unification process and especially during World War I a variety of machine-made western products gradually filtered into the country.

From 1927 until 1932, King Abdulaziz finalised the process of regional consolidation. By 1932, Abdulaziz had evolved from the



King of Hijaz and Sultan of Najd to the King of Saudi Arabia.

During the first twenty years of the new nation, two major cities were recognised as capitals. Riyadh, was the political capital and Makkah, was the religious capital. At that time most government business was conducted in the Hijaz region, primarily in Jeddah and Makkah. This unification process brought about political stability under which the different regions had to share their natural resources with other regions. The unification process also required the establishment of ministerial institutions to perform the various functions of the government.

These were important early signs of change which indirectly and unintentionally effected major changes in traditional living environment. However, the Key factor that accelerated the pace of change and, consequently, drastically transform this new state from a nation of poverty to a nation of affluence, was yet to emerge<sup>7</sup>.

## 9.2 THE HIDDEN WEALTH

Through the thirty years of the unification process the shaky economic base of the emerging government troubled the King. Najd's economy depended upon the agricultural and pastoral socio-economy. The government income was generated during the early years from Zakat or Tax, on the increase of flocks, crops, etc. The fishing and pearling industries of al-Hasa also helped the government at that time. The Hajj revenue became the principle dependable source of domestic income. This income was variable from time to time<sup>8</sup>.

King Abdulaziz therefore had to continue his dependence upon British subsidies, though he was unable to repay his accumulating debt to Britain and his European creditors, by 1932 totalled 219,000 gold<sup>9</sup>.



In May 1933 King Abdulaziz wisely reconsidered a concession to Standard Oil of California (SOCAL) in return for an advance from the company<sup>10</sup>. It was valid for sixty years and covered 250,000 square miles in the Eastern Region. They paid him the sum of 50,000 gold, which helped to solve some immediate problems..

Between 1933 and 1938, (SOCAL) discovered several oil fields. In 1939, the oil was discovered in commercial quantities. In that year, oil production generated an income of 200,000 of gold.

It was the end of King Abdulaziz's financial worries. In fact, from that time on, the main problem for King Abdulaziz and his successors was to spend the money efficiently.

Within a few years, the old economic resources had lost their dominance in this newly-emerging nation. The radical change had found its way into every aspect of lives of the Saudi people and in particular into their traditional living environment. The new economic base had open the country's doors to the full flood of Western development and its attendant materialism.

### 9.3 THE MIDDLE CLASS AND NUCLEAR FAMILY

Traditionally before the discovery of oil, people in the Eastern Province used to work in farming, pearl fishing, trading and other manual trades<sup>11</sup>. It used to be a family work, where a father taught his sons the same craft. But, the discovery of oil in 1930 and the subsequent demand for manpower in the oil industry, many of these farmers, fishermen and nomads found employment as unskilled labourers with the oil companies<sup>12</sup>.

By the end of World War II, the subsequent increase in the companies profits as the result of the increase in oil production made it necessary to recruit more local workers from the nearby settlements. As a result of such large scale disengagement from



the traditional craft occupations, the usual sector of the regions economy were completely overshadowed by petroleum production, the construction business and importation of necessary equipments<sup>13</sup>.

The salaries received by company workers raised their purchasing power, which in turn stimulated business. In addition, the company's policy of sub-contracting stimulated the local contracting and importing trade.

All of these played a major role in creating a new middle class, consisting of contractors, entrepreneurs and businessmen, whose knowledge and experience of the field was acquired not through inheritance from generation to generation, but rather through secular education or field training in a completely new discipline.

In Hijaz on the other hand, trade topped the list of old socio-economic occupations. Commercial activities and trade were conducted between the Hajazi merchants and merchants from the Muslim countries through continuous contact with the outside world in the form of pilgrims who come every year to perform Hajj. Business was much more a family institution than merely the exchange of money for goods. Personal friendships with exporters were greatly valued by Hajazi businessmen. It was the responsibility towards his son(s) so that they could carry on the family business in the future.

By the discovery of oil, the deep-rooted trading habits of the Hijazi people changed. Newly established merchants were characteristically more receptive to Western attitudes and business methods. Many younger merchants travelled to Europe and America, studying western accounting and marketing methods. They utilised the banking systems and business transaction methods of Western commercial establishments. They became an identifiable



social group, not only because of the different way they do business but also to the different way of life which began to evolve among them.

The Government Ministries were located in the Hijaz (Makkah, Jeddah). The government positions were for people who were educated in the four schools established primarily by the prominent Hijazi residents (such as Alfalah School).

By 1953, King Saud, son and successor of the late King Abdulaziz, decided to transfer the Government Ministries from Jeddah and Makkah to Riyadh. The transfer process took about four years. The government had to attract many Hijazi government employment to Riyadh. Jobs in Riyadh had to be made attractive, by offering higher rank, increase in salary and convenient living environment. These prerequisites were offered eventually by the Government. Many employers moved to Riyadh, together with native Najis, beginning with army officers and administrators, this group of government employees began to be recognised as a distinctive social group<sup>14</sup>.

So, the companys, native workers, the contractors and entrepreneurs, the new businessmen, and the government employees, were the product of modernisation which brought about cultural contact between Saudi Society and the Western World. They were the first group in Saudi society who did not acquire experience and knowledge through the old custom of family affairs. They were becoming the new middle class group in Saudi Society.

The direct or indirect contact of this class with other societies and culture (through work, travel and education), has influenced their old style of life, and was translated into their living environment in a dramatic way with the help of architects who began to appear on the Saudi scene at the same time as the middle class was emerging.



With more varieties of occupations and experience available than earlier, and being easily accessible in different regions of the vast country, the extended family household began to give way to the nuclear family household. It occurred side-by-side with the emergence of the middle-class social group.

However, despite relative independence from the tribal kinship and strong family ties the Saudi nuclear family achieved as a result of wide change, emotional support and financial obligations remained in force among the separated members of the extended family.

#### 9.4 EARLY PHYSICAL CHANGES

Al Hathloal describes through a historical illustration the initial change of the traditional pattern of the physical environment in Saudi arabia. The starting point was in Riyadh and after that it was followed in every part of the country<sup>15</sup>.

"Riyadh preserved its size during the first thirty years of Abdulaziz reign. Only after the consolidation of the Kingdom and the end of the campaign did the King himself, in the 1350's/1930's, take the first step in affecting the city's physical development (Al-Murabba and Al-Futah).

In 1357/1938, King Abdulaziz decided to move outside the old city of Riyadh. Accordingly, two kilometres north of the centre of town, he built Al-Murabba, (Fig 9-1) a large complex of palaces and administrative buildings for himself and his entourage. The complex covered an area of approximately 16 hectares (a square of 400 x 400 m.) with an average height of two and a half storeys.

The departure of the Al-Murabba from the traditional urban pattern lies mainly in the larger size of its components and the huge scale of the building programme.

By building Al-Murabba, King Abdulaziz established a precedent for Riyadh. The affluent now felt that they could build and live outside the city's walls, especially to the north.

During the same year of 1357/1938, Crown Prince Saud also built himself a palace on the Al-Murabba site. Finally, a spacious mansion was added to serve as the Royal guest house, and the



complex was linked to the town by road. On the road halfway between Al-Murabba and the town, Faisal followed in due course by building a palace for himself. In the mid and late 1940's several palatial mansions of identical pattern sprang up in a new quarter called Al-Futah, on the western side of the road between Al-Murabba and the town. These palaces were to be the residences of the King's younger sons.

The building programme affected Riyadh in two ways. First, it stretched the size of the town and set up the direction of its physical growth, it showed that the walls could no longer be a barrier for growth and that the north was the preferred direction for the development.

Secondly, it introduced a new means of transportation, the motor vehicle, which subsequently became the only significant transportation system used in Riyadh. This had a major impact on the old town which had to accommodate the demolition and widening of streets in the 1370's/1950's and of course, all new development now had to provide for the automobile, a factor which was not at work during the building of the traditional environment.

(Nasriyah and Al Malaz).

In 1373/1953 when Saud succeeded his Father to the throne, he made two decisions that were to have significant impact on the physical growth of Riyadh. First, was to expand and rebuild Nasriyah, a country estate 3 Km. west of town, as his Royal residence. Second, was his decision to transfer all government agencies from Makkah to Riyadh and to begin a building programme along the road to the airport to house them.

Nasriyah was in early 1360/1940's a small estate owned by Saud, who was a Crown Prince at the time. It comprised no more than a well and a four acre garden. By the late 1360's/1940's, Saud decided to develop Nasriyah as a summer residence. Thus, new, deeper wells were dug out, the area was extended to approximately 100 acres (40 hectares), and a huge two storey country palace was built, when the decision was made in 1373/1953 to rebuild Nasriyah as the royal residence, the palace was demolished, the area was again extended to approximately 250 hectares, and Nasriyah, the new royal residence, was planned according to a grid pattern with modern, more grandiose palaces, boulevards and gardens. When the whole complex was completed in 1377/1957, it comprised the Royal Divan, the King's private palace, Palace of the King's Mother, the guest palace, four smaller palaces, thirty-two large villas, and thirty seven smaller villas. The complex also included a museum, a library, a school for boys, a school for girls, a hospital, recreation areas and a zoo. The complex had its own generating plant and other support facilities. (Fig 9-2)



From that time on, the conflict of the old versus the new began to be consciously felt by the city's residents. In contrast to the traditional pattern, Nasriyah was orthogonally planned. It was built out of cement and reinforced concrete as opposed to the traditional materials of clay, sun-dried mud, bricks and wooden roofs, and it was spacious with wide boulevards as opposed to the compact, traditional environment with its narrow and winding streets.

Nasriyah was a clear demonstration of an alternative way of planning and building, a new way for inhabitants of the city. Though the size of a large neighbourhood, Nasriyah was however, still considered a palace. Surrounded by a high wall with its own gates, only those who were invited were able to go inside and this confirmed the public conception of it as no more than a Royal residence.

Nasriyah stretched the city westward for four miles, and thereby necessitating another elaborate road programme. To link it with Al-Murabba palace and the towns, a two-way, three kilometre boulevard divided by a central line of flowerbeds was constructed.

(Al Malaz)

When the government decided in 1373/1953 to move its agencies from Makkah to Riyadh and subsequently to build the ministries along the airport road, the need to provide housing for the transferred government employees was realised. The site of Al-Malaz, 4.5 Km. north east of the city centre, was chosen and a housing project was initiated by the Ministry of Finance to satisfy this purpose. In 1377/1957, when the transfer took place, the project was already underway and some parts were completed.

The Al-Malaz project consisted of 754 detached dwelling units (villas) and 180 apartment units in three apartment buildings. The detached houses, which were in three sizes, were built and sold to employees on a long-term payment plan, while the apartments were rented on a permanent basis. Also, it included a public garden, a municipal hall and a public library. It also housed the buildings, originally planned as schools, for the newly founded University. In addition, it also had a race course, a football field, and a public zoo, supporting facilities such as schools, markets and clinics were also planned, although they were built by different agencies. Al-Malaz acquired the name "New Riyadh".

The physical pattern of Al-Malaz follows a grid iron plan with a hierarchy of streets, rectangular blocks, and large lots which in most cases take a square shape. Throughfares are 30 m. in width, main streets 20 m. and secondary access streets 10 m. and 15 m. A 60 m. boulevard divides the project into two parts, most



blocks are 100 x 50 m. The typical lot size is 25 x 25 m. but with some blocks there are a variety of widths, such as 25 m, 37.5m, and 50 m. The depth of 25 m, however, remains constant in almost all the blocks.

Al-Malaz's impact on the size of Riyadh can be easily seen. It covers an area of about 500 hectares. It is a city by itself as the invention of the name New Riyadh implied. Al Malaz introduced new patterns and new types. The grid as a street pattern and the villa as the new house type both became models for the new physical development that took place in the late 1380's/1960's and 1390's/1970's in every city and town in Saudi Arabia. (Fig 9-3)

The question does arise as to why Al-Malaz, rather than Al-Murabba or Nasriyah, became the model to be reproduced in future developments in Riyadh and elsewhere.

Three main reasons suggest themselves:-

1. The project was sponsored by the government for its employees. It was, therefore, an authoritative statement by the government on how a modern neighbourhood should be planned. As such, it reflected the government's vision and point of view on how the new and vastly growing Riyadh should be built, and of course, it was taken for granted that what is good and suitable for Riyadh must be good for the country's other cities as well.

2. Al Malaz was seen as a symbol of modernity, in sharp contrast to tradition. It was the New as opposed to the Old Riyadh. Since, unfortunately, it was the only project to use new materials and techniques, no other modern alternative was available for the inhabitants of Riyadh to see, admire and then imitate.

3. In contrast to the Royal residences of Al-Murabba and Nasriyah, Al-Malaz was built from government employees who were part of the public. As leading opinion makers in establishing the taste and lifestyle in Saudi Arabia in the 1370/1950's and early 1380's/1960's, government employees were highly regarded by other segments of the society, and then lifestyle was greatly coveted. When they moved to Al-Malaz with its villas and newly planted trees, almost everyone dreamed of settling into a new and similar planned neighbourhood."

## 9.5 NEW TECHNOLOGY

In all traditionally constructed Arabian house types, the load of roof and floors were carried to the foundation by the walls.



It was the structural load - bearing system of traditional Arabian architecture.

These age old building techniques were also utilised to meet the special demands imposed by several influential factors pertaining to a particular region. These factors include the following:-

1. The topographic and climatic conditions.
2. The inhabitant's socio-economic role; and
3. The local Building materials.

Regarding building materials, the local master builders, developed a better understanding of the characteristics qualities of the locally available building materials (mud, stone, coral stones, palm tree trunks and wood).

In all regions of Saudi Arabia, the use of these local building materials and the practice of age old house construction techniques lasted well into the third decade of this century (the period of the country's consolidation; the discovery of oil reserves; and large-scale contact with the outside world).

The use of natural local building material has been gradually abandoned, and new and different building materials have taken their places. This is especially apparent in the region where oil has been discovered. Concrete became the new material to be used.

In addition to the materials. a variety of hand tools, wheel barrows, cement block machines, concrete mixers, electrical wiring devices and small appliances such as sockets, wall plugs, conduit light bulbs and transformers have been introduced.

In Hijaz, the first concrete house built in the country was in 1929 for the Zainal family (three storey)<sup>16</sup>.



The construction of rail road between Dammam and Riyadh eased the way for the new building materials introduced in the Eastern region, to find a new market in the central region.

With the new building materials came new building techniques, which have brought a drastic change in the local characteristics of the built environment. Frame construction, where the loads of roof and floors were carried by a frame which concentrated these loads until they were redistributed by the foundation, became a new phenomenon in housing construction in Saudi Arabia. The wall became a non-load bearing element. Reinforced concrete is used as the material for construction.

## 9.6 NEW SOCIETY

Saudi Arabia with its unique people and its unique place faced the hardest conditions in the world. With the limited resources and shortage of alternatives the people taught themselves to survive in the society. They manage the desert with the tent and with movement around it searching for water. They suffered a lot but they enjoyed it. When they settle in areas they formed the small towns. They protect it by high walls. They were the best economists at their times in the use of local materials and simple techniques to build their homes. The society itself as a group used to share, care, protect and give each other. It was a natural society. The teaching of Islam was the basic teaching in their Mosques. The literature was in the Art of Poems and Knowledge of mathematics was required for trading. This simple life was the other side of the story of the traditional built environment.

As it was explained in the previous sections the starting points in the changing process of the built environment were:

- The unification of the country.
- The discovery of oil.



- The Middle class of Nuclear family.
- The early Example of change.
- The new Technology.

What needs to be explained here is the new society and some factors which shape their thinking, and resulted in the welcoming of the new design (villa). It could be illustrated as sub-sections which could be as follows:-

1. Settling the Bedouins.
2. Water.
3. Transportation.
4. Electricity, communication and media.
5. Education.
6. Outside influence of importation.

These are the most important factors which affect the old society and produced the new society, the new thinking which adopted the new form of house. The following sub-sections will give a brief discussion about each factor:-

#### 9.6.1 Settling the Bedouins

Before the unification of the country, each tribe had its "dirah" or tribal territory, over which it had prior claim to water and grazing rights. The extent of the tribal grazing areas varied widely, but they often covered thousands of square miles. Within its "dirah" the tribe had freedom of movement, and another tribes "dirah" could only be crossed with their permission<sup>17</sup>.

During years of severe drought, when pasture was more difficult to come than usual, tribes were often forced to encroach on the more favoured lands of neighbours in order to survive, but tribal grazing rights were jealously protected, and such trespassing invariably led to the tribal clashes with which the Bedouins are so closely associated.



At the early time of Abdulaziz and during his unification process, he thought of a social and economical programme designed to create a new way of life for most of those Bedouins.

In 1910 (1328 H), he discussed his ideas with his father, with other elders of the House of Saud, and with the Ulama or religious leaders. By 1912 he was ready to start to implement his programme which was, in effect, a plan to settle the nomadic bedouins and teach them how to cultivate the land and to live in permanent houses.

The programme, which was intended to develop new ideals and new habits, and to replace the bedouins independent approach to life with a recognition to the State and its requirements. The plan had another objective, in addition to creating permanent agricultural communities. He did not want to eliminate the fighting spirit of the bedouins, he wanted to control it, so that it could become an organised force capable of playing its part in establishing his new Moslem state. Each settlement therefore also had a military regime as well as an agricultural one.

During the life-time of Abdulaziz there were more than 122 settlements<sup>18</sup>. Although this was only the beginning of the process of settling the nomadic bedouins, a process which is still not complete, it represented a major transformation of the traditional way of life, and it was one of the most important factors which helped in the creation of the new environment.

#### 9.6.2 Water

The factor of water as an important element in the change process came due to the fact that water is important to the life of human, animal and plants. Especially in a dry country like Saudi Arabia. Agriculture and settling was limited by the availability of water.



The biggest single difficulty facing agriculture in the early time of the Kingdom was the availability of water. At the beginning of Abdulaziz's era water technology was limited, and it was difficult to make wells beyond 30 meters deep. In places which did not have artesian springs, the ground water supply remained more or less the same over the centuries, leather-bucket lifts from wells from 3 to 30 meters deep, operated by draught animals, donkeys, camels or cattle<sup>19</sup>. Agriculture was therefore only possible where the water table was fairly high, or when natural springs were to be found.

The Bedouins believed that there is a lot of water under the ground which runs from place to place in huge quantities. The limitation of their techniques was the reason for not reaching it. King Abdulaziz called a team of American Engineers, who prospected the country and confirmed the old stories of the Bedouins. The team discovered water, not in small trickles, but in abundant reserves, not only at certain points, but over a wide area, even in places where its existence had never been suspected.

One of the first new wells to be drilled in the 1940's was near Riyadh - an enormous excavation, 375 feet deep and 90 feet wide. The King ordered the restoration of existing wells more than a hundred of which were restored and deepened in the Najd region alone. The wells were dug everywhere. In 1952 the Ministry of Agriculture and Water was established.

The discovery and reaching ground water was the beginning of feeling the effects of King Abdulaziz's rule - for added to the conditions of peace and stability was the application of western technology to increase and improve water supplies.

Drilling rigs and pumps began to appear all over the Kingdom and undreamed of quantities of water were tapped. This was the



greatest incentive of all for the Bedouins to settle, and all of the Kingdom's main towns began to receive hundreds and thousands of new residents.

In the towns were different stories, for example, Jeddah with 30,000 souls, had depended on a sea-water condenser of inadequate capacity, producing drinking water at a very high cost, and on a series of masonry cisterns, designed to catch and store the floods descending across the coastal plain from the foot-hills<sup>20</sup>.

Makkah and Medina had the aqueducts of Ain Zubaida and Ain al Zarqa respectively, as well as numerous wells, from which to supply the needs of their citizens and the visiting pilgrims. In all these areas the water supply was liable to fall short of actual requirements, both in normal times and when pilgrimage was above normal in size. A contract was placed for a new and much larger water condenser for Jeddah.

The fringe of the problem having been thus tackled in a tentative manner, the stage was set for the quite impressive development of the following years. Makkah had been linked by a new pipeline with the abundant spring of Ain Jadida at the head of Wadi Fatima to double the city's water supply<sup>21</sup>.

At Riyadh the water problem, never hitherto serious except on occasions of prolonged drought over a series of years, has been exacerbated by the increasing generous use of mechanical pumps, and even electrically driven pumps working at full pressure for a twenty-four hour day. The ample water table, which made the oasis one of the richest in Arabia under the old conditions, has consequently been steadily lowered; and recourse has been made to the expedience of piping further supplies to the city from other sources in the Hanifa Valley<sup>22</sup>. A number of 5,000 gallon motor tankers are in constant service bringing water from various wells, far or near, to meet the needs of the people and their gardens.



The Ministry of Agriculture and water took on its shoulders the responsibility of reserving water and it started on constructing dams all over the Kingdom. By 1980 there were 46 dams in the country. But undoubtedly the greatest progress made in the water resources field was in the development of sea-water desalination, in which the Kingdom is now regarded as one of the world leaders. The planning and construction of desalination plants in the Kingdom is the responsibility of a special purpose organisation in the Ministry of Agriculture - the Saline Water Conversion Corporation (S.W.C.C.). Starting as a directorate in the Ministry of Agriculture in 1965, the (S.W.C.C.) has grown into one of the largest, most experienced and most advanced desalination organisation in the world. The growth of the desalination industry in the Kingdom has surpassed all expectations. From its start with the construction in 1968 of two plants in the Red Sea coast, producing 60,000 gallons per day, the (S.W.C.C.) now produces 486 million gallons per day, at plants all around the Kingdom's coasts. There are now 17 plants located along the Red Sea coast. Along the Arabian Gulf Coast there are 6 operating plants. Since the decision was made in the 1970's to concentrate on the construction of dual-purpose plants (plants which produce both water and electricity)<sup>23</sup>.

Desalination has provided another technological possibility with respect to location and the population limits. It led to a significant increase in humans living in the arid regions and in areas of the Kingdom which were too difficult to live in without water. (Table 9-1)

### 9.6.3 Transportation

The people of Arabia used to depend on animals such as camels, donkeys and horses to travel through the vast lands. People used to spend weeks on travelling from one town to another. The trade caravans mostly depended on camels. The camel used to be called



the "Desert Ship". Inside towns people used to walk or ride. Animals used to carry everything from water to wood. The streets with its narrow characteristics accommodated this form of transportation.

The first form of the new transportation elements was the car. Some time in the early 1920's (1340 H) a few cars and trucks were in use in the Kingdom on the west coast. The earliest car seems to have been owned by Sharif Hassain Ibn Ali in Makkah - a Ford model - T used for ceremonial purposes<sup>24</sup>.

Geological survey parties of Aramco were the first to use cars in the Eastern Province. The available roads were very rough of course. Travel by auto was often directly across open country because no adequate roads existed. Although these rugged conditions usually kept early cars and trucks close to the bigger towns, geologists and surveyors had driven across the peninsula several times by the mid 1930's<sup>25</sup>.

The country first fully paved road was built in 1950 (1370). In 1954 the total roads were 237 Km. In 1963 the figure was 4,000 Km. and by the end of 1988 the total length of paved roads reached 25,000 Km<sup>26</sup>. (Table 9-2)

By the early 1960's (1380's) the number of cars imported into the Kingdom had increased to about 6,000 per year, and the increased ownership and use of motor vehicles began to make itself felt in the town. (Table 9-3)

The second form of new transportation which affected the nation is the rail road. The first one was during the Ottomans who constructed the railway from Damascus to Medina and Makkah. The railway was announced and promoted as being religious in character for the annual pilgrims. Of course the bedouins suffered the loss of a major part of their livelihood. They had



hired out camels and sold supplies to the pilgrims. The line between Makkah and Medinah was never completed. During the First World War a section of the tracks north of Medina was blown up by rading Bedouins led by Lawrence of Arabia<sup>27</sup>.

The construction of the rail road between Dammam and Riyadh began in 1946. It was completed in 1951 (1372 H). This rail road had great effects on Riyadh and the central region of the country. It helped in the transfer of petrol, material and new technology. It was the importation link between the capital and the sea and to the outside world.

The third form of transportation element was the airplane (flying). In 1945 (1365 H) King Abdulaziz travelled to the Suez Canal Zone in Egypt where he met with Franklin D. Roosevelt, President of the U.S.A. on board an American warship in the Great Bitter Lake. As a token of his country's friendship for the Saudi people, Roosevelt presented Abdulaziz with an airplane, a DC3 and the King lost no time putting it in use. He acquired two more that same year and so began domestic air operations in Saudi Arabia, carrying mail and passengers on an irregular but very popular basis. It is a long story until 1963 when a Royal Decree established SAUDIA, Saudi Arabian Airlines<sup>28</sup>. Today Saudia is a major world Airline, with 6 Boeing 747's, 18 Lockheed L-1011 Tristars, 6 Bocing 707's, 19 Boeing 737's and a number of smaller aircraft.

The fourth form of transportation element is the ships, or in other words the seaports. Jeddah seaport used to be the gate to the Holy City of Makkah. Pilgrimage used to arrive to Jeddah by sea. The west coast of the country on the Red Sea used to have many small ports and fishing areas. Also it was the case on the East Coast on the Arabian Gulf. The old trade in Jeddah and in Dammam depends mostly on the facility of those two main ports. At the change process and with the discovery of oil and the



economic development in the country, these two seaports played a major role in it. In 1946, the capacity of Jeddah seaport was 2 ships only. Today the port contains 43 docks which accommodate different types and sizes of ships at the same time<sup>29</sup>.

So, it could be seen that the new transportation elements affect the new physical layout of urban places. The introduction of cars into the urban pattern has drastically altered the traditional context. The car cannot be accommodated within the narrow winding street system. It also gave accessibility to different areas away from the centre of towns.

The other three elements participate in speeding changes to the different urban centres by providing the movability facility of everything from one place to another. It also made it easy for people to move and see the other parts of the Kingdom and the outside world.

#### 9.6.4 (Electricity, Communication and Media)

These elements could be considered as the most effective which provide means to satisfy the new desires, also make life easy. These elements invaded the country with the discovery of oil. Electricity is important for industry and it could be easily generated by the energy of oil.

At the early stages until the 40's the electrical services were limited in most cities. It did not start as an organised public service till 1951 (1372) when the National Electrical companies were established in different cities. These national companies were responsible for generating and distributing electricity in their areas. In 1976 the Saudi Consolidated Electric Company (SCECO) was established to gather the different companies under one main administration for the purpose of improving the electrical services and to connect the whole country with one network<sup>30</sup>.



The growth of electrical supply was in the same line with the growth of the country. For example in Jeddah, at the end of 1973 (1393) there were 47,500 customers with the electrical company. The average electrical consumption per person is 6552 kilowatt/hour per year. At the end of 1983 (1403) there were 225,000 customers. The average rose to 23,700 kilowatt/hour per year<sup>31</sup>. 73% of the total electrical produced goes for residential and commercial use, the rest is for industrial use.

Electricity gave the people the means to change the traditional forms and adopt new ideas. It serves the people with many different items which the people never heard about. At the same time it let the people depend on it. The new designs of houses depends on electricity if the electric is cut for any reason no one could live naturally in these houses. The most important factors are the ventilation and lighting for any house. Today, it is the mechanical air conditioning and the electrical lighting which dominates all functions in the house.

Electricity also gave the means for many other items which you could find in contemporary buildings. The elevator which works on electricity encouraged the highrise buildings in areas where one or two stories were traditional. (Table 9-4, 9-5)

Communication and media were results of the presence of electricity. Those two elements also had some effects on the process of change. Communication includes post, telegraph and telephones. These made life easy and the transfer of information from one area to another. In 1932 mail used to be transferred between Makkah and Riyadh by cars<sup>32</sup>. Today the post facility is covering every part of the Kingdom and it is connected with the international world.

Telephone services are part of the communication which started in 1930 when King Abdulaziz signed a contract with the Marconi



Company for installation of two five kilowatt wireless stations at Makkah and Riyadh, a dozen smaller installations in regional cities, and four half kilowatt mobil sets. This network was in place by spring 1932. The initial system expanded rapidly. By the mid 50's (1370's) there was a submarine cable between Jeddah and Port Sudan. After that the connection with the outside world was easy. In 1983 there were more than 700,000 working telephone lines connected with International Circuits<sup>33</sup>.

The media which includes television, radio, newspaper and magazines is an important element. Television at the beginning was introduced into the country by Aramco, which started a television service for its employees in 1957 (1377 H). In 1965 a national television network began transmission from Riyadh and Jeddah. By 1985 a Satellite Transmission System was in operation to cover the whole country<sup>34</sup>. Today there are two channels, one in Arabic and the other in English.

Regarding radio, by mid 1965 (1385 H) there were two domestic radio networks, one in Makkah and the other in Riyadh. Estimates place the number of radio receivers in the country at the time at more than 350,000<sup>35</sup>.

Newspaper and magazines are important in the Arabian peninsula even before the time of King Abdulaziz. During the Ottoman period in 1908-09 six local newspapers were published. Al Islah Printing shop was established in Jeddah in 1909. During the Hashimatte time in 1924 "Barid Al Hijaz" one of the newspapers which saw the light at that time. At the beginning of King Abdulaziz era in 1924 Umm Al Qura was published in Makkah. It is still published till today as the Government newspaper. After Umm Al Qura many newspapers and magazines took their ways in the country<sup>36</sup>. Today, there are more than 70 newspapers and magazines which are published inside Saudi Arabia. Also the imported newspaper and magazines from all over the world are



available in the market. (Table 9-6)

So, today electricity, communication and media accelerated the process of national integration. The wide spread use of electricity change the habits of people and change the basic concepts of house design. The widespread use of television and radio and other communication facilities and the accessibility of newspapers and magazines has introduced the nomad and the farmer to the larger society. Their limited picture of their time and place in the Kingdom and in the world has changed. Previously isolated from one another and from the outside the world, the tribes thought of themselves as people of the Hijaz or Najd rather than part of a large nation. The unification of the country made their oneness a political reality and the wise use of the new communication media made it a reality in hearts and minds as well.

#### 9.6.5 Education

Although it is true that there was no educational system, in the accepted sense, before the rule of King Abdulaziz, a few outstanding individuals did make efforts to establish isolated centres of education.

The first of these was Hajji Mohammad Ali Reza, who in 1903 (1322) founded a regular Arab school in Jeddah and another in Makkah, known till this day under the name of "AL Falah School". In recognition of the services of these two private schools over the years, they have since been given government assistance to allow them to continue and develop their activities. Other examples of individual and collective efforts in education were the founding of Dar Al-Hadith by Shaikh Abu As-Samh in Makkah in 1932 and the Desert School founded in Al-Mesayjeed near Al-Madina in 1941 by Ali and Othman Hafez for the children of the Bedouin population<sup>37</sup>.



In 1924 a Department of Education was established and the King devoted part of his limited revenues to the establishment of primary schools and apprenticeship centres.

In 1953 during King Saud time, the Department of Education was transformed to Ministry of Education. The country's first Minister of Education was Prince Fahad - the present King<sup>38</sup>.

In 1954 there were 469 schools teaching 52,839 students. In 1968 there were 2,068 schools teaching 331,760 students. In 1990 there are 8,489 schools teaching 1,973,830 students<sup>39</sup>.

In terms of the girls education, the first school for girls was open in 1957. The directorate - General of Girls' Schools, was founded in 1960<sup>40</sup>. In 1961 there were 12,000 girl students; in 1965 there were 48,000 girl students; in 1970 there were 170,000 girl students; in 1975 there were 308,200 girl students and 1980 there were 435,000 girl students<sup>41</sup>.

In terms of Higher education, until 1957 there were no universities or institutions of higher education in the Kingdom. Any student with the ability to pursue his studies beyond the secondary level could only do so by going overseas to study.

The first University in the country was Riyadh University, it started with one college which was Art, in 1377/1957. The other University in Jeddah started in 1384/1964 by the original work of the people of Jeddah.

Today, there are seven universities in the Kingdom besides some other colleges. Universities and other institutions of higher education have been actively engaged in spreading knowledge in Islamic ideology, traditional arts, humanities, modern science and technology. The enrolment in the universities and other institutions of higher education have risen from 7,000 in 1969/70



to about 83,000 in 1983/84. During this period of 15 years more than 58,000 graduates have been turned out by the universities and colleges. The annual production of university graduates is now approaching 10,000. The universities teaching staff in 1983/84 was over 8,300 while administrative, technical and other staff serving the universities numbered more than 12,000<sup>42</sup>. (Table 9-7)

In addition to development in higher education within the Kingdom, the Government of Saudi Arabia has been sending large numbers of young Saudi's for study in Universities and colleges in the Western as well as the Arab and other Islamic countries. Nearly 15,000 Saudi nationals were sent abroad for study during the decade 1972-1982. During the same period 5249 of these students graduated obtaining 688 doctoral degrees, 1250 master degrees, 2529 bachelor degrees and 772 other diplomas and certificates. These graduates take up teaching positions in the universities and key management positions in the Ministries, other government departments and autonomous corporations<sup>43</sup>.

So, it could be seen that education is a major element in the change process. It produced the new thinking and it opened the country and its people to new ideas and different technology. People through their education are now expecting a different style and require special standards for their houses in particular and their physical environment in general.

#### 9.6.6 Outside Influence and Importation

From the previous elements it could be seen that the people of Saudi Arabia have now more easy access to the outside world and to other societies. Most Saudi's travel abroad for business, education, health reasons and for tourist activities. Such contact with outside habits affected the people who were ready to absorb new ideas and they tried to bring it back with them.



New concepts of design of houses were imported to the country with those people. For example in Mimar Magazine No. 1, Abdul Wahed El-Wakil states one story about a client from Jeddah, in 1972, he decided to build for himself, his wife and two children a house on a plot of land he had acquired in new Jeddah. "He had obtained a design whilst in California several years earlier. He approached me with his Californian design and asked me to give it a 'touch of Arabesque'".<sup>44</sup>.

This client and others who have access to the outside world were affected and influenced by the other society, they transfer ideas and forms. The importation and the open trade gave them more chance to build the same house which they saw outside.

Perhaps the first economic consequence of Abdulaziz's pacification of the tribes of Arabia and their unification under a single sovereign was the expansion of interior trade. Free of the danger of attack by surrounding Bedouins, the craftsman and merchants of the small villages and towns were able to expand their production and marketing activities.

Domestic trade through the mid 1960's (1380's AH) was still based on traditional exchanges between nomads and town craftsmen and merchants. Bartering was still common, but the increase in revenues from oil had began to create a growing demand for manufactured goods previously unknown in the country. The variety of goods traded had increased significantly, as had the number of merchants dealing in imports.

As a result of successful economic reforms in 1960 (1380) virtually all the trade restrictions were removed. Imports of consumer goods revived, but the subsequent increase in imported capital goods was aimed specifically at diversifying the economy so as to reduce the dependence on oil exports.



In 1964 the government had formulated protective regulations and the Foreign Investment Law. After that time the Kingdom was and still is open to foreign investors who found a stable market and customer who are ready to absorb anything that eases their lives<sup>45</sup>.

By looking at the "Value and Quantity of Principal Imports" to Saudi Arabia<sup>46</sup>, it could be noticed that the country became a consumer state which consumes every item possible for importation.

In terms of its affects on house design and the physical structure of cities, it could be related to these available items which come from the designer mind and thinking and are under the hand and money of the citizen who would like to use it and get advantage from it. Importation of materials and machines helped in changing construction techniques.

#### 9.7 THE HOUSING AND URBAN PROBLEMS

It could be seen that the result of change which occurred in Saudi Arabia beginning with the unification of the country under the rule of King Abdulaziz and the discovery of oil and the following elements and factors, all of which resulted in what so called "Housing and Urban Problems".

There was a severe shortage of, and an urgent need for housing in most parts of the country. The demand for housing is greater than what was available. The cities were growing in an unplanned strategy which also highlighted the urban problems. Lack of sufficient services and roads were the major urban problems.

The problem of urban housing in Saudi Arabia which came as a direct result of the change in the country could be related to three main factors<sup>47</sup>:-



1. Population growth in the Saudi cities.
2. The raising of individual income.
3. The limitation of construction.

1. Population growth in the Saudi cities: Looking back to early time in Saudi arabia when the urban population was 20% of the total population of the country. This urban population was growing with time as the following:

<u>Approximate Year</u>	<u>Approximate Urban Population</u>
1932	20%
1960	30%
1970	49%
1980	67%

The growth in the cities could be for the following reasons:

- National growth of 2.6% to 3% of population as a result of good living and a health environment.
- Immigration with its two components, internal and external immigration. (During 1975, 49.9% of total labours are external immigrants). This immigration because of the availability of jobs and different works which have been generated during the change process.

The most urban areas in the Kingdom are Jeddah/Makkah, for its religious and trading functions, Riyadh for its political function and trading purpose, and Dammam/Dhahran/Khobar for the oil industry. These urban centres witnessed the fastest growth in the history of the Kingdom. For example Riyadh, the population growth could be summarised as follows.

<u>Year</u>	<u>Approx. Population</u>
1950	83,000
1960	160,000
1970	350,000
1978	760,000
1982	1,400,000
1984	1,600,000



2. The Raise of individual income: The economic development of Saudi Arabia lead to increase in the individual income of Saudi citizens. In 1975 the average income was 4800 Saudi Riyals per month, this figure was raised to 8200 Saudi Riyals in 1980. These average salaries besides some other governmental benefits such as housing and transportation benefits raised the original income by 29%.
3. The limitation of construction: The increase in population and the raise of individual income led to the requirement of more houses to be built and the people want special houses with high standards and special facilities. During the seventies when the economical boom was at its peak, there was a lot of elements which made construction very difficult, some of them are the following:-
- a) Land prices were very high because of the demand of buying lands.
  - b) The lack of labour, professional or ordinary.
  - c) The materials were expensive and short in the open market.

In recognition of the Challenge, and with the goal of "a home for every citizen", the Saudi Government is approaching the problem with many simultaneous solutions: developing plans which look at the growth of the urban centres through the 5-year development plans, developing the Municipal facilities and services through the Ministry of Municipalities and Rural Affairs, providing loans through the REDF to help citizens in constructing housing, constructing housing projects through the Ministry of Public Works and Housing to distribute them to citizens in later stages, and to encourage the different government agencies to build their own housing projects to accommodate their staff.

The following five chapters will look at each of these solutions and investigate its role in directing the development of the new house design the villa. (Fig 9-4)



كمية المياه المستهلكة وعدد المشتركين من عام ١٣٩٧ - ١٤٠٦ هـ  
(ملين جالون)

Table 9 - 1 Quantity of Water Consumed and Number of Subscribers 1397 — 1406 A.H.  
(Million Gallons)

السنة Year	المدن الأخرى Other Cities		الخبر Al-Khobar		الدمام Dammam		الطائف Ta'if		مكة المكرمة Makkah		ينبع Yanbu		المدينة Medina		جدة Jeddah		الرياض Riyadh		المدينة
	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	عدد المشتركين في نهاية كل شهر No. of Subscribers at End of Month	كمية المياه المستهلكة في مليون جالون Quantity in Million Gallons	
1397 .....	45582	71611	10241	2624	8792	2857	—	—	4731	2590	174	5127	7259	13451	47288	13451	13451	13451	١٣٩٧ .....
1398 .....	18236	5248	11611	2655	9044	2899	7846	1092	4694	2754	413	14800	9298	14529	52283	14529	14529	14529	١٣٩٨ .....
1399 .....	21511	6483	11892	3080	9287	3185	9481	895	8918	2961	444	18000	11728	18271	57557	18271	18271	18271	١٣٩٩ .....
1400 .....	28430	5640	12221	3281	9538	3378	12089	1186	5818	2982	343	21867	14977	18164	67265	18164	18164	18164	١٤٠٠ .....
1401 .....	55792	13425	15745	3810	9481	3902	16496	718	7074	3627	454	24992	15061	18880	75700	18880	18880	18880	١٤٠١ .....
1402 .....	56650	17188	16124	4536	10039	5828	17365	716	6693	4255	9398	28398	77540	19397	83960	19397	19397	19397	١٤٠٢ .....
1403 .....	83903	12129	16371	6052	10281	7830	18461	747	8858	4714	1260	33137	83619	29072	92248	29072	29072	29072	١٤٠٣ .....
1404 .....	91379	21134	16815	7175	10560	10607	19622	675	5973	5207	1447	36780	87828	38570	106300	38570	38570	38570	١٤٠٤ .....
1405 .....	156950	34871	11650	3117	14559	7920	19936	924	52932	5408	1394	38865	89886	54387	119578	54387	54387	54387	١٤٠٥ .....
1406 .....	193437	40985	13374	8220	15931	13284	20454	1193	59458	5561	1561	40502	91663	63927	133743	63927	63927	63927	١٤٠٦ .....
Muharram .....	158789	3524	12294	718	14630	1197	19980	93	53490	5408	131	39134	89893	5613	123994	5613	5613	5613	محرم .....
Safar .....	161452	3138	12326	617	14708	1112	20059	101	54143	5426	123	39219	89916	5141	125196	5141	5141	5141	صفر .....
Rabi' I .....	164252	3276	12446	595	14783	1281	20114	100	54790	5440	112	39352	89954	4975	126055	4975	4975	4975	ربيع الأول .....
Rabi' II .....	167499	3163	12459	654	14864	976	20175	94	55243	5450	133	39456	89966	4484	126849	4484	4484	4484	ربيع الآخر .....
Jumadi' I .....	170450	3239	12496	624	14921	952	20237	80	55759	5460	137	39642	90000	4332	127780	4332	4332	4332	جمادى الأولى .....
Jumadi' II .....	177554	3124	12553	683	15006	900	20283	88	56243	5475	97	39790	90161	4322	128670	4322	4322	4322	جمادى الآخرة .....
Rajab .....	181519	3382	12716	700	15074	1003	20340	105	56861	5491	129	39941	90455	5063	129536	5063	5063	5063	رجب .....
Sha'ban .....	186023	3441	12895	699	15217	991	20381	101	57503	5518	122	40061	90614	5038	130480	5038	5038	5038	شعبان .....
Ramadhan .....	187533	3581	13064	699	15441	1189	20408	108	57878	5521	143	40117	90854	5811	131142	5811	5811	5811	رمضان .....
Shawwal .....	189248	3752	13128	733	15692	1257	20422	113	58597	5547	146	40280	91164	6148	132203	6148	6148	6148	شوال .....
Dhul-Qa'dah .....	191509	3519	13302	737	15835	1212	20446	107	59093	5556	144	40438	91498	6187	133334	6187	6187	6187	ذو القعدة .....
Dhul-Hijjah .....	193437	3846	13374	761	15931	1214	20454	103	59458	5561	144	40502	91663	6413	133743	6413	6413	6413	ذو الحجة .....

Source: Water Departments in Riyadh, Jeddah, Medina, Yanbu, Makkah, Ta'if, Eastern Province.  
Other Cities Include Buraidah, Riyadh, Al-Khobar, Methnah, Unsizah, Bada'ei, Bukairiyah, Rass,  
Qusaiyib, Abqaiq, Rahimah, Al-Qatif, Majma'ah, Al-Hassa.  
Rowdhat Sudair, Rahegh, Haif Al-Batin, Ha'il, Al-Jouf, Alif, Al-Dawadmi,  
Murat, Al-Helwa, Hotat Bani Tamem.

المصدر : مصلحة مياه الرياض ، مصلحة مياه جدة ، مياه المدينة المنورة ، بلدية ينبع ،  
مصلحة مياه مكة المكرمة ، مصلحة مياه الطائف ، مصلحة مياه المنطقة الشرقية ،  
المدن الأخرى : تشمل بريدة ، الخبر ، الذنوب ، عنيزة ، أيداع ، البكيرية ، الرس ،  
التريبة ، بقيق ، رحيمة ، القليل ، الجمرة ، الأحساء ، روضة سدير ، رابغ ، حفر  
الباطن ، حائل ، الجوف ، عفيف ، الدواسي ، مرات ، الحرة ، حرمة بني تميم .



إنشاء الطرق في المملكة من عام ١٣٩٧ / ١٣٩٨ - ١٤٠٦ / ١٤٠٧ هـ

Table 9-2 Progress of Road Construction from 1397/1398 — 1406/1407 A.H.

السنة	طرق زراعية		طرق رئيسية		المجموع الكلي
	المتبقي خلال السنة	المتبقي خلال السنة	المتبقي خلال السنة	المتبقي خلال السنة	
Year	Completed During the Year	Total	Completed During the Year	Total	Total
1397/1398	3641	16948	2162	17200	17200
1398/1399	3171	20119	1700	18900	18900
1399/1400	4076	24186	1338	20238	20238
1400/1401	4401	28587	916	21154	21154
1401/1402	4332	33310	990	21926	21926
1402/1403	5334	36644	1877	23753	23753
1403/1404	8192	46836	1717	25478	25478
1404/1405	5390	52236	1667	27137	27137
1405/1406	5276	57502	968	28105	28105
1406/1407	4006	61508	778	28883	28883

المصدر : وزارة الاتصالات .

ملاحظة : — Road that are reconstructed account for 2556 kms for the previous years

— Roads that are reconstructed for 1405/1406 account for 26 km.

السيارات المستوردة حسب أنواعها ١٩٧٦ - ١٩٨٧ م

Table 9-3 Vehicles Imported According to Kind, 1976 - 1987 A.D.

السنوات	سيارات خاصة	سيارات نقل	تربسيات	سيارات	سيارات أخرى	المجموع
Years	Special Vehicles	Transport Vehicles	Buses	Others Cars	Total	Total
1976	3162	97162	4622	1654	175364	175364
1977	3133	77569	5035	846	146384	146384
1978	3407	95997	4589	779	239960	239960
1979	2329	11515	3921	509	225306	225306
1980	1602	156881	4273	1226	391741	391741
1981	2444	149548	5478	—	319952	319952
1982	3026	207606	9457	1104	482734	482734
1983	28878	179036	8471	19593	423906	423906
1984	1622	138001	7388	1343	299368	299368
1985	1113	109743	4789	704	252033	252033
1986	609	38835	1832	661	106171	106171
1987	458	51631	2638	623	144691	144691

المصدر : إحصاءات التجارة الخارجية - مصلحة الإحصاءات العامة .

Source: Foreign Trade Statistics, Central Department of Statistics.

تطور قدرة التوليد والحمل الأقصى وعدد المشتركين والطاقة الكهربائية المنتجة والمباعة

المستهلك في الصناعة بجميع مناطق المملكة

Table 9-4 Generating Capacity, Peak Load, No. of Subscribers and Energy Produced, Sold and Consumed in Industry in All Regions

السنة	الطاقة الكهربائية المنتجة ميجا. و. س.	الطاقة الكهربائية المستهلكة ميجا. و. س.	عدد المشتركين	الحمل الأقصى ميجا. و. س.	القدرة التوليدية ميجا. و. س.	البيان
Year	Produced Energy Mega-W.	Energy Sold Mega-W./Hr.	No. of Subscribers	Peak Load Mega-watt	Actual Generating Capacity Mega-watt	
1396 A.H.	3023093	5322612	403275	1140	1780	١٣٩٦ هـ
1397 A.H.	3141576	6364620	465792	1633	2367	١٣٩٧ هـ
% Increase	3.9	19.6	15.5	43.2	33	١٣٩٨ هـ
1398 A.H.	4564107	8465890	581806	2161	3210	١٣٩٩ هـ
% Increase	45.3	33.0	24.9	24.3	33.6	١٣٩٩ هـ
1399 A.H.	6613133	13449403	726805	2955	4124	١٣٩٩ هـ
% Increase	44.9	58.9	18.0	26.7	28.5	١٣٩٩ هـ
1400 A.H.	6640962	17436663	872054	3965	5904	١٣٩٩ هـ
% Increase	3.4	29.6	15.6	24.9	43.2	١٣٩٩ هـ
1401 A.H.	7625619	21643666	1041958	5227	7359	١٣٩٩ هـ
% Increase	11.5	24.1	19.5	31.1	24.6	١٣٩٩ هـ
1402 A.H.	10042756	26631129	1213314	6389	9145	١٣٩٩ هـ
% Increase	23.7	23.0	16.3	20.7	24.3	١٣٩٩ هـ
1403 A.H.	8730652	31176968	1390563	7796	10704	١٣٩٩ هـ
% Increase	13 -	17	14.7	18.3	15.3	١٣٩٩ هـ
1404 A.H.	9796322	36963777	1584095	8503	11853	١٣٩٩ هـ
% Increase	6.5	18.6	13.9	10.3	10.7	١٣٩٩ هـ
1405 A.H.	11656348	41903860	1757933	9424	13923	١٣٩٩ هـ
% Increase	25.4	13.3	11	10.8	17.5	١٣٩٩ هـ
1406 A.H.	12049331	45865779	1895790	10513	14781	١٣٩٩ هـ
% Increase	3.4	18.8	7.8	11.6	6	١٣٩٩ هـ
1407 A.H.	—	48999291	2038723	10950	14647	١٣٩٩ هـ
% Increase	—	6.8	7.4	4.2	0.8	١٣٩٩ هـ

\* Not including energy purchased from desalination plants amounting 3392705 Mega. W./Hr.

\*\* Not including energy purchased from desalination plants amounting 9091834 Mega. W./Hr.

\*\*\* Not including energy purchased from desalination plants amounting 11782545 Mega. W./Hr.

\*\*\*\* Not including energy purchased from desalination plants amounting 13310247 Mega. W./Hr.

\*\*\*\*\* Not including energy purchased from desalination plants amounting 14572097 Mega. W./Hr.

المصدر : وزارة الصناعة والكهرباء - وكالة الوزارة لشؤون الكهرباء .

الشركة السعودية الموحدة للكهرباء في المنطقة الوسطى

Table 9-5 Saudi Consolidated Co. for Electricity in Central Region

السنة	الطاقة الكهربائية المنتجة ميجا. و. س.	الطاقة الكهربائية المستهلكة ميجا. و. س.	عدد المشتركين	الحمل الأقصى ميجا. و. س.	القدرة التوليدية ميجا. و. س.	البيان
	Produced Energy Mega-W.	Energy Sold Mega-W./Hr.	No. of Subscribers	Peak Load (Mega-watt)	Actual Generating Capacity (Mega-watt)	
1396 A.H.	3023093	5322612	403275	1140	1780	١٣٩٦ هـ
1397 A.H.	3141576	6364620	465792	1633	2367	١٣٩٧ هـ
% Increase	3.9	19.6	15.5	43.2	33	١٣٩٨ هـ
1398 A.H.	4564107	8465890	581806	2161	3210	١٣٩٩ هـ
% Increase	45.3	33.0	24.9	24.3	33.6	١٣٩٩ هـ
1399 A.H.	6613133	13449403	726805	2955	4124	١٣٩٩ هـ
% Increase	44.9	58.9	18.0	26.7	28.5	١٣٩٩ هـ
1400 A.H.	6640962	17436663	872054	3965	5904	١٣٩٩ هـ
% Increase	3.4	29.6	15.6	24.9	43.2	١٣٩٩ هـ
1401 A.H.	7625619	21643666	1041958	5227	7359	١٣٩٩ هـ
% Increase	11.5	24.1	19.5	31.1	24.6	١٣٩٩ هـ
1402 A.H.	10042756	26631129	1213314	6389	9145	١٣٩٩ هـ
% Increase	23.7	23.0	16.3	20.7	24.3	١٣٩٩ هـ
1403 A.H.	8730652	31176968	1390563	7796	10704	١٣٩٩ هـ
% Increase	13 -	17	14.7	18.3	15.3	١٣٩٩ هـ
1404 A.H.	9796322	36963777	1584095	8503	11853	١٣٩٩ هـ
% Increase	6.5	18.6	13.9	10.3	10.7	١٣٩٩ هـ
1405 A.H.	11656348	41903860	1757933	9424	13923	١٣٩٩ هـ
% Increase	25.4	13.3	11	10.8	17.5	١٣٩٩ هـ
1406 A.H.	12049331	45865779	1895790	10513	14781	١٣٩٩ هـ
% Increase	3.4	18.8	7.8	11.6	6	١٣٩٩ هـ
1407 A.H.	—	48999291	2038723	10950	14647	١٣٩٩ هـ
% Increase	—	6.8	7.4	4.2	0.8	١٣٩٩ هـ

\* Not including energy purchased from desalination plants amounting 3392705 Mega. W./Hr.

\*\* Not including energy purchased from desalination plants amounting 9091834 Mega. W./Hr.

\*\*\* Not including energy purchased from desalination plants amounting 11782545 Mega. W./Hr.

\*\*\*\* Not including energy purchased from desalination plants amounting 13310247 Mega. W./Hr.

\*\*\*\*\* Not including energy purchased from desalination plants amounting 14572097 Mega. W./Hr.

المصدر : وزارة الصناعة والكهرباء - وكالة الوزارة لشؤون الكهرباء .



Table 9-6

[illegible]

Source: Ministry of Information  
 \* Released by Tass at Jewish  
 \*\* Released by Al Baha Commercial Bureau

**Table 9-7 Total Number of Students (Males and Females) at all Educational Levels 1402 / 1403 - 1406 / 1407 A.H.**

Years and Sex	1406/1407		1405/1406		1404/1405		1403/1404		1402/1403		مراحل التعليم والدراسات			
	جمله Total	ذكور Male	جمله Total	ذكور Male	جمله Total	ذكور Male	جمله Total	ذكور Male	جمله Total	ذكور Male				
												جمله Total	ذكور Male	جمله Total
Kindergartens ...	60590	27113	33477	31604	23654	27950	47494	22084	25410	47197	26212	41202	18351	22851
General Education	1460233	649509	810724	1347148	587637	759491	1262953	542708	720245	1166604	490323	1073528	436411	637117
	Elementary ...	477137	179054	298701	402180	150159	251621	373041	137487	235552	333539	123117	213042	301498
	Intermediate ...	198449	84154	113895	180176	74564	105612	164186	67235	96931	144981	58772	130281	49523
	Secondary ...	Intermediate	-	-	-	-	-	-	-	-	1394	-	1031	-
Secondary ...	11649	4111	5538	10433	4848	5585	9538	4146	5392	9049	3813	10786	5464	3797
	Higher .....	10703	4410	6293	8907	3943	4964	7843	2908	4735	6728	4432	6634	4642
	Secondary ...	12302	-	12302	10677	-	10677	10532	-	10532	10322	-	9139	-
Higher .....	793	-	793	536	-	536	627	-	627	424	-	368	-	368
Higher Education	3208	1130	2078	20320	980	1440	2564	869	1405	2371	817	2341	732	1609
	Adult Education	150770	73889	76881	141792	63239	78553	152139	70319	81823	136339	59024	139201	54966
	Other Education	23999	2642	20117	21640	2933	34718	21600	2282	19318	27680	2644	27264	2194
University Education	113979	46325	67284	101726	40235	61471	92789	34585	58124	80221	28396	75118	24480	50636
	Total .....	2482180	1046287	1416594	2385489	953431	1332958	2145026	884643	1546363	1972328	791809	1181319	1818486

sources 1. All kinds of Education under University are from information center (Ministry of Education), and the involved ministries.  
2. University Education source is Ministry of Higher Education.

services (Ministry of Education), and the involved ministers.



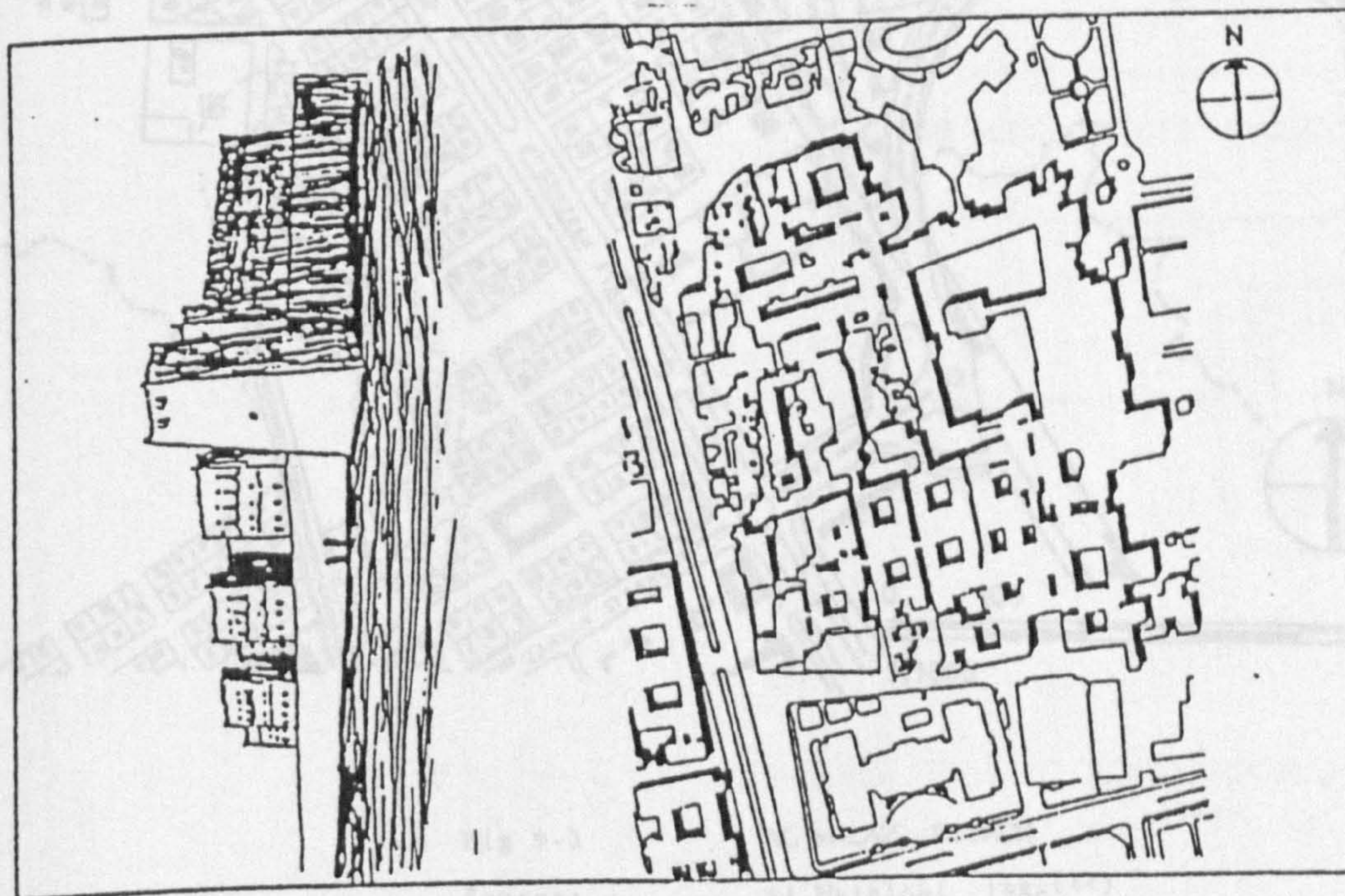
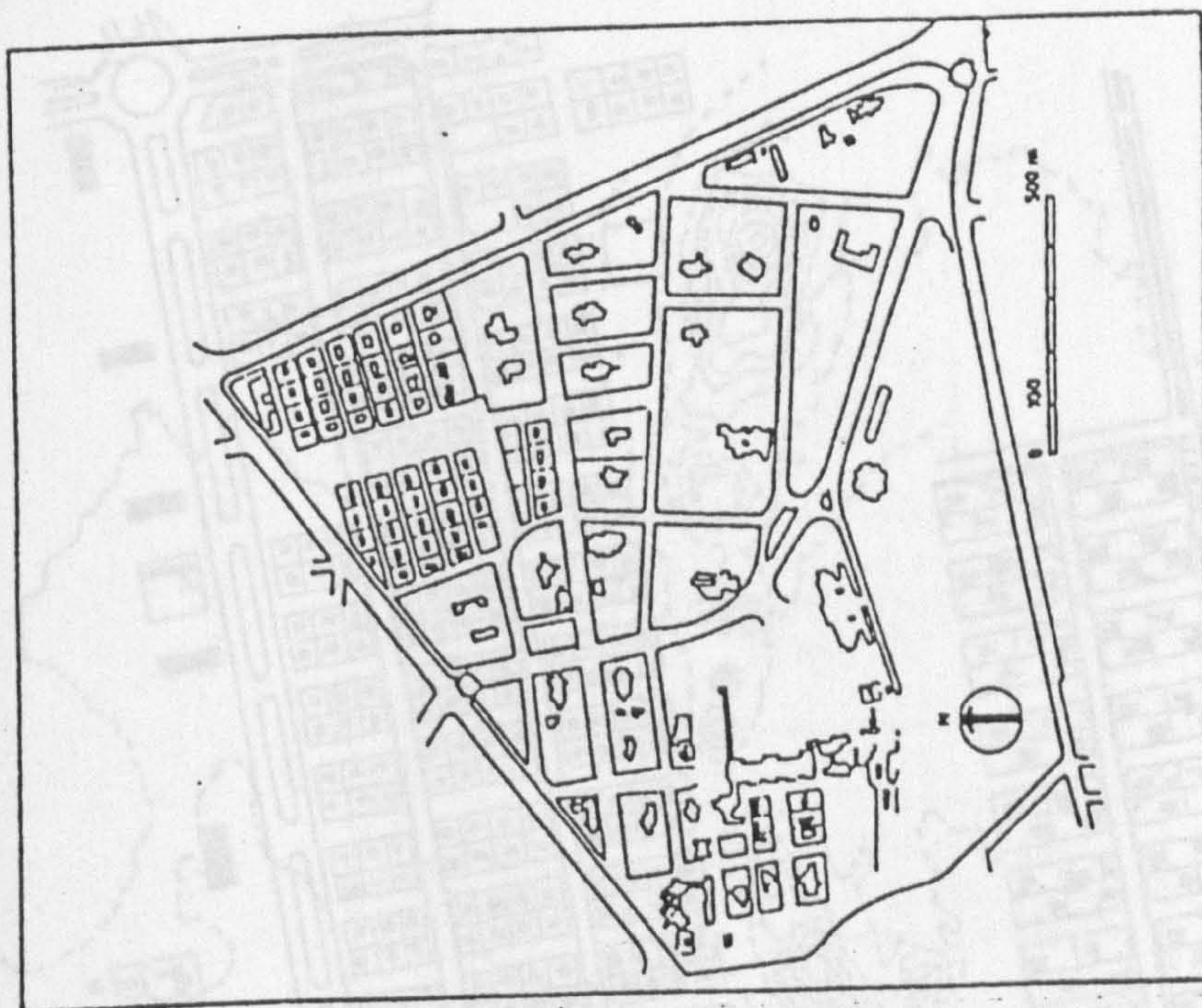


Fig 9-1  
 AL-MURABB, RIYADH  
 Source: Al Hathloul, 1986(14).



الرياض - الناصرية

Fig 9-2  
 AL-NASRIYAH, RIYADH  
 Source: Al Hathloul, 1986(14).



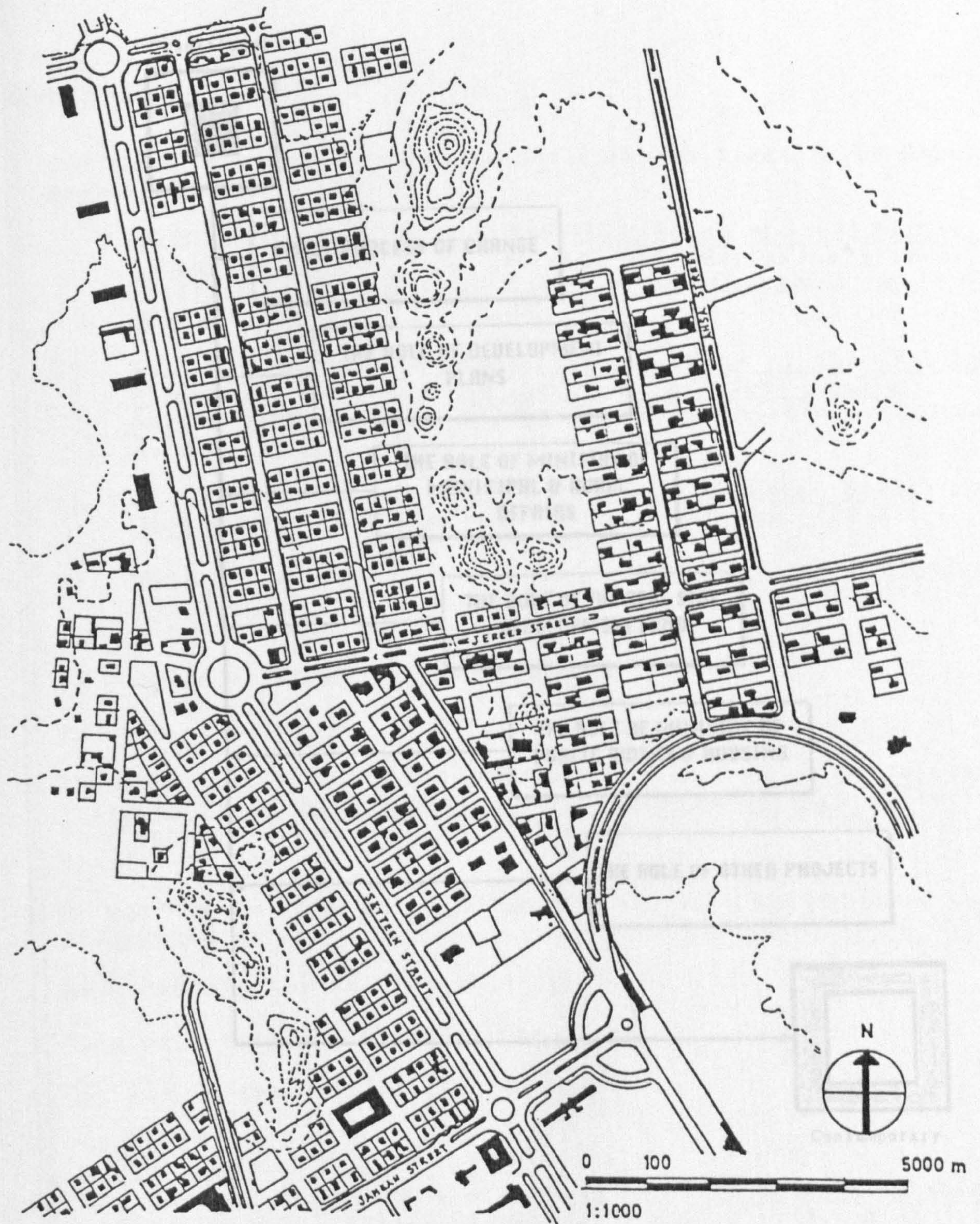


Fig 9-3

AL MALAZ, RIYADH

Source:

Al Hathloul, 1986<sup>(14)</sup>.



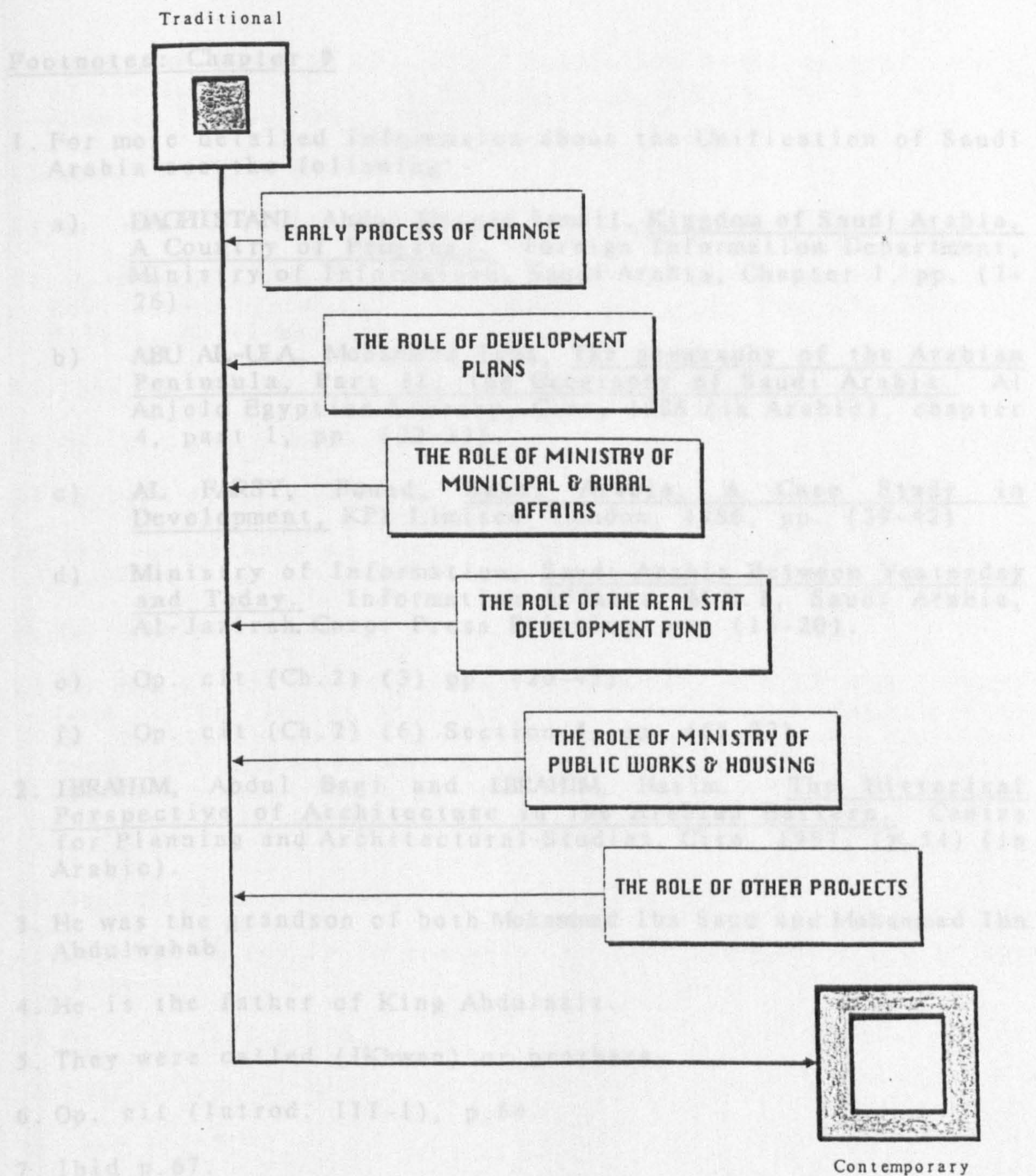


Fig 9-4

CHANGES TOWARD CONTEMPORARY  
(The different factors).

Source:

Author (A.S. Alafghani).



### Footnotes: Chapter 9

1. For more detailed information about the Unification of Saudi Arabia see the following:-

- a) DAGHISTANI, Abdul-Majeed Ismail, Kingdom of Saudi Arabia, A Country of Progress. Foreign Information Department, Ministry of Information, Saudi Arabia, Chapter 1, pp. (7-26).
  - b) ABU AL-ULA, Mohamood Taha, The geography of the Arabian Peninsula, Part II, the Geography of Saudi Arabia. Al Anjelo Egyptian Library, Cairo, 1986 (in Arabic), chapter 4, part 1, pp. (32-33).
  - c) AL FARSY, Fouad, Saudi Arabia, A Case Study in Development, KPI Limited, London, 1986, pp. (39-42).
  - d) Ministry of Information, Saudi Arabia Between Yesterday and Today. Information Affairs, M.O.I, Saudi Arabia, Al-Jazirah Corp. Press Printing, pp. (16-20).
  - e) Op. cit (Ch.2) (3) pp. (20-45).
  - f) Op. cit (Ch.2) (6) Section 4, pp. (65-92).
2. IBRAHIM, Abdul Bagi and IBRAHIM, Hazim. The Historical Perspective of Architecture in the Arabian Eastern. Centre for Planning and Architectural Studies, Cairo, 1987, (p.54) (in Arabic).
3. He was the grandson of both Mohammad Ibn Saud and Mohammad Ibn Abdulwahab.
4. He is the father of King Abdulaziz.
5. They were called (IKhwan) or brothers.
6. Op. cit (Introd. III-1), p.64.
7. Ibid p.67.
8. GADI, Omar A. and Ibrahim, H.M. City Planning in Saudi Arabia, Saudi Arabian Printing Company, Riyadh, 1981, p.34 (in Arabic).
9. Op. cit (6) p.68.
10. Op. cit (8) p.36.



11. MUSAILHI, Fathi M. Urban Development and Architectural growth of the Saudi Cities. AL Madinat Al Arabiyyah, No. 17, Vol. 4, Arabian Cities Organisation, Kwait, 1985, p.63.
12. Op. cit (6) p.70.
13. Op. cit (8) p.34.
14. AL-HATHLOUL, Saleh. Development of the Contemporary Physical Environment in Riyadh. ALBENAA Magazine, No. 28, Vol. 5, Riyadh, April-May 1986, p.49.
15. Ibid pp. 48-51.
16. Op. cit (6) p.81.
17. Op. cit (1-a) p.29.
18. The inhabitants of the settlement were known as the Ikhwan (see 9.1).
19. Op. cit (17) p.44.
20. In one of the interviews in Old Jeddah, Shaikh Ahmed Osabi (one of the old citizens who still lives there), explained to me that there used to be three types of water; the first one from the condenser for drinking, the second one from the masonry cistern which is rain water for the kitchen washing, and the third type from the sea directly for the use of the toilets.
21. Wadi Fatima is located to the north of Makkah.
22. Hanifah Valley is to the western north and west south of the Capital.
23. Op. cit (17) p.125.
24. Ibid p.219.
25. Ibid p.219.
26. PUBLIC Relation Administration, Land and Sea Transportation Ministry of Transportation, Saudi Arabia, 1982, p.48 (in Arabic).
27. Op. cit (17) p.226.
28. JEDDAH municipality, Jeddah, the Bride of the Red Sea, Development and Urbanisation, Al Dar Alarabiyyah for Encyclopedias, Cairo, p.412 (in Arabic).



29. Ibid. p.453.

30. For more information about (SCECO) see the following:

- a) ELECTRICITY Corporation, Ten Years of Progress, 1976-1986. Riyadh, Saudi Arabia.
- b) SAUDI Consolidated Electric Company Central Region, Annual Report 1406 H. National Offset Printing Press, Riyadh.
- c) SAUDI Consolidated Electric Company Central Region, On the way of Achievement, Facts and Figures, 5 Years of the Company Life. Al Izdihar Printing, Riyadh (in Arabic).

31. Op. cit (28) p.310.

32. Op. cit (17) p.227.

33. Ibid. p.237.

34. Ibid. p.236.

35. Ibid p.235.

36. Op. cit (28) p.242.

37. Op. cit (17) p.133.

38. Ibid p.134.

39. Ibid p.138.

40. Op. cit (intro III-3), p.178.

41. Op. cit 917) p.142.

42. DIRECTORATE General for the Development of Higher Education, Statistical Index on Progress of Higher Education from 1969/70 to 1983/84. Issue No. 2, Ministry of Higher Education, Saudi Arabia, 1985, p.3.

43. Ibid p.4.

44. TAGORE, Rabindranath, Al Sulaiman Palace, Jeddah, Mimar Magazine, No. 1, Singapore, 1981, p.54.

45. Op. cit (17) p.180.

46. CENTRAL Department of Statistics. Statistical Year Book Issue 23, 1987. Ministry of Finance and National Economy, Saudi Arabia, (pp. 475-521).

47. THE ARABIC Institute for Cities Development. Housing in Saudi Cities. Al Madinat Al Arabiyyah No. 28. Kwait, 1987, p.18.



## CHAPTER 10

### THE ROLE OF THE FIVE-YEAR DEVELOPMENT PLANS

#### 10.1 HISTORY

#### 10.2 THE FOUR FIVE-YEAR DEVELOPMENT PLANS

#### 10.3 THE FIRST DEVELOPMENT PLAN (1970-1975)

##### 10.3.1 MUNICIPALITIES

##### 10.3.2 HOUSING

#### 10.4 THE SECOND DEVELOPMENT PLAN (1976-1980)

##### 10.4.1 MUNICIPALITIES

##### 10.4.2 HOUSING

#### 10.5 THE THIRD DEVELOPMENT PLAN (1981-1985)

##### 10.5.1 MUNICIPALITIES

##### 10.5.2 HOUSING

#### 10.6 THE FOURTH DEVELOPMENT PLAN (1986-1990)

##### 10.6.1 MUNICIPALITIES

##### 10.6.2 HOUSING

#### 10.7 THE DEVELOPMENT PLANS ASSESSMENT



## 10 THE ROLE OF THE FIVE-DEVELOPMENT PLANS:

Urban Development in Saudi Arabia is a response to economic and social changes which are largely stimulated by government policies and programs<sup>1</sup>. Saudi policymakers sized the opportunity of capital availability in unprecedented quantities and, during the 1970's, launched some of the most ambitious development plans the developing world has ever known<sup>2</sup>.

### 10.1 HISTORY

A supreme planning board was established in 1960. It was replaced by the Central Planning Organisation (CPO) in 1964 in accordance with the Council of Ministers Resolution No. 430<sup>3</sup>. This resolution sets out the CPO's basic functions and objectives. Articles of the Resolution reads:-

The said Organisation (CPO) shall be charged with the following functions:

- (a) To prepare a periodic economic report on the Kingdom, containing an economic analysis and showing the scope of progress achieved and prospective developments.
- (b) To prepare economic development plans, provided that the first plan be a five year plan and be approved by the Council of Ministers before being put into effect.
- (c) To conduct economic studies required for relevant projects and to submit its recommendations thereon.
- (d) To assist Ministers and independent agencies in their planning affairs.
- (e) To submit technical advice on matters raised by His Majesty the King.

In 1975, the Central Planning Organisation was transformed into The Ministry of Planning<sup>4</sup>. (Fig 10-1)



## 10.2 THE FOUR FIVE YEAR DEVELOPMENT PLANS<sup>5</sup>

1390-1410 AH.                      1970-1990 AD.

Planning implies the efficient use of a country's resources in accordance with certain nationally-determined priorities. The country's development plan essentially reflects its fundamental values and principles.

### Development Goals:

The fundamental values and principles which guide Saudi Arabia's balanced development are expressed in the following goals:-

- \* Maintain the religious and moral value of Islam.
- \* Assure the defence and internal security of the Kingdom.
- \* Maintain a high rate of economic growth by developing economic resources, maximising earnings from oil over the long-term, and conserving depletable resources.
- \* Reduce economic dependence on export of crude oil.
- \* Develop human resources by education, training, and raising standard of health.
- \* Increase the well-being of all groups within the society and social stability under circumstances of rapid social change.
- \* Develop the physical infrastructure to support achievement of the above goals.

The goals are elaborated and placed within the context of Saudi Arabia's internal policies which are summarised in the following:-

#### 1. High Rate of Economic Growth.

The human and natural resources which God has given the Kingdom will be efficiently used to maintain a high rate of economic growth and to reduce the country's dependence on a single depletable asset, oil.

#### 2. Development of Human Resources.

All the people of Saudi Arabia will have access to educational and training facilities at all levels, and health services will be provided throughout the Kingdom. Education and training (free of charge at all levels) will continue to expand and improve in quality.

#### 3. Social Well-being.

Social services will be developed to ensure that every group and individual, however disadvantaged, enjoys an adequate, dignified minimum standard of living; levels above this



minimum will continue to be the reward of individual effort and achievement.

4. Physical Infrastructure.

The Government will continue to expand and improve the physical infrastructure (transportation, communications, municipalities and housing) as required to support achievement of the above economic and social policies.

5. Economic Freedom Within Social Welfare.

The economic system of Saudi Arabia is based on the principles of free economy where a substantial part of the production and distribution of goods and services is left to individuals and groups enjoying freedom in their dealing of transactions. While the Government will uphold the market system and encourage the private sector to play a fundamental role in the accelerated growth and development of the country.

For the purpose of this study, the following four sections will illustrate the related objectives of the five-years plans in the Municipal and housing sections in the Kingdom of Saudi Arabia.

### 10.3 THE FIRST DEVELOPMENT PLANS<sup>6</sup>

1390-1395 (1970-1975)

This was the first plan issued by the Government to administrate and direct the general development of the country. It was a unique plan since it was the first trial in this area<sup>7</sup>. This plan was produced by the Central Planning Office.

#### 10.3.1 Municipalities<sup>8</sup>

The objectives and targets of the plan included the following:

1. Continuation of asphaltting streets, paving sidewalks, planting trees where practicable and opening streets where traffic conditions warrant the step; emphasis would be given to improvement in traffic flow and reduction of dust. By the end of period, major arteries in large and small communities would be paved; in major and small cities, only back roads would remain unpaved.
2. Expansion of street lighting to include all asphalted roads in all municipalities as well as major unpaved roads throughout the Kingdom. Almost complete coverage of the road system was expected by the end of the program period.
3. Completion of municipality requirements for urgent construction by the end of the plan such that each



municipality will have a municipal building, a slaughter-house, a meat and vegetable market, and, where required, a municipal garage.

4. Completion, as far as possible, of sewerage systems for major cities and important towns in the Kingdom that are in urgent need for these systems.
5. Completion of storm water drainage systems for certain major cities.

### Financial Allocation

The recurrent allocations proposed by the Department of Municipalities for the period total SR 1,037 million and the project allocations for the same period total SR 1,884 million. (Table 10-1)

### Situation and Achievement at the end of the First Plan<sup>9</sup>

The conditions of the Municipalities at the end of the period of the plan could be summarised in the following:

1. The number of settlements endowed with municipality status rose from 54 to 85, with the addition of 16 communities in 1394-95.
2. A number of other municipal facilities - including public parks, public toilets, wind screens, and flood prevention works, were also implemented according to the first plan schedule.
3. Several studies were either initiated or completed in the years of the first plan. These include:
  - (a) Physical studies for all five regions, including master plans for their principal cities.
  - (b) A master plan for the city of Riyadh.
  - (c) Beautification studies and final designs for the cities of Makkah, Medina, Jeddah and Taif.
  - (d) Study and design of public parks in 11 major cities.

### 10.3.2 Housing<sup>10</sup>

The general objectives of the plans for the housing sector were as follows:

1. The improvement of housing conditions where they were falling below required social and health standards.
2. Raising the standards of housing of the lower income groups.



## Financial Allocations

Thirty million Saudi Riyals were allocated for the execution of the program of the housing sector during the first plan.

Situation and achievements at the end of the First Plan.

Significant progress has been made since 1390 (1970) in the development of institutions to express and organise the public interest in housing. These could be summarised in the following:

1. General Housing Department:

This department was organised in 1391 (1971) under the Ministry of Finance and National Economy. This department has implemented a public housing program<sup>11</sup>.

2. The Real Estate Development Fund:

This fund has been empowered to lend to individuals and corporate entities who want to build or purchase housing to enter into joint agreements with municipalities for the development on the construction of housing for their employees<sup>12</sup>.

3. Studies:

A series of studies had been undertaken to determine residential building needs in the period of the first plans as summarised below:

(a) Studies completed for the General Housing Department in 1392 (1972) indicated a need for 324,000 urban dwelling units to be constructed in 1395-1400.

(b) Five regional social-economic studies for the Central Planning Organisation indicated that the Kingdom's urban housing needs for the second development plan period will be approximately 329,000 units.

## 10.4 THE SECOND DEVELOPMENT PLAN<sup>13</sup>

1395-1400 (1975-1980)

This second plan was the first plan produced after the establishment of the Ministry of Planning.

### 10.4.1 Municipalities<sup>14</sup>

The objectives of the second plan for municipal development were as follows:

1. Making cities, towns and villages healthier, more comfortable, more enjoyable and less costly places in which to live, work



- and travel.
- 2. Improving the efficiency of cities, towns and villages as the locations for trade, industry and services.
- 3. Classifying and operating municipalities under four categories (A, B, C and D).
- 4. Completing different projects in the different municipalities in the Kingdom. (Table 10-2)

### Financial Allocation

The recurrent allocations proposed by the Department of Municipalities for the period of the second plan total S.R. 7,190 million and the project allocations for the same period total S.R. 46,137.8 million. (Table 10-3)

### Situation and achievement at the end of the Second Plan<sup>15</sup>

The Ministry of Municipal and Rural Affairs, had made substantial progress in extending and improving municipal services in the cities and villages of the Kingdom. Out of the total number of 1,995 approved projects, 506 concern land expropriation of which 480 or 95% had been implemented.

Out of the remaining 1,489 projects approved by the Ministry, 1,201 or 81% were completed. Another 77 projects (5%) were more than one-fourth finished; and only 211 projects were in the initial stages of construction or had not moved from the planning to the execution stage. (Table 10-4)

### 10.4.2 Housing<sup>16</sup>

The general objectives of the plan for the housing sector were as follows:

- 1. To enable every household in the Kingdom to have a decent safe, and sanitary dwelling of a standard consistent with its level of income.
- 2. To ensure that enough housing, both permanent and temporary, is built during the plan period to accommodate the additional manpower needed to implement the plan.
- 3. To develop housing within orderly urbanisation patterns, that accord with the employment, social, and environment requirements of residential settlements.



4. To develop the institutional capability and financial and legal structures needed to implement and support a continuing effort of housing development.

The targets for housing construction set for the period of the second plan are summarised in (Table 10-5).

#### Financial Allocation:

The total allocation for the housing requirements in the second plan was 14,263 million Saudi Riyals. (Table 10-6)

#### Situation and achievements at the end of the Second Plan<sup>17</sup>

At the beginning of the second plan an acute shortage of housing had developed which led to a rapid increase in construction and rental costs. In response, during the plan period the rate of house construction averaged more than 40,000 units per year compared to 17,500 units per year during the First Plan. This resulted in the construction of over 200,000 new dwellings. (Table 10-7)

### 10.5 THE THIRD DEVELOPMENT PLAN<sup>18</sup>

1400-1405 (1980-1985)

The Third Plan was the plan of the eighties.

#### 10.5.1 Municipalities<sup>19</sup>

The following objectives were the main targets of the plans:

1. To promote better health, welfare and general improvement of the living conditions of Saudi citizens in urban and rural areas through the provision of basic infrastructure, municipal services and housing.
2. To develop commercial, industrial and residential potential of those cities and towns designated as being of national, regional or district importance.
3. To ensure that all Saudi households have access to adequate residential accommodation at reasonable costs.
4. To consolidate the organisational and administrative structure of municipal and rural services sectors.



5. To operate and maintain existing and planned municipal systems effectively so that citizens receive services in entirely and economical manner.

The principal concern of the municipal and rural services program was the planning, design, construction, operation and maintenance of the majority of urban public utilities in the Kingdom's cities, towns and villages. It was anticipated that by the end of the Third Plan nearly all municipalities and villages would have water and sewerage systems plus a substantial number of paved roads. (Table 10-8)

#### Financial Allocation

To implement the program planned for physical infrastructure development, the financial allocations were total S.R. 247,344.3 million. (Table 10-9)

#### Situation and achievements at the end of the Third Plan<sup>20</sup>

During the Third Plan, the most dramatic transformation of urban areas in the Kingdom passed its peak, the demand for community infrastructure and commercial and residential spaces had become widely satisfied. Substantial improvements were made throughout the Kingdom in the quality and quantity of municipal infrastructure. Communities were provided with many new parks, abattoirs, and other facilities. Environmental improvement and public sanitation programs contributed to improvements in the functional quality of new construction. Over 300 major infrastructure projects at the municipal level were completed and over 600 construction projects at the national level were supervised. (Table 10-10)

#### 10.5.2 Housing<sup>21</sup>

The following are the objectives and target of the Third Plan in the housing section:

1. The completion of the housing requirement for the Plan period which was approximately 730,000 units. This included units



for new household formations, those needed as replacements for substandard construction as well as replacement needed due to fire, deterioration and demolition.

2. The development of housing so that each Saudi citizen would have a house.
3. The continuation of construction of Public housing and finance programs throughout the Plan period. (Table 10-11)

### Financial Allocation

For this Plan period the financial allocation for the residential section was S.R. 14,621 million for loans.

### Situation and Achievement at the end of the Third Plan<sup>22</sup>

The target deviation from the Third Plan targets was in public employee housing and publicly financed housing. In total, the Third Plan target was exceeded by 170,600 units. Most of the excess housing was constructed in the major cities and resulted in high vacancy rates. (Table 10-12)

## 10.6 THE FOURTH DEVELOPMENT PLAN<sup>23</sup>

1405-1410 (1986-1990)

This plan is the latest Plan which has been published and it represents the strategy of the Government for the last five years.

### 10.6.1 Municipalities<sup>24</sup>

The Government's main objectives in the field of municipal and public works are:

- To improve the standards of work throughout the construction industry.
- To provide a more equitable distribution of municipal infrastructure and services throughout the Kingdom.
- To plan and co-ordinate with other ministries and agencies the spatial development of localities and regions.
- To improve the economic efficiency of municipal infrastructure and services.
- To implement the Building Code Program.

This program would be carried by the Deputy Ministry of Public



Works to develop and enforce a building code for all housing construction. The Ministry of Municipal and Rural Affairs would enforce all regulations through its municipalities.

#### Financial Allocation

The total financial allocation for the implementation of the target project during the Plan period was total S.R. 63,500 million. (Table 10-13)

#### 10.6.2 Housing<sup>25</sup>

The main objectives of the Plan in the Housing section are as follows:

1. To provide appropriate, safe and sanitary housing for all Saudis.
2. To increase home ownership by Saudis.
3. To raise housing standards in rural areas.
4. To make public housing available to low income Saudis.
5. To provide subsidised loans on a selective basis for the construction of housing by Saudis.
6. To develop and enforce strict building codes for housing construction.
7. To limit the construction of public housing to cases of special need or to areas requiring additional housing.

#### Financial Allocations

The total financial allocation was S.R. 3,828.0 million. (Table 10-14)

#### 10.7 THE DEVELOPMENT PLANS ASSESSMENT

It is clear that the intension of the Government was to control development in the country. This came as a result of the economical growth of the Kingdom after the discovery of oil and the urgent need to accommodate new facilities and infrastructure to cope with the new industry.

Development in the Kingdom of Saudi Arabia and the determination of its people to achieve still higher level of moral and material



well-being cannot be adequately measure in terms of conventional indicators. Indeed, the Kingdom has achieved more in twenty years than most nations have in as many decades.

The main goals of the Development Plans are concerned with the maintaining of religious values of Islam. This besides the ability to provide the environment in which the Saudi citizens could preserve their moral and traditions.

Indeed, when the ground work of the First Development Plan was begun, the horizons of planning were already widely set to include the distant vistas along the way to 1420 (2000). At that time it was thought it would take some thirty years to realise all the goals the state had outlined<sup>26</sup>.

The Development in Saudi Arabia is a process in which all different agencies work together to speed and to direct this process. The different stages of the development could be classified by the number of the plans. So, until now we have four stages<sup>27</sup>:

1. The First Plan:

It was characterised by the simplicity of preparing the plan. There was concern about directing quantities.

2. The Second Plan:

It was characterised by construction and laying the basic infrastructure. This was to help in raising production and to widening the economical basis.

3. The Third Plan:

It was characterised by many studies to stimulate the actual needs and the direct income in its needed area.

4. The Fourth Plan:

It was characterised by the encouragement of production on other items than the oil, especially when all infrastructures had been completed.

The Development Plans of the Government were based on simple economical competition. The economical development would lead to increase in production, and the production level is much greater than the population growth, this would lead to the



increase of individual income. Consequently, this would raise the level of living standards<sup>28</sup>.

The measurement of high living standard could be measured by the following<sup>29</sup>:

- A. The improvement in material statutes:
  - 1. Improvement in housing level.
  - 2. Improvement in individual resources (income).
  - 3. Improvement in utilising local resources.
  - 4. Improvement in saving the local resources.
- B. The improvement in the health statutes:
  - 1. Improvement in the medical services.
  - 2. Improvement in the reduction of the human loses.
  - 3. Improvement in the environmental protection.
- C. The improvement in the education statutes:
  - 1. Improvement in the educational services.
  - 2. Improvement in the research section.
  - 3. Improvement in the cultural level.
- D. The improvement in the personal statutes:
  - 1. Improvement in family relations.
  - 2. Improvement in work choices.
  - 3. Improvement in the society in terms of reducing criminal incidents.

It could be seen through observation that these standards are at different levels. No one could say that Saudi Arabia achieved its goals in the development just by issuing the development plans. Through the illustration of the previous section which shows the great concern of the plans to the improvement of the municipal services and the housing construction, it is clear that the material status have been improved. It could be seen all around the country, new roads and many other facilities were installed. Also, the Housing projects and the construction of private houses is going on all over the country. What we need to assess here is the huge gap between the main goals of the plans which are concerned with the religious traditions of the country and with the final production of most projects which stand now as a witness of this gap. The final production could be summarised as ignoring the climatic and traditional characteristics of the country. The following chapter will discuss these elements in much detail.



The other point regarding the Plans is the consultation by the foreign firms which could be related to whatever the Saudi Agencies now regulate its work with the western regulations. For example the plans emphasise the Building Codes and Regulations, those regulations which are a copy of the western codes which does not suit the Saudi environment and needs.

The situation of the Ministry of the Planning as any other Ministry in the Council of Ministries is weakening its role in observing the implementation of the plans targets. What could be proposed is the Ministry of Planning to be at a higher level above other ministries to review the work of other agencies. Also the role of the Ministry of Planning should exceed the proposing of plans to the review and the evaluation of the plans and finally the publication of the negative side and defining the problems associated as resulted from the plans implementation. The Ministry of Planning has to widen its consultation with the local consultation facilities which have much more knowledge of the country's needs.







Table 10-6 FORECAST OF THE GOVERNMENT FUNDING REQUIRED TO IMPLEMENT THE HOUSING PROGRAM (2ND PLAN)

Source:	Second Plan (5), p. 518.				
	1395-96	1396-97	1397-98	1398-99	Plan Total
Private sector	-	364.0	797.0	1,540.0	2,440.0
Public sector	168.0	182.0	700.0	2,100.0	4,200.0
Housing Serviced plots	-	88.0	204.0	456.0	1,024.0
Total*	168.0	634.0	1,701.0	4,096.0	7,664.0
					14,263.0

\* Based on average costs per unit — including land, land development, and building construction (where applicable) — of SR 166,000 for private-sector housing, SR 140,000 for public-sector housing, and SR 40,000 for serviced plots.

Table 10-7 SECOND PLAN HOUSING ACCOMPLISHMENTS (2ND FLOOR)

Source:	Third Plan (5), p. 441.			Percent Achieved
	Second Plan Target	Second Plan Achievements		
Permanent Housing				
Public	52,500	53,600(1)		102
Private	122,100	150,000		123
Temporary Housing				
Project Housing	51,000	51,000		100
Total	225,600	254,600		113

(1) Including Government agency housing.

Table 10-8 MUNICIPALITIES BUILDING PROJECTS (3RD PLAN)

Source:	Third Plan (5), p. 447.						
	Central	Western	Eastern	Northern	Southwestern	Not Specified	Total
Buildings							
Municipality buildings	36	37	17	20	39	6	155
Garages	6	4	6	2	7	-	25
Mortuaries	29	27	16	22	20	-	114
Commercial space	40	38	43	22	41	-	184
Warehouses & maintenance depots	11	19	8	8	9	-	55
Slaughter houses	6	13	4	17	9	-	49
Public toilets	7	297	11	-	3	-	318
Laboratories	-	-	-	1	-	-	7
Total	135	435	105	92	128	12	907

Table 10-9 FINANCIAL REQUIREMENTS: PHYSICAL INFRASTRUCTURE DEVELOPMENT (3RD PLAN)

Source:	Third Plan (5), p. 433.		
	Recurrent	Project	Total
Sector Components			
Transport and Communications	27,725.8	115,292.3	143,018.1
Municipal and Residential Development	18,836.9	85,489.3	104,326.2
Total	46,562.7	200,781.6	247,344.3(1)

Table 10-10 COMPLETION TO MUNICIPAL PROJECTS (3RD PLAN)

Source: Fourth Plan (5), p. 406.

Program	Approved Projects	Projects at Various Stages of Completion		
		100 %	25-99 %	0-25 %
Buildings	85	34	41	10
Public Utilities	299	144	125	30
Other Construction	54	18	29	7
Studies	29	9	16	4
Land Acquisition	139	139	0	0
Total	606	344	211	51

Table 10-11 HOUSING CONSTRUCTION (3RD PLAN)

Source: Third Plan (5), p. 431.

Public Sector	Dwellings	Serviced Plots
Ongoing villas and apartments	12,601	
Riyadh rush housing apartments	1,152	
Special villas project	2,100	
New housing program	10,000	
Special housing project	7,000	
Government agencies' employees housing	53,300	
Serviced plots scheme	86,153	14,800
Subtotal		14,800
Private Sector		
REDF personal loans	98,000	
REDF investment loans	5,000	
Other investment	5,000	
Non-REDF construction	73,000	
Subtotal	181,000	
Total	267,153	14,800



Table 10-12 HOUSING COMPLETION (3RD PLAN)

Source: Fourth Plan (5), p.411.

Housing Type	Housing Units		Deviation From Target	Share of Third Plan Supply (Percent)	Fourth Plan Target (Number)
	Target	Actual			
Public Sector (total)	86,200	139,400	62	32	75,000
Low-income	32,900	17,800	-46	4	7,800
Public employee	53,300	121,600	128	28	67,200
Private Sector (total)	181,000	298,400	65	68	210,000
Publicly financed	103,000	195,000	89	44	150,000
Privately financed	78,000	103,400	33	24	60,000
Total	267,200	437,800	64	100	285,000

Table 10-13 MUNICIPAL AND PUBLIC WORKS EXPENDITURES (4TH PLAN)

Source: Fourth Plan (5), p.409.

Ministry of	Programme	Fourth Plan Total (SR million)	
		Target	Actual
Ministry of Internal and Rural Affairs	Water	11,185	12,079
	Sewage	1,216	536
	Rainwater Drainage	448	4,301
	Flood Control	9,277	379
	Markets	38	768
	Public Utilities	22,103	61,400
	Municipal Streets		
	Government Buildings		
	Environmental Improvement		
	Planning		
	Training		
	Others		
	Sub-total		
Deputy Ministry of Public Works	Management and Administration	600	18
	Operation and Maintenance	357	125
	Ongoing Construction	1,100	63,500
	Development and Consultancy		
	Sub-total		
Total			

Table 10-14 HOUSING PROGRAMME EXPENDITURES (4TH PLAN)

Source: Fourth Plan (5), p.414.

Deputy Ministry of Housing	Fourth Plan Total (SR million)	
	Target	Actual
Management and Administration	190.0	238.0
Operation and Maintenance	3,338.6	61.4
Housing Construction		
Pilgrim facilities in Mina		
Total		

\* The housing related expenditures of the Deputy Ministry of Public Works, the Central Department of Statistics, the Real Estate Development Fund, and other public agencies are presented in previous sections and chapters that discuss in detail the activities of those agencies.

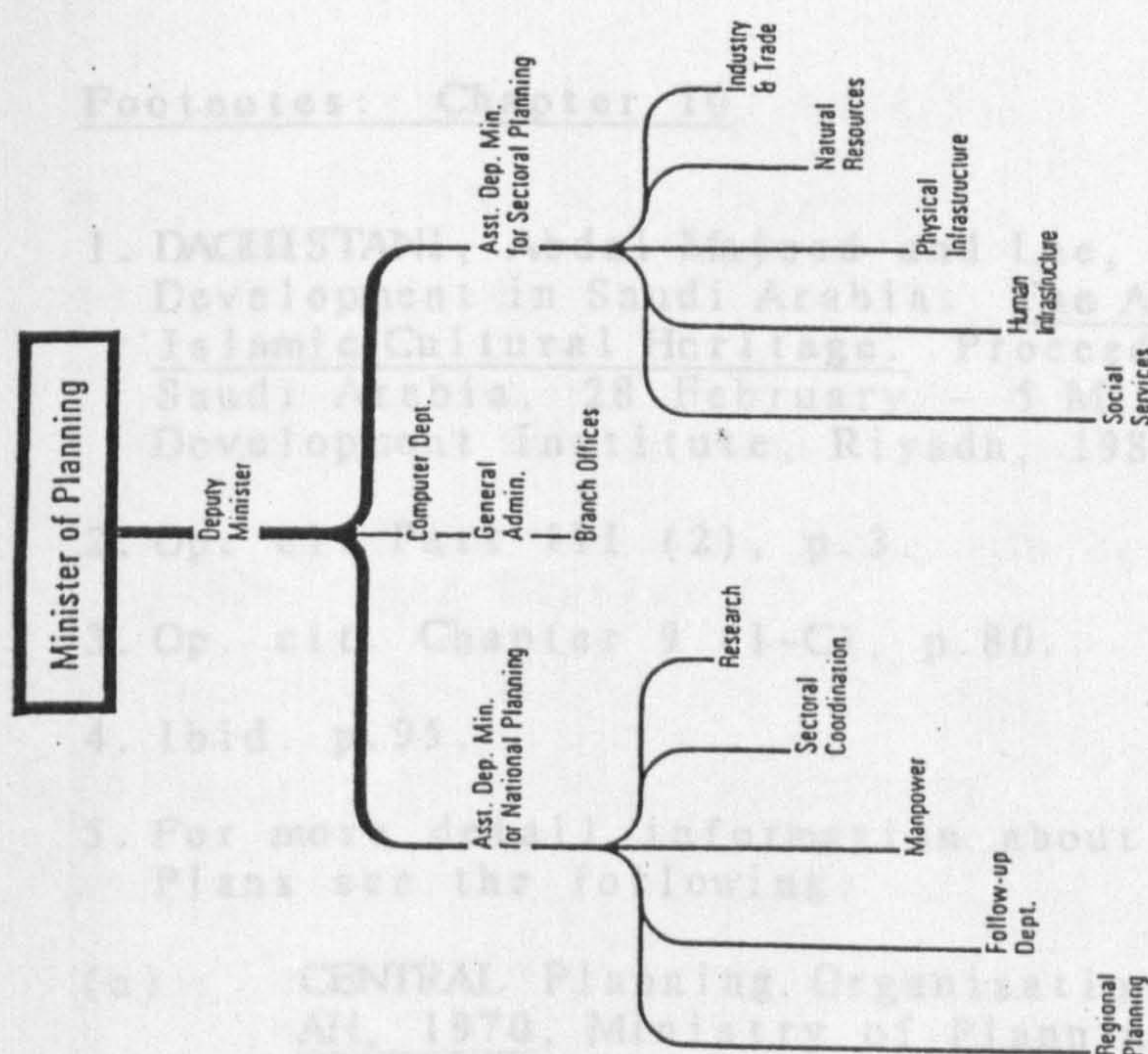


Fig 10-1 MINISTRY OF PLANNING

Source: Al-Farsy, F. 1982 p.81.



Footnotes: Chapter 10

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  - (b) MINISTRY of Planning, Second Development Plan, 1395-1400, 1975-1980 AD. Ministry of Planning, Riyadh.
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  - (g) MINISTRY of Planning, Summary of Saudi Arabia Third Five Year Development Plan, (1400-1405, (1980-1985)). Second Edition, Tihamah Publication, Jeddah 1982.
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8. Op. cit (5-a), p.p. (184-188).
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10. Op. cit (5-a) p.p. (174-175).
11. For more information about The Department of Housing (The Ministry of Public Works and Housing) see Chapter 13.
12. For more information about the Real Estate Development Fund (REDF), see Chapter 12.
13. Op. cit (5-b).
14. Op. cit (5-b) p.p. (493-507).
15. Op. cit (5-c) p.p. (436-443).
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18. Op. cit (5-c).
19. Op. cit (5-c) p.p. (443-448).
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## CHAPTER 11

### THE ROLE OF THE MINISTRY OF MUNICIPALITIES AND RURAL AFFAIRS (MOMARA)

#### 11.1 HISTORY

#### 11.2 REGULATIONS

##### 11.2.1 ZONING REGULATIONS

##### 11.2.2 SUBDIVISION REGULATIONS

##### 11.2.3 BUILDING BOUNDARIES FOR THE SAUDI CITIES

#### 11.3 (M.O.M.A.R.A.) ASSESSMENT



## 11. THE ROLE OF THE MINISTRY OF MUNICIPALITIES AND RURAL AFFAIRS (M.O.M.A.R.A)

(MOMARA) is one of the important agencies in the Government organisation which takes care of the urban and rural areas in the Kingdom. The Ministry administers all municipalities and rural centres in the country. For the purpose of this study, this chapter will look at the role of the Ministry in the building regulations and its affects on the form of houses.

### 11.1 HISTORY

This is a historical illustration about the development of the organisation and some main events which have had relation to the development of regulations which are shaping the built environment in Saudi Arabia.

-1880th. (1300th).

It was "ALMUHTASIB", who used to be responsible for the city. He used to control and permit buildings in the city. This was in the cities of Jeddah, Makkah and Medinah. This organisation was called "Al Husbah"<sup>1</sup>.

-1880th. (the beginning of the 14th Century).

"Al Husbah's were transformed into Municipalities in the three cities of Jeddah, Makkah and Medina. The responsibility of those Municipalities was to control the buildings and to take care of health. Also cleaning and inspection was their duties. Jeddah Municipality at that time had only 7 people for its staff plus the head of the Municipality. From those seven there was one doctor and one engineer<sup>2</sup>.

-1933 (1352)

The establishment of the first Municipality in Riyadh<sup>3</sup>.

-1937 (1357)

"Nizam Amanat Al-Asimah Wa Al-Baladiyyat" (The Statue of the Capital Municipality and other Municipalities). This statue was based on the Royal Decree No. 8728, dated 20/7/1357<sup>4</sup>. It was the first step which lead to Urban Planning in Saudi Arabia. It had designated the duties of Municipalities which could be summarised in the supervision of the cities and the allocation of lands from different uses, also the protection of public areas and roads from any action that leads to harming people.



-1937 (1357)

The planning of the city of AlKhobar in the Eastern Province of the country<sup>5</sup>. The growth of the oil industry in the Eastern Province led to the growth of its urban centres, such as Khobar and Dammam. Khobar was the first city in the Kingdom in which the whole city was based on a grid plan. The whole city was organised to be the modern city in the Kingdom. It was the first city in which traditional buildings (they were considered old) were demolished to clear the way for the new planning scheme.

-1939 (1359)

The issue of "Statue of Emarits and Provinces"<sup>6</sup>. This statue defined the kingdom into many provinces, each province is called "An Emarah". Each Emarah lead by an Amir who is in charge of it. Each province has many municipalities which takes care of the land development.

-1941 (1360)

The issue of "Nizam Al Torug Wa Al-Mabani" (The Statue of Roads and Buildings)<sup>7</sup>. It reflected the overview of the government at that time about city planning. The statue was concerned about planning procedures, building regulations, land use and rights of roads.

-1942 (1361)

The establishment of Al Khobar Municipality<sup>8</sup>. It was according to King Abdulaziz order in 1361 the need for a municipality was urgent with the rapid growth of the area.

-1952 (1373)

The transfer of the centre of the Eastern Province from Al-Hufuuf to Al-Dammam<sup>9</sup>. This also lead to the planning of Dammam with the Grid system.

-1953 (1373)

The Municipality of Riyadh is transformed into Amanat Al Riyadh<sup>10</sup>.

-1970 (1390)

The division of the Kingdom into five planning areas: Northern, Western, Middle, Eastern and Southern<sup>11</sup>. This was with the beginning of the five-year development plans of the Kingdom.

-1971 (1391)

The submission of the first plan for Riyadh<sup>12</sup>.

-1972 (1392)

The planning of the Western Province<sup>13</sup>.

-1973 (1393)

The approval of the plans of Riyadh by the Council of Ministers<sup>14</sup>. This plan confirmed the previous planning system



(the grid system). This plan of Riyadh stated the two main elements for modern development in Saudi Arabia, the grid network of roads and the villa with its setbacks.

-1973 (1393)

The planning of the Eastern province<sup>15</sup>.

-1974 (1394)

The planning of the Southern province<sup>16</sup>.

-1974 (1394)

The establishment of "the High Committee for the Development of Ar-Riyadh"<sup>17</sup>. This was in recognition of the importance of the development of Ar-Riyadh, due to its position as national capital.

-1975 (1395)

The establishment of the "Ministry of Municipalities and Rural Affairs"<sup>18</sup>. It used to be part of the Ministry of Interior as a Deputy Ministry for Municipalities Affairs. The New Ministry now have the authority of controlling the built environment all over the Kingdom. (Fig 11-1)

-1977 (1397)

The issue of "Statue of Municipalities and Villages". This is based on the Royal Decree No. M/5 dated 21/2/1397<sup>19</sup>. This statue defined the responsibility of the Municipalities and its relation with the Ministry of Municipalities and Rural Affairs in Riyadh. It was for administration and organisational purposes.

-1977 (1397)

The establishment of Projects Organisation Department in the Ministry of Municipalities and Rural Affairs with accordance to the Council of Ministers Decree<sup>20</sup>. This was to reduce conflict in the project done by many different agencies in the Kingdom.

-1977 (1397)

The beginning of the Comprehensive Planning of the following cities: Jeddah, Riyadh, Dammam, Taif, Medina, Abha and Jizan<sup>21</sup>. These efforts were taken under the supervision of the Deputy Ministry for city planning.

-1983 (1403)

The issue of "the Statue of Villages Development". This was based on the Council of Ministers Decree No. 3 dated 1/1/1403<sup>22</sup>. It was to propose the future planning and development of the villages in Saudi Arabia.

-1984 (1404)

The Ministry of Municipality established a committee to study and propose a suitable system of Naming and Numbering streets in the different cities of the Kingdom<sup>23</sup>.



-1986 (1406)

The start of "ALNitage Al Umrani". "The Building Boundaries of the Saudi Cities". This was based on the Council of Ministers Decree No. 13 dated 9/1/1406<sup>24</sup>, which ordered the Ministry of Municipalities and Rural Affairs to start on the studies and proposal of the boundaries of the cities for twenty years to come.

-1989 (1409)

The approval of "ALNitage Al Umrani". "The Building Boundaries of Saudi cities". This was based on the Council of Ministers Decree No. 175 dated 18/9/1409<sup>25</sup>, which shows the approval of the King on the proposal which was submitted by the Ministry of Municipalities and Rural Affairs. The main objective of this statute is to control urban and architectural development in cities and to establish a reasonable size for the Saudi cities<sup>26</sup>.

## 11.2 REGULATIONS

The regulations which control the physical structure of urban areas are under the supervision of the Ministry. It is enforced on people through the different municipalities all over the country.

### 11.2.1 Zoning Regulations:

Zoning provides the legal basis to protect the health, the convenience and the general well-being of the community. Its purpose is to regulate and restrict the height, number of stories, size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts and other open spaces, the density of population, the location and use of buildings, structures and land for trade, industry, residence, or other purposes<sup>27</sup>.

Zoning is a development control mechanism that is used by the local planning authority to control and to shape new developments in its boundaries. The building permission which is required to start on construction is the device for enforcement of the zoning regulation.



Examples of the zoning regulation are illustrated in (Fig 11-2, 11-3, 11-4 and 11-5). Those examples show the zoning districts, principal uses, special provisions (lot and building height and setbacks), general provisions (permitted uses and parking) and illustration examples<sup>28</sup>.

#### 11.2.2 Sub-division Regulations

It is the consideration of the legislation of the proper division of land and is a means for the control of new development. Its purpose is to examine and consider land subdivision plots as a part of a plan for the orderly, efficient, economical, pleasing and harmonious development of the area. (Fig 11-6)

According to the subdivision regulation the following objective should be achieved by new plans<sup>29</sup>:

- A. Land to be subdivided shall be of such character that it can be used safely for building purposes without danger to health, or peril from fire, flood or other menace.
- B. Proper provision shall be made for drainage, water supply, sewerage disposal and other needed improvements and utilities.
- C. Roads shall be of such width, grade and location as to accommodate prospective traffice, to afford adequate light and air, and to facilitate fire protection.
- D. Open areas of suitable location, size and character for park, playground or other purposes shall be located wherever appropriate.
- E. The arrangement of lots shall be such that there will be no feasible difficulties, for reasons of topography or other conditions, in locating a building on each lot and in providing access to building on such lots from an approved road.



### 11.2.3 Building Boundaries for the Saudi Cities<sup>30</sup>

This is the latest regulation which the Ministry of Municipal and Rural Affairs took on its shoulder to regulate the urban growth of the Urban Centres in the Kingdom. A survey of all cities and urban centres was completed to assist in proposing the boundaries of development for the future twenty years. An atlas of the Saudi Cities was published to summarise the result of the survey.

Accordingly, the Ministry propose the future boundaries of cities and urban centres. This was through specific maps for each city which shows the future boundaries. Another atlas of the boundaries of the Saudi Cities was prepared.

The purpose of these boundaries is to control urban development. This is to plan for services and facilities and also to control the direction of the growth of the Urban centres. All Municipalities in Saudi Arabia now do not give any building permission to any lot that is outside the boundaries.

### 11.3 THE MINISTRY OF MUNICIPAL AND RURAL AFFAIRS ASSESSMENT

It is clear that the agency which controls the regulations which shape the built environment is the Ministry of Municipal and Rural Affairs through its published regulations and its permissions for building and construction in the Kingdom. The enforcement of these regulations is carried out by the different municipalities in the country. The following assessment is concerned with some of the main regulations which have direct affect on the built environment.

The idea of designating a certain site for the market within the city was started by the Prophet himself in Medina<sup>31</sup>. It was to define a clear position of the market and its relation to the Mosque and to avoid the disturbance in the residential areas.



Al Muhtasib as it was stated before used to work as the municipality in the early time of the cities such as Makkah, Jeddah and Medina. His work was based on Islamic teaching and traditions of the society besides the different needs at that time<sup>32</sup>.

So, the traditional cities used to have regulations to control the built environment that no one could harm other people. For the present regulation, it is clear that the original intention of the authority was to continue on the same principles of regulating the built environment. The concept of the modern regulations are different from the original one. It could be observed that with foreigner consultant, alien regulations were replacing the traditional regulations. With the huge gap between the two different environments (climatical and social), the new regulations lead to many difficult situations in which problems were resulted from the continuous use of these regulations.

The zoning regulations presently being applied in Saudi Arabia were developed in the late 19th and early 20th centuries in the context of a totally different value system, that of the United States and Western Europe<sup>33</sup>. Zoning regulations in the United States were originally conceived as an effective technique to protect residential areas. The purpose of zoning has focused on two issues: property values in which zoning was the means to maximise the value of the property, and planning in which zoning was a tool of planning which enforce a certain plan on a community.

The first case of zoning in the United States occurred in San Francisco in the 1880's. In 1916, New York city provided the greatest stimulus to comprehensive zoning. A statute developed by the city that year became a prototype for most other cities throughout the United States<sup>34</sup>.



New York's zoning law consisted of three elements:-

- First: The assignment of all private lands to particular areas and zones according to a specially drawn map of the city.
- Second: The itemisation of restrictions applying to each zone, that is, heights, number of floors, size of structure, lot coverage, size of yards, open spaces, courts and population density.
- Third: A statement to the effect that these restrictions on private property were legitimate and constitutional and that they were directed towards the protection of the health, safety, moral and general welfare of citizens.

Minimum lot size has traditionally been used to regulate population density and to preserve the character of neighbourhoods. One of the reasons invoked for maintaining low density in a neighbourhood is to alleviate the problems arising from the inadequacy of public water, sewer and other facilities, so that a large minimum lot size is claimed to be a measure to protect the public health.

In the United States, they have often been used as a device to enforce segregation by excluding lower income groups from certain areas. District zoning according to type of uses has also segregated people from particular areas. In American cities, such provisions have been instrumental in excluding public housing projects for low income groups from areas dominated by white middle income families.

Setbacks and building line requirements were developed in modern times to alleviate overcrowding, to avoid fire hazards, and to protect public health by providing light and air to all inhabitants. They were introduced first in London with the Building Act of 1894. In this Act, working class dwellings were required to be set back so as to increase with width of the street to the same distance as the height of the building. This led to the concept of an inbuilt space around buildings.



It is clear that the context in which zoning regulations (minimum lot size and set back requirements) developed in the west differs markedly from the context of Saudi Arabian cities. These cities clearly have a different cultural traditions and different climatic conditions. From the social and economical point of view, the traditional cities never felt segregation among the community with regards to peoples income. The rich used to live beside the poor and that had formulated a stable and unified society in caring and sharing among neighbours. With the existing zoning regulation, especially with the minimum lot size, a segregation with reference to peoples income was produced. With the price of a lot in certain areas is determined by the area since the price of a square meter is the indication of the income level of the area.

The setback requirements which are enforced in Saudi Arabia lead to conflict in what people build and what the people need. Visual privacy has been a comparatively unimportant issue in Western culture, while in Arab-Muslim culture it is a uniquely important issue. The introduction of setbacks which allow for the opening of windows and therefore the constant violation of privacy. The owner of the house cannot fully use his property because of privacy reasons. From the point of view of climate, front, side and rear yards are an enjoyable space to have in a western city, with an abundance of water and moderate exposure of sunlight, it is easy to maintain and use, while in Saudi Arabian cities, with their hot and arid climate, such an open space is almost impossible to maintain and, therefore, to fully utilise, if it can be used at all. So, it could be observed that setbacks requirements is an opposite to the traditional concept of compactness which characterises the traditional built environment. The sense of neighbourhood is being lost in the spaces left between buildings. The only purpose for these requirements seems to have been to insure the development of a certain dwelling type, the villa. The open area in the villa in



the west is open with low wall or small trees surrounding it. This style of living has been rejected in Saudi Arabia, first through fence walls around the houses, and later through other measures that assured the protection of visual privacy.

Subdivision regulations as it was illustrated and through observation seems to be concerned only with the division of lands into squares or semi square lots, also with the accessibility of cars to each lot. This requires much more roads to be built which at the same time increase open spaces in areas where it is characterised with its traditional narrow streets which provide shades. Most of the modern subdivision are simply a grid network which reflect the western style in planning and developing new subdivision.

The villa as a unit was attached to the peoples image of high-standard living. With its western name and its unique standing in the plot, the people were competing with each other to produce villas which will give some prestige to the owner and give a model to imitate for others.

From the administrative side the layout of the grid subdivision and the construction of the villa was easier to administer than the traditional way of development (Al Muhtasib who took each case individually). This was a reality especially at the beginning of the urban growth, when the race with time was the main objective of the authority.

The imported labour, designers, builders and manufactured materials affected this growth. The designers took the easy way to cope with the large amount of plans required by accepting the grid layout as the most acceptable and easy form of subdivision. It was easy for surveyors to divide the land in such a layout, also it gave the access for services to be connected in short



time since they were straight lines most of the time. No one was worried about the building of the house because it had no affect on the neighbour structure since it was standing away from its neighbours.

It was too difficult for the Government to check every plan of subdivision and house during the early years of development. Today it is a different story, the development process has slowed down and resources for development are restricted. The administration now is more professional and the people who work are from the country itself and they could maintain a reasonable check on the final product.

The loan from the REDF which used to be given in three months, now takes about 5 years, even subdivision plans take about two years to be approved, these long periods give no excuse to the authority not to maintain the design in a way that suits the country.

The Saudi people from their side have the responsibility of contributing in the process now not only by their money but also by their thinking and effort in shaping their built environment. A lot of highly educated Saudis are now in positions which could improve the design but up to now their decision making potential is blocked by the highly centralised nature of the Saudi Government system.

The building boundaries could be seen as a tool for controlling the development of the Saudi cities, this is the main intention of the Ministry to implement this regulation. The other issue which could be urgent is the use of the boundaries for economical purposes. It was a time when a lot of vacant lands were left inside the urban centres because of its prices. The implementation of the Building boundaries will directly affect



the Real Estate Market. Since no one could build outside the boundaries, the increase of demand for lands inside the boundaries will increase consequently this demand will increase the prices of lands. So it could be noticed that this could benefit certain groups of the community which control the Real Estate Market.

Finally, it could be noticed that there is a difference between the Saudi system and the system of the west, especially the legal side. In the west, zoning regulations could be challenged in the court to overrule any item of the zoning regulation if it takes the right of owner without any justification. For example, an early New York case, *Arverne Bay Construction Company -v- Thatcher*, 15 N.E. (N.Y. 1938), suggested a limitation on the use of single family zoning as a development timing technique. The city of New York zoned on undeveloped areas in Brooklyn exclusively for single family use. A land owner who wished to construct an automobile service station on a major boulevard attacked the single family zoning as a taking of property. The court agreed. It struck down the single family zoning as premature, noting that the area was undeveloped and that development for single family use could not be expected for some time. The court also held that conditions near the site, including garbage disposal plan and a dumping ground for disposing and burning garbage, made the area unsuitable for single family use<sup>35</sup>.

So, it could be concluded here that the regulations which are now implemented in Saudi Arabia were originally developed in a different environment, and to work properly in that environment, the legal system is the safe guard of judging each rule for its special circumstances. The Ministry of Municipal and Rural Affairs through its Municipalities enforce the existing regulations without any other judgements from the courts or any other agencies. This is an indication that imitation is the way to an unstable community.



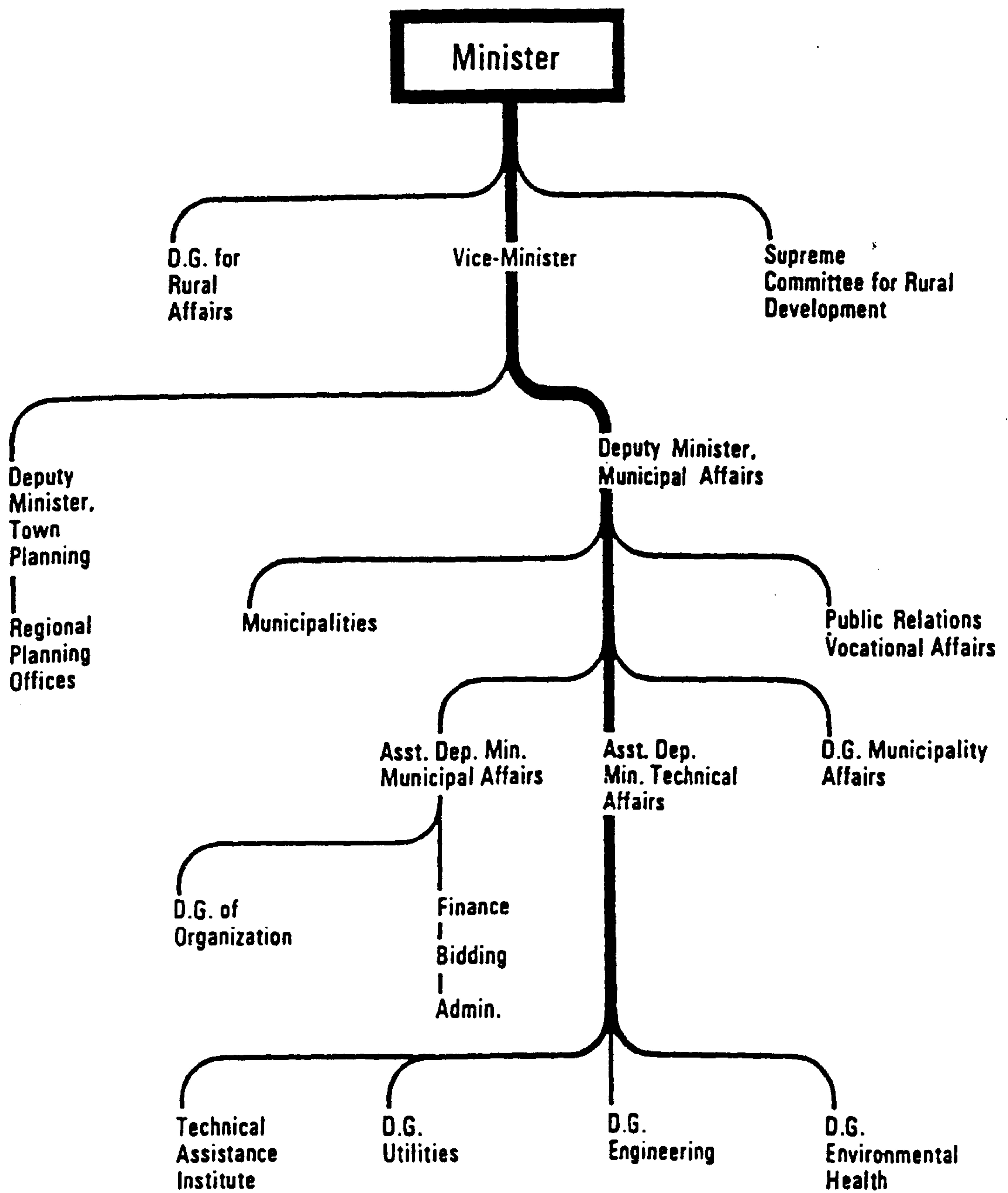


Fig 11-1 MINISTRY OF MUNICIPAL AND RURAL AFFAIRS

Source: Al-Farsi, F. 1982, p.125.



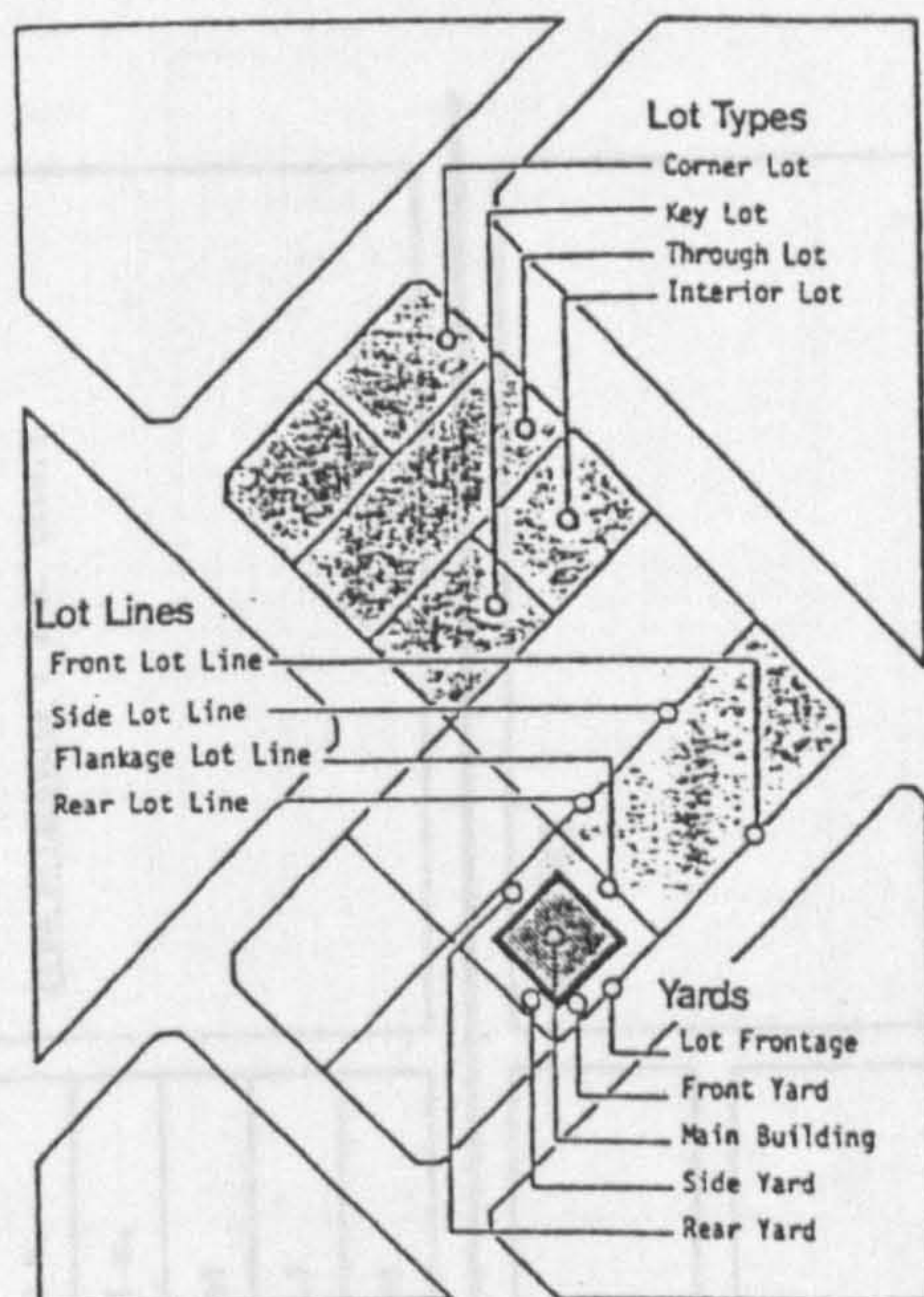


Fig 11-2 LOT TYPES, LOT LINES AND YARD DEFINITION

Source: Ministry of Municipal and Rural Affairs.

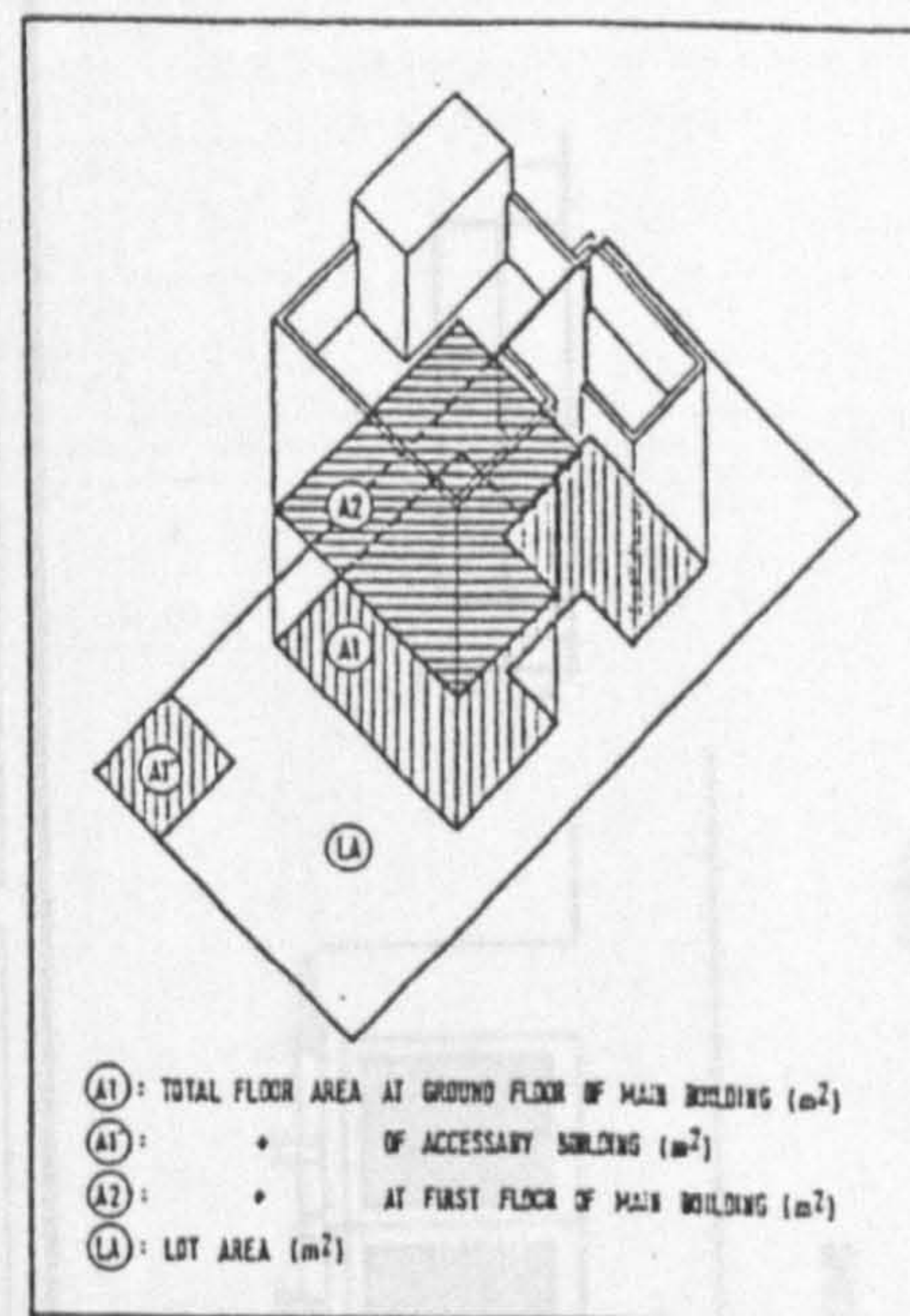


Fig 11-3 EXAMPLE OF F.A.R. AND LOT COVERAGE DEFINITION

Source: Ministry of Municipal and Rural Affairs.

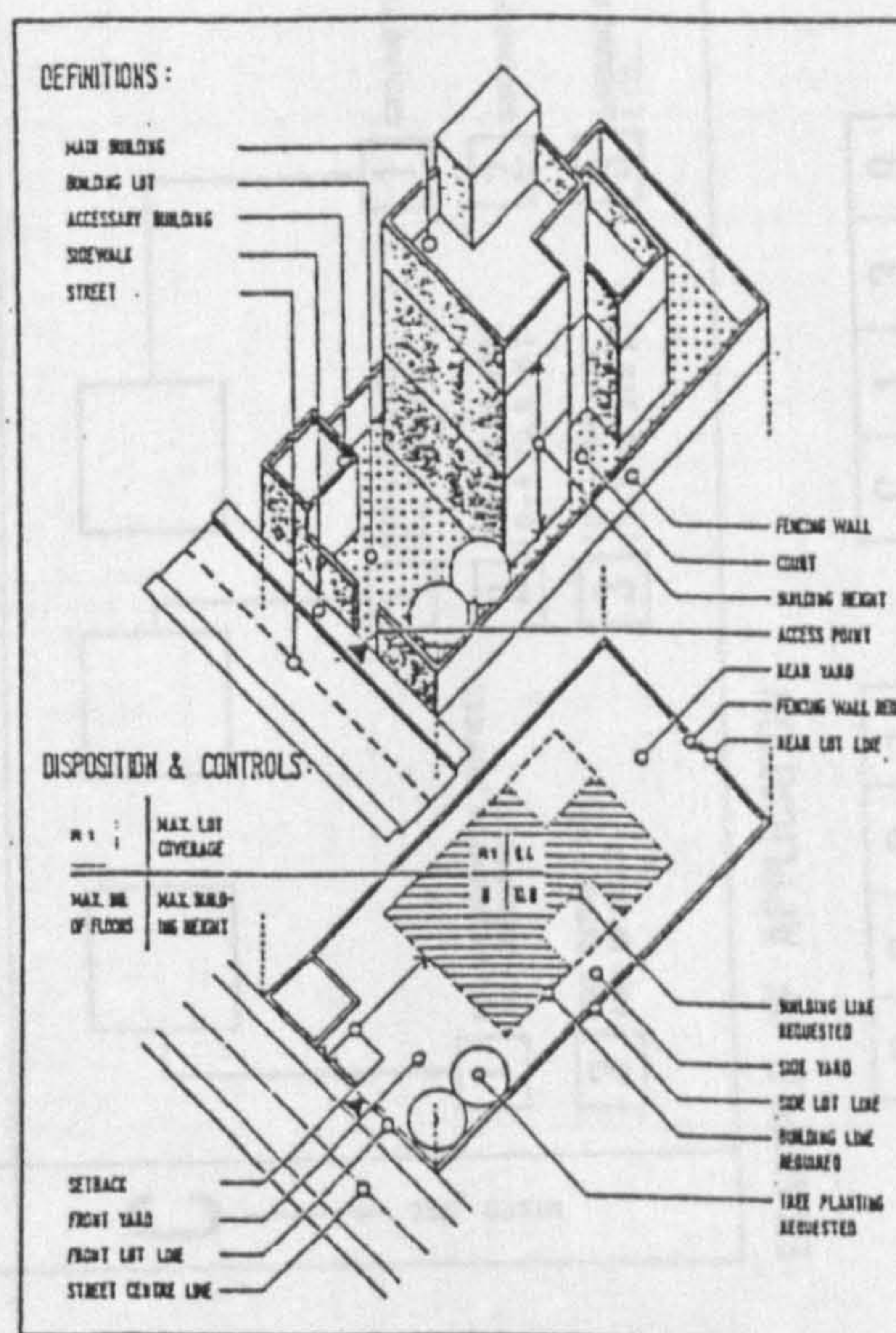
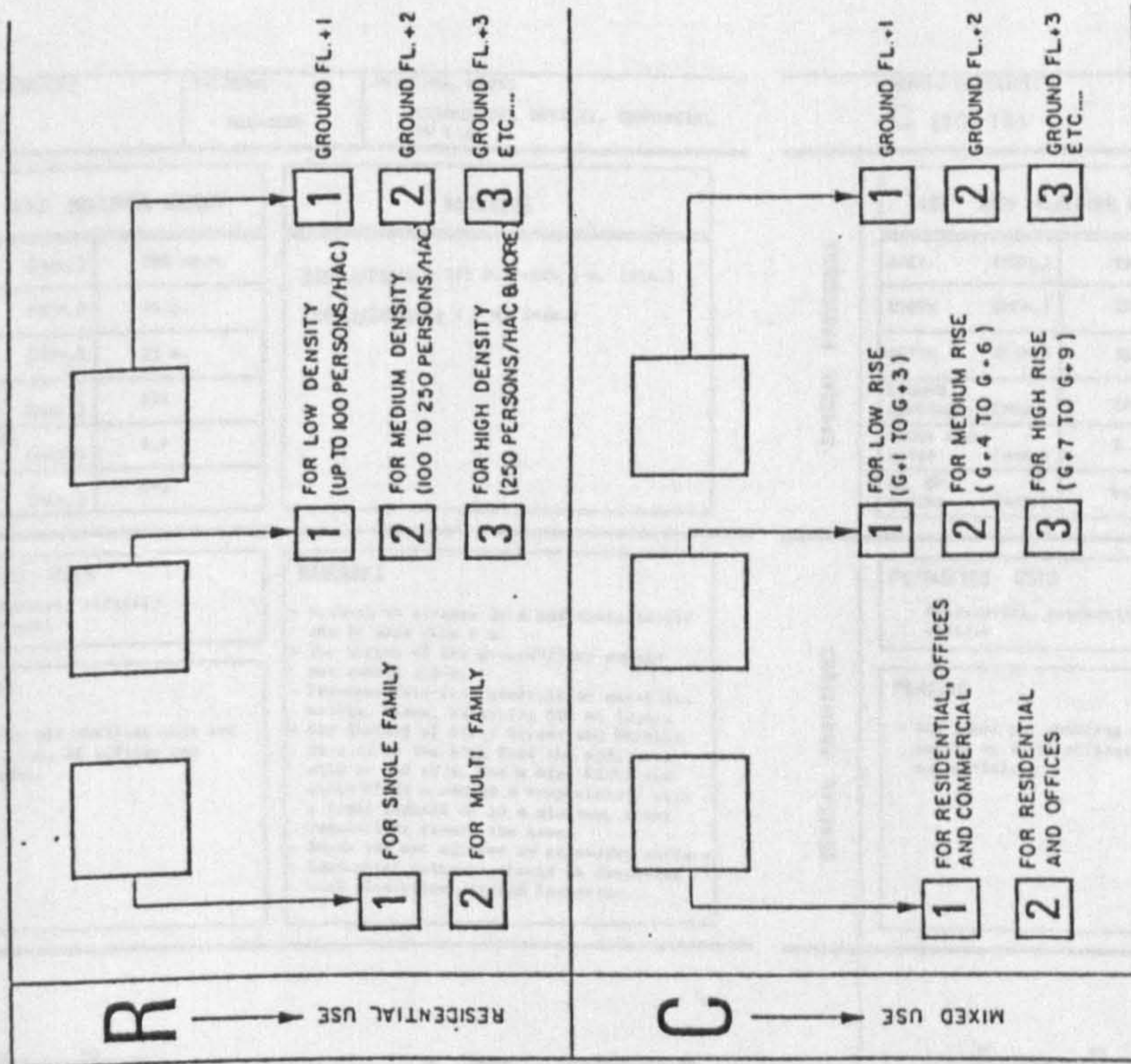


Fig 11-4 SITE DISPOSITION AND CONTROLS, GENERALLY USED IN THE ZONING REGULATIONS

Source: Ministry of Municipal and Rural Affairs.



# ZONING DISTRICT CODING SYSTEM



## EXAMPLE OF APPLICATION

R	2	2	1
RESIDENTIAL	MULTI-FAMILY	MEDIUM DENSITY	GROUND FLOOR + ONE

C	1	3	9
MIXED USE	RESIDENTIAL, OFFICES & COMMERCIAL	HIGH RISE	GROUND FLOOR + NINE

Fig 11-5-1

Source:

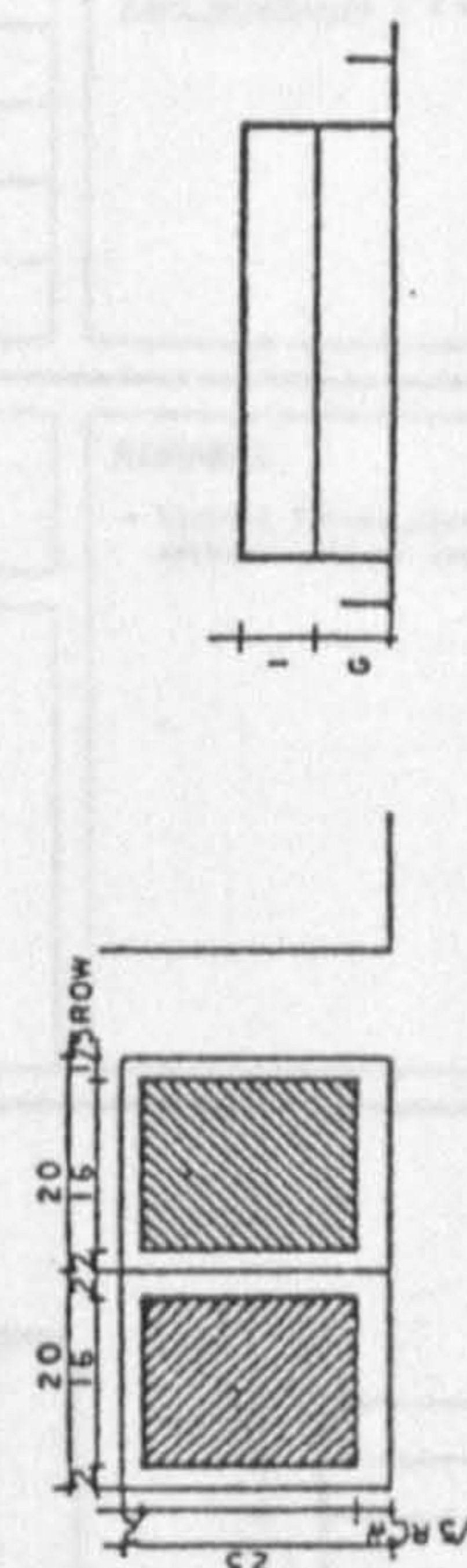
## EXAMPLE OF ZONING REGULATIONS

Ministry of Municipal and Rural Affairs (28)

ZONING DISTRICT:	PATTERN:	PRINCIPAL USES:
R 111	DETACHED	RESIDENTIAL SINGLE FAMILY LOW DENSITY

LOT AND BUILDING HEIGHT		SETBACKS
AREA (MIN.)	500 sq.m.	From streets : 1/5 ROW with 2 m. (min.) From neighbours : 2 m. (min.)
WIDTH (MIN.)	20 m.	
DEPTH (MIN.)	25 m.	
GROUND COVERAGE (MAX.)	60%	
FLOOR AREA RATIO (MAX.)	1.2	
NO. OF FLOORS (MAX.)	G+1	

PERMITTED USES	REMARKS
Residential	
PARKING	





SPECIAL PROVISIONS	ZONING DISTRICT: <b>R 221</b>	PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL MULTI FAMILY MEDIUM DENSITY
	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	500 sq.m.	From streets : 1/5 ROW with 2 m. (min.) From neighbours : 2 m. (min.)
GENERAL PROVISIONS	WIDTH (MIN.)	20 m.	
	DEPTH (MIN.)	25 m.	
	GROUND COVERAGE (MAX.)	60%	
	FLOOR AREA RATIO (MAX.)	1.2	
	NO. OF FLOORS (MAX.)	G+1	
ILLUSTRATIVE EXAMPLE	PERMITTED USES	REMARKS	
	Residential	- Without fences along the streets, setback will be used as parking.	
	PARKING		

SPECIAL PROVISIONS	ZONING DISTRICT: <b>R 222</b>	PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL MULTI FAMILY MEDIUM DENSITY
	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	500 sq.m.	From streets : 1/5 ROW with 2 m. (min.) From neighbours : 2 m. (min.)
GENERAL PROVISIONS	WIDTH (MIN.)	20 m.	
	DEPTH (MIN.)	25 m.	
	GROUND COVERAGE (MAX.)	60%	
	FLOOR AREA RATIO (MAX.)	1.8	
	NO. OF FLOORS (MAX.)	G+2	
ILLUSTRATIVE EXAMPLE	PERMITTED USES	REMARKS	
	Residential	- Without fences along the streets, setback will be used as parking.	
	PARKING		

Fig 11-5-2

EXAMPLE OF ZONING REGULATIONS

Source:

Ministry of Municipal and Rural Affairs (28).

SPECIAL PROVISIONS	ZONING DISTRICT: <b>C 113</b>	PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL, OFFICES, COMMERCIAL LOW RISE
	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	500 sq.m.	From streets : 1/5 ROW with 3 m. (min.) From neighbours : 3 m. (min.)
GENERAL PROVISIONS	WIDTH (MIN.)	20 m.	
	DEPTH (MIN.)	25 m.	
	GROUND COVERAGE (MAX.)	60%	
	FLOOR AREA RATIO (MAX.)	2.4	
	NO. OF FLOORS (MAX.)	G+3	
ILLUSTRATIVE EXAMPLE	PERMITTED USES	REMARKS	
	Residential, offices, commercial	<ul style="list-style-type: none"> <li>- Setback on streets 30 m and above should not be less than 6 m.</li> <li>- The height of the ground-floor should not exceed 3.5 m.</li> <li>- Facades: fair-face concrete or metallic, marble, stone, finishing 50% at least.</li> <li>- For Khaleej al Araby Street and Khurais Road up to the Ring Road the min. area will be 750 sq.m. and a min. width and depth of 25 m and 30 m respectively with a front setback of 10 m minimum, other regulations remain the same.</li> <li>- Shops are not allowed on secondary streets</li> <li>- Commercial setbacks should be decorated with plantations or/and fountains.</li> </ul>	
	PARKING	<ul style="list-style-type: none"> <li>- One space per dwelling unit and per 50 sq.m. of offices and commercial.</li> </ul>	

SPECIAL PROVISIONS	ZONING DISTRICT: <b>C 113 (b)</b>	PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL, COMMERCIAL, OFFICES LOW RISE
	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	750 sq.m.	From main street: 10 m. (min.) From secondary streets: 1/5 ROW with 3 m. (min.) From neighbours: 3 m. (min.)
GENERAL PROVISIONS	WIDTH (MIN.)	25 m.	
	DEPTH (MIN.)	30 m.	
	GROUND COVERAGE (MAX.)	50%	
	FLOOR AREA RATIO (MAX.)	2	
	NO. OF FLOORS (MAX.)	G+3	
ILLUSTRATIVE EXAMPLE	PERMITTED USES	REMARKS	
	Residential, commercial, offices	<ul style="list-style-type: none"> <li>- Setback on streets 30 m and above should not be less than 6 m.</li> <li>- Shops are not allowed on secondary streets.</li> <li>- The height of the ground-floor should not exceed 3.5 m.</li> <li>- Facades: fair-face concrete or metallic, marble, stone, finishing 50% at least.</li> <li>- Side and rear facades should be coated.</li> <li>- The ground floor level should not exceed 30 cm above curb level.</li> <li>- Front setback should be decorated with plantations or/and fountains.</li> <li>- Steps are prohibited within the front setback.</li> </ul>	
	PARKING	<ul style="list-style-type: none"> <li>- One space per dwelling unit and per 50 sq.m. of offices and commercial.</li> </ul>	

Fig 11-5-3

EXAMPLE OF ZONING REGULATIONS

Source:

Ministry of Municipal and Rural Affairs (28).



ZONING DISTRICT: <b>C 125</b>		PATTERN: <b>DETACHED</b>	PRINCIPAL USES: <b>RESIDENTIAL, OFFICES, COMMERCIAL MEDIUM RISE</b>
LOT AND BUILDING HEIGHT			SETBACKS
AREA (MIN.)	500 sq.m.		
WIDTH (MIN.)	20 m.		
DEPTH (MIN.)	25 m.		
GROUND COVERAGE (MAX.)	60%		
FLOOR AREA RATIO (MAX.)	3.85		
NO. OF FLOORS (MAX.)	G+5		
<u>From streets</u> : 1/5 ROW with 3 m. (min.)			
<u>From neighbours</u> : 3 m (min.)			
REMARKS			
PERMITTED USES			
Residential, offices, commercial.			
PARKING			
- One space per dwelling unit and per 50 sq.m. of offices and commercial.			
- Setback on streets 30 m and above is not less than 6 m.			
- Shops are not allowed on secondary streets			
- Facades: fair-face concrete or metallic, marble, stone finishing 50% at least.			
- The height of the ground floor should not exceed 3.5 m.			
- Commercial setbacks should be decorated with plantations or/and fountains.			
- All steps and ramps required to reach the ground floor should be built inside the plot area.			

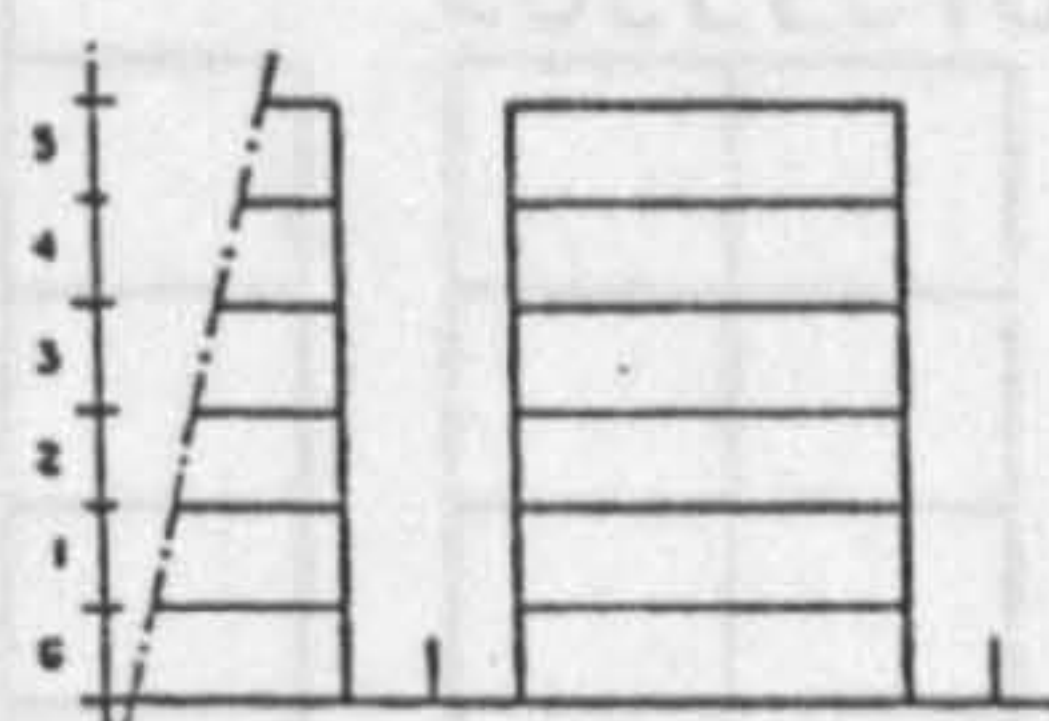
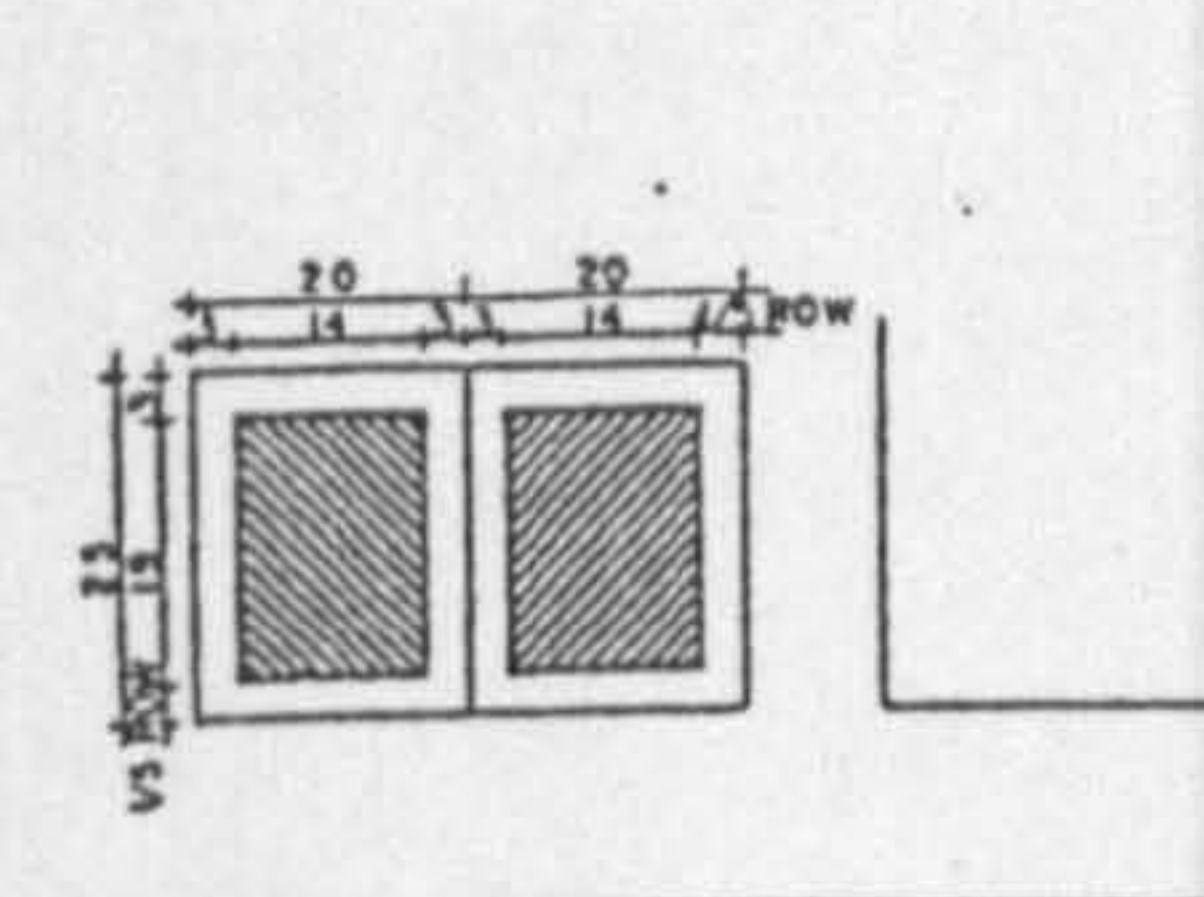


Fig 11-5-4

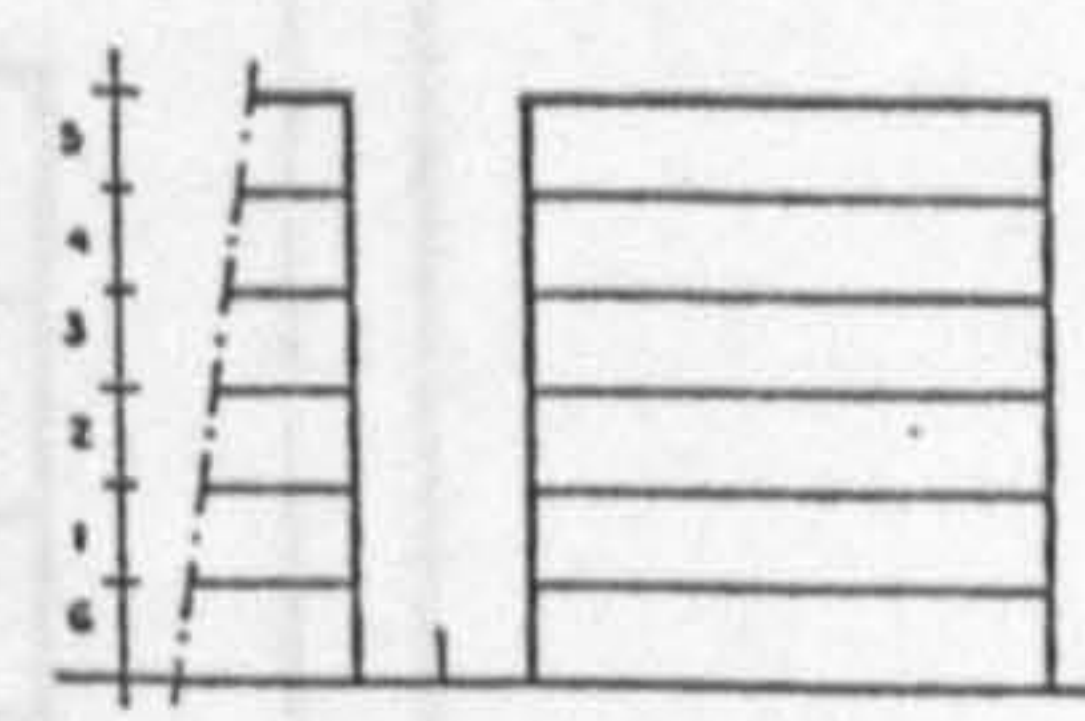
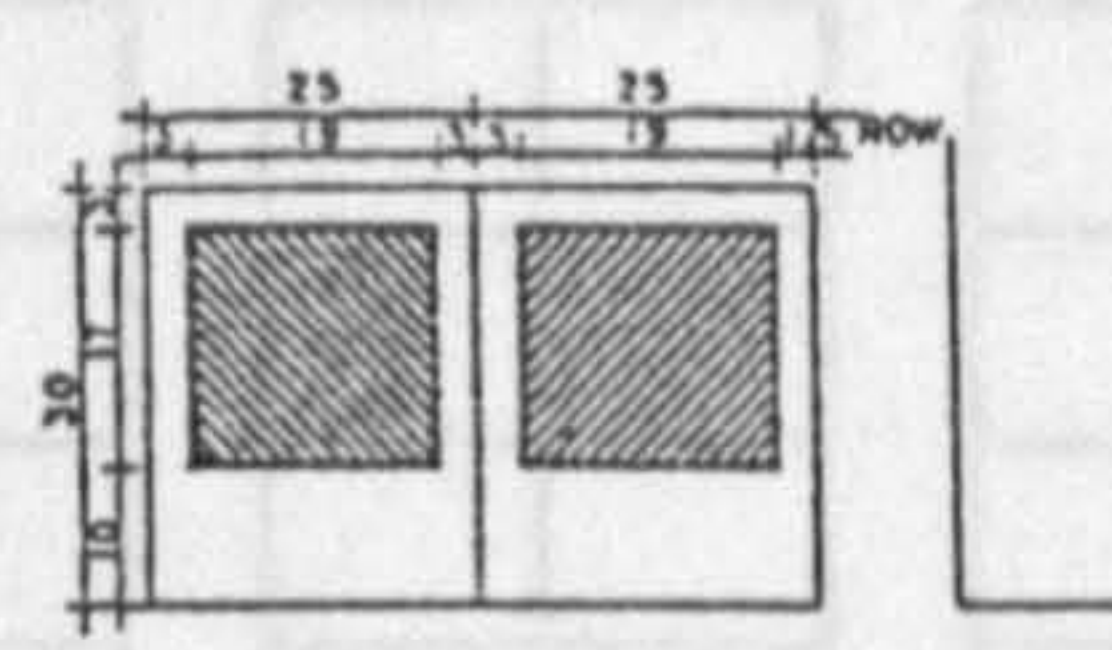
Source:

EXAMPLE OF ZONING REGULATIONS

Ministry of Municipal and Rural Affairs (28).

ZONING DISTRICT: <b>C 125 (C)</b>		PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL, COMMERCIAL, OFFICES, MEDIUM RISE
SPECIAL PROVISIONS	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	750 sq.m.	<u>Front</u> : 10 m.  <u>From neighbours</u> : 3 m (min.)  <u>From secondary streets</u> : 1/5 ROW with 3 m. (min.)
	WIDTH (MIN.)	25 m.	
	DEPTH (MIN.)	30 m.	
	GROUND COVERAGE (MAX.)	60%	
	FLOOR AREA RATIO (MAX.)	3.6	
	NO. OF FLOORS (MAX.)	G+5	
GENERAL PROVISIONS	PERMITTED USES Residential, commercial, offices.		REMARKS - The height of the ground-floor should not exceed 3.5 m. - Shops are not allowed on secondary streets. - Facades: fair-face concrete or metallic, marble, stone, finishing 50% at least. - Side and rear facades should be coated. - The ground floor level should not exceed 50 cm above curb level. - The front setback should be decorated with plantations or/and fountains. - Steps are prohibited within the front setback.
	PARKING - One space per dwelling unit and per 50 sq.m. of offices and commercial.		

ILLUSTRATIVE EXAMPLE



ZONING DISTRICT: C 126		PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL, OFFICES, COMMERCIAL MEDIUM RISE
SPECIAL PROVISIONS	LOT AND BUILDING HEIGHT		SETBACKS
	AREA (MIN.)	625 sq.m.	From streets : 1/5 ROW with 3 m. (min.)  From neighbours : 3 m. (min.)
	WIDTH (MIN.)	25 m.	
	DEPTH (MIN.)	25 m.	
	GROUND COVERAGE (MAX.)	60%	
	FLOOR AREA RATIO (MAX.)	4.2	
	NO. OF FLOORS (MAX.)	G+6	
GENERAL PROVISIONS	PERMITTED USES Residential, offices, commercial.		REMARKS
	PARKING - One space per dwelling unit and per 50 sq.m. of offices and commercial.		- Setback on streets 30 m and above is not less than 6 m. - Shops are not allowed on secondary streets. - Facades: fair-face concrete or metallic, marble, stone, finishing 50% at least. - The height of the ground-floor should not exceed 3.5 m. - Commercial setbacks should be decorated with plantations or/and fountains. - All steps and ramps required to reach the ground floor should be built inside the plot area.

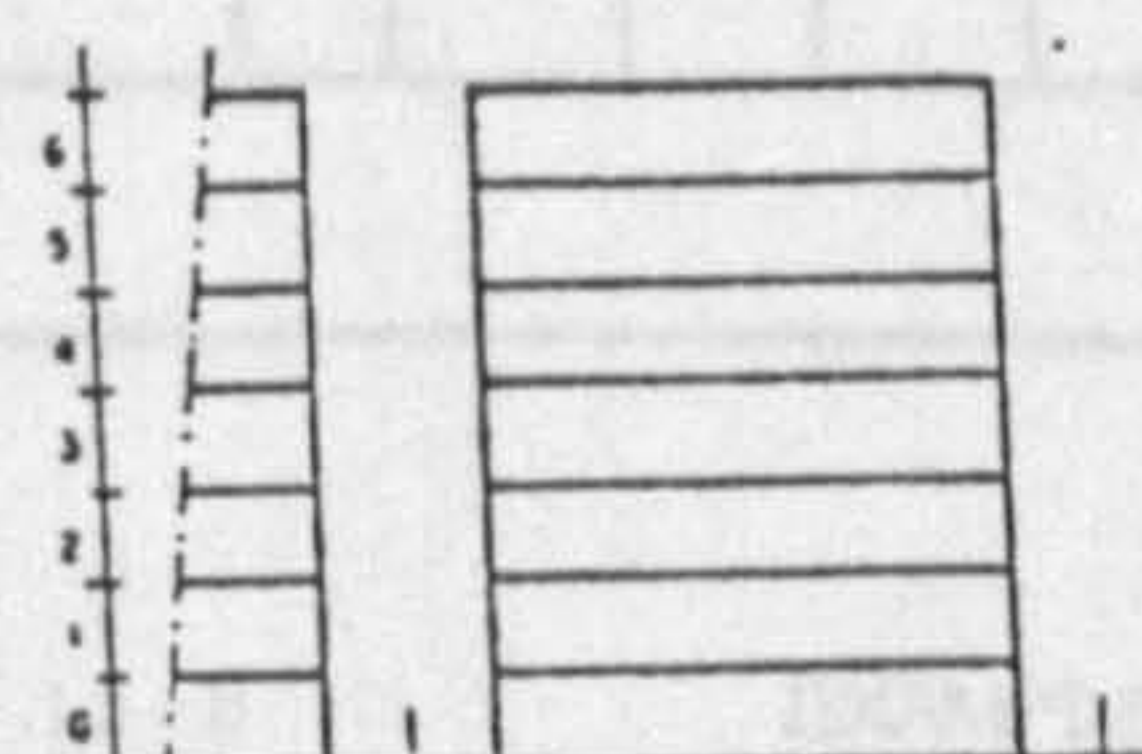
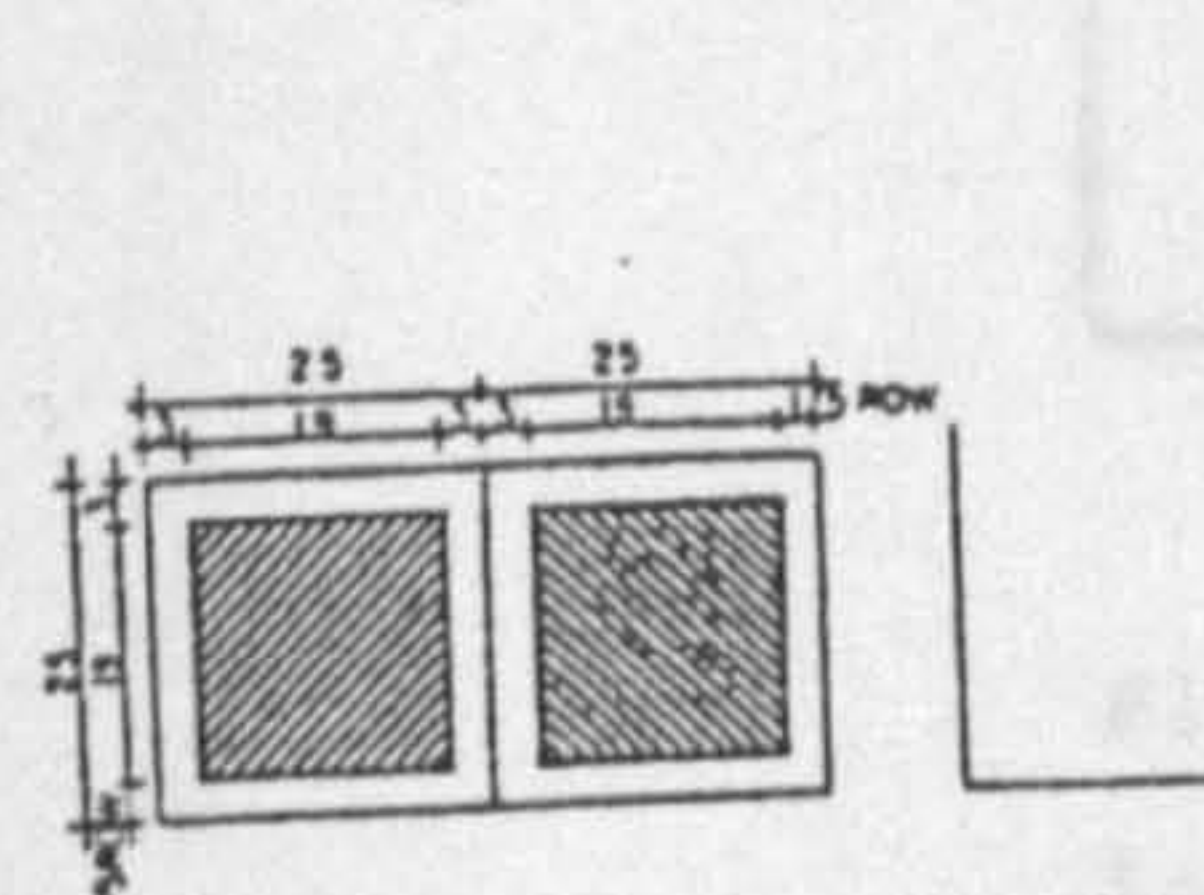


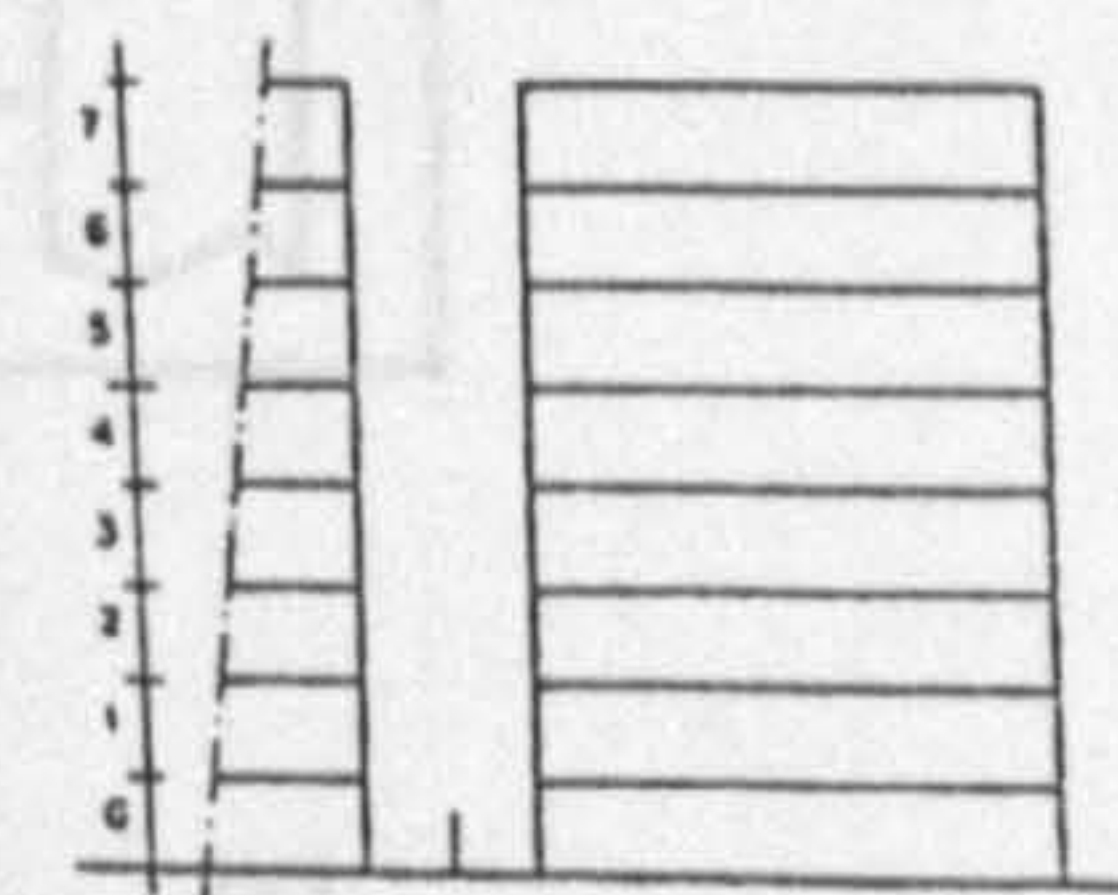
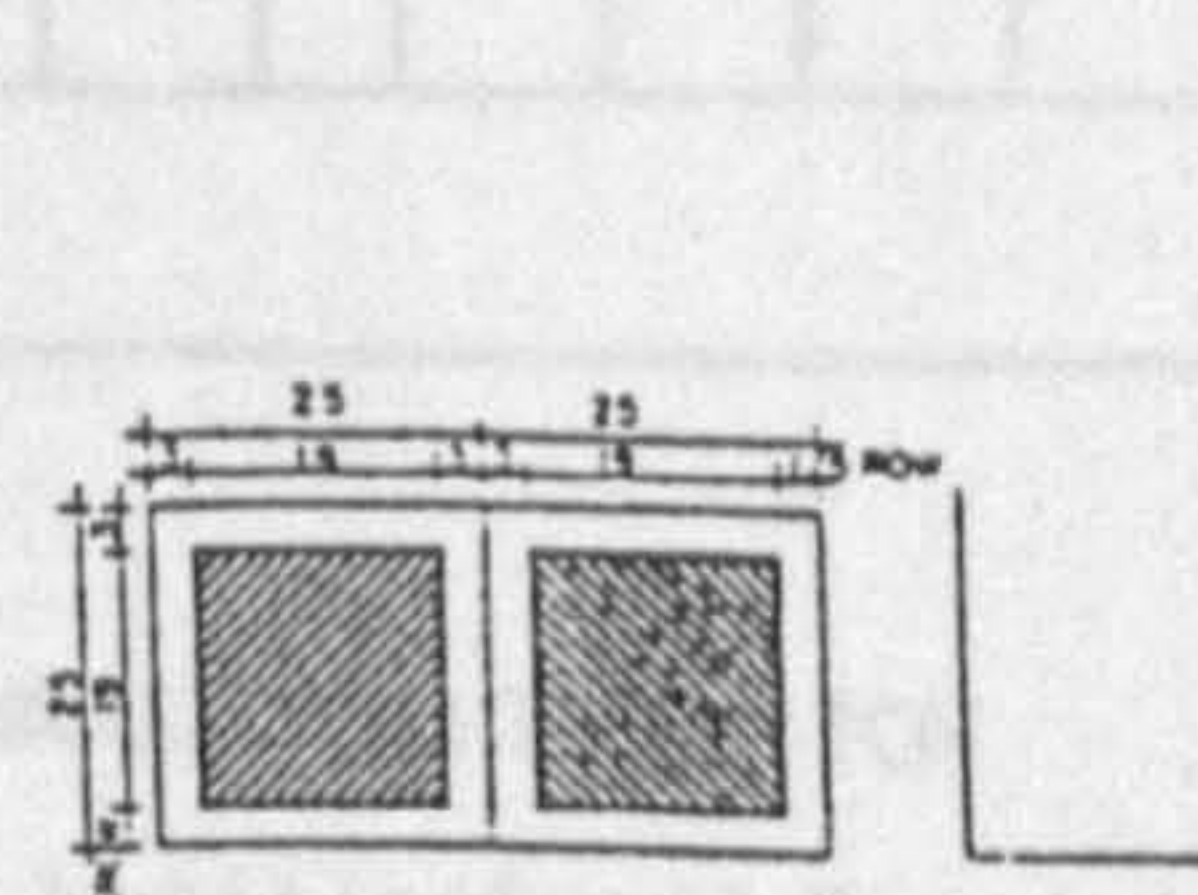
Fig 11-5-5

Source:

EXAMPLE OF ZONING REGULATIONS

Ministry of Municipal and Rural Affairs (28).

ZONING DISTRICT: <b>C 137</b>		PATTERN: DETACHED	PRINCIPAL USES: RESIDENTIAL, OFFICES, COMMERCIAL HIGH RISE
LOT AND BUILDING HEIGHT			SETBACKS
AREA (MIN.)	625 sq.m.		<u>From streets</u> : 1/5 ROW w/ith 3 m. (min.)  <u>From neighbours</u> : 3 m. (min.)
WIDTH (MIN.)	25 m.		
DEPTH (MIN.)	25 m.		
GROUND COVERAGE (MAX.)	60%		
FLOOR AREA RATIO (MAX.)	4.8		
NO. OF FLOORS (MAX.)	G+7		
PERMITTED USES Residential, offices, commercial			REMARKS <ul style="list-style-type: none"><li>- The setback on streets 30 m and above should not be less than 5 m.</li><li>- Shops are not allowed on secondary streets</li><li>- The height of the ground-floor should not exceed 3.5 m.</li><li>- Facades: fair-face concrete or metallic, marble, stone, finishing 50% at least.</li><li>- For Sitten Street, from Arba'in Street to University St., shops are allowed in the front setback, with max. height 6 m (G+1) and side setback respected.</li><li>- Commercial setbacks should be decorated with plantations or/and fountains.</li><li>- All steps and ramps required to reach the ground floor should be built inside the plot area.</li></ul>
PARKING <ul style="list-style-type: none"><li>- One space per dwelling unit and per 50 sq.m. of offices and commercial.</li></ul>			





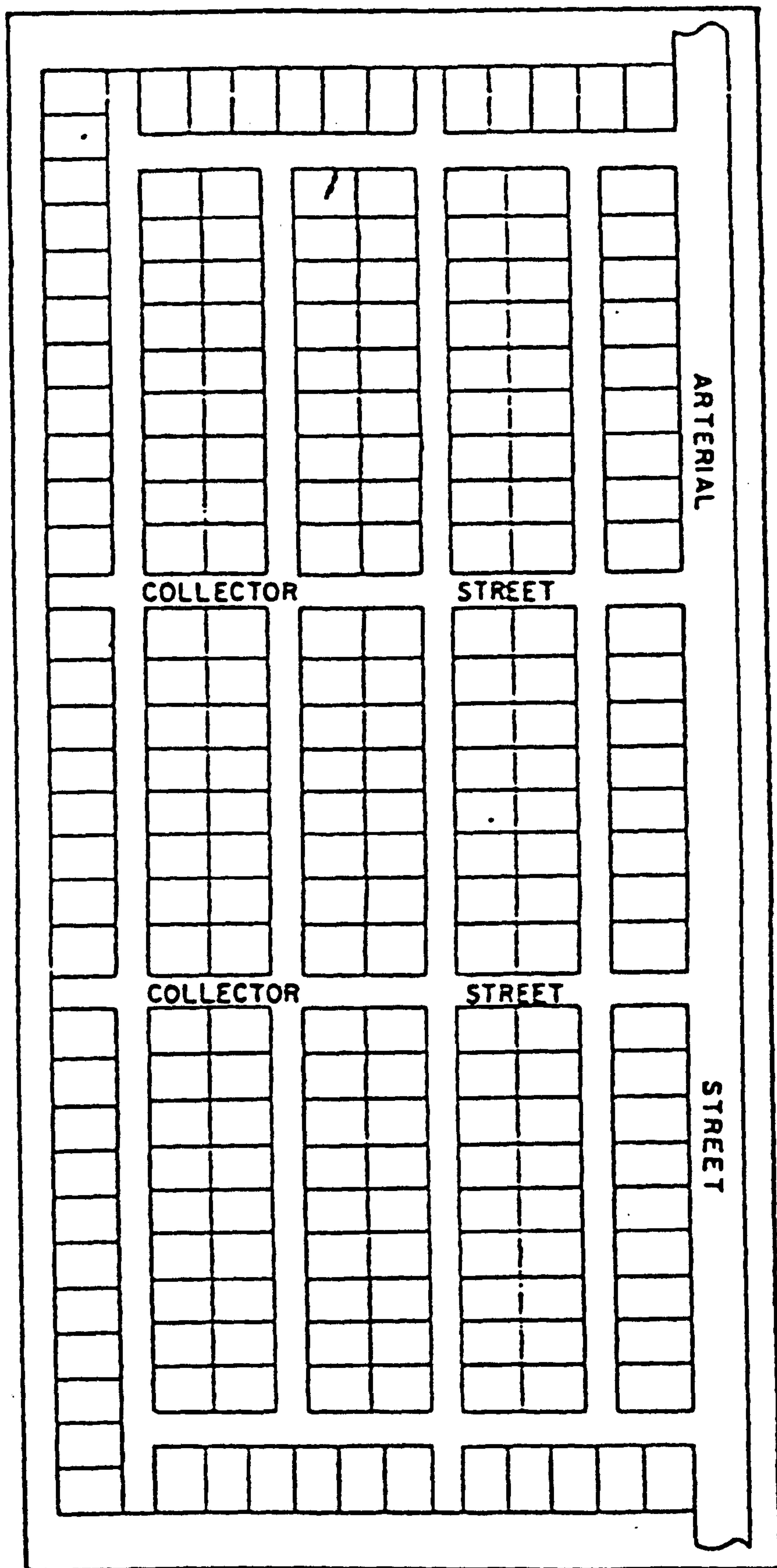


Fig 11-6

EXAMPLE OF SUBDIVISION DESIGN

Source:

Ministry of Municipal and Rural Affairs (28).



### Footnotes: Chapter 11

1. Op. cit (Ch.9) (28) p.462.

2. Ibid. p.462.

3. IBRAHIM, Hazim. Historical Development of Cities in Saudi Arabia. ALBenaa Magazine, No. 2, Riyadh p.56.

4. ALHATHLUL, S. & Aneis Al-Rahman. The development of Architecture and Regional Planning in the Kingdom of Saudi Arabia. ALBaladiyyat Magazine, No. 1, Vol. 1. Ministry of Municipalities and Rural Affairs, Riyadh, April 1985, p.34.

5. Ibid. p.36.

6. MUNICIPALITY of Riyadh. "About the context of local units." ALBaladiyyat Magazine, No. 1, Vol. 1. Ministry of Municipalities and Rural Affairs, Riyadh, April 1985, p.49 (in Arabic).

7. Op. cit (4) p.36.

For more information about the Statue of Roads and Buildings see:

DAHMAN, Ibrahim, Nizam ALToruge Wa ALMabani, Government Printing, Makkah, Third Issue, 1388.

8. AL-KHOBAR. ALBaladiyyat Magazine, No. 17, Vol. 5. Ministry of Municipalities and Rural Affairs, Riyadh, February 1989, p.21.

9. Op. cit (4) p.36.

10. Op. cit (3) p.56.

11. Op. cit (4) p.37.

12. Ibid. p.37.

This plan was by Doxiadis 1971.

13. Ibid. p.38.

14. Ibid. p.37.

15. Ibid. p.38.

16. Ibid. p.38.



17. **DAGHISTANI, Abdul-Majeed Ismail.** Ar-Riyadh, Urban Development and Planning. Interior Information, Ministry of Information, Saudi Arabia, p.153.
18. Op. cit (4) p.38.
19. Op. cit (6) p.50.
20. Op. cit (Ch.9) (8) p.50.
21. Op. cit (4) p.38.
22. **LAWS and Legislation, The Statue of Development of Villages in Saudi Arabia.** ALMadinah ALArabiyyah Magazine, No. 14, Arabian Cities Organisation, Kuwait, October 1982, p.46.
23. **MUNICIPALITIES file.** Statue of Naming and Numbering streets in the Cities of the Kingdom. ALBaladiyyat Magazine, No. 7, Ministry of Municipalities and Rural Affairs, Riyadh, p.78.
24. **ZAHID, Zuhair.** Building Boundaries, Ideas and Advantages. ALBaladiyyat Magazine No. 19, Vol. 5, Ministry of Municipalities and Rural Affairs, Riyadh, August 1989, (p.6).
25. Ibid. p.6.
26. For more information about the Building Boundaries see the following:
  - A) **MUNICIPALITIES.** A Guide of the Building Boundaries Studies. ALBaladiyyat Magazine, No. 6, Vol. 2. Ministry of Municipalities and Rural Affairs, Riyadh, June 1986.
  - B) **THE GENERAL** Administration of Project Organisation. A Guide of the Building Boundaries Work. Deputy Ministry for City Planning, Ministry of Municipalities and Rural Affairs, Riyadh, Saudi Arabia.
  - C) **"ATLAS, Nitage ALNamou ALUmrani Li Madinat AR-Riyadh"** The Building Boundaries Atlas for the City of Riyadh. Ministry of Municipalities and Rural Affairs, Riyadh.
  - D) **"ATLAS, Nitage ALNamou ALUmrani Li Madinat Makkah".** The Building Boundaries Atlas for the city of Makkah. The Deputy Ministry for City Planning, Ministry of Municipalities and Rural Affairs, Riyadh.
  - E) **"ATLAS, Nitage ALNamou ALUmrani Li Madinat Jeddah".** The Building Boundaries Atlas for the City of Jeddah. The Deputy Ministry for City Planning Ministry of Municipalities and Rural Affairs, Riyadh.



27. MANDELKER, Daniel R. Land Use Law. The Michie Company, Law Publishers, Charlottesville, Virginia, 1982, p.78.
28. For more detailed information about the zoning regulations see the following:
- A) "ANZIMAT ALBenaa Li Madinat Ar-Riyadh" Zoning Regulations for Riyadh. Municipality of Riyadh, Riyadh, (in Arabic).
  - B) SCET - International/SEDES. Riyadh Action Master Plan, Technical Report No. 14, Action Area No. 2. Deputy Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Saudi Arabia, 1982, p.p.152-177.
  - C) SCET - International/SEDES. Riyadh Action Master Plan, Technical Report No. 9, Planning Regulations. Deputy Ministry for Town Planning, Ministry of Municipal and Rural Affairs, Saudi Arabia, 1982.
  - D) SPEERPLAN & KOSHAK. Taif Action Master Plans Technical Report No. 7 - Planning Byelaw - Taif Metropolitan Area. Deputy Ministry for Town Planning Ministry of Municipal and Rural Affairs, Saudi Arabia, 1981. (Part Four - The proposed physical development plans), p.p.(21-142).
29. Op. cit (28-d) Part Five - The Proposed Subdivision Regulations p.p.143-168.
30. Op. cit (26).
31. AL-HATHLOUL, Saleh. Zoning and Land-Use Control in the Arab-Muslim City Housing in the Islamic City, Proceeding of a Symposium held in Ankara-Turkey, 21-25 July, 1984. Organisation of Islamic Capitals and Cities. Centre of Planning and Architectural Studies, Cairo, 1986, p.281.
32. For more detailed information about the traditional Municipal (AL-Husbah) work and regulation in the Arab-Islamic cities see the following:-
- A) AL-TOWAJREE, Suliman, Haq AL-Irtifaq. (Right of Neighbourhood). Umm AlQura University, Makkah, 1982.
  - B) HAKIM, Besim Selim, Arabic-Islamic Cities, Building and Planning Principles. KPI, London, 1986.
  - C) IBRAHIM, Abdulbagi, Islamic Perspective for Architectural Theory. Centre for Planning and Architectural Studies, Cairo, 1986.
  - D) Op. cit (31) p.p.281-289.



33. AL-HATHLOUL, Saleh Ali, Cultural Conflicts in Urban Patterns: A Saudi Arabian Case Study. The Arab City, Its Character and Islamic Cultural Heritage. Proceeding of a Symposium, Medina, Saudi Arabia, 28 Feb to 5 Mar, 1981. The Arab Urban Development Institute, Riyadh, 1982, p.71.

34. Ibid. p.71.

35. Op. cit (27) p.104.



## CHAPTER 12

### THE ROLE OF THE REAL ESTATE DEVELOPMENT FUND (REDF)

- 12.1 ESTABLISHMENT OF (REDF)
- 12.2 GOALS OF (REDF)
- 12.3 AMOUNT OF LOANS
- 12.4 CLASSIFICATION OF PRIVATE LOANS
- 12.5 CONDITIONS OF THE LOAN APPROVAL
- 12.6 PAYMENT OF PRIVATE LOANS
- 12.7 REPAYMENT OF LOANS
- 12.8 LEGAL REGULATIONS
- 12.9 THE (REDF) ASSESSMENT



## 12. THE ROLE OF THE REAL ESTATE DEVELOPMENT FUND (REDF)

Established by King Faisal bin Abdulaziz in 1394, REDF may well be one of the largest home loan programmes in the history of the world. By financing the construction of hundreds of thousands of housing units, offices and stores with interest-free loans, REDF has made an enormous, long term contribution to the welfare of Saudi Arabia and its people<sup>1</sup>.

### 12.1 ESTABLISHMENT OF (REDF)

The Ministry of Finance and National Economy put forward a proposal for the establishment of (REDF) in 6/6/ 1394 H. The Council of Ministers approved the proposal. The (REDF) was established by Royal Decree No. M/23 dated 11/6/1394 H<sup>2</sup>. According to the Royal Decree, (REDF) is a financial institution attached to the Ministry of Finance and National Economy, the Institution is administered by a committee composed of a president and seven members. (Fig 12-1, 12-2)

### 12.2 GOALS OF (REDF)

#### 1. Private loans.

To provide long-term, interest-free loans to middle and low income Saudi land owners for the purpose of private housing construction.

#### 2. Investment loans.

To provide interest-free loans to Saudi nationals wishing to construct a multi-unit project for investment purposes. (Fig 12-3)

### GENERAL OBJECTIVES OF (REDF)

#### 1. More housing units to be available.



2. Saudi investors have the opportunity to participate in the construction of larger housing complexes.
3. More buildings suitable for commercial centres, banks, companies, offices and business centres may be built.

Also an additional objective which is to assist the local municipalities in developing cities and constructing housing complexes<sup>3</sup>.

### 12.3 AMOUNT OF LOANS

For the private loans, the amount should not exceed 70% of the building cost, with an upper limit of SR 300,000 per loan.

For the investment loans, the amount should not exceed 50% of the building cost, with an upper limit of SR 10 million<sup>4</sup>.

### 12.4 CLASSIFICATION OF PRIVATE LOANS

The different areas of the Kingdom was classified into the following three groups:

- |          |   |
|----------|---|
| Group A: | Loans designated for use in major cities were limited to SR 300,000.      |
| Group B: | Loans designated for use in medium size towns were limited to SR 250,000. |
| Group C: | Loans designated for use in small villages were limited to SR 200,000.    |

### 12.5 CONDITIONS OF THE LOAN APPROVAL<sup>5</sup>

1. Saudi Nationality (male or female)<sup>6</sup>.
2. Age of 21 years or more. If less than 21, he should be married.



3. The person does not own a private house.
4. The loan is for one time only.
5. He should own a building site.
6. He has building permission from the municipality of the area.

#### 12.6 PAYMENT OF PRIVATE LOANS:

The total amount of the loan is given through four payments which are as follows:-

1. The first amount, 10% of the total amount is given directly after the approval of the application by the head office of (REDF) in Riyadh.
2. The second amount, 40% of the total amount is given directly after the completion of the reinforced concrete frame of the building. A period of 3 months is minimum between the first and second payment.
3. The third amount, 40% of the total amount is given directly after the completion of the outside finishing, floor textiling and fitting toilets. A period of 5 months is minimum between the second and third payment.
4. The fourth payment (final), 10% of the total mount is given directly after the completion of the inside finishing and fitting windows and doors. A period of 2 months is minimum between the third and the final payment.

#### 12.7 REPAYMENT OF LOANS<sup>7</sup>

For the private loans, the repayment period is 25 years, and a two-year grace period is allowed. On 23/1/1400, a Royal Decree was announced. The following incentives were granted by he Royal Decree:

1. One time payment Reward.

The amount of each instalment is to be reduced by 20% if that



instalment is paid within 30 days of its due date.

## 2. Early payment reward.

The total outstanding balance of the loan is to be reduced an additional 10% for early repayment in full.

For the investment loans, the repayment period is 10 years.

## 12.8 LEGAL REGULATIONS

At the early stage of the (REDF), the authority of controlling the land of the building should be under the (REDF). The owner of the building could not sell the house only after he/she repays the full loan<sup>8</sup>. Later in 1986 a Royal Decree allow the transfer of ownership of the house and the land to a new owner who can fulfil the original conditions of (REDF). The first owner has no right to another loan<sup>9</sup>.

## 12.9 THE (REDF) ASSESSMENT

The supply of housing units in the Kingdom went far beyond expectation, this was the main objective of the (REDF), which was to provide more housing units in the country to solve the problem of Housing in Saudi Arabia.

"A tiny place the size of a make-up mirror which you owned is much better than the rent". This is an Arabic saying which emphasises the dream of every Saudi citizen to own a residential unit (either a flat, a house or a villa). It is a dream which is becoming true through the establishment of the (REDF)<sup>10</sup>. Of the total 506,000 housing units built between the period of 1974-1985 by all housing sectors in the Kingdom, more than 75% were built by (REDF)<sup>11</sup>. It gave a great push to the development of most parts of the Kingdom<sup>12</sup>. It also boosts the construction industry, the local contractors and the trade of building materials<sup>13</sup>.



The upper limit of SR 300,000 for private loans which is 70% of the total cost of constructing a medium size house highlights the high cost of construction in Saudi Arabia. This is beside the cost of the land which reached some high level in the period of organising the (REDF). The (REDF) consider SR 1600 is the cost per square meter<sup>14</sup>.

The reason for the two rewards (on-time rewards and full payment reward) was the financial difficulties which was reflected on the people at the beginning that they could not pay their instalment. The two rewards encouraged the people to repay in an early time and they start queuing for repayment<sup>15</sup>.

The (REDF) director, Ahmed Al-Ageel, indicates that the (REDF) believes that the upper-limit of SR 300,000 is sufficient for constructing a reasonable house with reasonable specifications. Also (REDF) believed that the necessary labours and building materials are available in the market at reasonable prices<sup>16</sup>.

Regarding the SR 300,000 there was a problem from the side of the contractors and the traders of the building materials. Regardless of the (REDF) beliefs, it was observed that the contractor would like to take the largest piece of this amount, the traders also doing the same. A house which might cost SR 200,000, after the (REDF) have to be more. Even if the material and labours were available the cost was high because every contractor and trader knows that the person in front of him has an access to SR 300,000.

The main task of the (REDF) was to provide houses to solve the problem of housing in Saudi Arabia<sup>17</sup>. The problem was the cost of rent which reached imaginative levels. But even after the (REDF) the problem was not solved. Many newly build houses were empty and locked<sup>18</sup>. The (REDF) have no control on such things. The (REDF) function was to approve or reject applicants and to



give loans <sup>19</sup>. This shows that the behaviour of owners is not responsible, where they have now better chances for getting reasonable profits, but they were insisting on high rent or they prefer to leave it closed and empty.

By looking through the two manuals of the private and investment lending it could be concluded that the (REDF) role does not include the participation in the type of design or the specification. The (REDF) depends on the Municipalities to do this job. The (REDF) is working on the policy of the freedom of choice in terms of selection of building type, size, design and location<sup>20</sup>. (Fig 12-4)

This indicates that the (REDF) has no control of the final product except for some little specification such as the use of marble and expensive toilet fitting types. Although the system does encourage the building with reinforced concrete.

The (REDF) is the means by which most of Saudi Citizens have the access to own their houses. By looking at (Table 12-1, 12-2, 12-3 and 12-4) it could be observed that the power which (REDF) could have to control the build environment in Saudi Arabia is large. The (REDF) could be the stick which will enforce design guidelines through the sweet fruit of its loan.



Table 12-1

Development of the Fund's Capital  
(95/96 - 1407/1408)

Fiscal Year	Authorized Capital	Paid Up Capital
1395/1396H	9,000,000,000	5,000,000,000
1396/1397H	23,800,000,000	10,500,000,000
1397/1398H	33,800,000,000	19,900,000,000
1398/1399H	33,800,000,000	24,900,000,000
1399/1400H	38,800,000,000	30,850,000,000
1400/1401H	43,800,000,000	38,850,000,000
1401/1402H	51,100,000,000	43,850,000,000
1402/1403H	59,500,000,000	50,850,000,000
1403/1404H	62,400,000,000	57,650,000,000
1404/1405H	69,000,000,000	64,250,000,000
1405/1406H	70,393,700,000	68,553,000,000
1406/1407H	73,438,000,000	68,967,555,000
1407/1408H	73,769,000,000	70,840,555,000

Source: (REDF) Project (1-h), p.26.

Table 12-2

Private Housing Loans (95/96 - 407/1408H)  
(Value in Million of Riyals)

Fiscal Year	No. of Applications	No. of Loans	No. of Housing Units	Loans Value
95/1396H	34189	34189	41017	8197
96/1397H	46955	46955	56346	13536
97/1398H	30700	3832	4598	955
98/1399H	35308	34407	41288	8690
99/1400H	37016	33190	39828	8185
400/1401H	36815	28593	34312	6956
401/1402H	35572	31133	37360	8052
402/1403H	41735	35359	42430	9438
403/1404H	39541	29400	35280	7917
404/1405H	39280	26215	31458	7131
405/1406H	29590	18844	22613	5159
406/1407H	17448	11208	13450	3066
407/1408H	19203	11648	13978	3198
Total	443352	344973	413958	90480

Source: REDF Report (1-h), p.26.

Table 12-3

Investment Loans and their Breakdown During  
Period (96/97 - 407/1408H)  
(Value in Millions of Riyals)

Fiscal Year	Number of Loans	No. of Housing Units	Number of Offices	No. of Exhibitions	Loans Value
96/1397H	439	8223	391	659	1042
97/1398H	139	2043	98	175	277
98/1399H	419	4534	183	417	675
99/1400H	287	2276	89	345	460
400/1401H	202	1738	180	261	385
1401/1402H	196	1548	160	301	459
1402/1403H	230	1394	251	100	495
1403/1404H	165	1379	65	294	358
1404/1405H	124	1642	97	378	421
1405/1406H	88	1022	66	458	284
1406/1407H	38	401	26	236	91
1407/1408H	31	290	6	79	51
Total	2358	26488	1612	3703	4996

Source: REDF Report (1-h), p.27.

Table 12-4

Collections During (400/401 - 407/1408H)  
(Millions of Riyals)

Fiscal Year	Collection of Special Loans	Collection of Housing Loans	Total
400/1401H	1070	112	1182
401/1402H	1418	174	1592
402/1403H	1633	213	1846
403/1404H	1863	268	2131
404/1405H	2132	261	2393
405/1406H	2384	225	2609
406/1407H	2048	175	2224
407/1408H	2717	248	2965

Source:  
REDF Report (1-h), p.27.



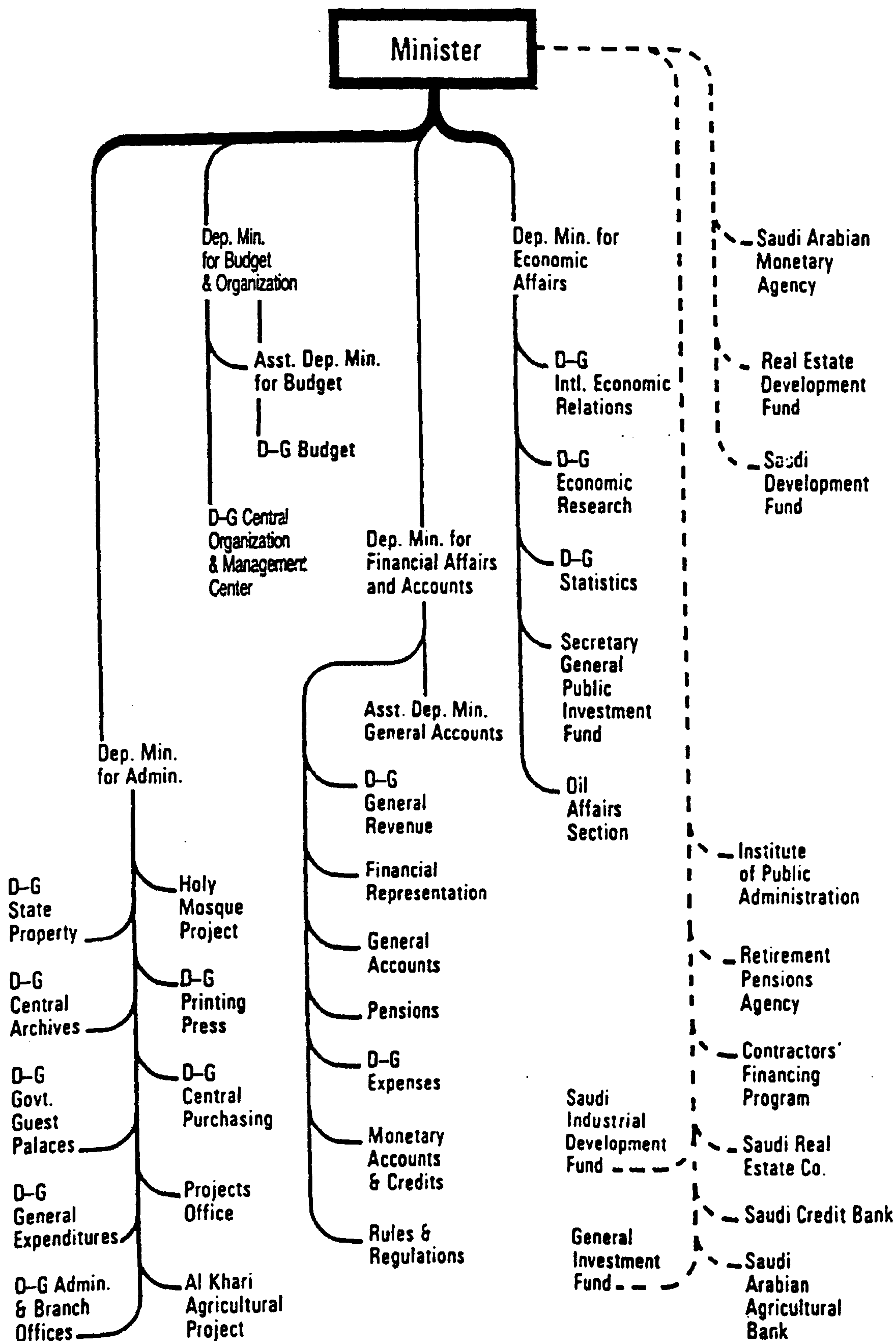


Fig 12-1 MINISTRY OF FINANCE AND NATIONAL ECONOMY

Source: Al-Farsi, F. 1982, p.126.



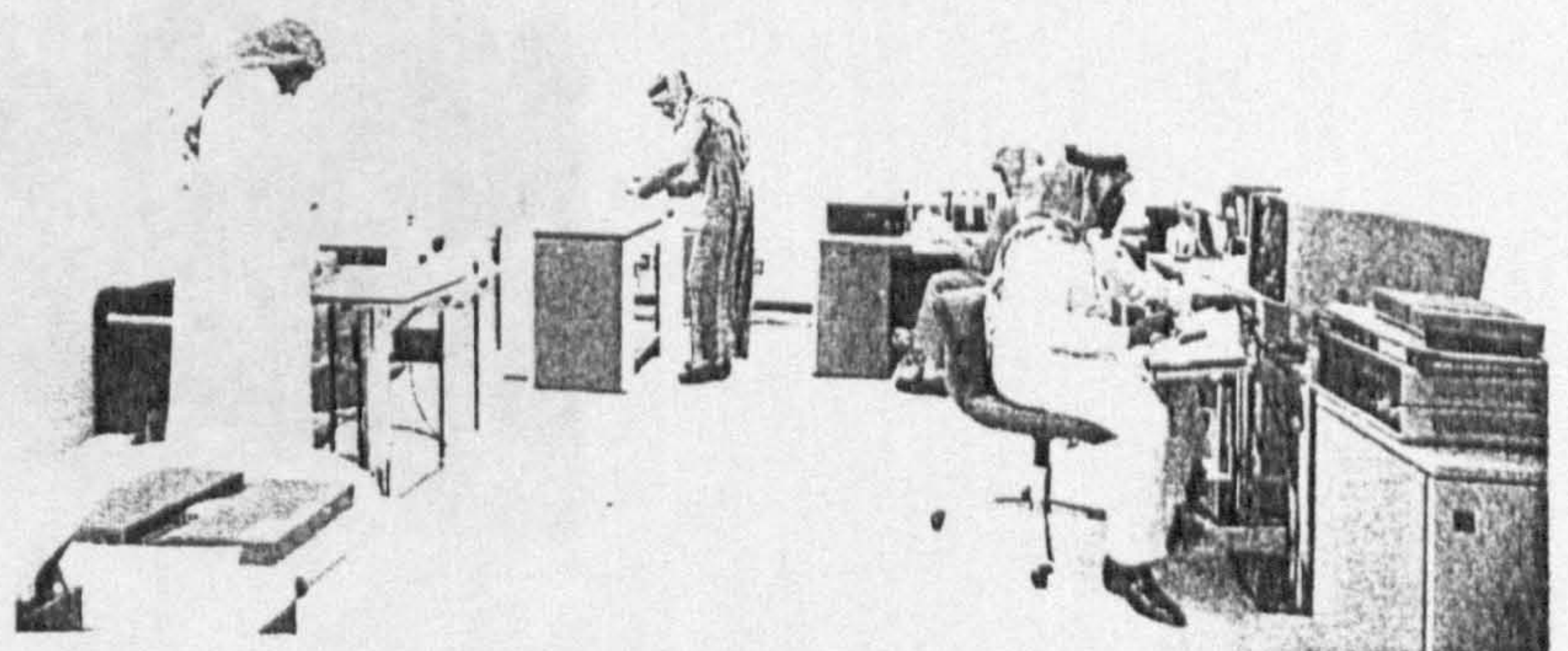
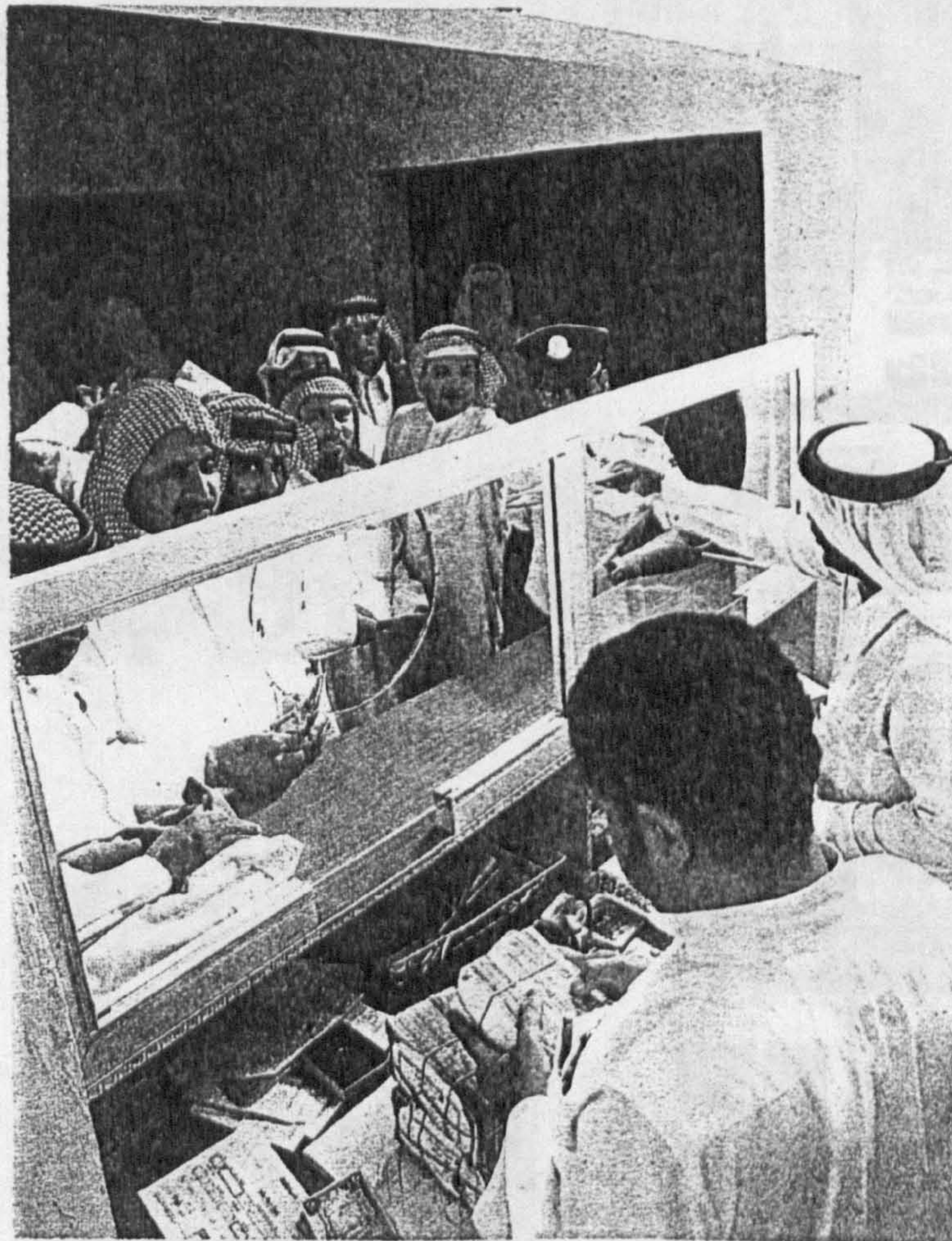
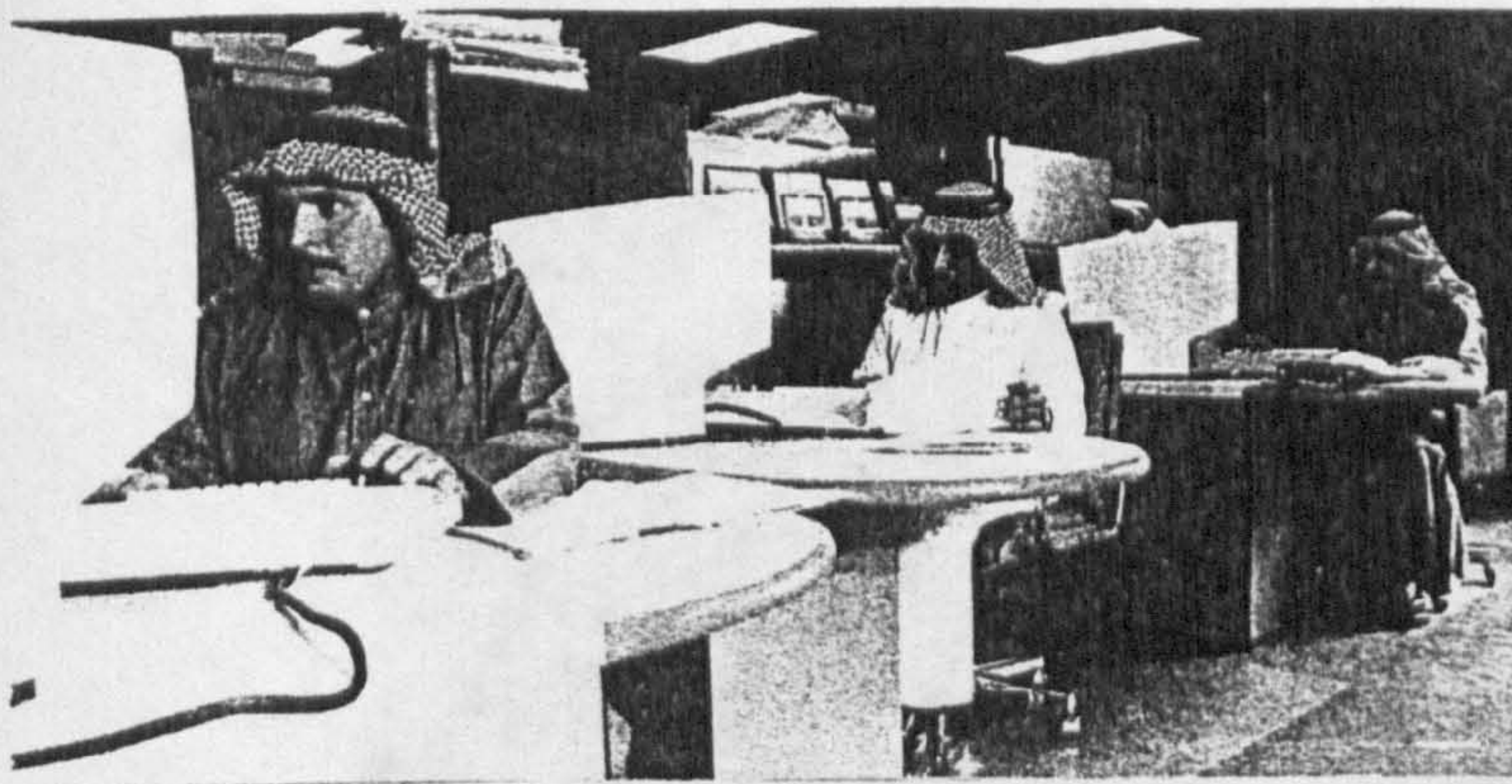


Fig 12-2 VIEW OF REDF OFFICES  
Source: REDF Report<sup>(1)</sup>.



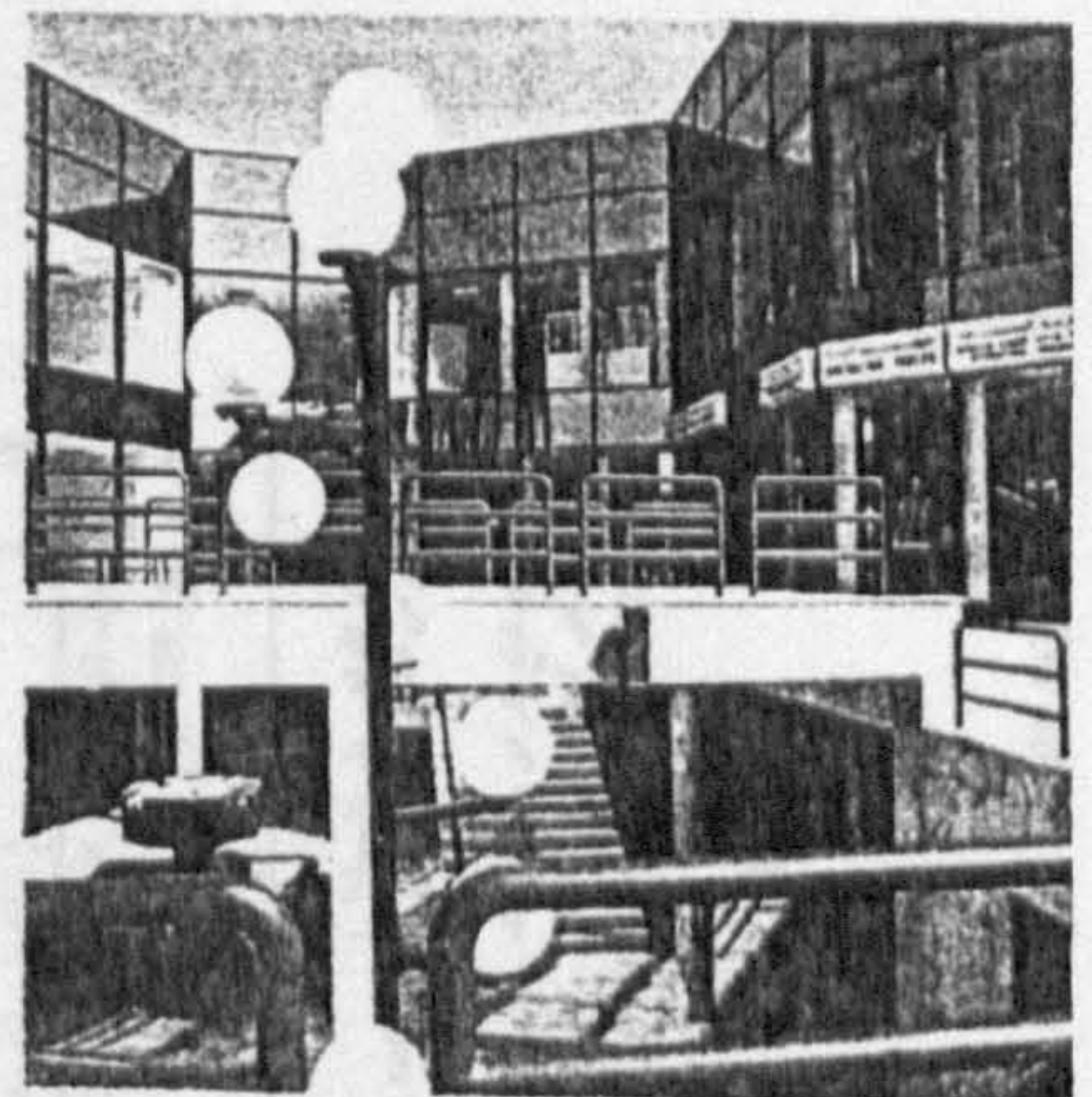
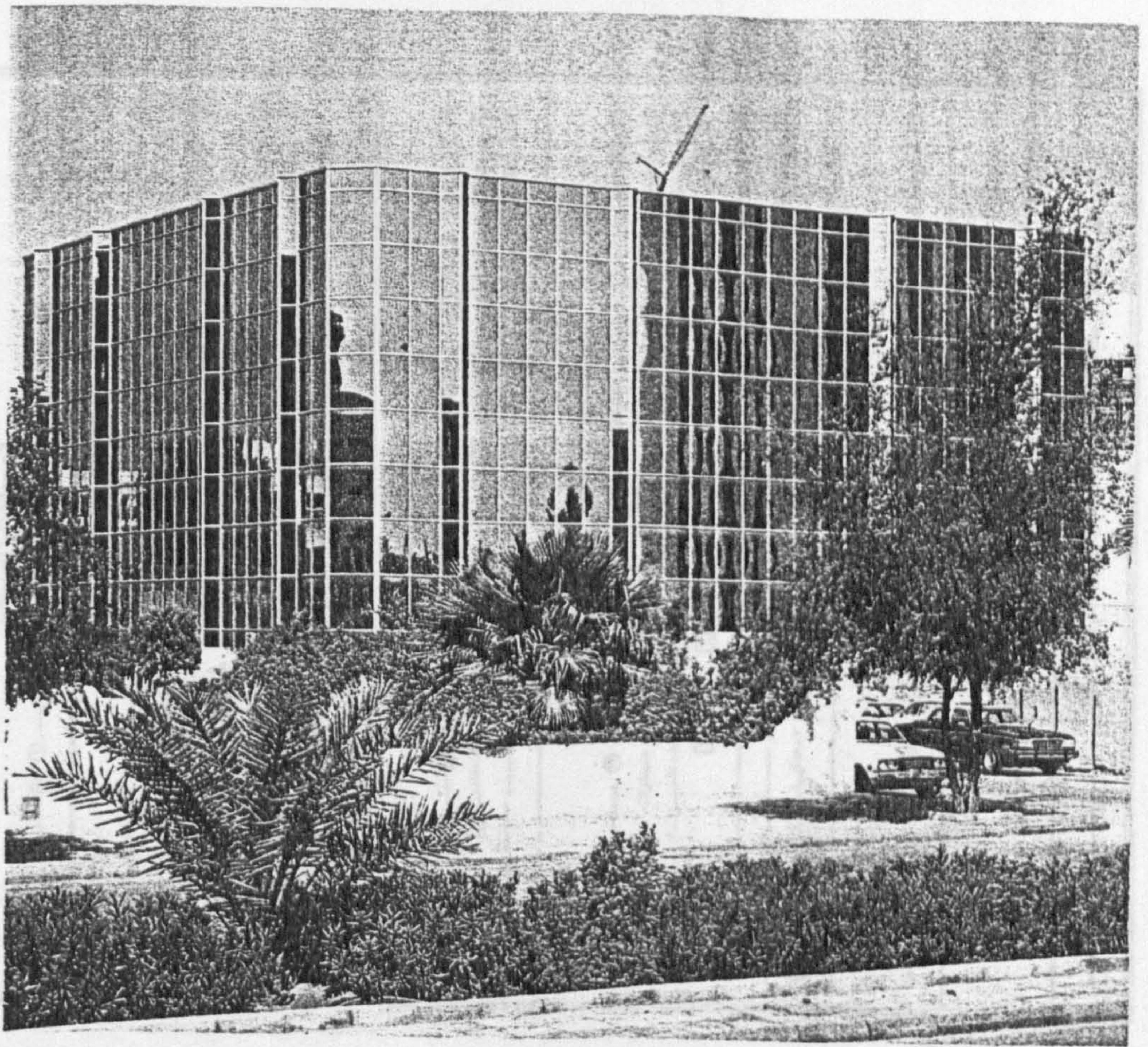


Fig 12-3

VIEW OF INVESTMENT PROJECTS

Source:

REDF Report<sup>(1)</sup>.







**Footnotes: Chapter 12**

1. For more information about the REDF see the following:-

- a) MINISTRY of Finance and National Economy S.A. Real Estate Development Funds Private Loans Manual. REDF, Riyadh 1403, (in Arabic).
- b) MINISTRY of Finance and National Economy S.A. Real Estate Development Fund, Investment Loans Manual. REDF, Riyadh 1403 (in Arabic).
- c) MINISTRY of Finance and National Economy S.A. Real Estate Development Fund, Seven Year Review, 1395/96-1401/02. REDF, Riyadh.
- d) MINISTRY of Finance and National Economy S.A. Real Estate Development Fund, Annual Report 1402/03. REDF, Riyadh.
- e) MINISTRY of Finance and National Economy, S.A. Real Estate Development Fund, Annual Report 1403/04. REDF, Riyadh.
- f) MINISTRY of Finance and National Economy S.A. Real Estate Development Fund, Annual Report 1404/05. REDF, Riyadh.
- g) MINISTRY of Finance and National Economy S.A. Real Estate Development Fund, Annual Report 1405/06. REDF, Riyadh.
- h) MINISTRY of Finance and National Economy, S.A. Real Estate Development Fund, Annual Report 1406/07-1407/08. REDF, Riyadh.

2. Op. cit (1-c) p.8.

3. Okaz Newspaper, No. 4590, 25/12/1978, Jeddah (in Arabic).

4. The USA Dollar is equivalent to SR 3.75.

5. ALJAZIRAH Newspaper No. 4592, 25/4/1985, Riyadh p. (9) (in Arabic).

6. For the woman, she should be one of the following:

- 1. A divorced woman.
- 2.
- 3. 40 years of age or more even if she is not married.

7. Op. cit (4).



8. ALNADWAY Newspaper No. 5862, 6/6/1978, Makkah (in Arabic).
9. OKAZ Newspaper No. 7447, 17/11/1986, Jeddah (in Arabic).
10. AL-RIYADH Newspaper No. 6764, 30/12/1986, Riyadh (in Arabic).
11. ASHARQ AL-Awsat Newspaper No. 2989, February 1987, London (in Arabic).
12. AZ MEDINA Newspaper No. 7110, 10/10/1989, Jeddah (in Arabic).
13. AL YOUN Newspaper No. 4812, 18/8/1986, Dammam (in Arabic)
14. ALJAZIRAH Newspaper No. 4592, 25/4/1985, Riyadh (in Arabic).
15. OKAZ Newspaper No. 4980, 8/1/1980, Jeddah (in Arabic).
16. RIYADH Newspaper No. 4550, 2/6/1980, Riyadh (in Arabic).
17. ABA-ALKHAIL, Ibrahim, The Real Estate Development Fund, ALBenaa Magazine, No. 4, Riyadh, S.A. 1399 p.82.
18. Ibid p.85.
19. RIYADH Newspaper No. 4357, 10/10/1979, Riyadh, S.A.
20. ALSAATI, Abdulaziz J. Housing Finance and Residents Satisfaction, the case of the (REDF), Open House International, Volume 14, No. 2, University of Newcastle (CARDO), Newcastle, 1989, p.35.



## CHAPTER 13

### THE ROLE OF THE MINISTRY OF HOUSING

#### 13.1 ESTABLISHMENT

#### 13.2 PURPOSE

#### 13.3 THE PROJECTS

- 13.3.1 PROJECT NO. 1
- 13.3.2 PROJECT NO. 2
- 13.3.3 PROJECT NO. 3
- 13.3.4 PROJECT NO. 4
- 13.3.5 PROJECT NO. 5
- 13.3.6 PROJECT NO. 6
- 13.3.7 PROJECT NO. 7
- 13.3.8 PROJECT NO. 8
- 13.3.9 PROJECT NO. 9
- 13.3.10 PROJECT NO. 10
- 13.3.11 PROJECT NO. 11
- 13.3.12 PROJECT NO. 12

#### 13.4 MINISTRY OF HOUSING ASSESSMENT

- 13.4.1 DESIGN AND CONSTRUCTION
- 13.4.2 THE COST
- 13.4.3 DISTRIBUTION



## 13 THE ROLE OF MINISTRY OF PUBLIC WORKS AND HOUSING

This is the other role which is working in Saudi Arabia for solving the housing problems in the country.

### 13.1 ESTABLISHMENT

A general administration of housing was established in 1971. It was attached to the Ministry of Finance and National Economy. A Royal Decree established the Ministry of Public Works and Housing in 1975<sup>1</sup>. (Fig.13-1)

### 13.2 PURPOSE

The administration of housing was established to plan the construction of housing projects for low and medium income people in Saudi Arabia.

The establishment of the Ministry of Public Works and Housing was because the problems of housing became noticed everywhere at a large scale in most of the Saudi cities. As the time passed, the government felt that a Ministry which would deal with the problems of housing was urgently needed. So the administration was transformed into Ministry with its own budget and staff.

The purpose of this Ministry was to prepare and support the construction of general housing in Saudi Arabia and to arrange for all the requirements to develop it. Also the registration of the contractors and the planning of public works for the cities and other agencies was to be under the supervision of this Ministry.

### 13.3 THE PROJECTS

In this section, a brief description of the housing project which



the Ministry of Housing established all over the Kingdom<sup>2</sup>.

#### 13.3.1 Project No.1 (completed)

Project Name: Rush Housing (Jeddah) - completed.

Project Location: King Fahad Street, Jeddah.

Project Area: 1,000,000 square meters.

Housing Units: 1936 (flats).

Description of the Project:-

- 32 high rise buildings. (Fig 13-2)
- Each building is 18 stories high.
- The flat is 232 square meters, consisting of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers. (Fig 13-3)
- Basements for emergency.
- Control room connected to each unit.
- Elevators.
- Commercial spaces for shops and offices.
- Public spaces, parks, car parks and green areas.
- Spaces were provided for Mosque, schools, clinics and other facilities.
- The project was connected to public services such as - electricity, water, sewerage and telephone.
- The roof of each building was designed to be a landing space for helicopter.

Total Cost: 2,000,000,000 Saudi Riyals<sup>3</sup>.

#### 13.3.2 Project No. 2 (completed)

Project Name: Rush Housing (Dammam) - completed

Project Location: South East Dammam on the Dammam-ALKhobar Road.

Project Area: 3,500,000 square meters.

Housing Units: 1664 (flats).

Description of the Project:

- 32 high rise buildings
- Each building is 17 stories.
- The flat is 207 square meters, consisting of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- Control room connected to every unit.
- Elevator.
- Commercial spaces for shops and offices.
- Public spaces, parks, car parks, and green areas.
- The project was connected to public services such as electricity, water, sewerage and telephone.
- The roofs of the buildings were designed to be a landing area for helicopters.

Total Cost: 1,914,000,000 Saudi Riyals<sup>4</sup>.



### 13.3.3 Project No. 3 (completed)

Project Name: Rush Housing (Riyadh) - completed.

Project Location: AL-Khazan Road, Olayah, Riyadh.

Project Area: 190,591 square meters.

Housing Units: 1152 (flats).

Description of the Project:-

- 24 buildings.
- Each building is 10 stories.
- The two first floors are for commercial use, and the remaining 8 stories are for housing.
- Each floor consists of 6 flats.
- The flat is 226 square meters, consisting of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room, storage and 3 toilets with showers.
- Basement for emergency.
- Two restaurants.
- Control room connected to each unit.
- Elevators.
- Roads and car parks and park areas for children.
- The project is connected to public services such as electricity, water, sewerage and telephone.
- A Mosque was built with an area of 2870 square meters in the project.

Total Cost: 1,000,000,000 Saudi Riyals<sup>5</sup>.

### 13.3.4 Project No. 4 (completed)

Project Name: General Housing (Jeddah).

Project Location: Makkah Road (10-13 Kilo) Jeddah.

Project Area: 2,736,360 square meters.

Housing Units: 3420 (flats).

Description of the Project:-

- 188 buildings.
- The height of the building is between (4, 6 and 8 stories).
- The flats are 241 square meters consisting of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets.
- There are public spaces, parks and car parking.
- There are spaces for Mosques, schools, clinics and other facilities.
- The project was connected to public services (electricity, water, sewerage and telephone).

Total Cost: 1,748,000,000 Saudi Riyals<sup>6</sup>.

### 13.3.5 Project No. 5 (completed)

Project Name: General Housing (ALKhobar).



Project Location: On the west side of the Road to ALAzizayah beach. South of Khoban.

Project Area: 1,332,000 square meters.

Housing Units: 4,106 (flats).

Description of the Project:

- 219 buildings.
- The height of the buildings is between (4, 6 and 8 stories).
- The flats consist of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- There are public spaces, parks and car parking.
- Water tower to support the requirements of the project.
- Station to pump the drainage and sewerage.
- There are spaces for Mosque, schools, clinics and other public facilities.

Total Cost: 1,175,610,639 Saudi Riyals<sup>7</sup>.

#### 13.3.6 Project No. 6 (completed)

Project Name: General Housing (Riyadh).

Project Location: AL-Kharje Road 16th Kilo (Riyadh).

Project Area: 6,000,000 square meters.

Housing Units: 5,041 (flatted villas).

Description of the Project:-

- A - Building (complexes of flats). (2408 flats)
  - 135 buildings.
  - The height of the building between 4, 6 and 7 stories.
  - The flats are 186 square meters, consisting of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- B - Villas (2633 villas).
  - Each villa is one storey.
  - The villa on a land of 400 square meters.
  - The built area of the villa is 216 square meters.
  - The villas consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- C - The whole project contains public areas, roads, car parking and open green areas.
  - There are spaces for Mosques, schools, clinics, post and fire departments.
  - The project was connected to public services (electricity, water, sewerage and telephone).

Total Cost: 2,799,336,000 Saudi Riyals<sup>8</sup>.

#### 13.3.7 Project No. 7 (completed)

Project Name: General Housing (Riyadh).

Project Location: East of Riyadh.



Project Area: 5,300,000 square meters.

Housing Units: 1258 (villas).

Description of the project:-

- The project was design on the basis of villas.
- Each villa is one storey, available for adding another storey in future.
- Each villa is on a square of land 22 x 22 meters (484 square meters).
- The built area of the villa is 235 square meters.
- The villa consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- There are public areas for parks, roads, and car parking.
- There are spaces for Mosques, schools, clinics and other things.

Total Cost: 1,353,340,075 Saudi Riyals<sup>9</sup>.

#### 13.3.8 Project No. 8 (completed)

Project Name: General Housing (Buraidah).

Project Location: Bunaidah.

Project Area: 3,700,000 square meters.

Housing Units: 949 (villas).

Description of the Project:-

- The project was designed on the basis of villas.
- Each villa is one storey, available for adding another floor for future needs.
- Each villa is on a square of land of 20 x 20 meters (400 square meters).
- The built area of the villa is 237 square meters.
- The villa consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- There are public areas for parks, roads and car parking.
- There are spaces for Mosques, schools, clinics and other public facilities.
- The project is connected to public services (electricity, water, sewerage and telephone).

Total Cost: 837,048,710 Saudi Riyals<sup>10</sup>.

#### 13.3.9 Project No. 9 (under construction)

Project Name: General Housing (Medinah).

Project Location: Beside the Green Ring Road, East of Medinah.

Project Area: 2,500,000 square meters.

Housing Units: 2084 (villas).

Description of the Project:-

- The project was designed on the basis of villas.



- Each villa is one storey, available for adding another floor for future needs.
- Each villa is on a square of land of 20 x 20 meters (400 square meters).
- The built area of the villa is 225 square meters.
- The villa consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- There are public areas for parks, roads and car parking.
- There are spaces for Mosques, schools, clinics and other public facilities.
- The project will be connected to public services (electricity, water, sewerage and telephone).

Total Cost: 1,345,000,000 Saudi Riyals<sup>11</sup>.

#### 13.3.10 Project No. 10 (under construction)

Project Name: General Housing (Makkah).

Project Location: AL-Rusaifah District (Makkah).

Project Area: 2,600,000 square meters.

Housing Units: 2,592 (villas).

Description of the Project:-

- The project was designed on the basis of villas.
- Each villa is one storey, available for adding another floor for future needs.
- Each villa is on a square of land of 20 x 20 meters (400 square meters).
- The built area of the villa is 225 square meters.
- The villa consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets with showers.
- There are public areas for parks, roads, and car parking.
- There are spaces for Mosques, schools, clinics and other public facilities.
- The project will be connected to the public services (electricity, water, sewerage and telephones).

Total Cost: 1,664,000,000 Saudi Riyals<sup>12</sup>.

#### 13.3.11 Project No. 11 (under construction)

Project Name: General Housing (Oatif).

Project Location: Eastern Side of ALJash village, on the east side of Rus Tunorah - Dhahran highway

Project Area: 1,000,000 square meters.

Housing Units: 600 (villas).

Description of the project:-

- The project was designed on the basis of villas.
- Each villa is one storey, available for adding another floor for future needs.



- Each villa is on a square of land of 20 x 20 meters (400 square meters).
- The built area of the villa is 227 square meters.
- The villa consists of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets.
- There are public areas for parks, roads and car parking.
- There are spaces for Mosques, schools, clinics and other public facilities.
- The project will be connected to public services (electricity, water, sewerage and telephones).

Total Cost: 411,000,000 Saudi Riyals<sup>13</sup>.

#### 13.3.12 Project No. 12 (under construction)

Project Name: General Housing (ALAHSA).  
Project Location: Southern of Hafufe and South of Khalidayah district.

Project Area: 700,000 square meters.

Housing Units: 400 (villas).

Description of the Project:-

- The project was designed on the basis of villas.
- Each villa is one storey, available for adding another floor for future needs.
- Each villa is on a square of land of 20 x 20 meters (400 square meters).
- The built area of the villa is 227 square meters.
- The villa consist of the following - 3 bedrooms, majlis (reception), living room, kitchen, dining room and 3 toilets.
- There are public areas for parks, roads and car parking.
- There are spaces for Mosques, schools, clinics and other public facilities.
- The project will be connected to public services (electricity, water, sewerage and telephones).

Total Cost: 282,000,000 Saudi Riyals<sup>14</sup>.

#### 13.4 MINISTRY OF PUBLIC WORKS AND HOUSING ASSESSMENT

The Depute Ministry of Housing has directed its efforts to fill the gap in the housing requirements with the intention of settling the maximum number of people within the shortest time.

The Ministry started its work as if it was on a race track with time. This was observed through the first three projects (Project No. 1, 2 and 3), in which the name "Rush Project" was



emphasising the intention of the Ministry in building these projects to meet the high demand of housing in the country.

The Ministry with its full power facilitated the organisation with all the requirements to complete the projects. The Ministry constructed two special seaports for its purposes. The first one was on the Red Sea at Qadimah and the other one was on the Arabian Gulf at Ras Al-Ghar. The emptying capacity of the two seaports is 2 million ton a year with a storage capacity of 300 thousand cubic meters of housing materials. The cost of these two special seaports was 1605 million Saudi Riyals<sup>15</sup>.

The observation on the Projects of the Ministry of Housing could be as follows:-

- Design and construction observation.
- Cost observation.
- Distribution observation.

#### 13.4.1 Design & Construction

The first step of the Ministry was the Rush Housing projects in the three major and fast expanding cities of Jeddah, Dammam and Riyadh. In these cities the demand of housing was more urgent and important than other parts of the Kingdom. This operation was followed by the General Housing Projects, involving Riyadh and Jeddah as well as AL-Khobar, Makkah, ALMedina, Buraidah, Oatif and ALHasa.

The Rush Project of Jeddah and Dammam (Project No.s 1 and 2) as was described before were high rise structures, accommodating high densities, they were constructed in a period of 27 months<sup>16</sup>.

These projects were designed with little sensitivity to the lifestyle and needs of lower income users for whom these schemes were presumably intended. These rush projects were designed by



the American firm the Egger Group<sup>17</sup>. All the units were standardised, prefabricated in Europe, imported to Saudi Arabia. This was the reason to construct the two seaports.

Although these schemes are visually and technically impressive, yet they have criticised by several writers as alien to both the physical and social context of their environments. The question was asked about those people who used to open spaces and one or two storey-high could adopt to living in 18 storey high rise apartments, especially for children who used to open ground to play.

High rise structure are largely designed because of limited availability of land. High-rise buildings, which were the Western solution to the problem of increasing urban land prices, are nowadays highly criticized in the west itself. In addition the internal and external negatives effects they are observed to have on people and on the urban environment. A study by D.M. Fanning<sup>18</sup> show a direct correlation between incidence of mental disorder and the height of people's apartments. Women suffer the most, since they spend the greatest amount of time in their apartments; children less; and men, who spend the least amount of time in the apartments, are suffering the least.

The other issue regarding the Rush project was the concentration of the project in one area instead of distributing the units in different areas of the city. The large lump strategy is usually more convenient to concentrate the development of a large scale housing project in one large site. Not only does this facilitate the control of construction, but it also helps in giving an impressive image of the accomplished project, which may be of prime importance to some decision makers<sup>19</sup>. But the concentration of such huge projects like this one in Jeddah, (1936) units besides the commercial facilities were located on the busy streets (King Fahad Street), at least 2000 cars in the



morning will seek an exit from 2 or 3 points to that busy street. A scattered development can obviously spread out the effects of a housing project over a large area of a given city. Such facilities can be planned and designed in a way that serves not only the newly developed housing project but also the external area surrounding the site.

In emergencies such as fire it is too difficult to control it even in the developed countries, so what will happen to it in a country which has difficulties in controlling fires in its ordinary low built environment.

Regarding the social point of it beside the height, the elevators problems have been raised in terms of the separations between men and women. A group were suggesting to assign elevators for women users only, other suggesting family elevators and single elevators for men only. What worried me is not the separation of men and women but the elevator itself. What will happen to the people who are living in the 10th floor and up if the elevator is broken. It will be like jail if there is no good maintenance.

The Ministry of Public Works and Housing has modified the height of buildings to ten, eight, six and four stories in the following projects (Project Nos. 3, 4, 5 and 6), but that was still not likely to solve the basic question whether the tenants could accustom to living off the ground.

A Royal Decree in 1982 cleared this situation by ordering that the following housing projects will be designed on the basis of villas, and no more high-rise buildings to be constructed by the Ministry<sup>20</sup>.

The issue regarding the design of the housing projects of the Ministry of Housing is the repetition of the design of the units.



The repetitive of the same unit thousand times in all the project, not only preclude the flexibility of users choice to suit their own needs, but also the need for individual identity.

The other point regarding the construction of the project. It could be observed that these projects did not help the industry of housing and construction in Saudi Arabia. The projects were designed by foreign companies, the building materials were imported and also labours were imported to construct the projects. For example the Korean companys (Hondai) construct the general project of Jeddah<sup>21</sup>. So, the labours on the Saudi citizen have only a small role in the projects, local resources, physical and human, can be effectively utilised in national housing programme and projects. The design techniques which had been used ignored the traditional concepts of design and the way of using local materials.

#### 13.4.2 The Cost

One of the basic intentions of the Ministry of Public Works and Housing was to provide the maximum number of dwelling units in the shortest possible time, without compromising quality.

The construction cost of the twelve projects of the Ministry is considered to be higher than conventional construction costs in the areas of the projects. (Table 13-1)

The total cost of the projects consist of the following:-

The cost of lands:	(unpublished).
The cost of design:	(unpublished).
The cost of construction:	(18,455,000,000) Saudi Riyals.
The cost of supervision:	(unpublished).
The cost of administration:	(unpublished).
The cost of the two seaports:	(1,605,000,000) Saudi Riyals.

So the total figure is an imaginative number comparing to the total number of housing units in these twelve projects.



Add to this original cost the maintenance cost every year for each project.

According to the Minister of Housing the cost of a villa will reach 593,000 Saudi Riyals. The highest cost of the Rush project of Jeddah where the cost was 2,950 Saudi Riyals per square meter<sup>22</sup>.

The cost of the villa and the cost per square meter is higher than what the REDF consider as a reasonable cost for construction in Saudi Arabia<sup>23</sup>.

What could be observed is that the intention of the Ministry is good, but the means by which these projects were designed and construction were very expensive. For the long run these projects will cause a lot of economical difficulties to the Ministry in particular and the country in general in terms of maintaining them.

#### 13.4.3 Distribution:

During the seventies when the Ministry of Housing launched its Rush projects in Jeddah, Dammam and Riyadh every body was expecting that the Ministry with the intention to finish the project in the shortest time will distribute the housing units as soon as it finished. Yet today, in 1990, the Rush projects and general project which followed the Rush project, still remain empty.

An investigation through the newspaper lead to the following illustration of announcement of the procedure of distribution of the housing units:-

1. 12/10/1978<sup>24</sup>. The Depute Minister of Housing announced that a committee had been established to arrange for the distribution of the Rush Project flats.



2. 12/11/1979<sup>25</sup>. The Minister of Housing announced that the committee raised its suggestion to the Ministries Council for Studying.
3. 8/9/1980<sup>26</sup>. The Amir of Makkah (the administrator of the Distribution Committee of Jeddah Towers state the conditions of the distribution.
  - Saudi Nationality & - Does not own any form of Housing unit in Jeddah & - should be married or responsible for 2 people or more in his family & - never took a loan from REDF & - never got the benefit of any housing project or other agency.
4. 17/9/1980<sup>27</sup>. Announcement by the first Crown Prince and approved the distribution procedure of the flats of Rush project of Jeddah to the people of an old district (Alsabeel District) in Jeddah. The purpose was to demolish this district and replan it for future use. The conditions were announced:- The previous conditions in (3) plus the residency in Alsabeel District.
5. 1/2/1981<sup>28</sup>. The Mior of Jeddah is going to meet with the residence of AL Sabeel District in Jeddah to explain to them the procedure and conditions of their transfer to the flats in the Rush project.
6. 15/10/1985<sup>29</sup>. The Minister of Information announced that the Council of Ministers approved the condition son which the Housing units of the Ministry of Housing will be distributed in the Kingdom:-
  1. The housing units will be a substitute for compensation for a property taken by the government, for example (road construction or municipal work; demolishing of old districts).
  2. The head of the Minister council will approve the decisions of demolishing old districts.
  3. The units will be distributed to the Saudies who are affected by the demolishing decisions as follows:
    - A. Those who rent in the old district have the priority in getting a housing unit.
    - B. Those who own in the old district and they do not own any where else is given a housing unit and he will pay or get the difference of the cost.
    - C. Whoever own in the old district and own another house, he gets a housing unit.
  4. Those who get the units should never have got a housing unit before or a loan from the REDF or any housing from the government agency.



5. Committees will be organised to establish the procedure on which these announcements will take place in every part of the Kingdom. The Amir of each part will be the head of the committee.
7. 16/3/1986<sup>30</sup>. Announcement of the establishment of the housing distribution committees in Jeddah, Dammam and ALKobar.
8. 29/3/1986<sup>31</sup>. Announcement about a study by the government thinking in releasing the Housing Projects to the REDF. The REDF after that will distribute it to the people as a choice to the loan of building.

Through this quick illustration about the policy of distributing the housing units, it is clear that there is no policy. It was mentioned before that until today these housing units are empty for people except dust.

It could be observed that the reasons for not distributing these units to the public may be it has relations with the REDF establishment at the same time with the Ministry of Housing. The REDF as was explained before caused the flow of construction in Saudi Arabia without noticing. The economic part of it, is that the housing market fell below expectations. The release of these housing units will even take it much lower, which the government would not like to do.

There is another problem regarding the vacancy of these projects, and that is the cost of maintenance which is on the shoulder of the government. There is no income generated through renting or selling. Also regarding the design, these projects had been submitted to the Ministry from the contractors, without testing of actual living in it. A lot of construction mistakes could be discovered after occupation.

Finally after these observations it could be noticed that the intention of the government is good but the procedure and the routine of the system is the course of most of the problems which attach any large-scale project.



Table (13.1) Housing Projects and its Cost.

Project (City)	Flat	Villa	Total Cost (Million)
Rush Housing Projects	4752	-	5076
Jeddah	1936	-	2150
Dammam	1664	-	1914
Riyadh	1152	-	1012
General Housing Projects	9934	10516	13379
Jeddah	3420	-	1748
Khoban	4106	-	2080
Riyadh (South)	2408	2633	3716
Riyadh (East)	-	1258	1354
Bunaydah	-	949	837
Medinah	-	2084	1287
Makkah	-	2592	1664
AL-Qatif	-	600	411
AL-Ahsa	-	400	282
	14686	10516	18455

Total Housing Unit 25,202.

Source: Author (A.S.Alafghani).

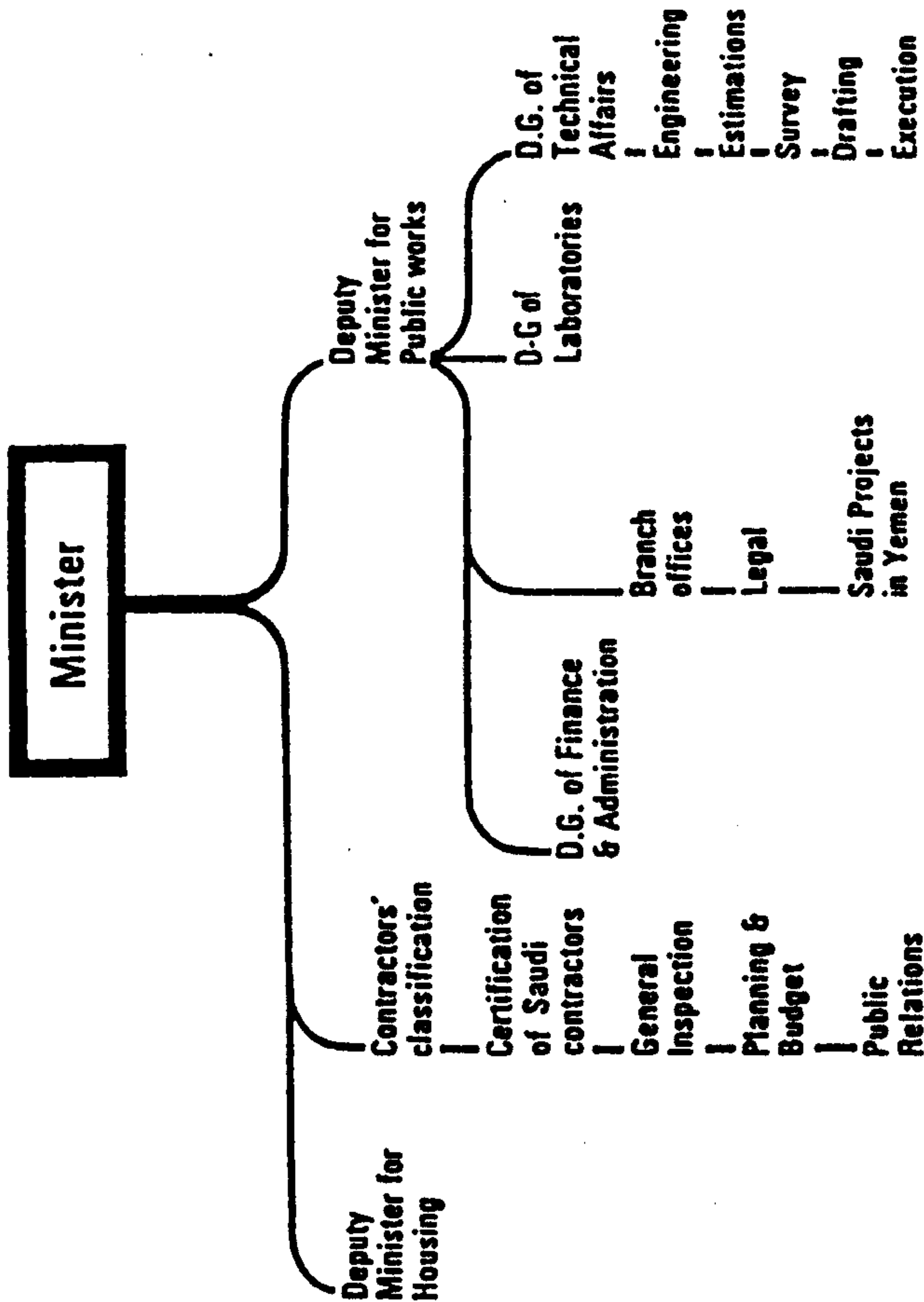


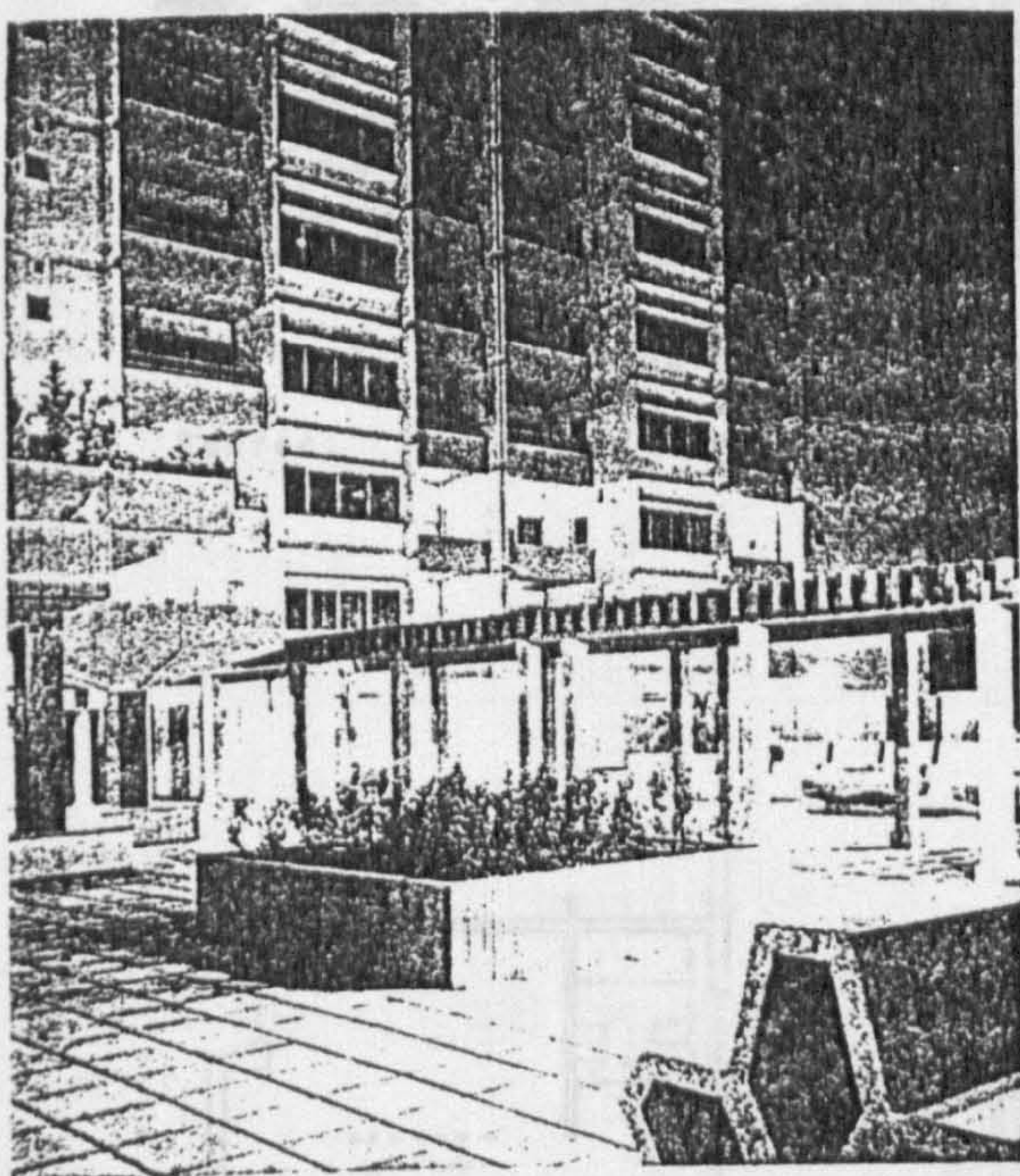
Fig 13-1

MINISTRY OF PUBLIC WORKS AND HOUSING

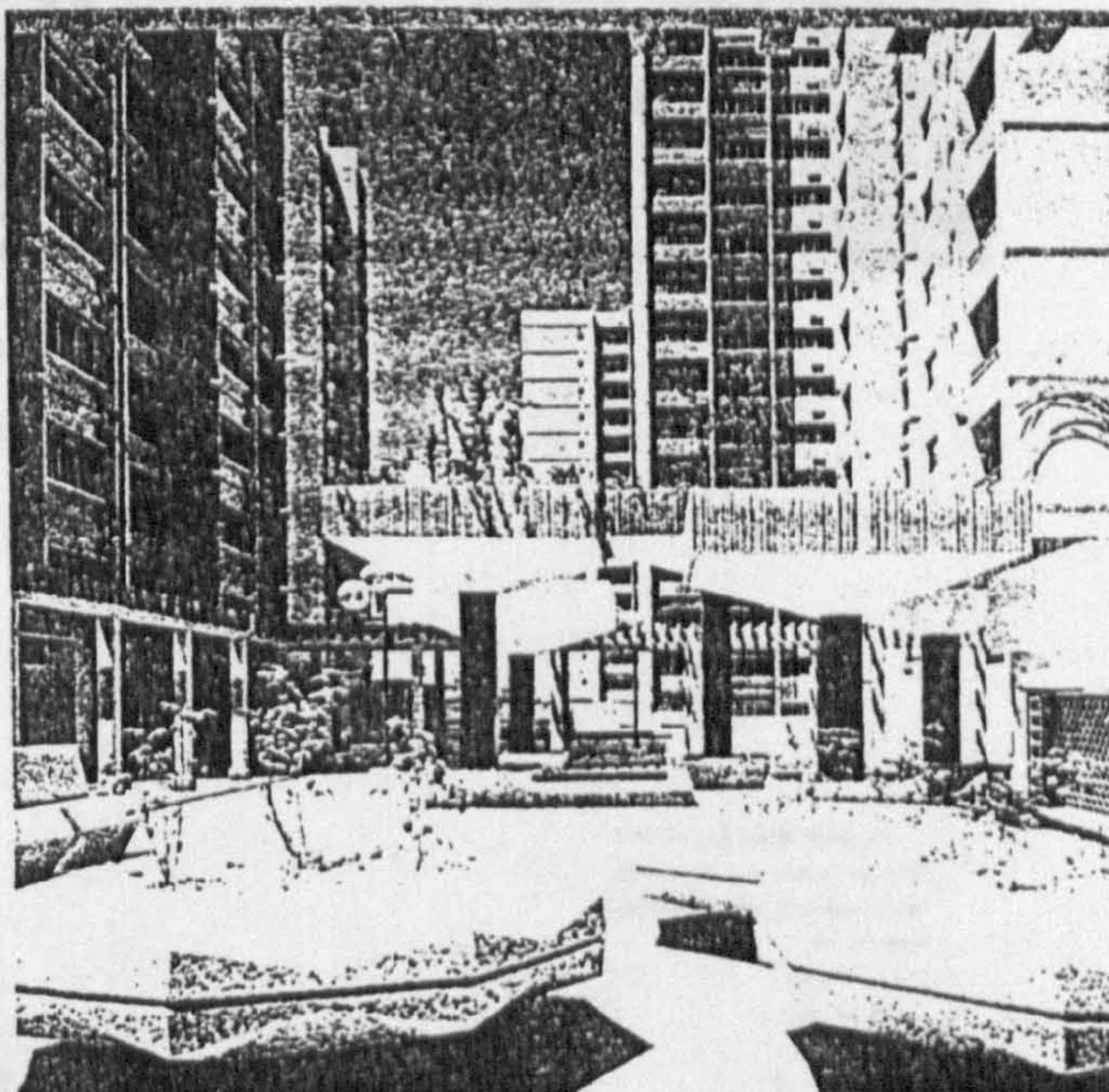
Source:

Al-Paral F. 1982, p.124.





Jeddah



Jeddah



Al-Dammam



Fig 13-2 VIEW OF THE RUSH HOUSING PROJECT, JEDDAH (1)

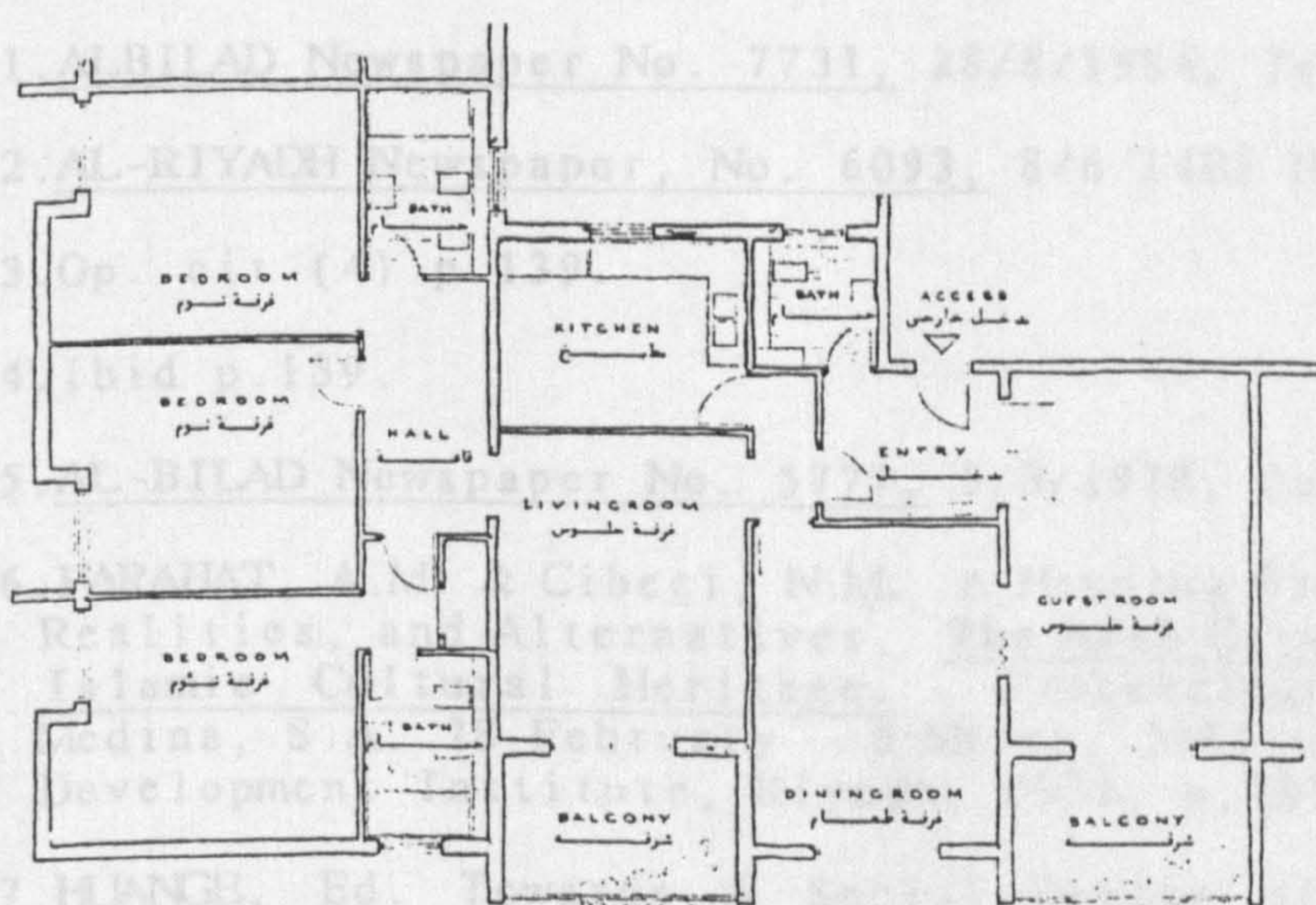
Source: Al Benna Magazine No. 4, 1979.





Fig 13-3 VIEW OF THE RUSH HOUSING PROJECT, JEDDAH (2)

Source: Al Benna Magazine No. 4, 1979, p.77.



الشقة :  
تبلغ المساحة الإجمالية لكل شقة 207 م<sup>2</sup>  
لشقة مربعة (تتضمن طريق المصعد ومسكان  
المصعد) يوجد في كل شقة 18 غرفة تليق  
مساحة كل منها :  
(1) باحة الدخول  
7 كمنار مربعة  
(1) غرفة الطعام  
21 متراً مربعاً  
(3) غرف النوم (كل منها)  
18 متراً مربعاً  
(3) غرف الاستحمام (كل منها)  
9 كمنار مربعة  
(1) غرفة الصبوف  
21 متراً مربعاً  
(1) غرفة الخلعوس  
20 متراً مربعاً  
(1) المطبخ  
12 متراً مربعاً  
(1) غرف صغيرة حمامات  
21 متراً مربعاً  
(الحمام)

THE APARTMENT  
Each apartment has a gross area of  
207 sq.m. (excl. stairway and elevator  
space).  
Entrance hall, 7 sq.m. Guest room,  
24 sq.m. Living room, 20 sq.m. Dining  
room, 21 sq.m. Bedrooms, each 18  
sq.m. Bathrooms, each 9 sq.m.  
Kitchen, 12 sq.m. 4 small rooms,  
corridors, 34 sq.m. (AL-DAMMAM)

Fig 13-4 APARTMENT PLAN, RUSH HOUSING PROJECT, JEDDAH

Source: Al Benna Magazine, No. 4, 1979, p.81.



Footnotes: Chapter 13

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- 23.See chapter 12 for more information about REDF cost estimation.
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- 27.AL-JAZIRAH Newspaper No. 2963, 17/9/1980, Riyadh, S.A.
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## CHAPTER 14

### THE ROLE OF THE OTHER PROJECTS

- 14.1 GENERAL REVIEW
- 14.2 THE MINISTRY OF FOREIGN AFFAIRS STAFF HOUSING PROJECT
- 14.3 KING ABDULAZIZ CITY FOR SCIENCE AND TECHNOLOGY HOUSING PROJECT
- 14.4 PROJECTS ASSESSMENTS



It is very important to illustrate the large scale and the vast distribution of the housing projects all over the country to understand the purpose of these projects. As it was explained before that the government tried its best to tackle the problem of urban and population growth by different means, the previous four chapters explained four ways of organising and constructing housing for the urban requirements. This chapter is to look at the fifth element which participated in solving the housing issue in Saudi Arabia.

#### 14.1 GENERAL VIEW

The different housing projects, which were constructed all over the Kingdom participated in releasing the hard effects of the urban growth. Those projects stand as communities which is independent in terms of facilities and physical requirements. It could be seen that without these projects, it might have been too difficult to cope with the urgent needs of Housing in different parts of the Kingdom.

The housing projects which this chapter is concerned about are excluding the housing projects of the Ministry of Housing. The housing projects in Saudi Arabia could be classified into the following:-

##### 1. Governmental Housing Projects:

Those projects which had been constructed under the governmental orders and governmental money. They could be categorised into:-

##### A. Civilian Projects.

Those intended to accommodate staff who work for government agencies which are under civilian category. For example the following:

##### - Ministry of Finance

The housing projects which come under this Ministry were the early housing projects which took place when Riyadh became the Capital city of the Kingdom. The main project



- of AlMalaz was under the administration of the Ministry of Finance for the purpose of accommodating the governmental personnel who needed to move to Riyadh to work in the new Ministries.
- Almalaz<sup>1</sup>. As it was explained before was a large scale project which consisted of villas and flat complexes. It was under a scheme which intended to provide a suitable home for each family by which at the end the person became the owner of the house.
  - Ministry of Higher Education  
The housing projects under this ministry are the projects which belongs to the different universities to accommodate the different academic and administrative staff beside the students with their families.
    - King Abdulaziz University (Jeddah).
    - King Fahad University (Dhahran).
    - Imam Mohammed Ibn Saud University (Riyadh)<sup>2</sup>.
 These three universities completed their housing projects and they are occupied by the staff of the universities.
  - Ministry of Foreign Affairs  
The Ministry has two housing projects in Riyadh. They were constructed to accommodate the different people and their families and the diplomatic staff after the transferring of the Ministry from Jeddah to Riyadh. There are two major housing projects which were under the supervision of the Ministry of Foreign Affairs.
    - The Diplomatic Quarter<sup>3</sup>.  
This complex contains the foreign Embassies and the housing section which accommodates the diplomatic staff and their families.
    - The Ministry of Foreign Affairs Staff Housing<sup>4</sup>.  
This housing project is to accommodate the different staff and their families in this project. The main goal was to provide a suitable environment and attractive place for the staff who had been transferred from Jeddah to Riyadh.
  - Ministry of Petroleum and Minerals<sup>5</sup>  
Under this Ministry there are many housing projects which were intended to accommodate different people who work under the administration of the Ministry. The following are some of the projects.
    - Aramco housing compound (Dhahran).
    - Aramco housing compound (Dammam).
    - Aramco housing compound (Abqiq).
    - Petromine housing compound (Jeddah).
  - The Royal Commission for Jubail and Yanba<sup>6</sup>.  
These are two huge projects which could be considered as two main cities in which housing represent a large area of the schemes of the two cities. The purpose of these housing projects was to provide houses for those who are interested in the two industrial cities.
  - King Abdulaziz city for Science and Technology<sup>7</sup>  
This organisation which deals with research established



its own housing project in Riyadh and developed its area to accommodate the different required facilities. The housing project intends to provide housing for the staff who work under this organisation.

B. Military Projects<sup>8</sup>.

These projects were intended to accommodate staff who work for government agencies which are under military category. For example the following:-

- Ministry of Defence.

The Ministry of Defence established military cities for the purpose of accommodating the different military personnel and their families (the army personnel). These small cities contain all the required facilities to support the residents in these projects. These projects are:-

Abha Military City.

Khamis Mushait Military City.

Tabuk Military City.

Hafar AL Batin Military City.

Dhahran Military City.

Jeddah Military City.

Riyadh Military City.

- The National Army

The National Army is a separate military organisation which developed its own housing projects for the purpose of accommodating the military personnel and their families. These projects are located in different parts of the Kingdom as follows:

- Jeddah National Army Project.

- Riyadh National Army Project.

- Gasim National Army Project.

- Ministry of Interior

The Ministry of Interior is another agency which provides housing for its employees (police and other personnel). The main housing project is located in the city of Jeddah).

2. Private Housing Projects.

Those projects which had been constructed by individuals or public companies for the purpose of investment. This means that the projects were built first and then rented to different agencies for the purpose of accommodating their staff. Those projects could be found in most major cities of the Kingdom. For example the following:

- ALKhalidiyah (Jeddah)<sup>9</sup>.

This is a housing project which was constructed by one investor (AL-Amodi), later it was rented to the Saudi Airline for the purpose of accommodating the staff of the Saudi Airline. The complex was considered as a small city.

- ALAQariyyah (Riyadh)<sup>10</sup>.

This is another project which was constructed by an investment company. (Real Estate Company, ALAQariyyah).



This project consists of a commercial centre and residential compound. The residential compound consists of villa and flat complexes. The villas were sold individually and the flats were rented to one agency to accommodate its staff.

These two examples are not the only private housing projects in the Kingdom, they are only samples of the private projects.

For the purpose of this study a selection of the following two governmental civilian housing projects are to be illustrated in the following two sections.

The Ministry of Foreign Affairs Staff Housing.  
King Abdulaziz City for Science and Technology.

#### 14.2 THE MINISTRY OF FOREIGN AFFAIRS STAFF HOUSING PROJECTS

The project, the last of three stages towards completing the diplomatic function of the capital city of Riyadh, was implemented by Royal decree to relocate the foreign office and corps from Jeddah to Riyadh<sup>11</sup>. The three inter-related projects are:

1. The building of a new foreign office.
2. The development of a diplomatic quarter.
3. The development of a housing community to accommodate the foreign office staff.

The development of the housing community, was directed by the High Executive Committee, Bureau for the Ministry of Foreign Affairs. They are also the client of the project.

The site selected for the Ministry of Foreign Affairs Staff Housing lies in the northern expansion area of Riyadh, (designated for middle and low density residential areas).



Design programme calls for three basic density groups in the housing developments<sup>12</sup>: (Table 14-1, 14-2)

1. Low density:

Including large villas, semi-detached dwellings, housing senior executive families. Plot sizes are distributed at the 1,000, 800 and 600 square meters.

2. Medium density:

Basically similar to low density, except the plot sizes are 500, 360 and 250 square meters and apartments.

3. High density:

Including semi detached and attached dwellings of 340, 250 and 175 square meters plus apartments.

These are based on the design programme, consisting of a range of thirteen different layouts of dwelling units. There are two types of housing design: family houses and apartment flats. The public and semi-public community facilities consist of:

- . A suaq - The shopping centre.
- . Health-care, dispensaries and clinics.
- . Two elementary schools, one for boys and one for girls.
- . Two mosques are located one each at the east and west end of the site respectively, which is within 250 meters walking distance from all houses. The one at the east end, the main mosque, is for the Friday prayer.
- . Kindergartens are provided within walking distance.
- . Large municipal and administrative units.
- . Community centres, library.
- . Two recreational - sports, clubs for men and women.
- . Fire and police stations.
- . Playgrounds.

All other infrastructure, supporting elements, and amenities are also provided, thereby ensuring self-sufficiency. The master-plan contains a central green open space and a pedestrian system. This central space ties the various zones together holistically,



providing functional and spacial continuity. (Fig 14-1) In the process of planning, three zones for the housing units have been established.

1. The eastern zone consists of high density housing on a 5.5 hectare of shaped terrain where clustered terrace houses and apartments flats form a very attractive housing arrangement.
2. Northern and southern zones, spanning both sides of the green open space, are designated for medium density housing area of ten hectares. The housing units form clusters comprising forty-five houses typically in each of six blocks. They consist of central courtyards, car parks, and pedestrian walks.
3. The western zone is for low density housing, and comprises sixty three dwellings on a 5.4 hectare of land. An encircling, collector road provides service access. The open space ends at the mosque which is located in this zone.

The site is accessible from all four sides. It is also connected to the AL Ulleiyah Road, and to the interchange of a planned expressway. The external road network defines the overall site boundary. Two collector roads are provided for services, one at each end of the site, while residential roads divide typical housing blocks from the outer roads.

A specific feature of internal circulation is the design of nine meter wide access lanes to residential clusters, where car and pedestrian movements is separated by a specially textured road surface, and not by the convention of sidewalks with curbstone.

Conventional building technology was decided upon and utilised because of its versatility, flexibility and its immediate availability. The construction of this 40 hectare site which began in 1980 for a population of 3,600 was completed and occupied in April 1983. (Fig 14-2, 14-3, 14-4, 14-5, 14-6, 14-7, 14-8, 14-9, 14-10 and 14-11)

#### 14.3 KING ABDULAZIZ CITY FOR SCIENCE AND TECHNOLOGY HOUSING PROJECT (KACSAT)

This project is one of the modern projects in the city of Riyadh.



The project is part of a complete facility which forms a huge campus<sup>13</sup>. (Fig 14-12) The principal features of the (KACSAT) campus will be:

- \* Headquarters Building
- \* Conference Centre
- \* Science Tower
- \* National Instrumentation Centre
- \* Research Institutes
- \* Communal Facilities
- \* Residential Facilities and Schools
- \* All infrastructure works including roads, pedestrian ways, car parks, electricity supply services, telecommunications, water supply for domestic use and irrigation, sewerage, landscaping, security and signage.

The KACSAT site is located twelve kilometres north west of the centre of Riyadh and to the south east of King Saudi University. It covers an area of approximately 100 hectares and is divided into two sections by an east-west 80 meter road reserve.

For the purpose of this study it will be the concern of this section to look at the housing project only and not at the other facilities. In 1981 Kattan-Gibb, a joint venture comprising Kattan Consult of Riyadh, Saudi Arabia, Sir Alexander Gibb and Partners of Reading, England, and Gibb, Petermuller and Partners of Athens, Greece, were retained to design the residential Facilities and Schools. The work included housing for 500 staff, two schools, three kindergartens, three musallahs, a family recreation centre and a guest accommodation building as well as landscaping and secondary infrastructure within a 39 hectare housing area. (All of these are called residential facilities.)

The suggestion of the Development Plan was the designation of the area north of the 80 meter road reserve exclusively for the Residential and Communal Facilities and the southern area for the



Headquarters Building and other academic, technical and vocational facilities. Strong pedestrian and vehicular links between these two areas were safeguarded. These links were reinforced by the introduction of a vehicular tunnel.

The general layout plan in its fully developed form comprised the following:

- \* 42 five-bedroom villas.
- \* 114 four-bedroom villas.
- \* 69 three-bedroom villas.
- \* 132 terraced houses.
- \* 132 apartments.

All villa types were of two stories construction, designed around a central courtyard. Each had an additional entry courtyard and a family courtyard which serve as buffer zones between the public spaces and the private spaces within the villas. The gross floor areas and plot sizes of all villas were as follows:-

Five bedroom villas -

548 to 569 sq.m. on a plot size of 360 sq.m.

Four bedroom villas -

507 sq.m. on a plot size of 345 sq.m.

Three bedroom villas -

384 sq.m. on a plot size of 330 sq.m.

The villas were provided with the following services:

- \* Electricity
- \* Air conditioning
- \* Telephones
- \* CATV systems and computer terminals
- \* Hot and cold water supply.
- \* Surface water drainage system
- \* Foul water system drainage system

The air conditioning of the villas will be provided by two air cooled package units mounted on the roof of each villa, supplying cooled air to the upper and lower zones in the building. Internal toilets and bathrooms will be ventilated by a ducted extract system. Hot water will be provided by solar heating arrays on the roof of each villa. The solar heating will be supplemented as necessary by electric immersion heaters.



The terrace houses have been introduced to take advantage of the steep slopes and terracing which covers a large part of the site for the provision of a dwelling unit comparable in standard to the villas.

The planning features of the villas were reproduced in the terraced houses which comprised, in effect, pairs of two storey houses. The ground floor in each case was segregated between guest and family areas and planned around an enclosed courtyard.

The gross floor areas of the terraced houses were as follows: 452 sq.m. and 397 sq.m. The terraced houses were provided with the same services as the villas.

The apartments are located at the western tip of the site and the south western corner of the main part of the site. Apartments were grouped in three storey blocks. Each block containing six apartments disposed symmetrically about a central common entrance. Each was provided by segregated public and private areas, and will have a guest entrance, a guest room and toilets, and family entrance leading to kitchen, family areas and bedrooms. The apartments will be provided with two or three bedrooms.

The apartment complex at the western tip of the site was constructed above an underground parking garage for 140 cars. The roof slab of the garage served as the ground floor slab of the apartments. Laundry and other commercial facilities were provided in the parking basement for the use of the residents.

The gross floor area of the apartments were as follows:-

Two bedroom apartments -

160 sq.m. 15 blocks each containing six apartments.

Three bedroom apartments -

220 sq.m. 7 blocks each containing six apartments.



The apartments were provided with the same services as the villas. Each block of six apartments were provided with six air cooled package air conditioning units mounted on the roof, with supply and return ducting to the six apartments. Six roof mounted solar heating arrays were similarly provided hot water to the six apartments below. (Fig 14-13, 14-14, 14-15, 14-16, 14-17, 14-18, 14-19 and 14-20)

#### 14.4 PROJECTS ASSESSMENTS

The different housing projects played a major role in the country in terms of releasing the pressure of urban growth and the urgent needs of housing. These housing projects were constructed all over the Kingdom simultaneously with the huge housing projects of the Ministry of Public works and Housing<sup>14</sup>, also the mass volume of private houses which had been funded by the (REDF)<sup>15</sup>.

The housing projects which belongs to many different agencies were for a long period an advertisement for these agencies. The main purpose was to attract more people to joint work at that agency. It used to be announced that housing units are available for those who would like to join the work. For example Aramco used the housing factor as an attraction for work in Dhahran during the early time of the company. Also the early project of AlMalaz as it was explained before had been the first housing project which was intended to attract government employees to move form the western province to Riyadh area.

The housing projects reflected the status of its agency. It could be stated that the most powerful administration in Saudi Arabia will produce the most high-tech housing projects. For example the Military agencies achieved their goals to house their personnel in a much higher standard of housing than the civilian projects. The military housing projects reflects the statue of the military agencies in the Kingdom. This was for the purpose



of attracting more people to military works than civilian. The facilities which could be seen attached to the military projects are much more advanced, such as hospitals or clinics or even superstores.

Most of the housing projects in the Kingdom represent to the public the idea of segregation through the boundaries and gates which surround the project. It was never this way in the traditional form of the traditional community, there was no section of the community which was locked or fenced for certain people. The segregation regarding work statue is a new face of segregation on a large scale in the Saudi society. At the same time it was seen by the residents of these projects as a fair situation, where everyone should be rewarded according to his work.

It is also observed that these housing projects do not integrate the society and does not allow the soft mixture of the different group of the society in the large city. When a group of people work at the same agency during the working hours and then all of them live at the same community or neighbourhood for the rest of the day. This means that the group of people seem to be segregated from the outside society. They only meet and speak with a certain class of people. There is no exchange of ideas, knowledge and habits.

The Ministry of Foreign Affairs staff housing project represent a new trend in housing in Saudi Arabia. This project was built by the Government as a tool of transferring the Ministry from Jeddah to Riyadh. Most of the Ministry staff were from the western province (Jeddah). To ask those people who used to live in Jeddah environment where the attraction of the land, family and life were reflected in the early rejection of moving to Riyadh. The Government then decided to construct the staff housing project to be an attractive factor to those staff to move to Riyadh.



The key design objectives of MFA are to conceive a housing community that would serve as a model for Riyadh, by retrieving traditional principles of housing design. The use of traditional design is not only climatically sound, considering the harsh sandstorm and intense heat, but socially acceptable in facilitating the creation of housing neighbourhoods that respond to Arab social and cultural traditions in a contemporary context.

The main objectives were represented in the Urban Design of the project and the units so that the privacy issue controlled the design product. The housing units were designed on the concept of inward looking in which internal courtyards work as light shafts to the different parts of the house. Through observation and interviews with people who are living in these houses, it was clear that the concept was acceptable but the actual houses were not. There was no one opening (windows) to the outside. This reflects the contradiction of what the people used to and what they were transformed to. Jeddah traditional houses were open to the outside through Mashrabiyyah. The people used to look to outside to see who is knocking on the door and to observe their children. The unit is an enclosed unit where the separation between whatever is inside or is outside is as wide that it will annoy the people.

Even the courtyards were not used as the original courtyards in the area of Riyadh for the purpose of lighting, ventilation and cooling. The courtyards are closed by glasses walls and are not used except to light to different rooms. The ventilation of these units and its cooling depend on mechanical means. Each housing unit has its own separate central air-conditioning. Without the air conditioning, the houses are not acceptable for normal life. The use of roofs for any function is neglected. There is no stairs up to the roof nor are there any terrace walls.



Most of the building materials are reinforced concrete walls and roofs. Aluminium doors and windows with glasses as the main character. There was no use of local materials, most of the materials were imported from outside.

As it was explained before there were about 13 types of dwellings in this project. The system in which these housing units were distributed according to ranks and work positions. This means for somebody in a high position with a small family receives a large house with much more rooms than he needs or requires. For somebody in a low position with a large family received a small house with limited number of rooms less than his requirement. Also the division of the neighbourhood into areas No. 1 to No. 7, in which area No. 1 consists of the large houses which were designated to the high income groups only. This lead to even deeper segregation inside this project according to income level.

King Abdulaziz City for Science and Technology Housing project reflects other forms of traditional Architecture in the Najd area. This was reflected in the form of elevation and the internal layout of the units which introduced the use of central courtyards.

The key design of this project is to provide the research environment for the organisation. Also to reflect the goals of the organisation in retrieving traditional concepts and the saving of energy.

The project could be seen as the modernisation of the traditional concepts. The use of courtyards was the main concept of the houses. There are more opening (windows) than in the previous project. The use of wooden screens from outside was seen for the first time in Riyadh. The openings were placed at higher levels than eye level.



Here also in this project the function of the courtyard is for light and not for ventilation or cooling. The arrangement of the different rooms around these central courtyards does not take advantage of the courtyard because of air conditioning requirements which recommends closing all openings.

The roof function is limited to provide space for mechanical equipment and the solar device which are used to heat water. The family cannot use the roof for sleeping on other social activities because of the terrace wall which does not protect the privacy of the family of the roof.

The project is surrounded by a fence to protect the residence from outside and to identify the project as a separate neighbourhood in Riyadh. The decision to put such a fence could be justified for the necessity of providing a quiet neighbourhood in which only residents cars and visitors are on the roads of the project. But as it was explained before, it has never been the case in traditional design to segregate certain people according to their work in one area.

The distribution of these housing units according to one official was as follows: The villa types are for PhD personnel, the terrace houses are for Ms. personnel and the apartments are for BSc. personnel. It is a new kind of segregation in one group which was already segregated from the large society. There is no consideration of the family needs on the number of family members.

In these projects it could be noticed that the building regulations and the requirements of the Municipalities were not applicable here. No one could see any setback, the units are adjacent to each other. The municipality have no control on the design of the projects because they represent a large unit which



have their own design requirements. The proposal did not require the approval of the municipalities, it only requires the approval of the agency which supports it.

Most of these housing projects are for rent now. They used to be free during the end of the seventies and eighties. The rent is considered the partial, the rent in most of these housing project range between SR 8000 to SR 14000, which is lower than outside rent.

Finally, these housing projects did not participate in the Saudi construction and labour markets. Most of the designers, materials, techniques and labours were imported. These housing industries could be used as a local industry which provides work and encourage local thinking not only to provide space for living.

The two housing projects in Riyadh were included in the investigation of the field trip. The main survey (Questionnaire) was distributed among the different residents of the project<sup>(16)</sup>. (See part IV for more details).



Table 14-1 HOUSING NEEDS BY RANK AND HOUSEHOLD SIZE

Source: Speerplan, 1399(12).

HOUSING NEEDS BY RANK AND HOUSEHOLD SIZE	High Income				Middle Income				Low Income				Total/ Average	
	Rank 15	Rank 14-13	Rank 15-11	Rank 15-11	Rank 10 - 6				Rank 5 - 1					
Persons per Household	6.7	6.7	6.7	2.0	10	6.5	4.5	2	10	6.5	4.5	3	2	6.1
Number of Bedrooms	5+6	5+6	5+6	2	5+6	4	3	2	5+6	4	3	2	1	
Gross floor area per Person	90	75	60	90	36	40	40	60	27	30	30	40	40	
Gross floor area per Household	600	500	400	180	360	260	180	120	270	200	140	120	80	
High Standard Villa  Standard villa Semi-detached Attached Apartment/Flat	25	13	25											63
					66									66
						104			67					171
							63			53	81			197
				9				55				30	9	103
Total	25	13	25	9	66	104	63	55	67	53	81	30	9	600

Table 14-2

HOUSING DISTRIBUTION BY DWELLING SIZE

Source:

Speerplan, 1399(12).

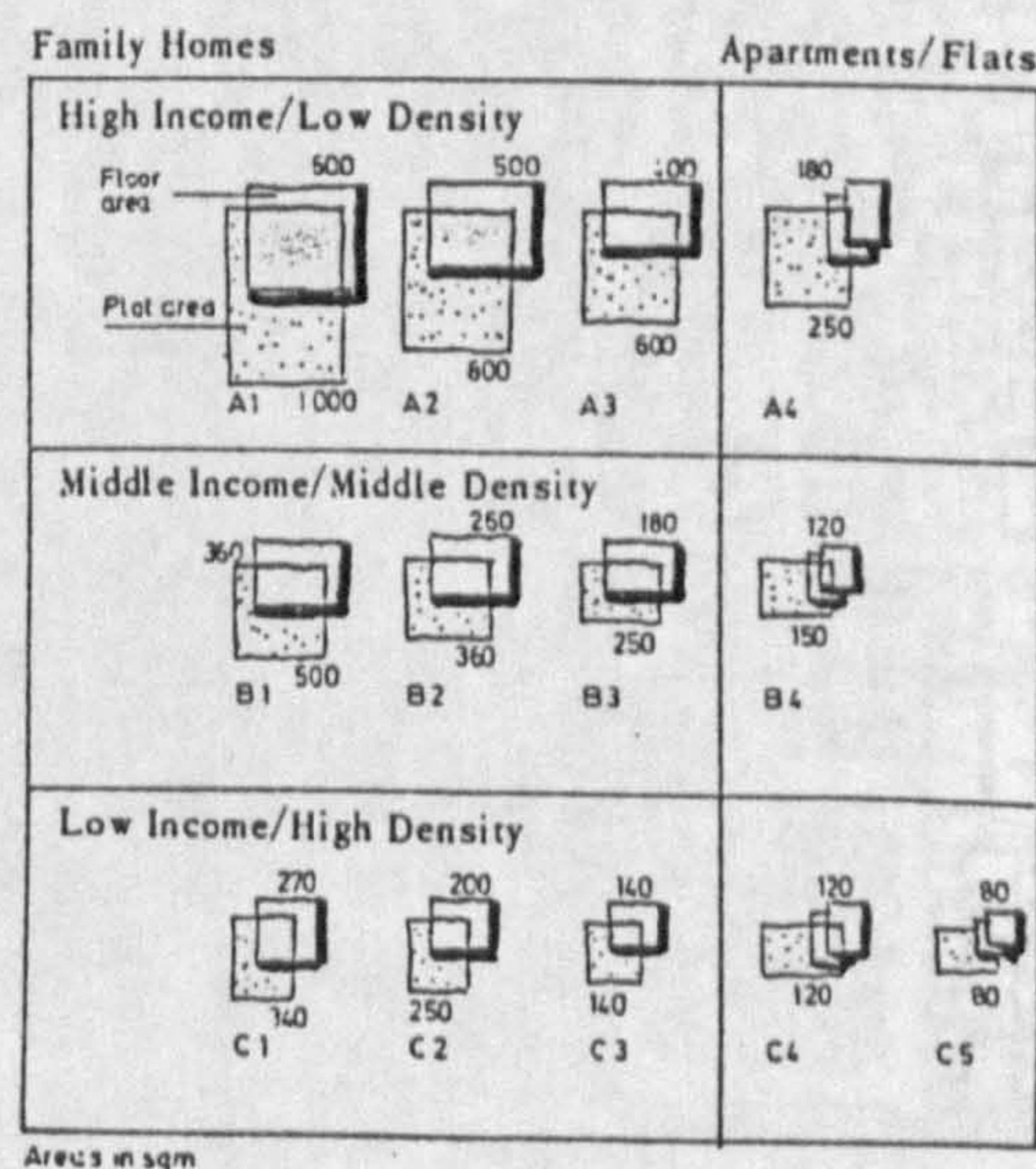




Fig 14-1

THE GENERAL LAYOUT PLAN OF  
MFA HOUSING PROJECT.

Source:

Speerplan, 1399 (12).





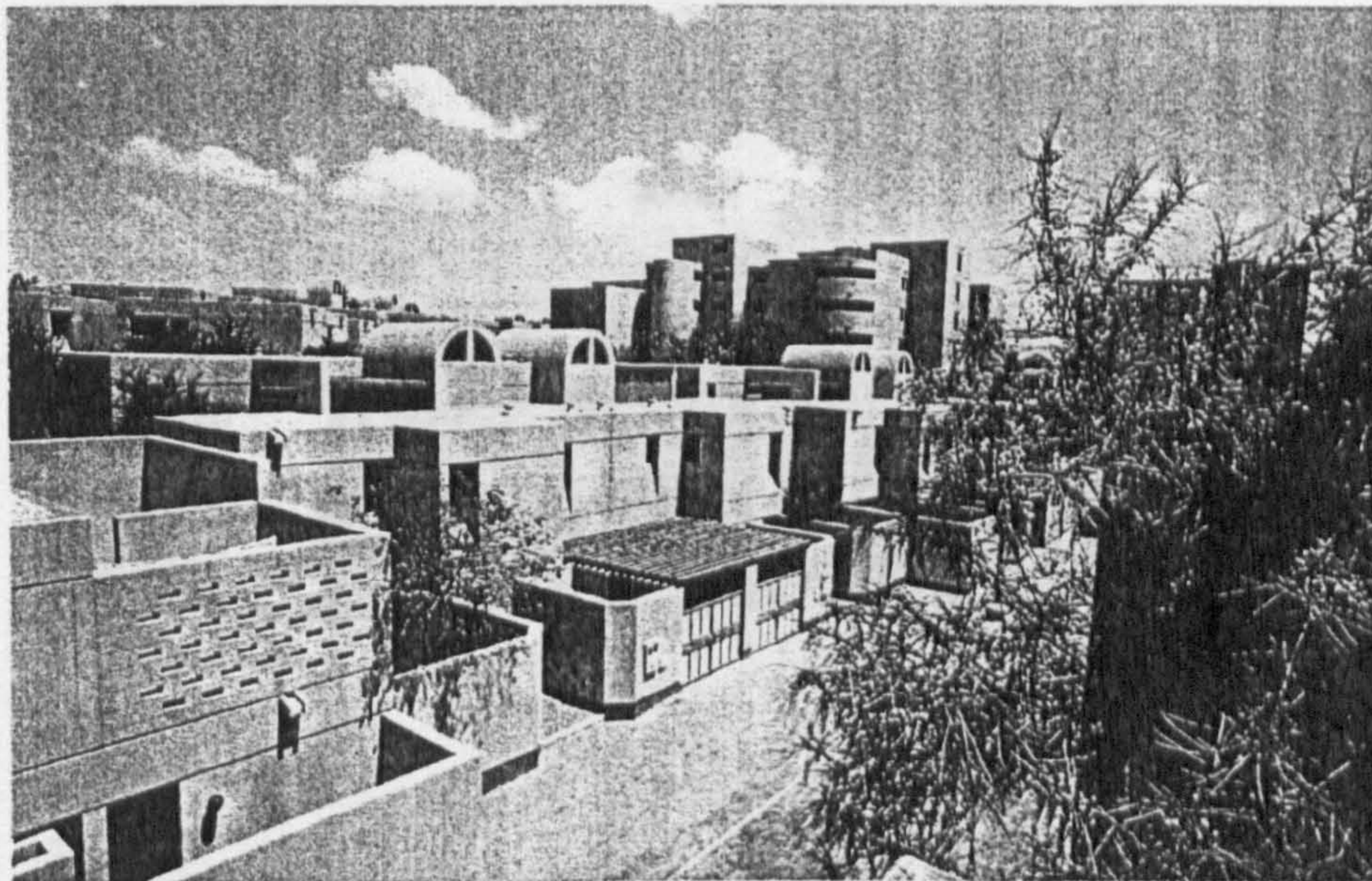


Fig 14-2 VIEW OF THE MFA HOUSING PROJECT (1)  
(Apartments at the end).

Source: Author (A.S. Alafghani).



Fig 14-3 VIEW OF THE MFA HOUSING PROJECT (2)  
(The roofs are not used).

Source: Ning, 1984 (11).



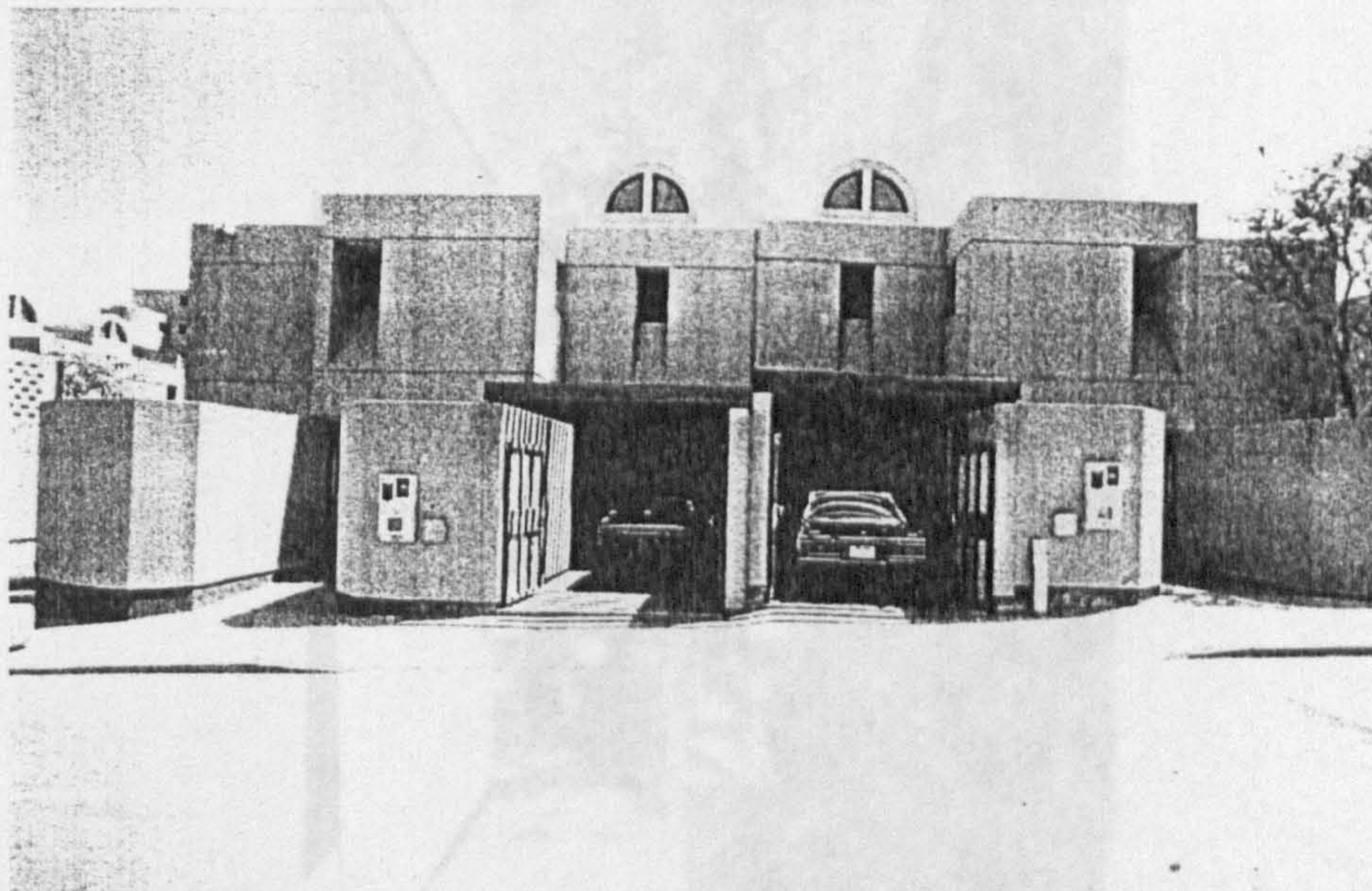


Fig 14-4 VIEW OF HOUSES ELEVATION, MFA (1)  
(Front elevation - Garages- High openings for  
toilets).

Source: Author (A.S. Alafghani).

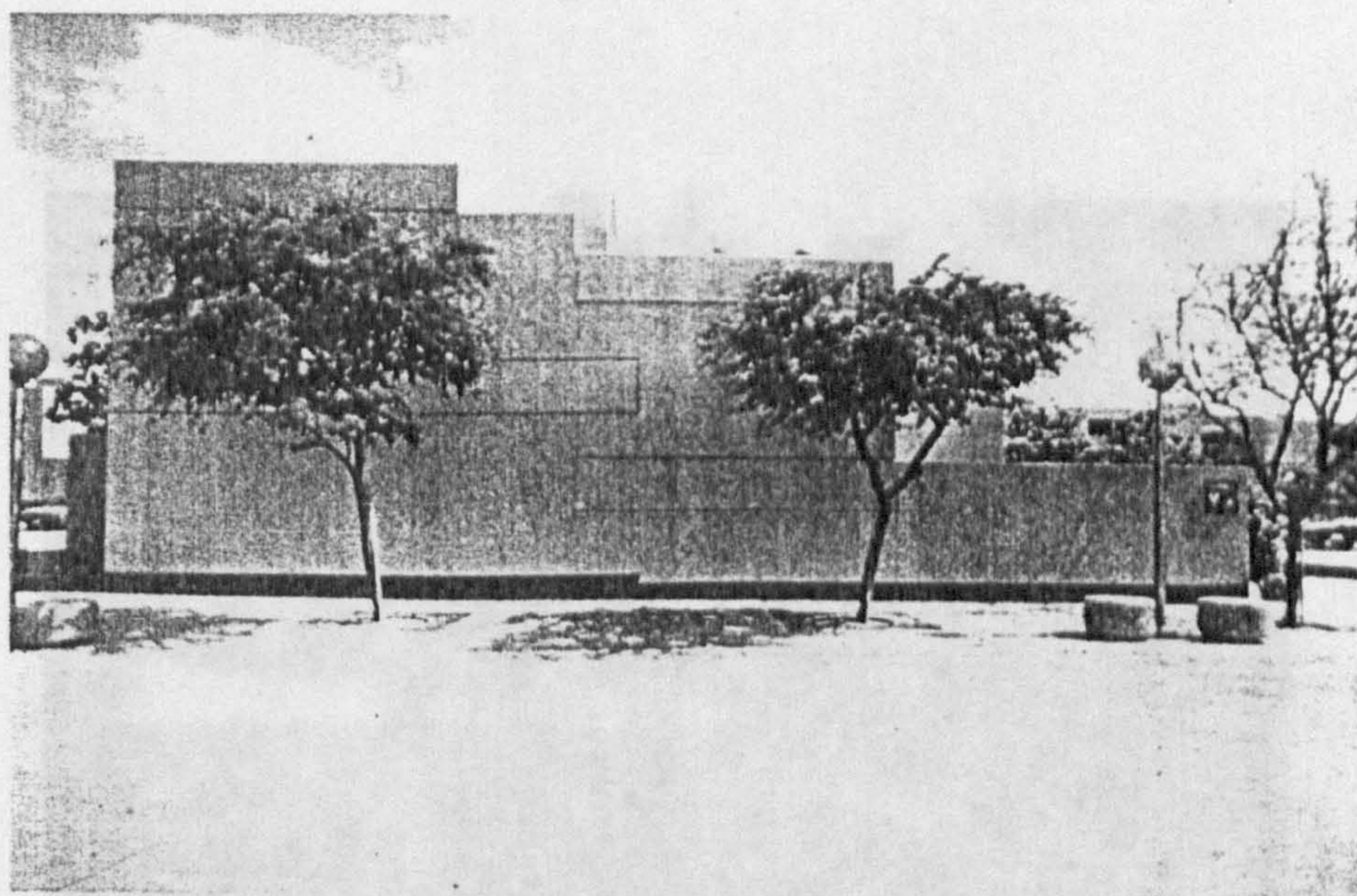


Fig 14-5 VIEW OF HOUSES ELEVATION, MFA (2)  
(Side elevation - No openings).

Source: Author (A.S. Alafghani).



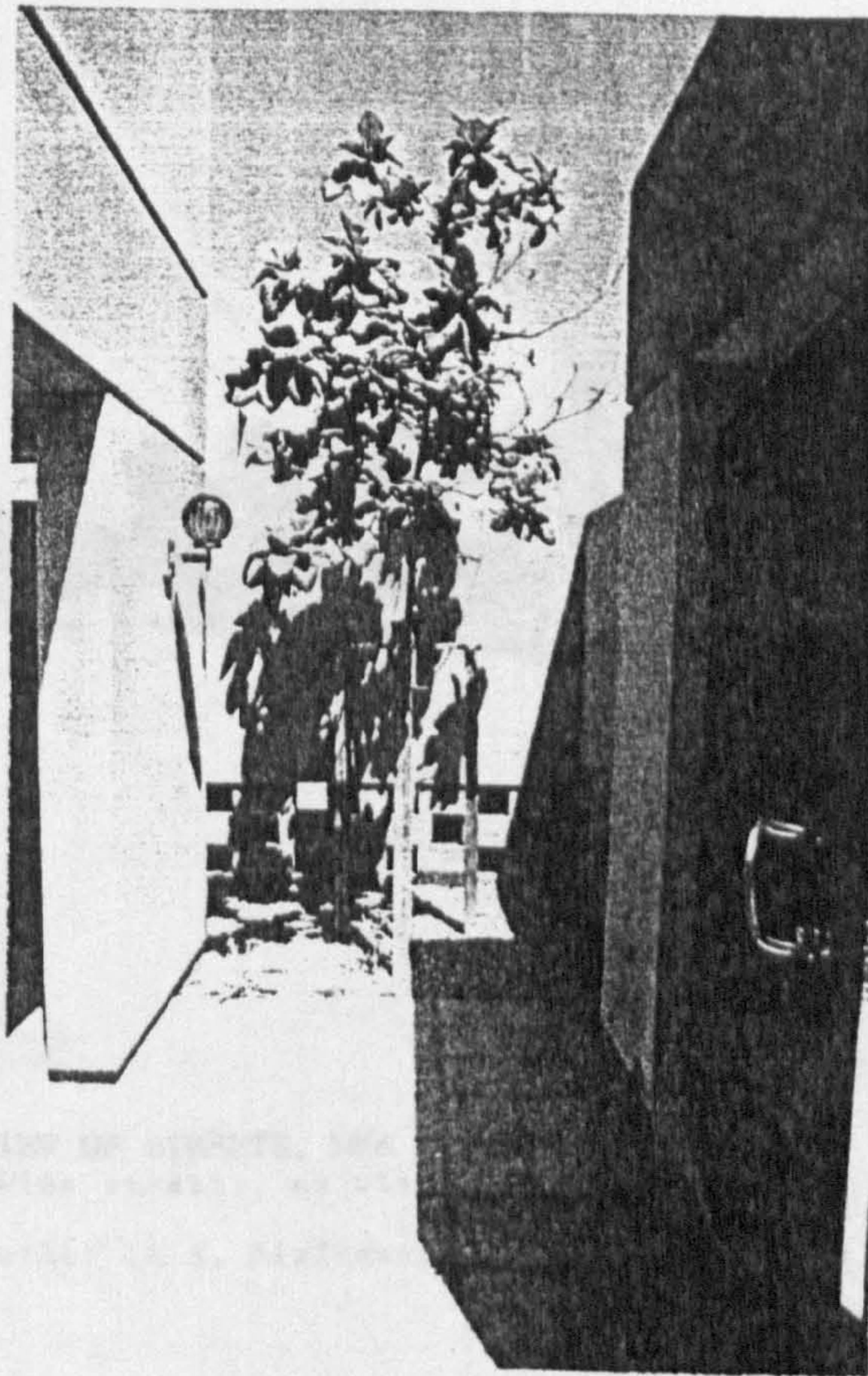


Fig 14-6 VIEW OF HOUSE YARD, MFA (1)  
(Front yard, separate the house from the street).  
Source: Author (A.S. Alafghani).

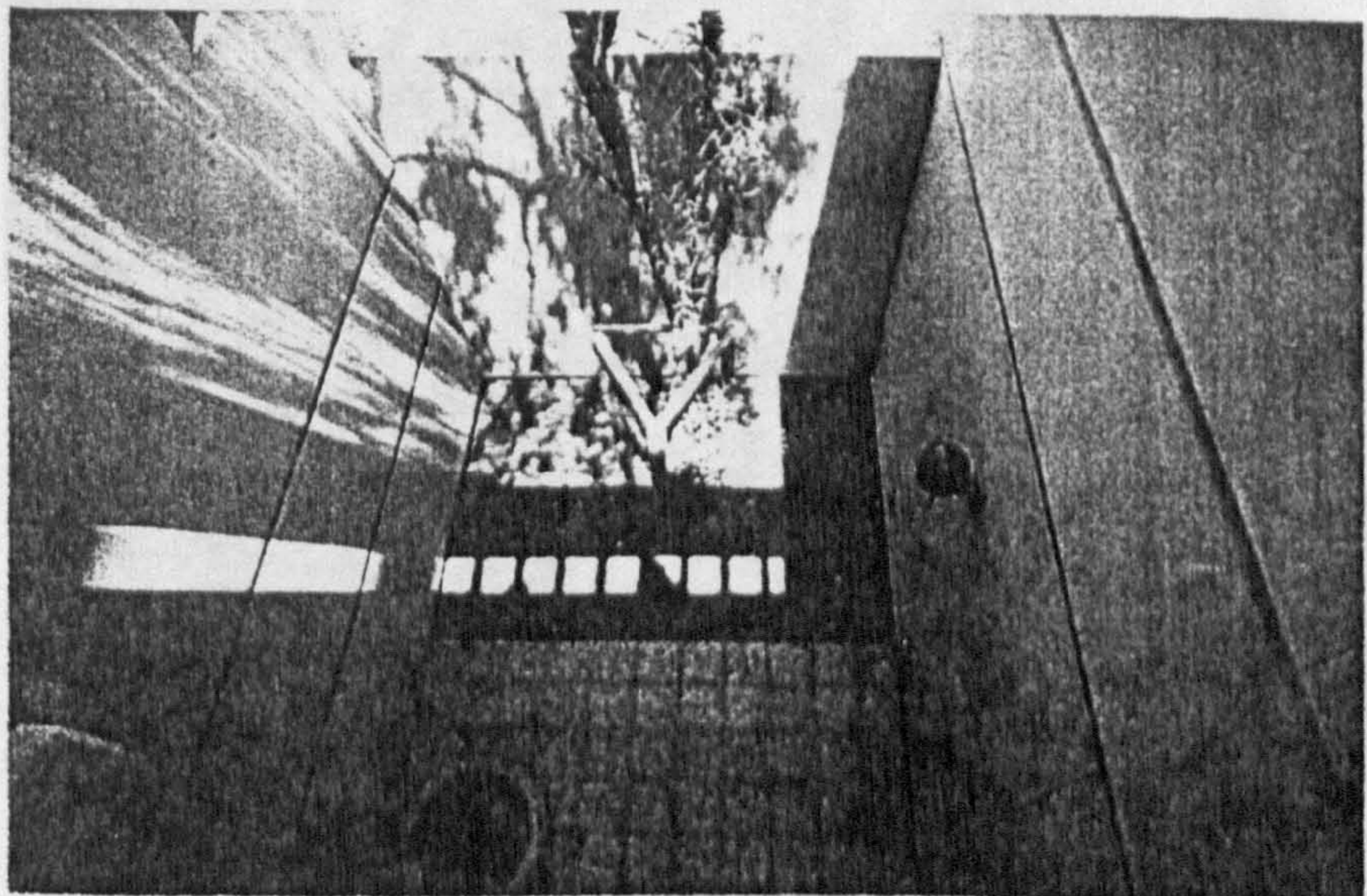


Fig 14-7 VIEW OF HOUSE YARD, MFA (2)  
(Side Yard, works only as light shaft).  
Source: Author (A.S. Alafghani).





Fig 14-8 VIEW OF STREETS, MFA  
(Wide streets, no shade for pedestrians).

Source: Author (A.S. Alafghani).



Fig 14-9 VIEW OF OPEN SPACE, MFA  
(The open space is not observed from houses).

Source: Ning, 1984(11).



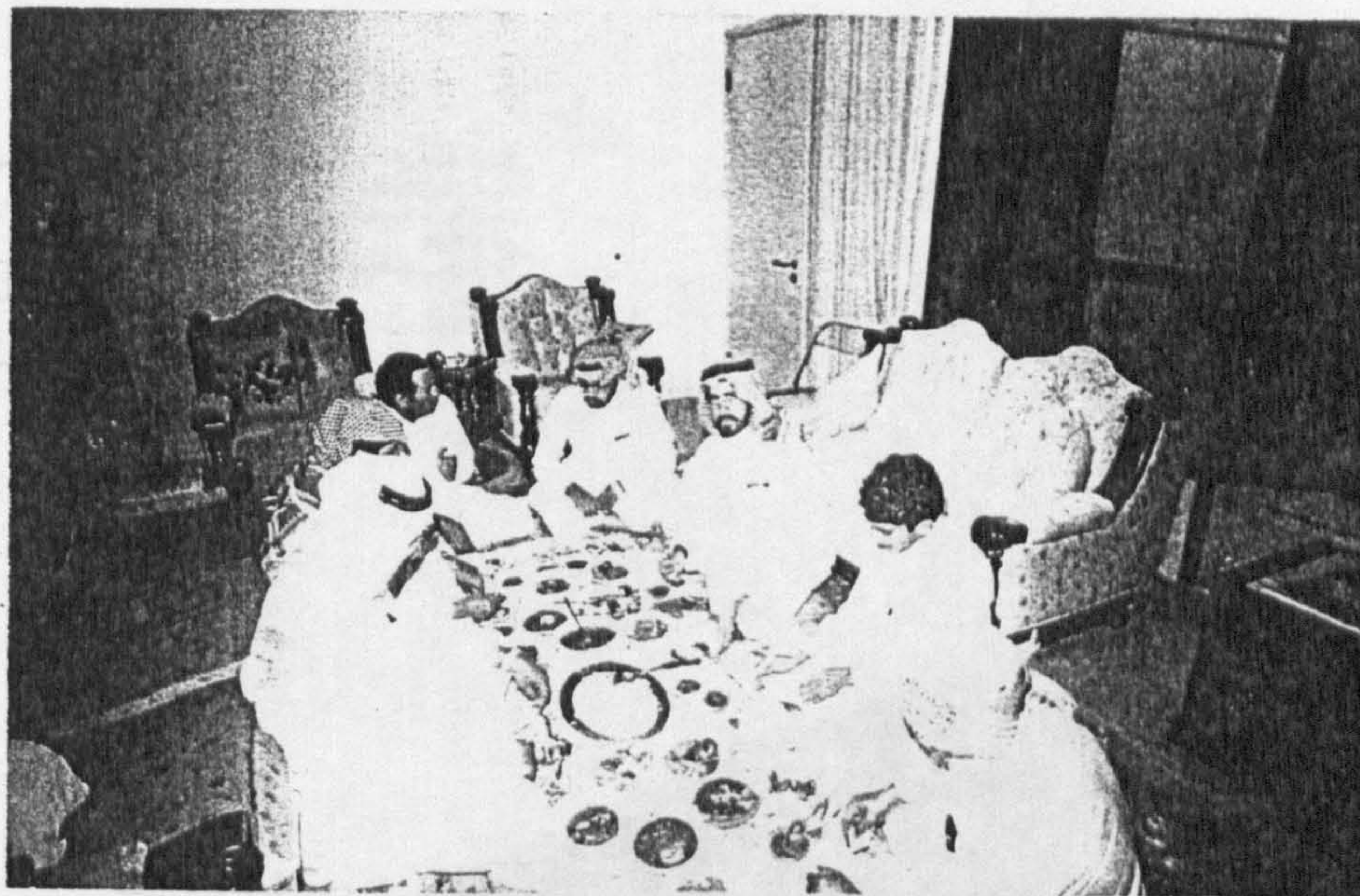


Fig 14-10 VIEW OF MAJLIS, MFA  
(This is in low income house. The house is considered to be small. The Majlis is used for dining).

Source: Author (A.S. Alafghani).

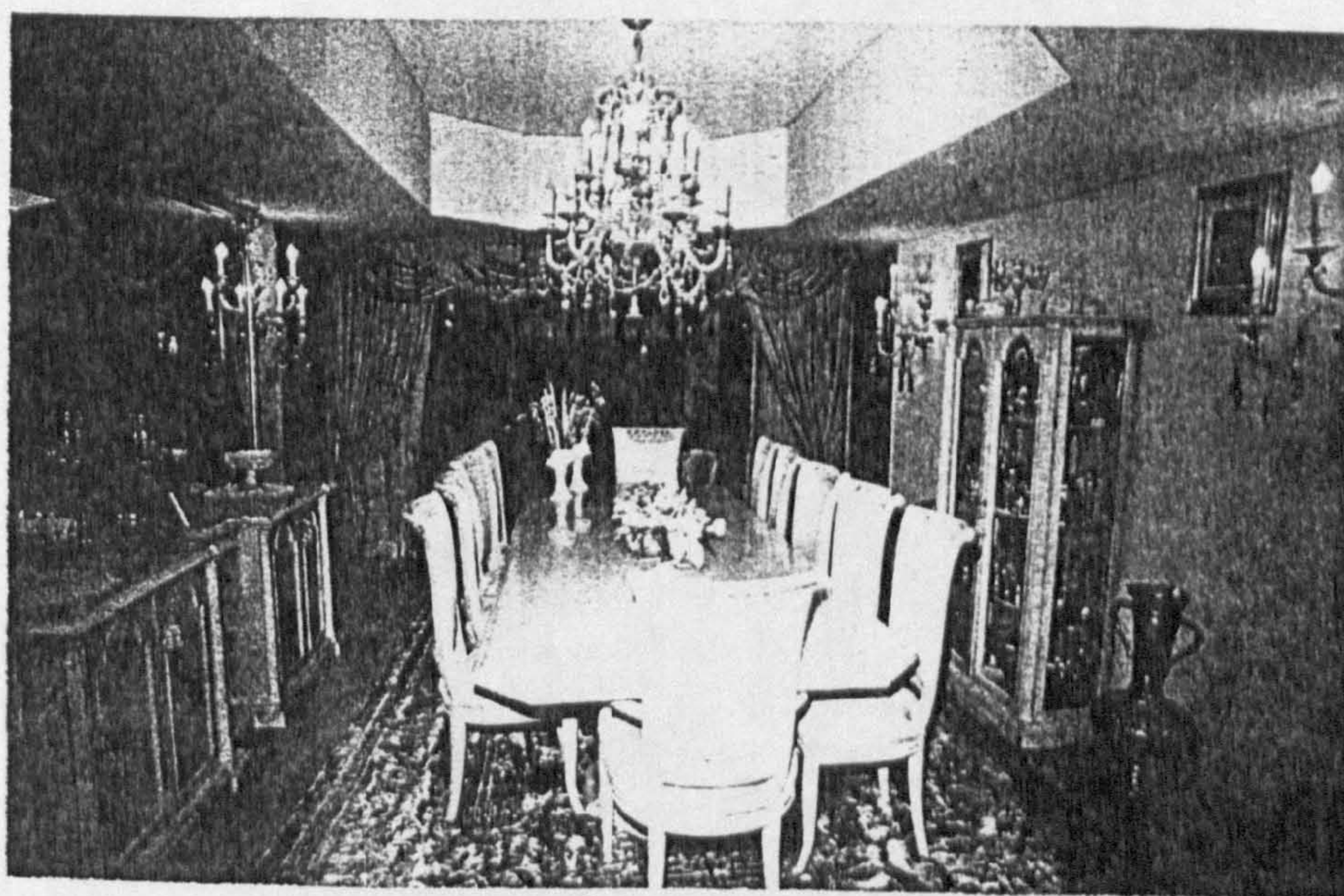
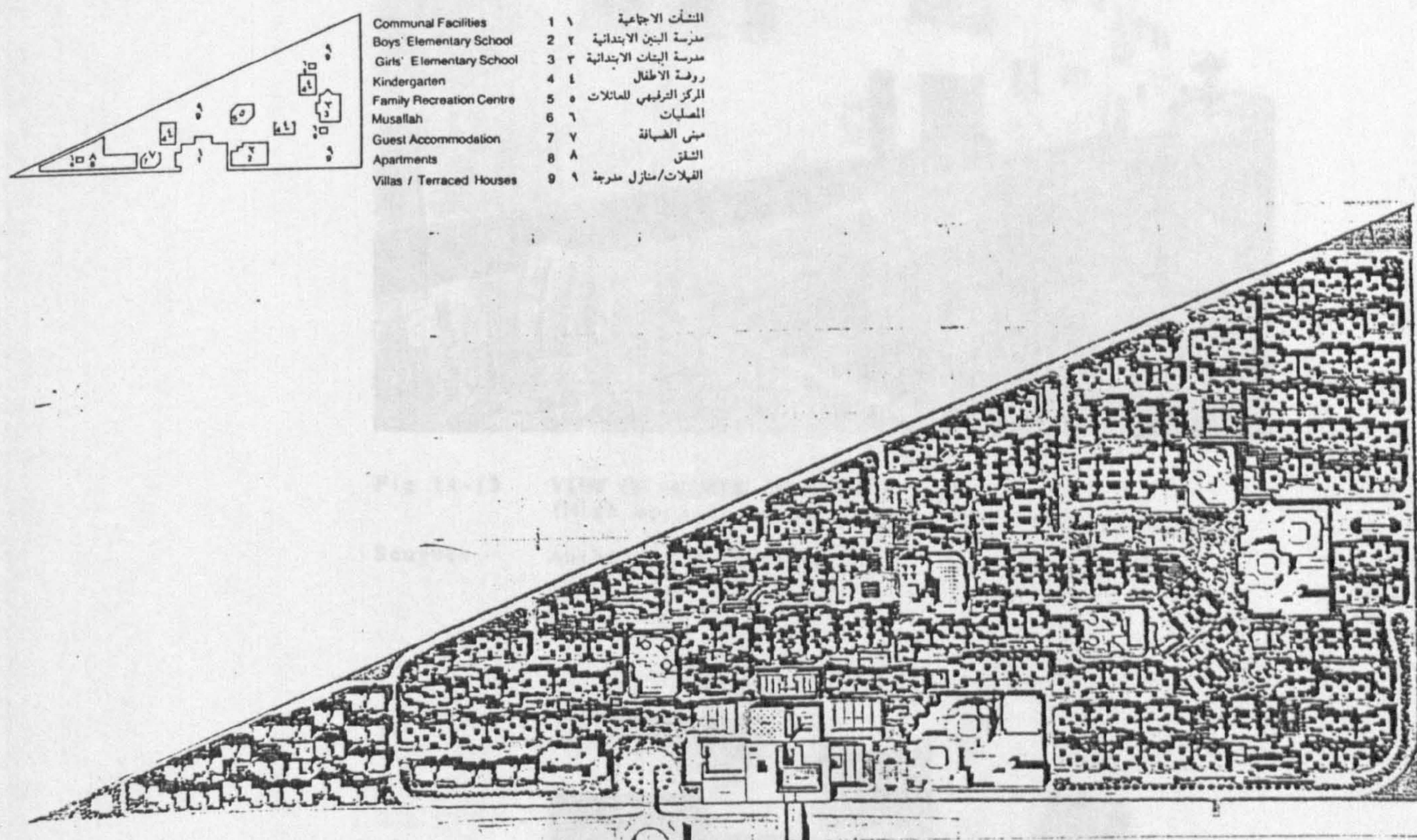


Fig 14-11 VIEW OF DINING ROOM, MFA  
(This is high-income house, dining space is larger than Majlis in low-income house).

Source: Author (A.S. Alafghani).





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Fig 14-12 THE GENERAL LAYOUT PLAN OF (K.A.C.F.S.T.)

Source: Kattan<sup>(13)</sup>



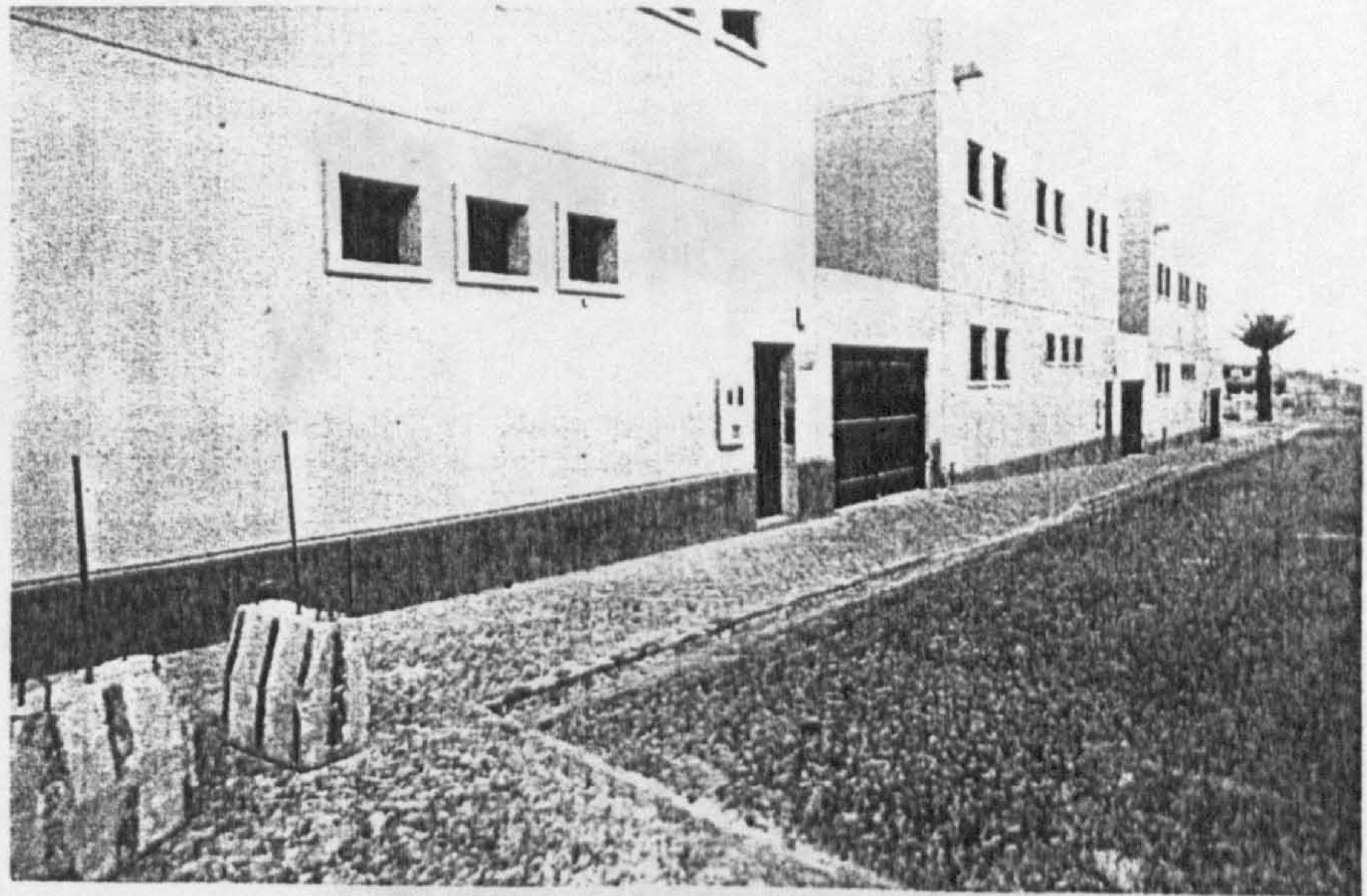


Fig 14-13 VIEW OF HOUSES (K.A.C.F.S.T.)  
(High opening in the ground floor, wide streets).

Source: Author (A.S. Alafghani).

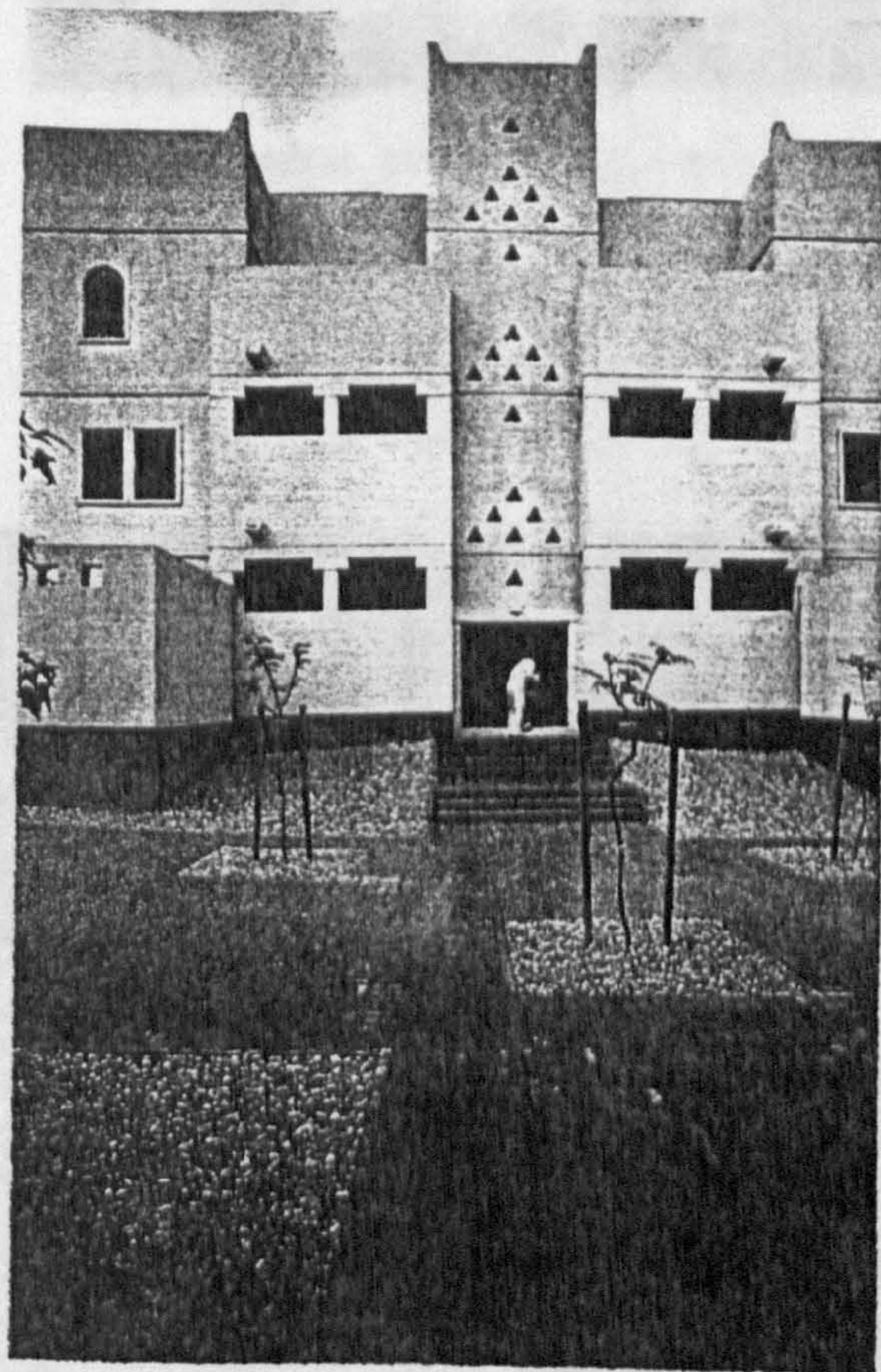


Fig 14-14 VIEW OF APARTMENTS BUILDING (K.A.C.F.S.T.)  
(The use of different decoration element in the elevations).

Source: Author (A.S. Alafghani).



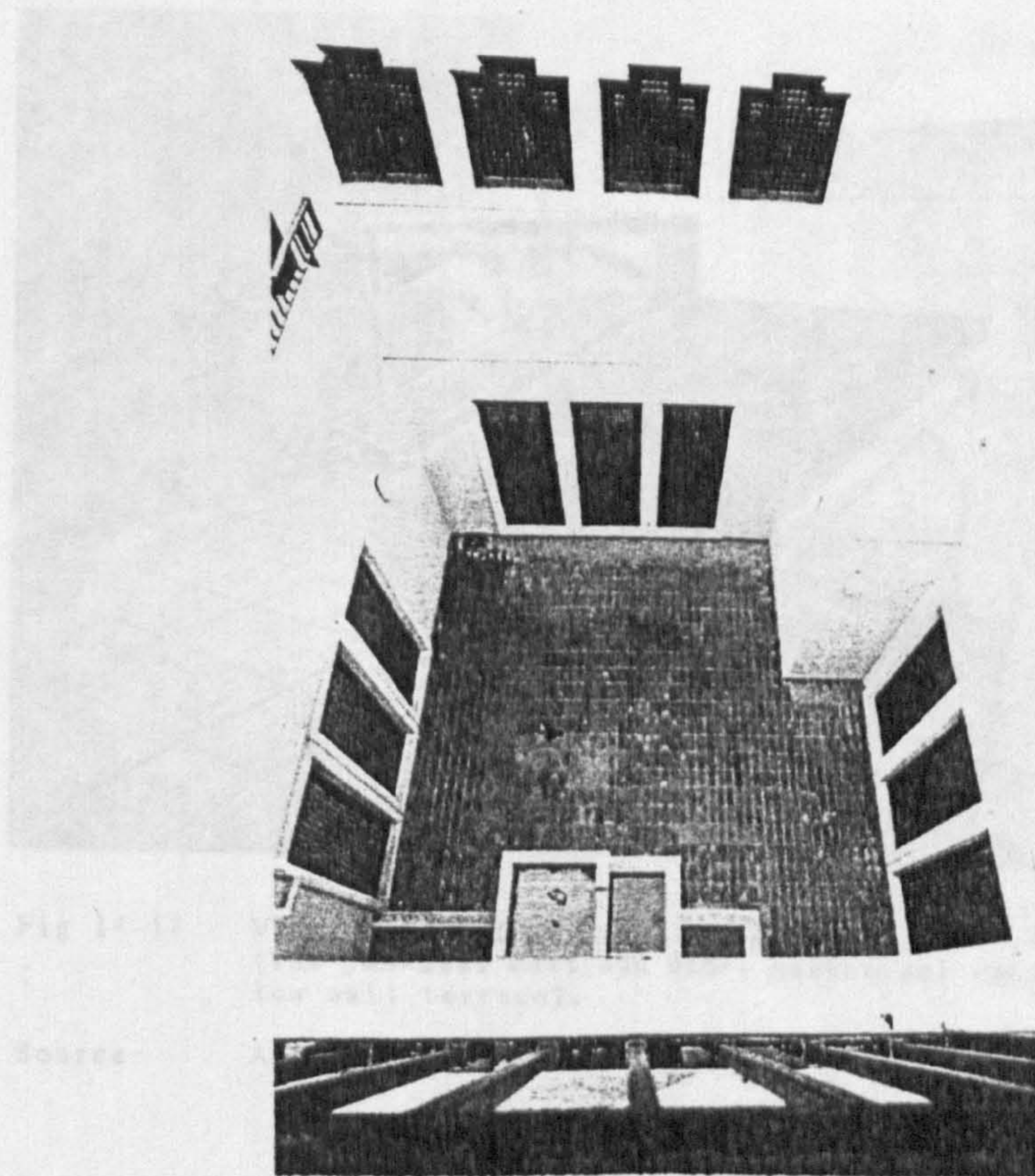


Fig 14-15 VIEW OF INTERNAL COURTYARD (K.A.C.F.S.T.)  
(The yard work as light shaft).

Source: Author (A.A. Alafghani).



Fig 14-16 VIEW OF HIGH LEVEL YARD (K.A.C.F.S.T.)  
(The dust problem).

Source: Author (A.S. Alafghani).



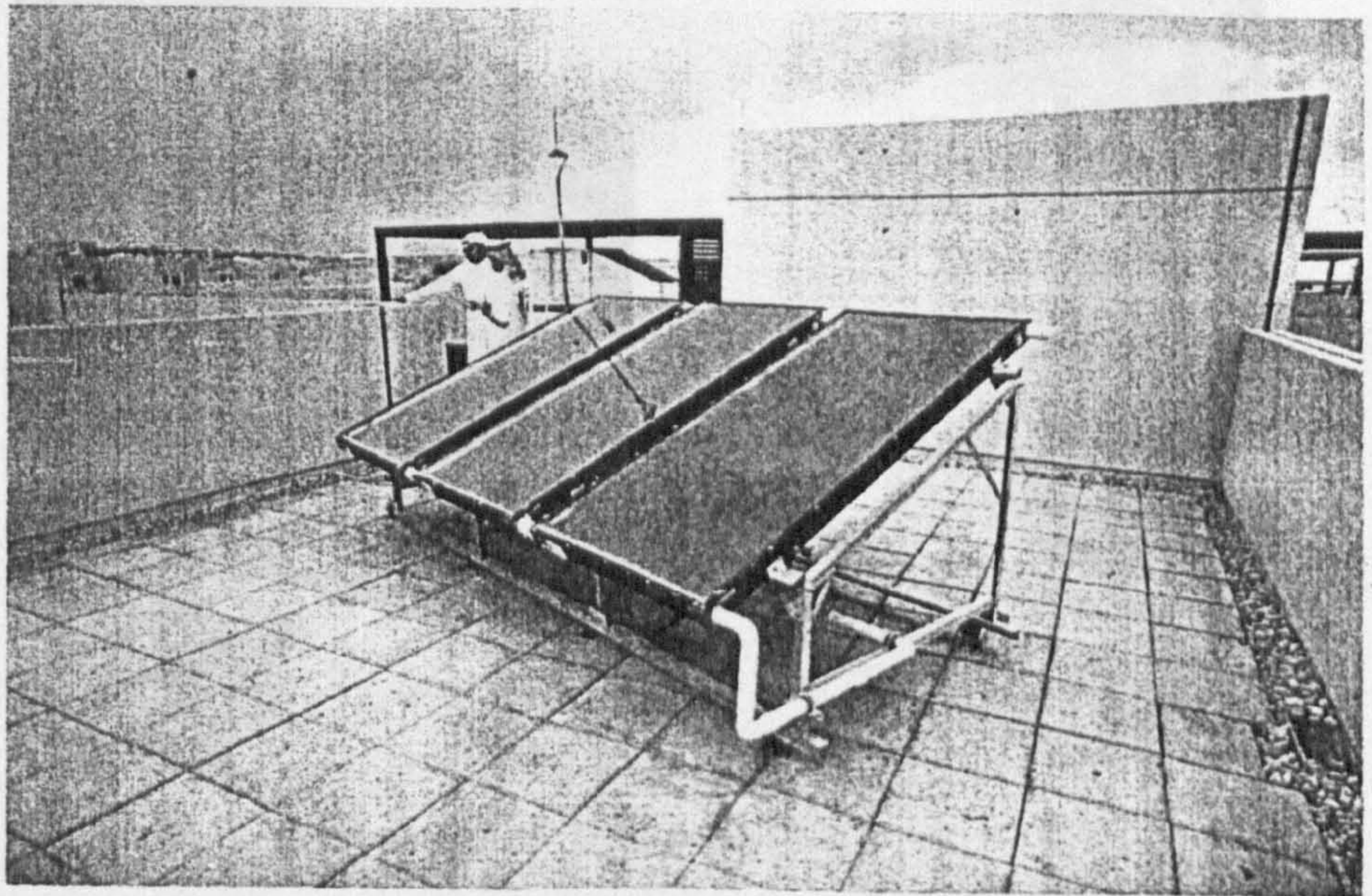


Fig 14-17 VIEW OF TERRACE (K.A.C.F.S.T.) (1)  
(The sun-heat unit and other mechanical equipments.  
low wall terrace).

Source: Author (A.S. Alafghani).

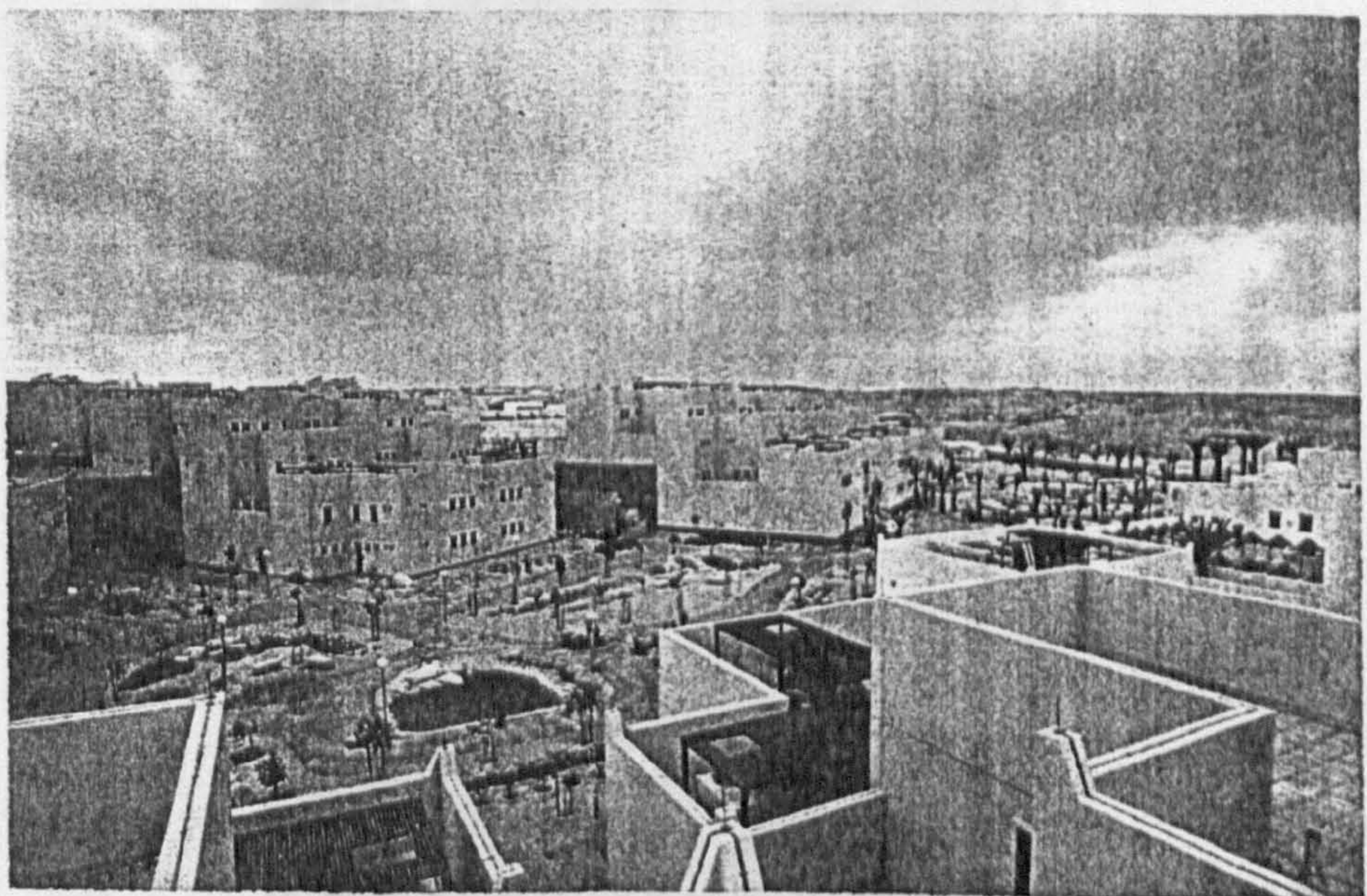


Fig 14-18 VIEW OF TERRACE (K.A.C.F.S.T.) (2)  
(Low wall terraces overlooking other terraces).

Source: Author (A.S. Alafghani).



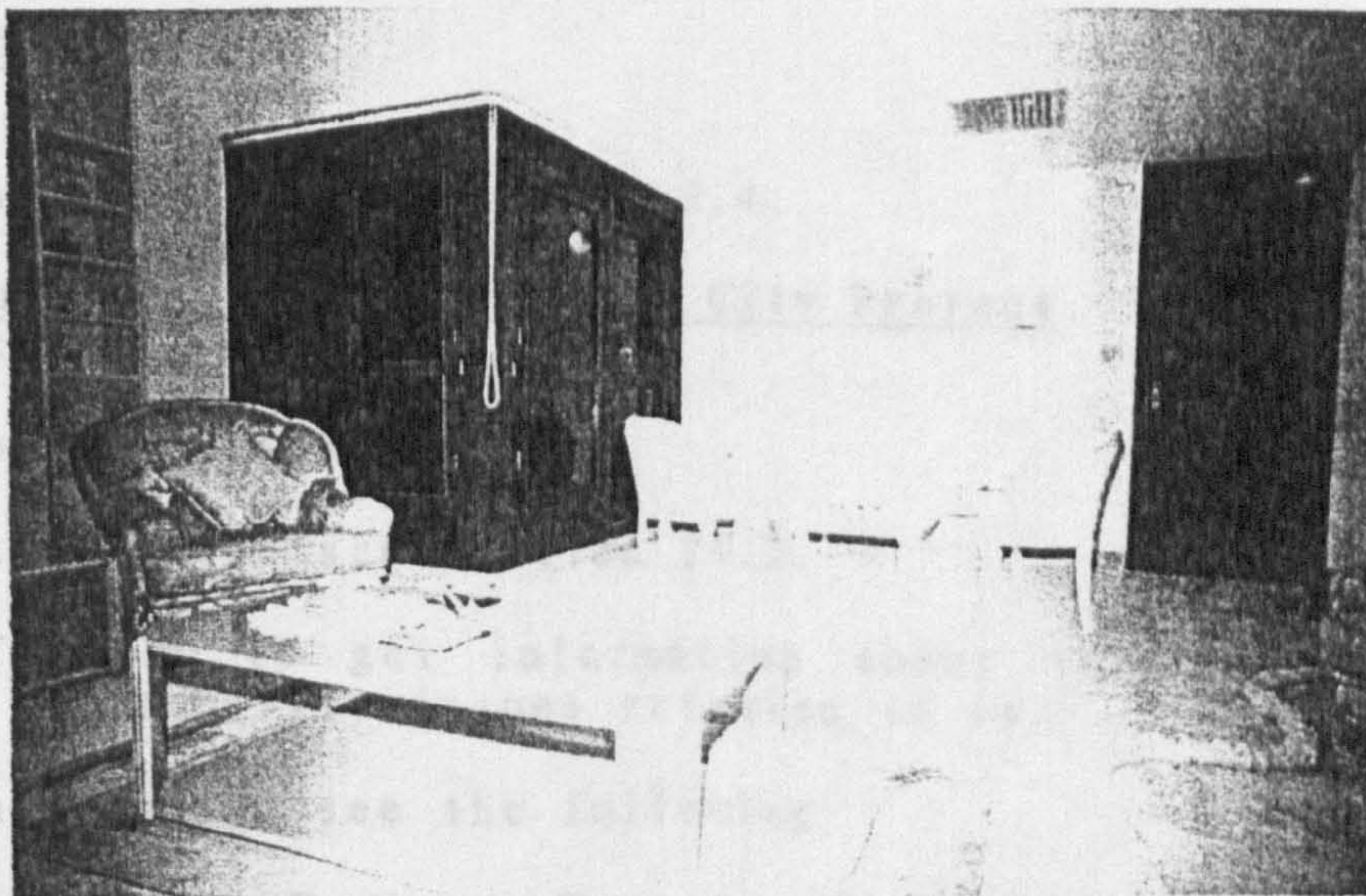


Fig 14-19 VIEW OF MAJLIS (K.A.C.F.S.T.)  
(Artificial light).

Source: Author (A.S. Alafghani).



Fig 14-20 VIEW OF TOILET (K.A.C.F.S.T.)  
(Very expensive western type toilet).

Source: Author (A.S. Alafghani).



Footnotes: Chapter 14

1. For more information see section 9.4.
2. IMAM Mohammed Ibn Saud University City Project. Ministry of Higher Education, Riyadh, 1404.
3. Op.cit Chapter 5 (1-6).
4. For more information see section 14.2.
5. It was difficult to get information about these projects because of the security issues relating to it.
6. For more information see the following:
  - (a) SAUDI Arabian Bechtel Company, Bechtel Incorporated, Jubail Industrial City, Community Plans, Directorate General for Jubail Project. Royal Commission for Jubail and Yanbu. Kingdom of Saudi Arabia. 1978 (14 volumes).
  - (b) ROYAL Commission for Jubail and Yanbu. Jubail and Yanbu Industrial Cities, Ten Years of Accomplishments. Madinat Yanbu Al-Sinayah Printing Facility.
  - (c) DAGHISTANI, Abdul-Majeed. Jubail and Yanbu, Cities of the Future. Ministry of Information, Kingdom of Saudi Arabia.
7. HIGH Executive Committee. Centre for Projects of Planning, Work Progress Report No. 1. High Executive Committee, Riyadh 1407.
8. Regarding the Military Projects it was so difficult for the researcher to get information relating to these projects because of the security issue.
9. Op.cit. Chapter 9 (28).
10. Op.cit Chapter 5 (1-6).
11. NING, Lo Ching, Speerplan's Housing, Riyadh, Mimar Magazine No. 11, Singapore, 1984, p.p. (64-69).
12. SPEERPLAN Regional - UND Stadtplanerr. Ministry of Foreign Affairs Staff Housing Project. Architectural Programme. High Executive Committee, Bureau for the Project of Ministry of Foreign Affairs and Diplomatic Quarter, Riyadh, 1399.
13. KATTAN Consult. and others. Residential Facilities and Schools, Design Report. Saudi Arabian National Centre for Science and Technology. (King Abdulaziz City for Science and Technology), Riyadh.
14. See Chapter 13.
15. See Chapter 12.
16. The two projects fall under the group category of (Project).



## CHAPTER 15

### THE CONTEMPORARY ENVIRONMENT

- 15.1 THE VILLA
- 15.2 THE FLAT COMPLEX
- 15.3 THE SUBDIVISION
- 15.4 CLIMATICAL REFERENCE
- 15.5 ACTIVITIES REFERENCE
- 15.6 CULTURAL REFERENCE
- 15.7 MATERIAL REFERENCE
- 15.8 CONTEMPORARY ENVIRONMENT ASSESSMENT
  - 15.8.1 PRIVACY PROBLEMS
  - 15.8.2 TALL BUILDING PROBLEMS
  - 15.8.3 AIR-CONDITIONING PROBLEMS
  - 15.8.4 WATER PROBLEMS
  - 15.8.5 CONCRETE PROBLEMS
  - 15.8.6 GENERAL PROBLEMS



## 15 THE CONTEMPORARY ENVIRONMENT

Saudi Arabia has experienced one of the most rapid and massive modernisation in human history in approximately the last twenty years. One of the modernisation's elements is modern settlement and its spread and replacement of traditional ones.

It was explained in the previous chapters how the traditional environment had been dramatically affected by the wheels of change towards modernisation. This chapter will investigate and illustrate the final product of this modernisation. The villas, the Flat Complexes and the Subdivisions are the main elements of the Contemporary Environment.

### 15.1 THE VILLA

The villa is the modern type of house which characterises the built environment of the Saudi cities. (Fig 15-1, 15-2, 15-3 and 15-4) The definition of a villa is simple, it is the type of house which has three elements.

1. The structure of the house (the building).
2. Area surrounding this structure (outside yard).
3. The fence (wall) which protects and defines the boundaries of the villa.

The word villa is an imported word which came with the design of such accommodation. It was explained before in Chapter 9 how the villa was introduced in the Kingdom by the early projects which were for private use or for public use. It became the dream of most of the people to build a villa, or at least to rent a villa and live the new environment<sup>1</sup>. The villa as a house could be classified as two kinds:



1. Totally private.

This is when only one family occupies the whole house. It might be the owners family or a renter with his family.

2. Semi private.

This is when more than one family occupies the house. It might be the owners family plus another family which rents part of it.

The villa consists of one or two stories at the most. If it is for the totally private use, the functions of different areas are distributed in the two floors. Usually the main functional areas consist of the following:-

Male Reception Areas:	Majlis (reception). Dining-room. Toilet.
Female Reception Areas:	Majlis (reception) Dining-room. Toilet.
Living Area:	Living-room. Toilet. Kitchen. Storage.
Sleeping Area:	Main Bedroom and toilet. Boys Bedrooms. Girls Bedrooms. Toilets.
Office Area:	Main office. Study rooms. Library.
Services Area:	Washer and Drier area. Storage. Servants room. Toilets. Parking area. Drivers room
Roof Area:	Living-room. Kitchen. Toilet.
Open Space Area:	Garden (Fence) Storage. Toilet.

The above list is not a standard list of each villa in Saudi Arabia. Through observation it could be noticed that actual



villas contain this list or less or more functional areas.  
(Fig 15-5, 15-6, 15-7, 15-8, 15-9 and 15-10)

It could be summarised that there are many factors which enforce the construction of the villa as the main type of private accommodation. These factors could be listed as follows:

#### 1. Building Regulations<sup>2</sup>.

This was explained in Chapter 11, in which the requirement of setbacks create the villa. The setbacks from all sides generate the open space which characterises the villa. It is not a matter of choice for the people to build the villa or not, it is regulations which are enforced on the new construction through the municipalities. No building permission is given without complying with these regulations.

#### 2. Models.

These models could be seen as the indirect factor which enforce the construction of the villas. Most of the governmental residential projects illustrates the villa as the most modern type of accommodation<sup>3</sup>. It could be seen that since the government construct the project for housing in forms of villas, then it should be the best type. For those who do not have the chance to live in one of these villas, it becomes their target to own or live in a villa.

#### 3. Personal Preference.

This factor could be related to the people themselves. Those who represent the high income group who would like to present their status as the rich and the modern people. Those who choose themselves to construct villas even without the building regulations. The image is that a villa reflects the minimum standard of modern life in the new era.

### Procedure of Constructing a Villa.

The procedure for constructing a villa in Saudi Arabia could be summarised as follows:



1. Owning land, (through purchasing on throughout the distribution of lands from the Government). There must be a proof of owning that land by a legal deed<sup>4</sup>.
2. Getting a building permit from the Municipality. The owner of the land starts with the Municipality of his area seeking building permission. The Municipality starts the proceedings by sending a surveyor to draw the exact plan of the plot and its location. The boundaries/dimensions and the adjacent lands also the reference to the north should be cleared on this plan.
3. The municipality after that reviews its regulations and supply the applicant with all regulations and conditions which he has to follow. This is called (Koshan). It illustrates all the required elements by the Municipality.
4. The owner after that chose one of the architectural offices for the preparation of the design of the villa and the required drawings<sup>5</sup>.
5. The municipality after that reviews the drawings and the plans. If the plans are in line with the original requirements of the municipality, the approval of the design and plans is granted. The municipality sealed all drawings with its stamp. The building permission is given on separate note, it should be kept safe to be presented during inspection time.
6. The owner has to provide the funds for construction. This could be from either (personal saving, family assistance, loans from friends, loans from banks, loans from different agencies or loans from the REDF)<sup>6</sup>.
7. The owner has a choice of contracting methods. He can use a separate trades types of contract and carry the organisation himself or through an agent or he can use a general contractor who is responsible for the entire contract.
8. Supervision is required by the municipality during the construction period. The owner has to assign either the original architectural office or an outsider.



This procedure is followed for constructing the flat complexes and any other residential buildings in the Kingdom of Saudi Arabia.

The following plans and drawings (Fig 15-11) are required by the Municipalities to illustrate the architectural, structural, electrical and mechanical details for the proposed villa.

1. Site plan.
2. Ground floor plan.
3. First floor plan (a repetition plan).
4. Foundation plan.
5. Beams and ceilings structure plan.
6. Main elevation drawing.
7. Back elevation drawing.
8. Side elevation drawing.
9. Section A-A.
10. Section B-B.
11. Lighting and sewerage for ground floor plan.
12. Lighting and sewerage for first floor plan (a repetition plan).
13. The roof drainage plan.

## 15.2 THE APARTMENTS COMPLEX

The apartment complexes represent the stage which comes before the villa period. It is the transition between the old and the new, between traditions and contemporary, between poor and rich, between realities and dreams. Flat complexes now stand on all sides of streets in Saudi Arabia. (Fig 15-12, 15-13)

The main concept of the apartment is to accommodate the maximum number of families in a limited space and volume. It could be observed that the average height of a flat complex in the Saudi urban centres is 5 stories. An average of two flats in each floor. This will lead to the accommodation of 10 different families in this building. The flat usually consists of the following:

- Majlis (male guests).
- Majlis (female guests).



- Living Area.
- Kitchen.
- 2 Bedrooms.
- 2 Toilets.

So an average of 5 rooms and kitchen and 2 toilets are basic elements of the flat. A flat could reach to a minimum of two rooms, kitchen and toilet. (Fig 15-14, 15-15)

Usually the flat complexes consist of the following functional area:

- A basement which could be used for car parking or storage. In the case of storage, it might be rented (not all flat complexes have a basement).
- Commercial spaces which are on the ground floor. They are mostly shops which could be rented as retail shops for different functions.
- Flats in each floor.
- The roof which contains a water storage is locked most of the time because of the number of families in the building.

The apartment complexes also has to comply with the setback requirements. So, most of the flat complexes stand as the villas where the structure is surrounded by space on all sides, the only difference in the number of stories which is higher than the ordinary villa.

### 15.3 THE SUBDIVISION

The subdivision is another character of the contemporary environment. (Fig 15-16) The word subdivision is a new word which describes the district. The villas and the flat complexes are found in new subdivisions. Especially the villas, they are the main structure of the subdivision.



The new subdivision could be characterised by the following items:

1. Wide and straight streets.

This reflects the attention which new subdivisions give to automobiles. The ability of these wide streets to accommodate the maximum number of cars and the accessibility which is provided to each lot. (Fig 15-17, 15-18)

2. Grid System.

This reflects the type of division which is taking place to divide land in an easy way. This grid network generates 90° intersections everywhere in the subdivision.

3. Decentralisation of Functions. (Fig 15-19, 15-20, 15-21 and 15-22)

Through observation it could be concluded that new subdivisions do not have a focal point. It could be seen that Mosques are scattered in a way that does not relate to the main design. Also the other facilities such as schools, clinics or shops are scattered all around with no relation to the whole scheme.

4. Open Spaces.

The new subdivision provides open spaces which are generated from the wide streets and from the public spaces such as parks, gardens and car parking.

5. Blocks of Plots.

Those are the plots of lands which are designed to accommodate the residential functions. The plots are usually square or rectangular.

Usually the subdivision is originally a large piece of land which is owned by one owner or a group of owners. This land then is divided into small plots to be sold to individuals. Each plot has a number and that is the identification in the repetition environment.



#### 15.4 CLIMATICAL REFERENCE

The climate of Saudi Arabia affects the built environment. It is the duty of the different elements of this built environment to respond to this harsh climate. The protection of the inhabitants and the acceptable comfort are the minimum requirements.

The villa, the flat complexes and subdivisions are the contemporary environment by which the Saudi society is moving to the modern era. It could be observed that these main elements do not assist climatic control in this country. The protection of the people from the harsh weather, the intensive sun radiation, the high heat and the dusty wind.

The flat and the flat complexes are buildings which provide shade and space for families. Because of their relative height they are even more exposed to the strong sun than villas and because the blocks of flats require windows on a minimum of two faces that are the only source of light to the flats within, blocks of flats cannot be placed close together. This further exposes them to direct sunlight.

Air conditioning is the common response to provide the comfortable environment inside these structures. Most of these air conditioning units are window units and the rest are central units.

The materials which are used to construct the contemporary environment do not represent the suitable materials for this part of the world with its harsh environment. The lack of use of insulation is also the characteristic of this built environment.

The openings (windows) are very large glass windows. These openings are a contradiction in this area. A lot of heat and excess light goes inside through these openings.



The spaces between the structures create heat zones in which air conditioning units extract heat from inside and expell it to the outside. Even the open spaces (yard) surrounding the structure are not protected. It is two difficult to utilise the use of these spaces with all the heat and harsh weather outside.

The subdivision as a large unit which represents the contemporary neighbourhood also seems to ignore the basic need of this environment which is shade. Wide streets and open spaces do not protect people from the direct sun. Asphaltting most of the streets provide another source of heat. Shading devices are limited in some areas and the pedestrians movement is not considered.

#### 15.5 ACTIVITIES REFERENCE

The contemporary environment accommodates the people of Saudi Arabia, the people practice their normal traditional activities plus the new activities which emerged as a result of the new environment.

In the villa the Saudi family spend most of the day activities inside the structure of the building. Spaces in the villa are generally divided into two broad categories, the first one is family space which comprises the bedrooms and bathrooms, a daily living room, kitchen and perhaps a dining room. This private space represents the basic needs of the family for daily activities. The main kitchen is used by the housewife, as most households rely on cooks for meal preparation. The second one is guest space comprising of guestrooms, an "Arabic" room, dining room, washroom and bath and sometimes a guest bedroom. This guest space is used for hosting guests especially those who are not related to the family.

Unlike the popular use of roofs (terraces) for various social functions in the traditional buildings of Saudi Arabia, the



modern roofs no longer have a social function, they are merely used to house air conditioning equipments, water storage tank and often a laundry room.

The open space around the building structure provides the space which could be used for certain activities, children could play in this yard since it is safe from traffic outside. Some gatherings are held for certain occasions, usually males.

In the flat complex, it could be seen that the flat contains the minimum requirement of the Saudi family in terms of space. The family only have the right to practice their daily life inside their flats. The reception room (Majlis) is usually kept clean and closed to be used for receiving guests. The open area surrounding the building is not used by any of the families who are living in the same building. The terrace of the building is usually kept closed and none of the families could use it as it lacks privacy.

In the new subdivision it could be observed that the movement of the people are mechanised and depends on wheels. Pedestrians are few since the layout and the design of streets do not encourage walking. It could be said that activities are less than they used to be in the traditional neighbourhoods.

#### 15.6 CULTURAL REFERENCE

The Saudi Society is a conservative society which represents and preserves traditions through the history of the country. Through long years of hard life, the houses represented the people and their thinking.

In the contemporary built environment, houses became a new face of this culture. Modernisation is what the people talk about. (Fig 15-23) The people are using their houses as a symbol of



their affluence and status in society. The villa represented for the people a high standard living and became their preference.

The culture of today relies to the most expensive mechanical and electrical equipment by which environmental comfort is bought. Ostentation has entered the peoples culture to become part of life style. It should be noted that this is exactly against the teaching of Islam.

The subdivision reflects the new face of the society which depends on cars for movement, since the car by itself is a way to present wealth and prestige the neighbourhood became as a motor land show where latest models are presented.

There is no difference between the subdivision in modern Saudi Arabia and those of the west especially in America. The advertisement for selling lands present it in a way that the new life is going to be with the new subdivision which maintains the concept from the western culture. (Fig 15-24, 15-25)

#### 15.7 MATERIAL REFERENCE

The introduction of modern technology which led to the import of modern designs of villa, also lead to the use of different building materials.

New buildings, some of them using the most advanced materials and methods of construction available anywhere in the world are being constantly built.

Most of Saudi modern residential architecture is constructed primarily of reinforced concrete structure, utilising flat slabs for floors and roofs and concrete blocks for walls and partitions.



The exterior is plastered or often faced with brick or stone (be it marble, travertine, sandstone or limestone), or various configurations and textures of precast or cast in place concrete veneer elements.

The brick commonly used is produced in Saudi Arabia. Stone also is produced in the country. Cement factories are in the country. Wood is scarcely used except for some interior spaces, doors, windows, shutters and quite infrequently window frames. This has been due to the expense and the severe warping that it undergoes in the harsh Saudi climate.

Roofs are frequently flat although different forms of pitched and tiled roofs are becoming increasingly popular. Windows are almost always of aluminium frame, whether rectangular, arched or circular in nature, and most are manufactured locally.

Insulation materials are not used except by those who can afford it. Buildings produced mainly from cement based products are poorly insulated against heat. Air conditioning units became an important element for the houses to cope with the heat which the structure allows to leak inside. (Fig 15-26, 15-27, 15-28 and 15-29)

#### 15.8 CONTEMPORARY ENVIRONMENT ASSESSMENT

The changes in architecture experienced by Saudi Arabia over the last thirty years or so, are almost beyond imagination. The tremendous visual impact that recent structures have had and still continue to have on the built environment can only be accurately described by actual experience. The feeling might perhaps be comparable to visiting Disneyland.

The traditional cities were partially demolished in order to give way to modern infrastructure. As a result, the residents of the



old town had to be re-located in newly planned neighbourhoods units. These were houses based upon modern technologies, in fact without electricity they are impractical. The overall affluence allowed the increased acquisition of motor cars, the introduction of new technologies, the importation of architects, engineers, other professionals and labourers from various parts of the world, in an effort to build the modern Saudi.

The Saudi citizen himself did not quite comprehend what architecture was all about. The Saudis began to experience a sense of freedom from constraints of the traditional way of life and a sense of affluence toward a modern living environment.

With the wealth came the problems, for as fast as a sudden massive influx of wealth solve one set of problems it creates another. The problems which were directly related to the contemporary built environment could be summarised in the following:

- Privacy Problems
- Tall building problems.
- Air conditioning problems.
- Water problems.
- Concrete problems.
- General problems.

The following subsections are to describe each set of problems.

#### 15.8.1 Privacy Problems

It could be observed that the contemporary built environment created a privacy problem that the people could not accept. The present building regulations, especially the setback requirements gave the buildings more elevations than it used to have. The elevation allowed people to open windows on all elevations without any restrictions. Windows became a source of privacy



invasion. Most of these windows are plain glass without any screen on it. Terraces also became a source of privacy invasion since most of its walls are low. The outside yards and windows could be overlooked through the terraces. Even terraces could be overlooked by others who live in high-rise buildings beside it. Balconies also became another source of privacy invasion, it encouraged males to sit in it. The people felt that they had to protect their privacy, their rooms could be invaded, their yards (outside yards) also were not protected, their families became prisoners of the environment. The people choose to alter their structure by adding strange elements. High metal fences (walls) were constructed on the original low fence, curtains became an element which people also used to fight privacy invasion problems. (Fig 15-30, 15-31, 15-32, 15-33, 15-34, 15-35, 15-36, 15-37, 15-38, 15-39, 15-40, 15-41 and 15-42)

#### 15.8.2 High Rise Buildings Problems

Tall buildings are a fact in Saudi Arabia. As we saw in the traditional buildings of Jeddah, there were high-rise buildings up to five and six stories<sup>7</sup>. At that time this was for many reasons, with the limited areas of Jeddah inside the defensive walls of the city and also for the prestige which was to show the wealth of the trade people who lived there. It was introduced with the expertise of outside builders. The main problem at that time was to raise water without pumps.

Today it could be observed that tall buildings, especially for residential functions are founded in every city in Saudi Arabia. The apartments concept is the character of these high-rise buildings. There are many



items which are associated with these buildings causing many difficulties to the residences and to the environment. They could be summarised in the following<sup>8</sup>:

- There is difficulty for children playing in terms of their safety and the space where they play. If the children play outside they should be under supervision of the father who is not always at home because of his work, and it is not proper for the mother to be on the street with her child. It is not always possible to keep an eye on the children playing outside because of the height of the building, and the apartment often faces only one way while children can be on all sides. Also the privacy of the mother is not protected this way as she is required to look from windows. When children play inside they disturb the mother and annoy the neighbours.
- There are misunderstandings between neighbour in the same building because of noise created and cleaning habits or maintenance.
- High-rise buildings invade the privacy of small low-rise houses. It forces other people not to use their terraces because of privacy.
- In most of these high-rise buildings, the apartment doors face each other, which disturbs the privacy of each other.
- Garbage disposal is not well designed within the unit and the building.
- Street noise is not screened or reduced for those who live on the street side.
- Finding a parking space is a big problem when it is not provided in the original design and the only place to park is on the street.
- It is difficult to add or expand in apartments except to change balconies to stores.
- In case of power failure, it is difficult to climb the many stairs up to one's apartment.



### 15.8.3 Air Conditioning Problems

The existing environment depends on the air conditioning, the dependence is a problem by itself. The heat of the weather became annoying without air-conditioning. With the importation of different marks of air conditioning, it became available to everyone to alleviate the normal heat of the environment.

With the vast use of air-conditioning all over the built environment, many problems have resulted from unwise use which could be summarised in the following<sup>9</sup>:

- Appearance from both inside and outside building.
- Units are noisy.
- Very short life expectancy.
- Condensation leaks on overflow may streak walls or drip on space below.
- Window units block vision through windows and may interfere with normal window operations.
- Air distribution in room is poor, drafts in some areas, dead spots in others.
- Maintenance is difficult and frequently inadequate. It also can not be accomplished from outside the house. Maintenance people would have to enter the conditioned space to fix it.
- No filtration capability available.
- The units have limited temperature control. They are at full capacity as long as they are on. Control is basically manual by occupant.
- Depending on air conditioning units (single or central) led to a form of design which ignores natural ventilation and traditional design concepts. In other words no body cares about natural air since air conditioning is available.



- Air conditioning depends on electricity, and the use of air conditioning is affecting power supply especially in the summer. Electrical companies have unstable workload because of air conditioning. The difference between summer and winter consumption of electricity led to unused sources in some seasons.
- The air conditioning units gather a lot of bacteria and dust and direct them inside the house.
- Air conditioning requires an enclosed environment so that the cool air could be saved for longer periods. This leads to uncomfortable environments in terms of ventilation and smells.
- There are some effects on the human body in terms of the change of temperature. During the summer season, the inside temperature of the house reaches 25°C with the work of air conditioning. The outside temperature reached 45°C. Moving from one area to another in such different temperatures lets the body loose some of its natural resistance, consequently, it led to a weak body which feels a slight change in temperature.
- The indirect effect of living in an enclosed environment for long hours which lead to different depressions.
- Air conditioning generates heat from the units to the outside, this is changing the environment (micro-climate).
- People used to air conditioning increase their travel to western countries escaping from the heat of the summer which is becoming annoying for them. This is an indirect affect on the people through air conditioning.

#### 15.8.4 Water Problems

Water problems relating to housing and physical structure could be classified into the following:



- Water consumption.
- Ground water raising.

#### Water Consumption.

Through the history of Saudi Arabia it was clear that water was the most important item which determined the settling of people in any area. The government as we saw before, made a considerable effort to provide alternative sources for water. The investigation of more ground water and the digging of the wells helped the people to feel safe<sup>10</sup>.

The desalination plants which provide drinking water to most Saudi Cities became the main source of water in the Kingdom.

The contemporary houses and physical environment encouraged the consumption of water. The habit of using water have been changed in a way that people think as if water is something natural in this land. The existing generation did not live the rough life of older generations. The people in the previous decades used to be much more sensitive in saving water. Today it is a problem when you see people do not behave well with using water. May be it is an urgent issue, is it the people alone? or does the contemporary houses and physical environment play a role here?

In new villas when toilets are designed to be almost as large as a living room in size, with large tubs, and many different items such as w.c. and bidet. All of them require a large quantity of water to be healthy and good. With a dusty environment there is no easier way than water. Unshaded gardens consume much more water than necessary because of the intensive heat<sup>11</sup>.



Regarding the people carelessness, this is true, there are a lot of those who do not care about water since they pay for it.

#### Water Table Raising.

The accelerated expansion and development of cities had resulted in the generation of large quantities of waste water for various sources such as residential, commercial establishment and industries. For example the city of Jeddah generated 250,000 m<sup>3</sup>/day of waste-water<sup>12</sup>.

Because of the huge costs involved and the rapid expansion of the city, the development of the sewer system did not keep pace with construction of building and roads. There are many causes of the water-table raising which could be summarised in the following<sup>2</sup>:

- (1) Seepage from cesspools.
- (2) Leakage from green areas and parks.
- (3) Leakage from water distribution system.
- (4) Low soil permeabilities.
- (5) Ground water flow and contribution from adjacent areas or locations.
- (6) Precipitation.

As a result it was estimated that the ground water levels (GWL) were rising throughout most cities in Saudi Arabia. For example in Jeddah it was estimated at 0.5 metres/year<sup>13</sup>.

A lot of hazards were alarming as areas suffering from this raise in the (GWL). The continuation of this problem is effecting construction elements at a level lower than GWT. Foundations and basement are being damaged<sup>14</sup>. (Fig 15-43, 15-44)



#### 15.8.5 Concrete Problems

Concrete and reinforced concrete are dominating the building materials in Saudi Arabia and other countries in the Middle East. Saudi Arabia is a country which has the basic materials of concrete in large quantities<sup>15</sup>.

The Kingdom of Saudi Arabia has gone through a spectacular era of speedy construction, high technology, varieties of building and construction activities. In the havoc of these developments, Portland cement concrete being the most revolutionary construction material that building technology ever developed, lent itself to almost all issues of construction because of its cumulative performance in terms of its high compressive strength, its exceptional weather resistance and durability, its construction simplicity and versatility, and its relatively low cost<sup>16</sup>.

A wide range of cements and aggregates both natural and artificial are available, so that concretes can be made to satisfy many different needs. For example by the selection of the type of aggregate, concrete can be made to a range of densities from a light weight of as low as  $400 \text{ Kg/m}^3$  (25lbs/cuft) and by the choice of cement it can be made to harden slowly or rapidly - with a low hydration temperature for mass concrete work<sup>17</sup>.

The spread of the concrete for construction has another side, some problems which resulted from bad manufacturing of concrete. For example, data developed from field studies on structure located in Eastern Saudi Arabia indicate an alarming condition of structures 15 to 20 years old which strongly suggest numerous future problems



entailing maintenance and repair measures at considerable cost and effort<sup>18</sup>.

The problems of concrete could be summarised in the following:

- A. Problems resulted from bad chemical interactions. Those are caused because of the severe climate, aggressive internal environment pertaining to high degree of salinity, and geomorphic conditions resulting in reactive minerals and relatively unsound aggregates extracted from Tertiary limestone bedrock<sup>19</sup>.
- B. Steel corrosion. Corrosion of steel reinforcement in concrete is a frequent cause of trouble. Such corrosion is normally inhabited by an alkaline condition around it in the concrete due to the presence of lime formed by hydration of the cement. If however the cover of concrete is not sufficient, and the concrete is very porous, the lime is turned to calcium carbonate by carbon dioxide in the air, and the alkaline protection is lost. Corrosion then occurs, and staining and palling of the concrete and loss of strength will result<sup>20</sup>.
- C. Cracks resulted from unstability of soil. This happens when the soil under the foundation moves either down or upward. The movement causes excessive tension which concrete cannot take<sup>21</sup>.

All of these beside the poor workmanship, lack of local specification, lack of supervision and control over concreting lead to structures which fall even before they are occupied. (Fig 15-45)



#### 15.8.6 General Problems

This section is to provide general views of the other problems which are noticable in the present built environment.

1. Transportation issues... The number of cars imported to the country is exceding the ability of the built environment to accommodate them<sup>21</sup>. They are parked everywhere even on pedestrian pavements. The speed limit is not restricted and the use of the horne is popular among drives. The accidents of cars hitting other cars or hitting pedestrians are noticable. There are no signs for pedestrians to cross the streets at certain points.
2. Health issues... The existing situation of built environment is participating in the accumulation of desires and creating new ones. Stress and discomfort from driving, noise inside the built environment and the extensive heat which is generated from the many artificial items added to the original heat of the weather. The direct contact with sun radiation for a long period have some affects on the people especially the eyes<sup>22</sup>. People are recommended to wear sunglasses during the day to reduce the effects of the sun.
3. Security issues... The villa type house gave the ability to thieves to jump over the outside fence and to break windows or doors without any notice from the people outside the villa fence<sup>23</sup>. This problem is felt widely in the new subdivions where the presence of the police is lacking. Some of the residents are selling and moving to the inside of the built area. (Table 15-1, 15-2)



Table 15-1

CRIMES COMMITTED IN THE KINGDOM 1406  
(See theft 6851).

Source:

Statistical Indicator 1987.

Post Regions	النسبة المئوية Percent	المعد Number	نوع الجريمة
Murder	0.5	107	قتل عمد
Manslaughter	0.1	11	قتل خطأ
Threat & Attempted Murder	1.0	214	تهديد ومحاولة قتل
Suicide, Attempted Suicide	0.8	173	انتحار ومحاولة انتحار
Attacks Leading to Death	0.1	18	اعتداء أدى إلى وفاة
Theft	31.9	6851	السرقات
Bribery	—	—	الرشوة
Immorality	9.8	2082	الإغلاية
Kidnapping	0.4	81	الخطف
Fraud	2.0	428	التزوير
Forging	0.1	32	التزييف
Swindling	0.8	177	النصب والاحتيال
Arrogation	0.3	62	انتحال شخصية الغير
Fires (Deliberate)	0.2	34	الحريق العمد
Making, Drinking and Selling Inebriant	23.4	5026	صنع وشرب وبيع السكر
Escaping and Absence	5.8	1241	هروب وتغيب
Attacks and Quarrel	17.3	3718	اعتداءات ومضاربات
Unlicensed Weapons	0.4	88	حيازة سلاح بدون ترخيص
Others	5.1	1103	اخرى
Total	100.0	21482	المجموع

Table 15-2

CRIMES COMMITTED IN THE KINGDOM 1407  
(See theft 7566).

Source:

Statistical Indicator 1988.

Post Regions	النسبة المئوية Percent	المعد Number	نوع الجريمة
Murder	0.4	88	قتل عمد
Manslaughter	"	8	قتل خطأ
Threat & Attempted Murder	1.5	340	تهديد ومحاولة قتل
Suicide, Attempted Suicide	1.0	229	انتحار ومحاولة انتحار
Attacks Leading to Death	0.1	18	اعتداء أدى إلى وفاة
Theft	33.0	7986	السرقات
Bribery	—	—	الرشوة
Immorality	11.2	2983	الإغلاية
Kidnapping	0.3	64	الخطف
Fraud	0.6	144	التزوير
Forging	0.1	22	التزييف
Swindling	1.0	220	النصب والاحتيال
Arrogation	0.4	88	انتحال شخصية الغير
Fires (Deliberate)	0.1	29	الحريق العمد
Making, Drinking and Selling Inebriant	23.2	5312	صنع وشرب وبيع السكر
Escaping and Absence	4.5	1038	هروب وتغيب
Attacks and Quarrel	15.9	3861	اعتداءات ومضاربات
Unlicensed Weapons	0.5	114	حيازة سلاح بدون ترخيص
Others	6.1	1403	اخرى
Total	100.0	22908	المجموع



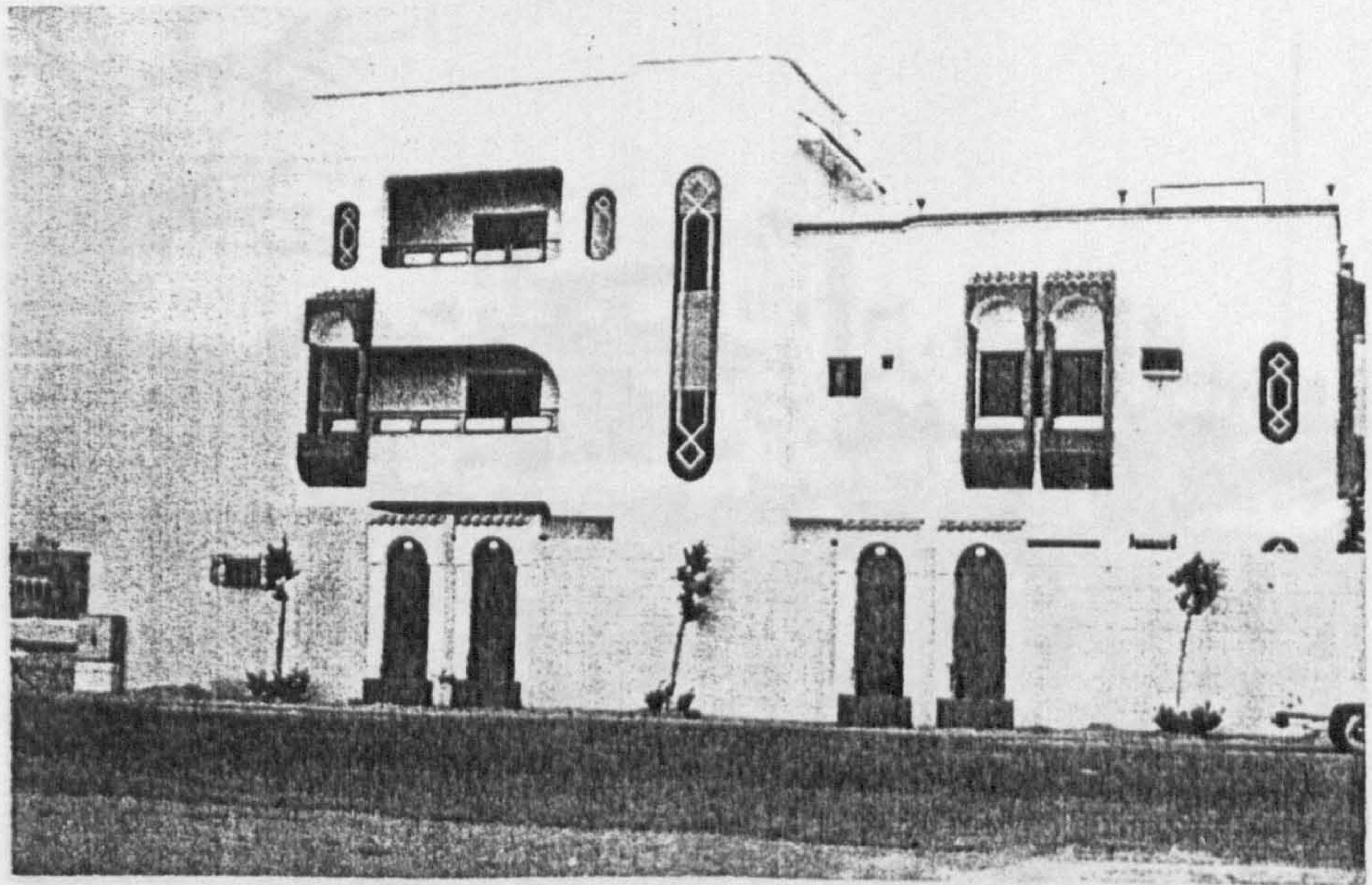


Fig 15-1 VIEW OF VILLA (1)  
(Villa in Jeddah. Decorated facade, balconies,  
aluminium windows).

Source; Author (A.S. Alafghani).



Fig 15-2 VIEW OF VILLA (2)  
(Vilal in Makkah. Low-wall terrace, windows in the  
ground floor are secured).

Source: Author (A.S. Alafghani).



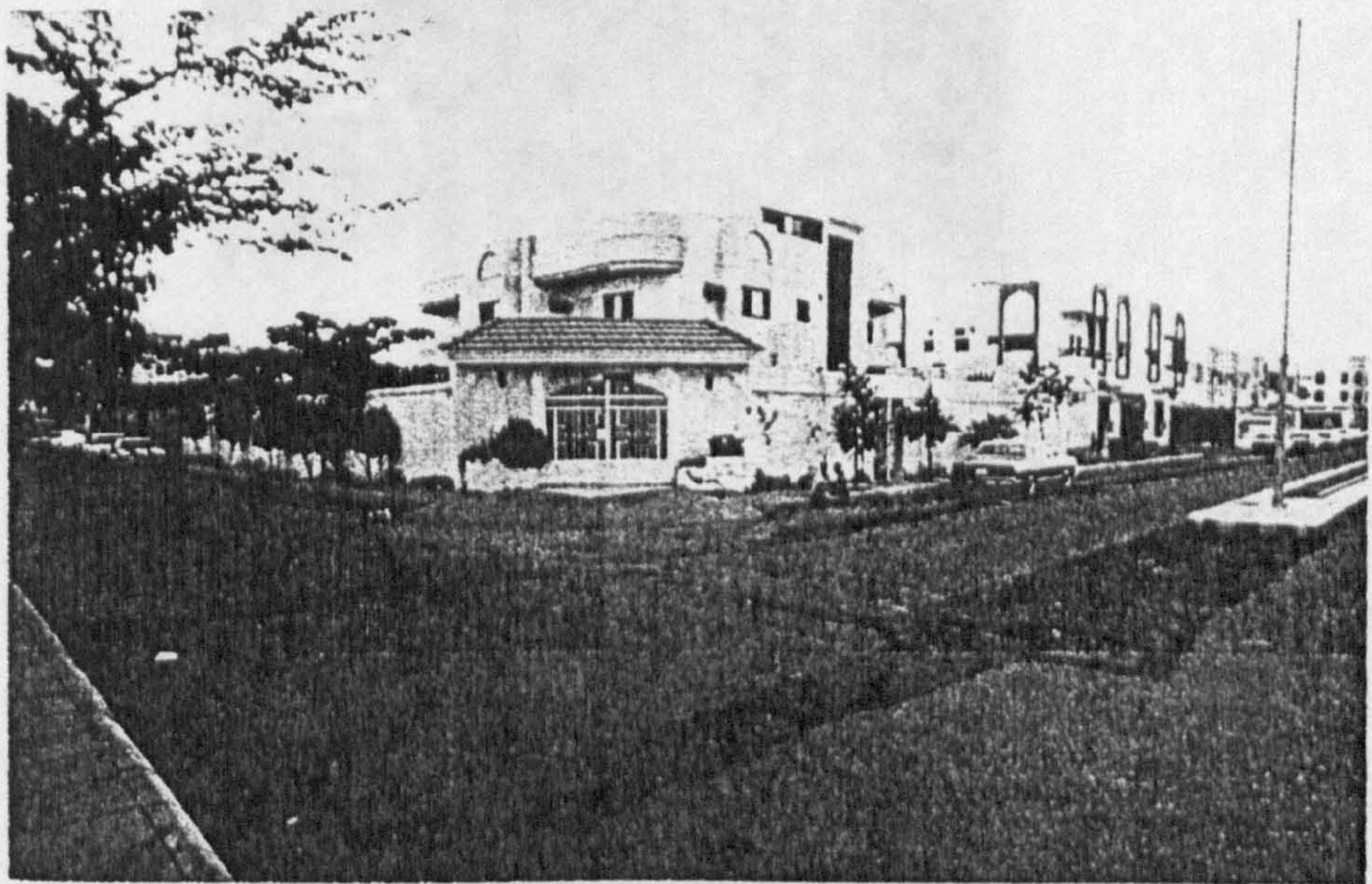


Fig 15-3 VIEW OF VILLA (3)  
(Villa in Jeddah - wide streets).

Source: Author (A.S. Alafghani).

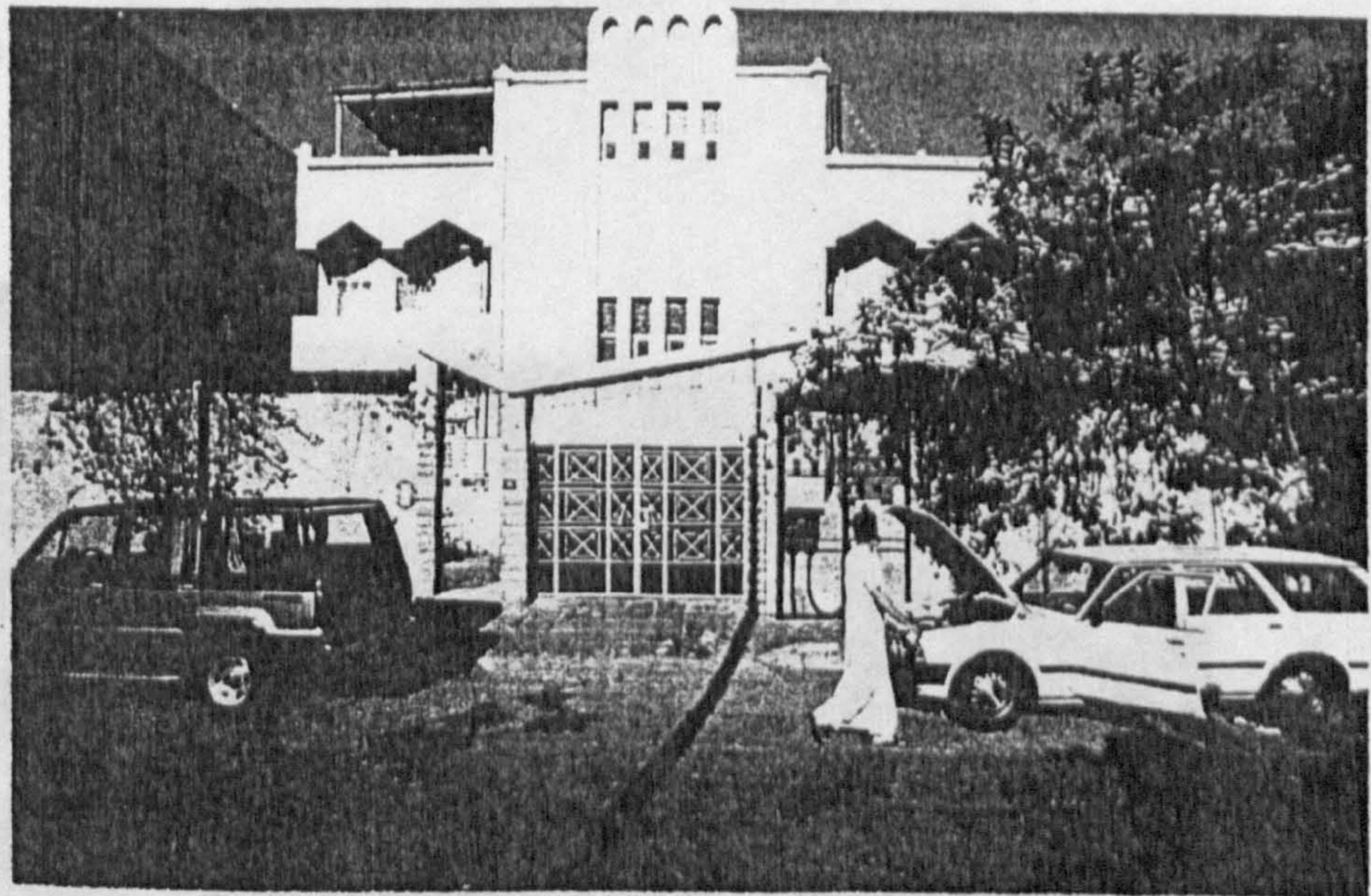


Fig 15-4 VIEW OF VILLA (4)  
(This villa in Jeddah. The owner is Mr. Ahmed Rashwar. He helped the researcher in the investigation about his villa).

Source: Author (A.S. Alafghani).





Fig 15-5 VIEW OF MAJLIS (1)  
(Arabic Majlis in villa - women section).

Source: Author (A.S. Alafghani).

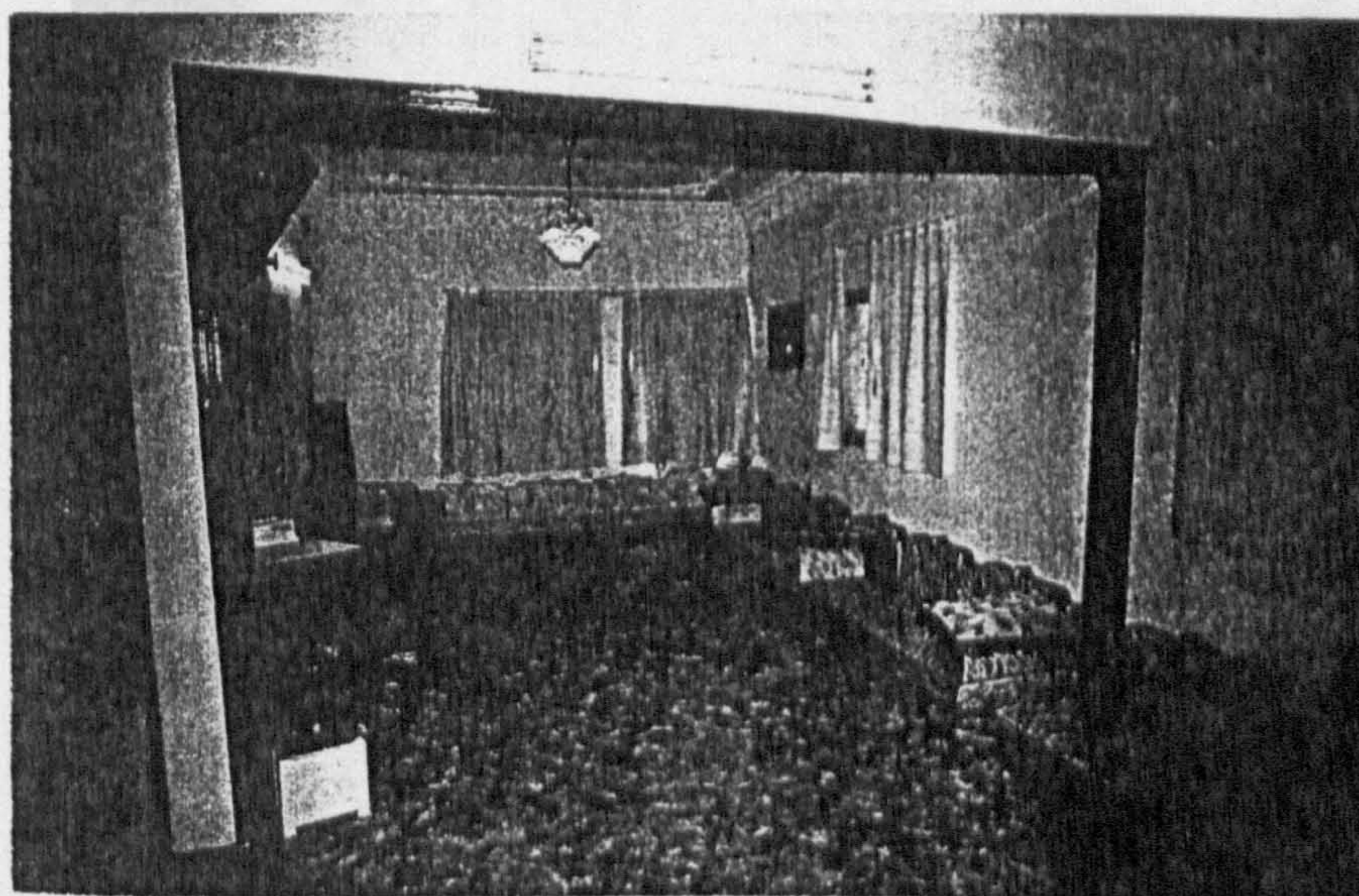


Fig 15-6 VIEW OF MAJLIS (2)  
(Arabic Majlis in villa - men section).

Source: Author (A. S. Alafghani).





Fig 15-7 VIEW OF MAJLIS (3)  
(High-level sitting in villa - men section).

Source: Author (A.S. Alafghani).

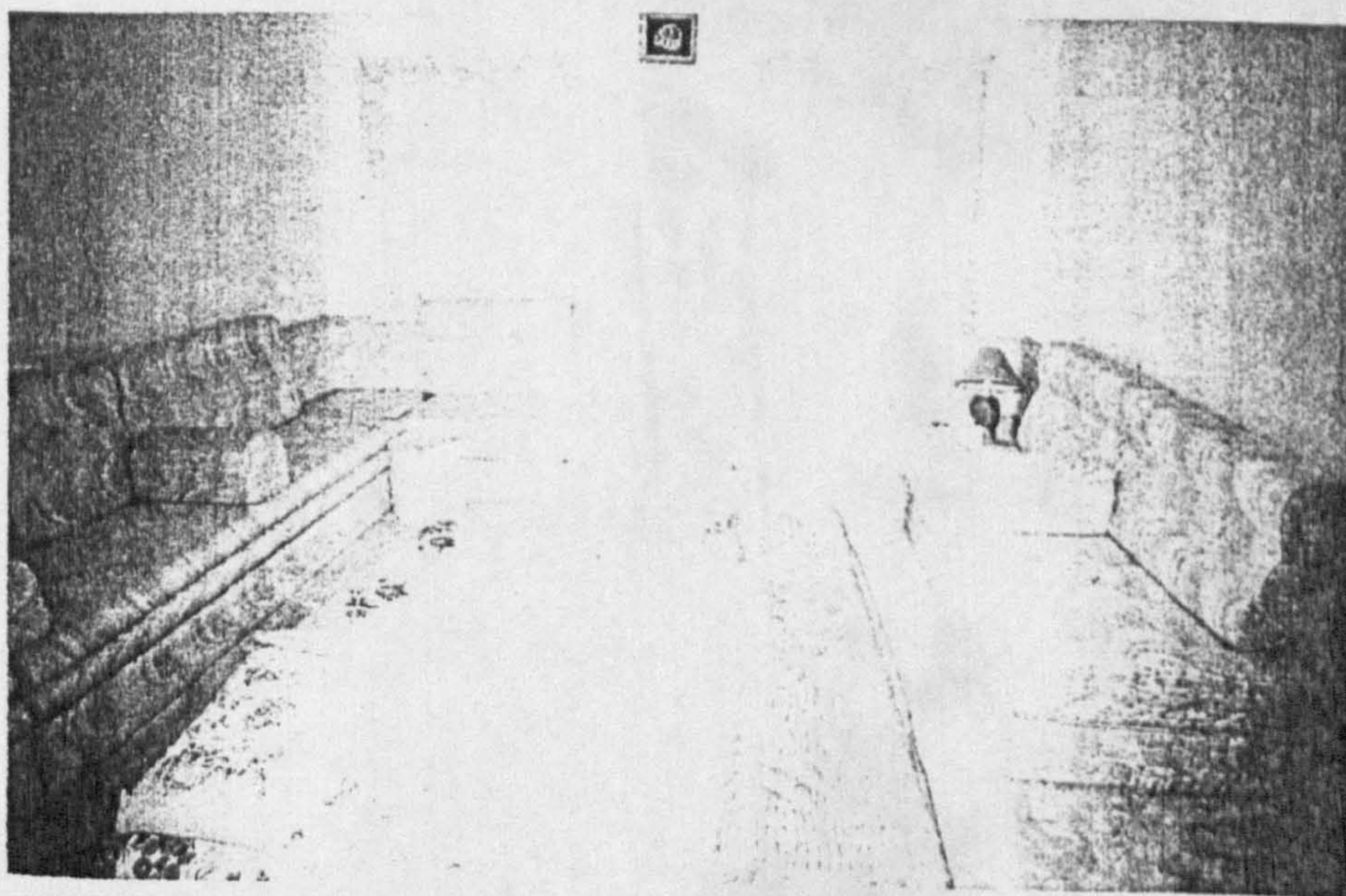


Fig 15-8 VIEW OF MAJLIS (4)  
(High-level sitting - women section. It could be used to accommodate guests for sleeping).

Source: Author (A.S. Alafghani).



Fig 15-9 VIEW OF TOILET FITTINGS (VILLA)  
(Expensive image).

Soruce: Author (A.S. Alafghani).

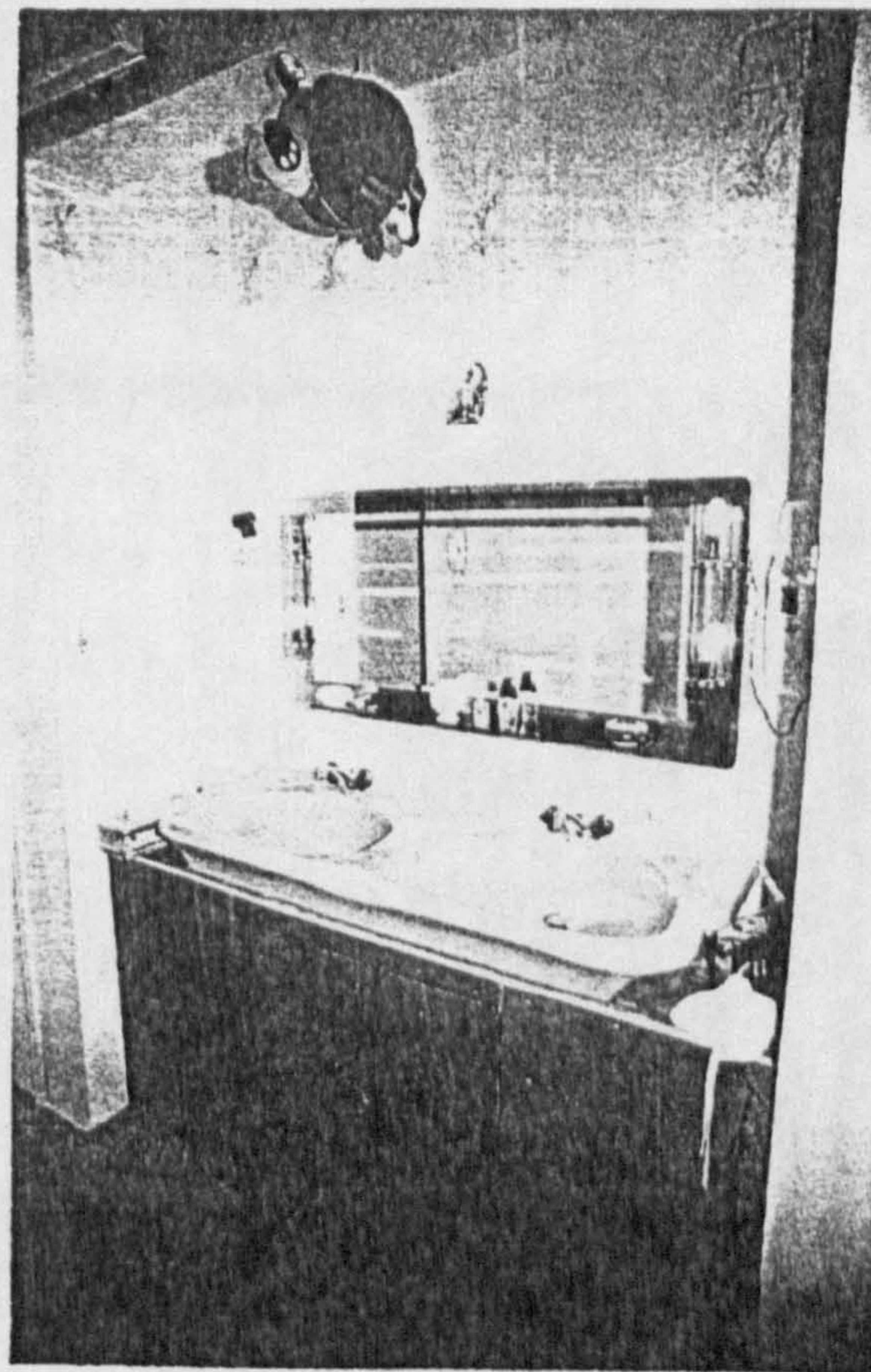
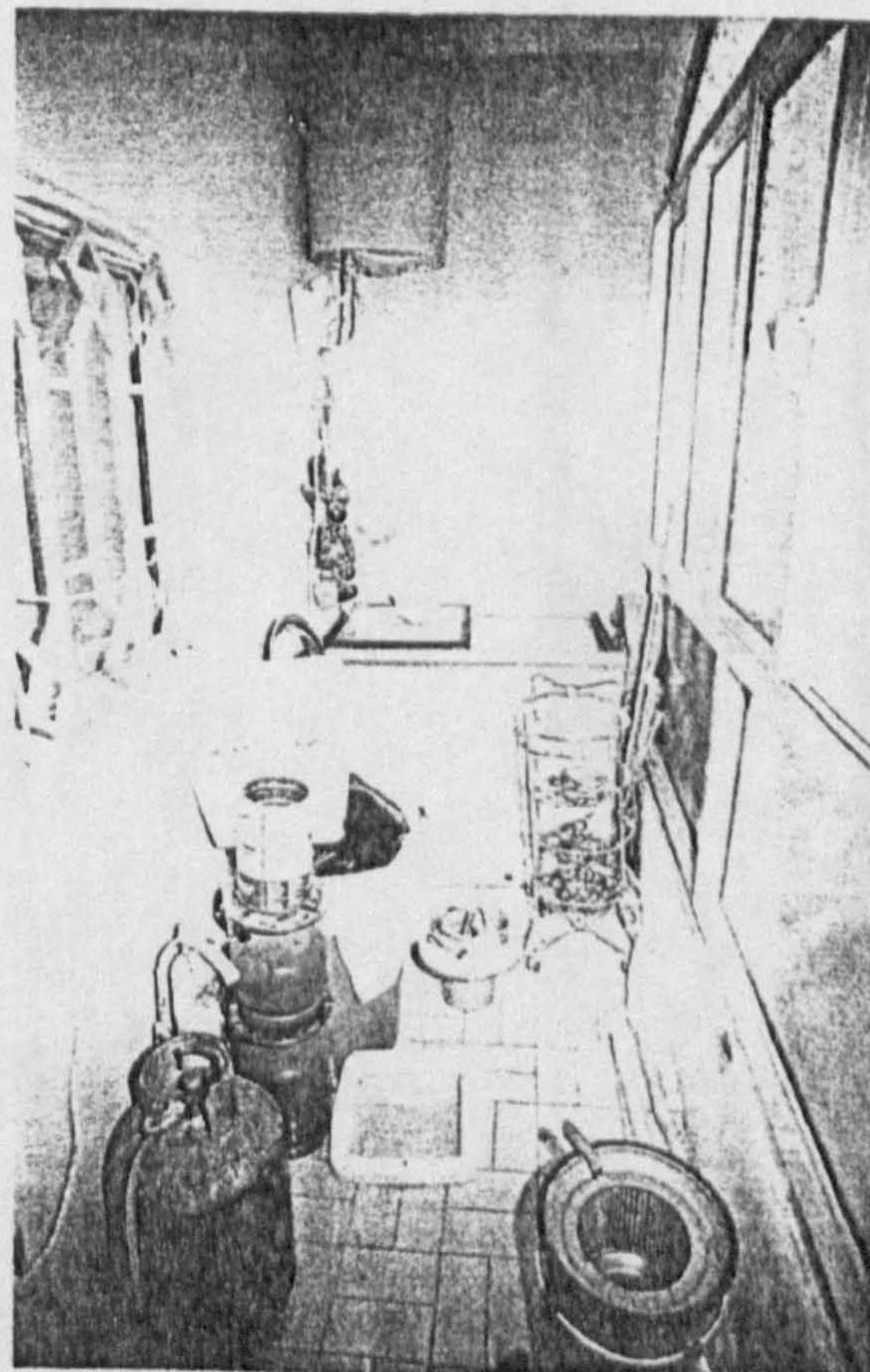


Fig 15-10 VIEW OF BALCONY (VILLA)  
(Balcony was transformed to storage)

Soruce: Author (A.S. Alafghani).





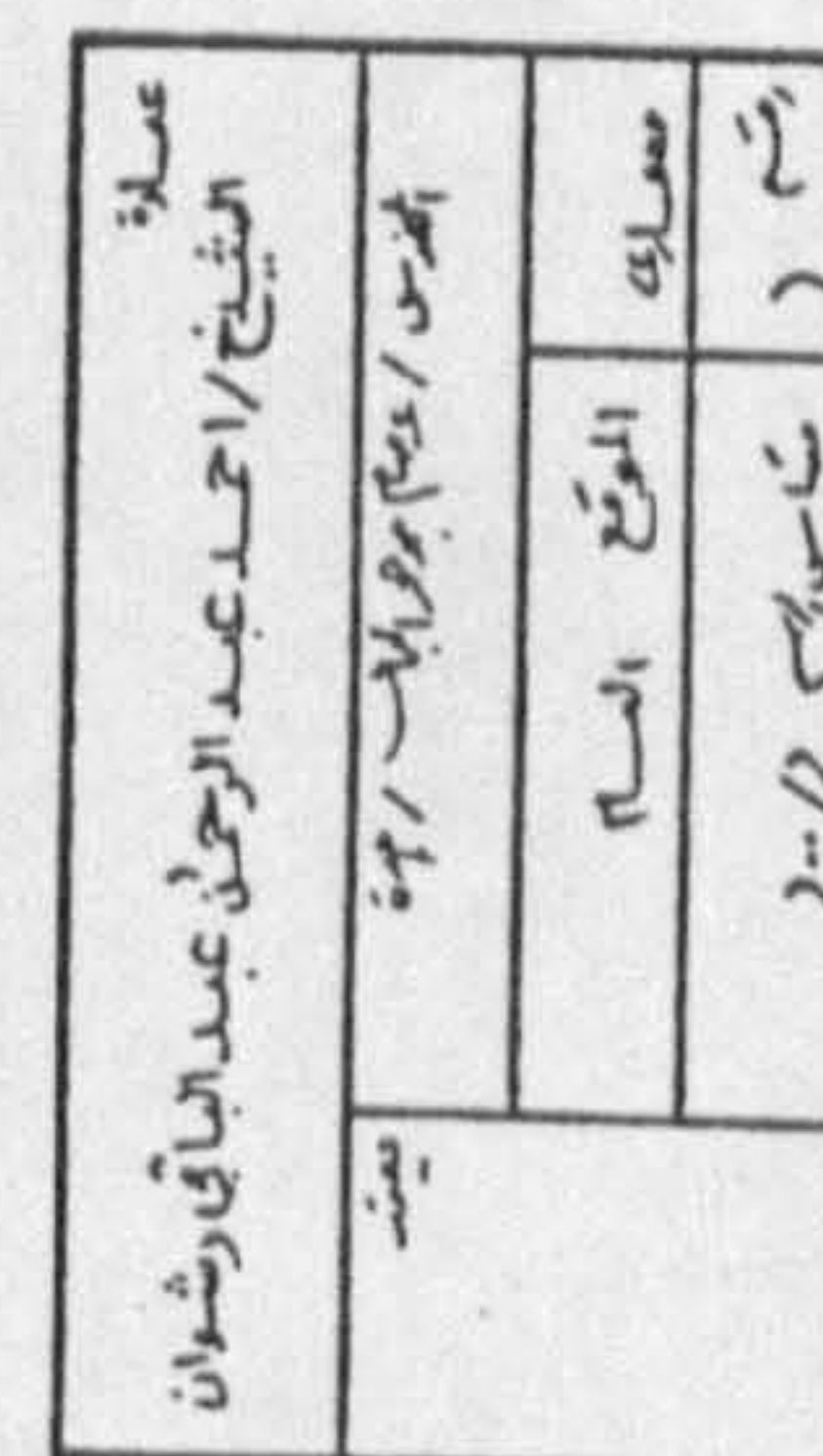
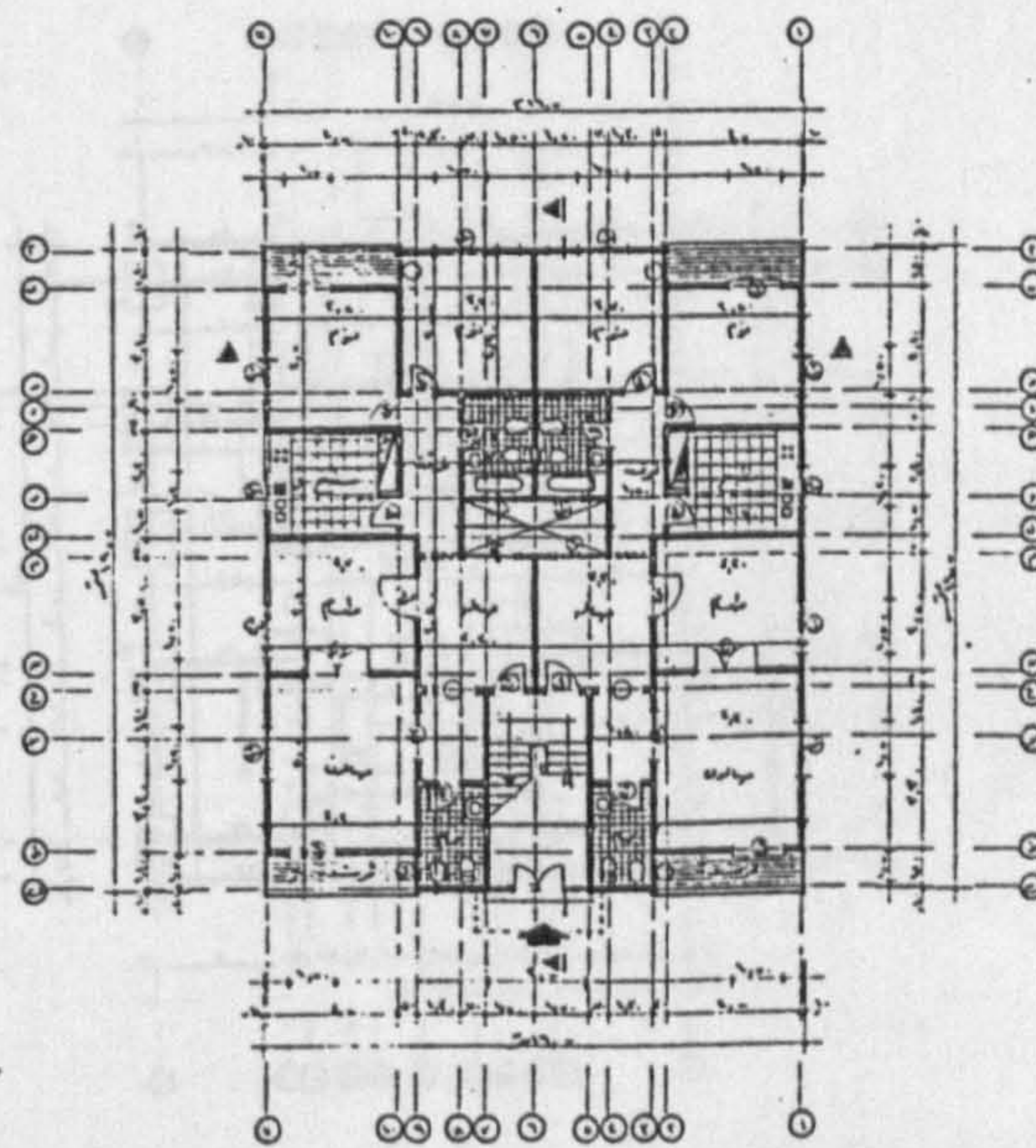


Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY  
1 (Site Plan).

Source; Mr. Ahmed Rashwan, Jeddah (24)





جدول المساحات

رقم	وصف المساحة	المساحة (م <sup>2</sup> )	المساحة (م <sup>2</sup> )
1	غرفة نوم	12.00	12.00
2	غرفة نوم	12.00	12.00
3	غرفة نوم	12.00	12.00
4	غرفة نوم	12.00	12.00
5	غرفة نوم	12.00	12.00
6	غرفة نوم	12.00	12.00
7	غرفة نوم	12.00	12.00
8	غرفة نوم	12.00	12.00
9	غرفة نوم	12.00	12.00
10	غرفة نوم	12.00	12.00
11	غرفة نوم	12.00	12.00
12	غرفة نوم	12.00	12.00
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15	غرفة نوم	12.00	12.00
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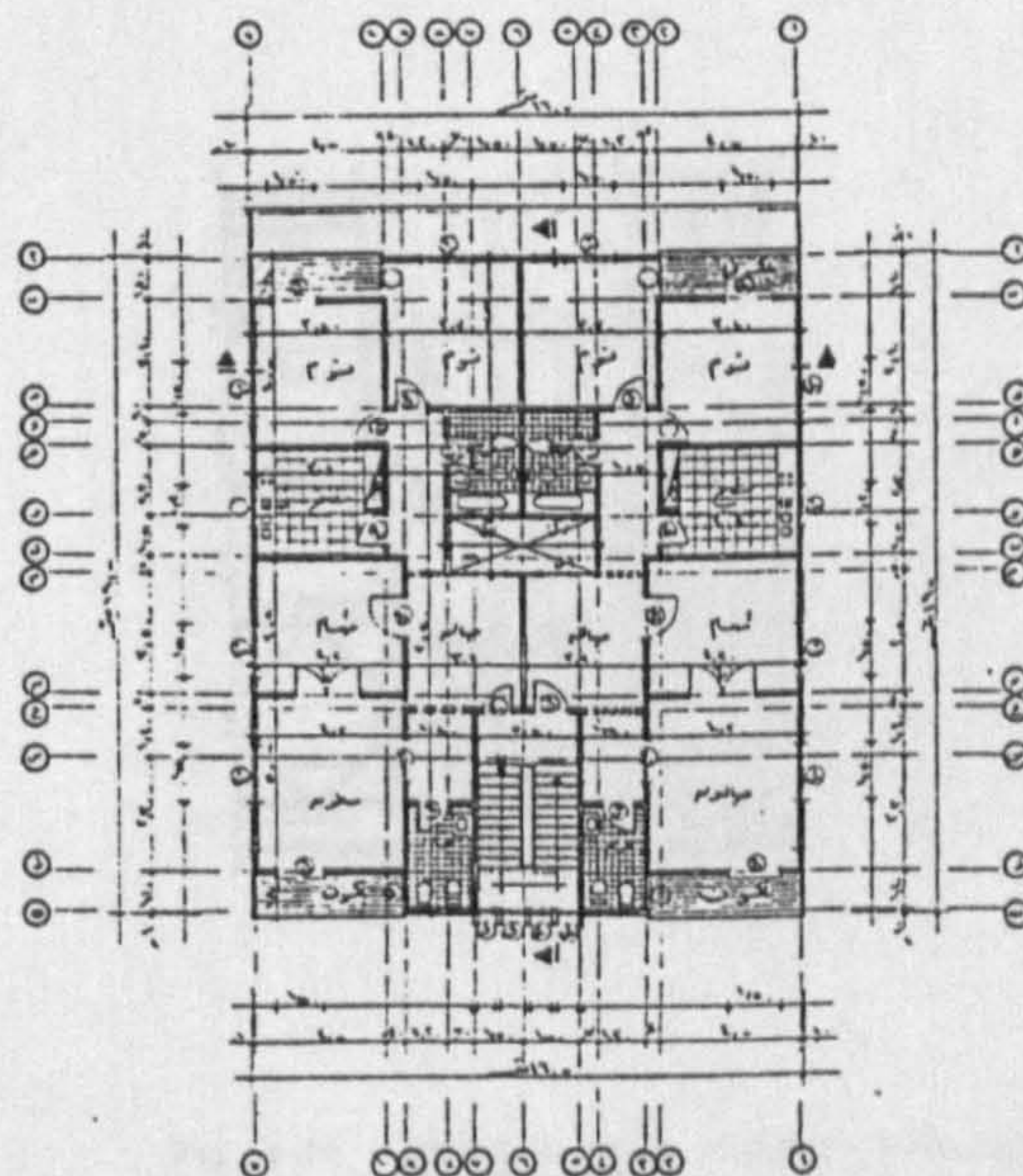
Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY  
2 (Ground Floor Plan).

Source: Mr. Ahmed Rashwan, Jeddah (24)

ملاحظة

الشيخ / السيد محمد بن عبد الله بن رشوان

رقم	وصف المساحة	المساحة (م <sup>2</sup> )	المساحة (م <sup>2</sup> )
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2	غرفة نوم	12.00	12.00
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4	غرفة نوم	12.00	12.00
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17	غرفة نوم	12.00	12.00
18	غرفة نوم	12.00	12.00
19	غرفة نوم	12.00	12.00
20	غرفة نوم	12.00	12.00



جدول المساحات

Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY  
3 (First Floor Plan).

Source: Mr. Ahmed Rashwan, Jeddah (24)

ملاحظة

الشيخ / السيد محمد بن عبد الله بن رشوان

رقم	وصف المساحة	المساحة (م <sup>2</sup> )	المساحة (م <sup>2</sup> )
1	غرفة نوم	12.00	12.00
2	غرفة نوم	12.00	12.00
3	غرفة نوم	12.00	12.00
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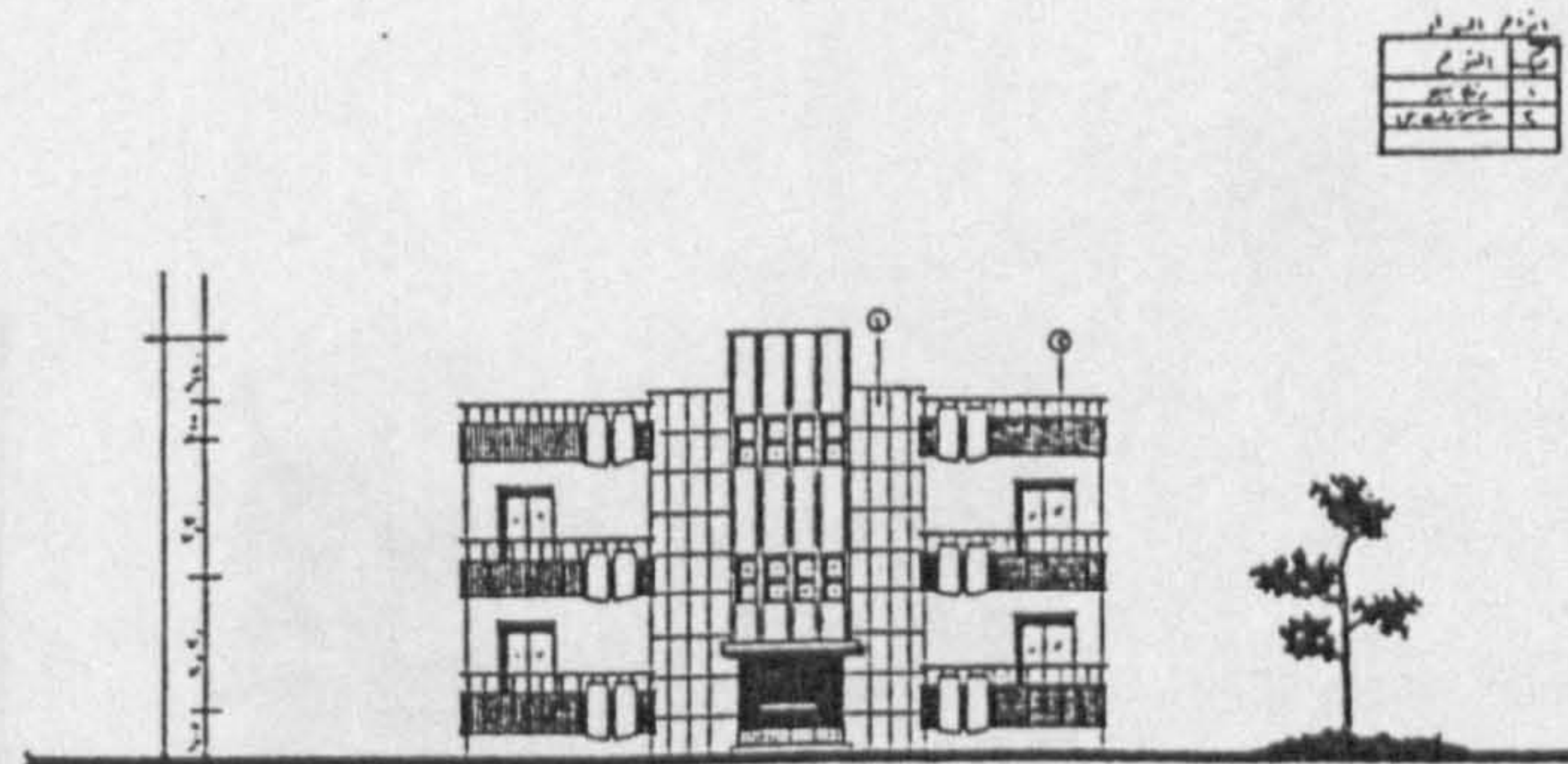


Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY  
6 (Main Elevation).

Source: Mr. Ahmed Rashwan, Jeddah (24)

معلومات عامة	
الاسم / عنوان المبنى	الحي / المنطقة
الارتفاع	العرض
المساحة	الارتفاع

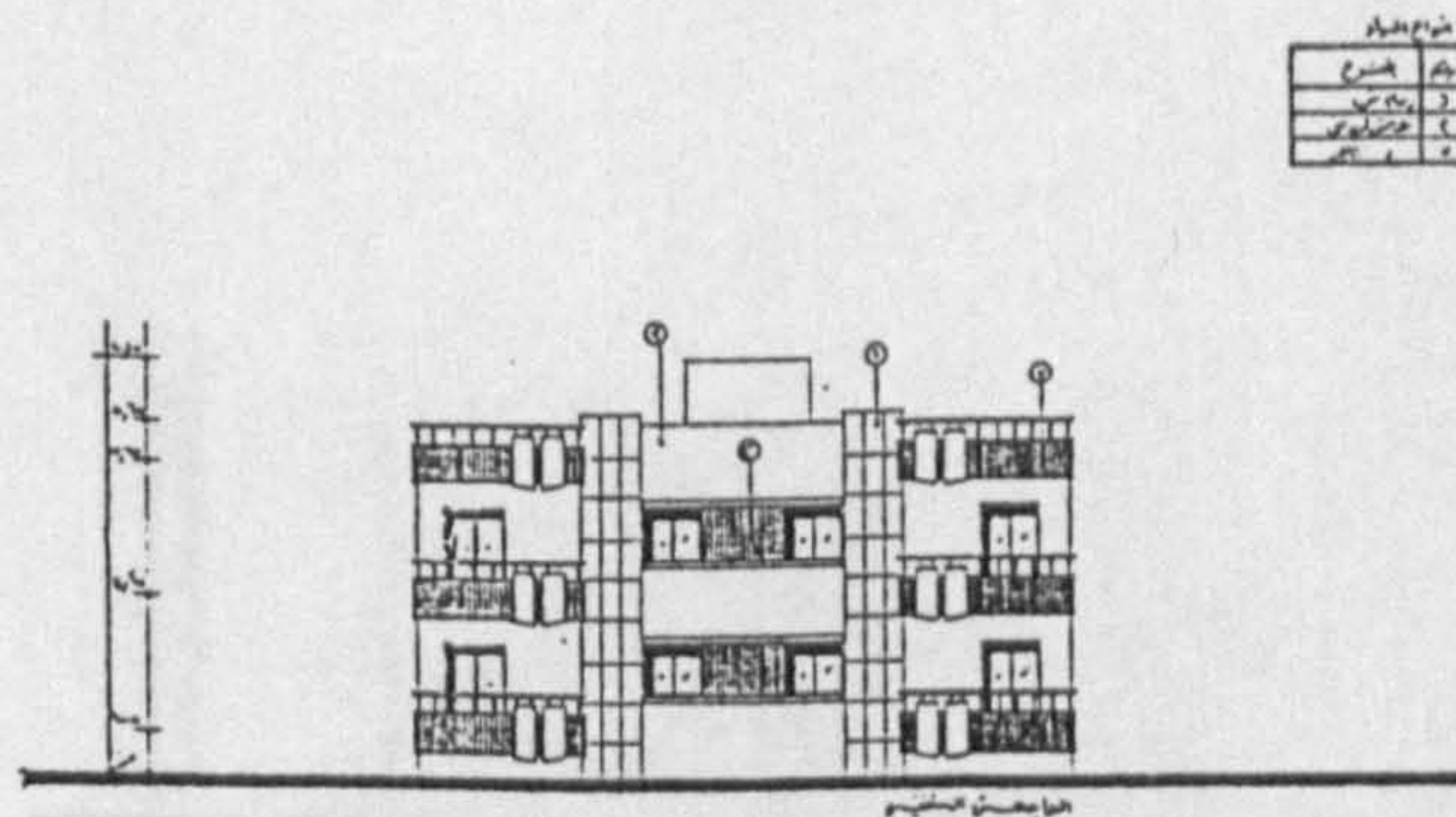


Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY  
7 (Rear Elevation).

Source: Mr. Ahmed Rashwan, Jeddah (24)

معلومات عامة	
الاسم / عنوان المبنى	الحي / المنطقة
الارتفاع	العرض
المساحة	الارتفاع



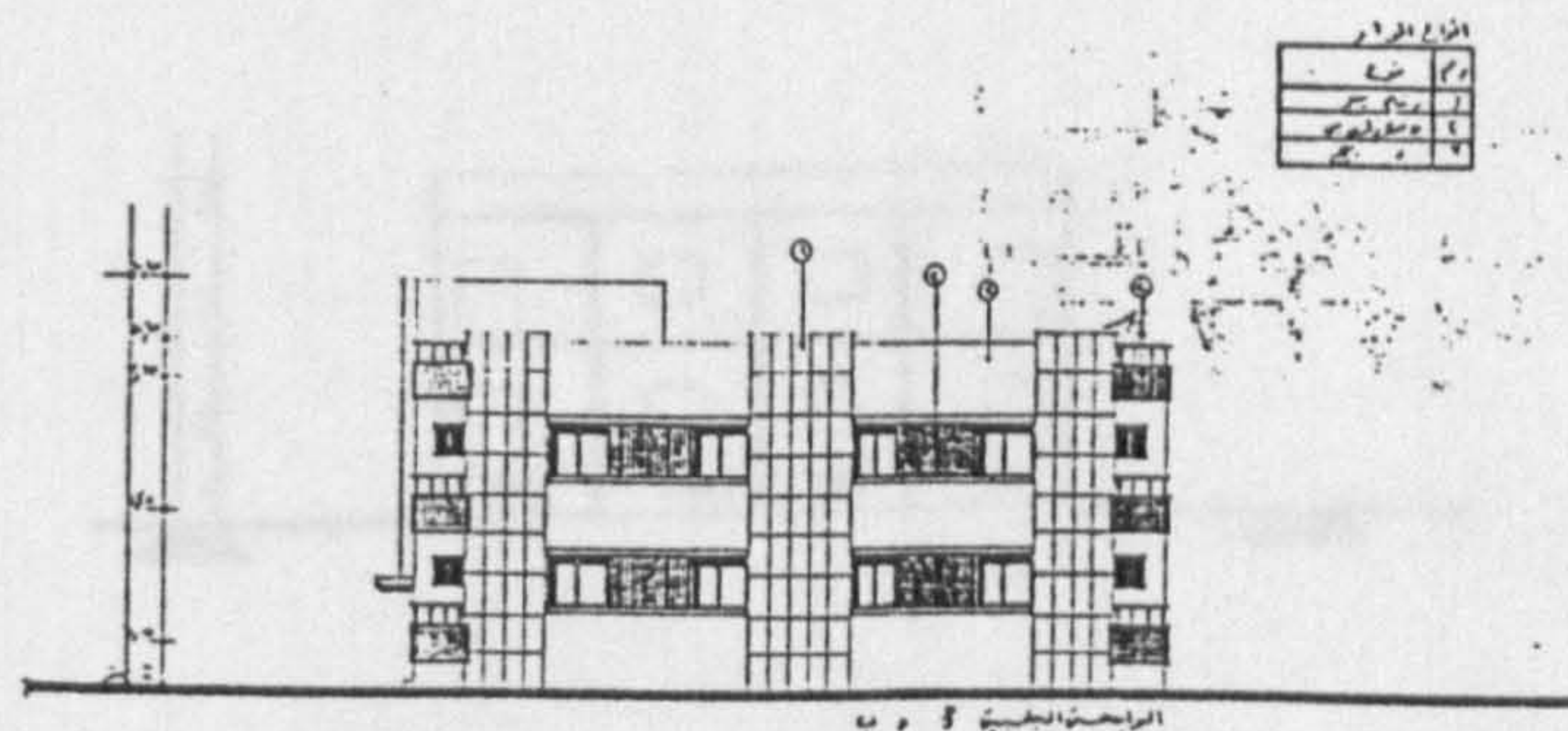


Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY (Side Elevation).

Source: Mr. Ahmed Rashwan, Jeddah (24)

الشيخ / احمد عبد الرحمن عبد الباقي رشوان	
الرجوع	١٠١
الملاحظات	١٠١
الملاحظات	١٠١

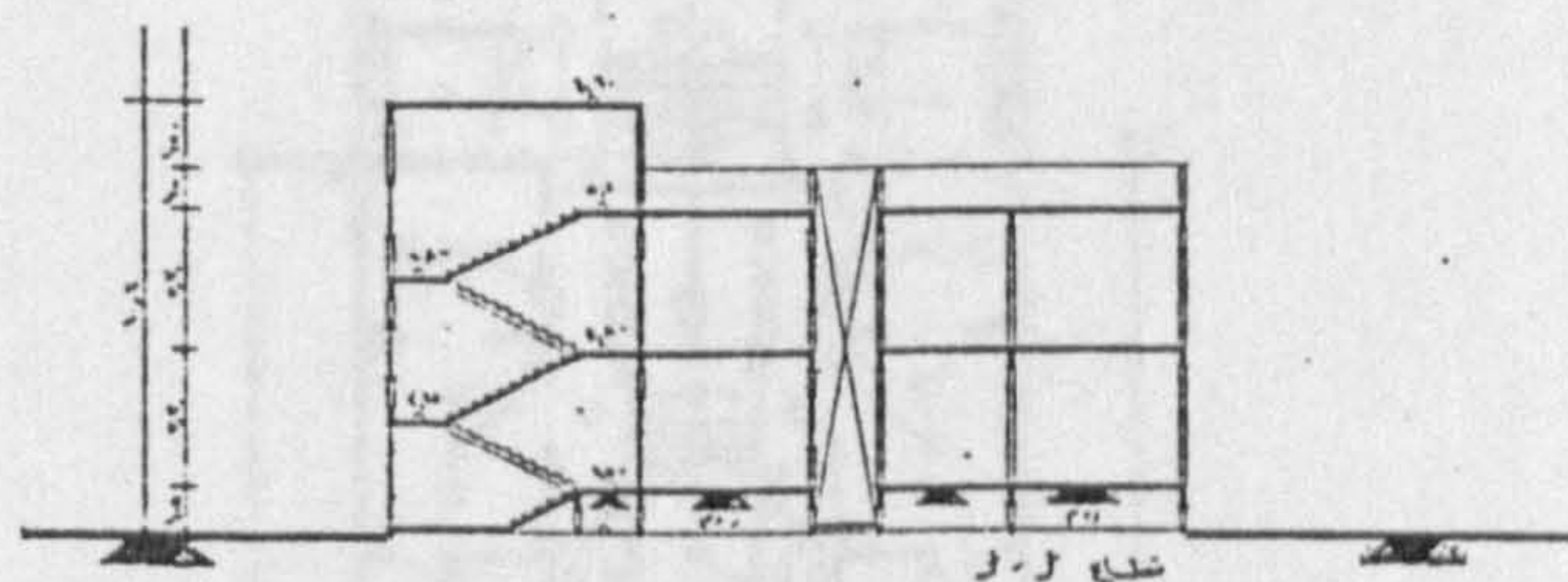


Fig 15-11 SAMPLE OF VILLA DRAWINGS WHICH ARE REQUIRED BY THE MUNICIPALITY (Section A-A).

Source: Mr. Ahmed Rashwan, Jeddah (24)

الشيخ / احمد عبد الرحمن عبد الباقي رشوان	
الرجوع	١٠١
الملاحظات	١٠١
الملاحظات	١٠١













Fig 15-12 VIEW OF FLAT COMPLEX (1)  
(High-rise building up to 12 storeys in Makkah).

Source: Author (A.S. Alafghani).

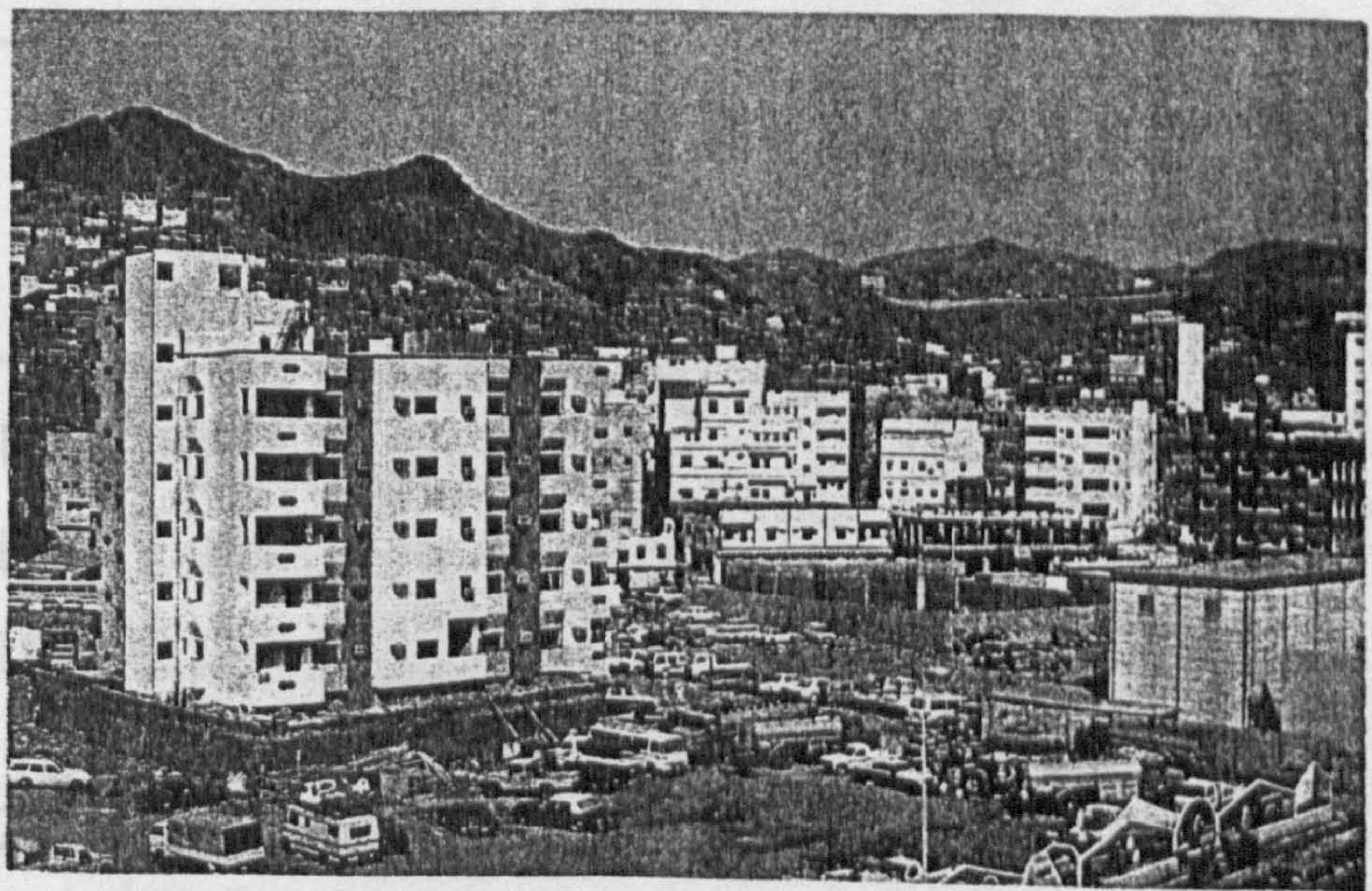


Fig 15-13 VIEW OF FLAT COMPLEX (2)  
(Parking problems - air conditioning units).

Source: Author (A.S. Alafghani).



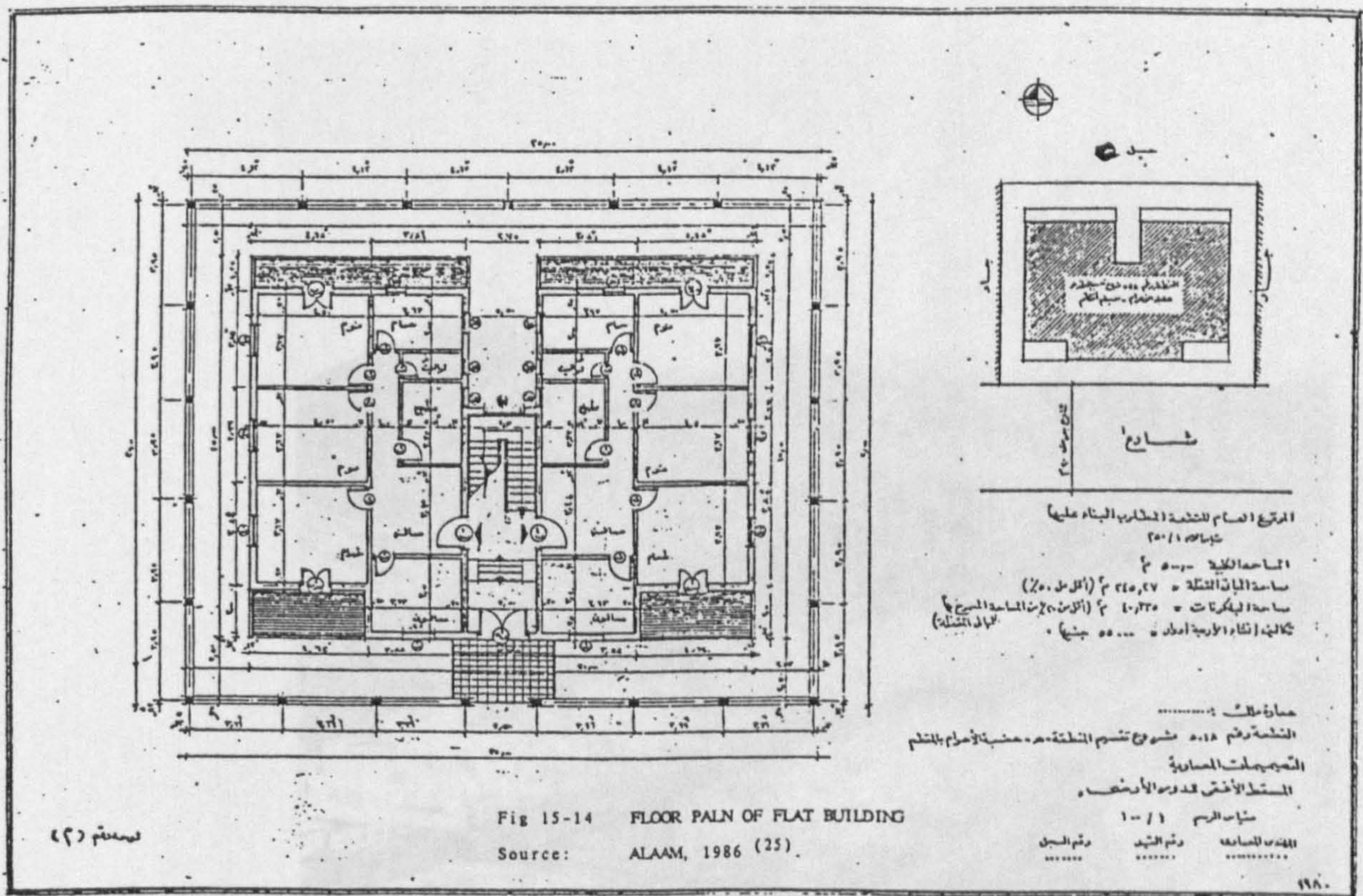


Fig 15-14 FLOOR PLAN OF FLAT BUILDING

Source: ALAAM, 1986 (25).

رسم رقم (٢)

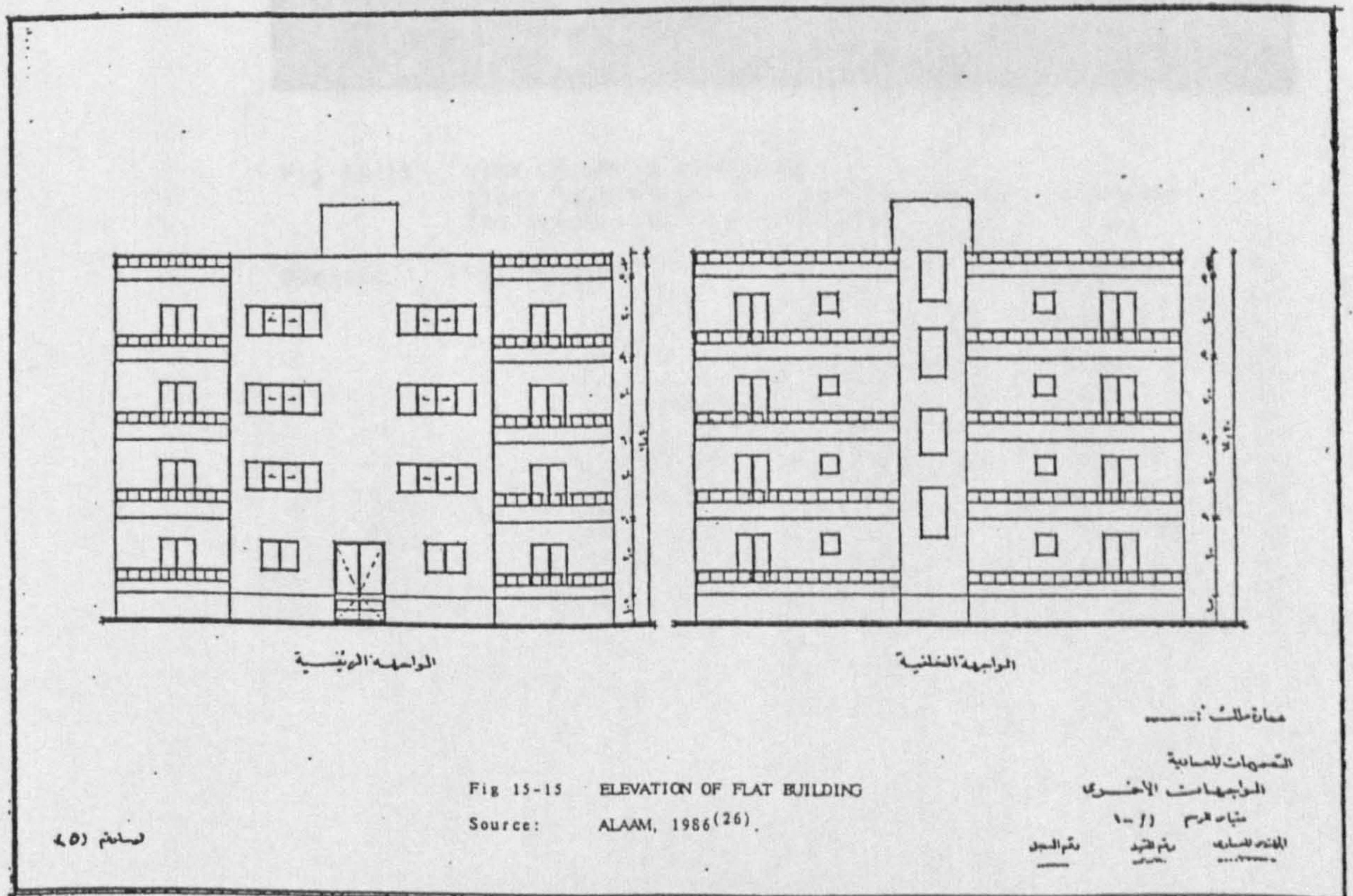


Fig 15-15 ELEVATION OF FLAT BUILDING

Source: ALAAM, 1986 (26).

رسم رقم (٥)





Fig 15-16 VIEW OF NEW SUBDIVISION  
(This subdivision is a new development in Jeddah.  
The repetition of the villas).

Source: REDF Report (27).



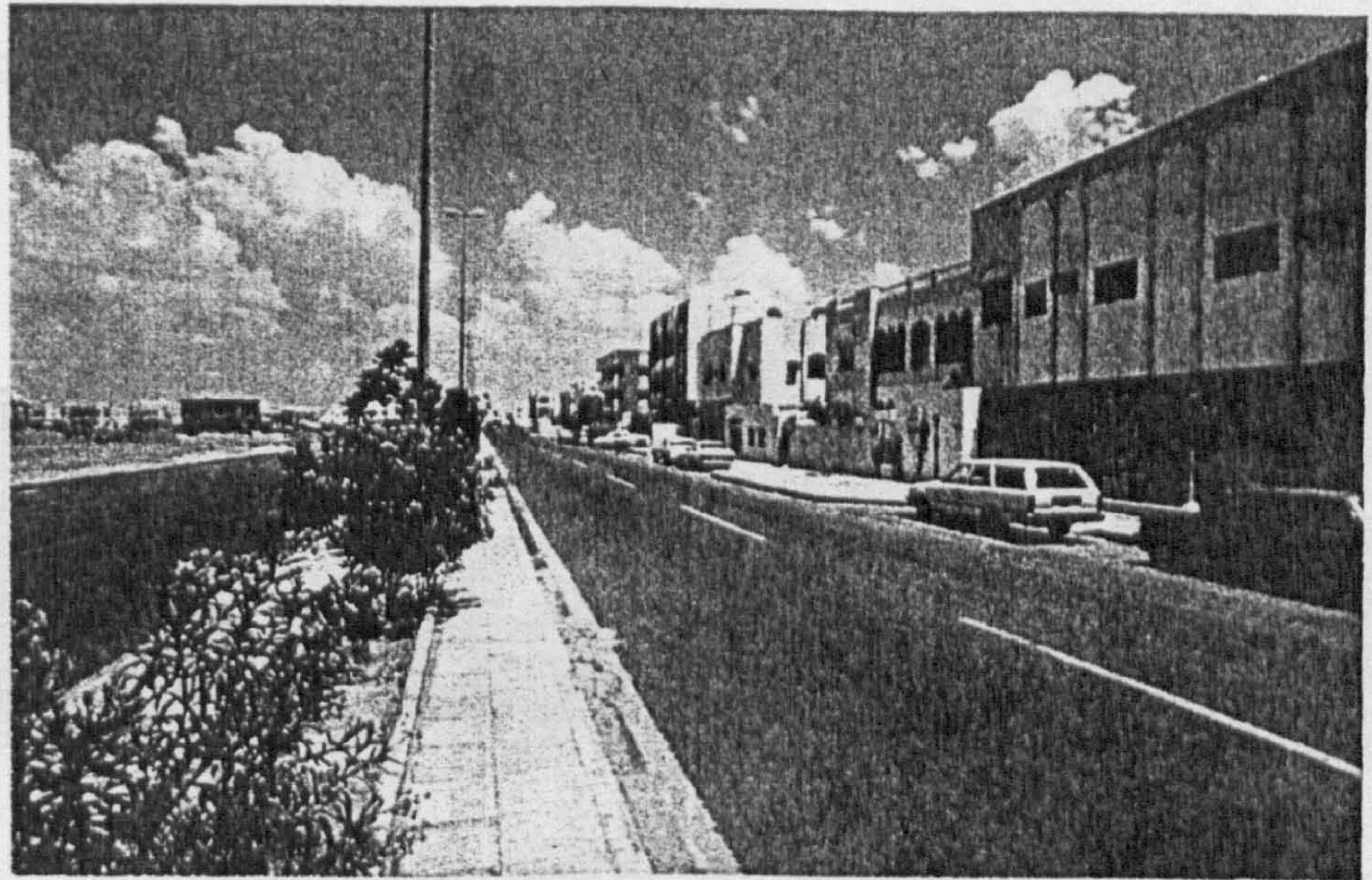


Fig 15-17 VIEW OF STREETS IN SUBDIVISION (1)  
(Wide streets - no shades).

Source: Author (A.S. Alafghani).

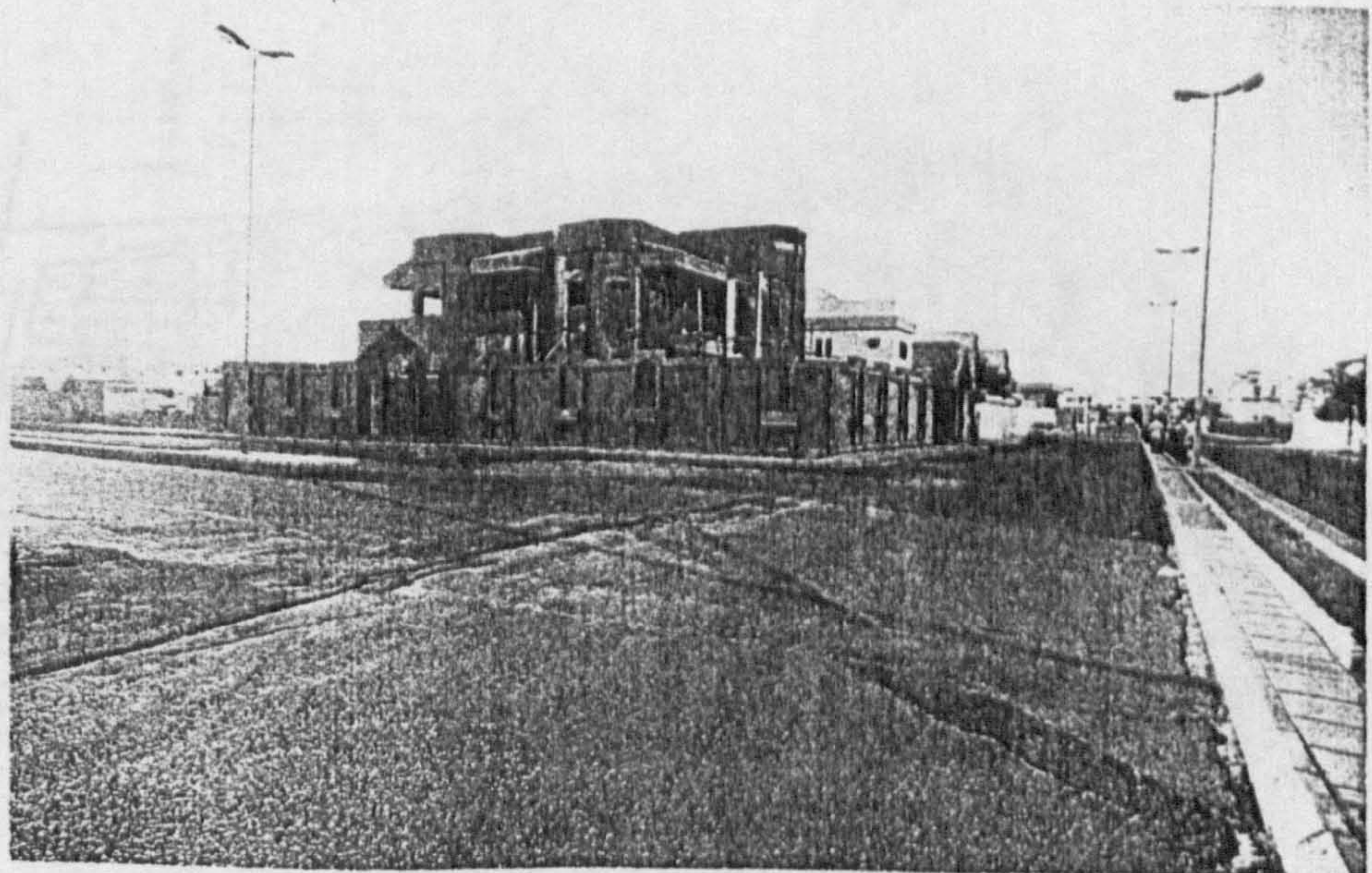


Fig 15-18 VIEW OF STREETS IN SUBDIVISION (2)  
(Wide streets in new villa present the different materials).

Source: Author (A.S. Alafghani).



(H) مستشفى  
(SH) متاجر  
(SHC) مركز تجاري  
(PM) موقف ومسجد  
(GS) مدرسة للبنات  
(BS) مدرسة للبنين  
(YC) مركز للشباب  
(P) موقف للسيارات

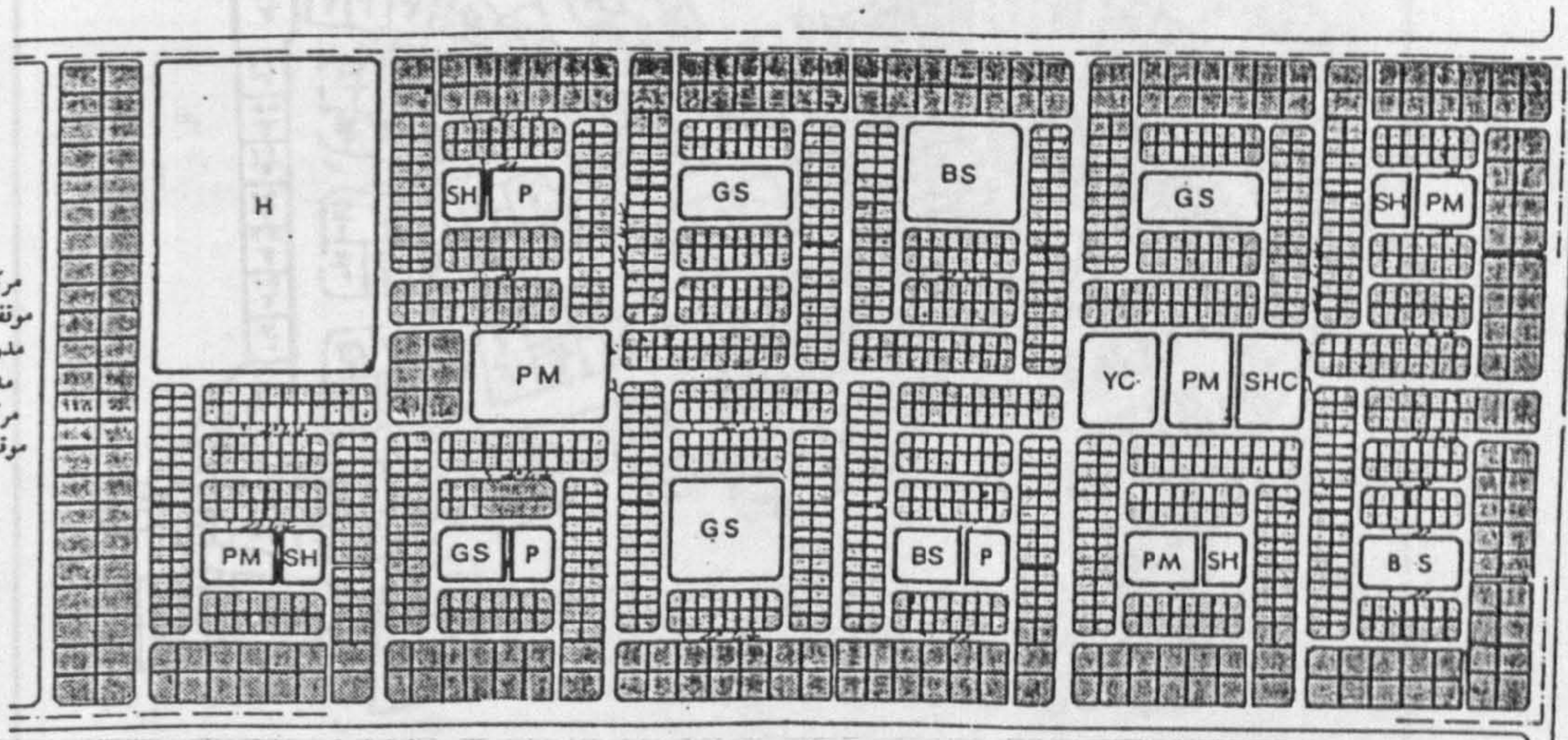


Fig 15-19 SUBDIVISION LAYOUT (1)

Source: Mustafa, 1987 (28).

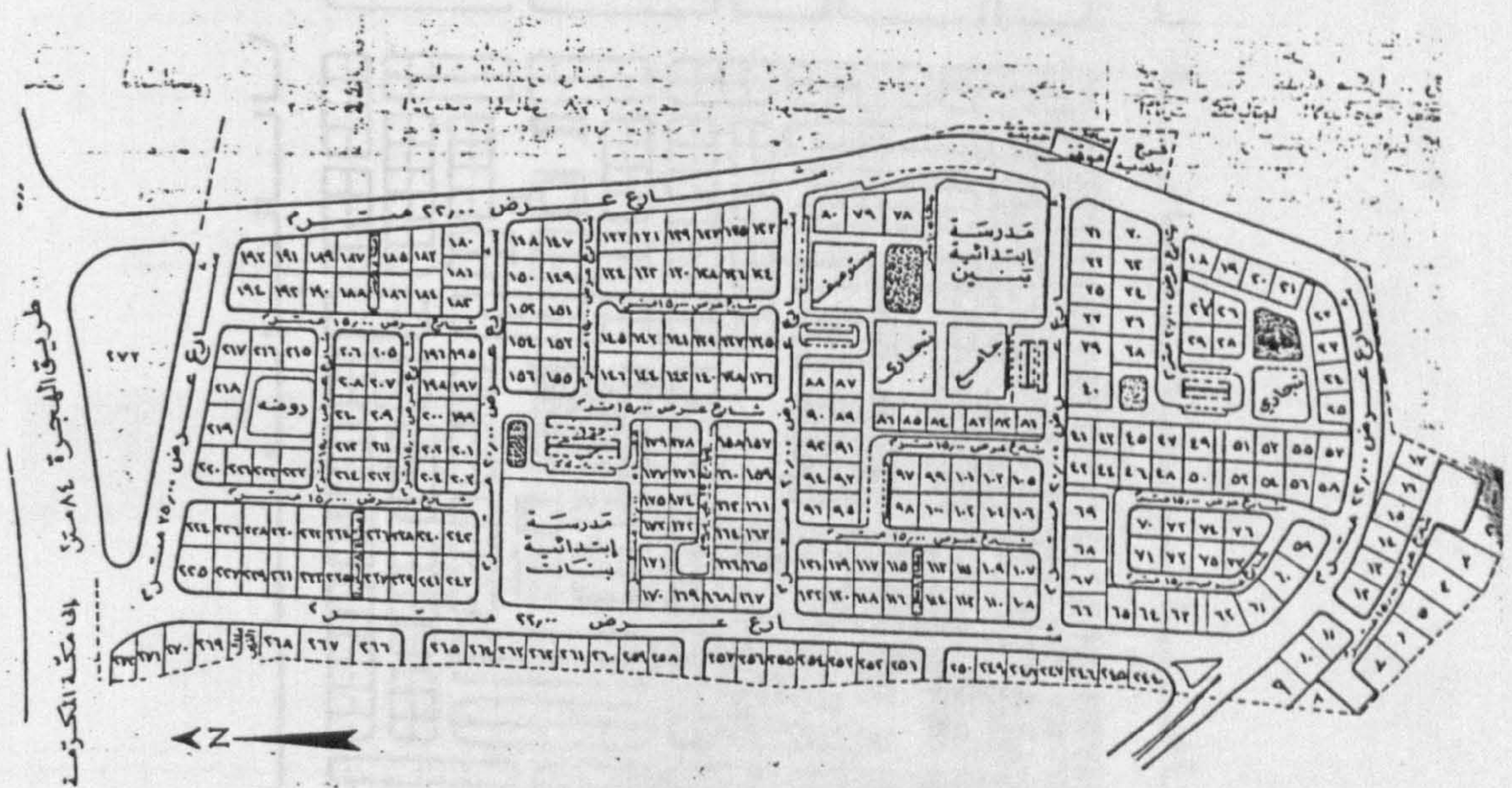


Fig 15-20 SUBDIVISION LAYOUT (2)

Source: Okaz Newspaper (29).



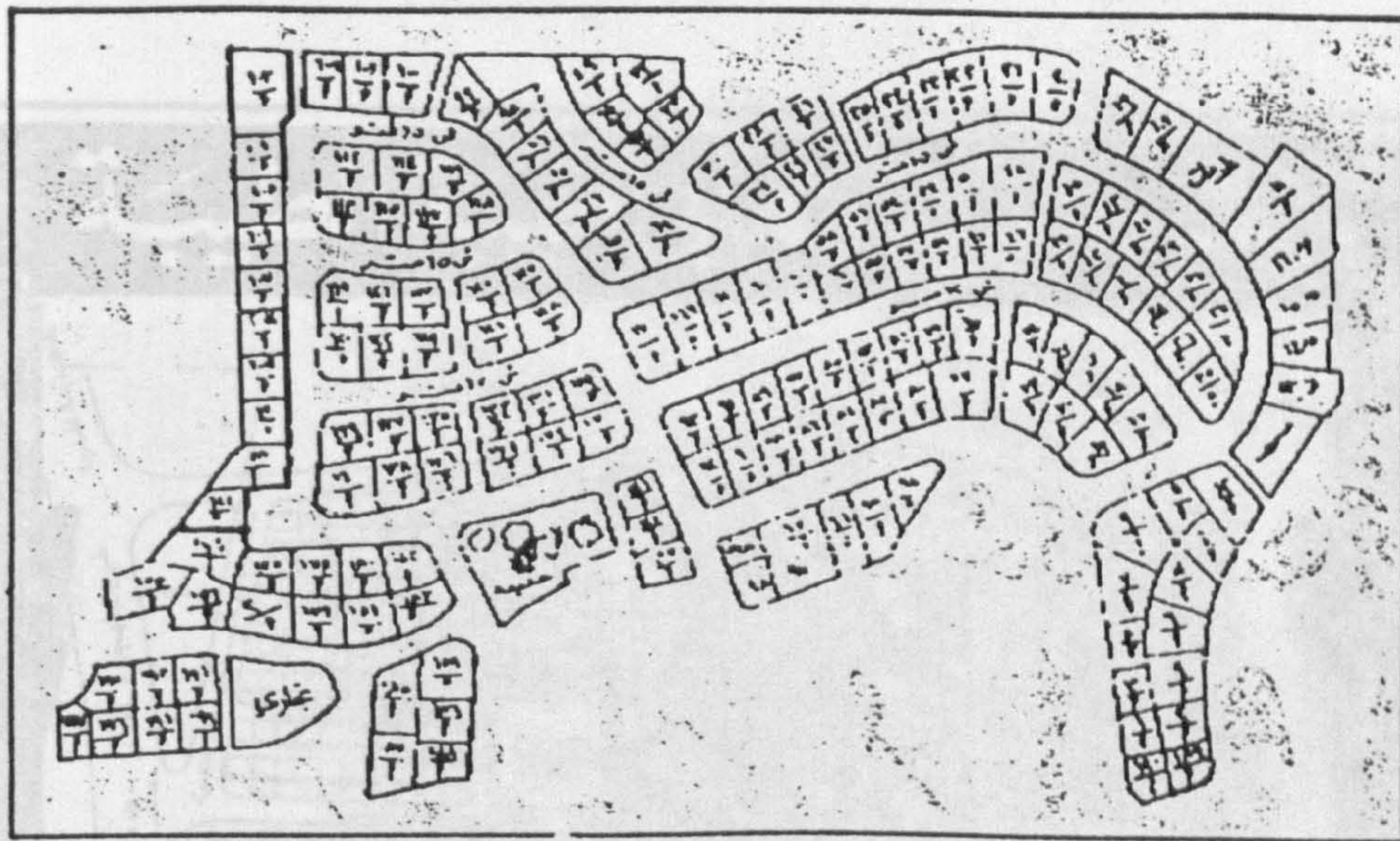


Fig 15-21 SUBDIVISION LAYOUT (3)

Source: Okaz Newspaper (30).

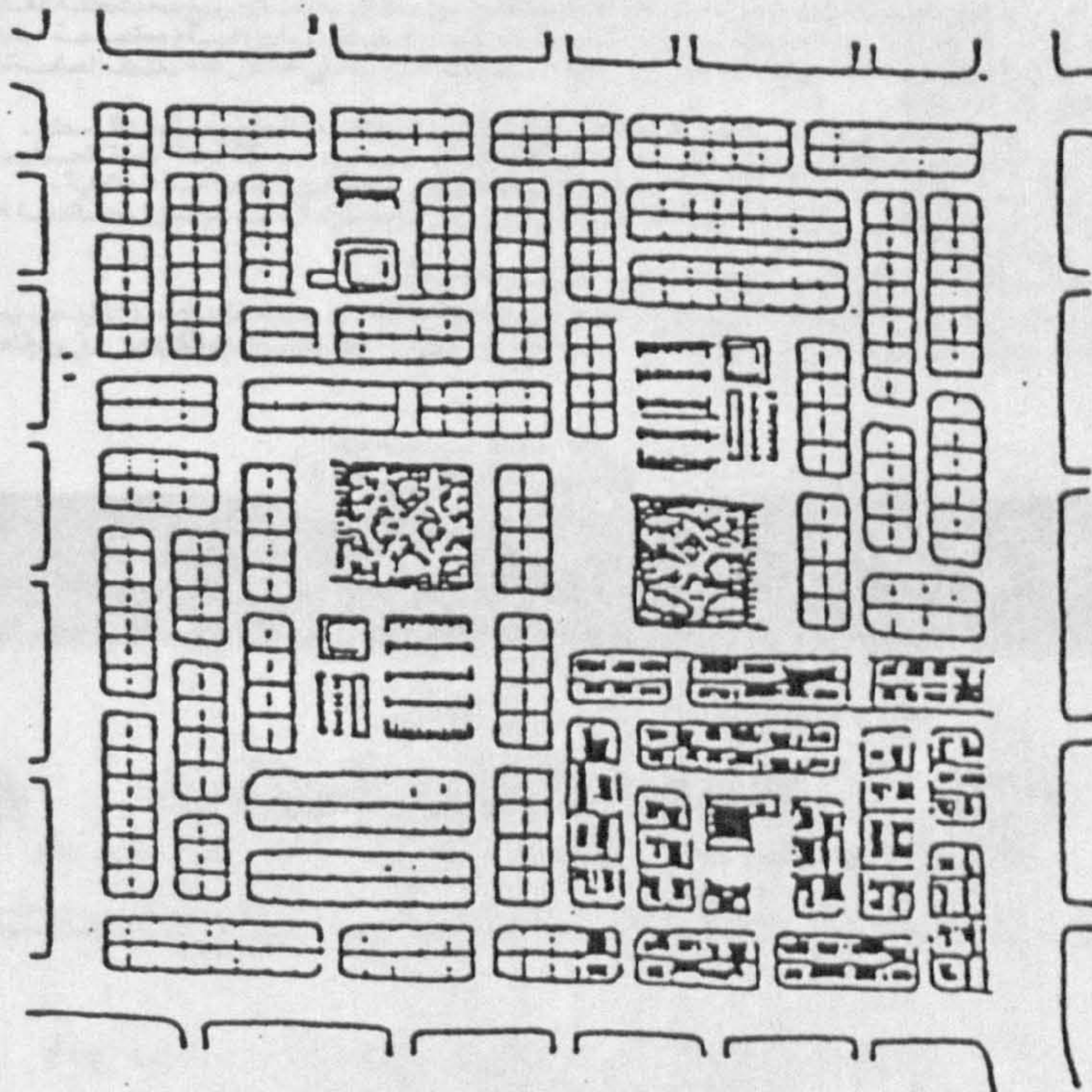
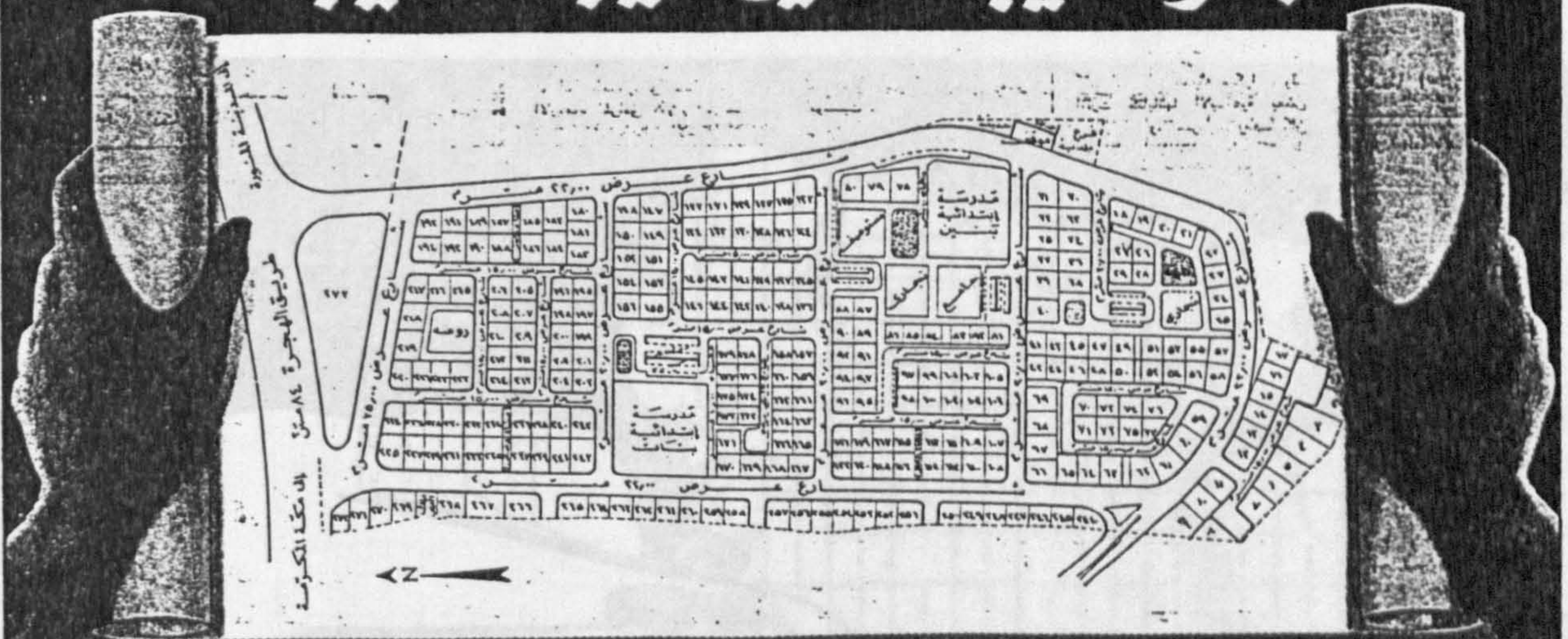


Fig 15-22 SUBDIVISION LAYOUT (4)

Source: Mufti, (31).



# بشرى طيبة لأهالى طيبة الطيبة



## مؤسسة باعقيل العقارية

تعلن عن بيع المخطط المعد من قبل وكالة الشؤون الفنية للتخطيط العمراني والمعتمد من أمانة المدينة المنورة رقم ١/ع في ١٤٠٨/٤/٢٩ هـ

- الموقع :** قباء - أمام محطة السراي - قبلي - شارع الهجرة العام حيث الهواء العليل ينساب من روابي قباء وما يتمتع به ذلك الشارع من فرص استثمارية ممتازة
- المساحات : ١- يحتوي على (٢٧٢) قطعة ذات مساحات مختلفة تتراوح من ٥٠٠ إلى ١٢٠٠ متر مربع مخصصة للفلل .
  - القطعة رقم ٢٧٢ مساحتها الإجمالية ١٤,٥٤٥ متر مربعاً والواقعة على الشارع العام مخصصة بموجب تعليمات الأمانة لأسواق تجارية ومسجد وحدائق ومواقف سيارات مما يضيف على المخطط الصفة التجارية الجيدة .
  - يحيط بالمخطط حزام مرادشري بعرض ٢٢ متراً يربط المناطق البعيدة بالقربية وكافة القطع ببعضها البعض .
  - تتوفر جميع الخدمات وكافة المرافق : مدرستان - روضة للأطفال - مستشفى - ثلاث أسواق تجارية - مسجد - فرع بلدية - مواقف سيارات - حدائق جميعها استهلكات أكثر من ٤٠٪ من المساحة الكلية .
  - يبعد عن المسجد النبوي الشريف عشرات دقائق تقريباً ويتأثر بأرضه المتميزة بحالتها الطبيعية دون ردم أو تسوية أو تعديل .
  - جميع شوارعها مغلقة يتراوح عرضها من ١٥ - ٦٤ متراً .
- للمرة الأولى بالمدينة، بالنسبة لنظام البناء، لا يشترط الارتداد من جهة الجوار في المخطط جميعاً مما يساعد وبالتأكيد على وجود مساحات خضراء كبيرة وتوفير مناطق خدمات إضافية أخرى في كل قطعة منه مما يضيف على المخطط وسكانه الكثير من الرقي والرفاهية والجمال .

### شروط البيع

- يبيع المشتري ٢٥٠ من قيمة الأرض الإجمالية فقط، وكذلك السعي ٢٩,٥ على المشتري .
- يتم الإضراف خلال مدة أقصاها شهر من تاريخ الشراء ومن يتخلف عن الدفع والإضراف شاع قطعه بالزاد العلق والزيادة لحسابه وفي حالة التقصان يخضم من مبلغ المدفوع مقدماً .
- تقرر موعد الزاد العلق يوم الأربعاء الموافق ١٤٠٩/٨/١ هـ بعد صلاة العصر مباشرة ويستمر حتى نهاية بيع كامل قطع المخطط .

ولمزيد من المعلومات أو الاستفسار يرجى الاتصال :

## مؤسسة باعقيل العقارية

المدينة المنورة - شارع قباء النازل - مدخل المشرفة - هاتف ٨٢٢٩٥٢٢/٨٢٦٠٨١٢



Fig 15-23 ADVERTISEMENT OF NEW SUBDIVISION (Attraction of new image).

Source: Okaz Newspaper (32).



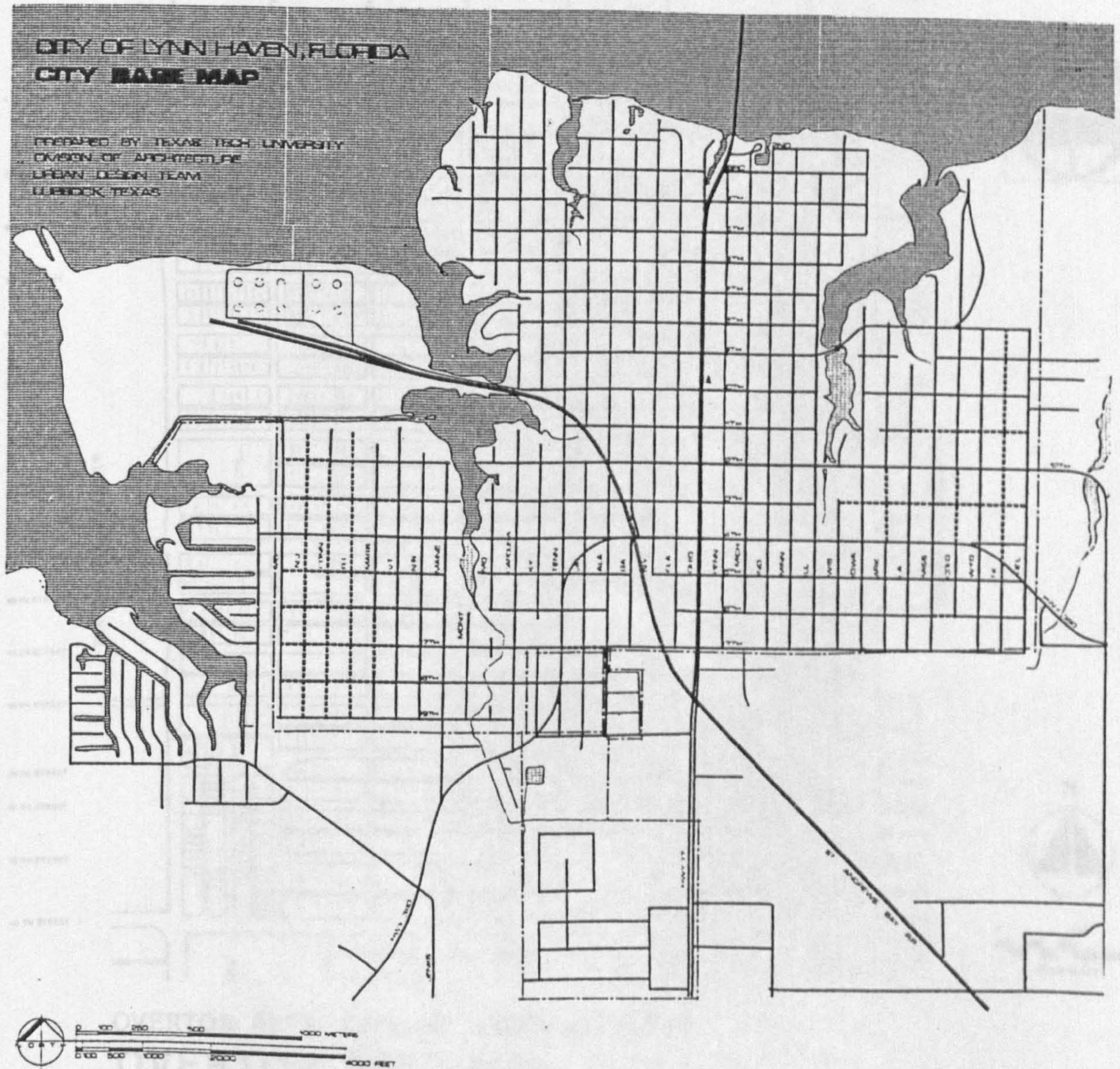
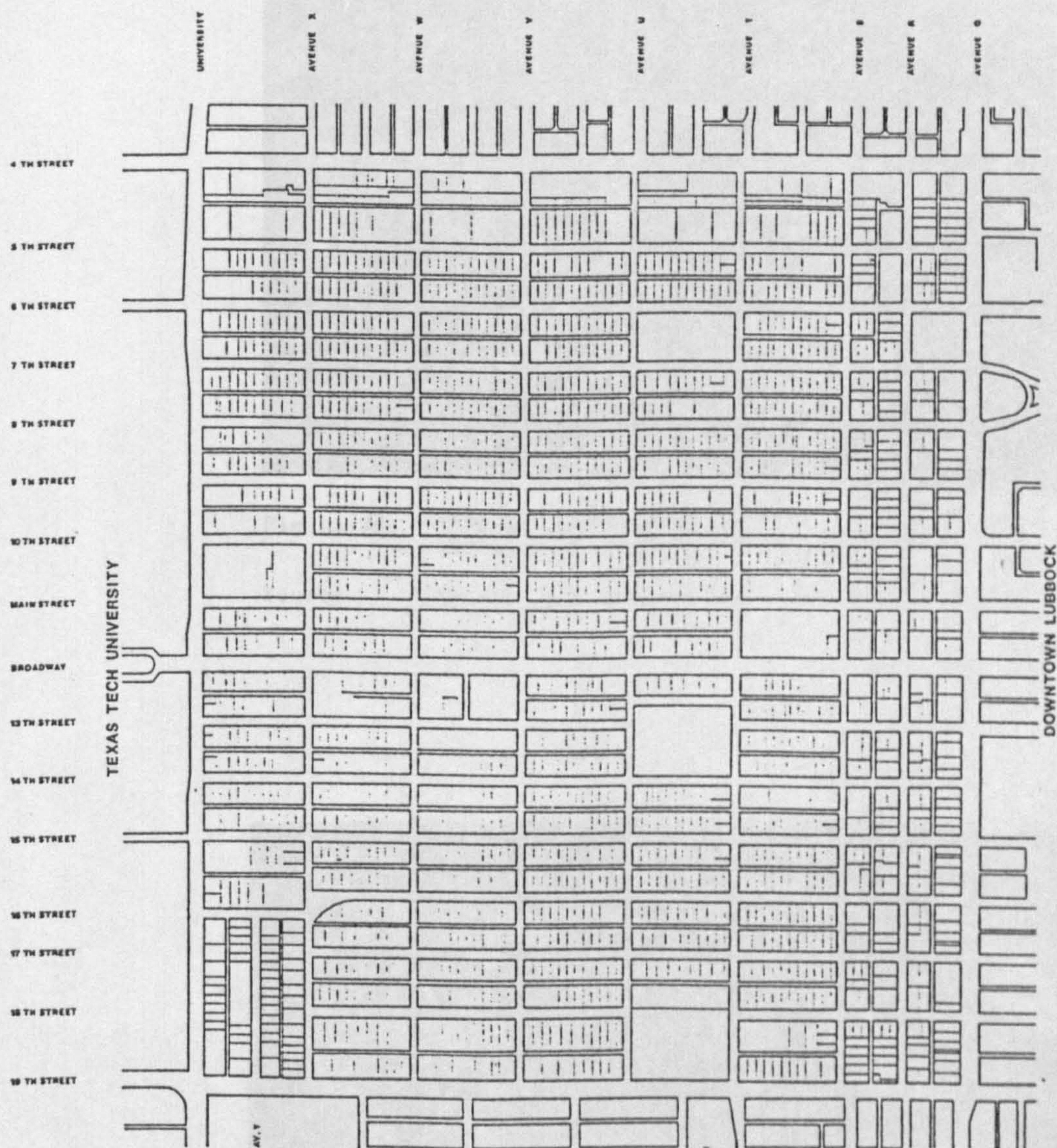


Fig 15-24 PLAN OF AMERICAN CITY

Source: Peng, 1979<sup>(33)</sup>, p.6.





OVERTON AREA, CITY OF LUBBOCK, TEXAS  
**OVERTON BASE MAP**

Fig 15-25 PLAN OF SUBDIVISION IN LUBBOCK, TEXAS

Source: Peng, 1986<sup>(34)</sup>, p.16.



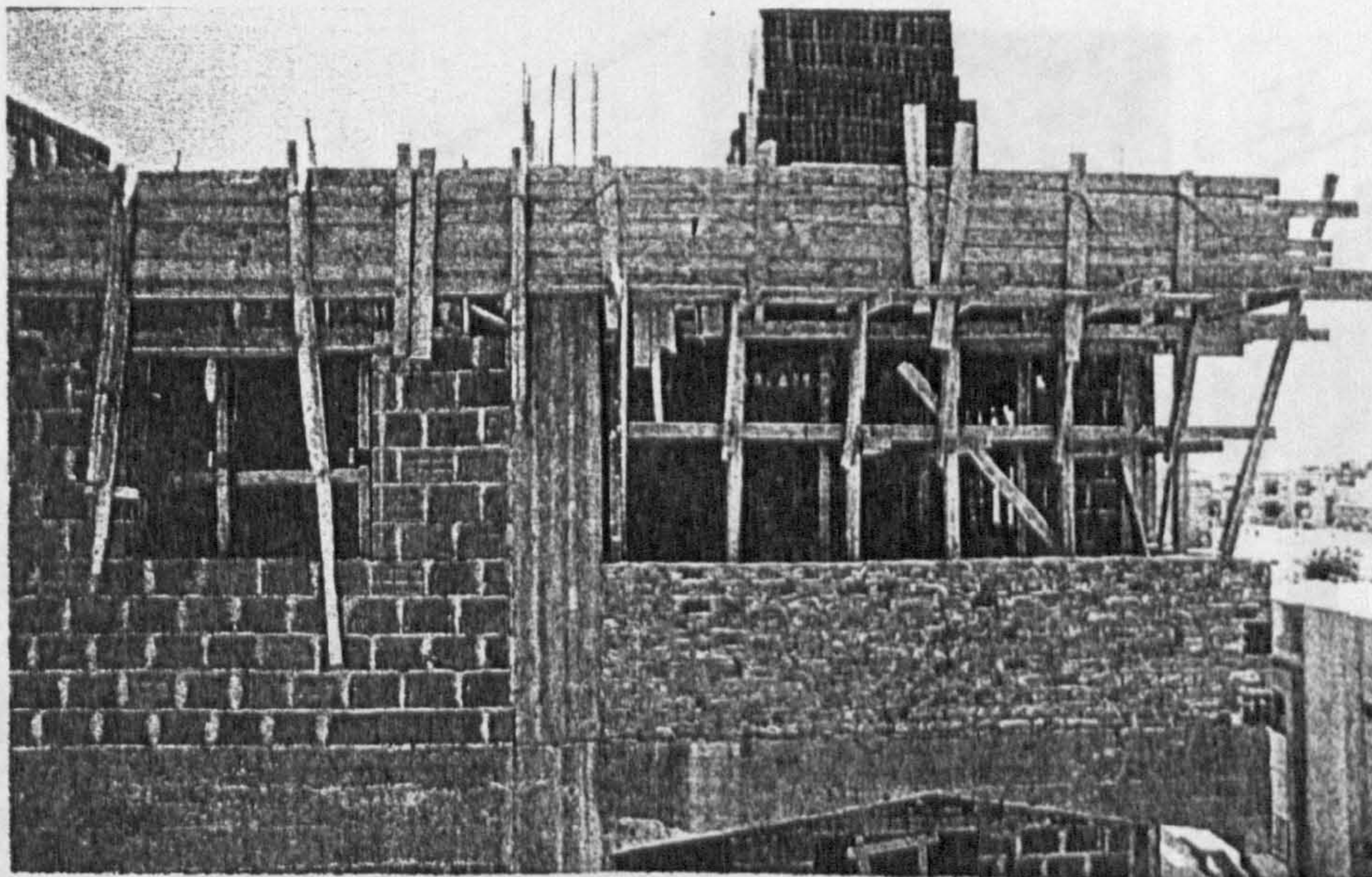


Fig 15-26 VIEW OF CONTEMPORARY BUILDING MATERIALS (1)  
(Reinforced concrete, red brick).

Source: Author (A.S. Alafghani).

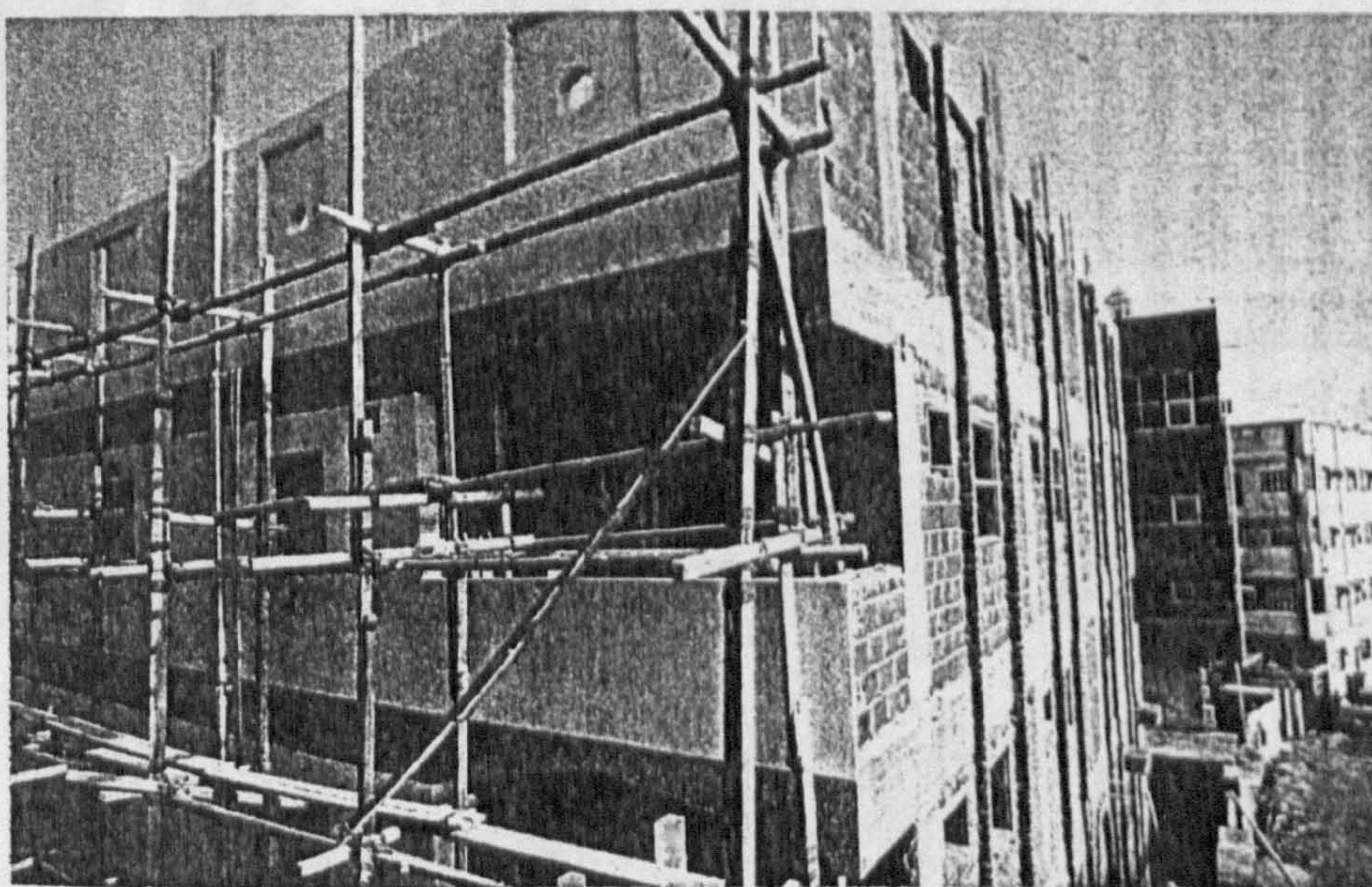


Fig 15-27 VIEW OF CONTEMPORARY BUILDING MATERIALS (2)  
(No use of insulation, plastering over brick only).

Source: Author (A.S. Alafghani).





Fig 15-28 VIEW OF CONTEMPORARY BUILDING MATERIALS (3)  
(The use of cement brick and concrete).

Source: REDF Report (27).



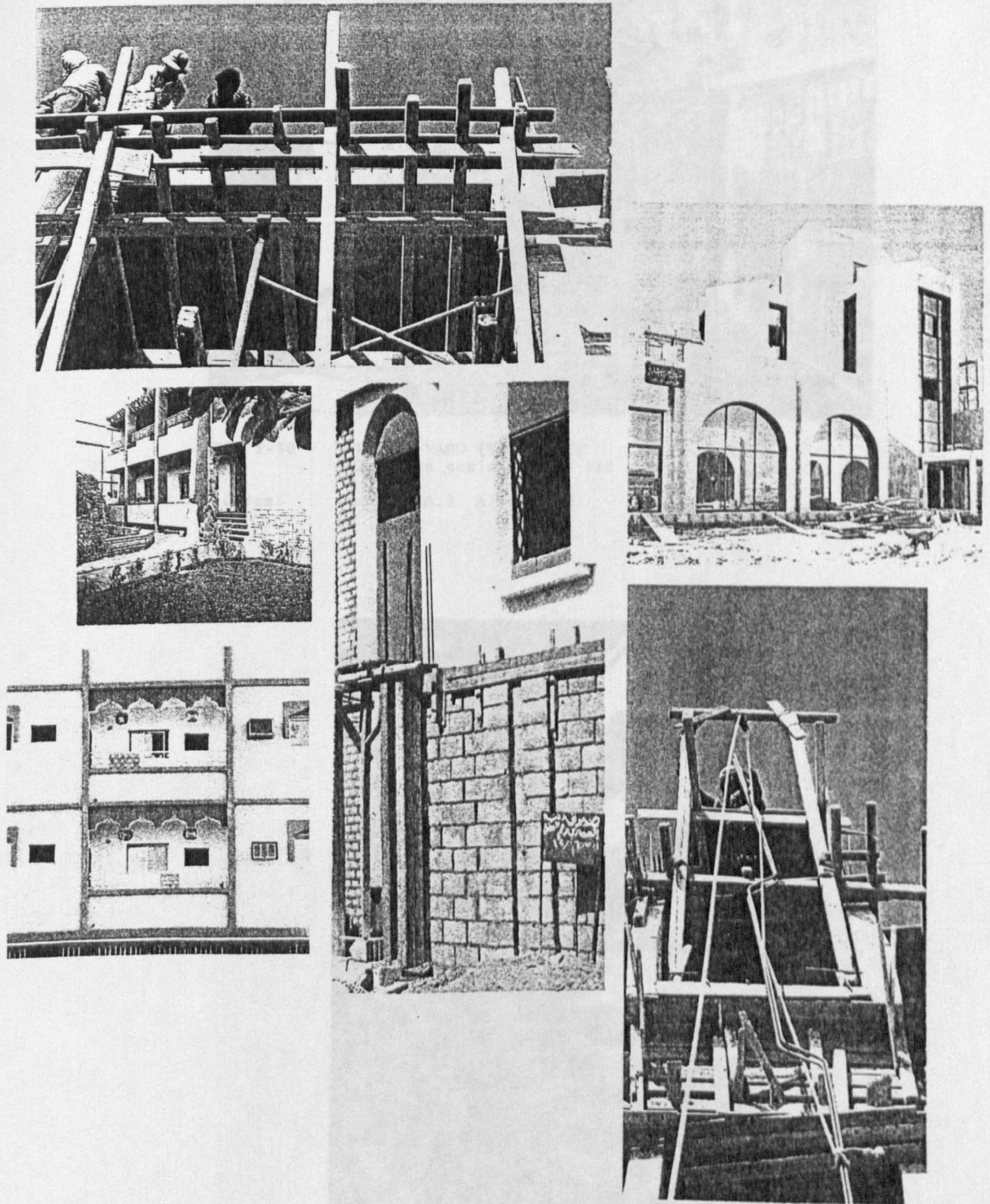


Fig 5-29 VIEW OF CONTEMPORARY BUILDING MATERIALS (4)  
(The use of Glass, wooden scaffolding).

Source: REDF, Report (27).





Fig 5-30 VIEW OF YARD (VILLA) (1)  
(Children could play in the yard).

Source: Author (A.S. Alafghani).

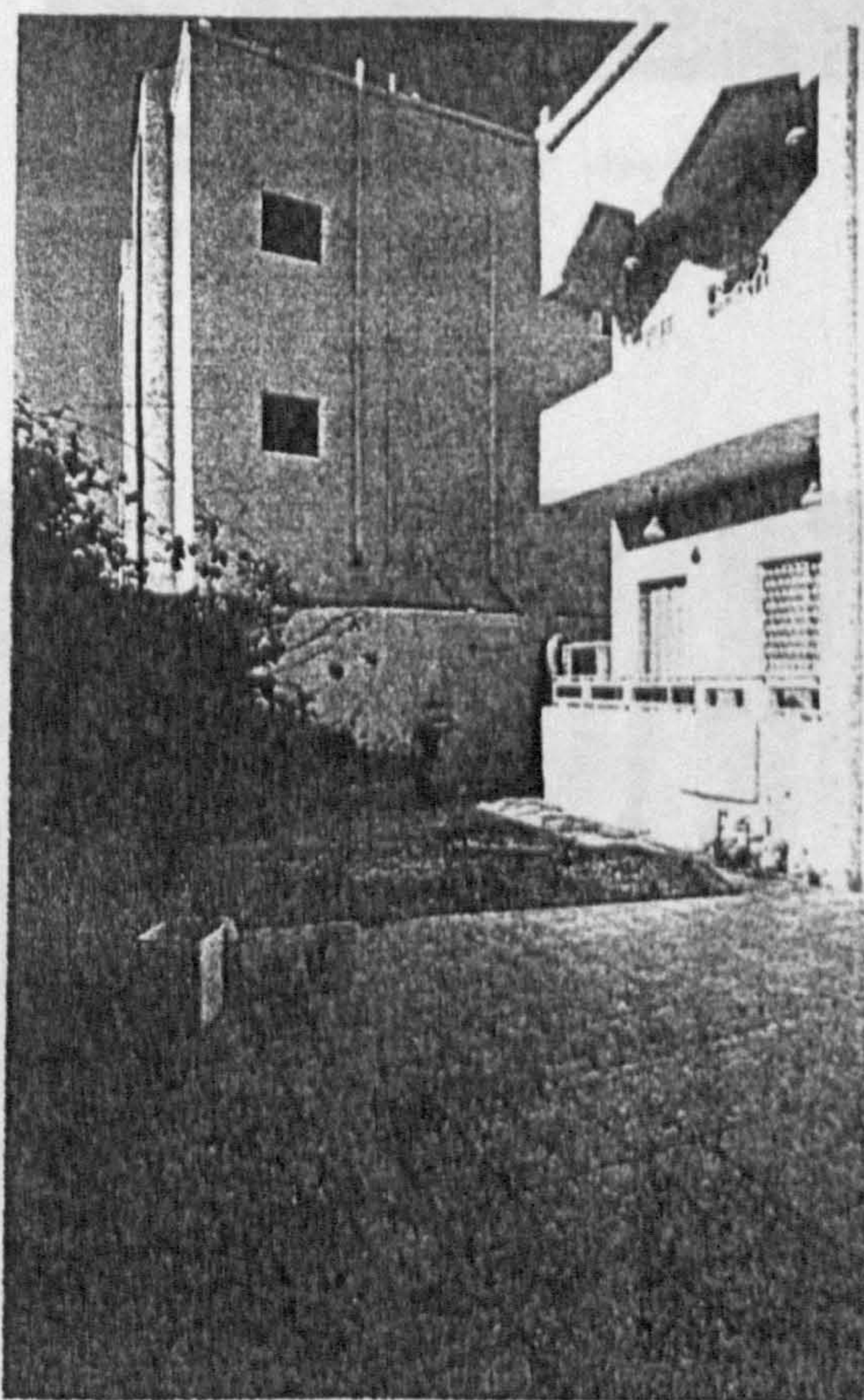


Fig 5-31 VIEW OF YARD (VILLA) (2)  
(The family (females) cannot use the yard because of neighbours windows).

Source: Author (A.S. Alafghani).



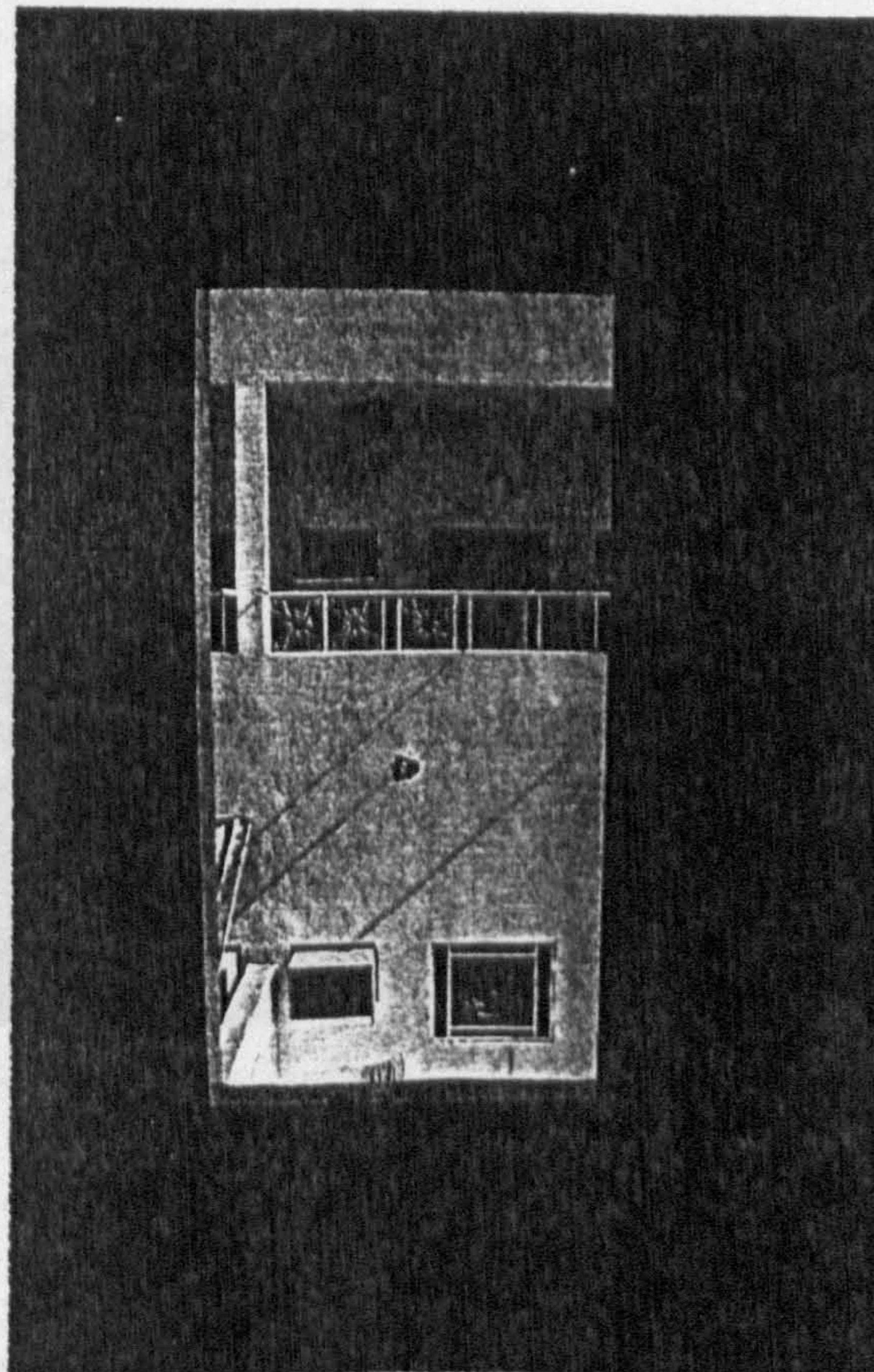


Fig 15-32 VIEW OF WINDOW (VILLA)  
(Windows are facing each other).

Source: Author (A.S. Alafghani).

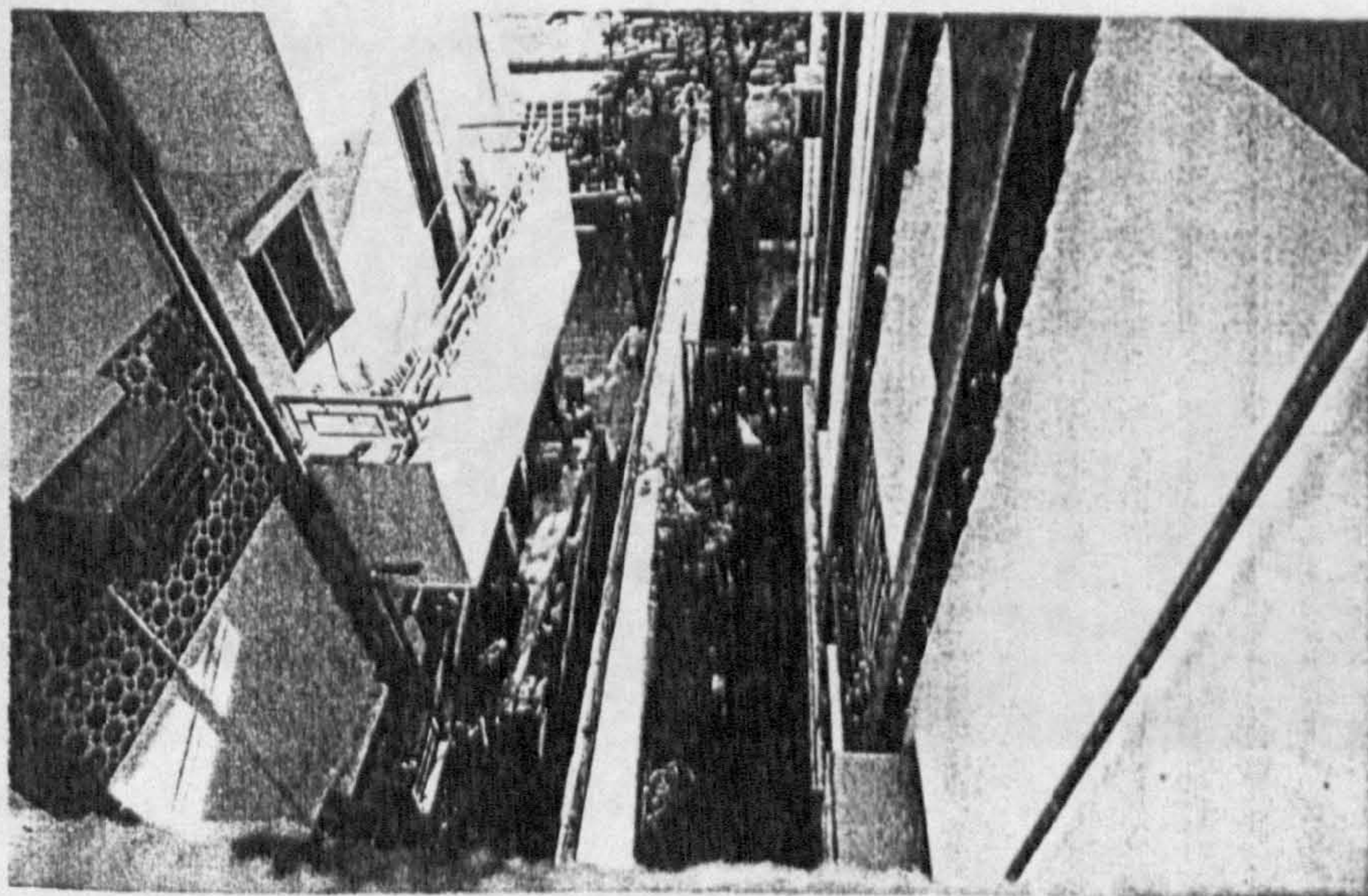


Fig 15-33 VIEW OF SIDE YARDS (VILLA)  
(Setback requirements generated spaces which are overlooked).

Source: Author (A.S. Alafghani).



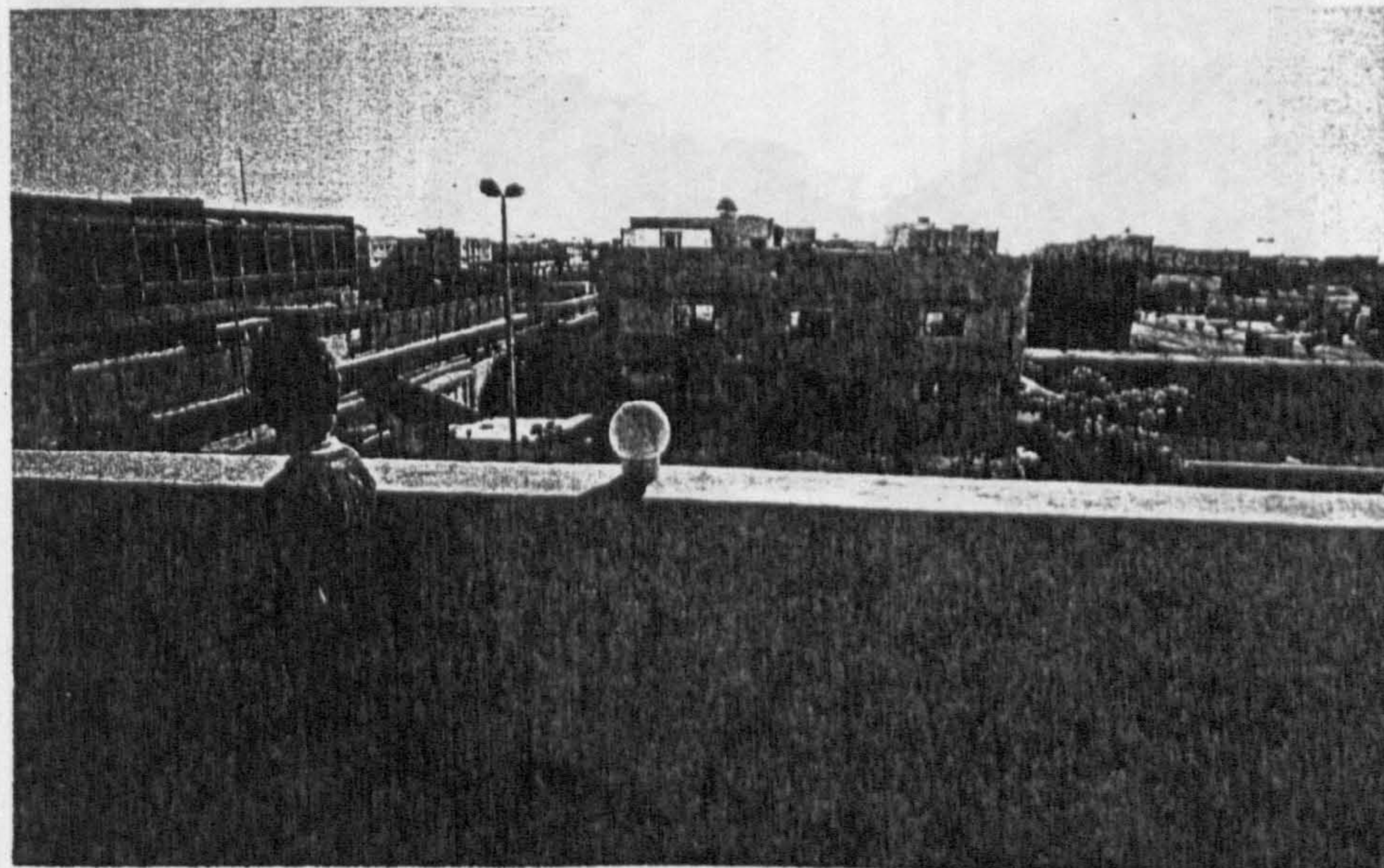


Fig 15-34 VIEW OF TERRACE (VILLA) (1)  
(Low-wall terrace).

Source: Author (A.S. Alafghani).

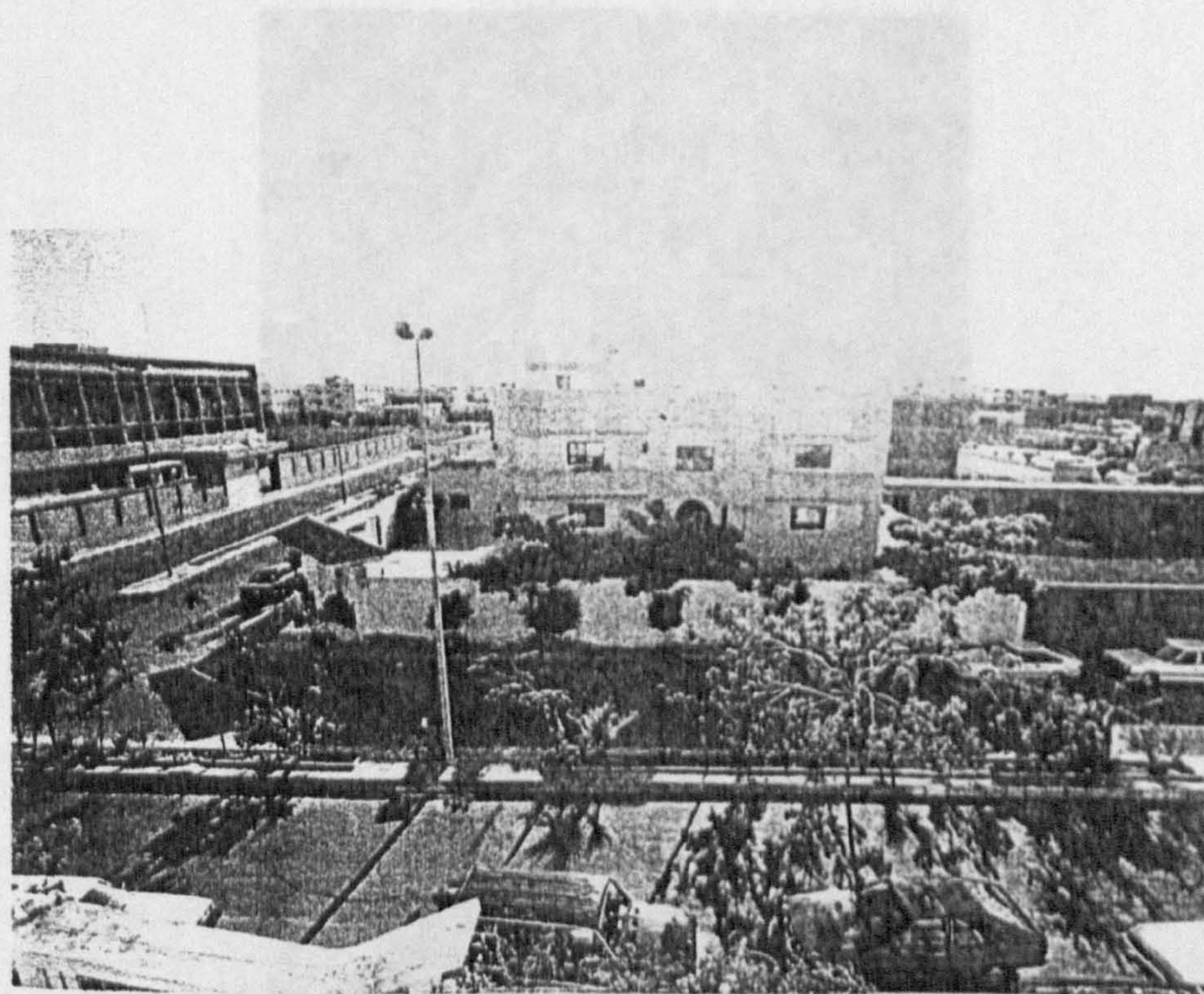


Fig 15-35 VIEW OF TERRACE (VILLA) (2)  
(Neighbours yards are overlooked).

Source: Author (A.S. Alafghani).





Fig 15-36 VIEW OF PRIVACY PROTECTION DEVICES (1)  
(The owner protects all sides of the villa).

Source: Author (A.S. Alafghani).



Fig 15-37 VIEW OF PRIVACY PROTECTION DEVICES (2)  
(The apartment building used to invade the villa privacy).

Source: Author (A.S. Alafghani).



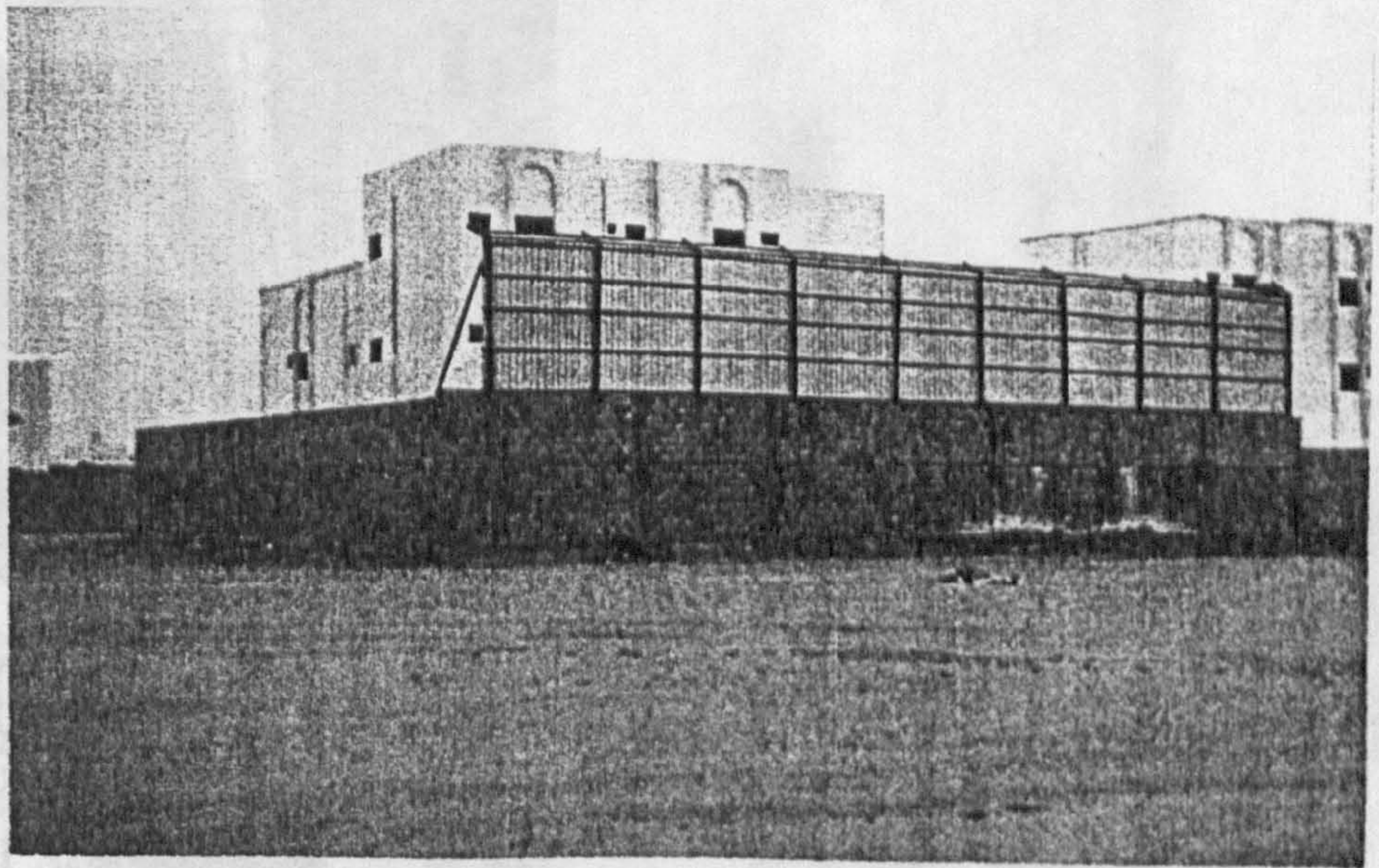


Fig 15-38 VIEW OF PRIVACY PROTECTION DEVICES (3)  
(The owner did not care about the image).

Source: Author (A.S. Alafghani).

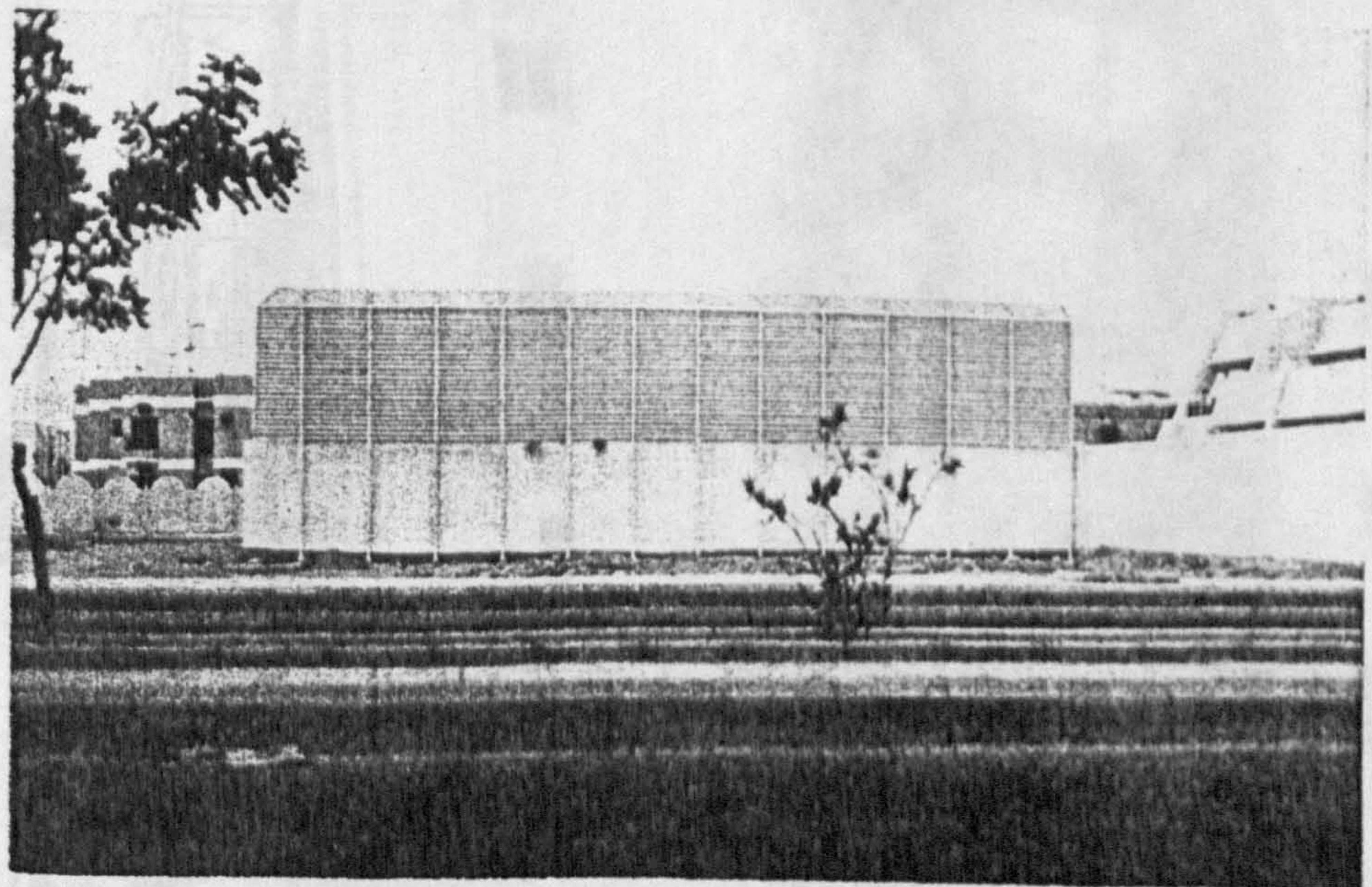


Fig 15-39 VIEW OF PRIVACY PROTECTION DEVICES (4)

Source: Author (A.S. Alafghani).



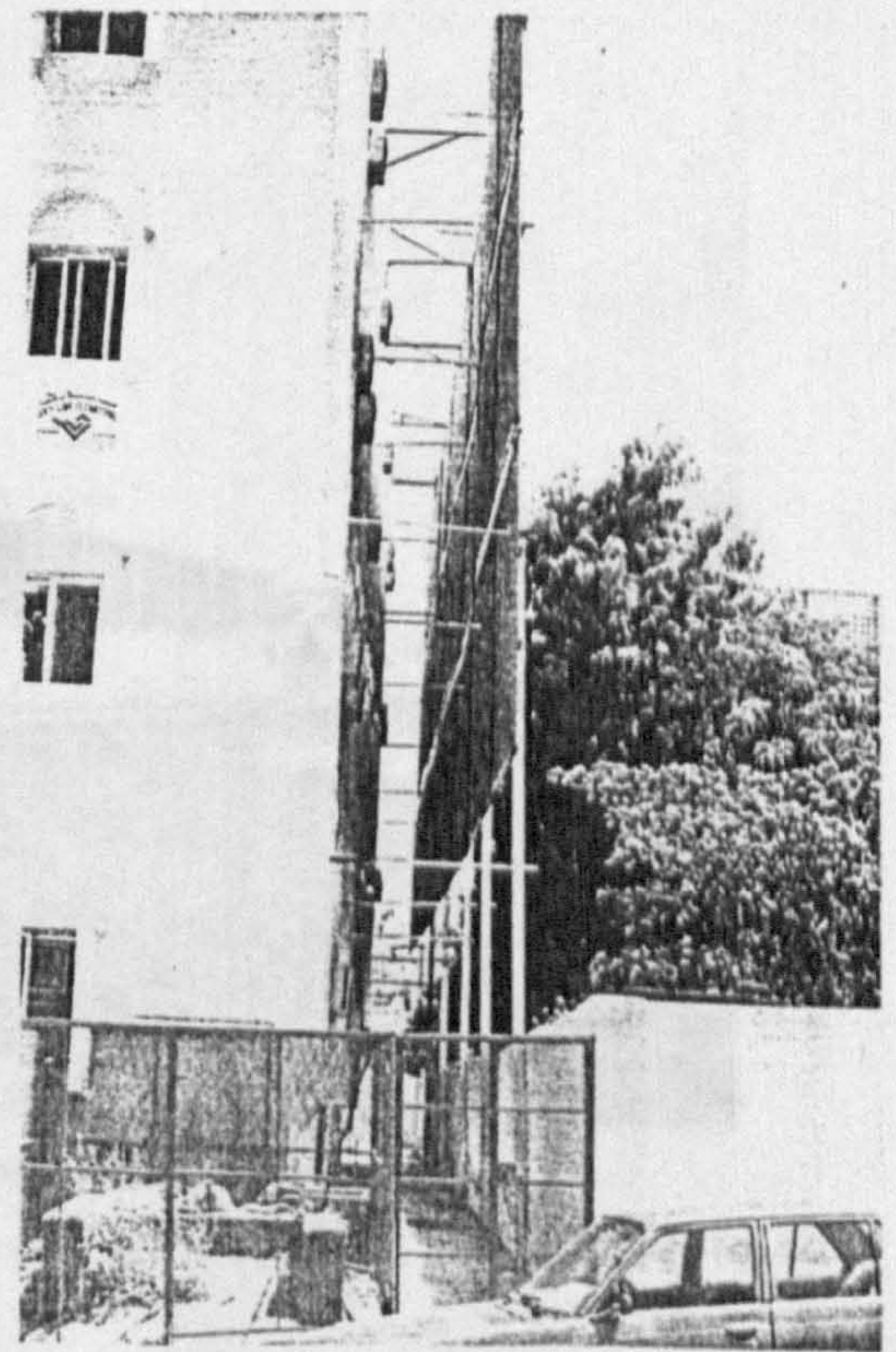
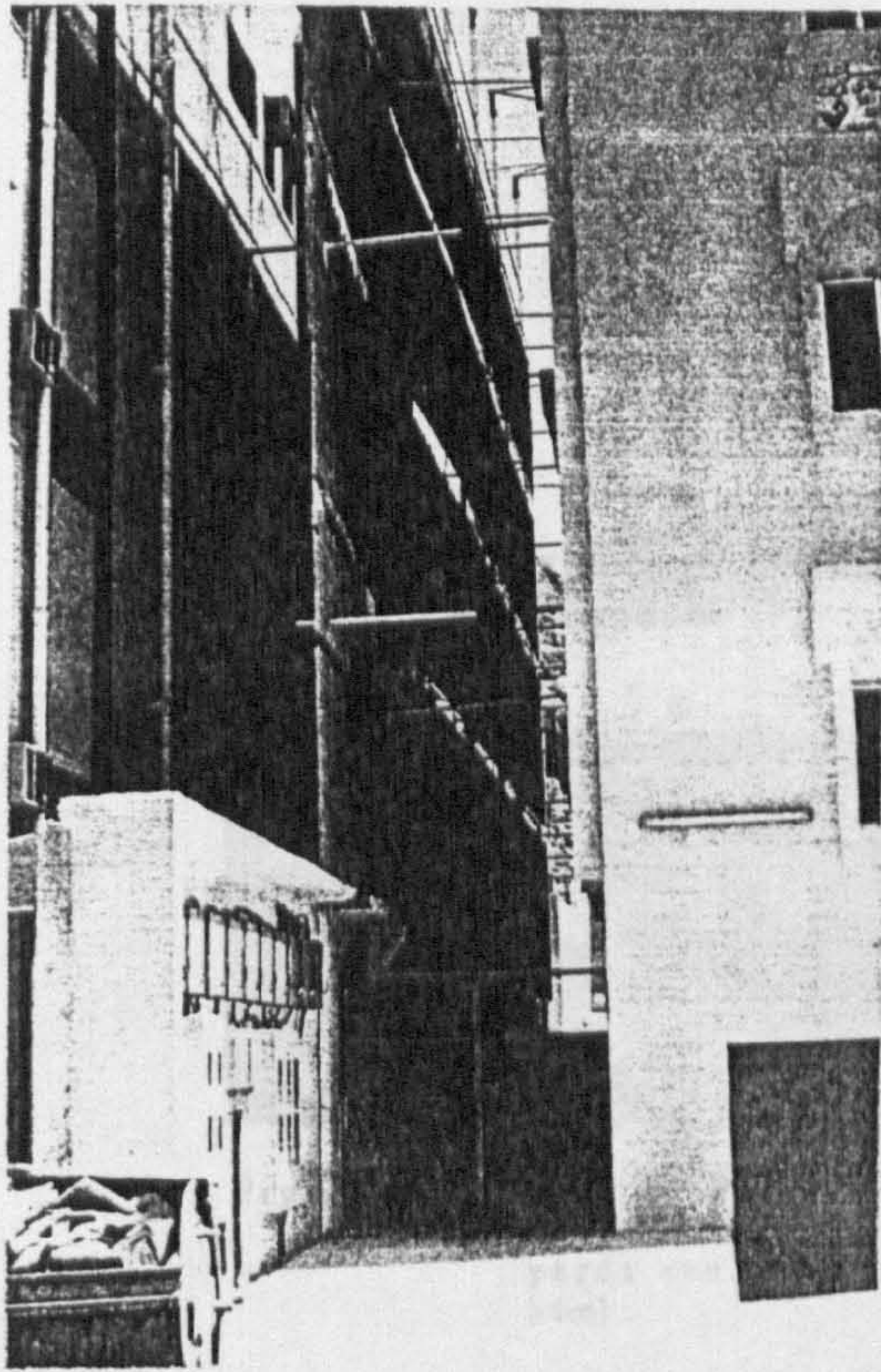


Fig 15-40 VIEW OF PRIVACY PROTECTION DEVICES (5)  
(These protection devices between flat buidlings).  
Source: Author (A.S.Alafghani).



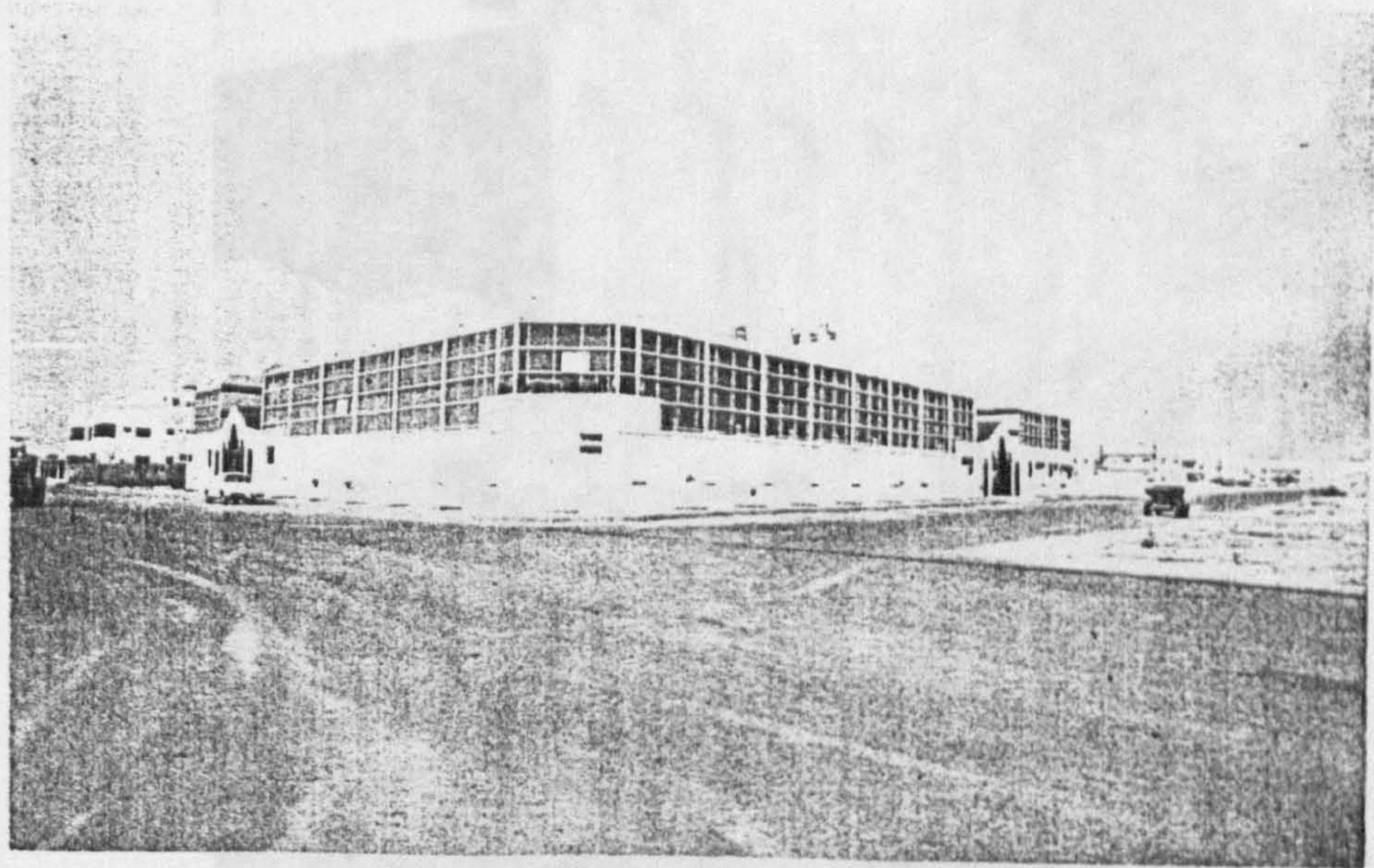


Fig 15-41 VIEW OF PRIVACY PROTECTION DEVICES (6)  
(This is a new building, the owner protected his yards even where there are not any neighbours beside him).

Source: Author (A.S. Alafghani).

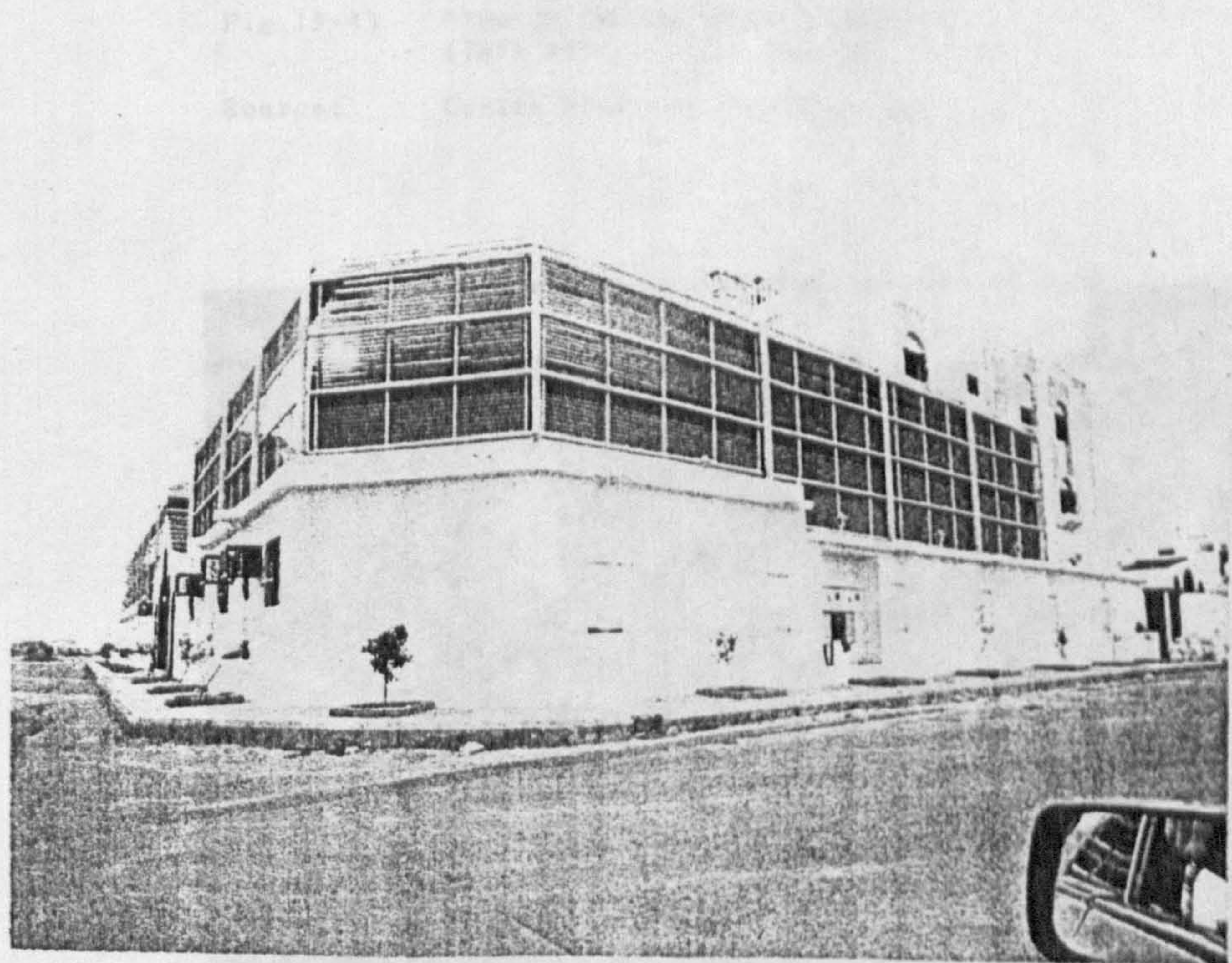


Fig 15-42 VIEW OF PRIVACY PROTECTION DEVICES (7)

Source: Author (A.S. Alafghani).





Fig 15-43 VIEW OF GROUND WATER IN STREET  
(This street is in Riyadh).

Source: Centre Projects and Planning.

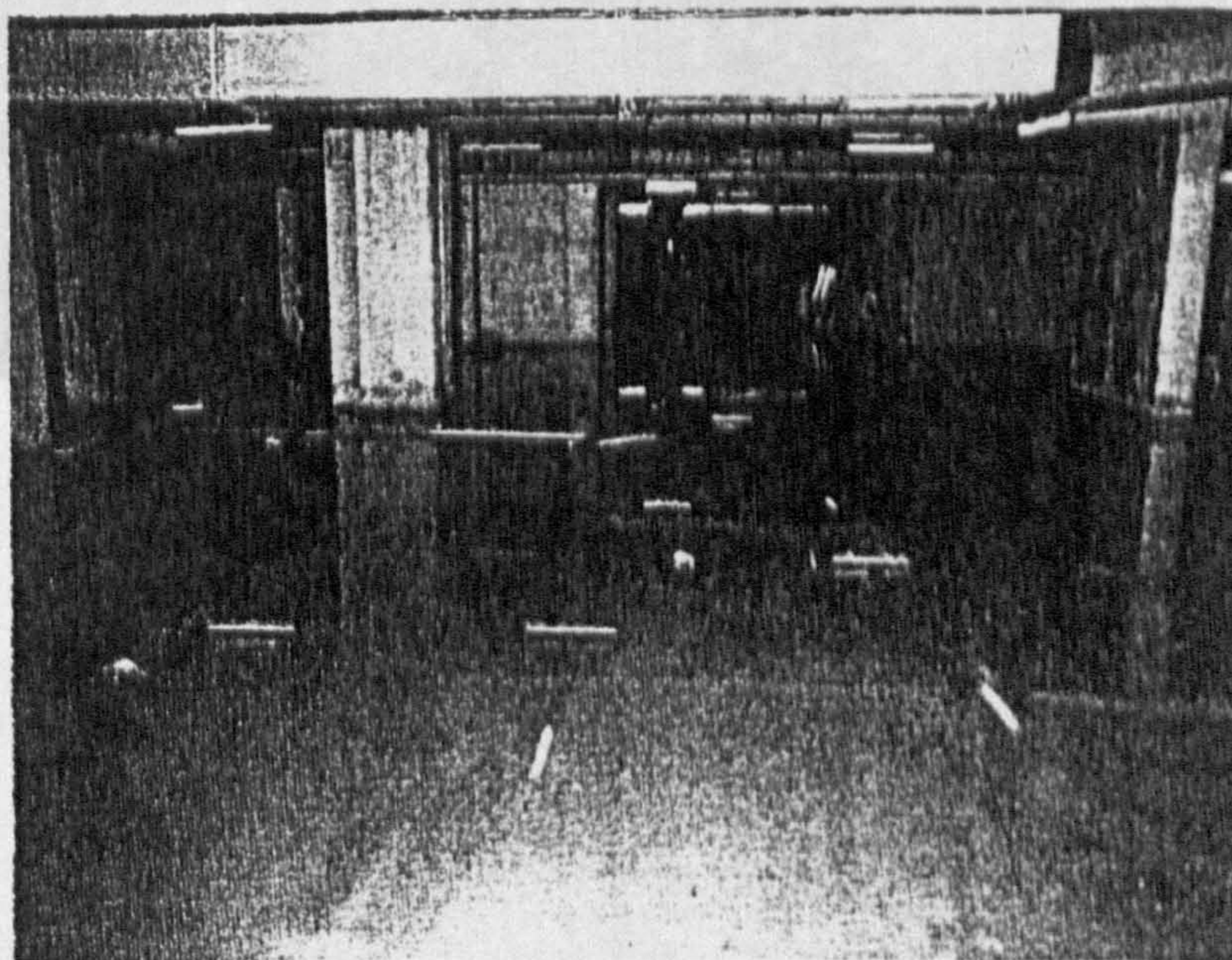


Fig 15-44 VIEW OF GROUND WATER IN BUILDINGS  
(This basement is in a building in Riyadh).

Source: Centre Project and Planning.



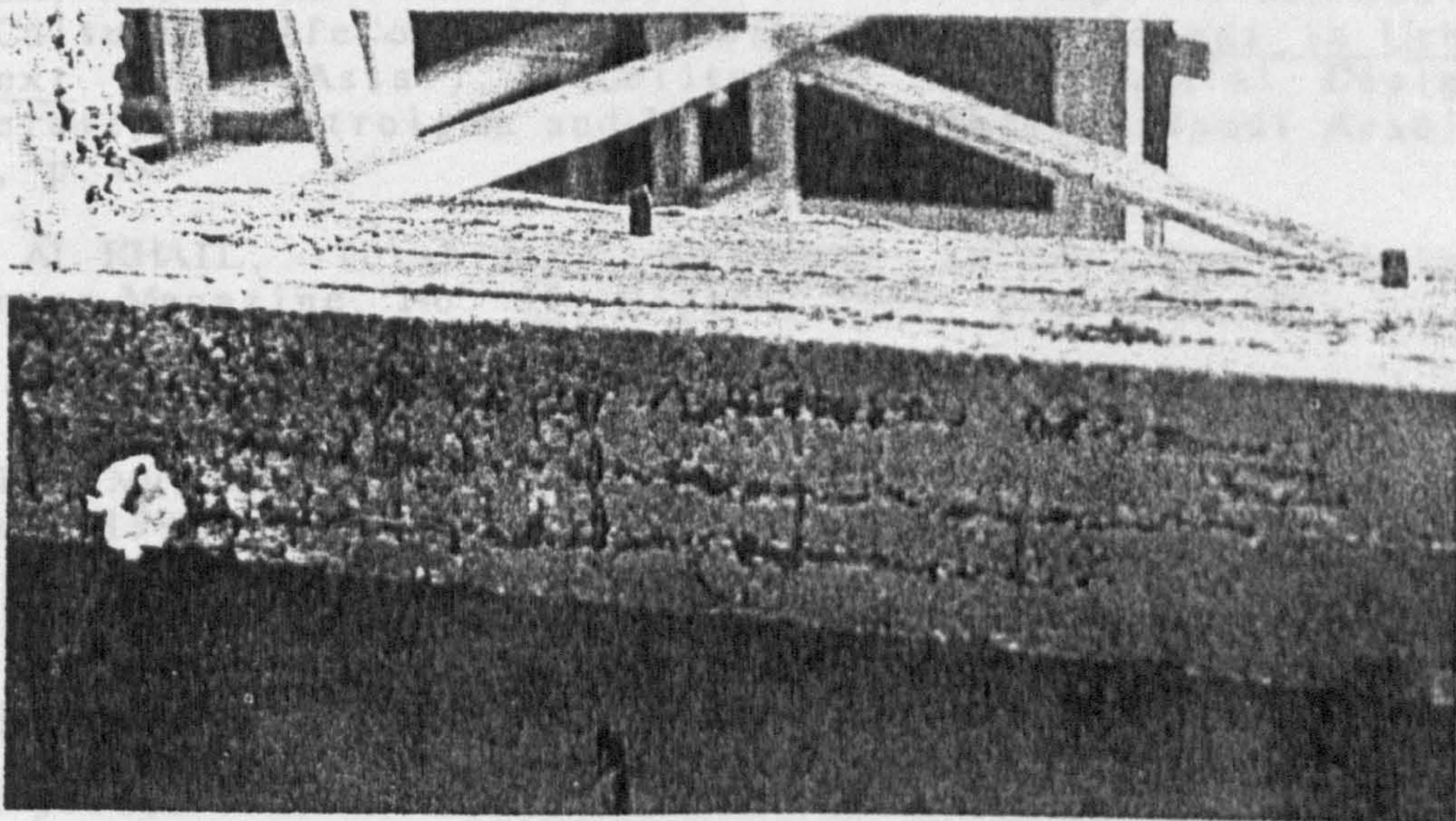
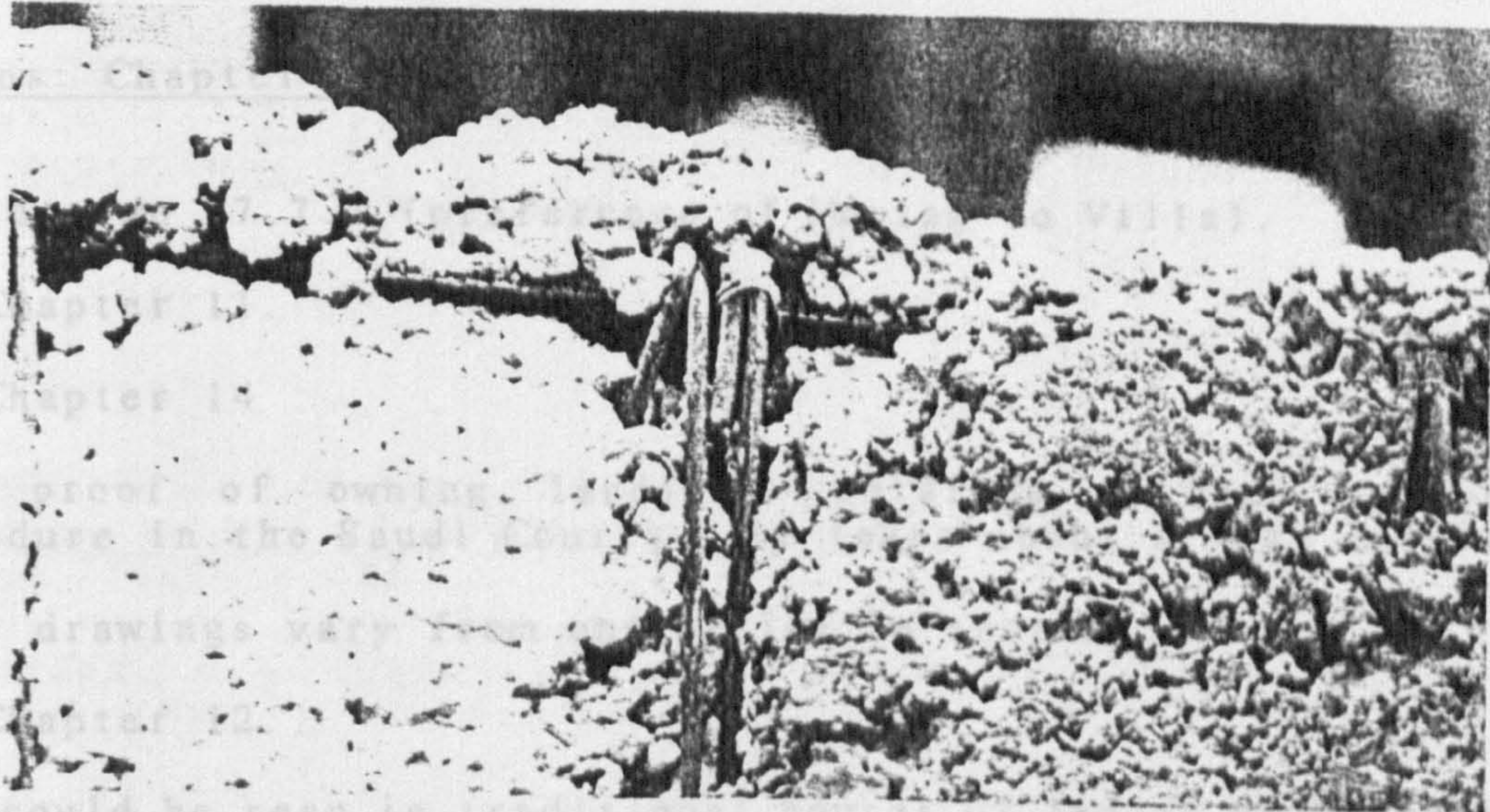


Fig 15-45 VIEW OF DAMAGE IN CONCRETE

Source: Zain Al-Abideen, 1987<sup>(15)</sup>, p.10.



### Footnotes: Chapter 15

1. See section 17.7.7 (preference of Moving to Villa).
2. See Chapter 11.
3. See Chapter 14
4. This proof of owning lands is obtained through a long procedure in the Saudi Courts. It takes about a year to get.
5. These drawings vary from one office to another.
6. See Chapter 12.
7. This could be seen in traditional houses of Jeddah and Makkah.
8. KONASH, Forouk M. The Impact of Tall Buildings on the Social and Cultural life of Saudi Arabia. Tall Buildings in Urban Context. (ed. Assaf). College of Environmental Design, University of Petroleum and Minerals, Dhahran, Saudi Arabia, 1986, p.39.
9. ABA AL-KHAIL, Ibrahim. Opinions in Air-Conditioning. AlBennaa Magazine, No. 39, Riyadh, 1988, p.p. (20-33).
10. See Chapter 9.5
11. OTHMAN, Mustafa N. Water Saving. Okaz Newspaper No. 8720, 3 June, 1990, p.9.
12. ABU-RIZAIZA O.S. and other. Urban Ground Water Rise Control, Case Study. Journal of Irrigation and Drainage Engineering. Volume 115, No. 4. August 1989, p.588.
13. Ibid p.588.
14. For more information about the water problems see the following:
  - (a) THE CENTRE Projects and Planning. A Study About the Raising of Ground Water. A Report of work Progress, 1408. The High Commission for Riyadh Development.
  - (b) LEWEOCK, Ronald. The Problems of subterranean waer in the Old Urban Area of Arab Cities. The Arab City.
15. The basic materials of concrete are cement, aggregates, sand and water.

ZAIN, AL-ABIDEEN, Habib. Concrete Technology. Al Mutawie Printing, 1981. p.7.



16. ALTAYYIB A.J. and others. Overview of Concrete Durability Research. Proceeding of the Second Saudi Engineers Conference, Nov. 16-19, 1985 (ed. Nazer), Volume 1, U.P.M. Press, Dhahran, 1986, p.106.
17. Op.cit (16) p.105.
18. Ibid. p.107.
19. BESSEY, G.E. Avoiding Faults and Failures in Buildings. Building in Hot Climate. Building Research Establishments, London, 1980. p.436.
20. BA-SUNBUL, A.A. Concrete Problems. Okaz Newspaper No. 9727, 10 June, 1990, p.9.
21. See table 9-3.
22. For more information about the eye diseases relating to direct affect on the sun see the following:
  - (a) SANDFORD, John, Eye Diseases in Hot Climates. Wright, Bristol, 1986.
  - (b) KANSKI, Jack J. Clinical Ophthalmology. Butterworths, London, 1989. p.79.
  - (c) NEWELL, Frank W. Ophthalmology, Principles and Concepts. the C.V. Mosby Company. Princeton 1986, p.p. (193-221).
23. AKBAR Jamel. Crisis in the Built Environment. The Case of the Muslim City. Amimar Book, Singapore, 1988.
24. RASHWAN, Ahmed is a resident of Jeddah and an owner of the villa presented in Fig (15-4). He supported this study by providing the plans of his villa. He allowed the researcher to view and photograph the villa from inside and outside.
25. ALAAM, A.K. Building Regulations. Al Anjilo Library, Cairo, 1986, p.224.
26. Ibid p.227.
27. Op.cit Chapter 12-(1).
28. MUSTAFA, A.F. Al Jarodiyah. King Abdu Aziz City for Science and Technology, Riyadh, 1987, p.45.
29. OKAZ Newspaper No. 8271, March 1 1989, Jeddah p.11
30. OKAZ Newspaper No. 8707, May 21st 1980, Jeddah, p.19.



31. MOFTI, F.A. Transformations in the Built Environment in Saudi Arabia. Urban Futures Volume 2, No. 4 University of Newcastle, Newcastle Upon Tyne, 1989, p.23.
32. Op.cit (29).
33. PENG, George T.C. Florida's Lynn Haven 78 City Planning Design, Texas Tech University, Texas, 1979, p.6.
34. PENG, George T.C. Overton Revitalisation Plans, 2005, City of Lubbock, Texas. Texas Tech University, Texas, 1986, p.16.