Kingdom of Saudi Arabia

Ministry of Municipal and Rural Affairs

Municipality of Jeddah

Old Jeddah Historic Area
1399 - 1404 AH

Associated Consultants Bureau (ACB)

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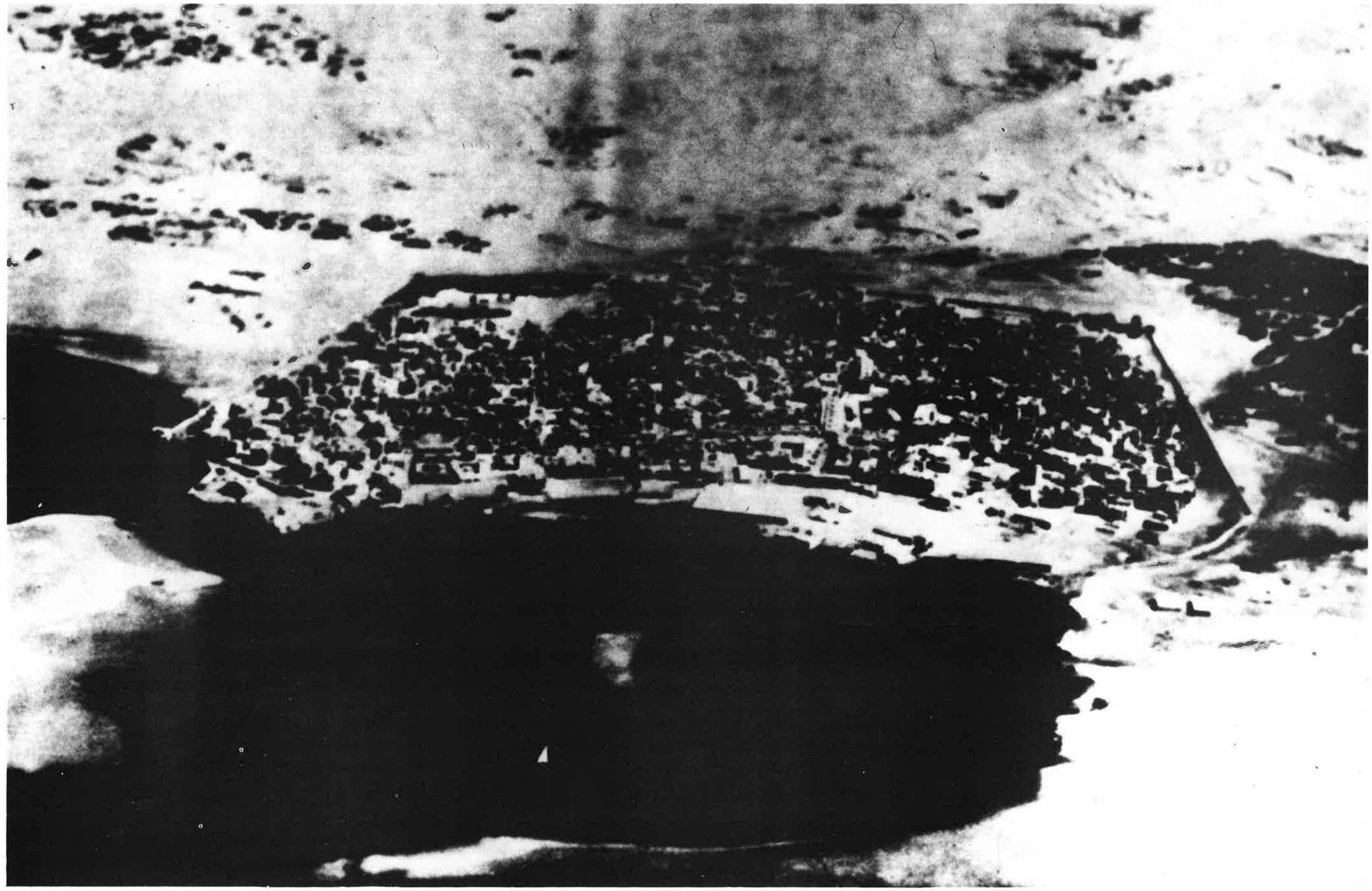
بسم الله الرحمن الرحيم

Contents



Aerial photograph of 'Old Jeddah' showing walls, circa 1930's

صورة جوية لجدة القديمة تبين الجدران ، في حدود سنة ١٩٣٠

Preface

Purpose of Report

0.1 In 1399AH/1979, Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS were appointed by the MUNICIPALITY OF JEDDAH to study the historic Al Balad District of Jeddah. Their 1/500 scale Urban Design Plans and supporting Final Reports, "Urban Design Proposals" and "Development Control and Civic Design Manual" were accepted and approved by the Central Technical Committee of the Municipality of Jeddah a year later.

0.2 At the heart of their proposals was the creation of the "Old Jeddah Historic Area", a conservation area subject to special planning regulations and development control procedures intended, in the words of the great Ibn Khaldun, to "... keep out what is harmful and bring in what is useful". In all, five hundred and fifty eight historic structures were recommended for preservation and protection as "buildings of architectural and historical significance". They were "listed" and described comparatively on the basis of their architectural character in the "Descriptive Inventory of Buildings of Architectural and Historical Significance". This was the first time that so comprehensive a study of the architectural heritage of "Old Jeddah" had been completed. Guidelines illustrating internationally accepted conservation principles and practices were also prepared, to assist Municipality engineers in the difficult task of implementing their new duties.

0.3 Over the last five years, many changes have taken place in Jeddah, changes which have affected both the character of the "Old Jeddah Historic Area" in general and the fortunes of many individual "listed" buildings in particular. Accordingly, at the behest of the Mayor of Jeddah, His Excellency Engineer Mohammed Said Farsi, the Consultant has returned to the "Old Jeddah Historic Area" to assess and report on these changes and to update the "Descriptive Inventory".

0.4 The purpose of this Report is therefore three-fold : First, to outline the existing situation within the "Old Jeddah Historic Area"; secondly, to define the reasons for the existing situation; and thirdly, to propose what future action is necessary to ensure the continued preservation and protection of the "Old Jeddah Historic Area".

Scope of Work

0.5 To facilitate this work, the Consultant developed a series of "data cards" designed to provide a detailed "profile" of each "listed" building, and invited a conservation expert with extensive practical experience and knowledge of the problems of conserving Islamic monuments and settlements to inspect and report on the existing situation in the "Old Jeddah Historic Area".

0.6 The work was completed in four stages:

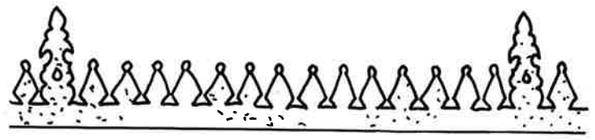
1. Collection of Data
2. Analysis of Data
3. Synthesis of Data
4. Recommendations

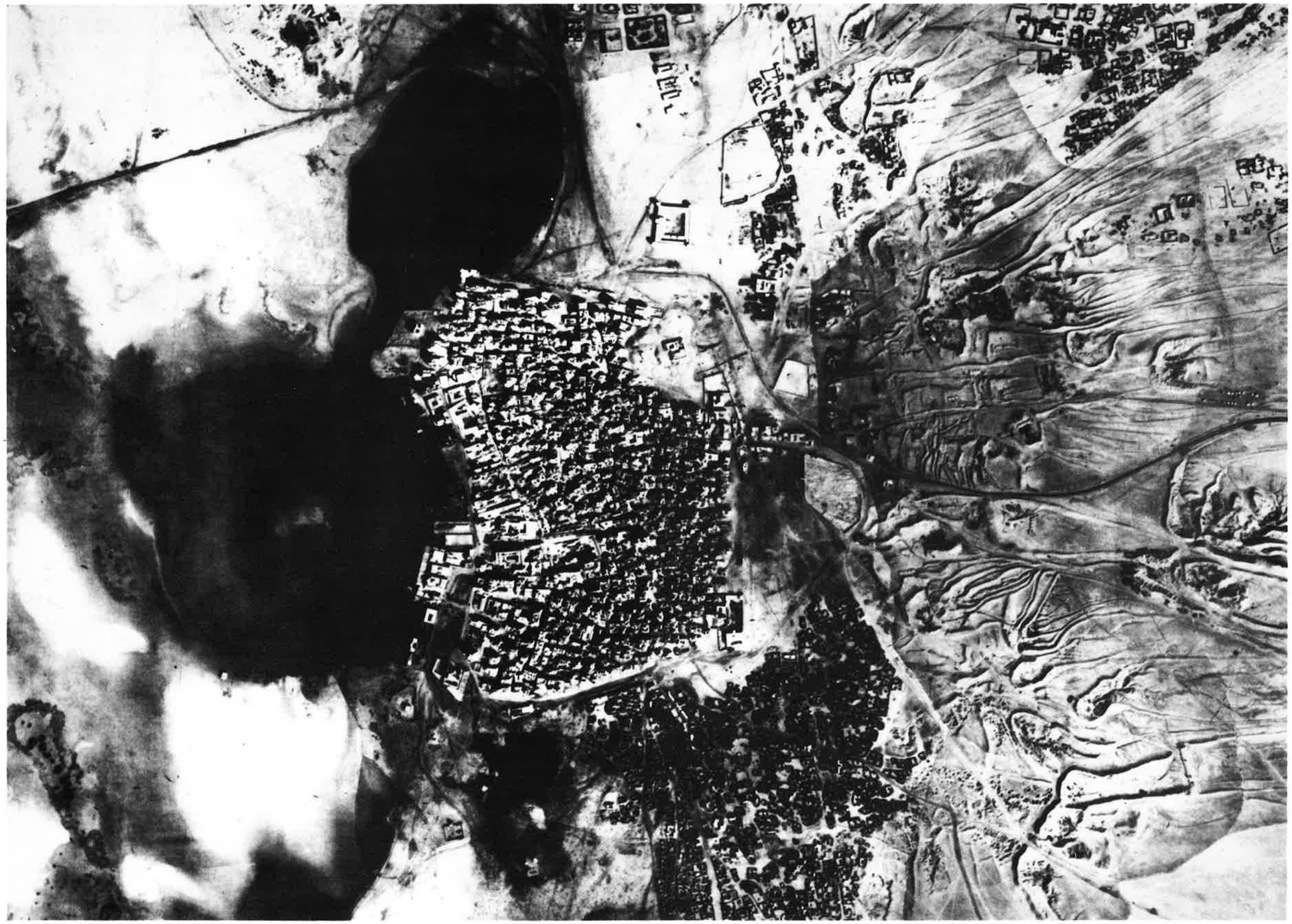
The Report has been structured to reflect these stages of work.

0.7 Part One provides a brief historical introduction to the cultural, economic and environmental evolution of "Old Jeddah" over the last 2,000 years emphasising once again the Port's significance in the development of the Hejaz. Part Two examines and assesses the existing situation within the "Old Jeddah Historic Area" and compares it to that prevailing five years ago, when the "Descriptive Inventory of Buildings of Architectural and Historical Significance" was first compiled. Part Three analyses the problems, needs and opportunities for action, with particular regard to the care and maintenance of "listed" buildings, and the importance of encouraging the survival of traditional building crafts and the use of local materials. Lastly, Part Four sets out a series of recommendations intended to ensure the continued preservation and protection of the "Old Jeddah Historic Area" so that future generations of Saudis may see how their fathers lived.

Acknowledgements

0.8 This Report could not have been produced without the assistance of many people. As always, the Mayor of Jeddah, His Excellency Mohammad Said Farsi, has been a constant source of encouragement. So too, has His Excellency Engineer Barakat Bajunaid, Director of Technical Affairs; His Excellency Engineer Abdulla Baesa, Deputy Director of Technical Affairs; and His Excellency Engineer Saud Al-Gufaidy, Deputy Mayor, Al-Balad Branch Municipality. In addition, valuable guidance and advice was provided by Engineer Ghazy Menkabo, Head of the Town Planning Office; Engineer Ibrahim Makki, Head of the Studies Department; and Engineer Suhail Khatib, Head of the Supervision Department. Technical assistance with mapping was generously provided by Arabian Cleaning Enterprises (ACE) Limited, and Charles L. Miller (CLM) Associates.





Aerial photograph of 'Old Jeddah' after demolition of walls, 1948

Summary of Recommendations

Method of Working

0.9 This Report is essentially a "Progress Report", an appraisal of the progress made by the Municipality of Jeddah towards achieving its proclaimed goal of conserving the "Old Jeddah Historic Area" and its unique heritage of buildings of architectural and historical significance.

0.10 As his point of departure, the Consultant took the two "Jeddah Historic Area Study" Final Reports and 1/500 scale Existing Condition Survey drawings prepared five years ago by Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS.

0.11 In order to compare today's existing situation with that prevailing five years ago, the Consultant developed a series of "data cards" designed to record the condition of each of the historic structures originally "listed" in the "Descriptive Inventory of Buildings of Architectural and Historical Significance" in a simple coded form suitable for later computer recording and analysis by Municipality of Jeddah engineers.

0.12 The areas of interest covered by these cards are as follows:

1. Building Name and Location
2. Architectural Character
3. Building Integrity
4. Building Condition
5. Causes of Delay

0.13 The conclusions reached in this Report are based on the analysis and synthesis of this data, collected over a three month period in 1403-04AH/1983-84.

General Findings of Report

0.14 Undoubtedly, great strides have been made by the Municipality of Jeddah towards the achievement of its goals, particularly with regard to the encouragement of confidence in the future of the "Old Jeddah Historic Area" as the result of which there has been considerable public and private investment in building and "beautification" works.

0.15 In some ways, the area is in danger of becoming a victim of its own success, for increased investment is being reflected in a growing number of alterations, extensions and modernisations of "listed" buildings without proper consideration being given to the question of their architectural character and historical integrity.

0.16 Some fundamental problems remain to be tackled, for although the rate at which the area was being eroded five years ago has been slowed, it has not been stopped. Some sections have reached a critical stage requiring urgent intervention to prevent an irreversible decline leading to demolition and redevelopment.

0.17 The causes of delay of "listed" buildings are due to a number of factors, including unauthorised alterations and extensions, faulty restorations and repairs, fire damage, collapse, redevelopment and simple "old age".

0.18 Today the need is for a properly considered conservation policy with clearly identified priorities backed up at the highest level with professional expertise and technical resources.

Recommendations

0.19 Having so clearly demonstrated the benefits to be enjoyed by pursuing a policy of conserving the "Old Jeddah Historic Area", the Consultant is of the opinion that the following measures should be introduced by the Municipality of Jeddah :

1 Administrative

1. Establishment of a Conservation Centre.
2. Establishment of a Conservation Committee under the Chairmanship of the Mayor of Jeddah, His Excellency Engineer Mohammed Said Farsi.
3. Development of a strategy for public investment in conservation works.
4. Nomination of "Landmark Buildings" for priority allocation of resources.

2 Financial

1. Consideration of alternative methods of assisting property owners and tenants with costs of conservation works.
2. Encouragement of "Joint Schemes" to reduce costs of conservation works.
3. Examination of possibilities of subsidising traditional materials for conservation works.

3 Technical

1. Registration of craftsmen and skilled trademens approved for conservation works.
2. Postgraduate and in-service training of Municipality architects, engineers and town planners in conservation principles and practices.
3. Preparation of a "Manual on the Care and Maintenance of Historic Structures" for public distribution.

4 Legislative

1. Rigorous enforcement of existing "Zoning, Bulk and Height Regulations" and introduction of "Special (Conservation Policy) Regulations" recommended in 1399AH/1979.
2. Property owners to be notified of "listed" status.
3. Serving of "Repair Notices" on property owners requiring them to complete emergency repairs to safeguard structure.

5 Educational

1. Establishment of "Heritage Trails".
2. Identification of "listed" buildings by fixing of a plaque or similar marker.
3. Publication of "pocket guide book" and "tourist map" of "Old Jeddah Historic Area".

6 Planning

1. Preparation of "Conservation Area Plans" for four areas in urgent need of revitalisation:

a) Souk al-Nada (South) Area
b) Masjid al-Hanefi Mosque Area
c) Souk al-Nada (North) Area
d) Main Souk (South) Area

Aerial photograph of Mahallet ash-Shami district of 'Old Jeddah' showing walls, circa 1940's

One

Historical Background

Historical Background

Geographical Setting

1.1 The City of Jeddah lies to the south of the Tropic of Cancer on the eastern shore of the Red Sea. Like many great cities founded in antiquity, Jeddah owes its foundation and subsequent growth as much to geography as to the vicissitudes of history. To the east, forming a dramatic backdrop to the narrow coastal plain, the Tihama, run the foothills of the Hejaz-Asir-Yemen mountain chain, which form the western backbone of the Arabian Peninsula. To the west, some distance offshore, parallel banks of coral reefs fringe the coastline affording few safe anchorages or landing places. Yet the site is twice blessed, for gaps in both barriers provide a safe anchorage and access to the hinterland.

Pre-Islamic Jeddah

1.2 According to local tradition, the Kodah tribe was the first to settle on the site some 2,500 years ago. They are believed to have lived in a small fishing village sandwiched by the al-Mangabah Lagoon to the north and an area of salt pans to the south.

1.3 From a small, isolated fishing village, the settlement subsequently grew to become an important staging post on the ancient trade routes linking the civilisations of the Mediterranean and the Orient. Thus it attracted the interest of the Persians, under whose influence the settlement first fell in the 6th Century, and who constructed underground conduits and cisterns to ensure a water supply. The Persians also built the first fortifications.

1.4 Today, nothing is known to remain from this period in Jeddah's early and eventful history, but no archaeological excavations have yet been undertaken within the historic "core" of "Old Jeddah", which is believed to have been centred on the area of high ground close to the present day site of the Al-Falah School.

Islamic Jeddah

1.5 The last fourteen hundred years of Jeddah's history has been closely tied to the historical development of Islam. For most of this time, Jeddah has been the port of Makkah, being chosen by the Caliph Uthman for this purpose less than half a century after the death of the Prophet in 632AD. Thereafter, Jeddah flourished, both as the gateway to the Holy Cities of Makkah and Madinah, and as an entrepot port for the transhipment of spices, gold, cotton and other goods.

1.6 The expulsion of the Persians by the Emir of Makkah in the 11th Century consolidated the Port's importance in the Islamic World. A commentator of the time described "Old Jeddah" as:

> "... a great city situated on the coast and surrounded by a strong wall. Its population reaches the number of five thousand male inhabitants. The Bazaars are beautiful; the Qiblah of the Great Mosque faces the east. There are no buildings to be seen outside the city, except for a mosque which is called Masjid al-Rassoul. The city has two gates one to the east opens on to the Makkah Road; the other to the west opens to the sea."

1.7 Less than a century later, the walls were in ruins, and they were to remain so for the next 500 years, during which time the Port in turn became subject to the Mamluks and the Ottomans. However, the growing threat to mercantile trade posed by the presence of the Portuguese in the Red Sea finally caused the Ottoman Governor to order the reconstruction of the walls and gateways. This work was completed in 982AH/1574 and "Old Jeddah" took on the appearance that it was to retain until less than half a century ago.

1.8 The fall of the Hejaz to the armies of Mohammad Ali in the early 19th Century led to the establishment of much closer ties with Cairo. A growing European interest in the affairs of the Arabian Peninsula also led to the establishment of an embryonic diplomatic community in the Port, which by this time had grown wealthy through its taxation of both goods and pilgrims. The opening of the Suez Canal further stimulated trade, so that by the turn of the century "Old Jeddah" had become one of the major ports on the shipping route between the Mediterranean and the Indian Ocean.

1.9 Commercial life was centred on the souks and the harbour. In the souks, open-fronted shops screened by canvas awnings and palm fronds from the fierce glare of the sun, opened directly onto the streets, while traders and pilgrims alike found refuge in the Port's celebrated khans. At night, the gates were barred and guarded against intruders. The streets were lit by flickering oil lamps mounted on wall brackets.

1.10 The sense of mystery that pervaded "Old Jeddah" during this time is perhaps best captured by Col. T.E. Lawrence, the renowned "Lawrence of Arabia", in his "Seven Pillars of Wisdom".

> "... It was like a dead city, so

clean underfoot, and so quiet. Its winding, even streets were floored with damp sand solidified by time and as silent as the tread of any carpet. The lattices and wall returns deadened all reverberation of the voice ... Everything was hushed, strained, even furtive. There seemed no life in it. It was not burning hot, but held a moisture and sense of great age and exhaustion such as seemed to belong to no other place ... A feeling of long use, of the exhaustion of many people, of continued bath heat and sweat. One would say that for years Jidda had not been swept through by a firm breeze."

1.11 After a siege lasting almost twelve months, "Old Jeddah" fell to the army of Abdul Aziz Ibn Saud in 1343 AH/1924. The Ottomans were expelled and the Port briefly became the capital of the Hejaz. Two years later, the "Father of Saudi Arabia" proclaimed himself King of the Hejaz in the Port, quartering himself in the Nasif House during his stay. However, in 1351 AH/1932 the desert stronghold of Riyadh was proclaimed the capital of the unified Kingdom of Saudi Arabia, and the Port lost its political status. Because of poor internal communications, it retained its long-established diplomatic importance, links with Riyadh being maintained by wireless telegraphy. Few travellers used the tiny, dirt airstrip that lay outwith the walls of "Old Jeddah".

Jeddah Today

1.12 Since 1351 AH/1932, the history of "Old Jeddah" has been inseparable from that of the Kingdom of Saudi Araba, whose dynamic growth and prosperity has been based on the exploitation of the world's largest oil fields. During the earliest days of the oil boom, in the decade after the Second World War, the Port experienced a period of rapid growth and expansion. In 1367 AH/1947 the walls and gateways of "Old Jeddah" were finally demolished to improve vehicular access.

1.13 A period of economic restraint followed the closing of the Suez Canal in 1376 AH/1956 but with the accession to the throne of King Faisal eight years later, national development became a matter of concern to the Central Government in Riyadh. As the nation's gateway, the Port flourished as never before, since most of the materials needed to construct the nation's infrastructure of roads, utilities and public buildings had to be imported from abroad.

1.14 Today, Jeddah is one of the most modern and sophisticated cities in the Middle East. Yet beyond the concrete, glass and steel facades of the great trading houses that identify the city's Central Business District, "Old Jeddah" continues to flourish, a city within a city, an enduring link with the past.

Urban Development

Population

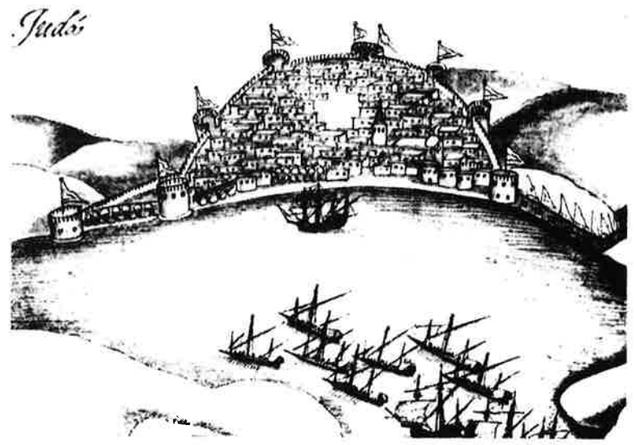
1.15 Until comparatively recent times, the population of Jeddah numbered less than 30,000 inhabitants. Today, estimates of the population of the Jeddah Metropolitan Area put the figure at more than 1.5 million. Today, the population of "Old Jeddah", as defined by the line of King Abdul Aziz ring road, still numbers less than 50,000 inhabitants.

City Growth

1.16 Confined by its encompassing walls, "Old Jeddah" grew upwards forming a dense agglomeration of lofty town houses, merchants' palaces, mosques and minarets, interspersed with small squares and narrow meandering alleyways. Within the walls, which protected the Port on its landward facing sides, there were four principal districts: Mahallet ash-Shami, to the north west; Mahallet al-Mastumi, to the north east; Mahallet al-Yemeni, to the south east; and Mahallet al-Bahar, to the south west.

1.17 Generally, the northern districts were preferred because of the prevailing north-westerly winds, and it was here that the more affluent sections of the community built their large town houses and palaces. Naturally, it was here too that the diplomatic and foreign business community chose to establish themselves from the mid-19th Century onwards (Figure 1.1). In contrast, the southern districts became the centre of trade and local industry, the home of fishermen, shopkeepers, artisans and labourers. The rough dividing line between north and south was the main souk, Shara al-Alawi, which stretched from the harbour to the Makkah Gate.

1.18 The earliest known illustration of "Old Jeddah" dates from the 16th Century, and shows the Portuguese fleet moored offshore in the approaches to the harbour. A substantial wall with eight towers protects the Port against attack from the land, while two batteries cover the harbour.



Jeddah from a drawing by Casper Correa, 1517

1.19 The earliest known plan of "Old Jeddah" dates from 1176 AH/1762, and is

خطوط ساحل جدة القديمة

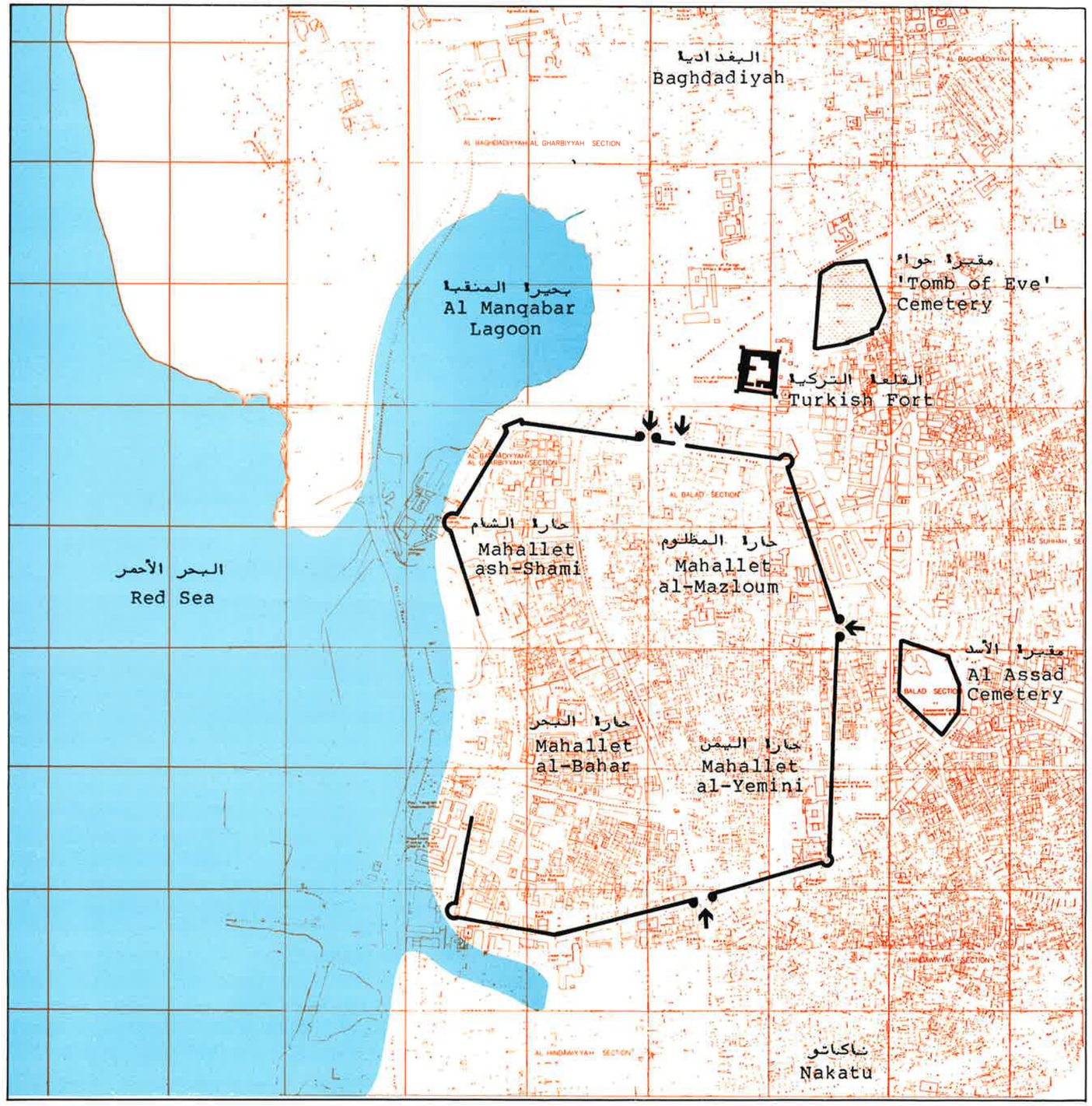
The Coastline of Old Jeddah

خطوط سور المدينة

The line of the City Wall

البوابات

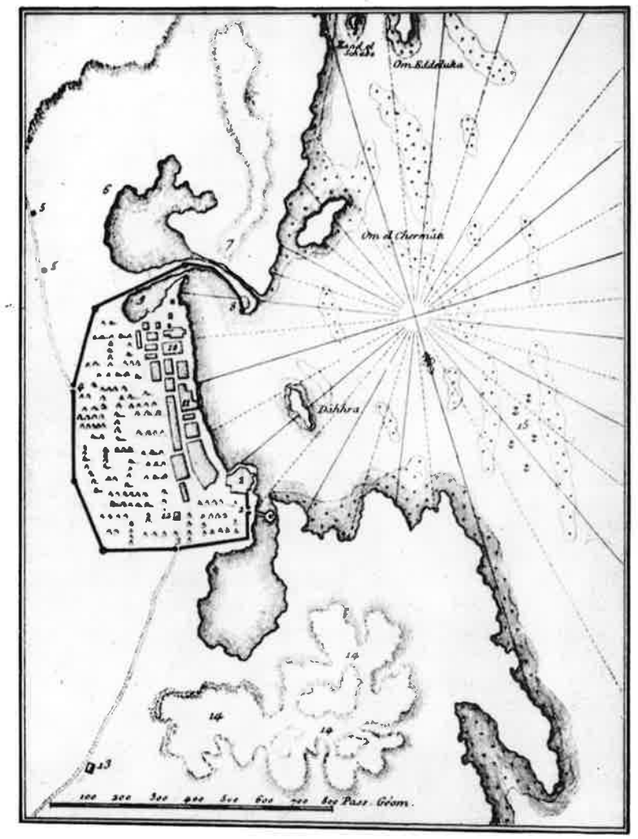
Entrance gates



الشكل ١/١
العلاقة بين جدّة القديمة والزمن الحاضر

Figure 1.1
The Relation of
Old Jeddah to Today

the work of the Danish traveller C. Niebuhr. Niebuhr was a surveyor by profession and his plan is considered to be reasonably accurate. It shows that stone built houses lined the shoreline, beyond which the remainder of the structures were built of less durable materials such as mud and reeds. Few of the surviving structures within the "Old Jeddah Historic Area" would appear therefore to be more than two hundred years old.



A Plan of Jeddah by C.Niebuhr, 1762

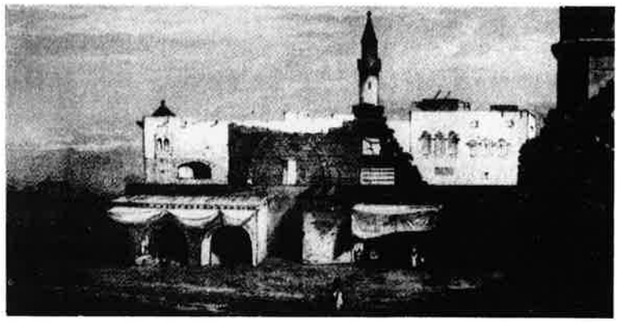
1.20 The walls of "Old Jeddah" stood about four metres talls and were constructed of large blocks of coral. In plan, they formed an irregular, "D" shaped polygon pierced by five battlemented gateways : the Bab al-Madinah, Madinah Gate, to the north; the Bab Makkah, Makkah Gate, to the east; the Bab al-Sharif, Noble Gate, to the south; the Bab al-Bunt and the Bab al-Magharibah, Westerners' (African) Gate to the west. Much later, a sixth gate, the Bab al-Jadid, New Gate, was to be formed close to the Bab al-Madinah, to allow vehicles to enter inside the walls.

1.21 There were only two large areas of open space within the walls: the first was adjacent to the Customs' House on the harbour (see photo); the second was in the north east, in the Mahallat al-Mustumi district and functioned as an open-air market. Beyond the walls, there were few settlements : to the south, Nakatu, a sprawling area of mud and reed huts; to the south east, al-Nuzla; to the north east, al-Khandarah; and to the north, al-Baghdadiyyah, al-Ruwais and al-Bani Malik. The basic structure of "Old Jeddah" was to remain relatively unchanged until the demolition of the walls in 1376AH/1947.

Gabal Souk, circa 1920's

1.22 Today, the sole surviving section of the walls is a single tower, built into the structure of the Bab al-Sharif Hospital, in the south east corner of the "Old Jeddah Historic Area" (Figure 1.2).

1.23 In 1385 AH/1965, the integrity of "Old Jeddah" was severely affected by the construction of King Faisal Street, a broad, dual-carriageway running from north to south, through the very heart of the area. As a result, "Old Jeddah" was divided into two sections, "west" and "east", which developed separately. The former as the prestigious Central Business District, the latter as the traditional souk area. This division was reflected in the value of land, which in turn was reflected in investment. Thus, while the western section prospered, the eastern section languished, a neglected backwater. As a result, the seaward facing structures that once lined the water's edge were demolished, among which was the house of the former Ottoman Governor, Beit al-Baghdadi. A later loss, was the celebrated Pasha Mosque, with its leaning minaret, one of "Old Jeddah's" best known landmarks.



A Square in Jeddah, Engraving by R.F. Burton.

1.24 Growing prosperity led to redevelopment on a previously unknown scale in the Central Business District, beginning with the construction of the Queen's Building fronting on to King Abdul Aziz Street. Subsequent development has hidden the original skyline of "Old Jeddah", whose minarets were once visible from as far as ten kilometers out to sea. In addition, the coastline has been pushed relentlessly seawards as the shallow waters within the reef have been reclaimed and developed. The northward expansion of the Islamic Port of Jeddah has finally cut "Old Jeddah" off from the Red Sea (Figure 1.1).

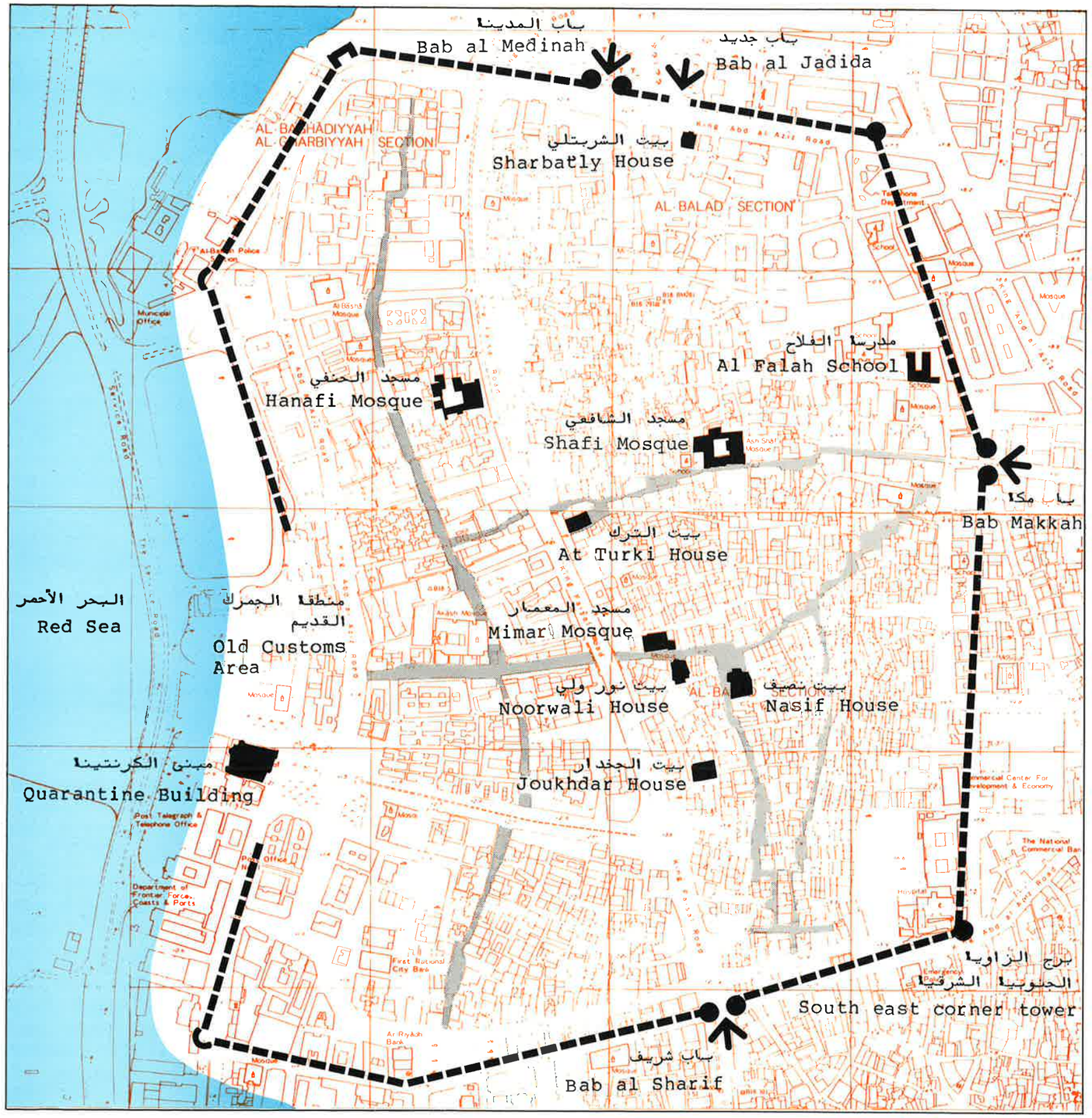
خطوط ساحل جدة القديمة
The Coastline of Old Jeddah

خطوط سور المدينة
The line of the City Wall

البوابات
Entrance gates

المباني الحالية البارزة
Prominent existing structures

طرق المشاة
Pedestrian routes



الشكل ١/٢
رقعة جدّة القديمة
تطهر فيها المباني البارزة

Figure 1.2
The Extent of
Old Jeddah showing
Prominent Structures

Architectural Character

Cultural Influences

1.25 The buildings of "Old Jeddah" have their origins in a long established tradition, which developed along similar lines in the other ancient ports of the Red Sea: Yanbu, Massawa, Hodeida, Assab and Suakin. Each of these settlements experiences similar climatic conditions, characterised by debilitatingly long, hot and humid summers and spasmodic winter rainfall. Thus, it is important that structures should be cool and well ventilated, yet at the same time they must be shaded to keep out the heat and intense glare of the sun.

1.26 Of the earliest structures, nothing has survived. However, the more substantial Ottoman structures that have survived illustrate a very sophisticated vocabulary of architectural elements of which, perhaps, the "roshan", an elaborate bay window, is the most conspicuous example.

1.27 Among the countless numbers of pilgrims who landed in Jeddah, many were craftsmen who stayed to practice their skills as masons, woodcarvers, plasterers, metalworkers, locksmiths, and others within a common cultural milieu which subsequently developed into a coherent architectural vocabulary possessing a rare sense of harmony and proportion.

1.28 Of the historic structures that survive within the "Old Jeddah Historic Area", the oldest are the mosques, among which the minaret of the Masjid ash-Shafi, which is said to date from the 7th Century AH/13th Century AD. However, a plaque above the door states that the mosque's main body dates from almost 300 years later, being built by an Indian merchant who imported much of its building materials from the Yemen. The Masjid al-Hanafi dates from more recent times, a similar plaque identifying it as being built in 1240AH/1732. Both the Masjid al-Mimar and the Masjid al-Akash mosques date from more recent times.

1.29 The remainder, comprising traditional town houses, merchants' palaces, khans and other commercial buildings, are generally less than 200 years old. Because wealth and influence was concentrated in the hands of the Ottomans, the early structures are naturally built in the "Turkish" style. Later, the establishment of the Ottoman Viceroyalty in Cairo and the opening of the Suez Canal led to increased European influence and the development of the "Egyptian" style. The dividing line between these two styles is c. 1865. However, it would be wrong to suppose that there is a clear break between the two styles; there is not; both being built simultaneously until comparatively recent times. Thus, it is often difficult to establish a true chronological sequence of architectural form and detailing. Indeed, many structures combine features from each style. In the conservative atmosphere of "Old Jeddah" changes occurred slowly.

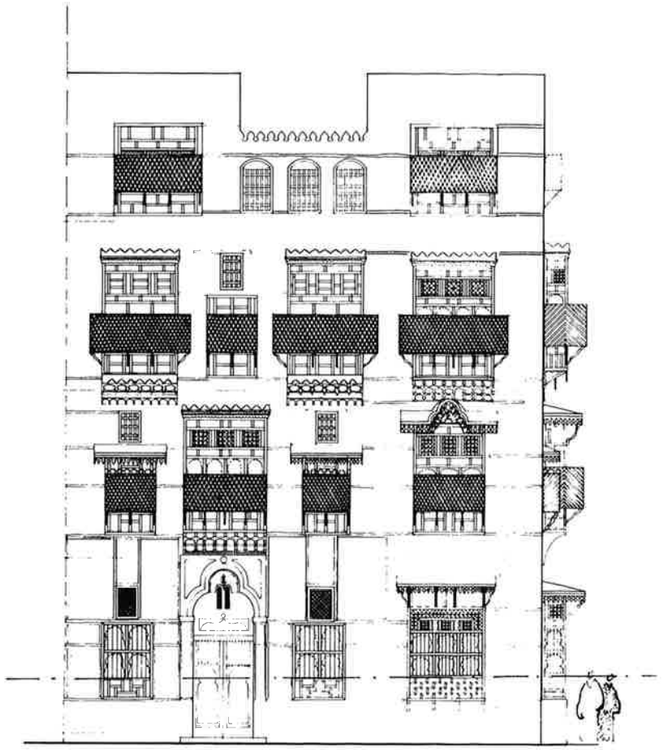
Turkish Style

1.30 Prior to the coming of the Ottomans to "Old Jeddah", the most common form of dwelling was a simple hut, constructed of mud or timber framing covered with hemp, reeds or canvas, arranged either singly or in groups around a small courtyard. Thereafter, they began to be replaced by one and two storeyed structures arranged around a courtyard. However, the restricted amount of land available for development within the walls, an area roughly 1,000 metres from north to south by 800 metres east to west, forced the Port's inhabitants to build upwards rather than outwards to obtain extra accommodation. The traditional "town house" thus took on a plain, cubic shape, of which the largest examples exceed 1,000 square metres in area and five storeys in height. Normally, such houses average 200-500 square metres in area and two to four storeys in height. When the extended family became so large that it could not be accommodated within the same dwellings, a second and in time perhaps a third or fourth dwelling would be built on an adjoining site. Thus, they grew to become small, self-contained neighbourhood units, often covering an entire block. Some such blocks developed in an irregular and haphazard fashion, but others developed with obvious consideration to form a terrace with obvious symmetry.

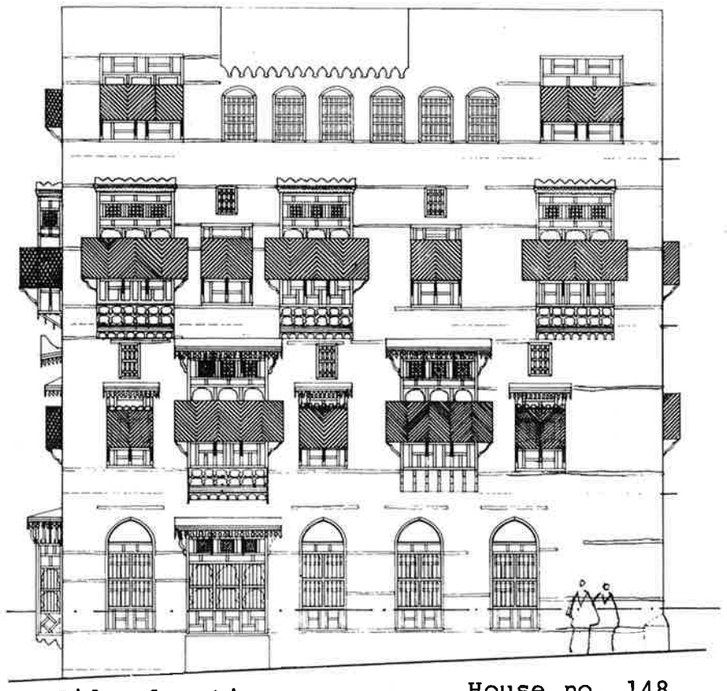
1.31 In plan, dwellings from this period are often irregular, comprising series of small, interconnecting rooms accessed from a small hall or landing. As well as rectangular plan forms, with rooms arranged around a central ventilator shaft or light well, "L", "H", "T" and "U" plan forms are also common. In the former case, there is no courtyard. In the latter, the courtyard is closed off from the adjoining street by a high wall to ensure privacy and security.

1.32 In contrast to dwellings in the "Western World", which are divided into rooms according to function, for example, living room, dining room, drawing room, bedroom, etc., the traditional Arab dwelling is arranged to conform with the complex structure of the extended family and the strictures of Islam. In the case of the traditional town house of "Old Jeddah", this led to a vertical division between the public and private aspects of life. On the ground floor are rooms reserved for the reception and entertainment of male guests and the accommodation of servants. On the upper floors are rooms reserved exclusively for the family: women, children and often numerous female relatives.

1.33 In the finer examples, the main entrance is emphasised by carved hardwood double doors surmounted by an elaborate stone door hood and flanked by panels of incised plasterwork, which served both to identify the dwelling and reflect the status of the family. The

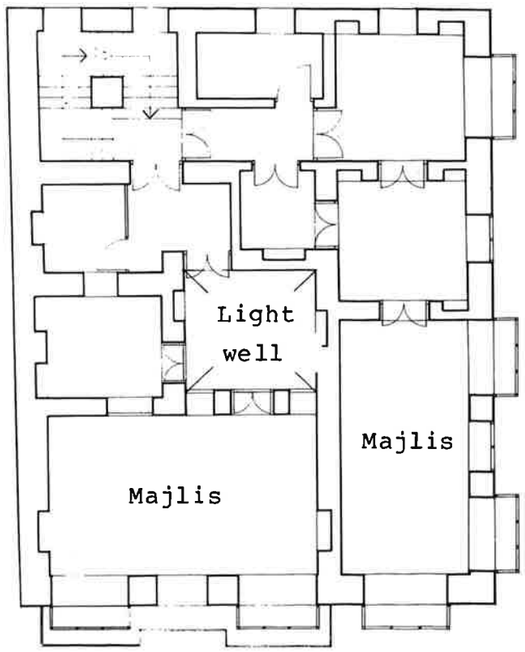


Front elevation



Side elevation

House no. 148



Typical floor plan

Figure 1.3 A Typical Turkish Style House

entrance door affords access to an entrance hall, "Dihlis", which in turn leads to a reception room, "Diwan", which in the larger town houses and palaces is often sub-divided by a pointed arch supporting the floor above. As is still the tradition today, host and guests alike would remove their shoes before steping on the matting or carpets spread on the earthen or coral paved floors of the sitting area, "Iwan", around the walls of which would be arranged low stone plinths or wooden settees made comfortable by bolsters and cushions. With the exception of the occasional small table, there was very little moveable furniture, reflecting the nomadic tradition of "travelling light". Again, in the finest examples, there might be two such rooms arranged symmetrically about a courtyard. Whenever possible, the remaining secondary rooms and staircase would be located against the southward facing wall to act as a buffer zone between the warmer and cooler parts of the house. The stack effect caused and rising warm air would also ventilate the house during the heat of the day.

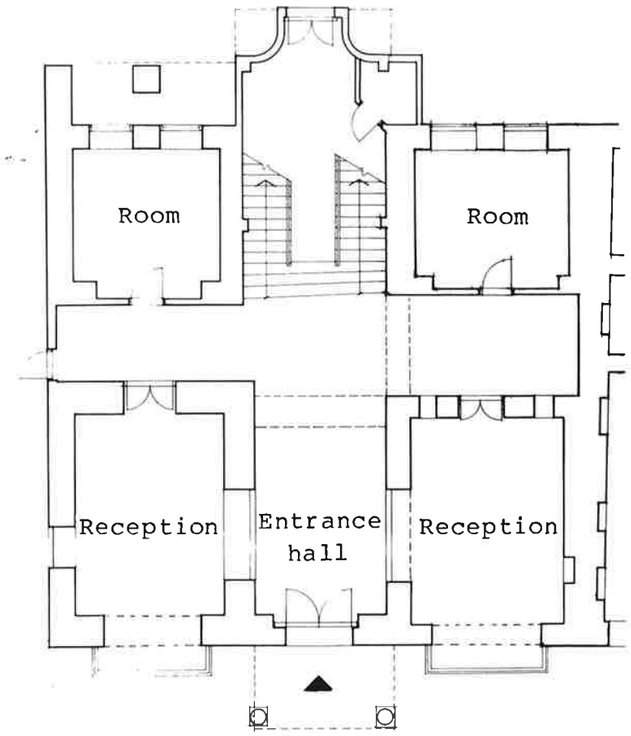
1.34 The private areas of the upper floor comprised a series of sitting rooms, "majlis", to which were attached a number of secondary rooms for cooking, storage, ablutions, etc. In many cases, they were divided into self-contained compartments occupied by separate branches of the family. Although the master of the household would retain a private bedroom, the women and children would mix more freely, sleeping together on the carpeted floors and cushioned settees. In the hot summer months, families would sleep on the roof to take advantage of the cooling winds from the sea. As in the public rooms, furnishings were simple, recessed cupboards and niches providing storage for smaller household items in daily usage. The most distinguished feature of the room was the bay window, "Roshan" (singular) "Rawashin" (Plural), which projected beyond the wall of the building to catch the slightest passing breeze.

1.35 As well as forming the principal feature of the elevation, these bay windows are the focal point for social activities, being sufficiently roomy to allow three or four people to sit comfortably and enjoy a pot of coffee, a conversation, a game of cards, or simply to watch the world go by. Porous, clay water jars placed in the bay window helped provide cooling air, while oil lamps placed in niches or suspended from a hook overhead provided light in the evening. Lattices and tenoned screens ensured privacy in the densely developed town. On the upper floors, top-hung shutters provided protection from the sun and security. On the ground floor, vertically sliding shutters and iron bars performed the same functions. Window glass was only used in the later "Egyptian" style.

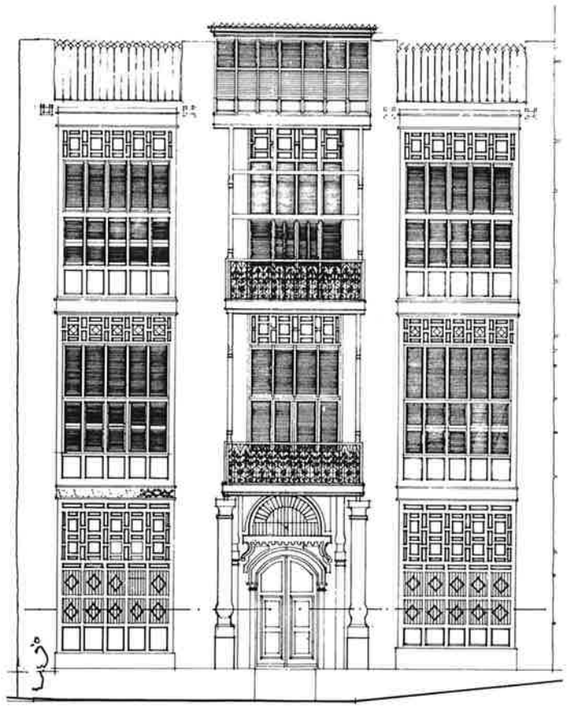
1.36 Broadly speaking, "Turkish" style rawashin may be divided into three types: the plain, unadorned box type; the canopied type, which is shaded by a broad decorated canopy supported by raking struts and sometimes surmounted by a central hood or crest; and the later corniced type. In the finest example, rawashin are linked horizontally by canopies, catwalks and screens to form a balanced composition. Vertically linked examples, form a "giant" roshan of two or three storeys in height. Most are enriched with elaborate fretwork, panelling and tenoned grilles.

1.37 However, such decoration was not simply confined to the woodwork; the plasterwork was also enriched by rectangular panels of incised floral and geometrical patterns. Occasionally, small stones were pressed into the still wet plaster to emphasise the pattern. Wall painting, though uncommon, is not unknown. Parapets and openings in the masonry were also decorated. Denticulations and finials top many walls and the heads of small ventilators punched through the wall are often elaborately modelled.

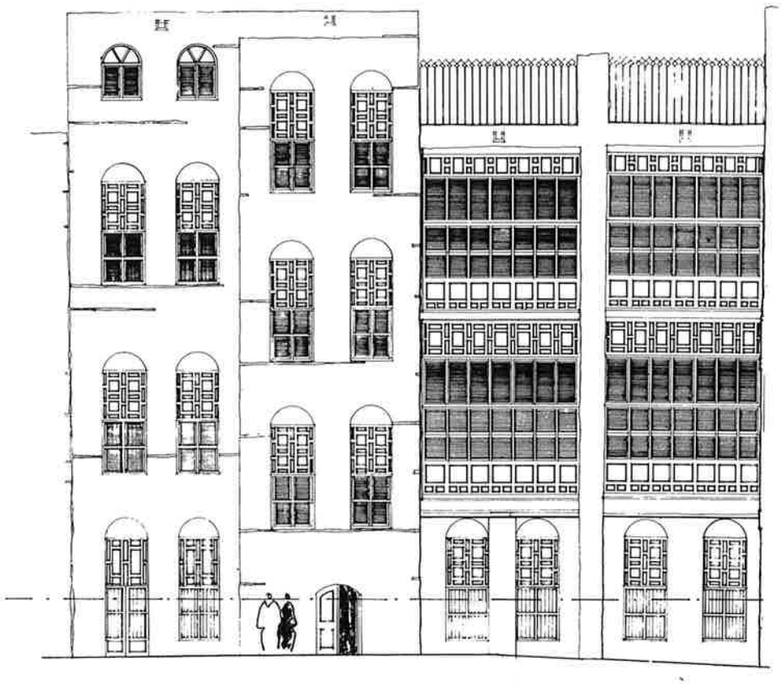
1.38 The combination of richness moderated by conservatism, of individuality tempered by tradition, created a uniquely unified environment that has survived to the present day.



Plan



Front elevation



Rear elevation

Figure 1.4 A Typical Egyptian Style House

House no. 147

Egyptian Style

1.39 The influence of Europe, which came to "Old Jeddah" via Alexandria and Cairo, was reflected in the larger town houses and palaces of the administrative and business classes by the introduction of more spacious, symmetrical plan forms with broad, central staircases flanked by large rooms linked by double doors with glazed overlights. Storey heights also increased dramatically, so that buildings took on a more "stately" appearance that was emphasised by their being constructed on a high plinth. Glazed windows, often semi-circularly headed, became standard fittings and so too did louvres to shade the interior of the rooms, whose tall ceilings and large windows flooded each room with light. Galleries and balconies were introduced, either cantilevered or supported by columns.

1.40 Large double doors with moulded plasterwork surrounds and surmounted by wrought iron fanlights remained the focal point of the front elevation. The doors themselves were either panelled or carved and fitted with elaborate, imported brass, bronze and iron door furniture. Wrought iron balustrading and grilles replaced the fretted woodwork of the earlier "Turkish" structures.

1.41 In contrast to the relatively small rawashin of the "Turkish" period, those of the "Egyptian" period are very spacious and complex structures with very sophisticated environmental control mechanisms. Both windows and louvres may be slid vertically into concealed cavities. Some louvres are also hinged and swing vertically or horizontally. Others open as a door onto a balcony or gallery.

1.42 Although the internal living arrangements were similar, the overall effect was very different. In place of the plain walls and exposed ceilings, stucco mouldings were introduced and ceilings were boarded. In the finest examples, timber cornices and ceiling roses are common in the largest private rooms, from which are hung chandeliers of Bohemian and Venetian glass. Movable furniture is also used, much of it imported from as far afield as China. Glass fronted cabinets are also popular for the exhibition of "blue and white" porcelain.

General Observations

1.43 A summary comparative analysis of these two styles is contained in Appendix A. An example of each style is illustrated in Figures 1.3 and 1.4. Together, they demonstrate how architectural solutions were developed to meet the needs of the community at different stages in the history of "Old Jeddah", creating in the process a unique heritage of which the modern city of Jeddah is justly proud and a source of inspiration to the present generation of engineers, architects and town planners.

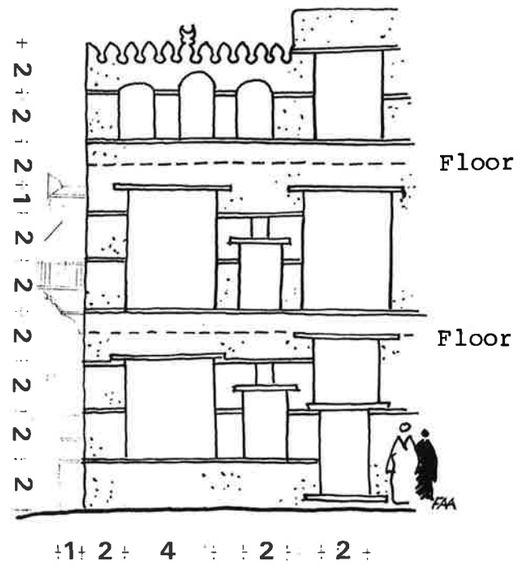
Building Methods and Materials

Sources of Information

1.44 There are a number of dilapidated structures within the "Old Jeddah Historic Area" which provide a valuable source of information on traditional building methods and materials. In addition, there are still a number of craftsmen who can give a personal account of how building works were organised and executed prior to the introduction of modern technology. The following paragraphs, which are intended to provide a better understanding of the properties and behaviour of materials and the weathering processes to which they are subject, are the result of on-site investigation and discussions with craftsmen employed by the al-Balad Branch Municipality.

Setting Out

1.45 When a master builder was commissioned to construct a building, he began by discussing it with his client. The choice of site, ground conditions, orientation, etc. Room sizes were governed by the lengths and sections of timber members readily available for beams and rafters, while the methods of construction were governed by tradition.



System of proportioning by use of the measure 'Gidda'
1 Gidda equals 58 cm. approx.

Figure 1.5 Proportioning by `Gidda´

1.46 No drawings were ever prepared of the "Turkish" style structures. Instead the mason used a very simple system of proportion to lay out the floor plan and divide the elevations into their principal parts. The basic unit of measurement used throughout the Red Sea was the "gidda", equal to about 58 cms., which in turn was sub-divided into eighteen

"geirat". Using a measuring board, the mason marked out the positions of doors, windows, walls, beams and other building elements using multiples of 1 "gidda" (Figure 1.5). The universal use of this system is the reason for the human scale and harmony of development that is characteristic of the "Old Jeddah Historic Area".

Foundations and Formation

1.47 Despite the ground's poor bearing capacity within the "Old Jeddah Historic Area", which comprises coralline limestone beds interspersed with sand, gravel and shell filled cavities, it was rare to construct a definable foundation. Normally, the surface soil was cleared away to a depth of 1 to 1.5 metres and the bottom of the trench was floored with larger coral pieces or blocks to redistribute the imposed loading and reduce the concentration of pressure from walls and columns.

1.48 Some of these "foundations" were founded on undisturbed coralline limestone beds and others on moderately compact hardcore materials. Consequently, these variable formations are a cause of the differential settlements that are frequently found. In addition, there is considerable variation in the distribution of loading between the internal and external load-bearing walls. To provide better access and larger public rooms, walls in the upper storeys are often supported by arches on the ground floor, leading to local settlement, cracking and spreading of arches if the foundation has not been adequately increased to bear the additional load.

Masonry Walls and Openings

1.49 The oldest surviving structures within the "Old Jeddah Historic Area" are built of Madrepore, natural coral taken directly from the reefs. Later structures are built with squared blocks of coralline limestone cut from the beds located to the north west of the al-Manqabah Lagoon. The different qualities of these materials are also reflected in the methods of construction, the former being used for random rubble cavity walls with a mixed rubble core, the latter for ashlar faced cavity walls laid to regular courses. Wall thicknesses vary from 85-90 cms at their base to 55-60 cms (1 "giddah") on the upper floors.

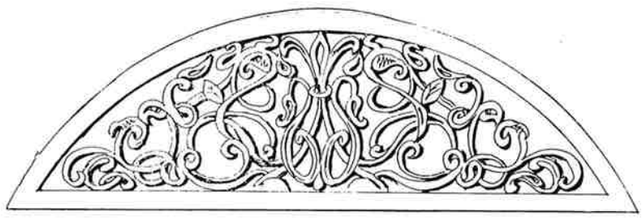
1.50 Mud scooped from the bed of the al-Manqabah Lagoon was initially used to bind the masonry, to which was occasionally added a little lime in the ratio of 1:7 or 1:8. In at least one recorded case, Beit Nasif, date pulp was added to the mud as a binder. So-called "Black" mud was reportedly the best for masonry.

1.51 Collapse was a common problem until horizontal timbers, "Taglilat", were introduced into the walls to tie the structure together. Originally, these timbers were simple roughly hewn and of circular cross-section. Later, square-section cut timbers were used. The former are generally associated with the earlier "Turkish" period, the latter with the later "Egyptian" period. However, the dividing line between the two periods is often unclear. This method of reinforcement at regular vertical intervals of 1 or 2 "giddas" creates a high degree of resistance to horizontal tensions arising from differential settlement.

1.52 Over time, this method of construction has proved to be a very durable system of construction. Furthermore, the timber members make it more simple to effect repairs, timber props being all that are required to support the wall while damaged or decayed masonry blocks are cut out and replaced. However, the timber members are susceptible to insect attack and biological deterioration, particularly if water is allowed to percolate into the fabric of the structure triggering swelling of the mud mortar and the growth of fungi. As a result, the core of the timber member may be reduced to powder, leaving the "skin" to carry the full loading and leading to pressure cracks, bulging and ultimate collapse. This explains why so many historic structures within the "Old Jeddah Historic Area", which have been standing in a sound condition for so many years, suddenly become extremely dangerous and occasionally collapse with little warning.

Plasterwork

1.53 Originally, the masonry was left exposed, but the combination of moisture and salts in the atmosphere quickly reduced the coral to powder. Thus, during the "Turkish" period, plastering became the common practice, the plasterer using a wooden float to obtain a brownish, hard bone-like finish to both the internal and external walls. The horizontal timber reinforcing members were left exposed.



Incised plaster lunette

1.54 The excellent working properties of the lime plaster were obtained by proper slaking and sifting before mixing. This was carried out in two stages : the first coat was a mix of lime and fine grained sand, mixed in the ratio of 1:8; the second coat was a fine slurry only, to which was added either "Gahoud", a finely ground powder of local stone quarried to the east of "Old Jeddah" and which gave the finished plasterwork an ochre colour, or "Zahrah", which gave it a blue colour.

1.55 In some instances, the plasterwork was incised with intricate geometrical or floral patterns. Occasionally, small stones were pressed into the still wet plasterwork, "Tangil", to emphasise the design. Wall painting was uncommon, but not unknown.

1.56 Due to the scarcity of sweet water available for construction purposes in "Old Jeddah" and the taking of both mud and coral directly from the salt waters of the al-Manqabah Lagoon and the Red Sea, the level of soluble salts present in the structure was naturally high and it was therefore essential that structures were allowed to dry out properly before being plastered. Briefly, during the "Egyptian" period, many structures were left exposed by the Egyptian masons in the fashion of Cairo, resulting in very rapid decay.

Suspended Floors and Roofs

1.57 In the earlier "Turkish" style structures, floors and roofs were normally supported by mangrove poles or poplar beams embedded into the masonry at 30 to 40 cms centres. Although of rather slender section, from 15 to 20 cms diameter, their natural curved form made them very strong and spans of up to 5 metres are common. The unconverted members were laid curve uppermost to take advantage of their natural resilience and resistance to bending. A grid of slender poplar twigs, covered by rush matting or palm fronds, was used as permanent shuttering for a composite floor structure of broken coral pieces and aggregate bound by a mixture of mud and lime mortar. The floor finish may be either a simple screed or tiled giving a total floor thickness varying from 10 cms to 40 cms. Roofs were constructed in a similar manner, but have a thicker superimposed screed bonded with lime to improve water resistance. Projecting timber water spouts drain the roof and throw the water clear of the base of the wall.

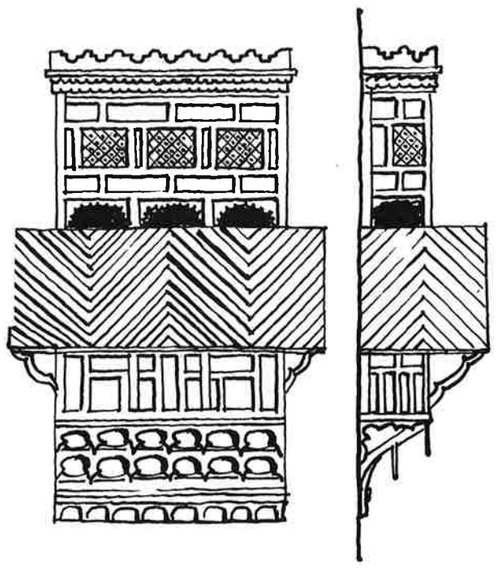
Attached Structures

1.58 In the earlier "Turkish" style buildings, attached structures are restricted to rawashin. These may be supported by self-supporting cantilevers, for example, masonry corbelling or extended floor beams, or built-in timber members which carry the loading directly to the ground. In the later "Egyptian" style buildings, attached structures also include balconies and galleries supported by free-standing timber, masonry and concrete columns.

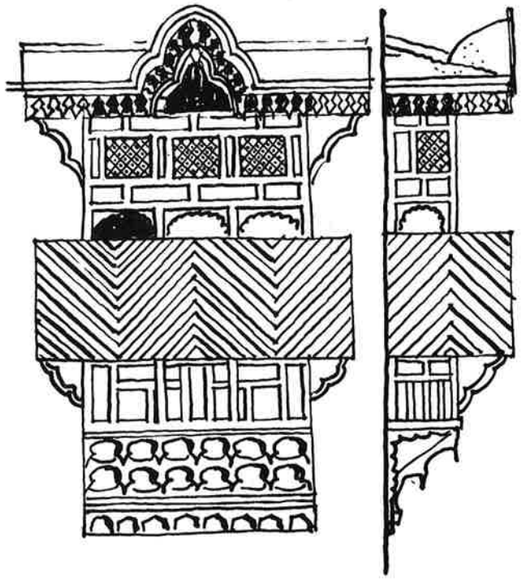
1.59 Timber members suffer from the same problems of insect attack and biological deterioration as reinforcing timbers, suspended floors and roofs. However, these problems are aggravated by embrittlement and loss of timber substance due to the loss of natural oils and the breakdown of the cell walls from ultraviolet radiation. The presence of soluble salts, corrosion of steel reinforcement and overloading all contribute to the deterioration of masonry and concrete supporting structures.

Surface Coatings

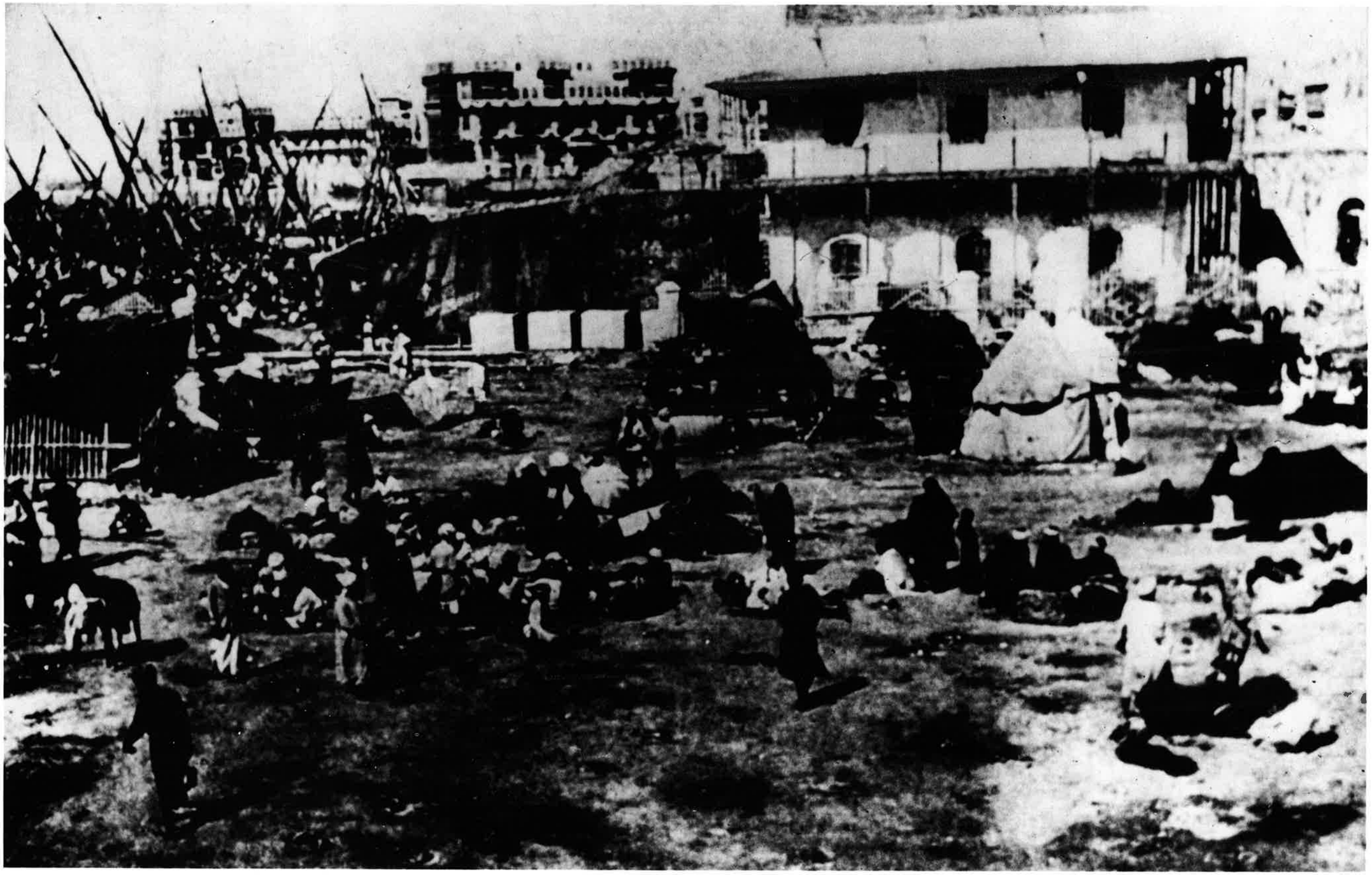
1.60 Surface coatings were traditionally applied to masonry surfaces from the earliest days. Usually they took the form of a coating of limewash, a milky mixture of slaked lime and water, to which natural pigments were occasionally added. Recently, this traditional coating has been abandoned in favour of modern synthetic coatings. Timber was left uncoated, except perhaps for being oiled, in the earliest "Turkish" style buildings and in consequence is generally in a very advanced state of decay. In the later "Egyptian" style buildings, oil paint or wood stains were generally applied. Increasingly, modern synthetic paints are being used to give a "face-lift" to both groups of buildings.



Canopied Roshan with Hood



Corniced Roshan



Jeddah Harbour and Customs House (Beit Baghdadi in background), circa 1950.

مرفأ جدة وبيت الجمارك (يبدو بيت البغدادى في خلفية الصورة) في حدود ١٩٥٠ .

Two Old Jeddah Historic Area 1399-1404 AH

Existing Conditions

2.1 Since Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS compiled the "Descriptive Inventory of Buildings of Architectural and Historical Significance" in 1399AH/1979, many changes have taken place in Jeddah. Changes that have affected both the character of the "Old Jeddah Historical Area" in general and the fortunes of many individual "listed" buildings and building groups in particular.

Descriptive Inventory

2.2 The Consultant initially identified more than one thousand surviving historic structures in varying states of repair, of which seven hundred and ninety-seven were recommended for "listing" in the preliminary "Descriptive Inventory". Following discussions with the Municipality of Jeddah and a second, more detailed appraisal of each structure, the number was reduced by a third to five hundred and fifty-eight. However, by the time that the final "Descriptive Inventory" had been prepared and approved three months later, a further twenty-one structures had been demolished or earmarked for clearance, reducing the total to five hundred and thirty seven (Table 2.1).

2.3 The number of "listed" buildings has continued to decline over the last five years for the following reasons:

1 Implementation of Building Permits issued before approval and designation.

2 Continued granting of Building permits.

3 Collapse of structures in "poor" or "derelict" condition.

4 Demolition of dangerous structures on the grounds of public safety.

5 Severe damage and destruction of structures caused by fire.

6 Unauthorised alterations, extensions and demolitions.

2.4 In consequence, the number of "listed" buildings has been further reduced to five hundred and eighteen (Table 2.1). Of these, a number should now be "downgraded" to a lower classification or "deleted" entirely from the "Descriptive Inventory" as their architectural character and historical integrity has ben seriously eroded or destroyed by faulty repairs and restorations.

TABLE 2.1 LISTED BUILDINGS 1399-1404AH

ITEM	1399AH		1404AH	
CLASS	Nos	%	Nos	%
1	58	10.8	55	10.6
2	236	43.9	228	44.0
3	243	45.3	235	45.4
TOTALS	537	100.0	518	100.0

2.5 Because of these pressures and the discovery of a number of previously unidentified historic structures, the Consultant is of the opinion that the current "Descriptive Inventory" is in need of revision. This work is currently in progress and will be presented as a separate report to the Municipality of Jeddah.

2.6 Proposed amendments to the "Descriptive Inventory" arise from the following considerations:

1 "Upgrading" of some entries to reflect their increased importance (total 17).

2 "Downgrading" of some entries to reflect their reduced importance (total 90).

3 "Deletion" of some entries because of demolition (total 18), fire damage (total 11), or drastic alteration (total 60).

4 "Consolidation" of some entries into a single entry due to clarification of property boundaries (total 25).

5 "Division" of some entries into several entries due to clarification of property boundaries (total 61).

6 "Addition" of some entries because of new discoveries or increased importance arising from recent "beautification" works (total 55).

2.7 These proposed amendments to the "Descriptive Inventory" are illustrated in the accompanying 1/1000 scale plan (Plan 1). If approved, these amendments would increase the number of "listed" buildings to five hundred and fifty-seven.

Building Integrity

2.8 The "integrity" of a historic structure is a measure of its originality and completeness. It is not a measure of its structural ability or general condition. For example, a structure in "original" condition may be in "poor" or "dilapidated" condition through decades of neglect.

2.9 In their original appraisal, Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS identified three categories of building integrity:

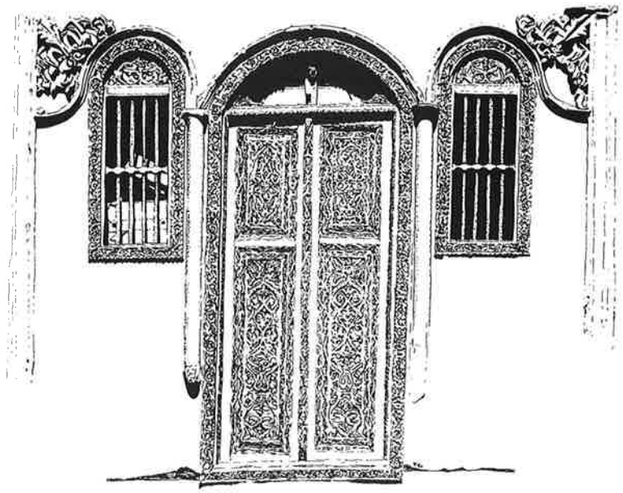
1 "Original", i.e. original and complete.

2 "Minor changes", i.e. superficial, impermanent alterations of a non-structural kind, such as the application of facing stone and plywood fascias, the replacement of timber with metal doors, the renewal of softwood "modesty" screens, etc.

3 "Major changes", i.e. permanent, structural alterations or the replacement or major architectural features, such as "rawashin", partial demolitions, extensions, etc.

TABLE 2.2 BUILDING INTEGRITY 1399-1404AH

ITEM	1399AH		1404AH	
Integrity	Nos	%	Nos	%
Original	60	11.2	4	0.8
Minor	384	71.5	135	26.1
Moderate	N/A	N/A	272	52.5
Major	93	17.3	107	20.6
TOTALS	537	100.0	518	100.0



2.10 Of the original five hundred and thirty-seven historic structures "listed" in the "Descriptive Inventory", sixty were categorised as "original", three hundred and eighty-four as "minor changes" and ninety-three as "major changes" (Table 2.2).

2.11 In his recent reappraisal of "building integrity" the Consultant decided to introduce a fourth category, "Moderate Changes", i.e. reversible, structural alterations or modification of major architectural features, such as the installation of roller shutters, "through the wall" air conditioning units and new metal framed windows. The introduction of this new category reflects the number of "listed" buildings that have been "modernised" or "beautified" over the last two years.

2.12 Of the five hundred and eighteen historic structures now extant, only four are categorised as "original", one hundred and thirty-five as "minor changes", two hundred and seventy-two as "moderate changes" and one hundred and seven as "major changes" (Table 2.2).

2.13 These figures, which represent an erosion of the architectural character and historical integrity of the "Old Jeddah Historic Area" are illustrated in the accompanying 1/1000 scale plan (Plan 2).

Building Condition

2.14 In their original visual appraisal, Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS identified four categories of building condition:

1 "Good", i.e. good structural condition and state of repair.

2 "Average", i.e. minor structural problems, such as small cracks at window and door heads, etc. requiring repair.

3 "Poor", i.e. major structural problems, such as differential settlement and open cracks, etc. requiring repair.

4 "Dilapidated", i.e. major structural problems, such as partial collapse and abandonment, etc. requiring emergency stabilisation and repair.

2.15 Of the original five hundred and thirty-seven historic structures "listed" in the "Descriptive Inventory", fifty-three were categorised as "good", two hundred and ninety-three as "average", one hundred and ninety-one as "poor" and fifteen as "dilapidated" (Table 2.3).

TABLE 2.3 BUILDING CONDITION 1399-1404AH

ITEM	1399AH		1404AH	
Condition	Nos	%	Nos	%
Good	53	9.9	53	10.2
Average/Mod	293	54.5	175	33.8
Poor	176	32.8	200	38.6
Dilapidated	15	2.8	90	17.2
TOTALS	537	100.0	518	100.0

2.16 In his recent visual reappraisal of "building condition", the Consultant decided to rename the "average" category "moderate". This is to avoid confusion between the general, overall condition of historic structures, which is "below average" and the individual condition of a single historic structure, which may be "above average".

2.17 Of the five hundred and eighteen historic structures now extant, fifty-three are categorised as "good", one hundred and seventy-five are categorised as "moderate", two hundred "poor" and ninety as "dilapidated". (Table 2.3)

2.18 These figures, which represent a deterioration of the physical fabric of the "Old Jeddah Historic Area", are illustrated in the accompanying 1/1000 scale plan (Plan 3). The reasons for this are elaborated in the following paragraphs.

Causes of Decay

2.19 The causes of decay of a single historic structure or an entire historic settlement may be divided into two major groups: "intrinsic" and "extrinsic". Intrinsic causes relate to indigenous factors, such as location, materials and construction. Extrinsic causes relate to extraneous factors, such as the actions of Nature and Humankind.

Intrinsic Causes of Decay

2.20 The principal "intrinsic" causes of decay are as follows:

1 Location

a) Microclimatic conditions modified by high rise development to the west and north of the "Old Jeddah Historic Area", which acts as a "windbreaker" reducing the natural cooling effects of the prevailing winds from the Red Sea.

b) The low bearing capacity of the ground which comprises sands, silts, gravels, clays and shell deposits overlaying raised limestone deposits, the remnants of ancient coral reefs. Bearing capacity varies from 0.2 to 2.0 Kg/sq cm.

c) The high water table, which because of local differences in permeability, varies between 1 and 3 metres below the surface.

d) The presence of high concentrations of soluble salts, mainly chlorides and sulphates, in the ground.

2 Materials

a) The low bearing capacity and porosity of the natural coral, "Madrepore", and the coralline limestone used for construction purposes.

b) The low natural resistance to insect attack of the softwood used for construction purposes.

3 Construction

a) The lack of any definable foundation, which renders the structure subject to differential settlement.

b) The lack of any damp proof course, which renders the structure subject to rising dampness and subsequent damage by soluble salts through capillary action.

c) The inadequate bonding and compaction of infill materials in masonry cavity walls, which renders them subject to bulging and splitting under compression.

d) The inadequate bonding of narrow, cross-section, solid, internal masonry walls, rendering them subject to rotation under non-axial loading.

e) The use of organic matter, such as mud taken from the bed of the al-Manqabar Lagoon and date pulp, as additives to the lime mortar binding materials.

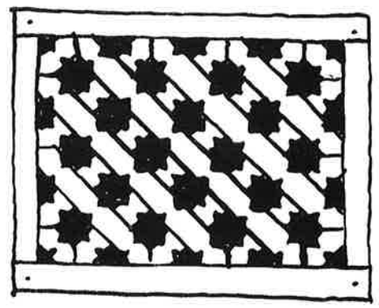
f) The lack of protection of structural timber members bedded into masonry walls, which renders them subject to insect attack and biological deterioration.

g) The lack of protection of structural timber members exposed to the air, particularly horizontal reinforcing members and natural cantilevers supporting "rawashin" or other attached structures, which renders them subject to insect attack and biological deterioration through rotting.

h) The use of vegetable matter, such as rush matting, palm fronds and twigs, to form semi-permanent shuttering for suspended floors and roofs, which renders them subject to insect attack and biological deterioration.

i) The heavy dead loading imposed on the structure, particularly beams, joists and rafters, by very thick, built-up floors and roofs.

2.21 The problems arising from intrinsic shortcomings in the traditional building methods and materials are discussed in detail elsewhere in this Report (paras. 1.44 to 1.60).



Extrinsic Causes of Decay I

Actions of Nature

2.22 The principal "extrinsic" causes of decay arising from the actions of Nature are as follows:

1 Climate

a) Because of its southerly latitude and location on the eastern shore of the Red Sea, the "Old Jeddah Historic Area" enjoys a tropical-desertic type of climate that is a cross between the Monsoon climate of the Indian Ocean and the milder climate of the Mediterranean Basin.

b) Mean monthly temperatures vary from a maximum of 43 degrees Celcius in summer (May-July) to a minimum of 14 degress Celsius in winter (December-February). The mean annual temperature is 25 degrees Celsius. During the summer months, the diurnal temperature may exceed 20 degress Celsius. Of more importance is the "glare" of the sun in the relatively cloudless skies, in particular the level of ultra violet radiation, which severely damages cell structures and reduces the level of natural oils present in exposed timbers.

c) Rainfall is spasmodic and may not occur for several years at a time. Such rainfall as does occur is often in the form of spasmodic and intense thunderstorms. Mean annual rainfall is 40 mm/annum. In some years this figure has increased greatly, for example, 1968 (173mm), 1969 (128 mm) and 1971 (106mm). A number of ancient wadis converge in the vicinity of the metropolitan city of Jeddah : the Wadi al-Shalil, the Wadi al-Fatimah and the Wadi al-Bani Malik. Because of the imperviousness of the desert ground and the intensity of the intermittent rains, flash flooding once presented a major threat to the settlement and ditches and walled basins were built across the ancient channels to the east of "Old Jeddah" to intercept the waters. The construction of stormwater ditches and interceptor channels over the last decade has lessened the likelihood of severe flooding of the "Old Jeddah Historic Area", but under the most severe conditions it remains a possibility.

d) The level of relative humidity (RH) is influenced by the Red Sea. The mean annual RH is 60 per cent. Mean monthly RH levels vary from a maximum of over 95 per cent (August) to a minimum of below 20 per cent (May). The diurnal RH range may be as much as 75 per cent. Evaporation of ground and surface water is high during the hottest months.

e) The prevailing winds are from the North and North West of the compass, i.e. from the Red Sea. As well as bringing cooling breezes on an average of one day in three, they also bring a corrosive mixture of salts suspended in micro-droplets of water. On one day in six, the prevailing winds are from the East and North East. They bring warmer air from the interior of the Arabian Peninsula. During the later summer and winter months there are occasional dust storms which deposit a coating of fine particulates over everything. These particulates attract moisture and salt deposition through evaporation.

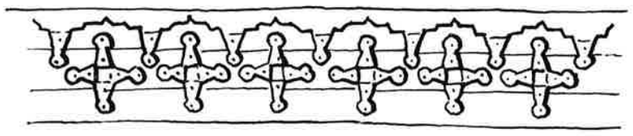
2 Insect Damage

a) In the hot and humid environment of the Red Sea coast, various species of wood boring beetle and termite flourish, aided by the practice of embedding softwood timbers into masonry walls and the addition of organic matter, such as mud and date pulp, to binding materials. In consequence, insect damage is very widespread and many timber sections have been reduced to hollow shells with "paper thin" walls. Where these timbers are hidden and not subject to inspection, sudden collapse occasionally occurs.

3 Biological Deterioration

a) As in the case of insects, the hot and humid environment of the Red Sea coast is ideal for the growth of various species of fungi and higher forms of life. In the presence of water, from leaking pipes or drains, dripping air conditioners, etc. algae and lichen grows, discolouring the facades of historic structures. Fungi and wood rotting infestations are common in softwood timber members embedded into masonry walls. Again, where these timbers are hidden and not subject to inspection, particularly in poorly drained roofs, sudden collapse occasionally occurs.

b) Higher forms of plant life, such as grass, shrubs and trees, all flourish given an adequate supply of water. The roots of plants may seek out water in a structure, spreading through the masonry and causing local cracking as they grow. There are a number of large trees within the "Old Jeddah Historic Area" which provide shade, some of which are very close to historic structures. However, there is no reason to believe that they represent a threat to the stability of these structures at the present time.



Extrinsic Causes of Decay II

Actions of Humankind

2.23 The principal "extrinsic" causes of decay arising from the actions of Humankind are as follows:

1 Lack of Maintenance

a) The problems arising from intrinsic shortcomings in the traditional materials and methods of construction of the past, are greatly worsened by lack of maintenance. In some cases, deliberate neglect has reduced a number of historic structures to a critical state. A typical problem is broken or blocked soil pipes, from which liquid waste products seep into the masonry. As well as representing a hazard to public health, such seepage presents a threat to the historic structure through the accumulation of soluble salts in the masonry.

b) Other problems include allowing the protecting surface coating of lime plaster to fall into disrepair and failure to protect exposed timber from the effects of the sun. Insect infestation and biological deterioration is allowed to continue unchecked. As a result, few buildings are wind and watertight and most suffer from insect damage and rotting timbers. Many are also discoloured by organic growths and have vegetable matter growing from their roofs or other surfaces.

2 Impact Damage

a) Because of limited manoeuvrability, traffic attempting to negotiate the narrow, meandering streets of "Old Jeddah Historic Area" often collide with historic structures. In the majority of cases, involving lightweight vehicles, this causes little damage other than the loss of some paint and a damaged fender or two. However, where the collision involves a larger, commercial vehicle, such as a refuse truck or a bus, considerable damage may be sustained, particularly by projecting structures, such as cantilevered "rawashin".

3 Changes of Use

a) Partial change of use is common in the commercial section of the "Old Jeddah Historic Area", i.e. in the vicinity of the souks and main thoroughfares, where the ground floors of many former residential town houses and mansions have been converted to use as shops and storehouses. The resulting intensification of use placed additional stress on the fabric of historic structures by increased superimposed loads and alterations to improve access and security. These changes usually manifest themselves in the form of blocked or steel shuttered windows, roller shutters, facing stone, new shopfronts, "through the wall" air conditioners, fluorescent strip lights, advertising boards and plywood fascias. The resulting effects on the historic structures themselves also have a broader effect on the overall "townscape" which underlies the need to approach on a broad front rather than in the context of individual "listed" buildings.

4 Intensification of Use

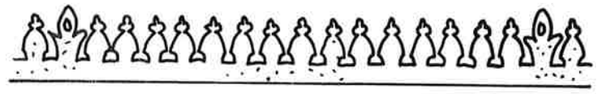
a) Over the last ten to fifteen years, the more affluent members of the community have moved out of the historic core of "Old Jeddah", leaving it to the poorer members, whose numbers have been swelled by non-Saudi immigration. In consequence, many historic structures have been subdivided into small apartments or rooming houses. The resulting intensification of use arising from multiple occupancy places stresses on the historic structure. Rooms are subdivided by partitions, electricity and water supplies are hastily installed without regard to the damage done to the structure by cutting through joinery and knocking through walls. There is also an additional load placed on sewage disposal facilities which subsequently leads to failure.

5 Poor Quality Repairs

a) There is a natural tendency to use the cheapest materials and labour to effect repairs throughout the "Old Jeddah Historic Area", the result of which is to erode its architectural character and historical integrity.

b) No regard is paid to existing joinery details, for example, finely crafted panelling is discarded or boarded over and beautifically carved doors are replaced with mild steel doors. Most sadly, decayed "rawashin" are often removed in their entirety and replaced by an aluminium framed window set into a wall, of concrete blockwork or brickwork. There are very few conscientious attempts to simply repair damaged or decayed joinery.

c) The same observations apply to the repair of damaged or decayed lime plasterwork, which is repaired with Portland cement with subsequent disastrous effects that are elaborated in detail elsewhere in this Report (paras. 3.12 to 3.14).



6 Faulty Restoration

a) Over the last five years there has been a welcome revival of interest in the "Old Jeddah Historic Area" and a considerable investment of both private and public funds has been made in restoration works. The results of these works have not always been satisfactory for a number of reasons:

i) the lack of any preliminary study and analysis of the problems;
ii) the lack of any recording or documentation of the structure prior to the commencement of works;
iii) the lack of any study of the original building materials and methods of construction;
iv) the tendency to "replace" decayed or damaged building elements, such as plasterwork and joinery, rather than to "restore" them in the traditional manner;
v) the shortage of traditional building materials, such as lime and well seasoned timber;
vi) the shortage of skilled craftsmen and tradesmen, familiar with the principles and practices of conservation work;
vii) the shortage of architects, engineers and planners with an academic grounding in the principles and practices of conservation work and practical experience in the field;
viii) the shortage of contractors with practical experience of conservation works;
ix) the lack of technical literature and guidance available locally to property owners, contractors, architects, engineers and all those engaged in conservation works;
x) the lack of any centralised "resource" centre where interested parties can gather to exchange information on all aspects of conservation work.

7 Beautification

a) Over the last five years, considerable progress has been made with "beautification" projects in the "Old Jeddah Historic Area". This has involved the asphalting of roads, the paving of pedestrian areas, the planting of once vacant and abandoned sites and the installation of street lighting. The effect of these works has been to transform the area's appearance from that of a "run down" section of the metropolitan city of Jeddah's Central Business District to that of a thriving local community.

b) However, there is one aspect of these works that does give rise to concern, i.e. the long term effect on the movement of ground water resulting from: (i) the permanent bedding of pavers on concrete and cement; and (ii) the raising of the finished street levels above the floors of adjoining historic structures. Already, there is some evidence to suggest that the problem of rising dampness caused by capillary action and the subsequent transfer of soluble salts from the water into the masonry walls has been aggravated. An examination of the long term effects of this problem is outside the scope of this Report, but the problem is one that should be examined as a matter of priority.

c) It should also be noted that permanent bedding of pavers also makes the repair of below ground utilities a much more difficult and expensive job as lifting will involve more effort and greater breakages.

8 Unauthorised Extensions and Alterations

a) The unauthorised extension of historic structures is a widespread practice and usually takes the form of an additional storey being built on the roof. These extensions are normally constructed of concrete blockwork or brickwork. Some less permanent extensions are constructed of timber framing covered with boarding, panelling or other sheeting materials and resemble "shanties" in appearance. Apart from their visual impact and the additional dead load imposed on the structure, some of the less permanent structures also represent a fire hazard because of flammable materials used in their construction.

b) Similarly, the unauthorised alteration of historic structures is a widespread practice. It takes many forms, of which the most common are:

i) the "cutting out" of panelling, grilles and other joinery to accommodate "through the wall" air conditioners;
ii) the "cutting out" of mullions to accommodate new, aluminium framed windows, some of them inset into "rawashin" of fine quality workmanship;
iii) the replastering and roughcasting of walls;
iv) the demolition of arches and columns and the installation of steel and concrete lintels.

9 Encroachment

a) The construction of large, modern structures on small "gap" sites in the "Old Jeddah Historic Area" has resulted in many historic structures being overwhelmed by the scale of their new neighbours. This is due both to the number of storeys and the amount of site coverage permitted.

b) In addition, the skyline is being lost amid the growing number of high rise buildings. The minarets of "Old Jeddah" have been replaced by office blocks as navigational aids to mariners negotiating the dif

ficult channel approaches to the Islamic Port. The most recent newcomer, the National Commercial Bank Headquarters, completely dominates the north western sector of the "Old Jeddah Historic Area".

c) Because of the uncertainty that looms over some sections of the "Old Jeddah Historic Area", particularly those to the west of King Faisal Road and to the south of the main souk, many historic structures have been allowed to deteriorate to a very poor state of repair in anticipation of clearance and redevelopment.

d) This situation should not be allowed to continue and the opportunity should be taken to prepare a series of local "Conservation Area Plans" to revitalise these "blighted" areas before the decline becomes irreversible.

10 Car Parking

a) Despite efforts to control vehicular access through the placement of steel bollards and concrete blocks at the entrance to some pedestrian areas, car parking remains a major problem. It is most serious in the north western sector of the "Old Jeddah Historic Area", where adjoining commercial development, such as the recently completed Red Sea Palace Hotel, places an extra car parking burden on the local area.

b) The use of pedestrian areas, including pavements, for car parking represents a hazard to pedestrians, particularly children, and discolours the pavers with oil and rubber. Parked cars also hinder the efforts of the Municipality of Jeddah to keep the streets and pavements clean.

c) Because of the scale of the problem, it will not be simply alle viated by the introduction of traffic management schemes. The construction of large, multi-storey, peripheral car parks is necessary.

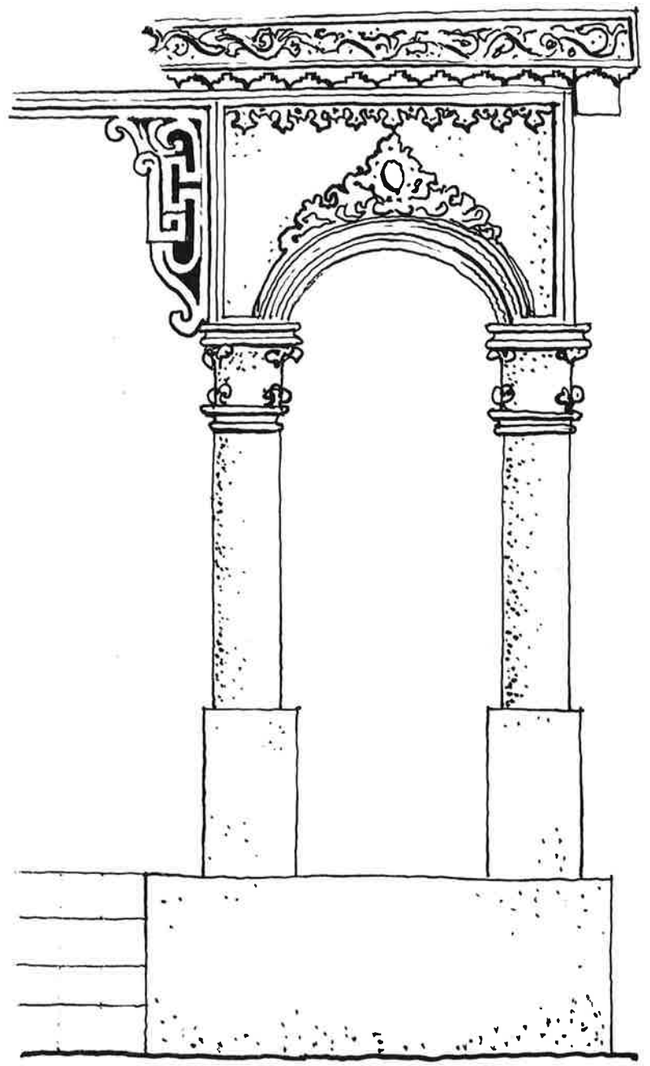
11 Fire Damage

a) Over the last five years there have been a number of serious fires in the "Old Jeddah Historic Area", the most serious of which destroyed or damaged nine "listed" buildings in the vicinity of the Masjid al-Hanafi Mosque. The loss of so large an "ensemble" of historic structures, which formed the setting for this most celebrated mosque, is very serious for the area to the west of King Faisal Road and the future of the site must be examined in detail.

b) To prevent any recurrence of so disastrous a fire, it is important that historic structures should be properly protected and that the use of combustible materials be kept to a minimum. Commercial premises are particularly at risk, because of their stock and the number of unsupervised persons using the premises each day.

Postscript

2.24 In the preceding paragraphs, the Consultant has attempted to summarise the existing conditions within the "Old Jeddah Historic Area" and to compare them to those of five years ago. Undoubtedly, great strides have been made by the Municipality, particularly with regard to the encouragement of confidence in the area's future and the attraction of private and public investment. However, some fundamental problems have still to be tackled, for although the rate at which the area was being eroded five years ago has been slowed, it has not been stopped and the architectural character and historical integrity of the area continues to decline. Some sections have reached a critical stage and require urgent intervention to prevent an irreversible decline and subsequent demolition and redevelopment. So too, do a number of historic structures. The need now is for a properly considered conservation policy with clearly identified priorities backed up at the highest level with professional expertise.



Entrance porch of House No. 142

Three Care and Maintenance of Buildings

Care and Maintenance

Principles and Practices

3.1 The preservation and recycling of resources is a concept that is gradually finding acceptance for both economic and cultural reasons. It is now understood that the environmental qualities that have gradually developed over generations and which find such elegant expression in the architectural heritage of the "Old Jeddah Historic Area", represent a harmonious balance between many factors including climate, materials and cultural traditions that represent an irreplaceable cultural resource.

3.2 Technical responsibility for preserving this resource should not be entrusted to general contractors who are only experienced in the use of modern materials and technologies and who approach the problems of repair and restoration in a haphazard way by the use of Portland cement, plywood, synthetic paints and similar materials with a view to creating a "modern" appearance quickly and cheaply.

3.3 As previously noted in para. 0.4, one of the three purposes of this Report is to propose what future action is necessary to ensure the continued preservation and protection of the "Old Jeddah Historic Area". Accordingly, it has dealt in some depth with the questions of historical development, architectural character, materials, construction and causes of decay, as the result of which it is hoped that the idea of each "listed" structure having individual characteristics, problems and needs has been clearly established. What is required is specialist knowledge combined with practical experience of these historic structures, expertise which today is possessed by a dwindling body of master builders and craftsmen who, given the right conditions, can still produce workmanship of good quality and who can be instructed in the principles and practices of conservation.

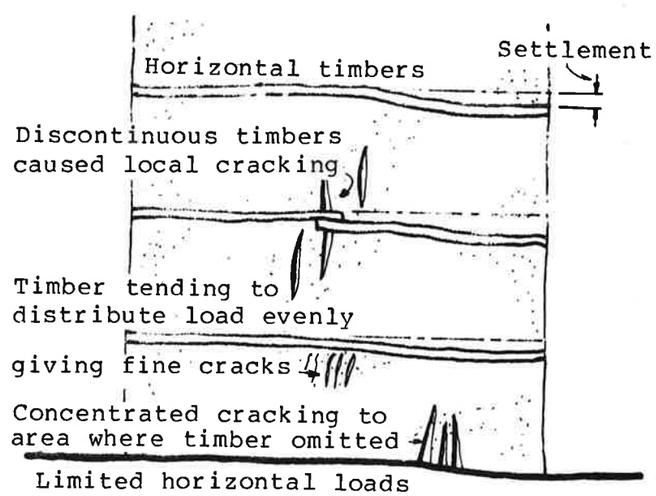
3.4 In order to illustrate how these conservation principles and practices may be applied to the care and maintenance of "listed" buildings, some problems of special relevance are considered under the following headings:

- Foundations, Walls and Plasterwork
- Disadvantages of Portland Cement
- Structural Timber
- Carpentry and Joinery

Foundations, Walls and Plasterwork

3.5 The long term structural stability of any structure is a function of both the degree and mode of its settlement. Due to the variable formation of the ground and foundation structures, differential settlement is a widespread problem. However, unless the instability threatens the integrity of the structure so that it becomes a threat to public safety, such distortions should be seen as part of the building's character like the creases in an old man's face, an indication of maturity and worthy of respect. This is not to suggest that neglect is the best policy. On the contrary, every care should be taken to minimise the likelihood of further damage arising, for example, from vibration caused by vehicular traffic and construction works.

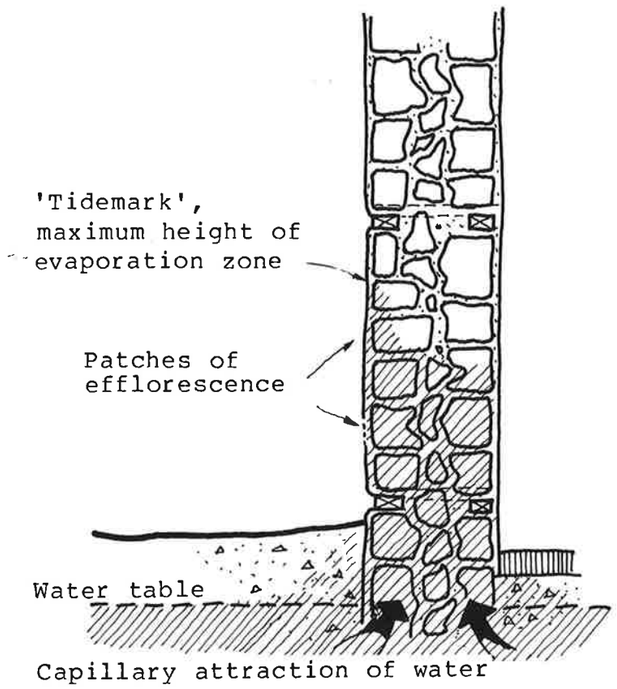
3.6 The development of "gap" sites with "infill" buildings should be encouraged within the "Old Jeddah Historic Area". However, such structures should be in scale with their neighbours and draw inspiration from them in their design. Large structures require deep pile foundations and basements, which may greatly effect the stability of adjoining historic structures. Furthermore, the pumping of ground water may cause the migration of water-borne fines which, due to the variable formation of the ground, may in turn affect historic structures some distance away from the works. The effects may occur after a long time has elapsed. Heavy vehicles entering the site and the operation of mechanical equipment may add to these effects. All these factors underline the need to adhere strictly to the existing building control regulations to avoid "overdevelopment".



Typical external elevation showing crack distribution caused by differential settlement.

Figure 3.1
External Cracking in Walls

3.7 With traditional methods of construction, the ground water table is often reached at a depth of 1 metre to 1.5 metres, which may affect the lower parts of the masonry wall by capillary moisture. The evaporation zone, where crystallisation of salts occur, will show as patches of effluorescence or unevenness indicating the destruction of plasterwork and masonry. This problem is made more acute by the lack of a damp proof course.



Capillary attraction of water

High water table means an increased height of capillary attraction of water above ground level
Resulting salts are destroying masonry, mortar and plaster

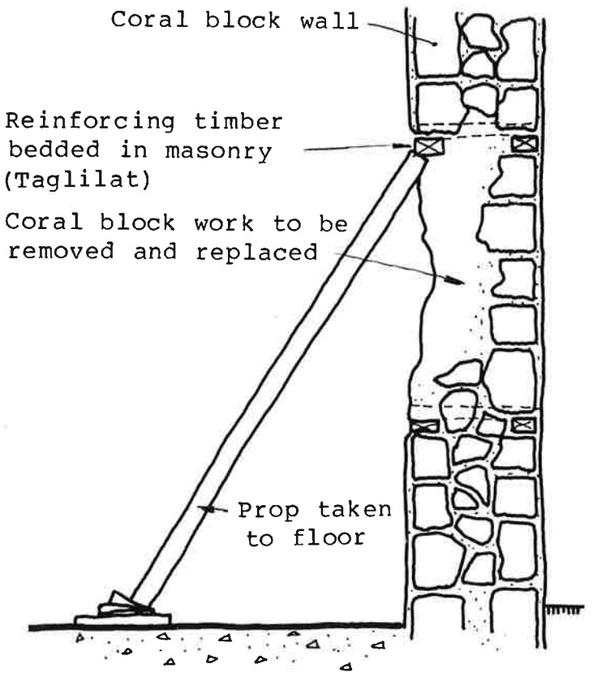
Figure 3.2
Capillary Action in Walls

3.8 For economic reasons, it is not feasible to introduce a horizontal damp proof course into the thick coral rag and ashlar walls of these structures. Most of the damage is at the surface of the wall where evaporation takes place and does not present too serious a problem so long as the lime plaster is regularly replaced. The use of such a "sacrificial coat" is an acceptable solution to the problem of rising dampness which has a historical precedence. However, the substitution of Portland cement for lime plaster and the application of synthetic surface coatings has a profoundly serious effect on this cycle, trapping the moisture within the structure and forcing it ever higher in search of a porous area through which it can evaporate. If there is a sufficiently high pressure of water within the wall, it may "blow off" the impervious facing of Portland cement.

3.9 One way of reducing rising damp in a structure is to lower the water table of the surrounding area. This is done by installing a ring system of drains laid to fall and excavating a trench backfilled with gravel. The result is a "dry zone" around the structure which reduces capillary action. In an urban situation such as the "Old Jeddah Historic Area", there are obvious limitations to the application of this solution.

3.10 Recently, the problem of "rising damp" due to capillary action has been greatly aggravated by paving most of the previously unpaved streets and alleyways of the "Old Jeddah Historic Area". The reasons for this are twofold: firstly, the impervious paving slabs are laid on a concrete bed which prevents the ground from breathing and releases moisture through evaporation; and secondly, the finished levels of roads and pavements have been raised so that the floor levels of adjoining structures are now below the threshold. Consequently, moisture that is trapped below ground seeks an alternative route, moving directly into walls of inhabited rooms with possible long term affects on the structure.

3.11 Where walls are showing signs of structural failure, the cause should be investigated and they should be stabilised. In severe cases, it may be necessary to dismantle the wall "piece by piece" and to reconstruct it to match the original. Care must be taken to ensure that it is properly tied into the structure.



By propping up horizontal timber members small portions of wall may be removed for renovation

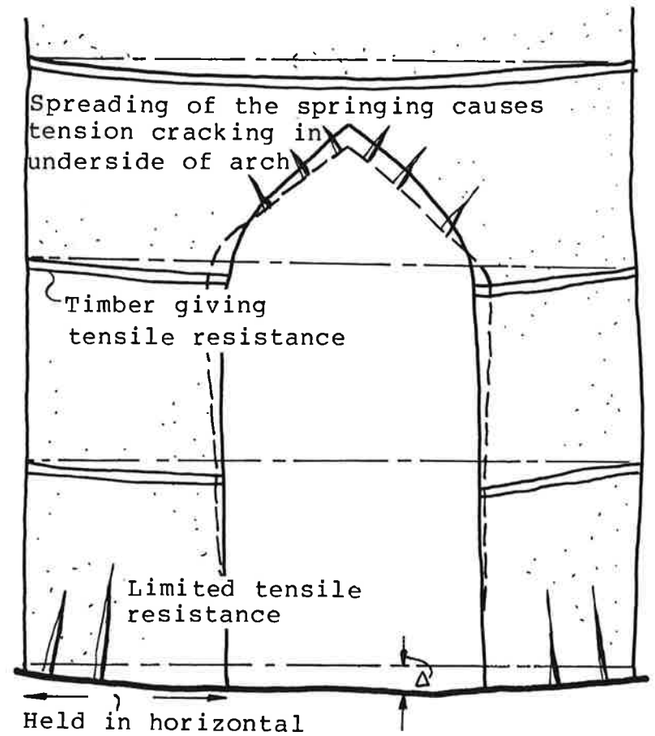
Figure 3.3
Method of Wall Renovation

Disadvantages of Portland Cement

3.12 As previously noted, the present widespread use of Portland cement is doing more harm than good to the "listed" structures of the "Old Jeddah Historic Area" as the material's working qualities are wholly incompatible with those of traditional construction materials. In its various forms, cement is an appropriate material for modern structures where its strength and quick setting properties are necessary. Under strict professional guidance, it is also useful for certain works related to strengthening and consolidating historic structures. However, it is incorrect to conclude that a "strong" mortar gives a "strong" structure. Such binding materials should never be stronger than the materials that they bind, but should be sufficiently resilient to accommodate minor structural movements in the masonry.

3.13 Over-strong mortars will not only "craze" on setting, causing localised mechanical stress on adjacent materials, but will also tend to be more impervious, thus inhibiting "drying out" through the joints and confining the movement of moisture to the stones themselves, hastening their decay. The same considerations apply to the use of cement plaster, which traps moisture and causes loss of adhesion between the facing and its support. In part, this is also due to differing thermal characteristics, the cement plaster being considerably less plastic than the supporting wall. Aesthetically, cement plaster does not blend well, presenting a "steely" finish that contrasts sharply with the smooth and milky texture of lime plaster.

3.14 The traditional use of "fat" and well slaked lime, mixed in the ratio of 1 part of lime to 3 parts of coarse sand, is to be preferred over ready made hydrated lime as its working qualities improve over time. If an increase in strength is required, then the proportion of Portland cement added to the mix should not exceed 10 per cent of the lime by volume. The setting and weathering characteristics of lime mortar and lime plaster may also be improved by adding some pozzuolanic materials. The various specifications of lime mortars and plasters used in the construction of "listed" structures should be a subject of special study.



High concentration of load of arch: local settlement causing cracking

Figure 3.4
Cracking of Arches

Structural Timber

3.15 Softwoods are particularly susceptible to insect attack and biological deterioration, particularly in the humid conditions prevailing in the summer. As well as wood boring beetles and other pests, there is the additional problem of termite infestation which may reduce a substantial timber member to little more than a paper thin membrane incapable of supporting its own weight. Exposed timbers and timbers embedded into the ground are particularly subject to attack and sudden failure. Biological deterioration may also render timber members structurally unsound, particularly where they are embedded in masonry. Here too collapse may be sudden and catastrophic. Hardwoods are less susceptible, but they too may be severely damaged.

3.16 Thus, it is important that structural timber members be routinely examined for evidence of insect attack or biological deterioration, particular attention being given to lintels, beam ends, bearers and other structural timbers. In cases of severe deterioration, it may be necessary to replace the affected timber member with a new one suitably treated with a proprietary preservative.

3.17 The selection of timber is also of importance and should be done with great care as much of the locally available softwood is of poor quality and unsuitable for use in restoration work. The choice of timber will, to some extent, also affect the technique of preservation, for although the sapwood is less resistant to insect attack and biological deterioration, it is more easily treated by pressure impregnation. The opposite is true for the relatively resilient heartwood and it may well be that treated sapwood is less resilient than untreated heartwood of the more durable species.

3.18 A major cause of biological deterioration is water, a fact which is often neglected in Jeddah where rainfall

so rarely occurs. However, water may be equally damaging if it comes from a damaged water pipe, a blocked drain or a dripping air conditioner and measures should be taken to ensure that water is properly conducted away from the structure. Roofs should be watertight and laid to fall to ensure proper drainage.

Carpentry and Joinery

3.19 The restoration and repair of panelled, carved, turned and fretted timber members presents a more complex problem for many fine examples of the carpenter's and the joiner's art are quite literally "irreplaceable". They are disappearing fast and more attention should be given to this work than is paid to it now.

3.20 The better quality work is executed in hardwood, which was preferred because of its dimensional stability, weathering qualities and resistance to insect attack and biological deterioration. These were important qualities as no protective surface coating was applied during the "Turkish" period. Over the years, these exposed timbers have aged to a delicate silvery grey-brown colour, which goes well with the pale blue and ochre colour washes of the masonry. But even hardwood is subject to deterioration if neglected and many "rawashin" are now in a critical condition.

3.21 The present fashion for coating all exposed timber members, windows and "rawashin" with a thick layer of dull brown household paint should be discouraged. Though maintenance is to be welcomed in priciple, this is not the manner in which it should be tackled, for the results are unsatisfactory for three reasons: first, the surface is not properly prepared, no effort being made to clean away the old paintwork and accumulated grime and dust of decades; secondly, no research has been undertaken into the question of colour and its use in the past; thirdly, the application of a thick coating of paint obscures the texture of the timber and the finer joinery details, particularly shallow relief carving and panelling.

3.22 A more appropriate treatment would be the application of a liquid wood, water repellent, preservative coating, which would be absorbed to a considerable depth affording resistance to ultraviolet light as well as resistance to insect attack and biological deterioration. The selection of a suitable preservative, whether it be tar oil, an organic solvent or a water borne preservative, is a specialist task requiring consultation and controlled field tests.

3.23 Some timber structures may be made good simply by thorough cleaning using a stiff brush and a solution of ammonia. Thereafter, a coating of wood preservative should be applied in accordance with the manufacturer's recommendations.

3.24 In the case of a few "museum" quality examples of exquisitely carved "rawashin", it may be necessary to carefully dismantle the timber structure so that individual members may be consolidated by using fibre glass reinforcement and epoxy resin repairs. This is very specialised work that should not be attempted by inexperienced workmen. The structure should be fully documented prior to the commencement of works and faithfully reconstructed after consolidation.

3.25 The decision to replace severely damaged members should only be taken as a last resort, in which case they should be discretely date stamped or marked as a new structural or decorative element.

3.26 On no account should attempts be made to "jack up" distorted structures without professional advice and supervision.

Four

Conclusions

4.1 For more than a century, the traditional structures of "Old Jeddah" successfully fulfilled the needs of its inhabitants as a living and working environment. However, due to increased living standards and rising levels of expectation, those needs are no longer so simply fulfilled and many of the old families have moved out to the peripheral areas developed over the last twenty years. Many historic structures have been subdivided and let to non-Saudis, poorer newcomers to the community who have no links to the traditions of the past.

4.2 The changing social, economic and cultural characteristics of the "Old Jeddah Historic Area" are reflected in a number of ways. For example, the neglect and subsequent deterioration of some "listed" buildings owned by absentee landlords and the execution of authorised alterations, extensions and demolitions affecting the character of the structure and its integrity as a historical document.

4.3 As previously described in paras. 1.23 and 1.25, Jeddah has been subject to dramatic changes since the demolition of its encompassing wall in 1367AH/1947, since when the population has risen nearly fiftyfold from 30,000 to more than 1.5 million inhabitants. This expansion has placed stress on the "Old Jeddah Historic Area" which forms part of the modern metropolitan city of Jeddah's Central Business District. Vastly inflated land values now place a premium on sites located close to the city's principal thoroughfares and it is natural that property owners should seek to capitalise on their assets by seeking permission for commercial redevelopment. The alternative, of maintaining an ageing structure producing a moderate income is not an attractive one for many property owners.

4.4 Yet conservation need not be an expensive luxury. Properly managed, within the context of an enlightened conservation policy, improvements in the built environment can bring about increased investment and profitability through environmental improvements which attract more visitors and shoppers seeking both goods and services. In such a setting, living "in town", close to offices, shops and restaurants becomes an attractive proposition to many professional people, as has been demonstrated in many historic cities, such as Paris, Boston, Quebec, Sydney and Edinburgh.

Jeddah Today, 1984

Recommendations

4.5 In this context, the Mayor of Jeddah, His Excellency Engineer Mohammed Said Farsi, has played an invaluable role as the champion of "Old Jeddah", constantly seeking to "... keep out what is harmful and bring in what is useful" in both his private capacity as an architect and patron of the Islamic Arts, and his public capacity as the Municipality of Jeddah's Chief Executive.

4.6 The adoption, five years ago, of a comprehensive plan for conserving the "Old Jeddah Historic Area" and the compilation of a "Descriptive Inventory of Buildings of Architectural and Historical Significance" marked the first step in a long and ambitious campaign. Since then, there have been both advances and setbacks.

4.7 Over the last two years, a number of Class 1 "listed" buildings have been acquired and repaired by the Municipality of Jeddah as part of their policy of taking all such buildings into public ownership. Of the six so far acquired, five have been repaired by a team of Tunisian craftsmen invited to Jeddah for this express purpose. Two of these buildings, Beit Sharbatly and Beit Jugdha, have been designated for use as local museums. Government departments have also been encouraged to acquire "listed" buildings for official use and the Beit Nasif, one of the city's most prominent landmarks, has been opened to the public of the first time by the Ministry of Education. The Municipality is also encouraging developers, private citizens and companies to invest in the future of the "Old Jeddah Historic Area".

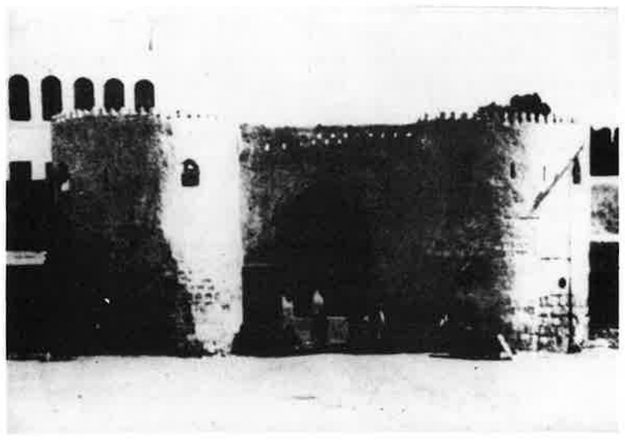
4.8 To date, more than SR 120 million has been spent on "beautification", namely asphalting, paving, street lighting and landscaping works, and work has now commenced on the construction of

"replicas" of the gateways that once guarded the approaches to "Old Jeddah": Bab Makkah, Bab al-Madinah and Bab al-Sharif.

4.9 The interest that this public initiative has generated has, however, had some unfortunate side effects, for many property owners and tenants have sought to give their properties a rapid "facelift" by replacing decayed or damaged features, particularly "rawashin", with modern reproductions that lack the proportions, detailing and workmanship of the originals. This trend presents a major threat to the historical integrity of many "listed" structures and steps should be taken to control it without delay. The dangers of using Portland cement mortar and plaster have been elaborated in some detail and steps should also be taken to control this equally damaging trend.

4.10 Rising dampness, aggravated by bedding pavers on concrete, could be moderated by bedding them on sand. This would also facilitate maintenance of below ground utilities.

4.11 Natural disasters, such as structural collapse and fire damage, have also taken their toll over the last five years stressing the need for regular inspection and the enforcement of regulations.



Bab al-Medina, circa 1940's

Recommendations

4.12 Having made so impressive a start on conserving the "Old Jeddah Historic Area", it is essential that the current public support for that policy be maintained. Having clearly established the benefits to be enjoyed by implementing such a policy, the time is now right to refine that policy through the introductin of a number of measures. These measures are outlined under the following headings:

- Administrative Measures
- Financial Measures
- Technical Measures
- Legal Measures
- Educational Measures
- Planning Measures

Administrative Measures

4.13 The creation of the al-Balad Branch Municipality, whose chief officer is charged with responsibility for preserving and protecting the "Old Jeddah Historic Area", has greatly eased the problem of implementing the 1399AH/1979 Urban Design Plan prepared by Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS. However, the lack of engineers trained and experienced in conservation work remains a serious problem. The establishment of a specialist "Conservation Centre" under the direction of His Excellency Engineer Saud al-Gufaidy, Deputy Mayor of al-Balad Branch Municipality is therefore a matter of priority.

4.14 The duties of the proposed Conservation Centre would be as follows:

1 Cataloguing of all known records relating to "Old Jeddah", including plans, surveys, prints, photographs and other material of interest.

2 Compilation of detailed information on traditional building materials and methods of construction.

3 Establishment of a specialised technical library to act as a documentation centre.

4 Preparation of a detailed conservation "handbook" describing the principles and practices to be followed in all conservation works.

5 Establishment of a permanent exhibition of "Old Jeddah" chronicling its development and architectural heritage.

6 Establishment of a register of local craftsmen and tradesmen approved for working on "listed" buildings.

7 Establishment of an architectural store of salvaged traditional building materials, fittings and fixtures, for example, doors, windows, rawashin, grilles, fretwork, tiles, etc., these items to be refurbished for subsequent use in conservation works.

8 Advising on the issue of building permits and planning permits.

9 Provision of advisory service on all aspects of restoring and repairing "listed" buildings to property owners and tenants.

10 Checking that all approved works are completed in accordance with plans and permits.

11 Taking action to ensure that "listed" buildings do not fall into disrepair through neglect or abandonment by their owners.

12 Researching into all aspects of conservation policy, for example, new uses for vacant buildings, assessment of new building materials suitable for conservation works, etc.

13 Publication of papers on various research topics, for example, the specification of lime mortars and plasters for conservation work.

14 Encouragement of public interest in "Old Jeddah" by the issue of information bulletins describing current projects.

15 Liaison with learned and professional bodies to stimulate interest in the Islamic building and planning tradition of "Old Jeddah".

16 Promotion of fund raising activities through public appeals to the business community.

4.15 Because of the range and complexity of the issues involved and the scale and importance of the task, as well as the need for public support, if the proposed Conservation Centre is to operate successfully, it is essential that it be supported at the highest level. A "Conservation Committee" should therefore be established, under the Chairmanship of the Mayor of Jeddah, His Excellency Engineer Mohammed Said Farsi, to review the progress made towards the achievement of conservation objectives as defined in consultations between technical staff of the proposed Conservation Centre and senior officers of the Municipality of Jeddah.

4.16 In this context it is also recommended that priorities be established for public investment in conservation works, so that resources can be directed to these "listed" buildings most in need of intervention to ensure their continued preservation. In developing such a strategy it is important that the costs of not intervening be properly calculated, for a timely investment now may result in a very considerable saving in the future.

4.17 The first step in the process of establishing priorities is the identification of what, for the want of a better term, may be called "Landmark Buildings", that is "listed" buildings which as well as representing unique and outstanding examples of their type also contribute to the creation of a "sense of place" within the "Old Jeddah Historic Area", for example, Beit Nasif,

whose loss would far exceed their individual significance. A draft "Register of Landmark Buildings" is included in the Appendices to this Report (Appendix B).

4.18 In the case of "Landmark Buildings", the highest technical and aesthetic standards should be applied. Having respect for the valid contributions of later periods to the historical development of the structure, care should be taken to ensure that its character is correctly restored through detailed research. Conservation works involving replacement should only be contemplated as the last resort and only after comprehensive documentation under professional supervision. To ensure that the structure continues to fulfil a role in the community, every effort should also be made to find a suitable use, i.e. one that does not conflict with its character nor requires drastic internal alterations. Consideration of these matters should form part of the duties of the staff of the proposed "Conservation Centre".

Financial Measures

4.19 Because of the higher standards of workmanship and materials required for the restoration and repair of "listed" buildings, the cost of such works is inevitably higher than that of routine repair works. Bridging this cost difference presents a problem for some property owners and tenants and thought must be given to the question of assistance, either financially or in kind, through the supply of subsidised materials or labour, to deserving applicants undertaking approved conservation works.

4.20 Grants, subsidies or loans repayable over long periods at low rates of interest, should be offered by the Municipality of Jeddah to cover the difference in cost, priority being given to "Landmark Buildings". Since the restoration and repair of historic building groups is likely to be more economic, every effort should be made to encourage property owners and tenants to combine together in "Joint Schemes" to conserve local neighbourhoods.

4.21 The administration and organisation of financial support should be based on detailed cost estimates prepared by licensed engineers. Approval should be dependent on two basic considerations: first, the fulfilment of such conditions as the Municipality of Jeddah shall specify; and secondly, the progress of the works and standard of workmanship and materials.

4.22 Because of the purchasing power of the Municipality of Jeddah, it should be possible to obtain materials, such as lime, at more competitive prices. Again, subject to safeguards, this price reduction should be passed on to approved applicants for assistance. Similarly, the Municipality should maintain a pool of registered craftsmen and tradesmen whose skills should be drawn on at a reduced cost.

Technical Measures

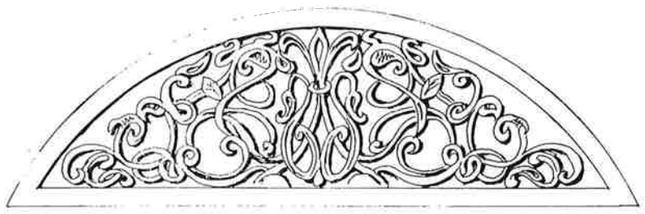
4.23 The repair and restoration of historic structures is a continuous process that is closely related to knowledge of traditional craft skills and building materials. Accordingly, the importance of maintaining a pool of skilled craftsmen and tradesmen cannot be over emphasised. Such men of proven practical experience should be registered by the Municipality of Jeddah and guaranteed a steady flow of conservation work. Property owners and tenants seeking assistance would be required to use their skills as part of their agreement with the Municipality of Jeddah. Apprenticeships should be financed by the Municipality of Jeddah or private companies in the building industry.

4.24 In the last two years, the Municipality of Jeddah has begun to restore and repair historic structures. Some mistakes have inevitably been made in these works, mistakes that could have been avoided with proper professional guidance and technical assistance. Modern courses in architecture and engineering do not provide a grounding in the specialised problems of conservation and there is a need for postgraduate training in this field, training which if possible should be undertaken within the Islamic World. Alternatively, future "official" projects should only be undertaken under the direction of a qualified "Conservator" able to train young architects and engineers "on the job".

4.25 There is also a pressing need for a "Manual on the Care and Maintenance of Historic Structures". Such a manual, which would serve as a guide to property owners, tenants, contractors, architects, engineers and administrators alike, would clearly "spell out" the procedures to be followed under the headings below:

- General Principles
- Surveys and Documentation
- Diagnosis of Defects
- Causes of Decay
- Emergency Interventions
- Stabilisation
- Dampness and Salts
- Insect Infestation
- Masonry Walls
- Mortars and Plasters
- Concrete and Cement
- Suspending Floors and Ceilings
- Solid Floors
- Roofs
- Windows, Doors and External Joinery
- Internal Joinery
- Glass
- Surface Coastings
- Wallpaintings
- Water Supply and Drainage
- Electricity Supply
- Fire Protection

4.26 Sections of the "Manual" should be available for free distribution to owners and tenants of "listed" buildings through the proposed "Conservation Centre", so that a broader public may be made aware of how the problems of repair and restoration should be approached. This should be reinforced through a permanent exhibition at the proposed "Conservation Centre", for it is only through general understanding and acceptance of the aims and principles of conservation that the "Old Jeddah Historic Area" will be preserved and enhanced for future generations to enjoy and experience how their fathers lived.



Legal Measures

4.27 Five years ago, Consultants ROBERT MATTHEW, JOHNSON-MARSHALL & PARTNERS recommended that the then existing "Zoning, Bulk and Height Regulations" be supplemented by "Special (Conservation Policy) Regulations" to be applicable to designated "listed" buildings and "non-listed" buildings situated within a "Conservation" area. These same regulations covered such aspects as the control of "vacant land (eyesores)", "trees" and "advertisements".

4.28 The Consultant is still of the opinion that, if properly enforced, these planning regulations would greatly improve the chances of the "Old Jeddah Historic Area" surviving as an entity and not being gradually eroded and ultimately broken up into isolated oases of historic structures.

4.29 It cannot be reiterated too strongly that property owners and tenants of "listed" buildings should be fully aware of their duties to the community as guardians of the city's architectural heritage. The fact that a property is "listed" and subject to special planning controls should be recorded on the title deeds.

4.30 Because "listing" limits the use to which a historic structure may be put and prohibits its demolition, there is a tendency for some property owners to allow their properties to deteriorate to such an extent that they become dangerous and present a threat to public safety. In such cases of deliberate neglect, the Municipality of Jeddah should instruct the offending property owners to carry out essential repairs, issuing a "Repair Notice" describing the necessary works to be completed within a fixed period. The possibility of the Municipality of Jeddah either acquiring the building for restoration or completing the repairs at the owner's expense should also be considered.

حدود منطقة المحافظة على المباني

Boundary of conservation area

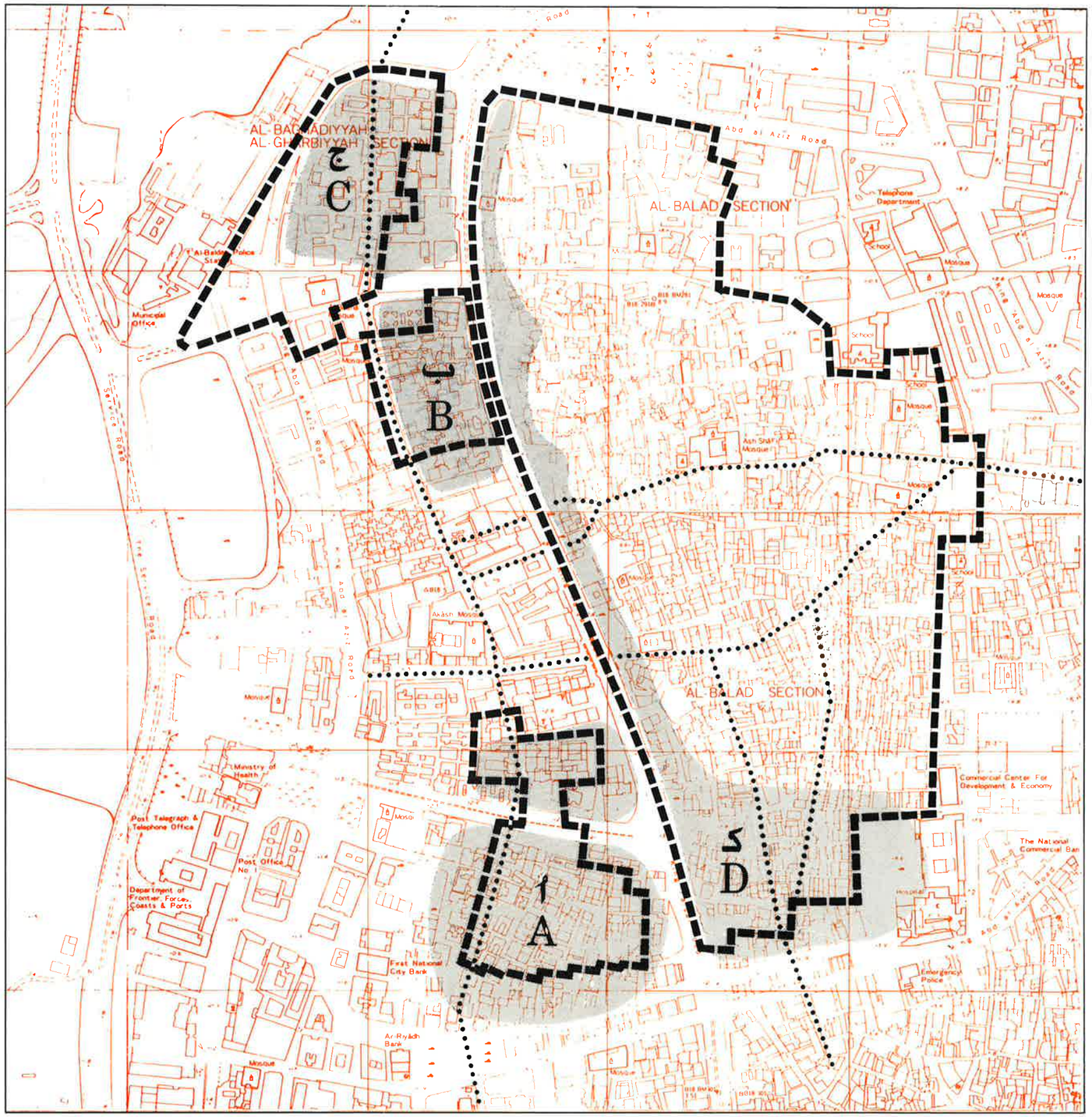
ب

الأحياء التي هي بحاجة ملحة الى تخطيط منطقة المحافظة على المباني فيها .

Neighbourhoods in urgent need of conservation area planning

طرق المشاة الرئيسية

Main pedestrian thoroughfares .....



الشكل ٤/١
الاحياء الواقعة في منطقة المحافظة على المباني والتي تحتاج الى اعمال مستعجلة

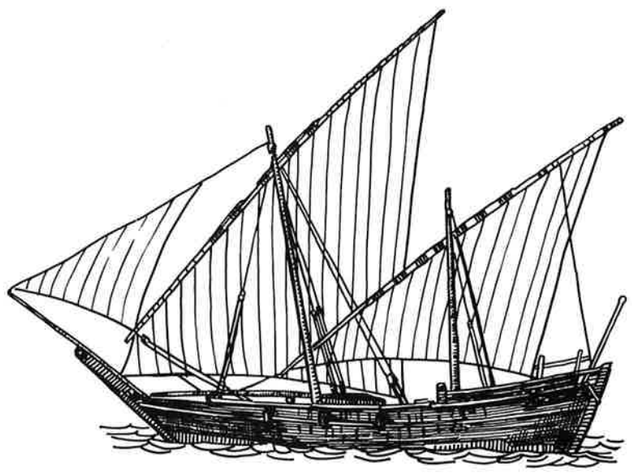
Figure 4.1
Conservation Area
Neighbourhoods in need
of Urgent Intervention

Educational Measures

4.31 Over the last five years, considerable progress has been made towards educating the general public about the importance of the "Old Jeddah Historic Area", through the publication of such books as "Jeddah Old and New" and the publication of numerous newspaper and magazine articles, such as the recent detailed pieces of Jerry Brown in the "Arab News" and "Saudi Business News". Excellent coloured postcards, illustrating examples of the architectural heritage of "Old Jeddah", are also now readily available.

4.32 These initiatives are to be applauded and encouraged, for example, through the publication of a "pocket guide" to the "Old Jeddah Historic Area" and the creation of one or more "heritage trails" to bring alive various aspects of past history.

4.33 To further raise the level of public consciousness, all "listed" buildings should be clearly identified by a metal plaque and the boundaries of the "Old Jeddah Historic Area" should be marked at prominent places, such as Bab Makkah, Bab al-Madinah, Bab al-Sharif, Souk al-Nada, Shara Gabel, etc., with signs indicating the position of "landmark buildings", "heritage trails", "museums" and other useful information.



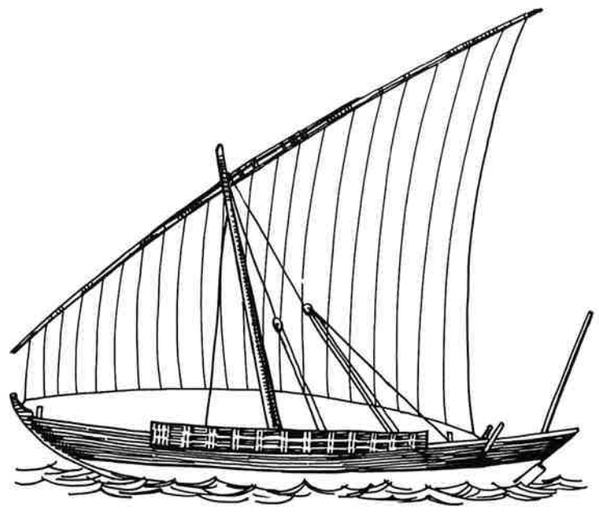
Planning Measures

4.34 In the light of recent experience in Europe and the United States of America, it is now accepted that the "setting" of a "listed" building is just as important as the structure itself. There is thus a need for a more detailed approach to the problems of urban design within the "Old Jeddah Historic Area" than that afforded at the "Action Area" level of planning. For the want of a better name, we shall call them "Conservation Area Plans".

4.35 There are four neighbourhoods within the "Old Jeddah Historic Area" that are in need of urgent attention:

1 The area to the southwest of King Faisal Road at the southern end of the Souk al-Nada, which has been subject to partial abandonment and increasing encroachment by new development (Area A).

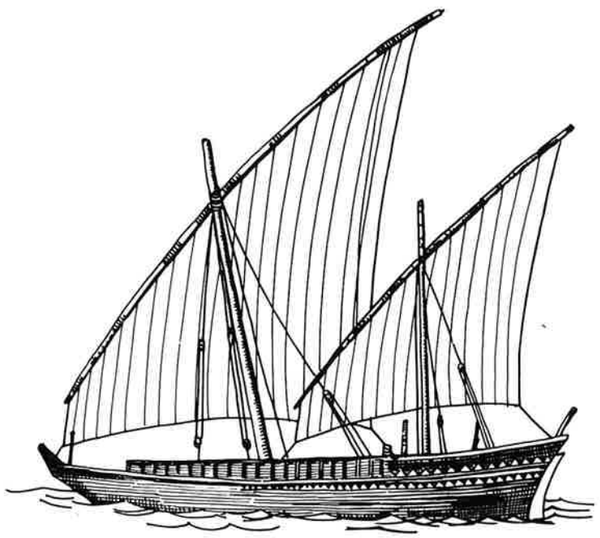
2 The area surrounding the Masjid al-Hanefi Mosque, sandwiched between the Souk al-Nada on the west and King Faisal Road on the east, which has suffered considerable fire damage over the last twelve months (Area B).



3 The area at the northern end of the Souk al-Nada, bounded by King Abdul Aziz Ring Road on the north west and King Faisal Road on the east, which apart from suffering increasing encroachment, is used as a car park to serve all the local commercial premises in the vicinity (Area C).

4 The area to the south of the main souk, Shara al-Alawi, bounded by King Faisal Road on the west and the Bal al-Sharif Hospital on the south-east, which is in a generally poor state and in need of revitalisation (Area D).

4.36 Together, these four areas amount to approximately 20 hectares (Figure 4.1). In terms of priority, they should be tackled in the order B, A, D and C.



Priorities for Action

4.37 It is important to build upon the successes of the last five years. Accordingly, the approach adopted by the Consultant throughout this Report has been one of "strengthening" existing institutions and procedures.

4.38 Of primary importance is the need to strengthen the technical resources of the al-Balad Branch Municipality through the establishment of the proposed "Conservation Centre" and the appointment of a specialist Consultant to provide guidance and training to young architects and engineers "on the job" until such time as they are qualified to take full responsibility for conservation works.

4.39 Also of primary importance are:

a) establishment of the proposed "Conservation Committee", under the Chairmanship of the Mayor of Jeddah, His Excellency Engineer Mohammed Said Farsi, to develop conservation policies and priorities;

b) designation of "Landmark Buildings" for priority allocation of financial and material resources;

c) preparation of the proposed "Manual on the Care and Maintenance of Historic Structures";

d) preparation of "Conservation Area Plans" for the previously described four areas;

e) registration of skilled craftsmen and tradesmen;

f) establishment of store of traditional building materials;

g) investigation of alternative methods of assisting property owners to meet the cost of conservation works;

h) investigation of methods of encouraging property owners to undertake emergency repairs to "listed" buildings in danger of collapse.

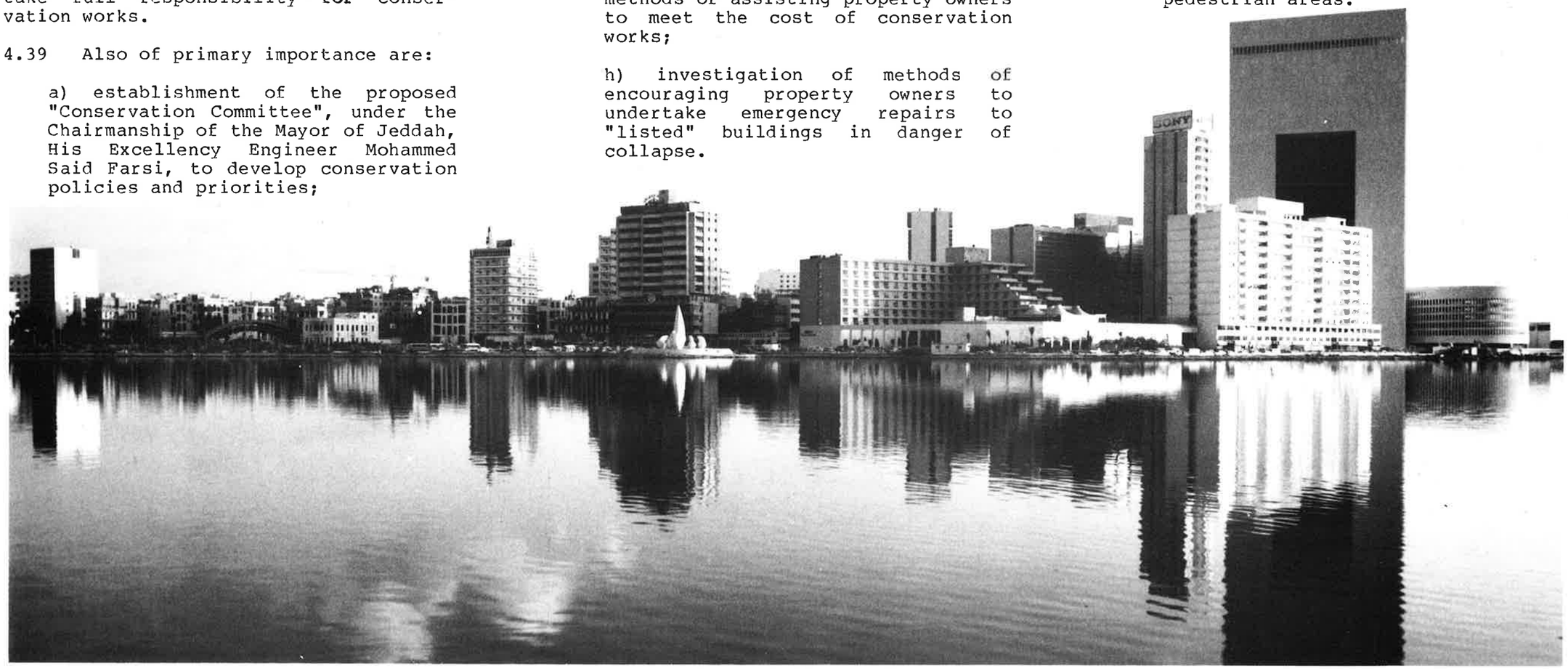
4.40 Of secondary importance, but not to be neglected, are those measures intended to make the public more aware of the importance of their cultural heritage:

a) identification of "listed" buildings by a plaque;

b) establishment of "heritage trails";

c) preparation of a pocket guidebook describing the "Old Jeddah Historic Area";

d) erection of signs illustrating principal features of the "Old Jeddah Historic Area" in major pedestrian areas.



Appendix A Comparative Analysis of `Turkish´ and `Egyptian´ Building Styles

Element		`Turkish´ Period	`Egyptian´ Period
1	Plan Type	'L', 'H' or 'U' shaped. Lightwells and courtyards common. Small cellular rooms. Small winding staircase.	Square/rectangular. Shared, central ventilator shafts. Large rooms. Large central staircase, often double flights.
2	Height	Usually 2-4 floors.	Usually 4+ floors.
3	Area	Usually 200-500m^2	Usually 500+m^2
4	Structure	Coral Rag. Early examples use coral pieces. Two leaves filled w. mud/rubble. Reinforced with round section timbers.	Coral blockwork. Solid core walls, reinforced with square section timbers.
5	Finishes	Lime Plaster. White washed or colour washed.	Lime Plaster-Gypsum. Whitewashed.
6	Coatings	Timber left untreated/oiled.	Timber oil painted.
7	Roof Type	Flat	Flat. Few domes over bathrooms.
8	Parapet Type	Plain or denticulated. Boarded or decorative herringbone blockwork panels.	Plain. Open balustrading. Cornices.
9	Opening Type	Square or pointed arch.	Square or flat/semi-circular arch.
10	Window Type	Unglazed with solid/plain shutters. Open ventilators/grilles modestry screens.	Glazed with louvres. Glazed/opening top used as ventilators. No screens.
11	Grille Types	Plain rectangular, 'T', 'H' or 'X' pattern. Tenoned or cross-half jointed. Some ornate interior grilles over doors. Timbers square/rectangular section.	Few grilles. Timbers often round section.
12	Door Types	Plain boarded wooden doors. Some ornately carved carved examples. Wicket door common. Timber door furniture. Early examples have no hinges/plugged into top and bottom boards.	Elaborately carved/shared door (porched/semi-circular headed). Single/double wickets. Fine brass/iron door furniture.
13	Entrance Type	Low lintel/rarely carved. Finest houses have stone door hoods (pointed/trefoil arch motif).	Large entrance often surrounded by elaborate plasterwork and/or topped with fanlight. Protecting porches, plinths, stairs, columns supporting balconies common.

Element		`Turkish´ Period	`Egyptian´ Period
14	Roshan Type	Small, unglazed, rarely exceeding 4 bays in width/ 1 bay in depth. Often built of softwood, horizontally hung/vertically sliding shutters for privacy/ security. Modesty screens common. Individual 'roshan' occasionally linked by 'catwalks' and canopies. Some elaborate examples with decorated hoods, ventilator grilles, panelling and soffits. Some ground floor examples supported on masonry plinths, secured with metal bars.	Large, glazed, often exceeding 6 or 8 bays in width and up to 2 bays in depth. Aslars built of hardwood. Louvres for privacy/security. Modesty screens not required. Some examples of 'giant' roshan linked vertically for 2 or more floors. Some horizontally linked examples also found. Decoration limited to panelling, cornice and supporting console brackets. No ground floor rawashan.
15	Features	Tripartite ground floor elevational treatment.	Rooftop pavilions. Dovecots. Chimneys. Bathrooms. Balconies/Galleries. Supported by columns.
16	Plasterwork Type	Incised/carved floral or geometric designs. Some examples of inset stones. Rare wall paintings.	Moulded/carved floral designs. Particularly door heads, door and window surrounds. Elaborate bathrooms/domed ceilings, etc. String coures, roundels and other details.
17	Joinery	Comples grilles, fretwork and panelling. Much crude work.	Complex grills, 'tacked' fretwork. Cornices built up of formers and stringers. Panelled doors.
18	Metalwork	Little use of metal. Shutter stays, hooks, etc.	Elaborate wrought iron strapwork-balconies, fanlights etc. Fine door/window furniture, locks, etc.

Appendix B `Register of Landmark Buildings´

Item No.	Building Condition	Building Type	Building Name	Building Owner	Existing Use
47+48+49	moderate	mosque	Hanafi Mosque & Minaret	'Awqaf'	Friday Mosque
85+86	very poor	Khan	Al Maimani Home	'Awqaf'	Old People's Home
141	good	mansion	Al Subaiy Bd		Not in use
142	poor	mansion	Abu Saed Bd	Mustafa Wassiyah ('Omda')	Occ. by owner
143	moderate	mansion	Ashqar Bd		Occ. by owner
144	moderate	Khan	Banajah Home		Old People's Home
145	poor	mansion	Abd Al Basit Ba Jinaid Bd		Rented
149	poor	town house	Moh. Al Nawar Bd	'Awqaf'	Poor People's Home
162	good	mansion	Sharbatly Bd	Municipality	Museum
163	moderate	mansion	Reza Hazazzazi Bd		Rented
174	moderate	town house	Ba Khudair	Al Rasheid	Rented
175	poor	town house	(Agent)	(Owner)	
180	poor	mansion	Al Aisiyah Bd	No owner	Not in use
182	poor	town house	Abd Wahab Kade Bd	El Amoudi	Rented
221	moderate	mansion	Ba Ashan Bd	Moh. Salih Baeishen	Occ. by owner
223	very poor	mansion	Gabel Bd		Not in use
227	good	mansion(?)	Zakir Bd		Rented
228	moderate	mansion	Mohammed Zair Bd		Occ. by owner
240+241	very poor	mansion	Baharun Bd	'Awqaf'/Under Alfalah School Adminstration	Not in use
242	moderate	mansion	Badhwad Bd	Al Salam Rudwan	Rented
246	poor	mansion	No name	'Awqaf'	Rented

Item No.	Building Condition	Building Type	Building Name	Building Owner	Existing Use
247	moderate	mosque	Ash Shafi Mosque		Friday Mosque
263	moderate	town house	Al Kiki Bd	Al Allah Kikì	Not in use
265A	moderate	town house	Baashan Bd		Not in use
265B	moderate	town house			
267	poor	town house	Abu Al Hamayel Bd		Rented
268	poor	town house			
305	good	public bd	Al Falah School		School Bd
306	moderate	mosque	Al Mimar Mosque		Friday Mosque
312	very poor	mansion	Atturki Bd		Not in use
313	poor	mansion	Jaoher Bd		Rented
335A	poor	town house	Zini Bd		Rented
335B	poor	Khan			
336	poor	town house	Moh. Sirhan Bd		Rented
337	poor	town house	Totowah Bd	Trapusili	Occ. by owner
338	poor	town house	Jamjom Bd		Rented
339	poor	town house			
340	poor	town house			
341	poor	town house			
353	very poor	town house	Sharbatli Bd	Abas Sharbatli	Rented
379	poor	town house	Al Gomusani Bd		Rented
380	poor	town house			
438	poor	mansion	Sharbatli Bd	Hassan Sharbatli	Rented
448	moderate	mansion	Noorwali Bd		Occ. by owner
463	moderate	mansion	Jokhdar Bd		Not in use
480	moderate	town house	Khamis Bd		Rented
501	moderate	mansion	Nasif Bd	Ministry of Education	Not in use