THE DEVELOPMENT OF CONTEMPORARY HOUSING IN
SAUDI ARABIA (1950 - 1983): A STUDY IN
CROSS-CULTURAL INFLUENCE UNDER
CONDITIONS OF RAPID CHANGE

by

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1977

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Ph.D. in Architecture, Art and Environmental Studies

at the

Massachusetts Institute of Technology
June, 1983

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by
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Submitted to the Department of Architecture on May 10, 1983 in partial fulfillment of the requirement for the Degree of Ph.D. in Architecture, Art and Environmental Studies.

ABSTRACT

This study provides a framework for understanding the circumstances associated with the introduction of modern housing concepts and techniques to Saudi Arabia. The analysis and discussion of the relevant cultural influences offers a theoretical framework--historically grounded and critically positioned--for explicating the implications for national development of the country's contemporary housing situation and programs.

That Saudi Arabia is one of the most rapidly developing countries in the world today is widely recognized both in Saudi Arabia--and abroad. Saudi Arabia is being transformed into a modernized nation in the space of only about ten years, a process that in most Western nations took many decades. Housing construction is taking place everywhere in the country, and entire new cities are being built overnight. In Saudi Arabia, which occupies about four-fifths of the Arabian peninsula, with relatively sparse population the ambitious development plans are inconsistent with the limited local resources. Hence, in order to achieve the ambitious goals set out in the plan, assistance must be sought from outside. As a result, an influx of experts and workers at all levels (highly skilled, semi-skilled, and unskilled) have arrived to avail themselves of the immense job opportunities offered in the country. Firms representing varying professional backgrounds have come from every part of the world. Every system and method as well as every building material known is being applied.

In the preoccupation with the management of rapid industrialization on a scale of unprecedented magnitude the socio-cultural values of Saudi Arabia and the traditional urban residential patterns to which they have given rise have been sadly overlooked. The case of the traditional houses of Mecca is adduced to indicate that there exists a precedent showing how new building techniques and materials had been gracefully integrated into local building practice. The local master builders' knowledge of their own culture, traditions, and natural and human resources enabled them to modify those new techniques and materials, adapting them to local needs without undermining local socio-cultural values. It is therefore theoretically possible once again to address the challenge of the new -- needs and technology -- while minimizing cultural disintegration and loss.

Thesis Supervisor: Stanford Anderson
Title: Professor of History and Architecture
ACKNOWLEDGEMENTS

Many people have provided advice, encouragement, and help throughout the preparation of this study. I would like to express my deepest thanks to Professor Stanford Anderson for his patient guidance as director of this thesis. He has always been a most generous and understanding mentor, and during our hours of discussion together has provided stimulating ideas, provoking fresh avenues of inquiry and interpretation. His insightful suggestions, comments, and concern regarding this study have been invaluable. I consider myself lucky indeed to have had the privilege and pleasure of working under his direction.

I would also like to thank Professor Oleg Grabar, who provided immeasurable intellectual stimulation and continuous support throughout the various stages of this study. My sincere appreciation is extended to both Professor Henry Millon and Professor N. John Habraken; both assisted with useful comments and suggestions. Their understanding of the scope and complexity of the issues explored in this study are gratefully acknowledged. Dr. Mona Serageldin deserves special thanks for discussing with me at great length themes pursued in the following pages.

I convey my gratitude to Professor Adel Ismael for his concern and encouragement. During his stay at MIT as an Aga Khan Visiting Professor, he and I spent long hours in illuminating discussion; time from which I benefited significantly.

The immense assistance I have received from many colleagues and friends is profoundly appreciated. I wish to extend my warmest thanks to them all, to Dr. Saleh al-Hathloul especially, with whom I have not only shared office space at MIT, but also many ideas; I thank him for the inspiration and friendship. I am greatly indebted to Dr. Eben Saleh, Mr. Gamil Akbar, and Mr. Sameer Khashugji for lending me the many illustrative and informational materials I needed to realize my project. I am very thankful to Mr. Sami Angawi for his assistance during my field survey of traditional Meccan houses.

It is my pleasure to remember and acknowledge those who lent me their assistance and expertise. Among them are Mrs. Christine Bodger, who typed the entire manuscript. Her patience and careful attention throughout the long hours of seemingly endless revision were appreciated greatly. I thank also Genise Schnitman, who assisted with copy-editing. Her conscientious editing has helped clarify many of the ideas discussed here. The author is greatly indebted to King Saud University for continuing support. Without their support, this study would not have been possible.

Finally, I must extend especial thanks to my wife Aisha; without her patience, understanding, and valuable help in so many areas, this study would certainly not now be finished. I extend my wholehearted gratitude to my mother and my sisters for their heart-felt encouragement and inspiration during the several years I have spent in Cambridge, Massachusetts. I feel tremendously indebted to my brother, Mr. Yahya Fadan, who shouldered many responsibilities and many numerous sacrifices to enable me to fulfill my educational pursuits at MIT. Without any one of them, this study would not have been possible.

I dedicate this thesis to my son 'Alaa.
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INTRODUCTION
INTRODUCTION

Innovations brought into a society by cross-cultural contact may be beneficial but are also often highly disruptive. In the field of housing in particular how ought new forms and practices to be evaluated, and rejected accepted, or adapted? This thesis seeks to explicate the issues at stake and to propose how these questions may be answered. The inquiry does not assume that the novelty or foreignness of an innovation precludes its possible fruitful assimilation -- but it does suggest that any such innovation must be seen in the context of the local society and its own tradition.

Throughout pre-modern era, the physical environments of societies grew and changed, while indigenous characteristics were maintained. The cultures and traditions of these societies constantly modified themselves to fit new situations, but retained most of their original socio-cultural purposes. Such modifications in the physical and residential environments, in particular, grew from the changing needs and restructured practices of each period. These needs were often obviously the result of direct contact with other societies. There can be no doubt that in pre-modern history, as now, such contacts produced resentments and clashes. Nevertheless, under normal circumstances (such as trade and migration), the foreign societies rarely sought to impose radical changes on the physical environment of the host societies. After several
decades, of cultural interchange, one might recognize innovations which had already been modified, adapted and made part of the host culture.\textsuperscript{1} Significantly, the modification of new elements introduced to a society indicate that:

1. It is rare for a society to adopt new elements if the needs met by these elements are already otherwise satisfied within the culture.

2. The variety of ways in which different societies solve the same problems is clearly observed in the patterns and forms of government, religion, housing and dress.

The hitherto slow pace of physical and social change in world societies has dramatically quickened in recent years. This is the result of change in the nature and pattern of cultural contacts among the world's societies. Physical environments of present-day societies have undergone radical and sudden change in terms of building technology, building materials, and the relationships of people to their surroundings. The rate of change began to accelerate around the second half of the eighteenth century, a period of key historical significance when many European societies -- England especially -- introduced machines to perform human labor.

During the Industrial Revolution, the invention of spinning and weaving machines and the introduction of factory systems were important factors in radically accelerating the pace of change in English society. In many instances, the accelerating pace of change proved disruptive and
uncomfortable. The burden of such disruptions were borne unequally during the 19th century, while by the different sectors of society.

During the 19th century, while industrial modes of production supplanted craft production handworkers were forced to seek jobs in industrial towns where they believed, they would find better financial prospects for the future. As rural immigrants arrived in urban areas, they became easy targets for exploitation and oppression by the sector that controlled those factories and which virtually dominated the life of the whole country (according to Frederich Engels, it was "a small aristocratic class." )\(^2\) The relationship between these sectors was characterized by a complementary reciprocal needs.

While members of the working class occasionally assimilated and imitated the values of the upper class, their primary goal was survival. At the same time the capitalist class devoted itself to the accumulation of wealth and authoritarian power, a consolidation accomplished through the brutal exploitation of workers by factory owners. Here, however, we shall concern ourselves with these matters only as they apply to the area of housing.

The capitalists exploited the working class through long hard hours of woefully underpaid work. As a direct result, the workers could afford, on the open market, only sub-standard housing -- creating a housing market that became profitable for speculators or owners only because of limited
supply and unreasonably high prices. This housing consisted of deteriorating courts and jerry-built shelters, lacking adequate water supplies or proper drainage systems. In fact, the English working class experience of sub-standard conditions during the first half of the nineteenth century forced a recognition of the need for upgraded and healthier living environments for underprivileged tenants, and gave rise to housing-related reform programs by philanthropists, certain enlightened industrialists, and eventually by the government.

The preceding discussion indicates that rapid change generated by industrialization has not been readily assimilated even by the Western societies (that is, all European nations, plus North America) which spawned the Industrial Revolution. One is therefore, then hardly surprised by the severe impact of rapid change on other societies when the impetus for such change comes from external sources. Global change emanates from those societies which lead in the development and control of machine-made goods. What happened to the socio-economic structure of conventional English rural society when machines were introduced is echoed in the breaking down of traditional economic structures in many societies -- mainly Third World -- as Western goods, in rising volume, penetrated their local markets. Similarly, one can draw an analogy between the migration of English rural workers moving to urban areas in search of higher wages and an improved standard of living and Third World countries looking to developed countries for aid to raise their standard of
living. The English working class suffered in the capitalist factories, tied to long working hours and harsh working conditions in return for low wages and sub-standard living environments. Here again is a similarity to Third World countries whose traditional socio-economic and political structures could not keep pace with radical changes and whose aspirations for development led them to seek help and advice from the developed world. A struggle ensued with endless confrontations between Western ideologies and Third World cultural heritages an encounter clearly illustrated in the drastic transformation of the traditional physical characteristics of the developing countries. One can recognize other similarities between the common-interest relationship of the working and capitalist classes of English society, and the common interest relationship between the developed countries and those still developing. For instance, the prime concern of the developed world is to sustain its hegemony by occasional exploitation, monopolizing the international economy and world affairs, on the one hand, and, on the other, by reinforcing its cultural leadership, which usually takes several forms, from the very simple and straightforward plan of educational and technological aids to direct involvement and complex participation in accelerating changes in the traditional systems of a society.

Survival in the modern world is the overriding concern of developing nations. To achieve this end, governments orient their citizens toward "an ideal" of "rapid growth" through the
promulgation of such abstract ideas as "development," "progress," and "modernization" without fully understanding the nature of growth, which, after all, requires time and careful attention to the impact of modernization and its attendant changes will bring to future generations and to the fabric of the society as a whole. In general, governments find it difficult to navigate their nations into a new era while maintaining some kind of equilibrium between traditional cultural values and customs on the one hand and growth and expansion on the other. Change seems, more often than not, to result in undermining a region or nations heritage threatening its disintegration rather than aiming at the gradual process of continual evolution and adaptation of growth to culture. Sometimes, the goal of development cannot be seen in the actual final product.

The aim of a country seeking development is to eradicate the conditions which keep its citizens from enjoying the full benefits of life; poverty and illiteracy are chief among these conditions. The underdeveloped countries lack the sophisticated technology they need to keep pace with the world powers. Modernization would require updating communication and transportation systems, improving agricultural methods, and institutions education measure which would provide its citizens with the skills necessary to grow into a truly industrialized society. To introduce the changes required for industrialization these Third World countries need to improve their abilities to solve the social and cultural problems of
impending their progress along a path which lead to both prosperity and peace.

Besides variation the distinctness (i.e. sharpness and intensity) of change and the rate of growth which individual Third World countries. The nature of contact with the developed world probably distinguishes one Third World country from another. Colonization came early to countries which had abundant natural resources or a strategically or geographically important location. In the cases of these Third World countries, traditional modes of production were cast aside in favor of more sophisticated methods without considering the effect of these changes on the people or on the nation. Countries which lacked the resources needed by the developed world were either overlooked or left on their own. Saudi Arabia is an example of a country which experienced little exploitation by industrialized countries until well into the first half of the twentieth century.

As a developing nation, Saudi Arabia is distinguished from other developing countries in three areas. Its status as a developing nation has been nurtured by the industrial nations for only half a century, and Saudi Arabia is sparsely populated compared to its vast territory. Third Saudi Arabias's cultural contact with world powers was first boosted in the early 1930's.

Today, however, Saudi Arabia is overwhelmed by its wealth and the prosperity which wealth produces. Indeed, here is an example of the drastic change from poverty to prosperity which
all Third World countries strive to achieve for themselves in one way or another. The irony of having achieved such wealth is that it does not in itself make Saudi Arabia a developed country. It does not provide immunity from inadequate and unsuitable development plans for the country. This wealth could not reduce or soften the impact of change. Instead, wealth helped to speed up the process of change, which made the Saudis more attached to the Western world and more detached from their traditions and age-old way of life.

Since 1933 the internal affairs of Saudi Arabia as a newly emerging nation have concerned many Western nations. Exploration for oil and the advanced technology introduced into the country to extract it precipitated cultural contact between the industrial world and Saudi Arabia. All developed countries in need of Saudi Arabia's oil resources had a stake in the country's development of this country. Towards this end, Saudi Arabia now found itself playing host to engineers, architects, planners, and businessmen, who descended upon the country with attractive -- perhaps irresistible -- plans for development.

As its economic base grew, Saudi Arabia had more freedom in the development plans it was able to select. Because of the rapid advancing technology of oil production, Saudi Arabia experienced great pressure to modernize her society within a short time frame, despite shortages in manpower, materials, and basic infrastructures. This was clearly evident during the second half of the 1970's, when rapid development created
cultural disruption rather than progressing in a linear, orderly fashion.

Rapid changes in Saudi Arabia made it hard to determine priorities for the populace, especially in terms of residential environments. The country faced confusion, contradictions, and poor communication amongst the government ministries and foreign consultants associated with the pressures of Saudi Arabia's rapid development.

A sense of urgency, hasty introduction of advanced technology, mismanagement, and waste in all aspects of the development process (money, natural resources, and effort) are significant characteristics of the kind of confusion as issue here. In the development of a newly emerging nation these characteristics can be attributed to the following:

1. Insufficient time to comprehend the development process, clearly evidenced in the acceleration of building efforts (particularly in large-scale housing projects), and an erosion of customs and building traditions toward newer environments and objectives.

2. The relative paucity and inadequacy of background information and research dealing with the traditional environment of the country, along with insufficient knowledge of customs, traditions, thus not aiming towards a goal of reinterpreting them under new circumstances.

3. The change in people's attitudes toward their living environments as the result of an image presented by
foreign travelers to Saudi Arabia. This image often lacked the authenticity attributed to the real nature of development, which is a gradual process. Unfortunately, this physical and visual modern image was only understood superficially, while the realities behind the image were not seriously evaluated. In most instances therefore, the negative and positive aspects of modernization are intermingled and confused.

With regard to the contradictions Saudi Arabia experienced on its road to development, we find a nation, on the one hand, with the capital to develop along any avenue it chooses, and on the other, an inability to implement change in a way there is constructive and conducive to the needs of its people. Because the Saudis depended in development matters on the industrialized nations, they were subject to economic exploitation of their resources as well as to an engineering of the structure of their living environments (and the socio-cultural values attached to them); a "rationalization" which often contradicted the basic consciousness of the Saudi nation.

Physical development on foreign models was not seriously questioned by the local elite which permitted the establishment of exotic architectural styles within the physical environment of Saudi society, while allowing the conventional building practices with their attendant values to be lost. However, during the 1970's, when more sensitized Saudis became alarmed at the gradual obliteration of their
cultural heritage and the eradication of traditional architectural characteristics for the sake of "development," the notion of preserving Saudi Arabia's cultural heritage became widely recognized. The importance of preserving the cultural and architectural heritage was finally articulated. Nevertheless, the construction boom of the second half of the 1970's, when a state of emergency was hastily declared for all aspects of development, indicated that the mode and intention were heading in opposite directions. Furthermore, contradictions between verbal recognition and actual construction were revealed in the importation of a highly advanced building technology which produced unmodified, unresponsive, foreign housing types.

In a society where tradition and culture are generally agreed upon and respected, one might expect little conflict between the interests of the individual and of society. Such harmony is brought about through mutual communication among the elite and the master-builders, and the individual, his neighbors, and the community. Mutual communication was one of the many important factors in producing the harmony of traditional Saudi physical environment. At present, the agenda of the decision-makers, architects, and planners -- who undertook to decide for the majority how and where to live, heedless of the people's rights to participate and decide for themselves, govern the individual. Here, the mutual communication amongst the elite, the professionals, and the people has begun to break down. As a result, any possible
conflict of interest between decision-makers and professionals will simply hinder cooperation among them, making orderly development difficult. In addition, ignoring the needs, limitations, and characteristics of the potential beneficiaries, or enforcing unresponsive and irrelevant standards and living conditions on them, only widens the communication gap. The well-known large-scale, high-rise public housing projects are an excellent example of this lack of mutual communications.

Another interesting example can be correlated with a simple economic case: When there is a shortage of some commodity in the local market, a number of importers will order it at the same time resulting in an over-supply. Such an over-supply in the case of housing can be seen:

1. when a large-scale, high-rise housing project remains unoccupied for more than three years;
2. when privately built apartment buildings and villas are kept closed and unoccupied for a long time.

In the second instance, a certain employee may benefit from a program which allows the building of a villa with a grant from the real estate fund, but another unfortunate individual cannot benefit from the real estate fund because he either doesn't have the land on which to build or lack the capital to leverage a building grant. This example raises many issues, the most interesting one being the total lack of mutual communication and coordination between different government ministries in the matter of housing.
OBJECTIVES

Decisions about new housing projects should be handled very carefully and efficiently, with a full understanding of the society's cultural heritage, as well as of the danger of erecting a socially and culturally inappropriate and unresponsive physical structure. This challenge to decision-making, hitherto unmet as well as the prevailing absence of physical harmony and the inappropriateness of the newly built housing projects, has contributed to the motivation for the present study. The purpose of studying the residential environment in Saudi Arabia is two-fold:

1. To review events in recent Saudi housing activities that have occurred unexpectedly (or due to urgent circumstances) and with insufficient experience and knowledge of modern housing techniques. This will enable us to understand how arbitrary these activities are.

2. To explore the extent to which contemporary Saudi Arabian house-building can benefit from an analysis of specific local traditional physical environments. This will support the claim that progress and urban development are to be attained by blending the merits of traditional forms with the benefits of locally modified and adapted modern technology, rather than by transplanting foreign systems and ways of life wholesale.
Transportation and building technology, when relevant to housing, will be discussed throughout this study.

HYPOTHESIS

The Saudi government has assumed responsibility for providing better housing conditions and appears to have been somewhat successful in this endeavor. However, because it did not understand satisfactorily how to adapt Western housing models to Saudi society, prospects have become dismal. Radical and hastily executed development plans and an attraction to Western life-styles have drawn Saudi attention away from developing a clear and concise understanding of the evolution of a traditional living environment. In turn, the innovative spirit has been constrained from making the necessary adaptations of modern housing technology needed by the emerging modern Saudi society. This has further prevented the society from maintaining the valuable characteristics of the traditional residential environment and cultural heritage. The result is a completely foreign physical residential environment transplanted into the country.

This study's hypothesis concerning the physical characteristics of residential buildings are:

1. That architectural heritage of Saudi Arabia, reflected in traditional residential buildings, is a physical manifestation of the Saudi Arabian Islamic culture, life style, and local conditions.
2. That although psychological change in people's expectations about their immediate living environment and the outside world has occurred in the Saudi society, we must inquire how and to what degree this calls for change in housing.

3. That traditional houses are quickly being replaced by modern housing that ignores the significance and validity of the traditional living environment -- as evidenced by the early mass housing projects which imposed new building forms on the area regardless of the traditional forms.

4. That the long-lasting effects of housing problems cannot be overestimated.

5. Finally, that despite the different physical forms of the various traditional houses (e.g., the multi-story Meccan houses and the widely used courtyard houses), they exhibit and preserve the same essential socio-cultural values. The variety of forms thus demonstrates that the inhabitants, as well as the master builders, could satisfy the same socio-cultural values in more than one way, according to locally available building materials, different climatic and geographic conditions, the additional and unique function of the house, or other factors (even including cultural influences).
METHODOLOGY AND ORGANIZATION

How to determine whether a particular program is promising is the essence of the housing issue. The housing official who has an independent mind and is able to judge the evidence on its merits, rather than in the light of its prevailing image, is the one most likely to realize the potential in a specific scheme and to know whether the society can adapt to this potential in sympathetic continuity with the age-old socio-cultural and physical environment. He also needs imagination and a good store of knowledge -- not only about the advances in modern building technology and how to deal with the international architectural firms, but also about the building traditions, cultural values, and local conditions of the particular society he builds for -- so that he can determine both whether his judgment is valid and what the possible implications might be.

The method undertaken for this study stems from the discussion cited above. It is based on the assumption that the ability to acquire modern technology is essential for coping with new needs and circumstances. However, modern technology must be combined with values traditional to the culture, otherwise these newly built and inspired living environments will become instrumental in dislocating the society from its cultural heritage.

The study is divided into two parts. Part One provides background information of the traditional living environments of the urban settlements in four regions of the Arabian
Peninsula. These regions are significant not only because of their uniqueness in terms of geography, climate, and natural resources, but also because as recently as 1934 they were unified to form the new nation of Saudi Arabia. The discussions of the traditional living environments and the rising signs of changes are divided into two chapters (Chapters I and II).

Chapter I will undertake a brief analysis of the different forms of the traditional house, built and characterized by the urban pattern of the regions. The principal aim of this study is two-fold:

1. To investigate the common features emphasized in these dwellings: how they reflect the socio-cultural values, and how they have developed in relation to the local climatic and geographical conditions.

2. To establish the background information necessary to form a comparative analysis of the traditional residential dwellings and the modern housing types introduced to the regions.

Chapter II deals with the relevant course of events in Saudi Arabia during the first half of the century. It focuses on the underlying forces of those events, which in one way, challenged and, in many instances, disregarded the well-balanced ecological system whereby building materials were obtained from the local environment and building conventions firmly rooted in the socio-cultural customs of the society. This chapter also analyzes the consequences of such
challenges to and lack of regard for what already existed, as well as the process that facilitated the departure from former standards and ways of life.

Part Two is concerned with the history of modern housing in Saudi Arabia, from the early models of large-scale house-building to the present-day projects. The analysis and investigation used in the different chapters of this part is an attempt to characterize the following:

1. the impact of modern technology and Western culture;
2. the desire for modernization and rapid development;
3. the break with tradition and local architectural expression in the form of modern housing.

Part two is organized into three chapters (Chapters III-V). Chapter III examines the conditions which led to early large-scale house-building by the government, and by other administrative bodies. This chapter also deals with the new housing types introduced by this early large-scale housing, enabling a comparative analysis of the relationship among the traditional residential forms of the area, the extent to which these early housing types can be seen as prototypes for the newly-constructed houses, and the relationship of these newer houses to their Western prototypes.

Chapter IV describes and analyzes government-built housing (by the Ministry of Housing and Public Works, as well as by other governmental ministries and agencies) and housing assistance programs, and discusses how these programs became
powerful tools in changing dramatically the residential environment in the country. It covers, in addition, the following issues:

1. the role of national development plans in changing the patterns of housing supply and demand;
2. the dismal state of the building industry, which resulted from administrative and management limitations, as well as from problems associated with the shortages of manpower and building materials, and from an inadequate infrastructure;
3. the conditions and factors which encourage the government to adopt the Western practice of welfare housing.
4. the Western countries' experiences with housing types similar to those introduced into Saudi Arabia will be briefly reviewed in order to draw attention to the possibility of similar experiences in Saudi Arabia.

Chapter V, the last chapter, is an outgrowth of the three chapters that precede it. It discusses the external forces that, intentionally or not, misled the government elite into seeing in certain housing schemes (which later proved to be inappropriate) a greater degree of quality than actually existed. Many decisions on housing were made under conditions of insufficient knowledge and without sound reasoning; these judgments were inevitably influenced by personal taste and image. This chapter also deals with the implications of
recent building activities for both Saudi society and for the physical pattern of the region.

Based on that discussion, the last section of this chapter asks the following question: "Can new and unusual circumstances be met while still honoring culture and tradition?" Assuming that this is possible, the traditional Meccan house is cited as a positive example. A brief analysis of traditional Meccan houses illustrates the rationale for the significantly different form of the traditional Meccan house in contrast to the widely known traditional courtyard house. Accordingly, this section demonstrates how Meccan houses satisfy socio-cultural values and provide a valid response to local climatic, geographic, and socio-economic conditions. In short, Chapter V emphasizes that while a natural and healthy solution to Saudi housing problems may incorporate external influences, it must but finally emerge from a full understanding of the society's widely known traditional socio-cultural values and in a respectful appreciation of its traditional courtyard living environment. Outside ideologies and schemes -- from East or West -- which do not respect these factors delay such a solution by diverting housing officials' attention to the wrong needs and to risky adventures, thus impeding the emergence of constructive achievements.
PART ONE
THE TRADITIONAL LIVING ENVIRONMENT
CHAPTER I
THE TRADITIONAL RESIDENTIAL ENVIRONMENTS
(LATE 19TH AND EARLY 20TH CENTURIES)

We will begin our look at the traditional residential environment in Saudi Arabia by looking first at the regional characteristics and at the distinctive features of the indigenous population of the area, without which the residential environments have no significance.

1.1 Regional Characteristics: Land and Climate
Whenever a study takes as its prime concern the residential environment, knowledge of the character of the land on which the people live and the natural elements with which they must cope hold the same level of importance as the knowledge of the people themselves and of the socio-cultural forces at work. This section, therefore describes the geography and climate of the various regions of Saudi Arabia.

The Arabian Peninsula covers well over three million square kilometers (about 1,154,000 square miles) of which an area of approximately 2,300,000 square kilometers (almost 865,000 square miles -- an area roughly equivalent to the U.S.A. east of Mississippi) forms the territory of Saudi Arabia. Saudi Arabia occupies almost all of the Peninsula, except for the southern region where Yemen, Aden, Hadramout,
and Oman are located, and a small eastern coastal plain occupied by Kuwait, Qatar and the United Arab Emirates, (Fig. 1.1). The regions of Saudi Arabia are: the southwestern region (Asir), the western region (Hijaz), the central region (Najd), and the eastern region (al-Hasa). Overall, the topography of the Peninsula is characterized by a gently tilted plateau that slopes eastward from a coastal mountain range along its western edge bordering the Red Sea. Farther east, along the western shore of the Arabian Gulf, the terrain changes abruptly to flat low land. Bordering these habitable regions are three great deserts, which to a great extent isolate the central region, Najd, from the other three regions. On the northern side of Najd, the Nafud Desert comprises 25,000 square miles. Stretching from north to south, on the eastern side of Najd, is the al-Dahna Desert. The al-Dahna forms a narrow arc of desert 30 miles wide and about 400 miles long, its northern end merging with the Nafud, and its southern end with the Rub-al-Khali (the "Empty Quarter"). Within both deserts (Nafud and al-Dahna) there are several watering places, and occasionally the winter rains bring up short-lived grasses that permit nomadic herding during the winter and spring. The third desert, Rub-al-Khali, is located on the southern side of the Najd. It is the largest and most forbidding sand desert of the peninsula, perhaps of the world. Rub-al-Khali covers one-fourth of the Arabian Peninsula and is essentially waterless and uninhabitable.²
Fig. 1.1 Map of the Arabian Peninsula.
Saudi Arabia is known for its desert climate, characterized by extreme heat during the day, abrupt drops in temperature at night, and slight and erratic rainfall. In spite of this general climatic character, Saudi Arabia experiences variations in climate according to changes in altitude. These climatic variations correspond to the topographical characteristics of each region, as will be noted throughout the analyses of these regions. It is interesting to note that the Arabic names by which each region is known are derived from the distinctive topographical characteristics of each region. Also noteworthy is that until very recently the inhabitants of a specific region were usually surnamed (in addition to their family names) after the name of the region in which they resided. Thus a person from Asir used to be known among the Hijaz inhabitants as "Asiri," just as a person from Hijaz was known among the Asir people as "Hijazi" (e.g., Abdul-allah Mohammed Hijazi). This socio-regional distinction is attributed to the topographical barriers (desert, mountain, or both) that isolated the regions from one another, limiting regional migrations and easy contact among the inhabitants of the regions, and thus leading to sub-cultural differences.

1.1.1. The Southwestern Region (Asir)

The traditional name of this region is Asir, or the "difficult region," which is appropriate because of its rugged mountain terrain. Located on the southwestern part of the Arabian Peninsula. It is bounded on the north by the Hijaz
region, on the south by Yemen, on the east by the desert part of Najd and Rub-al-Khali, and on the west by the eastern shore of the Red Sea. Asir is not all highlands. To the west of its mountain range lies the lowland of Tihamah, stretching 230 miles along the sea coast and extending inland to the foothills to an average width of 40 miles. Two different areas are to be distinguished in this coastal plain: the area of valleys (the upper slopes of the Tihamah plains) and the sea coast area. The valley ("wadi") area is relatively well-watered and fertile farm land; but since the rivers normally dry up, the sea coast is a salty tidal plain of limited agricultural value.

In this coastal plain of Asir, the summer climate is hot and damp. The temperatures seldom rise above 100°F, but the humidity is usually over 85 percent. The combination of high temperature and humidity produces a hot mist during the day and a warm fog at night. However, the northwestern sea breeze makes these coastal areas more bearable during winter time.

East of the Tihamah plain lies the mountain range, rising sharply from the low coastal plain and reaching its highest elevation of 9,000 feet. Despite the rugged mountain terrain, the highlands are valuable agriculturally, producing a variety of domestic crops on terraced fields. The settlement pattern is largely governed by the location of the wadis. Due to the high altitude, the summer climate is relatively temperate, with frequent rainfall.
From the mountain ranges, the terrain slopes gradually eastward until it meets the deserts of Najd and the Rub-al-Khali. The temperature increases and the climate becomes drier with less rainfall. Here, in the eastern and southeastern region of Asir, settlements are established on scattered oases (such as the Najran Oasis). These settlements share significant similarities with those of Central Arabia, while maintaining their own local characteristics.

1.1.2 The Western Region (Hijaz)

Hijaz is located on the western part of the Arabian Peninsula. Bordered by Jordan on the north, by the central region and the Nafad Desert on the east, and by the Asir region and the Red Sea on the south and west, respectively, this region resembles Asir topographically. On the west, the relatively narrow coastal plain of Tihama (approximately 45 miles wide) extends from Asir to Jordan, stretching 700 miles along the eastern shore of the Red Sea.5 Rising abruptly from the eastern side of the Tihama plain is a relatively narrow mountain range, having its highest elevation of 8,200 feet at the southern end and decreasing in height as it moves northward.6 Significantly, this striking relief runs along the coastal plain, forming a natural physical boundary that separates the interior plateau of the Najd from the coastal plain of Tihama. This apparently gave the western region its traditional name, "Hijaz," which means "the barrier."7
There is no doubt that the climatic conditions of this region differ considerably according to the altitude and distances of each part of the region from the sea, where higher relative humidity and temperature are normal. A much drier climate with relatively lower temperatures prevails on the upper lands. However, since this region stretches along the eastern coast of the Red Sea, from the central part of the Sea up to the Gulf of Aqaba on the north, the northern portion of Hijaz is affected by an eastward movement of low pressure air from the Mediterranean, which carries with it a cooler breeze and occasional winter rains. This air, however, provides the northern part of Hijaz with little moisture. The southern portion of Hijaz lies under the influence of the intertropical zone (the Sudan Low Pressure trough) where monsoon conditions and summer rains prevail. Rain falls during any time of the year and often occurs unexpectedly, occasionally, producing sudden torrents moving very swiftly from the mountain tops and causing extensive damage both to the settlements on the foothills and to the agricultural lands in the wadis.

The Hijaz settlements are probably the oldest and best-known settlements in the Arabian Peninsula, and perhaps in all the Muslim world. This is where the holiest places of the Islamic world are located, marking the direction every Muslim faces during prayer and to which each should make at least one pilgrimage. The four largest settlements of the Hijaz region are significantly located in different
topographical settings in the region. Jeddah, located on the Red Sea coast, benefits from this accessibility and functions as a gateway to the holy lands. In contrast, Taif is located on the top of the Hijaz mountain range. Here the city and the nearby villages enjoy a temperate climate throughout the year, as well as frequent rainfall which is exploited for agriculture. Mecca is located between these two contrasting settlements of Taif and Jeddah, in the foothills of the mountain range in Wadi Ibrahim (Ibrahim Valley). Medina, the second holiest city in the Muslim world, is located inland on one of the scattered plateaus among the mountain ranges of north-central Hijaz.

1.1.3 The Central Region (Najd)

Within the Najd region lies Arabia's vast interior. Including the three deserts which border it on three sides, the region is enclosed on the north by Jordan and Iraq; on the east by al-Hasa, on the south by Yemen, Hadramout, and Oman, on the west by Hijaz, and on the southwest by Asir. Najd, or "the highland," is exactly what its name implies. It is a vast, eroded plateau which slopes gradually toward the east, declining in elevation from 5,000 feet in the west to about 2,000 feet in the east. It is no surprise that such a region is characterized by a desert climate of hot and very dry summer days (with an average temperature of 112°F), followed by comparatively cool nights. In the winter, the relatively low humidity and the high wind-chill factor cause a
bitter cold atmosphere, although the winter daytime temperature seldom drops below $32^\circ$F.\textsuperscript{13} Rainfall averages only about four inches a year; three or four heavy cloudbursts may constitute the entire year's precipitation. These torrential rains occasionally flood the wadis and then rapidly disappear into the soil to be trapped above the layer of impervious rock, forming sufficient underground water resources to sustain the sedentary oases in the north and east of these regions (such as Hāil, Buraidah, ĆAunizah and al-Kharj), and to sustain the forage growth on which nomadic herdsmen and their flocks depend.

1.1.4 The Eastern Region (al-Hasa)

This region is bordered on the north by Kuwait and Iraq, on the east by the Arabian Gulf and the United Arab Emirates, and on the west by the Najd region. Before the discovery of oil in this region, the whole area used to be called after its largest oasis of al-Hasa (also written al-Ahsa). According to Ibn al Manzur, al-Hasa is a land of sandy ground where underground water naturally rises to the surface.\textsuperscript{14} Indeed, most of this region is characterized by sandy terrain fringed with marsh lands along the western shores of the Arabian Gulf. In the interior, the water table is very close to the ground surface, and in several places, as in the principal settlements of Hofuf, al-Mubarraz and Qatif, the water seeps up to form extensive springs which are carefully exploited for agricultural purposes. Significantly, these oasis settlements
once contained the bulk of the sedentary population of the region; farming here was, and may still be (though to a lesser extent) the major socio-economic resource. The discovery of oil in many parts of this region, however, shifted the region's population to the newly expanded fishing villages along the Gulf.

The climatic characteristics of this region are considerably affected by both the Gulf and the mass of Central Arabia. During the summer season, the areas near the Gulf shores experience high temperatures along with a humidity that reaches 100 percent. The proximity of the inland portion to the wide land mass of Central Arabia tends to reduce the humidity, although the summer temperatures are still excessive. During late spring and early summer, the inland portion, the oasis area, and (to a lesser extent) the coastal area are affected by the prevailing Shamaal (northwesterly wind) producing sand and dust storms. These storms not only decrease visibility to a mere few feet, but can also create crescent-shaped dunes which can choke many acres of fertile farmland and bury whole villages. (Fig. 1.2).

1.2 Peoples and Their Settlements

Islam is the religion of all the inhabitants of the Arabian Peninsula -- probably the only region within the Islamic world which adhered to strict, conservative religious beliefs during the 19th and early 20th centuries. Despite such unifying factors as religion, culture and language, two
Fig. 1.2 In al-Hasa many fertile farmlands and villages were buried and choked by the crescent-shaped sand dunes. Source: National Geographic, January, 1966, Vol. 129, No. 1, p. 37.
distinct social organizations, or dominant population groups are observable. These are the Bedu (Bedouins or nomads) and the Hadar (settled folk).

1.2.1 The Nomads

The nomads are a segment of the population whose way of life involves constant movement. They travel with their camels, halting briefly at watering points or at wadis (valleys) which supply a temporary grazing place. The seasonal variations of climate and vegetation in the arid Arabian environment are a major influence on their way of life. In the winter they move into lowland desert within their traditional territory in search of the short-lived grazing areas, and during the summer they prefer to camp near a permanent water hole or an oasis. For the Bedu, cattle are very important, but camels constitute their real wealth in as much as they supply meat and milk, as well as carrying household necessities and tent frameworks. At one time camels provided the only means of communication between different parts of the Arabian Peninsula, and were the only means of transporting merchandise. Nomadic communities with herds of goats and sheep tend to camp near permanent settlements and rarely wander very far into the desert. These Bedouin communities often trade basic necessities of life with the oasis communities (e.g., Bedouin meat, milk, and other animal products for the wheat and dates of the oasis community). While the foregoing discussion suggests simplicity and a slow
rhythm of Bedouin life, the organization of a Bedouin community may not reflect this. A detailed discussion of such tribal organization is very interesting, but the considerable diversity in both social structure and the terminology employed for tribal subdivision would require another study.

It is important to note that however, the basic unit of a Bedouin community is the extended family, a unit of social consolidation encouraged by Islam. It generally comprises three generations and would typically include a man and his wife/wives (up to four), the married sons and grandsons and their wives, and unmarried sons, daughters and granddaughters. It may also include other close relatives, such as unmarried sisters, orphan females, and widows. Until very recently, such typical Bedouin families lived as the Bedouins always have, in tents of black goat and sheep hair called "bayt al-Shāar" (houses of hair). The number of tents could reflect both the size and, to a lesser extent, the wealth of a particular household. A poor Bedouin family consisting of a married couple and their children might live together in a single tent.

The next hierarchical unit is the "hamulah" (womb), which consists of several related and extended families. Moving higher in the hierarchy of tribal subdivision, we see that two "hamulahs" form a "fakdh" (thigh). Two "Afkadh" (single Fakdh) or more are called "firqah" (trunk of the body). Here again, the "firqah" is a component of "ashirah" (collection of
tents), which in turn, is referred to as a subtribe, or, in the case of a tribal federation, the tribe itself. 15

Correspondingly, the one or more tents occupied by a Bedouin household form the smallest cluster of temporary residence of the Bedouin tribe. As two or more related extended Bedouin households form a "hamulah," their tent-cluster likewise becomes larger in size. As the composition of tribal social structure grows larger, i.e., from "hamulahs" to "fakdh" and so on, the tent-clusters also increase in size and number. However, it is rare to see the whole tribe camp on one site, and the tent-clusters scattered along the major highways and deeper in the desert represent only two or three levels of tribal socio-structural hierarchy.

Since mobility and constant movement are the Bedouin's way of life, their tendency not to build permanent structures is understandable. Every now and then, however, Bedouin families choose to move to a permanent settlement and settle down for the rest of their life cycle. This move usually takes place in a slow and gradual process. At first the family or families camp near the permanent settlement, frequently, near related families who have already chosen to settle down, while enjoying both the freedom of the Bedouin way of life and the amenities that the settlement offers them. As these families become more established on the site, they build a wall around their tent-cluster and continue to live in their tents. As these Bedouins become accustomed to a settled life-style, rooms are gradually built, and in time a complete
neighborhood of related families comes into existence: The new neighborhood will probably be incorporated into that permanent settlement.

1.2.2 The Settlers

The preceding discussion should not imply that all inhabitants of the settlement are Bedouin in origin. Many inhabitants of the settlement were born and lived all their lives in villages, towns, or cities where they never experienced the desert life. They are the second component of Arabia's population. The settled folk, or "hadar," live in permanent shelters; their occupations include cultivation, trade, crafts, fishing, pearling and services. Among the settled people, we still can distinguish two sub-groups. These are the rural settlers (or villagers) and the town or city settlers. Although the rural population lives a relatively settled life, it also exhibits many Bedouin features. In many instances, a substantial part of the rural population is composed of a settled section of a nomadic tribe, who brought along the nomadic kinship system and many other customs, such as pasturing animals near the village and weaving goat's hair mixed with coarse wool to make cloth and carpets. Almost all the rural inhabitants are agriculturalists who choose to live near the oases of central and eastern Arabia, or near the shallow wells, water pools and streams of western and southwestern Arabia. Due to the limited area available for cultivation and many other forces,
such as climate and topography (discussed earlier), rural inhabitants tend to build their houses in tightly packed clusters, surrounded by orchards and fields, the whole settlement is enclosed with a mud wall. In other circumstances, some rural settlements appear to form a more dispersed arrangement of extended family houses, each surrounded by family orchards and fields, and the settlement as a whole still enclosed within a protective wall. The townsmen are commonly referred to as "hadar" (singular, "hadari"). Most of Arabia's "hadar" are of Arab origin, and most probably belong to Bedouin tribes. Those who resided in the towns of Arabia became more or less permanently settled. However, tribal ties are embodied -- and can be seen in the configuration of permanent dwellings: when groups move to the city and build permanent houses, these homes are arranged in the same cluster patterns traditionally used for tents when temporary camps were set-up. As in rural Bedouin social organization, the basic social unit of urban society is still the extended family.

Encouraged by Islamic doctrines, the favorable attitudes of an extended family toward its neighbors produce close and compact relationships. This clearly appears in social behavior on occasions of celebration (weddings, births, etc.) as well as during times of sadness (death, illness, etc.). These relationships are shared by neighboring houses. Such intimate relationships among neighbors will almost certainly establish solidarity among the members of the community, and
this is why a family will choose to reside as close as possible to its extended family. A family without other relatives may choose to live near families of the same tribal connection -- this frequently happens in towns of central Arabia -- or near families of the same ethnic origin, as generally seen in towns of western and eastern Arabia. Families may also choose to reside in a neighborhood of specialized crafts, depending on the profession and occupation of each family head.

1.3 THE TRADITIONAL HOUSES: THEIR FORMS AND RESPONSIVNESS TO THE CULTURAL AND PHYSICAL ENVIRONMENT

The cultural setting of a society plays a major role in its urban environment. Yet the previous discussion of the regional differences has stressed distinctive local characteristics and natural resources. As mentioned earlier, these include climate, vegetation, soil, and water resources, all of which affect profoundly basic socio-economics. It is here that the most delicate balance between society and environment is discerned, a balance mirrored in a given society's traditional houses. Before looking at an example of traditional domestic houses, it is important to try to establish its form-type.

Two such categories have been generally recognized. These are the courtyard house and the multi-story house. Both types are to be found in various size -- large, medium, and small -- which obviously correspond to the number of family
members in a particular household and to three groups of householders, ranging from top to the bottom of the economic scale. There are further classifications within each category according to the use of different building materials or techniques. A further classification of the use of different building materials and techniques is incorporated in the analytical discussion of these two form-types of the traditional houses built in the Arabian Peninsula (mainly Saudi Arabia) that follows. It is important to note, however, that the traditional houses under discussion were built before the introduction during the late 19th and early-to-mid 20th centuries of modern building materials and techniques. It is the belief of the author that these traditional houses developed as a result of a normal development process during past centuries.

1.3.1 Courtyard House

The wide spread courtyard house of the Middle East has been considered typical of the culture. In general (without considering whether this specific type is a creation of the culture or an adaptation from other societies), the courtyard house is suited for, and responds well to, the predominantly arid climate of the Middle East. In addition, the organizational character of its spaces (open and covered) is well suited to the lifestyle of most Arab-Muslim households. In other words, the courtyard house, in keeping with the whole theory of Islamic housing, is private and secluded with a
minimum of display to the outside world, as is the family who inhabits it. In many ways, it is a completely different conception of the domestic dwelling, from that of America and much of Europe. 16

In Arabia, the traditional courtyard house can be found in almost all regions, particularly Najd and al-Hasa. In the regions of Hijaz and Asir, this traditional house-type is usually found in remote inland areas (in villages and small towns) where a hot, dry climate predominates.

In the interest of brevity, a summary of the many extensive studies of the traditional courtyard house and a detailed analytical discussion of these houses will not be presented here. 17 However, since some physical characteristics predominate in certain regions and not in others, it is necessary to give a brief description of the specific features that domestic practices display.

Consistent with the well-known general characteristics, the traditional courtyard houses built in these regions (Najd, al-hasa, Hijaz, Asir) are usually clustered around a central courtyard or courtyards: They are flat-roofed with high parapets, thick-walled with few or no window openings on the street sides, and seldom more than two stories high (except for occasional extra rooms built on sections of the roof area).

Mud construction was indigenous to much of Najd (including Qasim Oases), al-Hasa Oases (excluding the coastal area), inland portions of Hijaz, and Najran Oases on the
south-southeastern portion of Asir, where the earth itself offered the only readily available building material. Although the preparation of the mud for house construction was generally identical in all regions, the conventional building techniques widely applied in Najd and al-Hasa Oases were not used in the Najran Oasis (Fig. 1.3). Instead of using the regular sun-dried mud bricks as construction material, the wall and parapets of the traditional courtyard house of Najran were constructed out of a successive, continuous solid course of mud layers, each about 12 inches high, puddled and laid in position, and shaped by hand to form the wall. Each layer had to dry before the next was added. Apart from the structural purposes of each building techniques, the horizontal lines of these layers added a unique texture to the external appearance (Fig. 1.4).

While mud constituted the basic building material of the courtyard houses of Najd, al-Hasa Oasis, and Najran Oases, the traditional courtyard house of the coastal plain of al-Hasa was built from what was readily available in that particular part of the al-Hasa region. The coral stones found along the coastal plain and off-shore were wisely used in the construction of the courtyard houses of that area. Significantly, coral stone is the most efficient building material used in that part of al-Hasa because of its availability and its capacity to absorb the excessive air moisture characteristic of coastal areas (Fig. 1.5).
Fig. 1.3 Although mud is the basic building material in the Najran Oasis, this building technique differs from the conventional one in Najd.

Fig. 1.4 Note that the Najran mud construction technique satisfies structural needs and creates a unique horizontal appearance in this particular traditional house.

Fig. 1.5 Coral stone is the most efficient building material used in the eastern part of the al-Hasa region because of its availability and its capacity to absorb the excessive air moisture of the coastal area.
Despite its scarcity, wood has always been used in local building. In Najd, al-Hasa, Asir, and Hijaz, the wood of the palm tree or the tamarisk tree is used for frames, doors, and roof beams. The palm log, because of its short fibers, bends too readily; so in most houses the width of the room rarely exceeds eight feet. In the coastal areas of al-Hasa and Hijaz, where affluent groups could afford good hard woods, teak and other timbers were imported from India and the Far East.

Due to the hot, humid climate, and the consequent need for cross-ventilation, the inhabitants of the Arabian Gulf area, in general, and the al-Hasa coastal area in particular, developed an appropriate construction technique for the external walls and roof parapets (Fig. 1.6). In the hot, dry climate, however, such wall-construction technique was inappropriate because of the characteristic sand storms and hot winds. Therefore, heavy walls with limited, small openings were sufficient for the traditional Najd courtyard house. A characteristic of these houses, particularly of the medium-sized and larger houses, was their continuous semi-open corridors, usually on the second floor, which ran along all four sides of the courtyard, creating a semi-open shaded area and thus allowing the dusty, hot air to be filtered and cooled off before entering the room (Fig. 1.7).
Fig. 1.6 The need for cross-ventilation led the inhabitants of the Arabian Gulf area in general and the al-Easa coastal area in particular to develop a very significant weather-oriented construction technique for application on external walls and roof parapets.

Fig. 1.7 Characteristic of the Najd traditional courtyard house, particularly of the medium-sized and larger houses, are the continuous semi-open corridors, usually located on the second floor, which run along the four sides of the courtyard.
1.3.2 The Multi-Story Traditional Houses

Despite the understandably common use of the courtyard house, we must also consider the significant contribution of the traditional multi-story houses. Such houses also conformed to socio-cultural criteria and responded to natural environmental obstacles while meeting specific social needs. Thus, the general characteristics of this house type did not deter the master builders and occupants from adapting it to their lifestyle and traditions. A study of the widespread use of the multi-story house in certain areas of the Middle Eastern region may explain this preference.

In Arabia (particularly the regions which compose modern Saudi Arabia), the multi-story traditional houses are found only in Hijaz and Asir. Generally, the dwellings are row houses (as in Hijaz and the urban settlements of Asir) or semi-attached houses (as in the rural areas of Asir) whose plans may vary according to the specific needs stemming from the natural or artificial limitations of the land.

The multi-story traditional house of Hijaz is a walk-up house type of four to six stories. It is thick-walled, and usually without a central courtyard, although a lateral courtyard can be found. This traditional house has large rooms, many wide windows covered with "rawashin" (singular, "rosharn;" a local term for Mashrabiyyah), high ceilings, and multi-level flat roofs divided by approximately 6-foot partitions and protected by a wooden or fire-dried brick parapet (Figs. 1.8-1.11). Along the entire Red Sea coast, and
Figs. 1.8 - 1.11 show the general characteristics of the Hijaz multi-story traditional houses.
particularly in Jeddah and Yanbu, buildings are of well-cut coral stone, while the mountains around Mecca, Taif, and Medina provide the basic building materials for one of the most interesting and locally responsive traditional houses.

The traditional multi-storey houses of Hijaz share these characteristics: First, the rawashin fulfill the same role in the multi-story traditional houses of Hijaz as do the central courtyards within the traditional courtyard houses -- they provide light, air, and a place for social activities. Rawashin were not only the distinguishing external features of the Hijaz house, but also the focal point of life within the house. Their projections into the street made it possible to catch the slightest passing breeze. Also, their adjustable parts made it easy to control the intensity of sunlight entering the house (Fig. 1.12).

Second, beside the obvious function of staircases in any multi-story house, the staircases of the Hijaz multi-story houses were constructed in a simple and ingenious manner. They were usually located in either the middle or on the back side of the building, where they also acted as a ventilating shaft for the house. They consisted of a straight flights of solid steps of either rock or coral rising around a solid stone core (newell) (Fig. 1.13). Third, in addition to the tough irregular masonry which was commonly adapted to wall constructions of the Hijaz traditional house, horizontal "taqlilat" (horizontal wooden ties) were applied along the length of the wall and repeated up the height of the wall at
Fig 1.12 The projections of Rawashin into the street made it possible to catch the slightest passing breeze. Also, their adjustable and movable parts made it easy to control the intensity of sunlight entering the house.

Fig. 1.13 Plan of the typical staircase in a multi-story house of Hijaz.
intervals of 2 zirāa (approximately every six courses of stone blocks, about 9.5 inches per course). These horizontal wooden ties were useful for propping up the wall when its lower parts were damaged by sudden torrential rain and when crumbling coral was being replaced in the course below. They also prevented the wall from collapsing due to unexpected ground settling (Fig. 1.14).

Moreover, despite the difference in form-type between the traditional Hijaz house and the typical courtyard house, the adjoining multi-story houses invariably share a single common party wall, where the plans interlock rather than simply abutting one another, making for compactness and social closeness. This is evidenced in the old neighborhood configuration of Jeddah, Medina, Mecca, and Taif, which greatly resembled the typical layout pattern of the Arab-Muslim settlements.

Although the majority of traditional houses of Asir are multi-story houses, they differ from their counterparts in the Hijaz in character and design. The unique traditional architecture of the mountainous southwest (Asir) is best seen in and around the city of Abha. Here the houses, rising up to four stories, are constructed from mud, stones, or a combination of the two. They are flat-roofed and thick-walled with limited openings and a gradual inward-sloping wall that imparts greater stability. In the houses built of mud, the building technique clearly resembles that used for Najran mud houses (sun-dried mud layers). However, due to the higher
Fig 1.14 The horizontal wooden ties were useful for propping up the wall when its lower parts were damaged by sudden torrential rain, and when crumbling coral was being replaced in the course below.
average precipitation of 10-12 inches, Asir master builders ingeniously added a horizontal row of protruding stone slabs between each mud layer. These "string courses" break up the flow of rainwater which would otherwise dissolve the mud.

Houses constructed from stone are generally found further up in the highlands where stone is readily available, and where a stone-built structure best resists the violent winds which frequently occur in the high mountain regions of up to 9,000 feet. The stone-built traditional houses of Asir feature small doors and windows which prevent intense sun glare and reduce the strength of the drafts entering the house. In the houses built with a combination of stone and mud, the ground floor is constructed from stone in order to sustain the downhill flow of rainwater. The floors above the ground floor are constructed from sun-dried mud brick with protruding stone slabs (applied in traditional mud-built houses) used to reduce the influx of rainwater.

Among the traditional houses of Asir, there exists a house-type associated specifically with rural areas. These are easily recognized as they were frequently built in isolated tracts on the terraces of Asir's highlands (Fig. 1.15), surrounded by walled fields of alfalfa and other crops. In contrast, the houses which were built in more or less urban settlements usually fall into the row-house category, built in typical clustering configurations (Fig. 1.16).
Fig. 1.15 In rural areas of Asir, the multi-story traditional houses were frequently built in isolated tracts on the terraces of the region's highlands, surrounded by walled fields of alfalfa and other agricultural crops.

Fig 1.16 In the urban areas of Asir, the multi-story traditional houses were built in a row-house type in the typical clustering configuration.
1.4 THE SIGNIFICANCE OF TRADITIONAL HOUSES

1.4.1 Socio-Cultural Significance

Any analysis of traditional houses would be incomplete without some mention of the significance of both their external and internal organization, which reveal much about their inhabitants' socio-cultural values and life-styles.

The compact layout of the residential clustering clearly reflected the inhabitants' accommodating attitude towards their neighbors, who were generally members of the extended family. The size of the traditional house was also significant, mirroring the dynamic size of the extended family more than any other factor, more even than the wealth or prestige of its members.

The residences of the sons and other relatives, married and unmarried, created a need for additional living space within the principal house. The flexibility for change and the expansion of the principal house can be clearly seen in the evolution of land configuration as family size increased by marriage or birth, requiring more rooms to be built on unused land in the house lot (Fig. 1.17).

Once the land around the courtyard was built upon, any further expansion took place vertically. In the case of the multi-story houses, where land shortage was a major factor, the principal house took up the entire land mass, and expansion could only be vertical (as will be discussed in Part Three).
Fig. 1.17 Characteristic of the Najd traditional courtyard house, particularly of the medium-sized and larger houses, are the continuous semi-open corridors, usually located on the second floor, which run along the four sides of the courtyard.
The internal character of the traditional courtyard houses, where external windows are limited or eliminated altogether, is a response to both the harsh climatic conditions and the importance of seclusion and privacy for the traditional Muslim family. It should be noted that the extroverted character of the multi-story traditional houses of Hijaz (where wide windows are found in outer walls) should not be viewed as inconsistent with what has been claimed for the courtyard houses.

The respect for privacy and seclusion is also clearly evidenced in these multi-story houses where an elaborate wooden latticework covers a considerable area of every window opening. Also, the use of rawashin (Mashrabiyyas) to control the intensity of sunlight while admitting air into the house, is an important factor in protecting the internal character of these houses. Rawashin, in turn, act as screens preventing outsiders from scrutinizing the interior of a home, but at the same time allowing the inhabitants a view of the outside world.

Social concern in these courtyard and multi-story houses is also expressed through various forms of barriers in the internal organization. For example, the traditional courtyard house has a baffle wall located near the entrance hall which prevents passersby from seeing in, thereby adding to the privacy of the householders. From this entrance hall, male guests can be received in the reception room, which is carefully situated to provide direct access without the need
for further entry into the house. The courtyard also contains an interior courtyard or courtyards where domestic social activities were conducted out of the public view. Around this court are the multi-functional rooms where female members found retreat and privacy. A kitchen and latrine are also found around the courtyard. Where there is a second floor, the rooms were used by the married members or as sleeping compartments during the winter.

The vertical arrangement of the various elements of the multi-story traditional house provided maximum privacy. Generally, the room or rooms adjacent to the entrance hall on the ground floor were regarded as male quarters. The head of the family received and entertained his male friends on this floor, and also used the rooms as a business office (as we will see in the case of the Meccan house). In the multi-story house in the rural areas of Asir, the ground floor is characteristically used for storage space and for stables.

In both the courtyard and multi-story houses, the roof-terraces played a socially significant role. On these roof terraces privacy is created by partitions and parapets of up to 6 feet, and this privacy is respected by a social and moral agreement between neighbors to refrain from building houses overlooking the existing terraces. Here families socialized in the evenings when the days were temperate.
1.4.2 **Housing Significance**

Although housing officials in the Third World countries take pride in maintaining and preserving the great architectural heritage of their societies, in today's world there is a pragmatic emphasis on constructing housing projects. More modern types of housing, designed and constructed with little attention to regional characteristics and cultural values are the norm today.

In the construction of the traditional houses we can see harmony between the use of appropriate building techniques and the adaptation of locally available construction materials for this purpose. Master builders were sensitive to the socio-cultural values and needs of the families for whom they were building, and they were familiar with the harsh natural constraints upon design and construction. These builders succeeded in finding a balance between preserving socio-cultural norms and adapting housing to fit the climatic conditions.

For example, in the traditional courtyard house of Najd, the need to allow women maximum freedom of movement within their own quarters while eliminating the possibility of their being viewed by strangers meant that the restricted family quarter had to be oriented toward internal courtyards, and so there was little need for external windows. Courtyards also significantly maximized air circulation, cooling and filtering dusty air during the summer season. When windows were needed to ensure proper ventilation and light, careful window
screening using a lattice woodwork met both climatic and socio-cultural requirements.

In the multi-story houses of Hijaz, the rawashin (Mashrabiyyahs) provided a logical answer to the problem of ventilation and light. In addition, these rawashin gave the women of the household visual access to street activities without being visible from outside.

In examining the distinct features of the traditional houses, we further realize the underlying principles which guided the master builders. The internal organization, for example, divides the house into two main sections. The first is the living quarter, designed for the use of closely related members of the family, particularly the female members and male "Mahram" (unmarriageable males). Generally, this section is located either away from the entrance (in the courtyard house) or on the upper floor (in the multi-story houses). Except for storage areas, latrines, and cooking areas, almost all space within this particular area (open, semi-open, or closed) is used for a variety of functions, such as sleeping, eating, family socializing, and household work.

The second section within the internal organization is designated for receiving male relatives who are not mahram, other male visitors, and guests. This area is arranged so as to be independent from the rest of the house, allowing male visitors easy access without disrupting the privacy of female householders. It is designed in such a way that it maintain its position as an integral part of the house.
Further adherence to the quality of order is seen in the arrangement of roof terraces, the layout of circulation systems within the house, and the compact arrangement of houses within the residential cluster all of which give a sense of balance, harmony, and coherence.

The underlying qualities revealed by the architecture of these traditional houses give them their significance. Their design and construction resulted from a long process of adaptation and modification, on the basis of experience. An understanding of local climatic conditions and an appreciation of traditional cultural values is evident in these houses. It would be wise for architects and home-owners to heed the values of the builders of the past when constructing new homes for modern-day Saudi society.
CHAPTER II
EARLY SIGNS OF CHANGE

From time to time, historical events dictate that a society re-evaluate its goals and adjust to meet new challenges and needs. Unlikely as it may seem, in Saudi Arabia traditional houses were the first to reflect changes in the society. This is clearly evident in the development of Meccan houses from their simple early form (where a semi-private open space "arsah" had to be created in front of each house in order to allow pilgrims to have temporary accommodation) to the later, more complex spatial organization, where accommodation for pilgrims has been brought inside. This is because these changes occurred as a process of rational evolution, and normally enhanced the perfection and elaborateness of the house. A drive towards maximum suitability was important in this process, and the form of the traditional house was modified only after careful examination. The features of traditional houses grew more ornate, while maintaining established socio-cultural values.

Until the beginning of the 20th century, the form of the traditional house developed independently in the four regions of Saudi Arabia. However, due to certain important historical events in Saudi Arabia, the evolution of traditional houses ceased abruptly and began a downward swing toward decay. Novel housing forms emerged to replace the traditional forms.
2.1 **Circumstances and Tools of Change**

We will now look briefly at the historical events which contributed to the debilitation of traditional house building.

2.1.1. **The Formation of the Modern State**

By the end of the 19th century, Arabia was a patchwork of regions, each governed by its own ruler. To gain power and prestige, local tribes within regions vied for control. Though these struggles occurred in all regions, they were particularly evident in Central Arabia.

Nineteen hundred and two marked the beginning of this regional and territorial strife. That year, in a dramatic dawn raid, the young Abdul-Aziz Ibn Abdar-Rahman al-Saud, with a force of less than fifty men, captured Riyadh, which was then ruled by Ibn Rashid, the long-time rival of the al-Saud family. In Riyadh, Abdul-Aziz al-Saud established a base from which to take the rest of Najd. For four years (1902-1906) he battled with al-Rashid over the right to govern the remaining parts of Najd. By 1906, the position of the al-Rashid family in Najd was diminished by the death of their leader, Abdul-Aziz Ibn Rashid, and the withdrawal of the Turkish troops who were assisting Ibn al-Rashid.

The conquest of Najd did not by any means end Abdul-Aziz al-Saud's difficulties in exercising control over the region. The limited natural resources of the area together with its harsh natural climat and terrain conditions, presented
problems. The drought of 1908, which lasted for many years, heightened Abdul-Aziz al-Saud's economic difficulties, which in turn affected his ability to maintain the loyalties of tribal leaders. In 1910, following an unsuccessful rebellion, Abdul-Aziz al-Saud established a reliable army for the first time in the modern history of Central Arabia. This army was a political-religious-military organization known as the Ikhwan (brotherhood). With this army Abdul-Aziz launched a surprise attack on the Ottoman forces who controlled most of the al-Hasa region. In May 1913, the al-Hasa region fell to the control of Abdul-Aziz al-Saud. The conquest of al-Hasa alleviated the economic problems of the Ibn Saud regime by adding to its resources the date-producing oases of Hafuf and Qatif and the fishing and pearling industries of the Gulf Coast.

By expelling Turkish forces from al-Hasa, Abdul-Aziz put himself in direct contact with the British, whose presence as the Shekdum Protectorate in the Arabian Gulf was strongly felt. Before the outbreak of World War I, Abdul-Aziz attempted several political maneuvers to win recognition of his hereditary right to govern Najd.

Towards the end of 1915, a treaty was signed at Qatif between Abdul-Aziz and the chief British political officer in Iraq. The treaty gave Abdul-Aziz the recognition he wished. In return, he promised not to maintain relations with any other foreign power, not to give concessions without prior approval from Britain, not to attack the British protected
sheikdoms of the Gulf, and to keep the pilgrimage routes open.³

Simultaneously, in Hijaz, the outbreak of the First World War gave the Hashimites an opportunity to revolt against the Ottomans in order to set up an independent Arab kingdom. In Hijaz and the Fertile Crescent, an armed uprising against the Ottoman Empire took place in 1916. The revolt was led by Sharif Hussein, who was supported by the British. Abdul-Aziz became aware of the close relationship developing between Hussein and the British when, in 1916, Hussein proclaimed himself King of the Arab countries (Malik al-Bilad al Arabiyya).⁴

In order to divert Abdul-Aziz's attention from the Hijaz region, the British promised him a monthly subsidy of 5,000 pounds in addition to some military equipment. In return, Abdul-Aziz kept a force of four thousand men in battle against the Rashids who, at that time, were still allied with Istanbul.

The diversion of Abdul-Aziz's attention away from Hijaz was, however, short-lived. In 1917, at the Khurma Oasis, early contact between the Hashimites and the forces (Ikhwan) of Abdul-Aziz took place. To the dismay and surprise of the British, Abdul-Aziz emerged victorious over the Hashimites. After his triumph, in a drive to expand northward, Abdul-Aziz engaged in a series of confrontations which resulted in his takeover of Hail (the capital of al-Rashid) and most of northern Najd. As the result of this expansion, an agreement
was reached between Abdul-Aziz and the British Resident Minister in Iraq over disputed border territory between Iraq and Kuwait. Having secured the northern border of his consolidated territory, Abdul-Aziz was then able to concentrate his energies and attentions on the Hijaz.

In 1924, he and his Ikhwan Army took over Taif. Next, he marshalled his forces for a decisive attack on the Hijaz. He marched against Mecca and Medina, and these two cities holy to in Islam, fell to his control. Also during this time, he sent his son, Amir Faisal, to conquer Asir as a precautionary measure.

There is no doubt that this victory over Mecca increased King Abdul-Aziz's economic base. He now received the revenue generated by the Hajj (annual pilgrimage). However, his inheritance of a more sophisticated form of government than he had previously practiced in Najd suggested forthcoming changes in traditional methods of ruling the unified regions.

After settling a frontier dispute with his neighboring British Protectors, King Abdul-Aziz signed with Sir Gilbert Clayton the Treaty of Jeddah in 1927. The Treaty recognized Abdul-Aziz's authority from the Arabian Gulf to the Red Sea. The British recognition of King Abdul-Aziz's independence led the major European powers to follow suit and to set up consulates in Jeddah. The establishment of these foreign offices was the earliest move toward diplomatic relations with other countries in the modern history of Saudi Arabia. During the unification process and especially during World War I, a
variety of machine-made Western products gradually filtered into the country. 6

From 1927 until 1932, King Abdul-Aziz finalized the process of regional consolidation. By 1932, Abdul-Aziz had evolved from the King of Hijaz and Sultán of Najd to the King of Saudi Arabia, and the four regions which he had unified became the new Kingdom of Saudi Arabia. During the first twenty years of the new nation, two major cities were recognized as capitals. Riyadh (where King Abdul-Aziz resided), was the political capital, and Mecca (the birthplace of Islam and therefore its holiest city) was the religious capital of Saudi Arabia. Although Riyadh was recognized as the political capital of the country, most government business was conducted in the Hijaz region, primarily in Jeddah and Mecca, during the last twenty years of King Abdul-Aziz's regime.

The unification process brought about political stabilization under which the different regions had to share their natural resources with other regions. The unification process also required the establishment of ministerial institutions to perform the various functions of the government.

In fact, these results of the unification process were important early signs of change, which indirectly and unintentionally effected major changes in traditional living environments. However, the key factor that would accelerate the pace of change and, consequently, drastically transform
this new state from a nation of poverty to a nation of affluence, was yet to emerge.

2.1.2. The New Economic Base

Throughout the thirty years of the unification process, courage, strength, wisdom, and foresight persisted. Determination and faith guided King Abdul-Aziz al-Saud. As time passed, however, and closer contact with the outside world became inevitable, King Abdul Aziz's awareness of the importance of material things -- money especially -- grew tremendously. The shaky economic base of his emerging government troubled the King.

From the previous section, we recall that in the early years of the unification process, Najd's economy depended upon the agricultural and pastoral socio-economy. King Abdul-Aziz's government income was generated during those early years from Zakat, or tax, on the increase of flocks, crops, etc. This revenue was clearly insufficient to meet war obligations and to support the needs of his newly-organized army. The rich agricultural resources together with the fishing and pearling industries of al-Hasa alleviated some of his economic problems, but this revenue was still far from sufficient to meet his debts. The capture of the Hijaz increased Abdul-Aziz's assets further by adding to his treasury custom duties and the Hajj revenue. The Hajj revenue became the principal dependable source of domestic income. This revenue, however, was very much influenced by the
security conditions of the pilgrimage routes (by land or sea) and was affected both directly and indirectly by world political and economic conditions. For instance, the First World War and the economic slump of the thirties caused a decline in the number of pilgrims and thus the government's income. King Abdul-Aziz therefore had to continue his dependence upon British subsidies, though he was unable to repay his accumulating debt to Britain and his other European creditors, which by 1932 totaled £219,000 (gold). With his government in such dire financial straits, King Abdul-Aziz wisely reconsidered a concession to Standard Oil of California (SOCAL) in return for advance funds from the company.

The concession was signed in May 1933, was valid for sixty years, and covered 250,000 square miles in the Eastern region. The company paid King Abdul-Aziz the sum of £50,000 gold as a down payment, which helped solve the government's immediate fiscal problems. The importance of the 1933 concession, however, was not in the advance payment, but in what was about to be unearthed from the sands of al-Hasa. Between 1933 and 1938, (SOCAL) discovered several oil fields, and in 1939 struck oil in commercial quantities. In the same year, oil production generated an income of £200,000 of gold. This encouraging find signaled the end of King Abdul-Aziz's financial worries. In fact, from that time on, the main problem for King Abdul-Aziz and his successors was how to spend the money efficiently.
Within a few years, the old economic resources had lost their dominance in this newly-emerging nation. In return, the new economic base had opened the country's doors to the full flood of Western development and its attendant materialism. The centuries of isolation, where the pace of change was slow, had come to an end. The accelerating thrust of radical change had found its way into every aspect of the lives of the Saudi people and in particular into their traditional living environments. This will be traced in the chapters following.

2.1.3 The Emergence of the Middle Class

Before the discovery of oil in the Eastern region, the people of this region were engaged mostly in farming, pearl fishing, trading, and other manual trades. Enrollment in one of these occupations depended on customary inheritance of the lifetime engagements of a family occupation or craft. The father was responsible for teaching his son the skills and experience needed to master the craft, maintaining the quality of craftsmanship and economic viability within the family. A household where the son or sons engaged in the same occupation as their father had a stronger economic base than other households where sons did not follow the father's occupation. However, despite the different activities and levels of wealth and prestige, such households lived side-by-side in one locality. But the discovery of oil in the 1930's and the subsequent demand for manpower in the oil industry had far-reaching effects on the decline of the age-old
socio-economic structure. With the amenities and economic incentives that the oil industry provided, many of these farmers, fishermen, and nomads found employment as unskilled laborers with the oil companies. At the beginning, these employees found it difficult to adhere to a regular, uninterrupted schedule of work, as evidenced in the enormous labor turnover at the oil camps during the early years of the company's operation. By the end of World War II, the subsequent increase in the company's profits as the result of the increase in oil production made it necessary to recruit more local workers from the nearby settlements. As a result of such large-scale disengagement from the traditional craft occupations, the usual sectors of the region's economy were completely overshadowed by petroleum production, the construction business, and importation of necessary equipment.

This change in the old regional economy was initiated not only by the new economic base, but in many ways by the oil company. The salaries received by Company workers raised their purchasing power, which in turn stimulated business. In addition, the Company's policy of subcontracting stimulated the local contracting and importing trade. The preceding factors played a major role in creating a new middle class, consisting of contractors, entrepreneurs, and businessmen, whose knowledge and experience of the field was acquired not through inheritance from generation to generation, but rather through secular education or field training in a completely new discipline.
In Hijaz, on the other hand, where trade still topped the list of old socio-economic occupations, the inhabitants' business acumen evolved over the centuries through continuous contact with the outside world in the form of pilgrims who came every year to perform the fifth pillars in Islam (which is the pilgrimage), and to visit the holy places of Islam. During the pilgrimage period, commercial activities and trade were conducted between the Hijazi merchants and the merchants from other Muslim countries. Like to almost all occupations that formed the socio-economic structure prior to the unification of 1932, business was much more a family institution than merely the exchange of money for goods. For this and other reasons, especially the absence of rapid communication and banking systems, personal friendships with exporters were greatly valued by Hijazi businessmen. Such personal friendships were usually enforced and inspired through frequent visits to Hijaz, or vice-versa. In addition, transmitting trading skills and knowledge of the occupation was the father's responsibility toward his son or sons so that they could carry on the family business in the future.

The prosperity created by the discovery of oil gave many new people a chance to enter commerce. Lack of experience in the old trading structure, coupled with the establishment of European consulates and other foreign agencies from Western countries considerably changed the deep-rooted trading habits of the Hijazi people. Newly-established merchants were characteristically more receptive to Western attitudes and
business methods compared with those established business families. Many of them, especially the younger merchants, traveled to Europe and America, spending some years studying Western accounting and marketing methods. On their return, they put into practice the techniques they had studied and observed abroad. They utilized the banking systems and business transaction methods of Western commercial establishments, which differed completely from the well-established habits of the older merchants.

With increased consumer marketing and competition among the ever-increasing number of new merchants, they became an identifiable social group. Significantly, this was due not only to their different way of doing business, but also to the different way of life which began to evolve among them. They no longer conducted business in the reception rooms of their houses, or in their shops within the marketplace; instead, they used a specialized office space where other employees could be hired to perform the various duties involved carrying on business.

In short, these merchants, with their new and different outlook, fell within the category of the newly-emerging Saudi middle class.

It has already been mentioned that most government ministries were located in the Hijaz (particularly in the cities Jeddah and Mecca). During the early years, most high government positions had held at first by Arabs born in nearby Arab countries such as Syria, Lebanon and Egypt, since there
were few highly-educated Saudis. Those Saudi government employees who were illiterate, moreover, held the lowest-ranked government positions, while those who had acquired a secular education from the few schools established primarily by the prominent Hijazi residents (such as the al-Falah School, founded by Mohammed Ali Zainal Alirez in 1900 with fifteen students), were able to achieve middle-level positions in government ministries. By 1945, the first four Saudi university graduates returned from Egypt. All of them entered government service and held higher positions in the government ministries.

By 1953, King Saud, son of and successor to the late King Abdul-Aziz, decided to transfer the government ministries from Jeddah and Mecca to Riyadh. During the transfer process, which took approximately four years, the government had to attract many Hijazi government employees to Riyadh. This was not easy, in as much as these government employees, who held high government positions because of their education and personal abilities, were better off in the traditional living environments and good economic conditions of their home-towns. Therefore, in order to compensate for such home-town amenities, jobs in Riyadh had to be made attractive, by offering higher rank, increases in salary, and convenient living environments. Most of these perquisites were offered eventually by the government, and many government employees were moved to Riyadh, together with the native Najdis, who enrolled in government service and reached upper-level
government jobs with their counterpart Hijazi employees and other Arab employees.\textsuperscript{12} Beginning with army officers and administrators, this group of government employees began to be recognized as a distinctive social group. They were becoming the new middle class group in Saudi society.

Considering what has been discussed in this section, we realize that the company's native workers, the contractors and entrepreneurs, the new businessmen, and the government employees, were in one way or another products of modernization, which brought about cultural contact between Saudi society and the Western world. The people who held these jobs were distinguished from the rest of Saudi society by their reliance on secular knowledge gained through school attendance to attain their positions. They were the first group in Saudi society who did not acquire experience and knowledge through the old customs of family affairs.\textsuperscript{13} The rapid growth of the country's economy increased their opportunities for upward mobility on the basis of further education and training.

The direct and indirect contact of this newly-emerging middle-class social group with other societies and cultures (through work, travel and education) has influenced their old style of life, and was translated into their living environment in a dramatic way with the help of architects, who began to appear on the Saudi scene at the same time as this middle class was emerging.
2.1.4 From the Extended Family Tradition to the Nuclear Family Pattern

From what has been discussed about the social organization of Saudi society, we realize that in the past, Saudi households typically comprised traditional extended families. The socio-structural characteristics of this basic social unit and the role it plays in the nomadic and urban context have been mentioned frequently in the preceding chapters.

However, the unification of the country; the discovery of oil and its consequences of economic upheaval and cross-cultural influences; and the introduction of different job opportunities, which overshadowed the importance of the old craftsmanship in return for new occupations and different skills; were all instrumental in opening up the way for social change in Saudi society. Since the extended family is the fundamental constituent of Saudi society, its transformation was an inevitable consequence of social change.

With more varieties of occupations and experience available than earlier, and with jobs easily accessible in different regions of the vast country, the extended family household began to give way to the nuclear-family household. In fact, the shift from the extended family to a nuclear-family unit occurred side-by-side with the emergence of the middle-class social group. It was the upper stratum of the new middle class who first initiated the trend toward nuclear
family formation. This Saudi class had been so strongly attracted to prestigious higher government or oil company positions, with impressive higher incomes that went with them. In addition, the secular education which most members of the middle class acquired from either local or foreign educational institutions had unfortunately emphasized such changes, instead of counterbalancing them. Thus, the splitting of the extended family symbolizes a divergence in outlook which shows as great a gap in education, cultural appreciation and experience as in generations.

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

It is interesting to note here that in some cases, older parents might move into a married son's home (preferably into the home of the oldest son or the one in the best financial situation), and on occasion a nuclear family might have one or more relatives of each side, (the husband's or the wife's) living with them. Cross-cultural influences and the increasing affluence and mobility of the Saudi nuclear family led to the introduction of other new phenomena into the Saudi household: the preference for small families and the gradual disappearance of arranged marriages which enforced interextended family marriages, of cousins in particular. Another practice that disappeared was that of neighboring or
related women wet-nursing each other's children when one of the mothers was absent. This practice showed family consolidation and affection, but also precluded the later marriage of children who had been nursed by the same woman. Although the above discussion addresses the social issues of the shift from extended to nuclear family patterns, the physical implication of such changes on the residential environment will be analyzed in the following chapters. It is important to emphasize the cultural influences of the early mass-produced housing of the 1950's in enforcing and encouraging such social change, as this housing provided limited alternatives for an extended family to reside in one household without sacrificing privacy and emotional comfort.

2.1.5 New Building Materials and Techniques

In all traditionally constructed Arabian house types, the loads of roof and floors were carried to the foundations by the walls, which also provided a weather protection envelope for the activities carried on within the buildings. This was the structural or load-bearing system of traditional Arabian architecture. As has been discussed earlier, various types of house construction techniques have been employed very successfully for centuries. Each of these techniques has been devised to provide the basic dwelling needs of the inhabitants in rural as well as urban settlements. These age-old building techniques were also utilized to meet the special demands
imposed by several influential factors pertaining to a particular region. These factors include the following:

1. the topographic and climatic conditions;
2. the inhabitants' socio-economic role; and
3. the local building materials.

Regarding building materials, we have seen that the local master builders developed a better understanding of the characteristic qualities of the locally-available building materials. In hot dry regions, the master builders mixed mud with straw to form one of the most basic local building materials for house construction. They benefited substantially from the poor conductivity of the mud; and as they faced with a higher amount of rain (in the Asir region, for instance), they added the horizontal row of protruding stone slabs (cited earlier) in order to prevent the rain from dissolving the mud. In the coastal areas (eastern or western), traditional houses were built with coral stones extracted from the nearby seashores. In the mountainous areas, the abundance of rocky stones provided the basic building materials. As building materials stones (either coral or rocky) are ideal, as they have a desirable quality of high compressive strength and excellent durability.

Though the above discussion refers mainly to the walling materials, techniques of roof construction and the materials used to cover the various spaces of the house deserve a brief description. It would surprise no one that wood is scarce in Arabia. Yet, despite this, houses were not roofed by domes,
vaults, or pitched roofs. The flat roofs characteristic of all Arabian traditional houses were built with the following materials: (1) palm tree trunks or tamarisk trunks; (2) jarid (palm branches); (3) thatch; (4) compact earth or mud. In the coastal areas, where better wood could be imported from nearby and Far Eastern countries, roof spans are relatively longer than the typical roof span where tamarisk trunks were used. The method of laying the roofing material was similar in the two traditional house types (courtyard and multi-story).

Generally, palm trunks or tamarisk trunks were laid parallel to each other, spaced one or two feet apart on a properly raised walls. On top of these trunks and perpendicular to them the jarids were placed side by side. On top of these jarids, a layer of thatch was usually placed in order to hold the compact earth or mud from falling down.

Plain and mud mortar were used to cement the joints between the sun dried mud bricks. In areas where stones (coral or rocky) were used, a mixture of "nurah" (lime) or "juss" (gypsum) with earth or mud was used to bond the stone joints.

Although some of these building materials could be found in more than one region, this did not restrict the types of residential unit. For instance, the courtyard houses of the Najd and al-Hasa coastal areas were built using two different building materials, while coral stone alone was used to build
the courtyard houses of al-Hasa coastal area and the multi-story houses of the coastal area of Hijaz.

In all regions of Saudi Arabia, the use of these local building materials and the practice of age-old house construction techniques lasted well into the third decade of this century (the period of the country's consolidation; the discovery of its oil reserves; and large-scale contact with the outside world). The use of natural local building materials has been gradually abandoned, and new and different building material has taken their place. This is especially apparent in the region where oil has been discovered. A study of the work of William A. Eltists, Carleton S. Coon, and Peter G. Franck indicates that:

All the building materials, except sand and clay, had to be imported; cement came from Italy, England, Germany and the United States. Wooden rafters (chundal) were cut on the African coast (west of Madagascar). Bamboo withes, to place over the chundal, came from Iraq and India. Flush toilets: white ones of vitreous china were made in Lebanon and India, reddish or terra cotta ones in Kuwait. Most of these materials were brought in at the cost of a high import duty, 25 percent, for example, on the toilets. These duties inflated the total house costs greatly. (15)

In addition to what has been mentioned already, a variety of hand tools, wheelbarrows, cement block machines, concrete mixers, electric wiring devices, and small appliances such as sockets, wall plugs, conduit light bulbs, and transformers have been introduced.

In Hijaz, the new building materials and techniques were introduced to the region by well-to-do Hijazi families. In
Tarikh Madinat Juddah (The History of Jeddah City), Abdul-Quaddous al-Ansari indicates that in 1929 the Zainal family (a wealthy Jeddan family) was the first to build a large, three-story, reinforced concrete house in Jeddah, presumably the first concrete house built in the country. In Najd, the construction of the railroad between Dammam and Riyadh ended the isolation of the Eastern and Central regions. At the same time, this new means of transportation eased the way for the new building materials, introduced in the Eastern region, to find a new market in the Central region.

Certainly there were wider choices of materials than was ever before possible. The many new innovations -- such as electricity, sewage systems, and weather control devices -- have proven in many cases essential to improve the quality of residential environments.

When considering the new materials introduced for house building, however, it is important to keep in mind that along with these new building materials came a new building technique, which seems to most students of Arabia's traditional houses to have brought about a drastic change in the local characteristics of the built environment.

Frame construction, where the loads of the roof and the floors were carried by a frame which concentrated these loads until they were redistributed by the foundation, became a new phenomenon in housing construction in Saudi Arabia. In other words, the walls became a non-load-bearing element, though they might carry their own weight, and could be independent of
the frame. The material used for frame construction is almost invariably reinforced concrete, although there are a few examples where timber or iron frame construction have been used in new residential buildings; timber frame was used for example, in some of the early residential units of ARAMCO's employees (the definition of ARAMCO is discussed in Chapter III) (Fig. 2.1). There are several components involved in reinforced-concrete construction. The sand and gravel must be clean, durable, and hard. Cement is the second component and an important one, for it holds the aggregates together in one workable artificial building material. Steel reinforcements are a third component; it increases concrete strength in house construction.

ARAMCO and the government of Saudi Arabia needed to construct large numbers of houses for their employees (discussed in Chapter Three), taking full advantage of the post-World War II industrial and technical advances achieved in the field of construction. But we must also consider whether it was wise to disregard the use of locally available building materials (mud, coral and rocky stones), without a attempting to exploit their natural qualities or to reduce their limitations by means of present-day building technology.

2.1.6 The Introduction of Professionalism

In the past, the building trade in Arabia, or any of its component crafts such as masonry, carpentry, and the like, was
Fig. 2.1 Early modern fram construction introduced to the eastern region of Saudi Arabia.
simply a technical skill, acquired and handed down. Most often, master builders or master carpenters instructed only their own children or relatives, also raising them to be of good moral character, so that craft skills might be safely committed to their charge. To acquire the basic skills of a craft, the older son passed through different stages of the skill-development process. The son should acquaint himself with his father's profession as early as ten years old, according to three veteran master builders interviewed by the author, who were forced to abandon their old ways of building to become contractors, constructing according to the new building techniques and using the new building materials. At first the son might merely accompany his father to the construction site and then carry small stones and light building materials. Then, within a period of several months to a year or so, the young boy was assigned another job, usually as a mortar mixer ("tayyan"). After mastering the technique of mortar mixing, the young man was then promoted to stone cutting. In this new position, he had not only to learn how to cut and shape stone blocks, but also to familiarize himself with the different terms and sizes of stone blocks and their locations and functions in the wall. Acquiring such knowledge and experience would take an average stone-cutter a couple of years. Finally, after spending an average of six to eight years in primary skill development, the young man started the actual building practice, at first building walls or sections of a house under the supervision of the master
builder. Gradually, under the on-site instruction of a master builder, and with a series of buildings built according to conventional practice as his only source of reference, the young builder could start erecting a complete house. On reaching this level, he became a builder "banna", though he would still not initiate a building contract on his own. In order to be able to do so, he had to build a reputation through skillful building achievement under the supervision of the master builder "MuCcallim". To initiate a building contract by himself, he needed an acknowledgement from the chief of the building craft "shaikh al-MuCcallimeen". A shaikh al-MuCcallimeen was the oldest and most notable among building craftsmen. His job was to administer the affairs of his craft, advise younger builders, and arbitrate any disputes among the members of the craft.18

After becoming a master builder or "MuCcallim", as the central figure in the building process, he would take full responsibility for mistakes and successes. He would negotiate the building contract directly with the client or user, who was most often his friend or neighbor, sharing the same socio-cultural values. The erection of the house would not start until the needs, requirements, and general design schemes were agreed upon between the client and the master builder. Since the general design scheme would be discussed orally, the only lines were drawn on the construction site itself, showing the external outlines of the house as well as the interior wall supports, while the rest of the design
gradually appeared as the construction progressed. The ingenuity of design depended totally on the skills and experience of the master builders.

Regarding skills and experience, the author interviewed several Meccans, all of whom mentioned the legendary Abdallah Wazierrah, a Meccan master builder who developed a unique building technique known to no other Meccan master builder. According to these informants, Muellerim Wazierrah built a complete house of three to five stories without building a single step in the house; he would leave an unknown space for the staircase, which he saved for the final construction stages. His main reason for this, as most interviewees indicated, was as a precautionary business measure: the client could not dismiss him and hire another master builder, once he started the construction in the event of an unexpected dispute, because the new master builder would not know how to build the staircase. It also encouraged prompt payment of installments for these jobs. Clearly, here was a man was capable of exercising a capacity beyond the design of buildings and environment, who could put up a mud or stone house in a traditional style, the style in which he was trained. It would be a great mistake and misfortune to dismiss or ignore such mastery in building.

Unfortunately, the introduction of new manufactured building materials and new techniques, coupled with the necessity of building a considerable number of houses built in a short time, created new conditions in the building practice
in Saudi Arabia. The master builders were not given sufficient
time to acquaint themselves with the new building techniques.
In fact in most cases master builders were totally ignored.
As a result, house construction was no longer an incremental
building process involving the user and the master builder.
Instead, building practice became virtually a finished
product, in which several professional groups
(designers/architects, builders/contractors, and structural,
electrical, and sanitary engineers) participated and shared
responsibility for the physical outcome.

The architect's knowledge of this field is acquired
through secular and theoretical education. Taught to envisage
a building, complete and in detail, before one stone is laid
upon another, the architect can set vision down in the form of
in drawings, in order to be translated to actual constructed
reality. After the architects, we find the engineers, each
one participating in the building process according to his
line of specialization. The third group consists of the
builders (contractors). They are trained to read architects'
drawings and translate them into three-dimensional physical
form. It is interesting at this point to indicate how the
early contractors came to appear on the scene of building
practice in the country, and how limited was their knowledge
and building experience compared to the hard work that the
master builders used to pass through. In an interview
conducted by C.S. Coon with contractor Yusuf Zuwawi of
al-Khubur, who was 28 years old at the time of the interview,
he explains dramatically how he got involved in the construction business:

First, I worked as an office boy, then as a time-keeper; then I became a gang-pusher (labor foreman); in 1941 I started as a carpenter's helper; then I served as head carpenter up to August 1948. Then I went into the contracting business.

My first job was building the administration building. For this I took a partner, Aissa Ashur, and I worked also. Aissa and I had saved our wages. We were getting top pay, and didn't borrow a riyal from our families or the merchants. All we needed was enough money for the first two weeks. We didn't make much out of it, and in 1948-49 we made only a small profit. It took us more than a year to finish the administration building. At the same time I laid the foundations for a stabilizer plant; I also roofed eighteen houses for the airbase. (19)

C.S. Coon also interviewed another contractor, Hassan Selman:

In 1939 I started, first as telephone operator, because I knew English; after one year I was transferred to the accounting department, then was made head clerk. Then I was transferred to the personnel recruiting section as an interpreter in recruiting Arabs. In 1942 my father died, and left me nine people to support -- my mother, three younger brothers, of whom the oldest was twelve; these also include my wife, whom I married when I was fourteen, and my three sons. My salary was not enough for my needs, and since my father had left much money I wanted to spend my time keeping this money busy. So I went into the contracting business.

I had to learn construction. My first job was making concrete slabs, then grading, then working on the stabilizer, then I moved into real construction, including carpentry, electrical work, and plumbing. Electrical work and plumbing are the hardest, but I have good men for them. Sometimes, as for example last December, I hired as many as 400 men at once. At present I have 100 men at Ras Tanura making concrete block buildings, duplexes, and seven-unit family apartments. As a rule, I keep my qualified men on the payroll all the time; I loan some of my men to other contractors, but they come back. The good men want to work for me because I treat them right. We keep busy most of the time and we work only for the Company. Sometimes I come out wrong on
my estimates, but not often. If I were to lose, it would be my own responsibility; they wouldn't adjust it. However, I have never lost on a contract. Having been in accounting, and knowing how to read blueprints, I know how to hit it . . . (20)

The stories above of the two contractors give us clear evidence of how radical change occurred in local building practices. Instead of a longtime vocational commitment, the building profession became an easily-acquired occupation. No matter what the background knowledge and personal skills, as long as the individual was able to import the necessary mechanical equipment for preparing the building materials and for mixing mortars on the one hand, and able to read the architect's complex drawings on the other hand, that person was eligible to be a contractor.

The engineers, on the other hand, have a limited role -- though a very important one -- in construction practice. Their role is limited by specialization in one of the engineering disciplines, structural, electrical or sanitary. Each of these engineers concerns himself only with his specialization. However, there is evidence that in the 1940s and 1950s the role of architects and structural engineers was most often subsumed under one profession. For instance, an architect might assume the role of the structural engineer, or as in this example, the engineer assumes the role of an architect by designing the building himself.

AIDD's engineering staff, headed by Harvey Brown, includes three engineers, Henry Braun and two Dutchmen, Willem Zimmerman and Willem van den Houdt. Serving them are three draftsmen. When an Arab asks Brown to draw up
a plan for a building or plant, he makes a rough draft in the presence of the client, and after this has been tentatively approved, the engineers work up the details. Further consultations must be held about the price; sometimes the project costs more than the client had expected, and must be reduced in size or dropped. When the rough price has been agreed on, Brown offers the contract for bidding, in the usual fashion. The construction so handled falls into three principal categories; community planning, individual enterprise, and employee housing.

(21)

The quotation above also shows that a considerable degree of decision-making power has been taken from the client (the user). The client is placed in a complex and indirect relationship between the designer (the architect) of the house and the one who actually builds it (the contractor).

Up to that point, the rise of professionalism as such, (where the architect, for instance, specializes only in skills directly related to the major design decisions) can be seen as one signed early token of change, an important factor in the cross-cultural influence affecting local house building in the country.
2.2 Cultural Contact and the Changing Outlook of the Local Residential Pattern.

After many centuries of regional self-control, natural isolation and territorial disputes among the different communities, most regions of Arabia finally unified, and the consolidation of the perennially feuding tribes which brought long-lasting security was at last an indisputable reality.

Meanwhile, the inhabitant of the peninsula faced severe limitation of natural resources and harsh climatic conditions. This double natural disadvantage may have been the major factor in discouraging other societies from developing any kind of cultural relationship with the emerging Saudi society. Many students of Arabia's history convey a notion of both the poverty and the cultural and regional isolation of Arabia and its people. But the discovery of oil and the wealth derived from it drastically reversed that notion. In fact, the discovery of oil not only created a desire for comfort and progress, but also marked the beginning of cross-cultural relationships between Saudi society and other societies on a scale of an intensity that had never occurred before.

Moreover, before the discovery of oil, Saudi society had been a most conservative and traditional society where cultural consciousness was not limited to religious practices or strong social ties, but stretched to everyday human behavior and activities, social communication and public interest. The distressing fact is that instead of reinforcing this cultural consciousness which had survived for many
centuries, the huge increase in wealth played a major role in disintegrating older social ties and responsibilities by facilitating material gain and the opportunity to acquire highly sophisticated modern technology. On the other hand, the modern technology which has been developed for the extraction of oil -- and the new ideologies and different cultural values which came along with it -- have not only disturbed the ancient rhythm and way of life of the local inhabitants, but also undermined regional self-sufficiencies. It created a powerful moneyed class, filled with a spirit of modernism and material advantage, more concerned with forms and appearance than with substance. On the surface there is no harm in aspiring to modernization and material progress; in fact such aspiration is an important ingredient for any society's cultural growth. When it leads to a society's losing its identity, or shifting one's loyalties away from his own cultural heritage and social responsibilities, however, such enthusiasm should be appraised and questioned.

Indeed, the three historical events emphasized above brought about radical changes in the political, economic, and socio-cultural aspects of Saudi society. There is probably no more radical and decisive change than the total overturn of a centuries-old territorial tribal disparity into a regional and tribal consolidation; the transformation of total poverty and insufficiency into economic affluence and material abundance; and the transition from regional and cultural isolation to world scale cultural communication.
In speaking of change, it is important to differentiate between the obvious connotation the word "change" suggests in the preceding discussion and the terms "evolution" and "cultural continuity" which every society should keep in mind as it embarks on its process of development. Traveling the thorny road of development, the nation that can show a great uses ingenuity in determining the appropriate intensity of development in the appropriate direction will experience very satisfying progress, with minimal economic sacrifice and cultural change. Unfortunately in the Third World in the present era, no society has or will have a chance to acquire such an ability. This is particularly true in the face of pressure from outside capital and technical assistance to conduct a mutual, but asymmetrical cultural relationship, particularly when the two societies involved are extremely different in background and degree of technological advance.

Once again we draw attention to the Saudi society before and after the discovery of oil and the concurrent cultural contact. It has often been asserted that Arabia possesses no significant natural resources, nor enough water to cultivate the food needed to sustain a decent living, and further, that Arabia's climate is harsh beyond toleration. However, the people of Arabia learned how to deal with this severity of climate and extreme limitation of resources to the extent that they became a relatively self-sufficient society. They learned to match their expectations and aspirations to the limitations of the environment in which they lived. With such
self-awareness and cultural consciousness, they developed a physical and social living environment that captured the attention and admiration of many students of architecture, planning, and other disciplines. This should come as no surprise to anyone who has seen studies of these particular environments, or who has strolled through one of the studies. The standard of the time and the area, the climatic conditions, the geography, and other natural limitations have a great influence on the availability of building materials, human creativity, and skills. Considering this, the residential environments developed in Arabia are not only adequate, but in fact appropriate and responsive to a great range of conditions, from climatic and regional to socio-economic and socio-cultural. Moreover, one cannot help but notice the general sense of simplicity and gentle beauty (Fig. 2.2), and the very elaborate details and ornamentation carefully integrated with the different elements of building, adding an amazing richness to the overall homogeneity of the physical structure (Fig. 2.3).

This raises another important issue, that of homogeneity. Take for example a traditional house in a typical settlement in the Central region, keeping in mind that all Najd houses are courtyard houses of one or two stories. There are rarely two houses alike; more often than not, there are differences of size, dimension, number of elements, and details. But viewed from a distance or from above, these houses show a great degree of homogeneity. Singularly, if we examine any
Fig. 2.2 Riyadh: View of a traditional quarter.

Fig. 2.3 Facades of traditional houses in Mecca.
house in the western region of Arabia (particularly in Mecca, Jeddah, Medina, or Taif), where woodwork is a common element of detailing and ornamentation in multi-story houses, we can find few single cases where the master-carpenter or wood carver used a single motif and repeated it on all windows and doors of the houses. Still, when seen from a reasonable distance, a group of houses will present a coherence and homogeneity of all its elements. Similarly, though no houses are identical, there is no question as to their overall integration. This notion of unity within diversity, while not unique, is an important achievement of Arabian society.

Moreover, in respect to socio-cultural issues that relate closely to built-up environments, the inhabitants of Arabia have consciously and carefully translated them into their residential environment without any distinction as to what type of house form the inhabitants developed.

In addition to citing briefly the challenges unfavorable economic conditions, the disparities in natural resources, and regional isolation -- that faced Saudi Arabia this discussion has underlined the state of self-awareness and cultural consciousness of the people before the discovery of oil. The oil discovery marked the start of a period in the historical development of Saudi society that changed virtually everything that was mentioned earlier. Despite the huge wealth that came to Saudi society after the discovery, it became more and more dependent, thus making it economically a "consumer society." Because of the amenities that came with the introduction of
mechanically-controlled devices, the ingenuity and skills that had produced that well-fitted and responsive architecture tended to decay. Also, despite the unquestionable usefulness of modern transportation, its introduction to Saudi Arabia, (along with many other factors), caused that unity and homogeneity in the residential environment to diminish and slowly disappear.

Finally, we should not disregard the infiltration into the society, of new ideologies, which not only affected and influenced the socio-economic structure, but also changed the frame of reference of every aspect of Saudi society, the residential environment included. In the case of the residential environment, the traditional ones which evolved throughout the centuries, and carried along with them a wealth of cultural ingenuity and tradition of the area were not left alone to continue the process of evolution and improvement. Rather, benefiting from new and improved building materials and technology, a completely different conception of a house, cluster, and neighborhood has been introduced. It starts from the tiny details of the house construction, and spreads to the internal spatial organization of the rooms and finally to the external appearance and the relationship of the house to those in the neighborhood. 24

But the stimuli to change in the conventional local residential environment created a state of confusion and contradiction which sent out alarming signals as Saudi society continued its rapid development. Whether or not Saudi society
is aware of the critical turning points in this process, the time has come to marshal once again its strength and courage -- shattered while it was trying its unprecedented giant steps towards modernization -- in order to re-evaluate and re-measure its accomplishment. It is certainly a difficult endeavor, and it may not always be a pleasant one, although it certainly is necessary.

In order to understand the misleading connotations of the phrase "modern house," we need a systematic retrospective analysis of the stages through which present residential environments have passed. Does "modern house" mean a complete change in form, spatial organization, and perception? Or is it rather a result of an evolutionary process which carries on through adaptation and modification? Also, without retrospection, it will not be clear to what end the terms "housing" and "home ownership" lead: does housing entitle architects, planners, and decision-makers to design and decide for the users how, where, and near whom they will live, without respecting the rights of users to decide these questions for themselves? And does this mean that the users and their architects are entitled to build whatever they like and fantasize, opening the field for architects to give free rein to their architectural extravagance and eclectic taste?

These extreme issues are by no means dealt with easily. Part Two of this study will attempt to discuss these issues to the extent that Saudi society has experienced them.
PART TWO

MODERN HOUSING IN SAUDI ARABIA
Three decades have passed since the first mass housing project was implemented in Saudi Arabia -- not many years in the world history of housing -- but the project has carved an unprecedented niche in the history of housing in this country. Throughout these decades one can trace three important stages. The first stage covers the period 1950-1970, when the first two major housing programs were implemented. The second stage covers the period 1970-1980, a time of unprecedented economic growth and building boom. The third stage began in 1980 and continues as an outcome of the previous two stages. This third stage is critical because of our ability to analyze, evaluate, and critique it as the outgrowth of the second period. An unprecedented amount of building took place in a single decade placing Saudi society on a critical path. Insight, awareness and adequate preparedness are the criteria to be used for decisions that will determine the future direction Saudi society should take.

Significant events mark the three stages of the history of mass housing in Saudi Arabia. This part will highlight the housing types introduced by the early mass housing, as well as recent projects. Several areas of discussion will be undertaken in the following four chapters.
Before the discovery of oil it was rare for the residents of one region to move to another region in search of better job opportunities. Each region had its own resources that made it independent and self-sufficient. The severe housing shortages which result from large-scale population movement between regions or within the same region were therefore practically unknown, and all housing demands were met through indigenous ways of building. New houses were generally financed through the savings or income of the owners, and the house construction process continued for an extended period of time, reflecting different stages and needs of the family life cycle. The process of constructing a house involved two parties, the user (or financer) and the master builder (who also designed the house).

As indicated earlier, the distinctive features that characterized the house types of each region indicated clearly understanding and respect for the customs of the people, and responsiveness to the natural elements affecting the living environment. This was the result of direct communication between the users and the builders, which proved to be
successful not only in avoiding unnecessary misunderstanding and resolving disputes, but also in translating the mutual conformity of social and cultural dimensions into physical structure.

With the unification of these regions under one government, "the Government of Saudi Arabia," all the regional urban centers were entitled to share in one another's wealth; at the same time people felt secure in moving from one urban center to another for job opportunities or other reasons. At the same time, two important events occurred changing the age-old traditional living environment dramatically.

These two events were the discovery of oil in the eastern region, and the moving of the government ministries from the Hijaz to Riyadh in Najd, both discussed earlier.

The immigration of great numbers of people to these two employment centers created a sudden and extensive need for housing.

It was therefore understandable that the local building industry failed to supply the needed houses in a short time; what is incomprehensible is that there was no attempt to improve local building technique and upgrade the skills of the master builders. Nevertheless, the oil companies and the Department of Government Property (under the supervision of the Ministry of Finance and National Economy) decided to build houses for their prospective employees.

The large-scale housing programs constructed in both the eastern and central regions marked the beginning of public
commitment to the living conditions of the citizens in general and the oil company's and government's employees in particular. This chapter is concerned with analyzing and discussing the early large-scale house-building programs which took place in the country. Such analysis will bring to light the effects of these early mass-housing programs on the existing traditional living environments. This chapter aims in addition to: explore the sources of these new house forms; describe the variety of ways in which they were transmitted, first to the coastal area of al-Hasa region and Riyadh in the Najd region, and then to the rest of the urban areas of the country; and finally, examine the resulting new architectural style which eventually developed in the country.

3.1 Early Mass Housing: ARAMCO's Building Activities

With the increase of oil prospects in the eastern region requiring a colossal operational capacity, three American oil companies joined the mother company, Standard Oil of California (SOCAL), in order to undertake this ever-expanding growth. On January 31, 1944, this consortium became known as the Arabian-American Oil Company (ARAMCO). In fulfillment of its original concession agreement of 1933, ARAMCO has helped the emerging government of Saudi Arabia to develop both its economic structure and its human resources. ARAMCO's introduction of American technology and management know-how virtually created the country's oil industry, and brought
concurrently notions of industrialization for development and progress.

Clearly, ARAMCO has played a positive role. However, in as much as it is a foreign company operating in a completely different land and dealing with a different society, the Company found itself playing the role of a mediator in the cross-cultural relationship between Saudi society and Western societies. Whether directly or indirectly, the oil company became the main carrier of new values and standards which have had a marked impact on the native population. Most important, and most pertinent to this study -- were the new modes and types of -- building and Western standards of living introduced. The building activity was not restricted to one kind of function: To suit its needs and purposes, ARAMCO built headquarters, offices, hospitals, warehouses, supply depots, equipment yards, and repair shops. But the building activity which interests us most is of residential units for the company's employees. By studying such specific activity we may find out the extent and nature of the role ARAMCO played in the introduction and transplantation of the different housing schemes that were implemented in the eastern region.

It is perhaps obvious that ARAMCO's house-building activity reflects its concern for the living conditions of its ever-increasing number of workers, most of whom were recruited from the Bedouin tribes and the people of the oases. the company's total staff shows a continuous increase except in 1942, when its staff dropped to a low of 1,825 -- including
1,654 Saudis, only 87 Americans, and the rest employees from Europe and from other Arab-Muslim countries. After the war the number increased from 1,825 in 1942 to 9,940 in 1945. Then by the end of 1951 the manpower of ARAMCO stood at 22,395. This number includes 13,786 Saudi employees, 3,230 American employees, and 6,379 employees of other nationalities.

The preceding figures indicate two key issues. First, since no major urban centers existed in close proximity to the area where the oil fields were discovered, it was necessarily to construct whatever shelters or accommodations were required near the oil fields. Second, in the Company's accounts we can distinguish three distinctive groups of employees: the Saudi, the American, and finally the non-Saudi/non-American employees. These three groups were clearly distinguishable by their respective living quarters, "whose conditions range from luxury villas to army-style dormitory barracks"; in office blocks, lavatories were segregated according to the rank and nationality of the employees. The separation between one caste and another made by either space or by some type of barrier, corresponds generally to the structure of the bureaucratic hierarchy and ethnic separation among the employees.

3.1.1 Senior Staff Camps

Senior staff comprises largely Americans, but with a scattering of other nationalities. These people held the top
managerial and operating positions in the Company. This group resided near the Company's main operational centers at Dhahran, Ras Tanura, and Abqaiq. The senior staff camps were provided with every conceivable amenity (Fig. 3.1). The overall luxurious atmosphere and western physical appearance could not be better described than in this passage from Solon T. Kimball:

No Westerner would have difficulty in identifying the senior staff 'camp' as a settlement built by Americans in our southwestern tradition of town planning. It is an area of single-story dwellings for employees and their families. Each house is surrounded by a small grassed yard usually enclosed by a hedge. There are other plantings including flowering shrubs, low desert trees and, in some instances, flower gardens. Only in Dhahran is there a variation on the grid pattern of streets and irregularly shaped blocks. Streets are paved and frequently curbed and have night lighting. There are only slight variations between the recreational facilities of each senior staff camp. Each one possesses an auditorium that is also used as a movie theater and for amateur productions; a luxurious club with snack bar, bowling alleys, library, dining room, lounge, and terrace for dancing and social gatherings. Two senior staff camps have swimming pools, while Ras Tanura residents may use an immense beach on the Persian Gulf. In addition, one may find baseball diamonds, tennis courts, soccer and football fields, and desert-style golf links. Dhahran has a riding stable.(5)

Concerning the senior staff camps, Joseph W. Walt adds:

For employees with families the company built commodious ranch-style houses equipped with modern plumbing, electricity, and much-desired air-conditioning.(6)

The senior staff camps, known locally as "the American camps," and called "the camp" by their inhabitants, were fenced and
Fig. 3.1 View of ARAMCO Headquarters and the Senior Staff Camp
movement in and out of them was controlled and restricted to residents (Fig. 3.2).

3.1.2 **Intermediate Employees Camps**

The intermediate employees are those who were part of neither the American community nor the native population. A considerable number of this group included Italians, most of them recruited in Eritrea to do skilled and semi-skilled work. Others in this group were Indians, Pakistanis, Sudanese, Adenese, Palestinians, and Lebanese. These employees were rated in the personnel system as primarily semi-skilled and non-supervisory. The intermediate employees' camps were located at the main oil settlements. Most of these employees were single men; those with families left them behind in their home countries. The camps consisted of a barrack-type structure which had many modest conveniences and recreational facilities.

3.1.3 **Saudi Employees Camps**

As indicated above, the oil fields were discovered in areas relatively remote from the existing small fishing and agricultural villages, from which the majority of the company's native employees were drawn. Because the transportation and paved roads connecting these villages with the company's compound were insufficient, these employees could not easily commute every day. Therefore, most of them had to find shelter near the Company's compound and be
Fig. 3.2 Aerial view of the Senior Staff Camp.
satisfied with a weekend visit to their families at their home villages.

Leaving their families behind put the native employees in a situation comparable to the company's foreign bachelor employees, at least when it came to shelter and accommodation. Unfortunately, aside from the mosque which the Company built at the request of King Abdul Aziz for the native employees, the company's only initiative in the early formative stages of the Saudi camp was to subdivide the land surrounding the mosque which was designated for the Saudi employees. The land was divided equally into relatively large lots, although the Saudi employees had to build their shelters according to what appears to be a sort of self-help program. These shelters were locally called "barraistis": this word is presumably a locally-arabicized conversion of a barracks, as there was no such term designating any residential element or type in a traditional urban environment of the area. Barraistis were relatively equal in size and all directed and lined up on a specific and prescribed lay-out. The main structural elements were wooden frames and pitched roofs. A mat of woven palm leaves was fixed on the wooden frame to provide the only barrier against the natural elements (dust, hot and cold air, and rain) and against visual and physical penetration to the interior space (fig 3.3). Moreover, these barraistis were provided with no piped water; no paved roads or gates controlled movement in and out of the camp. With the passage of the camp's early years, and signs of a new, emerging
Fig. 3.3 The Barraistik of the Saudi Camp.
settlement became evident, a natural pull to this settlement developed. Many of the native workers who lived in the camp started to attract their families, relatives, and friends to establish a residence near the barracks. As a result of this attraction, the Saudi government agreed to grant any person the land that he developed in a residence or other building for economic use (for example, shops, coffeehouses, grocery stores, repair shops, etc.). Many native inhabitants who had not been directly associated with ARAMCO came to the camp and built houses there. These new camp settlers provided the official residents of the camp, (i.e., the native company workers) with necessary services as grocers, butchers, bakers, coffeehouse owners, repair shop owners, carpenters, and barbers. These shops, in fact, became the initial elements of the local market (suk) of the Saudi camp.

The shelters built by these newcomers on the vacant land of the camp were no better than the barraistis. They were built with every cheap and available building material. Solon T. Kimball, who described the senior staff camp, also described the residential environment (including the barraisti dormitories in the overall picture) of the Saudi camp:

The last residential area is one that was neither planned nor welcomed. To Western eyes it is reminiscent of the Hoovervilles of depression days. Houses have been constructed of every conceivable kind of scrap material with a scattering of more traditional palm-leaf native barraistis, and an occasional substantial building of concrete block. These settlements represent the attempt by Arabs to establish a type of community life with which they are familiar. Here the employees, mostly Saudis, may bring their families. One can see the
occasional sheep, goats, and burros, and the camels tethered nearby may belong to an employee or his visiting relatives. One also finds an incipient native suk or market, perhaps a garage and gasoline pump, and other evidences of an emerging indigenous community life. (8)

The above passage describes the austerity that early residents in a Saudi camp experienced. And these unfavorable conditions became obvious to the company as well, as Kimball indicates:

Both ARAMCO and the government are disturbed by these settlements, and efforts are underway to encourage their replacement by the development of planned Arab-type towns through subsidies and other devices. (9)

Indeed, the concern of both ARAMCO and the government of Saudi Arabia was promising, particularly when it seemed to encourage a development of planned Arab-type towns. Nevertheless, by the late 1940's the Saudi camp was beginning to evolve into a permanent settlement, with two distinctive development processes taking place. The first process was a gradual transformation of the shanties and less permanent shelters to more permanent ones. The new camp settlers (the non-company employees) were responsible for this transformation, as they had used cement block, bricks, reinforced concrete and other permanent building materials, but with the old local approach and conception of house building.

Although the construction and finishing qualities of these houses were not outstanding, the combination of local building design and newly-introduced building materials is very interesting. Despite the fact that this particular section of the camp was not yet provided with many basic
services, the residential quarter possessed a very promising ingredient for an emerging community. In addition, it suggests many unmistakable signs of a close link with the old traditional residential environment of the region. There were narrow streets and houses built side by side in clusters, with courtyards, and roof terraces, although they were built in cement block and brick, and some of them were roofed with reinforced concrete (Fig. 3.4).

The second development process, however, is very much a reflection of ARAMCO's housing policy regarding its native employees. The company attempted to replace the shabby barraistis with rows of linear and L-shaped dormitories (Fig. 3.5). The company's official publication, ARAMCO Handbook, indicates that every two employees should be provided with a room of suitable permanent type of construction not less than 12 x 15 feet in dimension.¹⁰ By the early 1950's, sixty fan-cooled white concrete dormitories were built. Each dormitory, built to hold 22 men, was provided with all the necessary utilities. In the case of L-shaped dormitories, the different stages of the development process are clearly shown in Fig. 3.6 and Fig. 3.7. Fig 4.6 shows a group of L-shaped dormitories built on a specific portion of each lot. Planning such a dormitory arrangement, the company had obviously anticipated the forthcoming increase in number of native workers, and expected to build more dormitories before long. Figure 3.7 illustrates the company's assurance in its expectations. However, what is important to point out here is
Fig. 3.4 Houses built by non-Company employees in the Saudi camp.

Fig. 3.5 The linear and L shaped dormitories of the Saudi Camp.
Figs. 3.6-3.7 The Saudi Camp
that from one to four L-shaped dormitories were added to each lot. Those newly added were built along the perimeter of the lot in such a way as to form a U or a completely closed perimeter block encompassing the already-existing L-shaped dormitories, leaving the central space as an open courtyard. Each lot (with these dormitories built on its perimeter) was surrounded by streets, and the term "gridiron" indicates this type of layout, which had its origin in Europe and America, and bore no resemblance to the traditional local urban pattern.

Mention has already been made to the company's intention to encourage the replacement of barraistis by the development of planned Arab-type towns has already been mentioned and this is indeed a positive endeavor. The L-shaped dormitories, however, are not valid for such a planned Arab-type town. The central open spaces provided in each lot could not compare with the small courtyards which dotted the whole urban fabric of the old towns of the region. These open spaces are so wide as to provide little protection against dust or rain, hot summer days or cold winter nights, or even the sun's glare. The shaded semi-open corridors running along the inner side of the dormitories provided shaded areas only at a specific time of the day, but throughout the rest of the day the sun's rays strike the thin cement-block constructed walls. Moreover, the company's building activities (particularly for native employees) were concentrated on constructing dormitories. These remained functioning as such, even when most of them
were handed over to the University of Petroleum and Minerals to house its students during the second half of the 1970's. In other words, these dormitories remained the most static urban element, and life in them was virtually controlled and maintained according to the boarding policy, first of the company and then the university. Exacerbating this situation was the marital status of the dormitory residents. Meanwhile, that portion of the camp on which the native settlers established their residential environment continued to grow and to acquire more and more urban infrastructure and municipal services. Indeed, this quarter of the Saudi camp showed all the signs of what Kimball indicated as "an emerging indigenous community life," to the extent that it started to attract other residents of Dhahran's several communities to shop at its market and to seek residence in its cheap rental housing units.

Unfortunately, this thriving community was not able to survive the rashness of the late 1970's development plan. By early 1981, and after the last homeowners and shopkeepers were paid relocation compensations, this community ceased to exist.

3.4.1 ARAMCO Employees: Home Ownership Program

The separate residential areas of the three main employee groups (American, other foreign workers, Saudi workers) mirror the distinction among these employee groups in the bureaucratic structure. There is a rationale and logic for this structure. The one who is well-educated, highly skilled and
experienced, and most knowledgeable in his field of specialization is the one usually seated on the higher end of the bureaucratic hierarchy. The one who is uninformed about new science and technology, and who has few skills and little experience of twentieth century culture and technics, is the one generally to be found on the lower end of this hierarchy. This classification is probably well understood by the different social groups in the company's employ and in particular, by the two groups who occupy the two ends of the bureaucratic hierarchy. Yet the fact is when it comes to equililarian sensibilities and sociological sensitivity, people do not judge in terms of such comparative yardsticks. Rather they respond to the situation in terms of how it affects their dignity, their interests, and their psychological needs. Their response is affected greatly by the lack of essential sympathetic insight and by occupational insignificance. Frustration and resentment are inevitable consequences. In fact, these consequences may be felt as quickly as the uninformed individual becomes an informed one, and the unskilled and inexperienced become skilled and experienced persons. This is what ARAMCO started to face after more than ten years of operation.

It is probably safe to say that during the early years of ARAMCO's operation, almost all native company workers were unskilled, inexperienced, and uninformed about the kind of operation the Company was conducting. But after many years of direct contact and continuous training, we should not expect
these workers to remain so. This is exactly what ARAMCO is trying to say in its propagandistic article which appeared in Life magazine, March 29, 1949:

When ARAMCO introduced the first wheelbarrow to Saudi Arabia, four puzzled laborers loaded it, hoisted it to their heads and walked away. Now, 15 years later, thousands of Arabs know how to use wheelbarrows and more complex machines. Skilled Arab employees do not often attain top rank, but they drive trucks, work as junior chemists and repair engines. (12)

Helen Lackner also has something to add to this case.

In the early fifties, some of the first men who had been sent to the USA for training by ARAMCO were returning to a higher employment grade. Despite this they still found themselves living in the worst conditions in the ARAMCO quarters and therefore recognized the ARAMCO policy as segregation based on race rather than on employment status. (13)

From these two statements, we realize that the Company did a satisfactory job in its training programs for the native employees. However, these same statements underline a hidden factor which appears to be an ingredient for the rising frustration and resentment of the native workers against the company's policy. It should come as no surprise that the segregation and discrimination were experienced as such from the early years of the Company's operation, although these feelings were not openly expressed or discussed. But during the post-World War II years, when the Company needed more native workers to foster its ever-expanding operation, the frustration among the native workers became apparent. It was not until the summer of 1953 that the first work strike took
place, organized by the newly trained native workers and supported by all Saudi and Arab Company employees. Although the strike had no political aims, since it was organized against a non-governmental institution, the strike leaders were jailed and later exiled to their home villages. This strike, however, did succeed in drawing the attention of ARAMCO and the government of Saudi Arabia to the native workers' complaints and their discontent with their working and living conditions. Also, this strike resulted in a government decree, which recommended some improvement in working and living conditions. M.S. Cheney mentions some of the contents of this decree:

All Saudi workers were to receive automatic pay increases ranging from 12 to 20 per cent of their present wage rates. Vacations for Saudis were doubled, housing for Saudis was to be improved. Job requirements were to be made easier for Saudis. The company was to pay 20 per cent of the cost of family houses built for Saudis under its home loan programme. (16)

This home loan program provided an earmarked loan for Saudi workers to build their houses, a sign that ARAMCO was becoming aware of the rising resentment of the native Company workers harbored at its unsympathetic attitude to their working and living conditions. The Company responded to this situation in 1949 when a committee was set up to study the question of where Saudi employees of the company were to live. By then, the Company had assumed the position that it was not under any obligation to provide its employees with
housing (this is not related to the Company building of the previously discussed Company's camps), but that if any of its employees wanted advice on housing and small loans to finance the construction, the Company would help. The prospective occupant had to pay for the whole cost of construction. According to this policy the company advanced loans to some of its employees to build their own houses in both al-Khobar and Dammam. As part of the above policy, the company indicated its intent not only to help a man build his home, but also to help the general public in laying out the residential area.

It is clear from the above discussion that these policies were advanced through the Company's "enlightened self-interest." Such a gesture, however, was not enough to alleviate the workers' anxieties which, as mentioned earlier, exploded into the first laborers' strike in the history of the country, as a result of which the Company was obliged to pay 20 per cent of the total cost of house construction built by native Company employees. Yet, a second strike occurred on June 17, 1956 for the same causes and advancing the same demands. In addition to the Company's desperate need for workers, the strike made ARAMCO consider seriously the grievances of its native employees, and the Company accordingly adopted a more progressive labor policy. Among the many benefits that the workers gained from this policy were better health insurance, and interest-free loans to build their own homes and other facilities. This interest-free
loan, mentioned above, is what came to be known as "ARAMCO's Home Ownership Program" for Saudi employees.

This program was instituted in 1951 with the intention of encouraging Saudi employees to own houses near the company's compounds, by building their own houses or by buying new-built houses (with ARAMCO standards) with long-term interest-free loans granted by ARAMCO.

In order to qualify for a loan, the employee had to be a Saudi citizen, have been with the company for at least three continuous years, be the head of the family or its main bread-winner, and be between 20 and 59 years of age, with no outstanding debts which would prevent him from paying back the loan.22

Eighty per cent of the total cost of construction had to be paid off in the form of monthly installments, which could be deducted from the employee's salary. The payments were not to exceed 20 per cent of the employee's monthly salary, exceptions were made for employees who were able to increase the percentage of their payments or to pay off the loan at once. However, the employee was not allowed to pay off the loan until five years had passed after signing the agreement; otherwise, the employee would have to pay the 20 per cent of the total construction cost that the company sponsored. Furthermore, if an employee who acquired a home under this program died, or was totally disabled before paying off his loan, the balance was cancelled so that his house was free of debt.23
To insure the execution of the program, the Company established three offices, located in Dhahran, Ras al-Tanura and Abqaiq, to handle the paperwork of contracts and payments, and also to translate program policies into physical action. These offices were set up to provide technical advice to employees and to attract their attention to the practical aspects and economics of the building materials they ought to use, as well as to inform them of the most modern house designs and encourage them to install modern housing equipment such as electricity, running water, air conditioners and sanitary facilities. The last and most important role of these offices was to implement the obligatory rule of building the houses according to plans designed and drawn by licensed architects, and of these plans being accepted by these Home Ownership Offices. However, during the 1950's, there were no Saudi architects and very few architects and draftsmen from nearby countries; hence most beneficiaries had to depend totally on ARAMCO's engineers and architects for the design and execution of their houses.

Carleton S. Coon and Peter G. Franck further explained the operation of this office and the role of the architect/contractor and building inspector who was in charge of almost the whole building process.

T. Coleman, a building contractor from California, works under Eltiste on the engineering end of the construction. When an applicant applies for a loan, AIDD sends Coleman out to look over the property. He ascertains the man's ideas about the
type of house he wants, and makes up a sketch and an estimate of the cost. When the sketch and cost agree with the applicant's pocketbook and wishes, Coleman has the office draftsman (a Sudanese) draw up working plans. He then advertises for bids, negotiates a contract, and acts during the construction as a building inspector; he helps the contractor whenever he needs it. Acting as a buffer between the owner and the contractor, he has a twofold job: to protect the contractor so that he will make money, and to protect the owner so that he will get what is coming to him. (24)

In addition to the employee-to-office relationship, the office took the initiative of letting contracts to build a large number of houses (large, that is, relative to earlier conventional house building).

On March 1, 1951 the Home Ownership Program Office had let a contract for eleven employees' houses. This particular contract was given to five contractors for the average construction cost of S.R. 14,500 (about $4,350) for each house. 25

In February, 1952, the company let out another contract for 300 houses, for rent or sale. 150 houses were assigned for Dammam, and 150 were to be built in Ras Tanura. The contract was given to Abdullah bin Darwish Fakroo, who had the lowest bid of 14,500 riyals each. 26

In addition to the above-cited house building contracts, the Home Ownership Program's office signed a contract with Bechtel International Corporation to build houses on designated land subdivided by ARAMCO's surveyors. 27

Regarding to land subdivision and community planning, Coon and Franck indicated that:

Community planning is the concern of George V. Johnson, above AIDD in the ARAMCO hierarchy. As new
oil fields come in, and as the installations at Dhahran itself expand, new communities arise rapidly. It is Johnson's duty to see that these new towns do not simply mushroom, but grow in an orderly and integrated fashion. Hence, under his direction the company lays out new areas, levels the land, and surveys it; he himself makes the plans for putting in streets and laying in the basic water and sewage systems. This means that water companies must be organized, equipped, and set in motion, and private electric-power companies as well. Each community needs a public market area, shops, and merchants. Houses must be built for company employees.\(^{28}\)

The subdivided lots were located primarily on the outskirts of existing settlements such as Dammam and al-Khobar, or near the company compounds in Abqaiq and Rahemah, which came to be known as Hayy Madinat al-Umma, the neighborhood of the workers' city (Fig. 3.8). In these new neighborhoods, lots were generally acquired in square shapes with generous areas (compared to the areas used by traditional houses) and laid out in a grid pattern. On these lots, houses were generally built in the center, leaving open spaces surrounding each building for plantation and the carport.

The construction techniques used were new to the area. Concrete slabs were used instead of the traditional palm tree trunks and thatch for roofing; cement blocks took the place of locally available limestone to build walls and partitions. Local master builders were totally ignored and by-passed by the Home Ownership Offices because they lacked experience in these new techniques.
Fig. 3.8 al-Khubar, in 1974, Madinat al-Ummal
Source: al-Khubar Draft Master Plan.
The houses built through the program also introduced a new concept in interior arrangement that was quite different from what was known in the traditional houses. The rooms of the house were arranged in one close block, where windows opened on four sides, looking out on the surrounding open space. The designation of specific rooms such as the dining room with the Western-style dining table and chairs and the installation of modern equipment such as the bathtub, the toilet and bidet in the bathroom, were completely new. Balconies and terraces overlooking the garden (the surrounding open space within the lot), and the neighboring house, were also elements introduced into the modern house. (Fig. 3.9-3.10).

3.2 Early Mass Housing: Housing Programs for Government Employees

It is thus reasonable to say that ARAMCO's building activities (particularly its house building for its employees) were probably a new version of the classic employers' housing developed in England. But the most important aspect of ARAMCO's house building activities is that it established a precedent for the second large-scale housing program in Arabia. The demonstrated possibility of housing large numbers of people near an employment center was an important factor leading to the government's decree in 1953. This decision to transfer the Government Offices from Jeddah and Mecca (Hijaz) to Riyadh housebuilding activities in the introduction of
Fig. 3.9 Abquaig: House Number 6500 built by ARAMCO Home Ownership Program. 

Fig. 3.10 Modern villa built in Madinat al-Ummal, Dammam.
large-scale housing programs in the country, which gradually became a government commitment. This decision meant a tremendous volume of building construction in Riyadh, and a consequent an influx of workers and government employees was expected.

The increased wealth from oil production made it possible to budget major projects in the kingdom, this is especially true for Riyadh, the prospecting capital of the country. There remains the problems of a shortage to manpower to build these government offices, and to work in the newly built offices, the key issue appeared to be "accommodations and shelters."

There is no question that the native residents of Riyadh took part in the whole process. However, the majority of workers who were to build the government ministries and other supporting services -- as well as government employees themselves had to be brought from different parts of the country (particularly Hijaz) and a considerable number from the nearby Arab countries and some even from many Western countries. In order to accommodate this incoming population, the government decided to ease the pressure on the local house-building industry (which was suffering from the same limitations as were faced by the local house-building industry of the al-Hasa region when ARAMCO came there) by concerning itself with housing its employees who were moving from their traditional houses to a completely new environment.
It is also important to note that the government initiated this large housing program for its employees in order to attract them to move from the western region (Hijaz) to Riyadh in the central region (Najd). These employees were understandably reluctant to move unless housing and other amenities were guaranteed by the government.

The following discussion will highlight the general reasoning behind this early government housing program, and the distinctive features of this program, with particular attention to the types of dwellings this program created for its intended occupants.

In 1950 there were no government offices dealing with housing, nor were there any Saudi architects. The few architects in the city were citizens of other Arab countries (Egypt, Syria, and Lebanon) and Western architects who came to the city through their contracting firms. These limitations in such matters as well as assistance from other foreign firms working in Riyadh, influenced the design of the new buildings.

Saudi Arabia's relations with the United States were closer than those with any other Western nation because of the importance of ARAMCO to its economy, and because of the maintenance of military training missions and assistance programs by the United States government. Therefore, the government of Saudi Arabia could get help with housing from the U.S. Corps of Engineers.

This assistance was presented in the form of a complete housing project submitted to al-Maktab al-Handasi, a newly
established engineering office supervised by the director of Maslahat Amlak al-Dawlah (the Department of Government Properties) under the Ministry of Finance and National Economy. The engineering office was modest, composed of a few architects, engineers and draftsmen, none of whom were Saudis, except for one draftsman who is now manager of the office. 30 The role of this office was similar to that of ARAMCO's Home Ownership Offices: providing technical advice and recommending specific building materials, supervising construction processes, adjusting working specifications, making minor design alterations in given design models, and controlling the overall building construction according to a given layout plan of the entire project.

The housing project for government officials in New Riyadh acquired an area of approximately 500 hectares in a site located 4.5 km northeast of Old Riyadh. The program's intention was to provide modern housing for Saudi government employees who were to move from Mecca and Jeddah. It was a large project with plans to build about 745 single family houses, 180 apartment units for married employees, and approximately 160 apartment units for unmarried employees. The project included public buildings such as municipal halls, libraries, fire stations, schools, mosques, markets, clinics, and recreation facilities such as public gardens, zoos, football fields (soccer) and race courses (Fig. 3.11). 31
Fig. 3.11 Riyadh, Government Employees Housing Housing Project (Malaz Public HOusing, General lay-out).
Source: Department of engineering, Ministry of Finance and National Economy.
The plan provided two main housing types, each main type having several subtypes related to occupant's income and social status.

3.2.1 Single Family Units

The first main house type is a single-family, low-rise detached house, known as a villa. The villas were intended for relatively high-ranking government officials. The villas were classified into three categories. First, there were large villas with an average lot size of 1250 m². Under this category were Type A villas (large and luxurious) and Type B villas (regular large villas for larger families) (Fig. 3.12). Second, there were medium-sized villas with an average lot size of 625 m² designated for smaller sized families (Fig. 3.13). These villas with their various categories were supposed to be built on subdivided lots with a gridiron pattern and to be sold to government employees on long-term installments.32

Two policies were applied in the construction of these villas: First, the engineering office was fully involved in the construction of the villas, assuming responsibility for building the villas according to model plans and then handing them over to the intended beneficiaries. Second, the beneficiaries participated in the construction process by choosing among design alternatives offered by the engineering office and finding a contractor to construct the villa under
Fig. 3.12 View of large villas built under the Government Employees Housing Program,

Fig. 3.13 Riyadh, Modern villa.
the office's supervision. In some cases, the employee provided his own design, which had to be drawn by an acceptable architect and to meet the engineering office's conditions; he would then have it estimated by the same office, and find a contractor to build his villa.

Whatever the category or construction procedure, the individual villa (see Fig. 3.10) is an explicit reflection of the engineering office official's mental image of the modern house. The modern houses (villas) built through the government housing program use modern building techniques and materials. They are usually surrounded by gardens and have carports, wide glass window openings on their four sides, and balconies looking out on the garden and wide streets. Inside, one will find a dining room lavishly furnished with a dining table and chairs that probably will never be used, modern bedrooms with beds that are hard to move if the room is needed for another function, and the bathroom fitted with modern equipment that people never used before (Fig. 3.14).

It was based on these notions and images of the modern house that large numbers of villas were built through government housing projects.

3.2.2. Multiple Family Units

The second main housing type is the apartment building, classified into the two following types: first, apartment
Fig. 3.14 Floor plan, Villa built through the Government Housing Program (Malaz Housing Project).
Source: Owner.
buildings for married employees, and second, apartment buildings for single employees. The apartment buildings for married employees are composed of three walk-up buildings, each six stories high, with 60 apartment units. The apartments are placed on the two long sides of the building, thus each has a single orientation even when located in a corner. These apartments are served by double-loaded corridors, leading to single staircases located in the corner of the shorter side of the block, facing the main street (Figs. 3.15, 3.16, 3.17). The apartment blocks are parallel to one another on their long sides and perpendicular to the main street on their shorter sides (Figs. 3.18, 3.19).

These apartment buildings were constructed according to plans recommended to the engineering office, which assumed responsibility for building them through contracting firms. These apartment units were rented to small families on a permanent basis.

3.2.3. Bachelor's Units

Ten walk-up apartments were to have been built for this group of government employees, but construction was unfortunately halted for almost a decade (throughout the 60's). Then, during the construction boom of the 70's, they were demolished one after another in order to make room for new government office buildings. Eight of these apartments were planned for Shari al-Jamiah (University Street), each
Fig. 3.15 Riyadh, floor plan for apartment building built under the Government Employees Housing Program.

Fig. 3.16 Riyadh, view of the central corridor in the apartment building (Government Employees Housing Program.)
Fig. 3.17 Riyadh, staircase of an apartment building in the Government Housing Program (Malaz Housing Program).
Fig. 3.18 General view of the apartment buildings (Malaz housing program).

Fig. 3.19 Riyadh, apartment buildings for married employees, General layout (Malaz housing program).
apartment block would have been four stories high, with apartment units facing the main street and served by a gallery-type corridor with a central staircase. Of these ten buildings, only four were completely constructed. And, ironically, only one of these four was used, and not as a residence, but as a temporary office for one branch of a government ministry. The remaining three buildings, were left unoccupied until they were finally demolished in the 1970's (Fig. 3.20).33

3.3 Indigenous Houses vs. Exotic and Modern Houses

Without a doubt, the use of different house-building techniques and new building materials, along with environmental control devices had generally influenced the local residential environment. This was because on the one hand, the building industry was becoming more mechanized, and on the other, traditional craftsmanship was disappearing. Such developments led to the transplantation of a new type of residential unit, completely distinct from the old residential units which had previously existed in the area. Aspects as major as the layout pattern and external and internal design of the indigenous house and the exotic, modern residential unit are significantly different.

During the early years of surveying work, the land on which the company was building the camps for its workers was subdivided. The planned lot size was relatively large, as is
Fig. 3.20 Apartment buildings for unmarried government employees (Malaz housing program).
apparent in the Saudi camp. With similar lot sizes, the Company's surveyors planned and provided land subdivision for most sections of Dammam and al-Khobar and other towns of the Eastern region. Between the 1930's and the late 1950's, almost all new residential units were built on already-subdivided land. These units ranged from the very primitive barrastis of the Saudi camp, to the very modern Western suburban houses of the Senior Staff camp (Fig. 3.21); and from the luxurious villas for government employees, to the apartment buildings for married and unmarried government employees.

This land subdivision, commonly known as a grid-iron pattern, bore no resemblance to the cluster and neighborhood formation of the old residential quarter.

Comparing the external organization and facade design of the newly-built residential units to their counterparts in traditional houses, we realize that in both housing programs (ARAMCO's Employees Home Ownership Program and the Government Employees Housing), the modern villas were laid out in a more regular arrangement along wider streets. They were enclosed by walls with the house in the center and a small garden in front or back or both (Fig. 3.22, 3.23, 3.24). The surrounding gardens in the modern houses were meant in fact, to provide the same functions as the central courtyards in the old houses. However, these lateral open spaces failed to attract families to sit in their gardens because they could be
Fig. 3.21 American suburban house in Saudi Arabia.
Fig. 3.22 Dammam, Villas built through ARAMCO Home Ownership Program.
Fig. 3.24 Dammam, aerial view of modern villas.
observed from the balconies and wide windows of adjacent houses (Figs. 3.25, 3.26).

In addition to strange colors of paint that made the new houses stand out from the usual residential environment, there were two other jarring characteristics. The first is the insignificant repetitiveness and monotony which resulted from applying a single facade design to a series of villas lined up on one street (Fig. 3.27). The second characteristic is in complete contrast to this first, for we see facades that bear no respect whatever to the surroundings of the villas, and give no indication of conformity and coherence with the rest of the urban fabric. In many instances, this extravagance reaches such a degree that no one could identify the source of the facade type.

Turning our attention to internal spatial organization and design, we come to the most important differences between the oldest and newest residential units. Regarding the traditional house, we have alluded frequently to the great respect and consideration given by the master builder to the local climatic and geographic conditions, cultural values and customs, and finally the needs of the inhabitants. We have yet to discuss however, the kind of living atmosphere created within such houses. Within the section where seclusion and maximum privacy were required, the rooms would have very little furniture. Difficult-to-move furniture such as sofas, chairs, tables, or Western-style beds did not exist in the traditional Saudi home. Without furniture which committed a
Fig. 3.25 Riyadh, a small garden in a modern villa.

Fig. 3.26 The effect of setback.
Fig. 3.27 General view of the Government Employees Housing program (Malaz Housing Project).
space to a specific purpose, many rooms could fill various needs as immediate circumstances dictated. Besides rugs covering every floor in the house, we find cushions laid on the perimeter of the room serving as seating during the daytime but also useful as bedding for a short rest or siesta. Laid against the walls were relatively hard cushions averaging 4" x 14" x 24" serving as backrests in combination with the horizontal cushions. At night, a foldable mattress would be placed on the floor for sleeping, and in the morning it could be folded away for daytime use of the room.35 Another daily function for these rooms was eating; in this case, meals could be served on a circular or rectangular mat made of palm leaves, fabric, or plastic sheets laid on the floor, and around it members of the family sat to consume food placed on the mat. Although the reception room is the only room in the house -- aside from the kitchen, bathroom and toilet -- which has been designated for one primary function, that of receiving and entertaining friends and guests, this room could also be converted to an eating place if a large number of people was expected for lunch or dinner. However, in the central region, most medium and large traditional houses have an additional room (adjacent to the reception room) called "muqallat," a term used in the Najd region to designate an eating place. Even this muqallat could serve other functions when it was not in use for eating and it was needed as an additional reception space or resting room for a visiting guest or relative, etc.36
The other section of the traditional house, in which the head of the family received and entertained his friends, and sometimes conducted business, was furnished with almost identical furniture as the other rooms of the house (rugs, horizontal cushions for seats and vertical cushions as backrests). However, in most houses of the Western region (mainly in Mecca, Jeddah, Medina, and Taif), these cushions were placed not on the floor, but on a raised wooden platform, generally 60-80 cm. high, about a meter wide, and with a variable length which depended on the perimeter of the room. This cushioned raised platform is locally called maqa'ad (or karaweit) meaning a sitting place.

This discussion may give a fairly clear picture of the daily use and functions of most spaces in the traditional houses, but when we expand our attention to year-round use, we notice a peculiar movement within the house, due to climatic conditions and economic considerations. In almost all regions, certain open or covered areas in the traditional house are arranged to benefit from the slightest breeze, while other rooms are better suited to cooler winter conditions. These distinctive areas were to be found either in one floor level or in different stories.37 This is why we find most family activities concentrated in one particular area in the house during one part of the year and shifting to other parts of the house during another season.

A periodical in-house family "imigration" peculiar to the western region (Hijaz). During the Hajj period (the last
three months of the Muslim lunar calendar) most families of Mecca, Medina, and to a lesser extent, Jeddah move to the upper levels of their houses, renting the lower levels. During the summer, Taif residents make a similar move to the upper levels of their residences, leaving the lower rooms for summer vacationers who usually come from nearby cities.

Apart from the flexibility of the traditional house, allowing for expansion when the need arose, the above discussion indicates clearly that the living atmosphere in the traditional house was very interesting and dynamic. This dynamic living atmosphere, unfortunately, was not duplicated in the earlier modern houses.

Beyond the disappearance of the two main sections -- the "haremlike" (or family section) and the "selimlike" or male section -- in the new houses, rooms were becoming specialized in function, with differentiated domestic activities work going on in different spaces. The notion of proper furnishing became a factor in this new living environment whether people could afford it or not, or even whether they really needed it or not. The Western style of seating, eating, sleeping, and storing furniture was becoming fashionable.

In a reception room, dining room, or bedroom, we see that a certain set of hard-to-move furniture committed each room to a special function, and no other activities therefore could be conducted easily in the space. With increasing economic prosperity and the consequent increase in imported goods, mechanical devices such as air conditioners and heaters meant
that the inhabitants of the newly-built houses had no reason to prefer certain areas within the house over another during any particular time of the year. An irony results from these environmental control devices: The wide windows which were an important characteristic of the new houses turned out to have no practical function, because, in order for the air-conditioner to cool the interior space, all windows had to be shut off. Similarly, in order to heat the rooms during the winter, these windows also had to be shut off. And finally, when neither device was needed and the windows might have been opened for fresh air and light, the possibility of visual intrusion made open windows unacceptable; once again they had to be closed or covered by curtains or other materials.

The residents of the villas were generally in better economic circumstances, and the supplementary income from rent was very small compared to their income. The apartment unit residents, on the other hand, were rent-paying tenants and the space they were renting was barely enough for them without sharing it with another family.

It has probably become apparent from the above discussion that, although the new housing benefited from the most modern mechanical devices and furniture and the instant construction process, the living atmosphere created in these houses was inflexible.

Furthermore, instead of the large, traditional houses for large extended families, the government housing project
introduced a completely new dwelling type: the walk-up multi-family apartment building.

From the above differentiations between traditional houses and those built by the program, one can see that these modern houses, which presented new housing types to the area, were a product of a different concept of living space. The introduction of this concept and different cultural values can be seen in the recommendations, advice and actual design and construction involvement of ARAMCO's engineers and of other American contracting firms such as Bechtel International Corporation, which built a considerable number of houses for ARAMCO's employees. Fred J.A. Harsaghy explicitly relates the newly built-living environments in the coastal area of al-Hasa to what already existed in North America:

The company built large modern American towns at Dhahran, Abqaia, and Ras Tanura. These oil coast communities soon took the appearance of a combination of army camp and southern California suburb.(38)

Direct involvement by foreign architects in the country's mass housing can be seen as a key feature in the introduction of the new housing types which are more easily related to Western suburban housing schemes than to the Saudi Arabian housing setting. In a most interesting article, "Riyadh: Ancient and Modern," H. St. John Philby describes the transformation of Riyadh, in particular, the gradual disappearance of the traditional living environment:

It is still very far from complete and there is no knowing how far it will go; but building, and ever more building, is the order of the
day: to say nothing of the accompanying demolition of old-style houses (of clay) to make room for the concrete and stucco monuments of exotic Western architecture. (39)

The single-family detached houses of both the ARAMCO and government housing programs present a new version of modern architecture (Figs. 3.28, 3.29). In fact, the modern villa has nothing in common with the traditional house with its different formal types, and presents no significant response to the local conditions as it is totally dependent on an artificially-controlled atmosphere.
Fig. 3.28 Dammam, villa built through ARAMCO Home Ownership Program.

Fig. 3.29 Riyadh, Villa built through the Government Employees HOusing Program.
3.4 The Psycho-Social and Cultural Influence

As Saudi Arabia's early large-scale housing projects were built, it became apparent how important are the building materials and techniques, and how profoundly they affect the appearance of the new urban fabric. It is inconceivable that an emerging society that of Saudi Arabia could accept such radical physical changes in its living environment without any psychological and cultural conditioning. Yet, such psychological and cultural change has been largely overlooked in almost all studies of the development of contemporary housing in Saudi Arabia. Such change is indeed general, diffused, and difficult to define, yet it is more profound than the direct infusion of modern elements through the Company's and the Government's house-building activities. It is interesting to note here that these two institutions, the private though foreign, company represented by ARAMCO, and the ruling government authorities represented by the Ministry of Finance and National Economy (who introduced and applied the first large scale housing in two different regions of the country), are also the ones predominantly responsible for the psychological and cultural conditioning to be discussed here. These two institutions did not of course use these terms, nor did they declare their policy publicly. Indeed, they may not have been fully aware of the effects of their actions. But
the publicity, educational-informational and cultural programs of these institutions affected the society deeply and unmistakably. Hence in this discussion of the first stage of the development of contemporary housing in Saudi Arabia, it is necessary to shed some light on the innovative methods with which these two institutions ARAMCO and the Government Ministry captured -- and perhaps manipulated -- the minds of their employees, while influencing the rest of the population at the same time.

Despite the obvious differences in organizational structure and authority of these two institutions, we must first recognize some communality of purpose. Through advice and consultation, ARAMCO heavily influenced a non-communist development policy which seeks to generate popular enthusiasm and admiration for the modern Western world. We should not be surprised therefore, that multidimensional efforts undertaken for what seemed to be the straightforward goal of economic development also had implicit and profound effects. With reference to the subject of this thesis, both individuals and the society accepted, almost without hesitation exotic and physically as well as culturally unsuitable forms of residential units. Along with these new housing forms, the Government authorities also adopted new legal and administrative instruments to control the building of these new environments and their perpetuation.
3.4.1 The Role of ARAMCO

It is perhaps not essential to divine what ARAMCO's administration had in mind in emphasizing the division of social classes and spreading the image and symbols of luxury and abundance of the privileged group. Whether intentional or not, the mere coexistence of the two dramatically contrasting living environments of the Company employees' camps (the Senior Staff Camps and the Saudi Camp) had shaken the emotional equilibrium of the Company's native workers. One can argue that the juxtaposition of two camps was made necessary by the oil fields, the workplace of these employees. The amenities, and services provided the senior staff were not easily overlooked by the unprivileged group, triggering the workers' desire, sharpening their need for self-affirmation and opportunities, expressed in the labor strikes of 1953 and 1956. Those strikes, in fact, suggest the awakening of self-consciousness of the native workers about the discriminatory practice of the Company, on the one hand, and their growing awareness of the enormous benefits which new building materials and building technology might bring to their living environment, on the other. To the dismay of the native layman, however, it became apparent that to benefit from these new materials and techniques was predicated on acceptance of the fact that one had to belong to a certain privileged social group. By belonging to such a social group (mainly the upper and middle classes which were created largely by the oil industry in the eastern region) an
individual had already been channelled through a process of social and psychological change -- a change that extended beyond newly acquired workskills, to encourage overall lifestyle and mode of perceiving and experiencing the new residential unit. Or, put in another way, within a society the social outlook of an individual who is an affiliate of such a social group became fixed upon an image of progress and the new type of residence (the Villa) attained became a symbol of rising standards of living and rising expectations.

It is important to indicate here that, apart from its obvious purpose in providing the native workers with housing, the Home Ownership Program played a major role in satisfying the workers' aspirations toward improved housing conditions and needs for self-affirmation. Such psychological mechanisms were used by ARAMCO in its informational, educational, and cultural programs -- or bluntly, its propaganda. Housing policy has been utilized openly to change the Company's unpopular image by showing that good intentions and serious objectives lay behind its building activities. Not quite indirectly, the effect was to spread and enforce the values and standards of Western society. Consequently it will be instructive to detail the means by which the Company effected such psycho-social and cultural transformation. 40

From the character of ARAMCO's public relation policy, we may recognize cultural influence operating at both regional and national levels.
3.4.1.1 The Regional Operation

In its regional operations, the Company focused its attention on the native workers as well as on the upper and middle class groups of the Eastern Region who were in some way or another connected with its oil operations (for example through commerce, construction contracts, or services). Within this operational level we still realize two sub-levels: the person to person relationship and the community relationship.

The Personal Relationship. Within the Company's six or seven in field departments, the personal contact between boss and employee, between expert and unskilled, and between trainer and trainee created a wide range of cross-cultural integration and influence. Such influence includes the straightforward obeying of orders, the learning of skills and operational capabilities, and the acquisition of knowledge as well as social and cultural attitudes. We recognize the extended influence of the individual in the superior position in job related relationships. In relationships where one party has power over the other as in employer/employee situations, that the individual in the superior position is the most influential person, particularly if the two parties have different cultural backgrounds. An excellent example of such emotional and cultural influence is the role which is played by the Home Ownership Program officials.
From the actual house construction, and from the large amount of literature and reports related to the Home Ownership Program, it appears that the Program officials simply did not operate with simple arguments "pro and con;" they did not address themselves to already existing house building tradition. Instead they introduced a completely new house type, and provided along with it an entire complex of value judgements and entirely different scales of reference. These value judgements and scales of reference were given implicitly in the Program's eligibility requirements, regulations, and standards.

Given that, the native workers (the potential beneficiaries especially) were unable to relate the new house design to the familiar pattern. Consequently, with the ready-made value judgements and standards (which largely departed from the age-old customary regulations and conventions of house building), they inescapably could not compare or reject the new forms thus imposed. In other words, the potential beneficiaries were placed in a state of non-structured opinion, psychologically vulnerable to any notions connected to their modern houses. At this stage of uncertainty, of the personal contact between the Program officials and the potential beneficiaries could have obvious impact. In fact, the Program officials were able to make those potential homeowners believe that architects knew better than themselves what they needed and that everything the architects decided was for the residents' own good. This is
why the Program officials had no difficulties in persuading the potential beneficiaries to yield their own inclinations and taste to the presumably talented "expert" professional architects, whose taste reflected a not fully assimilated exposure to exotic modern design (Fig. 3.30). The irony of such susceptibility to influence is that, along with the process of this personal contact, the interest of the architects replaced the personal interest of the homeowner. Regarding this stage of the psychological influence, we have no doubt that the potential home owners have already lost their chance to exercise their own personal judgement either on principle questions concerning the implications of the design of their homes. Nevertheless, they naively revealed the power and self-affirmation of which they unconsciously dream, by a identifying themselves with those exotic house designs dream house, thereby associating themselves with, and as belonging to, the modern society.

The Community Relationship: While the Home Ownership Program reached a comparatively small section of the Eastern Region population, its very existence in the region evoked spontaneously a set of modernistic images symbolic of rising expectations. Significantly, ARAMCO utilized such images and symbols firstly to affiliate its popularity in the region, and secondly, to condition particularly a certain group of the Eastern Regional population, that group of the population whose members have escaped poverty, who have developed an
Fig. 3.30 This is but one of many villas designed by Western-educated architects and built in Dammam. It is inconceivable that the homeowner had a role in the design of such an exotic modern villa.
ability to view things at a certain distance, who have become reasonably unworried about their daily income, and who can therefore take an interest in more general matters, and mobilize their action for purposes beyond merely earning a living.

An individual with such characteristics is the one who generally needs no considerable effort to be persuaded accept a new social and cultural outlook that tends to enhance self-esteem and prestige. This new social and cultural outlook ARAMCO believed (and persuaded upper and middle classes as well to believe), presented immediate or future objectives. Approaching the upper and middle classes by publicizing the achievement of the Home Ownership Program was indeed effective and proved highly influential. Nevertheless, it was not the only approach which ARAMCO used to influence this particular group. Due to the economic association (direct or indirect) of almost all members of the group with the Company's oil operation, ARAMCO made accessible to most members of this group its library, hospital, club, cafeteria, and the like. ARAMCO even invited the prominent members of this middle class to its public parties, demonstrations and cultural programs (cinema shows, lectures, drama, plays).44 Although the effects of these approaches are indirect and implicit, they are remarkably profound. In this instance, it is interesting to indicate here that nothing more the way in which new social and cultural ideas invaded the minds of the group members than the way in which new commercial and
technical ideas were implanted the minds of the contractors (who belong practically to the upper middle class). This is described precisely by Coon.

Eltiste and his staff carefully planted ideas in their heads -- indirectly, there was no forcing. The ideas appeared to be their own. After days, weeks, or months, one contractor would start asking questions. How to handle these questions was an individual matter; the Division had to pretend resistance with some, and to tell them all the troubles and headaches involved. Others were enthusiastically encouraged. (45)

This statement, in fact, gives evidence of the existence of similar indirect influence behind the perceived imitativeness and assimilation of the upper and middle class. This characteristic made those two social classes appear as if they were adopting spontaneously the new social order and were unhesitantly willing to sacrifice their age-old traditional life-style. One aspect of this abandonment was the renunciation of the traditional house.

3.4.1.2 The National Operation

It is hardly necessary to stress the extent to which the Program officials and the personnel of local relations departments contributed to the introduction and development of the new house types. They left a profound impact on the attitude, manners, and values of the home owners and, of members the upper and middle class groups in general. Their impact, however, was not confined to the company's native workers or the members of the upper and middle class; it reached out to
other social groups of the region, then extended beyond the regional boundary to reach the population of other regions. Reaching out to the remaining social group as well as the rest of the country's population was facilitated by mass media communication. These media include the company's television broadcasting, its publication and its oil-industry mobile exhibitions.46

ARAMCO's Television Broadcasting: ARAMCO was the first to introduce television broadcasting to Saudi Arabia. It was used as a medium for both mass communication and entertainment. Despite the fact that television broadcasting did not cross the regional boundary of al-Hasa, and not mentioning the limitations of its programming, it is still not likely that you will overestimate the significance of this breakthrough. The mere fact of the introduction of television as an entertainment device tremendously rearranged family habits and patterns of socialization. Significant components of publicity, information, and cultural materials have been integrated and portrayed in the television programs that deserve consideration.

During the early years of television broadcasting (late 1950's) Al-Hasa's population was still in its early stage of the transitional period -- a period when almost everything beyond the people's immediate environmental circle was new, knowledge of the Western world especially. That was the time when television had a unique opportunity to influence and impart information to the overall population. Television
became an especially effective agent in giving the native workers a vivid sense of their class-identity. From it, they learned how to look at their new social role, and gained new modes of perceiving their modern living environment.

In the company's publicity of its need for more native workers, television viewers saw a native worker who was about to receive his modern villa lavishly furnished with modern furniture. They would see the worker's children playing in the expensively equipped company playground, or would be given a look at the medical and cultural facilities available to workers. All of these images conveyed to the potential employees a clear message of the advantages of being one of the company's employees. On the other hand, these same images imply another message to both the potential employees and other individuals, telling them that these are "your future dream houses, and this is the way you should live." Like many ARAMCO technicians, engineers, planners, architects, the information specialists in TV broadcasting were both inquisitive and concerned about the region's domestic affairs and were determined to carry out the full responsibilities of their cultural work.

In reviewing ARAMCO's TV programs, we need not work hard to demonstrate the kind of challenge with which the local tradition and social norms of the indigenous population faced when confronted with English Arabic speaking women television broadcasters appearing on the silver screen.
So far as the content of television programming is concerned, we find a great deal of material on television that has constituted a tremendous stimulus for new attitudes and images. Programs such as World of Adventure, westerns, televized movies, popular music, children's and adult's variety shows, public affairs, domestic news (focused mainly on ARAMCO's activities) and so forth are indeed a source of entertainment and information. However, we should not forget that these programs were also used as a vehicle for exposing the native viewers to Western industrial progress and social stereotypes. From the public affairs and domestic news programs, one can sense that particular subject matter and certain ideas were made to stand out from the program by emphasizing or repeating them or associating them with a favorable character or image. Apparently, such emphasis was purposely designed to both stimulate positive attitudes toward the company and to augment the viewers' susceptibility and confidence in company activities (particularly in the new residential types that had been built through its housing program).

Moreover, the continuous portrayal of modernization and development through either the physical examples of ARAMCO-built modern villas or through the television programs (in which labels, slogans, and ready-made value judgments are furnished) indeed had a detrimental effect on viewers' levels of confidence in their own life-styles and their traditional habitations.
ARAMCO's Publications: Although television broadcasting is one of the most effective mass media, its confinement to one region prevented the rest of the country's population from getting the company's message. For these messages to reach the rest of the country two kinds of ARAMCO publications were utilized. The first is rather an important one for its dissemination of the figures, accounts, and analyses of the company's oil operation, its construction activities, its services to the community, and its contribution to the economic development of the country. Such publications were intended to inform the government of Saudi Arabia and other parties who were interested in the company's oil venture. The second kind of publication is intended for the general public and the Company's various communities. There are Arabic-publications for the indigenous population and ARAMCO's Arabic speaking employees. English publications are intended for the company's non-Arabic speaking present and potential employees, principally Americans. Among the Arabic publications we can point to the company leaflets, news bulletins, the Oil Caravan (Qafilat al-Zaiyt), and the Arabic version of ARAMCO's handbook. They generally contain the current news and information of the Company's oil operation, its social and physical activity, fundamental background of the oil industry, and other topics in history, sociology, modern science and technology, and material progress in the modern world. These are prepared precisely to help readers comprehend the processes of development undertaken in the country.
ARAMCO World, ARAMCO Handbook, and the newsletters, The Arabian Sun and Sun and Flare, are among the publications published for English-speaking readers. They cover a wide range of topics including the fundamental information of the oil industry, important informal background of company activities, and fairly detailed accounts of the Kingdom and its population (which cover the history, culture, geography, religion, and economic development of the country).

This brief introduction is sufficient to confirm the general interpretation of these publications' primary function as a media to inform the public. Nevertheless, it is important to underline the implicit function of such publications, particularly in the pictorial material of the company's magazines, Oil Caravan, The Arabian Sun, Sun and Flare, and The ARAMCO Yearbook.

It is perhaps known that The concept of pictorial journalism is based on the consideration of photographs, captions and text as a unified communication effort, in which each element complements the others. Moreover, the fact that information and the knowledge acquired could be used as elements for propaganda and image making has already been alluded to. Most of the texts and accompanying photographs in the pages of the company's magazines reached out, not only to inform the general public of the kind of activities ARAMCO engaged in, but also to implant in the minds of the people an image of the desirable new living environment. This is particularly true for the recurring photographs of villas
(like those the company had built through its housing program), lending allure and authority to the Company's publicity.

This particular publicity, however, tends to have double purposes. The first has been described earlier, the second purpose is similar to that cited by John Berger in *Ways of Seeing*:

The purpose of publicity is to make the spectator marginally dissatisfied with his present way of life. Not with the way of life of society, but with his own within it. It suggests that if he buys what it is offering, his life will become better. It offers him an improved alternative to what he is. (47)

Therefore, one should not neglect the fact that any picture of a modern villa used in the company publications actually serves both purposes (Figs. 4.31 - 4.34). It depicts, on the one hand, the physical evidence of the Company's goodwill toward the indigenous population, and, on the other, it shows that the villa is a sign of affluence; it belongs to the good life; owning and living in one suggests a social superiority imparts the benefits of modern life.

**ARAMCO's Mobile Oil Exhibit:** The two mass media discussed earlier are generally considered as typical mass media aimed at the general public. However, both had their limitations. ARAMCO's TV broadcasting was limited to one region of the country. On the other hand, while the company's publications were received throughout the country, they reached of course, only the literate.
Fig. 3.31 These photographs from a cover page of Oil Caravan represent, according to the editorial, ARAMCO's most important activities during 1966. The impressive skyline photos of the oil refinery and drilling rig represent ARAMCO's commanding role in the growth of the oil industry and the economic prosperity and expectations of progress and development which arose from it. The two remaining photos illustrate this progress excellently, especially that in the upper right which shows a modern villa built through the company's Home Ownership Program. Given its tasteless color-scheme and extravagant design, no further description is needed.

Source: Oil Caravan (Qafilat al-Zait), 1967, V. No. the cover page.
Fig. 3.32 A translation of the Arabic caption for this photo: "The Home Ownership Program aims to encourage the Company's Saudi employees to reside with their families near their place of work in their own practical, economic and modern houses."
Source: Oil Caravan magazine (Qafilat al-Zait), 1969, V. No. p. 27.

Fig. 3.33 One of the residential neighborhoods in Quatif. It consists of houses built by the Company's Saudi employees through the Home Ownership Program.
Source: Oil Caravan (Qafilat al-Zait), 1969, V. No. p. 42.
Since the inception of the Home Ownership Program in 1951 close to 6,000 homes have been obtained by Aramco Saudi Arab employees throughout the Kingdom. Over 60 per cent of Aramco's 10,000 Saudi Arab employees are currently participating in the program. Under this voluntary program, an eligible employee can borrow money directly from the Company to build or buy a new home for himself and his family. Such loans are interest-free and vary in size in proportion to the employee's annual salary. During the past year, the average loan amounted to SR 34,500. The loan is repaid by monthly installments and the Company assists the employee to repay by contributing a 20 per cent subsidy.

Fig. 3.34 This advertisement is an ideal example of the Company's use of the Home Ownership Program for its propaganda campaign. The image of the modern villa and the stated important information combined with the propagandistic slogan "ARAMCO--Companion in progress," are more than sufficient to get attention. Source: Jeddah, 1968/69, University Press of Arabia and Africa, Nairobi, Kenya, 1968, p. A 46.
Such traveling exhibitions are not really typical of the more widely known forms of mass media. Nevertheless, their special effects on literates as well as the illiterate population, and the intention behind it made it possible to consider it as such.

Feel left out when conversation turns to geology, exploration, drilling and other "bread-and-butter" subjects in any oil community? A visit to Aramco's Oil Exhibit Center in Dhahran can change all that. After an hour or so, even the newest employee will gain a basic knowledge of the oil and gas industry. (48)

This is the opening statement of an article which appeared in ARAMCO's monthly news-bulletin, The Arabian Sun. The article is titled "From Discovery to Distribution ARAMCO Oil Exhibit Tells the Story." Indeed it does. Large informative display sections with working models, graphs, and audio-visual displays are combined to relate ARAMCO's history, economics, mechanics, and community-service aspects, and successfully captured the attention of nearly every visitor.

According to the article, "The idea of a permanent oil exhibit goes back to the mid-1950's when many Saudis who saw ARAMCO's exhibit at the Damascus Trade Fair suggested that ARAMCO make a contribution to the knowledge of the Kingdom's largest industry by staging exhibits in Saudi Arabia. For a time, this objective was filled by a small traveling exhibit, ARAMCO's Mobile Oil Exhibit, that traveled for 14 years to all parts of the Kingdom presenting the displays in a three-wing tent." (Fig. 3.35).
Fig. 3.35 A view of ARAMCO's Mobil Oil Exhibit at its opening day in Hofuf (al-Hufuf) in 1959.
Source: Oil Caravan (Qavilat al-Zait), April-May 1959, V. No. p. 25.
By April 20, 1971, the company's Mobile Oil Exhibit had visited 49 cities and towns, not including the repeated re-openings in a number of the country's major cities (Jeddah for instance). During the same period, more than two million people had visited those mobile exhibits. By viewing several exhibits' sections, those exhibit visitors were not only given an opportunity to become better acquainted with the oil industry, but also were introduced to new cultural and social dimensions and values. We may be sure that whatever photographs, models, or educational movies of modern life were presented in the Company's mobile exhibition were meant to draw attention to all the best work that was being done.

The significant point however is that there is another side effect of such intentions. That is, most visitors to the mobile oil exhibits were not aware that they were being influenced, and did not feel that they were being pushed in a certain direction. The present author may attest to this through personal experience. It took me more than a decade to realize that the admiration and fantasies I held for the modern villa were partially the result of an image engraved in my mind during the many visits to Jeddah of ARAMCO's mobile exhibits. This display of villas built through the company's home ownership program magnified such fantasies of attaining the promising modern life.

It must be acknowledged that ARAMCO's mobile oil exhibits were in no way comparable in cultural impact to such major exhibitions as world's fairs, or even the 1932 "International
Style" exhibition of modern architecture held at the Museum of Modern Art in New York. However, from the many indications such as the change in perception of a house or a change in the architectural characteristics of residential buildings, the role of such a mobile exhibit in psycho-social and cultural conditioning should not be ignored.

3.4.2 The Role of the Government

It is more than a coincidence that there is a considerable resemblance in the kind of urban physical and social change created by both ARAMCO's building activities in the Eastern Region (al-Hasa) and that engendered by the Government's building activities in the Central Region (Najd), particularly in the methods and the purposes for which the new housing types were introduced. Moreover, in the instance of the Government's role in psycho-social and cultural conditioning, we also recognize a certain parallel with ARAMCO's role. Consider for example, the comparable functions of both the Home Ownership program offices of ARAMCO and the Engineering Office (al-Maktab al-Handasi) in charge of the Government housing. With such similarity in functions it becomes difficult to believe that the potential beneficiaries of the Government housing project had not experienced a state of non-structured opinion, a state of psychological vulnerability similar to the one experienced by the target population of the ARAMCO Home Ownership Program.
Evidently, this psychological influence exerted pressures on the personal relation involving the staff persons of the Engineering Office and the potential beneficiaries of the program. The ways in which the rest of Riyadh's population, and consequently the population of the rest of the country's urban centers, were psychologically influenced and persuaded to accept such new house types has been integrated in the functions and purposes of the following: first, the Government Broadcasting, press, and publications; second, the adoption of a land subdivision system and building regulations.

The Government Broadcasting, Press, Publications: It has been suggested earlier that Government sponsored housing project built in Riyadh was actually constituted evidence of a Government shift from a laissez faire attitude to one oriented to public commitment. Such change in attitude, will typically occur in a new nation whose government sets a plan for national development. But, without the service of a mass communication system (particularly mass media), the aspiration for national development could never reach the majority of the population. Therefore, because of growing oil wealth, when economic conditions ceased to be a major obstacle, national development became a matter simply of determination and time.

The General Directorate of Broadcasting, Press, and publications was included the first group of governmental offices established in 1953. During the 10 years of operation
and before its replacement by the Ministry of Information in 1963, the General Directorate was in charge of radio broadcasting, the weekly Mecca gazette "Umm al-Qura", and a monthly radio magazine "al-Idha'ah al-Saudiyah". In addition to these responsibilities, and through unwritten code forbidding criticism of the government, the General Directorate practiced an indirect control over the many local private newspapers, as well as directing and emphasizing the kind of information to be released to the public. It is clear, therefore, why these private newspapers not only followed the line of the official publications, but also tended to give generous coverage to government activities, and announcements and speeches of Government officials.

Despite the rigid and very conservative attitude of information control practiced by this government agency during its early years, the government-dispensed information through radio broadcasting, press, and publications proved to be essential. It was served not only to foster a favorable mood regarding the government and to build for it political support, but also to create a climate conducive to national development. Certainly each medium has its attracting people's attentions and focusing it for example upon national goals and national accomplishment. More important to realize, however, is that the information heard through the radio, or read and seen on the pages of newspapers and publications all complement one another in focusing the public attention always national development.
From time to time, however, government interest might be directed to one particular issue of development (such as upgrading or adopting new health, agricultural, industrial practices). Once this shift of interest was determined, the government-controlled media immediately directed the public attention to that particular issue. The focusing of attention may be accomplished by presenting a special program, including supplementary issues on the topic, or simply alluding, for example, to the rewards to be gained by modernizing old practices by showing modern equipment, methods and ways of life in economically advanced societies as background to media content in general. This is particularly true in the case of new house types and neighborhood planning introduced by the Government Employees Housing Project.

It has been indicated earlier that one of the reasons behind such large-scale housing was to encourage government employees to move from the Hijaz to Riyadh. We may also recall that these modern residential units (the villas and the apartments) were intended for the higher and middle-ranked government employees, of whom the majority had acquired a certain degree of secular education and relatively more exposure to the accomplishments and ways of life of other societies. Not surprisingly, however, this group of the Western Region population had characteristics very similar to those of the upper and middle class groups of the Eastern region (al-Hasa). Chief among these characteristics is a rising aspiration toward new experience and a new economic
level and social order. Nevertheless, merely building new houses was not quite enough to persuade have those employees make such a big decision as to move from their accustomed living environment to an unknown one. Strong persuasion, and psycho-social stimuli was necessary to complement the physical one (the actual modern apartments and villas). Therefore we should not be surprised to find that the mass media were directed to issuing these stimuli, and even succeeded in influencing the rest of the population to admire those new house types. The information released by the media about this housing focused attention on the good and modern life which those privileged groups of the society would enjoy, and how modern electricity, sewage systems, new internal spatial organization, wide streets and spacious gardens (open spaces) surrounding the villas improve the living environment. Moreover, by correlating the new living environment with social aspiration, the media bestowed prestige and enhanced the authoritarian tendencies of those government employees by legitimizing their social status among the rest of the population. The recognition by the radio, press, and other government publications of such new house types and new social order testified that this new living environment was the one which symbolized modernity and progress. That notion perhaps is significant enough to create an imitative attitude in both social and physical living environments. (Figs. 4.36 - 4.37).

Two observations qualifying the above argument should be noted. The principal reason for not including government
Fig. 3.36 Modern villas in New Riyadh.

Fig. 3.37 One of the villas built by the government on University Street.
television broadcasting in the present discussion is that this particular medium of mass communication was introduced only during the last five years of this first stage of the development of the country's contemporary housing. This obviously was not a sufficient time to have an effective role in shaping the people's opinions regarding the modern villas and apartments built at the time of the first official television broadcasting in 1965. Moreover, for several years television was operating on an experimental basis. It was not until the early years of the 1970's that television sets became affordable for the majority of the population of the few major urban centers of the country in which television broadcasting was available. Secondly, in the matter of cultural conditioning, we should not expect that a conservative government such as that of Saudi Arabia would openly express an enthusiastic attitude toward Western civilization. In fact, in almost all official statements for major projects or development policies stress the conformity of the goals and policies to the Islamic Law and the society's cultural heritage. On the other hand, terms such as "tammadon" (civilization), "al-tatawr al-mimmari" (architectural progress), "al-imarah al-mu'a-asirah" (contemporary architecture), "al-taqaddom" (modernization and progress) are among the many terms presumably utilized to raise the general level of aspiration and to provide a climate for national development. By associating such terms with the actual architecture and planning built and practiced in the
country, one will have no doubt of the Western model to which such terms refer.

The Adoption of Land Subdivision and Building Regulation: This discussion has briefly demonstrated the importance of government-dispersed information in raising the aspirations of the population towards national development and implicitly influencing their attitude towards modern housing. However, mere government information and propaganda were not yet sufficient to maintain such an attitude unless supported by an authoritative action to promote the construction of similar housing types.

Such authoritative action is what Saleh A. al-Hathoul calls "The Institutionalization of the System." Indeed, the municipal land subdivision of the 1950's and 1960's and the building regulation established during the same period (particularly the setback regulation which was enforced for anyone interested in constructing a residential building on municipally subdivided land) were the legalistic steps fixing the widespread acceptance of the villa and of apartment buildings. We can confirm the innocence and the good faith attributed to the institutionalization of the system. Nevertheless, it virtually stifled creative approaches to upgrade the traditional neighborhood layout and to the modification of the design and construction techniques of the traditional houses.
3.5 The Rise of a New Prototype

Building a large number of new and extravagant houses coupled with the widespread abandonment of old houses (not to mention the many demolished to make space for modern ones or for street widening) are signal factors that mark the end of building traditional houses and the rise of new prototypes. Sheer numbers, however, do not assure the status of "prototypes" unless a certain kind of image and perception was inculcated in them. It is legitimate to cite the new houses built by ARAMCO and the Government of Saudi Arabia during the 1950's, and the psycho-social and cultural conditioning which accompanied them. Suffice to recall at this point the logic of functional extension of the housing offices of those early housing programs. Besides doing paperwork, the architects of those offices became aware that in order to provide design alternatives for the houses, these new houses must have certain modernistic architectural characteristics. With such a notion in mind we eventually come to understand the reason behind the constant effort and attempts to make designs of those new houses summarize and synthesize the most up-to-date Western design factors that are supposed to characterize a modern house in Saudi Arabia. Evidently, this is aimed to create a new housing type/types, for the purpose of winning admirers for the concepts they embody, and influencing people to copy them.

Since the notion and image of the modern house as presented through the design and layout of almost all the
newly built houses are clearly evident, those new house types introduced by the early housing projects have established a pattern of great significance: The villa has replaced the traditional house as the standard new prototype and it is being built constantly and copied widely all over the country.

Figures 4.38 and 4.39 show examples of this large progeny. They represent, on the one hand, a clear version of the universal style, and on the other hand the kind of changes imposed on the traditional living environment as well as the traditional urban pattern of the country. It is worth noting here that although many apartment buildings have been built since the construction of the Government Employees Housing Project; "Malaz Housing Project", almost no housing project or apartment buildings have adopted the Zeilenbau formation. Therefore, neither the apartment plan nor the Zeilenbau formation of the Malaz apartment buildings can be seen as prototypes for later apartment buildings.54

In summary, it is not necessary to spread negative attitudes about the old traditional house in order to destroy people's confidence in the accustomed building practices and to discourage them from continuing to build, or even to modify, their traditional houses. Many actions, even if born of good intentions in the interest of the welfare of the masses, may possess unforeseen consequences that have a profound effect and could do more damage than the effect of fostering negative attitudes.
Fig. 3.38 Modern residential area in Jeddah.

Fig. 3.39 From the architecture of this private villa (which built for Assistant Minister of Finance, in Jeddah, 1950), we realize a number of clues; clues that have something to say about the statues and prestige of the owner and taste, educational background and values of the architect.
An alternative explanation is that it is hardly necessary for a government (particularly a Third World government) to be consciously determined to have the effect of sanctioning the abandonment of the cultural integrity and the discontinuity of building the traditional houses of its society. Take for example the Government's building activities in Riyadh during the 1950's: The expenditures and the efforts devoted to such a colossal project for the purpose of making Riyadh the most modern city of the country presents suggests the government's good will and good intentions. But once the Government utilized the mass media to keep national goals and national accomplishments always before the public, and once it began to practice its newly assumed authority to control the way people build and live, new frames of reference were imposed on the society for the setting of a new life style and new responsibilities.

Students of Arabia's architecture are faced by a new challenge: new house types in Arabia are great influence upon Saudi Arabia's society through their differences from the indigenous ones; and their impact stems largely from the adaptation and institutionalization of Western urban planning, which has been a factor in the psycho-social and cultural conditioning.

Indeed, the early large-scale housing programs of ARAMCO and the government of Saudi Arabia have played a considerable role in creating the challenge. Not only did they change the physical urban environment considerably, but also altered the
common perception of a house as a socially related family domain to a dominantly physical one (the house as mere shelter). This change, however, had not yet reached its peak, nor had it affected the low income group of the society during this first stage. We must wait until the next decade, the 1970's (the second stage) in order to see how cultural influence reached new dimension and the rapid change had exceeded and distorted all measures and expectations of the urban policy makers and their national development plans. In the second stage we will see how a profound transformation of the living environment had become an unmistakable reality, and a worrisome one.
CHAPTER IV
THE DECADE OF EXPECTATIONS AND CHALLENGE

Many observers who actually witnessed the volume of construction which took place in Saudi Arabia have described the decade of the 1950's as the decade of the 'building boom,' with the attendant introduction of modern architecture to the country. This does not mean, however, that the decade of the 1970's should be seen merely as a second building boom, for this was a time typified by extravagance and extremes in the government housing programs, and a time when the various elements comprising the nation's housing industry failed to fall properly into a coherent pattern. It is an important period in the history of the country's development; presaging the imminent departure from the traditional cultural values as new influences were injected through increased international contacts. The development process in Saudi Arabia parallels, on the one hand, the typical Third World development experience; on the other hand, Saudi Arabian development incorporates many aspects that make it unique.

It is a monumental task to do justice to the history of the Saudi development process as it was influenced by society's growing awareness of the vast technological advances in the Western world. However, to sketch the development process in broad outline will demonstrate the considerable influence brought to bear by the natural elements (climate,
topography, precipitation) and by the availability of natural resources (water, minerals, oil, etc.) in any particular region of the state, shaping thereby the living conditions of the people in the region. Survival and quality of life of the peoples is closely linked to the harshness of the natural elements in the region and/or local scarcity of resources. With an inhospitable environment such as is found in Saudi Arabia, we see two interesting phenomena; the first is that the ingenuity of the inhabitants of such an environment is severely tested and is usually focused on the development of needs basic to survival. The second is that, more often than not, other societies fortunate enough to exist in regions with more favorable natural elements and an abundance of natural resources tend to regard less fortunate people as a 'backward society,' wanting no real part in their life nor the area in which they live.

One must wonder what the consequences would have been if the British Government had followed a policy different from that laid down in 1879. Regarding the internal welfare of Arabia, the British Government had established as a cardinal principle of its policy that it was not disposed to interfere (in Arabia) more than was necessary for the maintenance of general peace in the Persian Gulf. The British Government committed itself to the responsibility of policing the Persian Gulf and to the maintenance of a favored position at key points on both its shores.¹ Most probably, this policy was based on the prevailing notion of that time that Arabia
possessed no natural resources of economic value, and that interference in its welfare was unwise and uneconomic.

It would be an interesting exercise to imagine the situation if oil had been discovered before this final process of regional consolidation, and before the British Government and the rest of the Western countries recognized King Abdul-Aziz's sovereignty over the consolidated regions. No one can predict what would have happened, but one thing is sure; the historians of the Arabian Peninsula and its peoples would have witnessed a different process of development and a different trend in cultural influence. Interestingly enough, about 36 years after the British Government set a policy of noninterference in Saudi internal affairs, and 10 years after the British oil company, "The General Eastern Petroleum Co.", had categorically denied the existence of oil underneath Arabia's sand, this area became the stage of a massive oil exploration by an American company.² With the economic potential of oil exploration firmly established, the attention of the industrialized world was focused on Arabia; and as we advance toward the 1970's and 1980's, we note a trend of gradually changing foreign policies, moving toward a closer relationship with Saudi Arabia. Almost every nation in the world which had anything to offer wanted to take part in the development of Arabia. If a country did not have the high-technology know-how typical of most of the Western countries and Japan, it offered low-technological input, as with the construction industry in the case of South Korea. If the
country could not offer either one of the above, it could still contribute its labor force.

Going back to the early years of oil exploration in Saudi Arabia (1930's), we find that this exploration had opened the country to the oil prospectors who brought with them the innovations of the industrialized world. The gradual increase in cultural contact, and the introduction of modern innovations to the country generated a force which disturbed the calm desert wind, the wind which for centuries had maintained a slow pace of change in the Saudis' way of life. This disturbance, (which many like to call 'development'), gradually but steadily gathered strength and momentum. Frequently, the peak of such development produces a violent storm which takes with it everything not solidly grounded, leaving damage in its wake which requires repair, often long after the storm has receded. Like such natural storms, when radical change and development is imposed on an emerging society, one which has yet to adapt its social or physical infrastructures and to secure qualified personnel to manage the new tasks, this rapid development offers only limited advantages. It may wreak great damage and require generations to mitigate the consequences.

When we look at the development process in Saudi Arabia up to the end of the 1970's, we can isolate two stages. The first covers the period of the 1930's up to the 1960's, and the second period covers the decade of the 1970's.
We have already discussed the way in which modern building materials, building techniques, house types, and large scale housing were introduced into the country during the last two decades of the first period. The following brief discussion of the economic conditions and development planning which took place during this first period may shed light on the factors necessitating long-range economic planning, reflected in Saudi Arabia's first two five-year development plans initiated during the 1970's.

We said earlier that King Abdul-Aziz urgently needed to find another, reliable source of income to replace the insignificant income gleaned from annual pilgrimage dues. The 1938 production of oil in commercial quantities ended the King's economic worries.

The post-war increase in oil production and the consequent increase in government income was a true test of the efficiency of the government's financial system. The first state budget ever was published for the fiscal year 1947-1948. The figures presented in the budget were rough estimates of financial activities covering administrative expenses, capital expenditures, and commercial transactions. Because Saudi Arabia's economic structure at that time was so simple, such estimated figures of annual state budgets were not always a close reflection of actual government expenditures, particularly when they showed expenditure exceeding revenue. It was not until 1952 that the government put into effect a modern monetary system. In the same year, the Saudi
Monetary Agency (SAMA) was established to stabilize the country's currency and to assist the Ministry of Finance and National Economy in controlling the government's financial activities. In 1954, further reorganization measures were undertaken. These enabled the Ministry of Finance to tighten its control over the activities of other government ministries, and the approval of the Council of Ministers became a necessary condition for the implementation of the annual state budgets.

With such measures, a short-term economic plan became evident, based on the proposals of the government's various ministries. They submitted their budgets with requests for financial allocations for special projects and recurrent expenditures to the Ministry of Finance, which, in turn, approved or rejected these proposed projects according to its evaluation of the requesting ministry's ability to carry out the proposed spending program effectively and its estimate of total revenues for the coming year. As there was no governmental agency or organized committee in charge of organizing and supervising economic development planning during most of the 1950's, there were no serious and well-defined development strategies. There was no significant allocation for industrial development, and budget allocations for development projects were managed haphazardly and inconsistently. It is not surprising, therefore, that despite the increase in government income and the increased sophistication in the handling of financial matters, that government expenditures
outran revenues. As a serious result, the government was at the brink of bankruptcy by the end of 1957. These bleak economic conditions made administrative and economic reforms highly desirable.

The most immediate step towards averting such a breakdown was taken when Crown Prince Faisal was granted full power to administer the external and internal financial affairs of the country. Faisal took control of all government expenditures, and declared a program of austerity to improve the country's financial status. With a careful spending policy, under which productive expenditures like development projects were given priority in the state financial allocations, the government was able to pay all its domestic and foreign debts. After five years, from hovering on the brink of disaster, Saudi Arabia entered a new era of prosperity and rapid social change. The main offshoot of this change centered around the creation of a mechanism for development planning.

The first of these mechanisms to set up in Saudi Arabia was the Committee for Economic Development, established in 1959. This Committee was replaced in 1965 by the Central Planning Organization (CPO). Concerning economic development, the CPO continued to carry on King (then Crown Prince) Faisal's Ten Point Reform Program, which both incorporated social welfare and economic development, and reflected a conscious projection of future possibilities based on past trends. Despite its modern viewpoint and attempts to acquire for Saudi Arabia the material benefits offered by modern
technology, King Faisal's administration proceeded in its development policy at a very measured pace. They seem to have been well aware that rapid change could bring with it the possible destruction of traditional values and of the integrity of Islamic society.

Since the second half of the 1960's the government was no longer in need of financial assistance, from its allies, from ARAMCO, or from local merchants, and the pressure to pursue a comprehensive development program compelled the government to acquire technical assistance and know-how from outside. By the end of the 1960's, the impact of Western technology and thought on Saudi society was taking on a new dimension and intensity. The rapid pace of change was evidenced by the implementation of the first two five-year development plans, which signified the second stage of development in the country's contemporary housing.

The stage was characterized by considerable government involvement in housing development, and the participation of international architectural, consulting, planning, and contracting firms in the construction of public housing projects.

4.1 The First Five-Year Development Plan (1970-1975)

Although the first comprehensive development plan was initiated in 1970, the groundwork for it was laid as early as 1963, the year when United States technical assistance took a new course in Saudi Arabian economic development. In the same year, the government of Saudi Arabia signed an agreement with
the Ford Foundation to engage the latter for assistance in management improvement. During the summer of 1963, the Foundation assigned a three-person team to conduct a management survey. At the end of the survey period, the team recommended several points which were approved by the government of Saudi Arabia: This approval led to the conclusion of the so-called "Program Agreement" between the government and the Ford Foundation consulting team. The agreements provided for the allocation of advisory staff to work closely on the proposals set forth by the first survey team.10 In March 1964, the advisory team began operating with six sub-teams, with each sub-team assigned to a particular governmental structure and to help manage its responsibilities.11 The task of the advisory team was complicated by several obstacles. Language barriers and preconceptions were common difficulties, and some members of the team tacitly endorsed the notion that what was good for one country must be good for another. The results produced by the sub-teams varied, ranging from a general assessment to fairly detailed recommendations. One positive result achieved, however, was the accumulation of indepth data and information regarding overall Saudi governmental structures. Given this information, government officials started to pin-point governmental priorities and limitations. The findings also raised awareness concerning necessary changes, and, at the same time, brought insights as to possibilities for growth. In particular, one report, presented by a group
of economists and a number of ministerial employees, explained the country's past and present problems as well as its prospects for progress. Eventually, this report served as a basis for the country's first comprehensive development plan.

By 1968 the CPO staff, assisted by a team of advisors from the Stanford Research Institute, formulated a new development plan. The first five-year development plan was signed on August 16, 1970. It was the first attempt by the government of Saudi Arabia to provide a comprehensive, long-range approach to economic development. The plan contained a systematic plan of action in all areas reflecting development strategy of industrial diversification designed, as R. Crane indicates, to recreate a miniature United States.\(^{12}\) As stated, the plan's general objectives were to maintain the country's religious and moral values, and to raise the living standards and welfare of its peoples, while providing for national security and maintaining economic and social stability. The objectives were to be achieved by:

1. Increasing the rate of growth of the gross domestic product;

2. Developing human resources so that the several elements of society would be able to contribute more effectively to production and participate more fully in the process of development; and

3. Diversifying sources of national income and reducing dependence on oil through increasing the share of other productive sectors in the gross domestic product. (13)

With respect to its generalized objectives, the plan was drawn up as a basis for economic take-off and as a decisive step
towards the achieving the goals of development. It gave priority to establishing the infrastructure, and to diversifying economic resources. To achieve this, the plan envisaged a total investment of $9.2 billion over the five-year period, producing an annual growth rate in the G.D.P. of 8.2 percent.

In regard to housing, the plan stated a general objective for the housing sector, summarized as the improvement of housing conditions:

where these fall below required social and health standards; and in particular raising the standards of housing of the lower income groups so that improvement in housing will go hand-in-hand with the Government's efforts for the improvement of health services, water supplies, and urban development throughout the Kingdom. (14)

The plan, therefore, acknowledged the need for a comprehensive housing survey in order to achieve such general objectives. Since there was no up-to-date information on the country's housing conditions, it became clear that such housing surveys would help to determine what housing existed throughout the nation, and provide data on existing methods of construction, materials, construction costs, and ways of financing housing construction.

Based on the outcome of the survey, the following housing targets were decided upon:

1. Establishment, during the first year of the Plan, of an institution to finance housing and real estate development projects;

2. Design, in the second year of the Plan, of model residential communities; and,
3. Implementation, in the third year of the Plan, of a comprehensive program for the development of the housing sector integrated with plans for urban developments. (15)

As the plan states, such surveys would provide the basis for:

1. Forecasting the requirements of different income groups for improved housing;
2. Assessing how much each group would be able and willing to pay for improved housing; and,
3. Formulating policies and programs tailored to both the needs and the financial capacity of different income groups.

The survey would also determine:

1. The means by which the private sector should be encouraged to undertake real estate development and housing construction in accordance with the programs proposed;
2. The extent to which national manpower and materials could be used in site development and housing construction;
3. How private sector savings could be mobilized to finance real estate and housing construction;
4. How the volume of housing construction could be regulated to offset cyclical movements in economic activity;
5. How housing development should be coordinated with town planning. (16)

Another housing-related program projected by the plan was the financing of housing and real estate development through the mobilization of private savings and other forms of private sector financing. To serve such purposes, the government intended to establish a housing and real estate finance institution, and to utilize part of the thirty million Saudi
riyals allocated for the housing sector throughout the plan period. The remainder of this budget allocation, however, was designated to execute the housing survey program and to construct the proposed design model for residential communities in selected locations. The purpose of these housing projects was to provide the basis for determining the cost of site development and construction for new housing. In addition to that, they were intended to demonstrate the standards and characteristics of residential communities that would meet local social requirements and conform to the local physical environment, the availability of building skills and materials, and the financial capacity of prospective occupants.

It became apparent that when the plan was submitted on August 16, 1970, there was no specific and well-defined housing policy, or any independent governmental institution to carry out the tasks. Despite the realization that a housing survey was needed, the plan did not specify the mechanism by which the survey was to be conducted. Nor did it mention the background or availability of the staff necessary to carry out the survey. Since there were no reliable data on the nation's housing industry, the proposals for model communities were theoretical in nature rather than a practical solution to the immediate housing demand. In the second half of the 1970's, these projects were eventually abandoned, as new and more pressing circumstances arose.
In spite of the government's modern outlook and its intention to push ahead with Saudi Arabian development process, its careful and measured approach in handling development projects indicated government awareness of the magnitude of the tasks involved in rapid development. Meanwhile, the unexpectedly large increase in oil prices in 1973-1974 and the subsequent increase in the government's revenues had outrun all CPO predictions. All statistics, data, and measurements undertaken in the early years of the plan were rapidly becoming obsolete.

As was to be expected, the recognition of a huge fiscal surplus generated strong internal and external pressures to increase the scope and magnitude of government services. Increase in internal pressure was due to the ballooning of popular expectations and the emergence of new wants and ambitions. External pressure, however, was clearly related to a desire to share in Saudi Arabia's increasing capital surplus because of the country's pressing need for all kinds of assistance (except capital outlay) in order to pursue its development program. Increasingly, by the end of the plan period, and with the second development plan on the drawing board, the country was becoming a focus for supervisory personnel and engineers. An influx of international experts made their services available for the country's overall development, and to housing development in particular. The housing situation in Saudi Arabia now entered a different phase, to be realized by the implementation of the second five-year development plan.
4.2 The Second Five-Year Development Plan (1975-1980)

There are different opinions concerning the outcome of the first five year plan, depending on one's perspective, what part of the plan one is referring to, and whether these opinions originate from inside or outside observers. The most widely quoted inside observers are generally government officials (particularly the CPO staff). Understandably, they tend to disregard the shortcomings of the plan, and present it as a total success. Outside observers fall into two categories: The first expresses a sympathetic opinion rather than a constructive one, while the second group express a critical point of view, often laced with cynical observations. These opinions are interesting and deserve further elaboration.17 However, what mainly interests us here is the vision and the planning experience resulting from the development plan. With the prospect of continuing increases in the government's revenues, this experience gave the Saudi planners, as well as their advisors from the Stanford Research Institute the confidence and know-how to launch a more extensive and rapid development plan.

The aim of the second five-year development plan, submitted on April 17, 1975, was to spend about 498 billion Saudi Riyal ($142 billion) over the second half of the 1970's on industrialization and social welfare. With industrialization, the plan had brought about a new innovation in planning economic development, i.e., the long (20 year) development target under which the proposed petro-chemical complexes will
be in full operation by the year 2000. As stated, this
generalized aim indicates that the planning strategy expressed
in the Second Development Plan is a complete departure from
that of the First Development Plan, where development strategy
held industrial diversification to a narrower and more highly
specialized industrial profile. The following are some of the
more specific development strategies expressed in the Second
Development Plan:

1. Careful management of hydrocarbon resources to
maximize domestic, social and economic benefits
in the long run while meeting the need to
finance industrial and social development.

2. Use of additional foreign labor to assist
implementation of programs planned for the
period.

3. Continued internal migration from rural areas
to urban and industrial employment centers.

4. A major role for private enterprise, assisted
by the Government.

5. Elimination of constraints that may arise from
the unprecedented rate of expansion, and
rescheduling of programs and projects in
accordance with national priorities if
necessary.

6. Improvement in the effective speed of planning,
decision-making and implementation.

7. Prudent utilization of international coopera-
tion programs to acquire technical know-how,
skilled labor and management expertise.

8. Sound monetary and fiscal policies, minimiza-
tion of domestic inflation, and sound manage-
ment of Saudi Arabia's growing financial
reserves. (18)

Since economic development planning implies the efficient
utilization of the country's natural and social resources in
accordance with defined priorities for the attainment of national goals, the stated goals of the Second Development Plan have integrated a cultural, historical, and political orientation. These goals are to:

1. Maintain the religious and moral values of Islam.
2. Assure the defense and internal security of the Kingdom.
3. Maintain a high rate of economic growth by developing economic resources, maximizing earnings from oil over the long-term, and conserving depletable resources.
4. Reduce economic dependence on export of crude oil.
5. Develop human resources by education, training, and improved standards of health.
6. Increase the well-being of all groups within the society and foster social stability under circumstances of rapid social change.
7. Develop the physical infrastructure to support achievement of the above goals. (19)

With regard to the generalized goal of increasing the well-being of all groups within the society, the Development Plan set up the following housing objectives and policies.

The primary objective for housing development is to enable every household in the Kingdom to have a decent, safe, and sanitary dwelling of a standard consistent with its level of income. Because of technical constraints and long periods between program initiation and housing occupancy, it will be some years after 1980 before this goal can be achieved.

A secondary objective is to ensure that enough housing, both permanent and temporary, is built during the Plan period to accommodate additional manpower needed to implement the Plan. Housing must be developed as part of the orderly urbanization patterns that are consistent with the social,
environmental, and employment requirements of residential settlements.

A fundamental objective -- without which none of the others can be achieved -- is to develop the institutional capability and financial and legal structures needed to implement and support a continuing effort in the area of housing development. Through the Real Estate Development Fund, the private sector will be encouraged to expand its construction of housing units from the 1974-75 level of 17,500 units to 29,400 units in 1979-80. The total Plan target for private sector construction is 122,100 units.(20)

The public sector, through the General Housing Department Ministry of Public Works and Housing, will assume responsibility for construction of 32,500 houses in accordance with the Phase I program already initiated. Additional targets for the public sector include second and third phase programs each for 30,000 houses, which will be initiated in the second and third years of the Plan. The public sector program also includes preparation of 44,300 serviced plots to be allocated to low-income households for orderly construction of self-help housing.

The government will call on contractors for major development projects to assist in meeting housing demand in two ways. Firstly, it will fund the construction of permanent housing planned as an integral part of major development projects, such as military bases, industrial complexes, hospitals, and some educational institutions. This construction is included in the targets already indicated for the private sector. Secondly, the government will require contractors to construct temporary housing for the labor required to implement such projects. A target of 51,000 temporary housing units has been set for this program, on the assumption that it will be adjusted upward or downward in the light of actual requirements.

Production of housing and serviced plots according to the previously indicated targets will exceed estimated demand for new and replacement housing by 48,900 units and will reduce substandard housing in unserviced settlements by more than 40 percent by the time the Plan ends.

The following supplementary objectives and policies will guide implementation of the planned housing programs:
- Public sector activity will be oriented toward low- and moderate-income households.

- Public sector resources will be used to make home ownership possible for at least 75 percent of urban households.

- Financial subsidies will be developed for builders and residents so that no household has to spend more than 20 percent of its income on rents, loan repayments, or leasing and purchasing agreements, or spend more than 25 percent for these items plus maintenance and utilities.

- Public sector resources will be used only for investment in residential subdivisions and housing that is of standard quality or high quality.

- All subdivision of land for residential development must meet or exceed town planning regulations concerning plot sizes, set-backs, density ratios, and vehicular access.

- Public sector resources will be allocated to those regions and municipalities in which there will be stable employment and a high demand for housing.

- Private sector housing will be financed in part from direct loans made by the Real Estate Development Fund channelled through the REDF to private financial institutions engaged in financing housing and real estate development.

- Public sector housing will be financed from public funds and income from rents, loan repayments, and leasing and purchasing, renting, and maintaining their houses.

- These services will be extended first to households which have been allocated serviced plots under the program for developing such plots and subsequently to other low and moderate income householders who are investing in permanent housing.

- The existing General Housing Department will be strengthened into a Housing Organization and will be linked to the Real Estate Development Fund which will be concerned with development of financial services and incentives for private sector housing. (21)
In addition to the broadened housing objectives and policies drawn up in the Second Plan, we notice increased sophistication in the phasing of the volume of housing construction, in categorizing the housing types and services, and in forecasting the governmental funds required to implement the country's housing program. Tables 1 and 2 indicate this new level of sophistication. Despite the fact that these tables do not accurately reflect actual housing activities, they are an important yardstick for the inquisitive researcher and house builder with an interest in the economic and quantitative performance of the housing program. In Table I, it can be seen that the private sector will construct more units than the public sector throughout the three phases. Then, in Table 2 (the planning forecast for total construction), one can see that government funds allocated for the private sector are less than those allocated for the public sector. This situation raises several questions: Are the units constructed by the public sector supposed to be of better quality than those constructed by the private sector and will they cost more than the private sector units? What are the justifications for the cost differences?

The Plan paid no attention to the socio-cultural values of the society and the traditional urban patterns, as building regulations and codes were primarily copied from neighboring countries which had adopted the Western system.
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<td></td>
<td>20.3</td>
<td>21.9</td>
<td>24.0</td>
<td>26.5</td>
<td>29.4</td>
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<td>-</td>
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<td>-</td>
<td>2.2</td>
<td>5.1</td>
<td>11.4</td>
<td>25.6</td>
<td>44.3</td>
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<td>Subtotal</td>
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<td>3.5</td>
<td>10.1</td>
<td>26.4</td>
<td>55.6</td>
<td>96.8</td>
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<td>10.0</td>
<td>15.0</td>
<td>20.0</td>
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<td><strong>Total Supply</strong></td>
<td>22.5</td>
<td>30.4</td>
<td>44.1</td>
<td>67.9</td>
<td>105.0</td>
<td>269.9</td>
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<td><strong>New &amp; Replacement Housing Needed</strong></td>
<td>38.2</td>
<td>40.8</td>
<td>43.9</td>
<td>47.2</td>
<td>50.9</td>
<td>221.0</td>
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<td><strong>Supply minus need</strong></td>
<td>(15.7)</td>
<td>(10.4)</td>
<td>0.2</td>
<td>20.7</td>
<td>54.1</td>
<td>48.9</td>
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<td><strong>Substandard Units</strong></td>
<td>133.0</td>
<td>143.4</td>
<td>143.2</td>
<td>122.5</td>
<td>68.4</td>
<td></td>
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<td>Remaining</td>
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</table>

1/ Not Applicable

**TABLE 2**

A Preliminary planning forecast of government funding required to implement the Kingdom's housing program is shown below (in millions of dollars).

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<td><strong>Private Sector Housing</strong></td>
<td>-</td>
<td>94.6</td>
<td>207.2</td>
<td>400.4</td>
<td>634.4</td>
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<td>43.6</td>
<td>47.3</td>
<td>182.0</td>
<td>546.0</td>
<td>1092.0</td>
<td>1911.0</td>
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<tr>
<td><strong>Serviced Plots</strong></td>
<td>-</td>
<td>28.8</td>
<td>53.0</td>
<td>118.5</td>
<td>266.2</td>
<td>460.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>43.6</td>
<td>164.8</td>
<td>442.2</td>
<td>1064.9</td>
<td>1992.6</td>
<td>3708.3</td>
</tr>
</tbody>
</table>

Source: Second Development Plan (1395-1400 A.H.) - (1975-1980 A.D.)
(Ministry of Planning - April 1975)

*Saudi Riyals
The preceding objectives are ambitious with respect to the time and the effort involved, and the limits on local capabilities and resources of all types (except for finance). They are also ambitious in terms of the country's limited overall experience in the field of housing. The distribution of housing efforts between the two sectors appears nearly balanced when one considers the following:

1. Other efforts undertaken by the different government ministries in proposing and constructing housing units for their employees.

2. Efforts by private individuals and private institutions.

3. Housing programs being implemented by ARAMCO.

In practice, however, this distribution is a completely different issue, particularly when we consider that the careful, measured development process of the First Development Plan was in complete contrast to the strategy of the Second Development Plan. In the Second Plan, the government appeared to be trying to do everything at once: acquiring overnight the requisite industries, communications, highways, roads, airports, seaports, sewerage systems, hospitals, schools and housing. Certainly, the intentions were good, i.e., to overcome old problems, eradicate poverty, and improve the general well-fare of the population. But while these ends were pursued, new problems arose, along with new frustrations and embarrassments. Unfortunately, these endeavors put the Saudi society in the middle of a violent storm of rapid change which has blown away everything beyond reason. It drove the
price of land, houses, building materials, goods, labour costs etc. to inflated levels, and also created a real estate boom, a contractor's feast for those interested in a "fast riyal." It has also subjected the society to critical cultural influences, imposed by a unique confluence of international cooperation. There may have been no harm intended, but high-tech know-how and the principles of the West met the manpower of the East, and the impact was deeply felt. The peoples of Saudi Arabia have felt extensive consequences, which must be experienced to be fully understood.

This study does not intend to list all of these consequences, but some of the more pertinent, those most closely related to the subject at hand, deserve mention.

4.3 The Impact of the Development Plans on the Existing Housing Industry

The completion of the First Five Year Plan, with its satisfactory results and the considerable economic growth which had taken place by the conclusion of the Plan, made possible a much more ambitious Second Development Plan one calling for more industrial projects to enable Saudi Arabia to take major steps towards modernization. In turn, this Second Plan attracted more than 500,000 workers with various skills from many countries. It is unfortunate for Saudi Arabia that a considerable number of these workers (mostly from nearby countries) brought their families with them, putting increased demands on the already insufficient public services and
utilities, and aggravating the housing shortage. Under these conditions, the Real Estate Development Fund played a major role in assisting individual households as well as private developers through tax-free mortgages; with this labor incentive came increased need for architects, engineers, contractors, and unskilled labour.

It became apparent that, with funds easily available, little thought was given to mounting shortages, as long as supplies could be brought from outside. Plans could be bought in the same way as any other product on the market, but in most instances designs were not properly adapted to sites, climate, or family size. Due to the immense demand and the absence of controls, the 200 local architects, architects from neighboring countries and Western architectural firms, not to mention most civil engineers, surveyors, contractors, and draftsmen (who were to assume the role of creative architects), focused their attention exclusively upon the business aspects of their profession. With the exception of a few architectural offices, they had ready-made solutions and designs to be applied anywhere in the country for every group of the population. After the required plans had been submitted (the plans, sections, elevations, etc.), the second step was legalization of papers to obtain Real Estate Development Fund approval. They would then receive the first portion of the funding, representing 70% of the total construction cost. The remaining 30% of the construction cost
would be available later in order to start construction. The next step was to look for a contractor. Frequently, contractors had less than four years' experience in the business, not long enough to acquire the necessary building expertise. The problem was aggravated if a contractor had several contracts at one time, which could mean a considerable delay in construction time. At one time, small contractors as well as unskilled laborers, mostly from Yemen, enjoyed the freedom of working without contracts because the immense demand for their services left builders no choice. This situation put great pressure on the courts as conflicts between clients and contractors or laborers emerged.

Problems did not end here. Clients (households) had to bring their own building materials to the sites because the small contractors would not assume this responsibility. The great demand for materials created severe shortages, which delayed construction for months. For individual households, the situation was time consuming and troublesome.

Taking a close look at residential mobility in Saudi Arabia during the 1960's and early 1970's, one sees a considerable number of households moving to major cities such as Riyadh, Jeddah, and Dammam. One will find that most of these households were not motivated solely by job opportunities, but also by the desire to have their sons and daughters receive a college education. Most of these families therefore had to compromise between living in their own house in their home town or village, and renting an apartment in the
new residential environment. During the 1970's most of these families who lived in rented apartments or villas suffered not only the sharp rent increase but also had to endure the landlords harassments to enact them.23

The effect of the development plan on the local housing market was not felt by the public until the last years of the first five year Development Plan, when multinational firms as well as domestic and foreign companies made themselves readily available to assist in carrying out the development programs. They started to absorb a considerable number of residential units from the conventional housing supply for their offices, and to house their representatives, staff, and workers. Because of the impressive funding which those firms had at hand, they could afford to pay the inflated rents, and to lease whole buildings (either villas or apartment buildings) for many years (generally from 2-5 years), which was something that no individual tenant could afford to do. Private real estate establishments, as well as individual landlords, became aware of the golden opportunities and saw their chance to realize large profits from these wealthy firms. This speculation in the housing market obviously did not favor the less wealthy, individual tenants.

Private landlords (real estate establishments or individual owners) began to withhold newly-constructed units from the conventional housing market, waiting for a chance to rent the whole building to a foreign firms or to a government agency. The waiting period in many instances was months and
even years, until the right firm came along with the right money.

With already occupied apartment buildings, the real estate agencies and individual landlords began jacking up the rents. They acted in two distinctive ways: Some used straightforward rent increase requests which could easily reach levels two, three, and four times that of old rent. Others tried dishonest eviction requests, where the landlord would ask the tenant to leave the apartment in order to allow him to house his 'needy relative' or his 'newly married son.' Certainly, both approaches were callous on the part of the landlord; such situations could grow worse if the tenant failed to pay increased rent as required or would not evacuate the apartment, when he would be subjected to further harassment or action on the part of the landlord.

The main purpose of the latter was to force the tenants -- who of course neither accepted the rent increase nor wanted to evacuate the apartment -- to leave on the basis of allegations which were often not true. However, in many cases, the tenants refused to evacuate the apartments for any reasons. Once the tenant-landlord relationship reached such a strained conditions, unreasonable harrassment often ensued. Such harrassment might take several forms, including repeated and insistent rent increases, refusal to provide maintenance on the building, cutting utility services (electricity, water). The rent Strike was not an organized tenants' action such as happened in the United States during 1967 and 1968, but rather
individual incidents, and mostly 'double-sided' strike. The tenants would refuse to pay the increase, and, at the same time, the landlord would insist on the newly increased rent, and refuse to receive the old rent.

4.4 Major Housing Projects and Programs

Throughout the 1970's, the housing situation grew continually worse as the housing supply failed to meet demand. During the First Five-Year Development Plan (1970-1975), approximately 75,000 urban dwelling units were constructed in the face of a demand for 154,000 units of new and replacement dwellings. At the outset of the Second Five-Year Development Plan (1975-1980), 117,000 dwellings were considered sub-standard and in need of replacement. Another 221,000 units would come to be necessary during the life of the plan, thereby bringing the number of required units to 338,000.24

It is clear that the ambitious First Five-Year Development Plan itself generated the main factors contributing to the country's worsening housing situation. Given the country's limited resources in manpower, building materials and industry, the First Development Plan stimulated inflationary prices in virtually every aspect of life, considerably limiting the population's purchasing power. Where land was accessible, prices soared, as did labor costs. Capital for residential building was insufficient, and individual households were no longer able to finance building through savings. Furthermore, as the result of the ambitious
Second Development Plan, the influx of laborers arriving to implement major development projects only complicated the situation.

This section is intended to highlight the major housing programs which were undertaken either by direct involvement of the Ministry of Public Works and Housing and other government ministries, or by indirect involvement through specially earmarked financial assistance to the private sector. Issues pertinent to each program will be discussed and analyzed as they arise during the discussion.

4.4.1 Public Housing: The General Housing Program

During the first year of the First Development Plan, the government found it necessary to establish a housing office to implement its housing policy within the goals of the Development Plan. In 1971, the General Housing Department (G.H.D.) was established under the Ministry of Finance and National Economy. Inasmuch as the G.H.D. was newly established and its staff extremely small, its ability to carry out such tremendous responsibilities was limited. The Ministry of Finance and National Economy signed a contract with a Belgian consulting firm to prepare studies on housing problems in Saudi Arabia.

In accordance with the studies and recommendations the Belgian experts the G.H.D. immediately commenced construction in several cities around the country of the first low-rise single-family housing for low-income residents.
The final design scheme for the low-income housing programs took the form of semi-detached, single-family houses, grouped in clusters, including essential services and other public buildings such as mosques, market places, fire stations, schools, etc. (Fig. 4.1). The design attempted to accommodate local considerations of socio-cultural values, family structure, climate, and the arrangement of lots within the neighborhood.

According to a statement by the first director of the G.H.D. the execution of the housing plan would be achieved after overcoming minor difficulties confronting the construction of proper houses for limited-income groups. These difficulties pertained to tradition and custom as well as to the creation of a healthy living environment with the necessary social amenities. In 1973, construction of these projects was assigned to local contractors in four principal cities. Construction was to be completed by the end of the First Development Plan (1975).

As the responsibilities of the General Housing Department increased under the ambitious Development Plans, this Department was enlarged to form a separate ministry called the "Ministry of Public Works and Housing." The Ministry assumed responsibility for all projects under construction which had been implemented by the former General Department of Housing. As of May 1975, the Ministry had a total of 2,500 public housing units under construction in Dammam, Jeddah, Riyadh, and Al-Khobar.
Fig. 4.1 Riyadh, Khurais Limited Income Public Housing. General view and clusters layout.
Unfortunately, a report submitted by the Ministry of Labor and Social Affairs\textsuperscript{26} indicates that these projects had bogged down and were not completed until recently, because the small local contractors assigned to this construction project were confronted with a variety of administrative and managerial problems, as well as with skyrocketing prices and manpower shortages.

The principal concept behind the General Housing Program was the formation of self-sufficient neighborhoods where a variety of villas and walk-up and high-rise apartment buildings would be well integrated. According to a report from the Ministry of Public Work and Housing, submitted to the 4th Convention of the Arab Ministers of Housing and Construction, the Ministry undertook general public housing in three principal cities. These were:

1. Riyadh general public housing project (known as al-Kharg Road Housing Project), designed to include 5500 residential units (villas and apartments);

2. Jeddah general public housing project (known as Mecca Road Housing Project), designed to accommodate 3420 residential units (villas and apartments); and

3. al-Khubar general public housing project (known as al-Aziziyah Housing Project), consisting of 4140 residential units (villas and apartments).

As indicated by their local names, these public housing projects are being constructed outside the cities, on major roads which lead to other nearby cities or neighborhoods. The Riyadh housing project, for example, is approximately 20 kilometers away from Riyadh on Riyadh-al Kharg road. The project is being constructed on predominantly flat ground,
with the site divided into several working areas, for by the South Korean construction firm Han Yang under the supervision of M&R International and Enarplan. The housing units are being constructed in a precast building technique. Among the many areas of the projects, Area Four was completed in 1982. The area consists of 836 villas and 380 apartment units (Fig. 4.2-4.3). Area One is in the final stage of completion. Once it is completed, 864 villas and 1302 apartments will be available (fig 4.4-4.5). Besides these General Public Housing projects, the Ministry has several similar projects on the drawing boards, due for implementation by the early 1980's (Detailed information on these projects are not available to the author at present time).

4.4.2 Public Housing: The Rush Housing Program

The establishment of the Ministry of Public Works and Housing arose from the need for a government institution to ensure implementation of the government housing policy, and to enable the government to pursue its housing and public programs with the urgency they required. This sense of urgency became the most important factor in public housing programs, exemplified by the Ministry's "Rush Public Housing."

The first low-rise, single family housing project never reached apparently failed completion as scheduled due to skyrocketing prices, manpower shortages, and rapid and disorganized growth. It looked as though the second housing projects were not going to be finished any sooner, at least
Fig. 4.2 Riyadh, al-Kharj Road General Public Housing, Layout.
Fig. 4.3 Riyadh, al-Kharj Road General Public Housing.
Fig. 4.4 Riyadh, al-Kharj Road Public Housing.

Fig. 4.5 Riyadh, al-Kharj Road General Public Housing.
not before the plan period expired. Public housing authorities therefore shifted their attention toward totally different housing programs, anticipating the need to revive the interrupted effort and achieve goals according to schedule.

In the opinion of the authorities, the limited time remaining under the Development Plan did not give public housing authorities a chance to examine various alternative housing programs. For the Ministry of Public Works and Housing, the only housing construction system that could meet the authorities' major obligation -- speed -- was pre-fabricated housing. It has been claimed that where the needs are great it will be impossible to satisfy projected demands using conventional methods. Therefore, there is a plan for the extensive use of pre-fabricated building in such proposed public housing mega-complexes as those at Dammam, Jeddah, and Riyadh. The scheme is called the Rush Housing Project; in other words, a completely prefabricated package of high-rise public housing.

The rush public housing at Dammam covers 350,000 square meters. It is located southeast of Dammam, on the southern side of Dammam-al Khubar road. The project is designed for 1,664 apartment units divided into eight 110 x 110 square meter identical clusters of four apartment towers. Each cluster is set on a three-story platform which provides retail space at ground level, a parking garage, and tenant storage space. Each floor of the thirteen-story towers is identical, containing four seven-room apartments each with an area of 207
The project is designed and constructed by OGEM b.v. in conjunction with a large contracting consortium from Holland (Fig. 4.6). Similar to the Dammam high-rise public housing project, Jeddah's project is composed of 32 towers. These towers are grouped into eight 100 x 100 square meter clusters. The first three stories of each cluster are reserved for commercial offices and parking spaces. On top of the third floor of the cluster, which is also considered a platform of the four residential towers, rise 15 residential stories. Each tower has a dimension of 40 x 28 meters, and each floor contains four identical apartments, of 225 square meters each. Jeddah's high-rise public housing will accommodate 1936 apartment units. The project is located on al-Setteen Street (Sharqi al-Setteen) north of Jeddah, and on the western side of the Old Jeddah airport. The project is designed and constructed by three French construction companies (SAE, Thenet-Dumez, and Boyques) working under the supervision of the German consultant firms Dorsch Consult and Boll & Partner, Kimming & Schwab. The construction began in 1977, and was completed in 1979. Up to the present no one has moved into either Dammam or Jeddah housing projects (Fig. 4.7).

Riyadh's rush high-rise public housing is the last to be constructed under this program. It is located in northern Riyadh, on al-Macazar Street (Sharqi al-Macazar). The project has 24 identical towers which rise 8 stories above the two story-high platform. The ground and first floors are reserved
Fig. 4.6 Dammam. Rush high-rise public housing, general view, block layout, typical apartment plan.
Source: The Ministry of Public Works and Housing.
Fig. 4.7 Rush high-rise public housing. General view, block layout, typical floor plan of the apartment tower. Source: The Ministry of Public Works and Housing.
for commercial offices and parking spaces. The open space of the platform is arranged as a playground for the residential towers. Each floor of the residential towers has six identical apartments, and each two apartments form one of the three wings of the tower, which are served by a central vertical circulation system. This project is currently in the final stage of completion by a South Korean construction firm Han Yang (Fig 4.8).

**Justification and Appraisals:** The report of the Ministry of Labor and Social Affairs justified the decision underlying this project in this way:

- The scale of the Rapid Housing Project (high-rise public housing) is less ambitious than the scale of previous, conventional projects. The new plan does not necessitate additional public buildings and public services since it will be implemented in built-up areas. The need to erect public facilities was one of the major factors that delayed previous public housing programs.²⁸

- The main purpose of vertical expansion in the Rapid Housing Plan is to reduce horizontal expansion requirements for water, sewage, electrical, and telephone systems.

- Financial risks are taken into consideration and can be managed and controlled, in contrast to situations occurring in the conventional public housing programs.²⁹

The pre-fabricated high-rise public housing projects tend to have several positive features:
Fig. 4.8. Riyadh, Rush high-rise public housing. General view, typical floor plan of the apartment tower, general layout.
Source: The Ministry of Public Works and housing.
Rapidity of construction The obligations confronting the Ministry could be met by pre-fabricated housing, particularly if these pre-fabricated elements were to be a complete imported package.

- Saving of Land Many studies concerning high-rise buildings conclude that economic utilization of land is achieved by higher densities and that costs are cut by using modern construction methods.

- Limited Manpower In a country such as Saudi Arabia which has a severe manpower shortage, proposed pre-fabricated high-rise housing will not impose undue pressure on the local manpower market, since most of the workers needed are high-skilled laborers who, it can be assumed, will be employees of the construction firm.

- Better construction quality Since the pre-fabricated high-rise housing industry uses very sophisticated industrial techniques, the construction quality is believed to be better than that which conventional construction techniques allow, particularly in Saudi Arabia.

- Limited use of local materials Since pre-fabricated high-rise housing is imported as a complete package, the requirement for local building materials is minimal.

These positive features associated with pre-fabricated high-rise housing have not been available to most developing countries, as most of these features are apparently very costly. The major trend for housing authorities in developing
as well as developed countries is to limit spending on public housing as much as possible, especially when that intended for low income groups. Construction of a mega-complex which is completely dependent upon existing public buildings and services already meeting the needs of an urban area is illogical in the extreme. In the instance of Jeddah's mega-complex, where 1,936 families are expected to find homes, one can imagine how much pressure would be imposed upon the existing public buildings and services initially intended for the neighborhood's original population. The pressure is heavier because the neighborhood in which Jeddah's housing mega-complex is constructed consists of single family villas, and the inhabitants of these single-family houses already use public buildings and services in the nearby neighborhoods. Furthermore, congestion on the streets and nearby areas created by the project will have a serious impact upon the neighborhood. Along with intensified congestion on the streets, Lewis Mumford long ago cited other disadvantages of high-rise housing. He says:

It is almost heresy to call attention to the defects of the tall buildings: the dubious economy of the vertical transportation -- the waste of cubage in the unused sections of elevator shafts -- the shutting out of sunlight and air and the intensification of congestion on streets.(30)

Avoiding horizontal expansion demands for water, sewerage, electricity, and telephone systems by use of vertical expansion (as cited in the report) may, indeed be likely to generate new problems. With vertical expansion (high-rise
housing), sewer malfunction, leakage, plumbing breakdown, or even gas explosions will affect not only the unit in which the problem arises, but several units above or beneath that particular apartment as well. Let us recall, for example, what happened in Ronan Tower (a housing project built by London County Council in 1968) when a gas explosion in a kitchen of one of the higher apartments caused the collapse of all the apartments beneath.31 (Fig. 4.9).

In contrast to low-rise housing (single family houses) where any plumbing breakdown will affect only that particular unit, maintenance and repair will have a magnified effect upon the building, especially if the workers have low maintenance standards. From an economic point of view, several studies have shown that with taller buildings there is a considerable increase in costs resulting from the need for larger and heavier pipes for plumbing.32 Conveying water to upper stories requires water pumps which result in extra costs in high-rise buildings. Finally, a study by Christopher Alexander has indicated that "maintenance costs per dwelling unit in 1970 were $3.93 for low buildings and $21.33 for towers."33

As regards financial risks, the report asserted that in high-rise housing, risks will be controllable. It is admirable to be aware of risks and to indicate that they can be controlled, but there is no assurance that risks will be controlled if the whole design has been improperly selected or located. Even if one assumes proper design selection, risks
Fig. 4.9 Newham. Ronan Point Flats (pre-fabricated concrete tower block). Source: John Burnett, A Social History of Housing 1815-1970.
can still turn out to be uncontrollable if the construction firm has a fault technical understanding of the site, as in the instance of Dammam's housing mega-complex described by Brian McClosky:

Apart from the lack of any shading for east, west and south window exposures, the incorrect choice of a point block (uniform exposures in spite of orientation) rather than a north/south oriented slab block for this climate and the high expanses of exposed wall and window in high rise systems (as opposed to low rise, high density, where vegetation can handle much of the shading requirement), Project is thought by most observers here to be culturally inappropriate for low-income city dwellers and resettled Bedouin.(34)

Moreover, how will financial risks be controlled if projects are in conflict with the residents' concepts of their new environment and if their accustomed life-style has been ignored? Will the project present a situation similar to that which occurred ten years ago at the St. Louis Pruitt-Igoe public housing project, a project which was once believed to be worthy of architectural prizes (Fig. 4.10), and is now considered a disaster.

There is no evidence whatsoever that anywhere in the whole process of project development (from decision-making up to construction) have residents' responses to projects been considered or discussed. It is jarring to see this situation in a very conservative society, where established socio-cultural values play a major role in the peoples' lifestyles.

The Ambiguity of Prospective Tenants: It is very unusual in the history of large-scale housing for a project, like the
Fig. 4.10 St. Louis, Pruitt-Igoe Public Housing Project, 1950's.
Rush Housing Project to be conceived, designed and built, and then for it to stand empty for more than three years pending selection of the proper tenants.

The author of the headline "al-Iskaan al-Caājil Jiddin" ("The Rush Housing") in Jeddah's daily newspaper al-Madina on May 11, 1981 wonders openly about public housing projects and Jeddah's Rush Housing in particular. She mentions the rumor that the potential tenants for this project represent the low and middle income groups.

The inhabitants of al-Sebeel top the list of prospective tenants because the Municipality of Jeddah took it upon itself to establish a renewal project for this district. They chose to upgrade the living conditions of al-Sabeel, which heretofore was unhealthy and lacked essential human services (Fig. 4.11).

In its formative period, (1940's) al-Sabeel was located outside Jeddah's city wall (on its southeastern side). Al-Sabeel's early settlers were families who had migrated from Yemen and from the region of Asir. Jeddah allowed these families to build shanties on this southeastern site, which was later transformed into a permanent neighborhood. It is from this free acquisition of land that al-Sabeel derives its name, meaning "the free land." It "Sabeel" may also mean "the free water."

Most present-day residents of al-Sabeel belong to the same ethnic groups as the early settlers. They maintain today the traditional life and customs of the past. Most family
Fig. 4.11 Jeddah: al-Sabeel neighborhood.
members have low levels of education, and average family size is larger than in middle- or upper-income families. The characteristic job opportunities for those income groups range downward from the bottom of the government employment hierarchy to unskilled labor positions.

If one accepts the premise that the residents of al-Sabeel will benefit from Jeddah's housing projects and urban renewal development, it is interesting to take a look at what rules and/or regulations can be enforced for these tenants. For example, would it be possible for the authorities to restrain inhabitants from littering the balconies with chicken coops and stringing clotheslines across them? Can they prevent the vegetable vendor from storing produce in his apartment due to lack of space in the marketplace, or force the breadwinner to discontinue hauling with his Honda truck because it does not fit in with the expensive and prestigious atmosphere of the housing complex?

Other problems arise from having the al-Sabeel residents as tenants in these new development projects. Protests of discrimination and unjust selection may be lodged against the members of the selection board by those not chosen to inhabit this housing, while those chosen may experience difficulties adapting to a more sophisticated urban life-style, coming as they do from simple and humble homes.

It is conceivable that a move into these high-rise apartments by the inhabitants of al-Sabeel could produce an avalanche of undesirable behavior. The customs and living
habits of these people could lead them to misuse the facilities in many ways, i.e., enclosing balconies with plywood to ensure privacy, leaving bicycles and other small vehicles in inconvenient places, and littering the premises. It is often the case that the conception, design and structure of these housing projects, based on different spatial concepts and different cultural values, do not meet the expectations of potential tenants. In some cases, this leads to the projects' being scrapped, and embarrassment and frustration on all sides. Thus housing project plans and urban renewal developments fail to solve the problem they were designed to meet, i.e., housing the impoverished.

To target these projects to middle- or higher-income tenants instead would be unfair, since most families in these groups have the means to build their own homes. The government's interest-free loans (discussed in the next section) were meant to benefit every adult Saudi citizen. In practice, however, those with no land or money to start with, i.e., from the low-income class, are simply excluded.

Although one can argue that offering this high-rise building to middle- and upper-income groups could lead to a filtering down in the existing housing market, this is not likely to happen because of the flexible and unrestricted rents attached to most apartments. The houses vacated by families who would move to these projects would remain unaffordable by low income groups. Such, in fact, is the case at the moment. Therefore, the rush-housing projects, in
general, and Jeddah's high-rise housing in particular, are not suitable for the low-income groups, and it would be unfair if they were given to the higher income groups, a classic double bind.

Unfortunately, the inescapable conclusion is that the high-rise housing which was built in record time, but which has failed to find occupants, was successful in many ways except that for which it was originally designed: benefiting the needy.

Another housing project which suggests other conclusions is the Medina public housing project.

This project was one of several schemes which were to be implemented by the end of the Second Development Plan period. The proposed number of residential units totalled 5500 apartments in an apartment block that followed the pattern of the rush housing schemes. Red tape -- along with many other reasons -- delayed the decision on this project until 1980. By that time, the implementation of the Third Development Plan was underway. As will be discussed below, the housing policy incorporated in this plan represented a shift to the construction of villas, which meant that eventually, the entire Medina housing project had to be redesigned, nearly halving the number of units.

To the casual observer, this may not seem significant and it could be construed as a good sign that the population density would be reduced by one half. But on careful investigation, this incident illustrates a critically
important issue in the decision-making process for housing.
The sharp shift from a high-rise, high-density policy to low-rise, low-density indicates, in fact, the prevailing uncertainty and confusion as to which scheme is the right one. Perhaps it is more than a reaction to the bad experience with the well-known Rush housing (Figs 4.12-4.13).

4.5 The Real Estate Development fund (REDF)

Before the 1950's, most housing-construction activities were undertaken through private initiative, and almost all new houses were financed through the savings or income of the owners. Eventually, however, private and public banks were forbidden to advance loans to private individuals for the purpose of building houses.

Rapid economic growth and the five-year development plans have radically changed the mode of supply and demand in the domestic housebuilding industry.

During the 1970's, the government initiative to solve the housing shortage through direct involvement, the policy of subsidizing the private sector to build houses appears to have had both positive and negative results.

Although financial assistance to the private sector was one of the housing policies initiated under the first-five year development plan, the government mechanism for implementing this policy was not ready until the second five-year development plan. By the time the second plan was implemented, the REDF was granting earmarked interest-free
Fig. 4.12. Medina, public housing project, site location.
Fig. 4.13 Mediena, Public Housing Project, Landsubdivision.
loans to private individuals and private organizations for real estate development in general and housing in particular. REDF provides up to 70 percent of the cost of a house constructed for personal use, with a maximum loan of SR 300,000 ($85,000) repayable over a 25-year period. The fund will also provide 50 percent of the estimated cost commercially oriented housebuilding, with a maximum loan of SR 10,000,000 ($281,000).

According to the REDF guidebooks for private and commercial loans, the REDF is empowered to offer a loan to every Saudi citizen (rich or poor), aged 21 years or over if he or she is married, and under no circumstances to a person younger than eighteen years of age. The eligible women are the divorced and the widowed who have legal custody of their children. The potential loan recipient cannot own a private house by him/herself. The owner of an unsuitable or uninhabitable older house who is willing to demolish it to build a new one is also eligible for a loan. The last two general stipulations for loan eligibility are, first, that the residential unit which will be built using the REDF loan should be built in the place of residence (city or town) of the loan recipient, and second, that the loan is strictly a one time offer, and no one will be granted a second loan.

In addition to the legal documents needed for proof of citizenship, age, marital status, custody status, and place of residence, the REDF requests two copies of a land deed (a proof of land ownership), and two copies of the building
permit. The building permit is granted by the municipality of each city or town, and will not be signed until the blueprints of the architectural design and layout of the proposed villa are presented. This, of course, ensures conformity to the building regulations which mainly emphasized the set-back code.

Under the concept of housing subsidies for commercial investment, the REDF is empowered to grant loans to a group of Saudi individuals or corporate entities who want to develop and build residential or commercial projects for profit. The number of housing units necessary to qualify for a commercial real estate loan must be not less than three residential units, but there are no restrictions or specific guidelines regarding neighborhood characteristics.

Obviously, the legal documents necessary for such loans are more than those required for the single, private loans, because of the complexity and variety of situations involving group recipients. Land deeds and building permits are still required, in addition to the feasibility study and general layout of the proposed site showing the surrounding streets and services.

This brief discussion of the principal characteristics and general terms of the REDF loans tends to shed light only on what seems an important instrument influencing the development of contemporary housing in Saudi Arabia. Indeed, it has created a significant instrument for distributing the national wealth to a large proportion of the population. It
has provided a powerful incentive in attracting the private sector to invest in housing, and to work hand-in-hand with the government in its direct involvement in house-building activities as it moves to alleviate the housing shortage.

Compared with the government's direct involvement in house construction, the REDF proved to be more effective in the immediate occupation of the newly built dwellings, particularly new villas built by private individuals who had not owned houses previously. However, there is also considerable uncertainty about the responsiveness of the housing supplied through REDF subsidies. The building regulations which must be met by the applicant's architectural design as a condition for receiving the permit are an important factor in creating villas and apartment buildings.

Despite the fact that many individuals seem to have benefited, faults in the eligibility terms still prevent many poor and landless individuals from utilizing this program. On the other hand, it has proved a bonanza for the speculative land developers. Stimulated by the great demand for land purchases (to satisfy the REDF condition) these land speculators (al-Makatib al-Aqaariyah) saw a golden opportunity to strike it rich virtually overnight. With their surveyors, they subdivided their large plots of land (or lands of the peoples with whom they were associated) into small lots.

These speculators operated both in the expanding periphery of the cities and within the city limits. Characteristically, neither the speculators nor the surveyors had
any particular allegiance to the field in which they were doing business. Their prime interest was a quick profit. Aside from the land subdivision that often went with the grid system, the speculators and surveyors paid little attention to the social and physical infrastructure needed for future growth in the neighborhoods. In short, the surveyors and land speculators have been among the most shortsighted participants in the housing industry. The artificially elevated land prices within the city limits forced the potential REDF loan recipients to purchase land in unsuitable places, too far from the city, where there was no existing community, and far from public services (Fig 4.14). 40

Certainly, the REDF does not bear sole responsibility for inflated land prices of urban sprawl. Its role in influencing these issues correlated to the number of loans granted.

The Fund, however, is clearly influential in stimulating extravagance in the design of villas. In the light of present development, several trends have recurred widely. There are REDF recipients who choose not to spend a lot of money on a particular design for their villas. They find architects, architectural officials (local and foreign), draftsmen, and even engineers who will sell them a copy of a ready-made design for the villa that suits their lot size. Another group of REDF recipients want something special for their modern villas, and are willing to pay for the design cost. Given the naivete of most people in this group, the architects find unlimited opportunities to produce their masterpieces.
Fig. 4.14 Villas built out side the city boundaries.
Unfortunately, most of these designs do not conform to the homeowners' needs, social habits and values, and sadly, these designs do not often conform with the surrounding environment. (Figs. 4.15-4.16).

One trend which is likely to be a cause for concern, is the monotony and lack of imagination of the lines of villas having one design and outlook (Fig. 4.17). In addition to their repetitive design, these villas are mostly jerry-built, and long life-spans are not expected.

4.6 The New Towns and New Neighborhoods

4.6.1 The New Towns

The social engineering epitomized in the design and construction of new towns and neighborhoods is not without precedent in Saudi Arabia. In the regional unification process between 1912 and the late 1920's, peoples from many bedouin tribes were encouraged to settle down. They had been united not only by the Wahhabi faith that replaced many of their tribal loyalties, but were also expected to be ready whenever need arose for assistance in time of war. When no war was being waged, these tribal peoples had to cultivate the lands given to them or to work in trades to provide an economic base for the settlement. By the 1930's, between 200 and 222 settlements of this kind had been established in the central, northern and northeastern part of Najd (Fig. 4.18).
Fig. 4.15 Villas built through REDF.
Fig. 4.16 Dammam, Villa built through REDF.
Fig. 4.17 The Ugly repetition of one design.
Fig. 4.18 The Ikhwan settlements.
The optimal size of these settlements was 1,500 persons, but there were settlements such as Artawiya and Ghutghut which had a population of 10,000-35,000 persons. These groups of settled nomads are known as "Ikhwan" (mentioned earlier) and the settlements in which they lived are known as "hijar" (singular Hijra). In addition to granting parcels of land for cultivation to establish settled living patterns, King Abdul-Aziz subsidized the construction of mosques, stables, and houses. In her description of the organization and daily life in Hijra, Christine M. Helms indicated that:

The town square, containing the central market and stables, was nearby. Mud-brick houses, with adjoining walls, were tightly compressed around the mosque and town square and it is perhaps not surprising that the former badu referred to this area as the jamsha, literally 'dry mud', unlike the hadar who always called it simply 'the town'. The Ikhwan houses were austere two- or three-room structures, each generally provided with its own well so that the women had no need to go to a public one. Tents, still used by the former badu as dwellings, surrounded the jamsha. Many of the hijras were enclosed by a wall and guard towers, outside which lay the cultivated areas.

Although this description does not provide a clear idea of the design and form of the houses, it does suggest two things. First, the hijar were built according to the practices and conventions prevalent in that region. Second, as the economic and social aspects of their lives were being transformed, these settlers had no rules and regulations imposed on them regarding the design, construction, and location of their houses.
Present-day Saudi Arabian cities present a contrasting concept of complete centralization in the housing-related decision-making process. Decisions are made concerning not only the kind of people who will live in these cities but also in which sections of the city they are to live and even the types of houses they will occupy. The Saudi Arabian cities currently under construction do not have the religious focus common to the Hijars. They are not constructed as an answer to the population explosion, to limit the sprawl of the old urban centers, nor to solve the nation's unemployment problems. Instead, they are built to shape the nation's future through political and economic security. Many cantonments are being built nationwide for Saudi Arabia's armed forces, the largest and most ambitious of these settlements is the King Khalid Military City (KKMC). These new industrial cities were conceived when planners realized the large amount of manpower required to operate these industrial complexes and became interested in building suitable city complexes.

No doubt these new cities reflect rising expectations, as well as the government's determination to provide the country with the most dependable economic base. At the same time, however, these cities present a formidable challenge: sustaining the rationale behind major governmental commitments of efforts and resources to programs which direct a substantial portion of the country's reserves into new cities in the future. This challenge will test whether the western idea of
new garden cities, originated by Sir Ebenezer Howard in 1898, can apply to a completely new environment and different social background. The greatest challenge may lie in providing an appropriate urban context which will give the new environment value and meaning as it becomes part of the national heritage.

The discussion below does not cover all aspects of the country's urban development. Rather, the purpose of this section is to suggest how new alternatives were applied to contemporary housing in Saudi Arabia. The discussion of the first new cities covers the general background, the main concept of the master plan (particularly that pertaining to the residential communities), and the principal national and international institutional bodies responsible for the creation of these cities. The discussion of the third new city probes a little deeper to present a detailed analysis of neighborhood formation, incorporating several neighborhoods into one module in the residential community of the new city.

King Khalid Military City (KKMC):

This is one of the most ambitious single projects ever undertaken by the government of Saudi Arabia. KKMC is located in the north-eastern part of the country, near the Iraqi and Kuwaiti borders at Hafr al-Batin (Fig. 4.19). Construction started in 1977, and completion is expected by the end of the 1980's. It is designed to accommodate 70,000 members of the Saudi Arabian Armed forces, their dependents, and operation and maintenance staff.
Fig. 4.19 Map of Saudi Arabia.
As the government ministry in charge of this colossal endeavor, the Ministry of Defence has commissioned the U.S. Army Corps of Engineers (USACE) to undertake the overall management of the project and to act as a consultant agency in all aspects of the planning and design. The USACE will even be empowered to offer contracts on behalf of the Ministry of Defence. Under this authority, the USACE commissioned the US consultants Brown Daltas & Associates and Sippicon Corporation to draw up a master plan for KKMC. The resulting blueprints show an octagonal shape, 2.7 kilometers in diameter (Fig. 4.20). The city has been divided into three sectors. The first sector consists of housing for some 6,000 families, quarters for the troops, and a commercial center. The second sector contains all of the support facilities, including a power station, water and sewage treatment plants, and a central chilled water plant for air conditioning homes and offices. The third sector contains the contractors' support services, including a concrete production works. In this last sector a huge area is reserved for stockpiling building materials, and there are housing and services for the construction workers employed on the site.

In addition, the city will have an airfield, a 300-bed hospital, VIP complex, stadium, firing ranges, and even a plant nursery to supply trees and shrubs for the streets and gardens of the city. Because of the huge demand for imported building materials and machinery, a special seaport has been constructed at Ras al-Mishab on the eastern coast of the Persian Gulf to handle this large volume of imports.
Fig. 4.20 Artist's impression of K.K.M.C.
Source: Middle East Economic Digest, vol. 24, no. 31, 1 August 1980, p. the cover page.
The traffic network of KKMC will consist of two ring-roads, one at the perimeter of the octagon and one circling the central area. A secondary road will intersect with the ring-roads and act as a parking area.

The central area will be traffic-free and will form the hub of a radiating network of pedestrian walkways and gardens. Among the many elements located in the central area are the Friday mosque, the military command headquarters and ministerial offices, the commercial area, and the officers' club and theater.

The city plan for the residential neighborhoods has clearly taken into consideration some of the social and cultural characteristics of Saudi society. The residential neighborhoods for families are carefully separated from unmarried servicemen's barracks, and in each neighborhood a small mosque and other necessary urban services will be available.

The first of the large-scale housing contracts was awarded to al-Huseini-Ada, a Dhahran-based Saudi contractor. The three-year contract was for family housing areas two and Five. Area Two consisted of 824 homes for enlisted men, a small mosque, and a caretaker's apartment. Area Five has 614 homes for junior officers, 223 homes for enlisted men, a mosque, and a caretaker's apartment. The homes have two stories and cast-in-place concrete foundations. The mosques are also to be built using cast-in-place techniques. The contract has an estimated worth of $225.6 million, of an
overall KKMC $8,100 million allocated to the construction scheme.45

Jubail Industrial City (Madinat al-Jubail al-Sinaiyah):
Unlike KKMC, Jubail Industrial City (JIC) is being built solely for economic purposes. Obviously, it is the industrial strategy of the Second Five-year Development Plan which led to the decision for the long-range industrial program. Without question, industrialization is the principal factor controlling national economic development. Building a complete new industrial city from scratch is undoubtedly a challenging and difficult task. Edmund O'Sullivan indicates that the original idea behind the Jubail Industrial City was evolved through a personal discussion between the senior member of Bechtel and King Faisal:

The jewel in Bechtel's Saudi crown is Jubail. The company's involvement in the scheme started early in the 1970's and was helped along by Steve Bechtel senior, even though he had already handed over the posts of chairman and chief executive to his son. Through frequent visits to the kingdom since the late 1940's, Steve senior had built friendly relations with senior members of the royal family. He was personally involved in discussions about the project with the late King Faisal. Some industry observers attribute the whole Jubail concept to Steve senior. (46)

In "Jubail Superproject," Alexander L. Taylor adds:

Bechtel proposed an audacious solution: assemble a complex of automated petrochemical plants near the oilfields to process and use the wasted gases. The fuel could be used not only to provide raw material for the development of a new petrochemical industry, but also supply the energy
to process and manufacture products ranging from plastics and fertilizers to steel and aluminum. The King agreed. The Bechtel firm produced a master plan for the project, and in 1976 was chosen as construction manager. (47)

These two statements resolve any doubt about the Saudi government's motivation in undertaking such a colossal industrialization endeavor, and indicate that how the Saudi Arabian government sought prestige by embarking upon a task never before attempted. The statements also suggest the reason why Bechtel Incorporated was selected to draw the master-plan for the new industrial city.

The selected site for JIC is located on the east coast of Saudi Arabia. It is approximately 100 kilometers north of Dammam, and over 12 kilometers north of the existing Jubail fishing town. The proposed new city will cover over 890 square kilometers, and is expected to accommodate about 370,000 inhabitants by the end of this century. By 1973, Bechtel had submitted the JIC master plan to the government of Saudi Arabia. Based on this plan, in 1976 Saudi Arabian Bechtel (SAB) was commissioned to undertake the construction management and over-all plan supervision of Jubail. The commission was awarded by a newly formed governmental body, the Royal Commission for Jubail & Yanbu.

Apart from the two ports (industrial and commercial) and the airport, JIC is divided into two principal components -- the Industrial area and the community.

A ninety square kilometer site is designated for the industrial zone. 48 Within this area there will be three basic
categories of industry. The primary industry (among them the petrochemical plants, and the refineries); secondary industry (which comprises facilities whose raw materials are outputs of the primary industries); and support industries (comprising firms that manufacture essential construction materials and provide other goods and services to primary and secondary industries). These industries will provide most of the employment opportunities for the incoming resident of the community.

The community is located north of the industrial zone, separated by a buffer zone. The growth of the community is planned according to the scheduled development of the industrial structure and activities. It is estimated that the community will grow to more than 170,000 inhabitants by the end of the 1980's. By the time the community reaches its expected full growth, in the year 2000, it will occupy an area of 80 square kilometers.

During the early stages of the community formation, due to the scarcity of the Saudis who will manage and operate the bulk of the industries, the population will be highly transient, and the majority of the inhabitants will be foreigners with a wide variety of skills and nationalities.

It is claimed that the new community at Jubail will be a modern self-sufficient city, blending traditional Saudi values with international industrial living standards. The intention of the comprehensive community development plan is to identify land use, utility, transportation, and other
requirements, and to allocate land for both public and private use. The plan also provides for a complete array of urban facilities and services, as well as an integrated zoning policy that leaves no area undefined.

The community is divided into two main parts, each comprised four residential districts and each district contains a number of neighborhoods (Fig. 4.21). The eight districts are separated from each other by a green space, and bounded by the coastline and by community boundaries. Each district is served by the district center where one will find a mosque, hospital, schools for both Arabic and non-Arabic speaking peoples, a sports complex, and other cultural and commercial facilities.

The area between the two main parts of the community, which also surrounds the base of the water inlet, is reserved for the main friday mosque, cultural facilities, a central park, college and commercial establishments, and administrative offices.

The traffic network of JIC is a clear reflection of the traffic system commonly used in the major urban centers of the U.S.A., California especially. The network comprises a hierarchy of five distinct road types. The primary roads are the freeways. They will accommodate for major inter-urban and inter-district movements. Second in the hierarchy are the expressways, intended for inter-district movement. The connectors are roads for movements within the district and the cornich. From these connectors, the local roads are designed
Fig. 4.21 J.I.C.: General land-use plan.  
to serve movements within the neighborhoods. Despite the fact that the residential roads (the lowest roads in the network hierarchy) are similar to local roads, they have a closer junction spacing, and simple full frontage access allowed.51

The community plan defines three distinct housing environments within each residential district. The area surrounding the district center seems to appeal to couples and single people as well as to low-income families. The area close to bus routes are expected to attract lower and middle-income families with limited access to private transportation. Further away from the district center, the areas adjoining the coastline, the green spaces between districts and the desert are expected to attract middle and high-income families.

As indicated by this summary of the community plan, these distinctive locations within the district can broadly be related to three density groups -- high, medium, and low -- which together comprise the envisioned range of house types, -- that is, detached houses, attached houses, and apartments -- as follows:

- High density housing is provided in each district center. This contains a significant proportion of small apartments but with a considerable element of family housing as well.

- Medium and low density housing is provided in residential neighborhoods. Medium density neighborhoods are generally associated with bus routes, with attached housing as the dominant form. Low density neighborhoods, comprising mainly villas, take advantage of coastal and other prime locations.(52)
This density distribution is clearly based on the district level, where one expects neighborhoods located near the district center to contain predominantly high-density housing, occupied in the main by poor families. Whereas the neighborhoods located on the peripheries of the district are predominantly low-density neighborhoods, the majority of their inhabitants are rich families.

As has been indicated in the summary of the community plan that each neighborhoods contains a proportion of every house type, still we expect to see high density housing constructed in the center of the neighborhoods, while the low density housing -- in which villas constitute the majority of the house types -- will be located in the better areas of the neighborhood.

With regard to housing design, it is very encouraging to see that the community urban design is considering aspects of the social and cultural life-style of the future residents. One sees this particularly clearly in the cluster formation of the attached town houses, where the old and inappropriate building regulation regarding setbacks plays no role to play. It is also interesting to see that considerations of privacy and the separation of the family domain and the guest area have been taken into consideration in the design of the residential units.

However, Alexander L. Taylor concludes from examining a field report on the houses already constructed in the Jubail's community:
The homes designed for the city's permanent residents are so cozily American as to suggest habitats for Ozzie and Harriet Nelson, or maybe the Cleaver family of TV sitcom fame. Typical of the more lavish structures are three-bedroom ranchettes done in a kind of Arabic Southern California motif, with central air conditioning, parquet floors, and General Electric ranges and Kitchenaid potscrubber dishwashers in the kitchen. Prices can range as high as $300,000 each for the dwellings, though much more modest accommodations, including town houses and four-story apartment buildings, are also going up.(53)

Beyond the inappropriateness of those housing units to the local socio-cultural norms, inasmuch as they create only an americanized living environment, the juxtaposition of those houses with the popular TV programs presents an interesting issue. The TV programs remind us of the role played by ARAMCOT TV Broadcasting in psycho-cultural influence. Secondly, Taylor is fully aware of the extent of these prototypical housing design on the future residential environment of the community.

Despite the fact that these TV shows were already out-dated belonging to the 1950's and the 1960's, Taylor knows how influential these programs were for the majority of American households. The themes of the programs represented supposedly typical suburban American upper middle-class families. These families lived in detached two-story houses, both had two children, and no inlaws lived in the house. These two families represent the ideal norms of modern family life, as lived in houses signifying reasonable prosperity. Each act in the series focused on the conventionalized world of prepared expectations, intended as a pattern of life
attainable by the majority of American households. Thirdly, on the subject of attainability, there is no doubt that many American households cherish that expectation: to live a family life resembling that of the television Cleavers and Nelsons. Despite the regrettable fact that these Jubail house designs create westernized living environments, the image attainability of houses like these will have a far reaching impact on the majority of Saudi households. With the establishment of an image of houses of this type, the low and lower middle classes who would be unable to afford to live in such homes at their present economic level, will live and grow with the expectation of one day living in one. One can stimulate people to raise their expectations and to encourage them to improve their living standards by setting a model or a prototype to follow. At the same time it is a very hazardous business, particularly when the model does not successfully conform to the local social environment.

**Yanbu Industrial City (YIC):** Over a huge area, chosen for its natural deep water harbor and large flat coastal plain, YIC is being planned as the second industrial growth pole in the western region of Saudi Arabia. Although much smaller in scale, YIC has always been considered the twin sister of Jubail Industrial City on the eastern coast of the country. Together, they comprise the most ambitious industrial urban scheme ever conceived in the Middle East.
The new industrial city of Yanbu is located on the Red Sea Coast, southeast of the existing town of Yanbu. It is about 350 kilometers north of Jeddah (Fig. 4.22). Expected to be in operation a technically advanced industrial production complex by the end of this century, YIC will occupy an area of 188 square kilometers running twenty five kilometers along the coast and housing a population of 150,000 inhabitants, many of whom will be non-Saudis.

As the governmental body in charge of establishing this cornerstone of Saudi Arabia's overall industrial development, the Royal Commission for Jubail and Yanbu contracted in 1976 with the American firm of Ralph M. Parsons Co., to develop a master plan spanning a 30 year development period. By 1977, Saudi Arabian Parsons, a joint venture between Parsons and the Saudi Research and Development Corporation (REDEC) was given the contract for management of the entire YIC project.

Apart from the sub-regional airport and the ports and terminals designed for exporting crude oil products and natural gas liquids, the YIC masterplan has two major components: an industrial zone and a residential area, which are separated by a buffer zone.

The industrial zone has two zones clearly set out for heavy and light industry. The heavy industries area, located in the western part of the industrial zone close to the ports, includes two oil refineries, a natural-gas-liquids fractionation plant, and a petrochemical complex. The area designated for light industries is located on the eastern side
Fig. 4.22 Y.I.C.: General land-use plan.
Source: Royal Commission for Jubail and Yanbu.
of the zone, and is expected to include a wide range of services and support industries. These light industries are to serve not only local needs but also markets throughout the entire western region.

As a second major component of YIC, the community is located on the northwestern side of the city's industrial zone, and is bounded on the west by the Red Sea. Its eastern boundary is three kilometers northeast of the Yanbu-Jeddah highway, and its southeastern boundary is the buffer zone.

Skidmore, Owings and Merrill (SOM), acting as a consultant to Saudi Arabian Parsons Limited, was commissioned to prepare a master plan for the entire community. Covering an area of 5,500 hectares, the community's master plan shows a modular pattern of 1.4 km.

The master plan identifies three principal elements: the street network and open space, the city center, and the residential area.

The street network is clearly defined by the 1,400 meter grid designed so that the entry roads to the community and major arterials can carry the overall community traffic. Traffic entering the residential module runs for the first 200 meters on four-lane feeder roads from which driveway access is prohibited. These feeder roads are spaced at the intermediate points along the 1,400 meter grid. Access to the residential module is also gained via major arterials at intervals of 700 meters. Minor residential streets, internal to the neighborhood, are cul-de-sacs or parts of loops. Together,
the major and minor residential roads form the primary pedestrian system within the neighborhood. One special road included in the street network is the coastal road, somewhat different from the traditional streets of the network. It extends along the coastal edge of the city providing a scenic drive and connecting the various recreational areas located along the coastline (Fig 4.23).

The open spaces are designed to meet the recreational requirements of the population and to integrate large areas of marginal land unsuitable for building but within the community boundaries. One major open space is intended to take advantage of the city's central location. Within the residential area, the street network provides a framework for a system of small parks and landscaped areas. On the neighborhood level, the community service clusters provide additional, smaller open spaces. Along the periphery of the community, land not suitable for development and areas directly adjacent to the industrial zone are left as buffer zones (Fig. 4.24).

The second major element of the community master plan is the city center. It is located on the coastline, central to the residential modules. Major access to the center is provided by the two primary entry roads and the coastal road. The city center contains all necessary commercial, government, and cultural facilities to support development of the industrial city. Among these facilities are the Friday mosque, commercial offices, civic offices, (which include government ministries, municipal offices, and community
Fig. 4.23 Y.I.C.: Traffic network.

Fig. 4.24 Y.I.C.: Open space hierarchy.
services), 9 market, a university sports complex, and recreational parks (Fig. 4.25).

The third principal element of the master plan is integrated within the framework of the modules. Each residential module contains a number of neighborhoods. On the community level, the master plan designates the residential modules surrounding the city center for higher-density housing where most housing is high-rise and walk-up apartment blocks. On the periphery, lower-density villas and town houses predominate. Since the location of each residential module indicates the density and the housing types of that particular module, it will be possible to identify the economic status of module residents (Fig. 4.26).

According to this density distribution the master plan indicates four module types:

Type A, the lowest density module, contains approximately 350 walk-up apartments distributed at four focal points within the module. Type B, which is not used in the current plan, would have about 920 walk-ups. Type C, with walk-ups on two sides, contains approximately 1,600 apartments. Type D, the densest module, contains about 2,650 apartments located in bands on three sides of the module. (42)

As these four module types locate particular housing types in particular areas in the modules, a number of neighborhoods may have higher proportion of high-rise and walk-up apartments, while other neighborhoods have more villas.

According to the YIC Construction timetable, the community is expected to accommodate 50,000 by 1985, and about 38,000 homes should have been constructed by then. 56
Fig. 4.25 Y.I.C : Town Center land use.
Fig. 4.26 Y.I.C: Residential module population variation.
The Royal Commission took charge of the first phase of this housing project to satisfy two goals: meeting this long-range housing needs, and utilizing modern housing to lure Saudis from other parts of the country to work in Yanbu. Accordingly, various neighborhood sites are assigned to different architectural design teams, to ensure variety and diversity. Some 1200 housing units and social building for the first phase residential neighborhoods in the pilot module have been designed by CEO/Pereira, a joint venture of the Consulting Engineering Office of Saudi Arabia and William L. Periera Associates, an American firm. Some of these housing units are being constructed by South Korea's Nam Kwang Construction Company.

Another design contract, the R-4 neighborhood, was assigned to the Architects Collaborative (TAC) of Cambridge, Massachusetts. The area is one of seven neighborhood sites that comprise the A-3 module which is expected to accommodate between 25,000 and 30,000 people.

R-4 is bounded on the south and east by two major arterial roads and on the north and west by neighborhoods R-3, R-8, and R-5 of module A-3 (Fig. 4.27).

Access to R-4 is possible only from the residential streets. The two accesses from the east form the main loop, which serves town houses on one side and villas on the other. On the northeastern corner of R-4 a secondary loop and drive give access to each house lot in the villa area. The spine defined by town house clusters is intended to connect most of
the neighborhood elements with a pedestrian walkway.

The schematic land use of R-4 reflects the great influence of the master plan for module A-3, apparent in the disposition of neighborhood elements within R-4 (Fig. 4.28). In the land-use plan we see three striking characteristics:

1. The higher-density housing (apartment complexes) is located on the northwest perimeter adjacent to R-8, where similar housing densities are planned.

2. Instead of placing the local neighborhood mosque and commercial center at the geographical center of the neighborhood, these two elements are located at the western entrance to the neighborhood and are shared with R-6.

3. The local shopping center is placed on the northern perimeter and is shared with R-3, and existing al-Nawa village.

With regard to the distribution of different housing types within the site, the land use plan clearly emphasizes three areas for the three housing types used in the neighborhood -- apartments, town houses, and villas. Eventually, each of these areas will attract a particular economic group from the potential residents.

As indicated earlier, the higher-density housing is located on the northwest perimeter of the neighborhoods, while the town houses (considered high-density housing) are located along the spine, in the middle of the neighborhood. The lower-density housing (the villas) is located around the north, east, and south perimeter.
Fig. 4.28 Y.I.C.: neighborhood lay-out.
The apartments are divided into two groups, one containing single-bedroom units and the other two-, three-, and four-bedroom family apartments.

The single-bedroom apartment building, located near the bachelor/guest houses, contains thirty-seven apartments on four stories, served by a pair of elevators. The building also contains one internal and two external staircases. Each apartment has a private balcony overhung or trellised for shade. The two-, three-, and four-bedroom apartments are located to the north of the site. They are grouped in five blocks and are served by four main internal staircases and three external staircases. The four-bedroom apartments are located at ground-floor level and each has its own private walled garden. The two- and three-bedroom units are located on the first and second floor levels and have private roof terraces and balconies trellised for shade.

The townhouses are situated along the edge of the pedestrian spine. This housing type demonstrates an interesting move towards a more appropriate housing scheme that has not been attempted since the unfortunate failure of the limited-income housing projects of the early 1970's. They seem to combine the compactness of a traditional residential quarter with the amenities of the modern. A typical grouping contains five townhouses clustered around a semi-public entrance court which provides off-street access for residents and visitors. There are two configurations followed for these groupings, as well as occasional two-bedroom row houses. A
hierarchy of access from public to semi-public to private space shows additional concern for privacy. Each townhouse has access to the pedestrian spine, either directly or from the semi-public entrance court.

Several plans were developed for each size unit. In addition, there are different plans for standard and higher-grade units. All units are oriented toward small, shaded, private courtyards. Typically, there is a front courtyard accessible from both the entrance and the reception room. Family rooms are placed either at ground level near a family courtyard or on the first floor. The living and dining rooms are adjacent and separated by double doors. Most townhouses are designed with a private bathroom for the master bedroom. Servants' rooms are provided for some units. (Fig. 4.29).

The villas surround the denser, centrally-located townhouses on plots of land which vary from 450 to 600 square meters. Most of the plots are 16.5 meters wide to maximize the front and back areas, as major rooms are oriented in these two directions. Two-meter setbacks in side yards are maintained for lighting and ventilation, though the side walls are generally without windows at the upper levels. At ground level occasional small outdoor terraces are provided off kitchens and other spaces.

All the villas have two stories, with an entrance area, guest dining room, family dining room, family sitting room, kitchen, and servants quarters on the ground floor, and
Fig. 4.29 Y.I.C. Cluster plans.
bedrooms on the upper floor. Each villa is surrounded by a wall and has separate access for guests and family members. The villas are compact, with little internal circulation space, maximizing open spaces and childrens' play areas. First floor space is organized to provide some seating areas, following the Saudi custom of providing a ladies' lounge adjoining the bedrooms, and and exploiting the spatial relationship between circulation and family living areas. (Fig. 4.30).59

This discussion of the different housing types reflects a great deal of effort and concern by the planners to create a local and yet modern living environment. From the urban and architectural design of this new neighborhood, we can sense an effort to reflect Saudi Arabian cultural and social preferences by providing privacy in internal and external spaces of dwelling units, and a sense of community reflected in the cluster's open spaces. We recognize a strong response to the climate of the site in the adequate provision for shade, shelter, air movement, and protection from the sun's heat. But we still face the depressing fact that no real target population is waiting and ready to move in.

The issue of a target population ready to move in as units are completed is elaborated in the following discussion of a complete neighborhood built by a government ministry for its employees.
Fig. 4.30 Y.I.C.: villa plans.
4.6.2 The New Neighborhoods

Since 1975 many new neighborhoods have been built and many more are now under construction all over Saudi Arabia. Most of these are in fact public housing in a sense, as a client ministry provides houses for its employees. They vary in size, design concept, building technique and housing type. Other neighborhoods are financed by partnerships between government and private firms, such as the neighborhood under construction by the Saudi Real Estate Company in Riyadh (Fig. 4.31). There are also new neighborhoods financed and managed by private real estate establishments. One of the largest investments ever undertaken in such an initiative is the al-Khalidiyyah neighborhood (known as Saudia City). Under development for the Saudi Arabian Airlines (Saudia) by private developer Mohamed Oh al-Amoudi, the $278 million city will accommodate 12,000 Saudia employees. Saudia City is a low-density residential development, located about eight kilometers northwest of Jeddah. The 3377 housing units were built by an American firm, McGilvray-Driscoll, along with a shopping center, mosque, community services, an inter-communication system, and entertainment facilities (Fig. 4.32).

When new neighborhoods are sponsored by government ministries, they tend to be built for specific groups of people who have occupational connections with the particular government institution initiating the project. These neighborhoods tend not only to create an isolated residential
Fig. 4.31 Riyadh: Ulaya Housing Project, Saudi Real Estate Company, neighborhood master plan.
Fig. 4.32 Jeddah: al-Khalidyyah neighborhood (Saudia City), General View.
environment, some of them even distinguish an explicit hierarchy of values. Measures of seniority and occupational status are structurally visible in the distinctive size and luxury of the villas. This applies to most of the housing developments built by the National Guard, the Ministry of Defence and Aviation, and other ministries where luxury villas were given to senior officers or to government employees with higher status (Fig. 4.33). At the same time, junior officers, soldiers or lower-grade government employees were given less spacious housing units, mostly apartments (Fig. 4.34). Other examples of such concentrations of particular people in a neighborhood can be found in the master plans for housing of all the university complexes in the country, particularly in the residential neighborhood of King Saud University. Within a fenced compound, units in a complex of apartment buildings were distributed to the university teaching staff and technicians. It is highly unlikely that anyone not directly connected with the university live here. (Figs. 4.35, 4.36).

Attractive residential environments are indeed among the prime incentives the government ministries and institutions are counting on to lure Saudis to work in their various departments. These government ministries, however, may have accidentally overlooked the adverse implications of such an isolated residential environment. Perhaps it did not occur to them that isolating a certain group in a society (particularly the intellectuals) from the rest of the urban population tends to lessen the social cohesion of that society.
Fig. 4.33 Model of a luxury villas for high ranked Officers.

Fig. 4.34 Perspective of apartment buildings for enlisted personnel and lower ranked officers. Source: Ibrahim Aba al-Khill, "Housing in Saudi Arabia" in al-Benaa, Aug-Sept, 1979, pp. 64-69.
Fig. 4.35 Riyadh: King Saud University Staff Housing, typical plans of the apartment buildings.

Fig. 4.36 Riyadh: King Saud University Staff Housing, General layout.
Source: King Saud University, Engineering Office.
Moreover, by looking at the new neighborhood formations we recognize a new trend related to the traditional factors of choosing residency. Instead of automatically "choosing" to live close to one's relatives and friends, as was the custom, the individual now has completely different choice factors to consider in choosing where to live. These factors are mainly socio-economic.

The new cities and neighborhoods constitute the most long-range housing program ever attempted in Saudi Arabia. The concept of new cities represents the first real opportunity for broad and vigorous public action in urban design and a more courageous attitude toward direct public intervention in the development process itself. This attitude and awareness regarding the construction of new cities leads us to considerations beyond the simple construction of housing. Each new city has a fixed master plan which includes every detail of layout, roads, and housing. Of course, this concept of city planning originated with western developers. The importance of the master plan is undeniable if development is to be an orderly development process. However, for the master plan to work, zoning regulations are necessary, and although well accepted in the west, they seem so far to be disruptive of the social integration of the new cities in Saudi Arabia. Emphasizing certain areas for high- or low-density housing implies certain housing types for certain income groups in the society, and this innovation is probably not appropriate innovation for Saudi society. Zoning proved
in the western world to be an obstacle to equal housing opportunities, and it is becoming an obstacle to social equality among rich and poor Muslims. For a country such as Saudi Arabia where there is no pronounced racial discrimination and therefore no anti-minority policy, the large-lot villa zoning designated in all three new cities may become the Saudi symbol of a community's anti-poor policy. This policy will result in social disintegration.

Another critical issue is what seems to be an effort among architects and planners to manipulate and shape the social and physical environment of the new residential communities. With more elaborate design criteria, sophisticated control over neighborhood planning, and even interventions in house design, they are denying individuals the prerogative of shaping their own houses. Because the proposed new neighborhood is a completely preconceived finished product, the residents have lost the power to make individual changes in their homes and collectively in their neighborhoods. When the household increases in size and the house (villa, townhouse, apartment) no longer accommodates them, instead of the simple expansion or alteration of the house, possible in traditional Saudi housing, the entire household is forced to move.

Besides training to these critical issues, intensified by the construction of the new cities and new neighborhoods, the previous discussion of major public housing programs complements the general unstated hypothesis of this chapter. That
is, the principal force influencing the development of Saudi Arabia's contemporary housing during the 1970's was the emphasis on time and quantity, coupled with a lack of financial constraints. Saudi inexperience in building public housing was also important because international firms were therefore called upon to play such a large and professional and cultural role. This resulted in the imposition of various standards from their respective countries upon the completely different environment and culture of Saudi Arabia.

Indeed, the 1970's has been a decade of rising expectations and challenge. In the concluding chapter (which follows), we will see how the rapid development of the 1970's has left its marks on the current (third) stage of the country's contemporary housing development.
CHAPTER V
THE THIRD STAGE: AFTERMATH (1980's)

After ten long years of massive construction which put Saudi society in the middle of a violent storm, that storm of massive construction has begun to calm down, commencing the third stage of contemporary housing in Saudi Arabia. Early in the 1980's, the 1970's construction boom gradually started to show results. The first thing that will strike a person returning to one of the Saudi Arabia's major cities (Jeddah, Riyadh, or Dammam) after a time away is the presence of massive apartment blocks built under the Rush Housing programs, apartments which were built to solve the housing shortage. However, instead of solving the housing problem, these Rush Housing programs caused problems in themselves, which have not been resolved. We should not overemphasize this particular aspect, however, as it is only one part of the overall picture of housebuilding in Saudi Arabia. The high-rise housing program (the Rush Public Housing) is merely an example of the highly centralized decision-making process which will produce eventually a high-density living environment. The monies granted by the Real Estate Development Fund have produced completely contrasting results. The extremely low density of the urban sprawl and the uncontrolled, unimaginative -- often ugly -- architecture, are the main fruits of this process. The third element important to social
engineering in current housing development is the construction of new neighborhoods and cities.

All of these examples tend to have both positive and negative aspects. On the positive side, a considerable number of units have been added to the housing supply by these programs. Another positive factor which should be emphasized here is that for many years to come, this new housing will provide a subject of study for researchers of every discipline. It is interesting not only for architects, planners, economists, engineers, and managers, but also for sociologists and historians. Societies with different backgrounds (rich or poor, sophisticated or primitive, industrialized or not) can all learn from Saudi Arabia's ambitious housing programs. On the negative side, there is no need to recite here the unfortunate experiences other societies have had with similar housing projects. The following two sections of this chapter, however, will discuss the issues most pertinent to this present study. The discussion of the third Five-Year Development Plan will show what kind of lessons the country's Ministry of Planning has learned and the adjustments it has made in the current development plan (the third Five-Year development plan) as regards the housing issue. The last section comprises an analysis of the Meccan traditional houses. The aim of this section is to indicate that there is a historical precedent where new innovations were addressed and modified to meet local needs while maintaining local socio-cultural values.
5.1 The Role of International Consultants, Planners, Architectural and Contract Firms

In reviewing the contemporary provision of mass housing in Saudi Arabia, one can see that a major role is played by the decision-makers, foreign architects and architectural firms, clearly a one-sided exercise of power within a newly built-up environment. Beginning with the first mass housing program in Saudi Arabia, this role can be traced through three phases.

The first phase covers the period between the early 1950's and 1960's, when architects first took to creating mass housing. This was the first time anyone recognized the power of the architects as exercised through such control mechanisms as design approval, and decisions on layout and location of the villas.

There were no local architects at that time and local master builders were ignored because they lacked experience in building systems. Foreign architects and construction firms became vitally important, importing a form of land subdivision modeled after the American suburbs as well as model plans of prototype houses reflecting the Western concept of living space.

The second phase covers the period from the early 1960's and the early 1970's, and is seen as a transitional period in which significant adaptation of the early prototype of the villas, generally admired and affordable by the upper class
group, took place. The so-called modern house built during this period was either an individual luxury villa or a commercial development in the form of an apartment building. These house types were generally designed and constructed by individual architects and small contractors from nearby Arab countries, who were inspired by the universal style.

The third phase covers the period from the early 1970's to 1980, a crucial time in terms of the role played by the international architectural, consulting, and contracting firms, necessitated by the short time span in which large-scale housing projects had to be built. The hiring of foreign consultants and construction firms throughout the 1970's increased the role and influence of the foreign architects on the overall housing scene more than ever before, with the firms even proposing their own pre-fabricated apartment units. The three mega-complexes built by turnkey agreements are visible manifestations of this role.

Although most of the housing officials who decide on these mega-complexes were probably unaware of Le Corbusier's vision of the vertical Garden City, the accompanying figures (Figs. 5.1 - 5.4) attempt to draw a correlation between the widely known perspectives of Le Corbusier's vision of the radiant city and photographs of housing already completed in Saudi Arabia.

The architects who designed these mega-complexes have much in common with those architects that Jane Jacobs wrote
Fig. 5.1 Dammam, Rush Housing project

Fig. 5.2 Le-Corbusier's Radiant City of 1925.
Fig. 5.3. Jeddah, Rush Housing Program

Fig. 5.4 The Center of Le-Corbusier's Radiant City of 1925.
about in her book "The Death and Life of Great American Cities".

Le Corbusier's dream city has had an immense impact on our cities. It was hailed deliriously by architects, and has gradually been embodied in scores of projects, ranging from low-income public housing to office building projects. (1)

The influence of those architects and architectural firms has now dramatically extended itself to housing and city design in Saudi Arabia.

5.2 Social Implications

Cultural influences exercised by international consultants, architects, and planners undoubtedly have had a crucial social/physical effect on Saudi society. The different outlook reflected in contemporary housing in Saudi Arabia is evidence of this. At particular moments of its life cycle almost every society has had to accept social changes or acculturation because of specific needs. Under normal conditions, however, these changes will remain within the framework of the society's socio-cultural values. Social changes in Saudi Arabia are clearly evident especially in the splitting of families, but these changes have been imposed the society by a one-way exercise of power, which makes it unfair to assume that society will accept them, particularly when the changes conflict with Islamic socio-cultural values. A question can be raised concerning the influence of socio-cultural themes upon the physical form of the houses: Are these themes flexible enough to permit changes?
As indicated in another study, there are three major themes that have directly influenced the physical form of houses and neighborhoods in Saudi Arabia. They are: family ties, privacy, and relationships with neighbors.

Until the 1950's most Saudi households were characterized by the traditional extended family, consisting of several sub-families living together in one large building. It is desirable in Islamic culture to achieve a good relationship among members of a family, and every member of the family can expect support from the others in social, financial, and other concerns. The head of the family assumes responsibility for family affairs and the sons are expected to follow their father's occupation. When intermarriage occurs between relatives or to the daughter of a close neighbor, the resulting interrelation creates the traditional well-integrated social environment. At present, one-sided power being exercised on the physical environment, changing the people's way of life. The changing status and interests of different family members because of education is changing radically the traditional family structure. Sons no longer adopt their father's occupation, and they may have interests that lead them to enter different social environments. This situation is tolerable in Saudi society so long as family ties are kept strong through new communication systems (mainly telephone calls), and so long as mutual support within families continues to be valued and upheld.
Almost every household in every society requires a certain level of privacy; visual as well as physical privacy receives varying emphasis according to the background of the society. In the very conservative society Saudi society, privacy plays a major role in the people's lifestyle, especially regarding female family members and unrelated males. Such a strong cultural value influences people to arrange their houses in order to maintain a certain level of privacy. In the traditional Saudi house, two sections in the house require considerable privacy. The first section is generally located away from the main entrance or on the second floor within the family domain, and requires maximum privacy from persons who are not closely related to the family. The second section is located near the entrance where guests and close friends are received. In spite of the different forms of the traditional Islamic house (discussed earlier), the theme of privacy recurs frequently.

At present, however, new houses (villas) and apartment buildings have been built with little concern for family structure and socio-cultural themes.

In a traditional neighborhood where several extended families live in a very intimate social environment, social relationships are revealed by the positive attitudes of the families towards each other, and each family assumes its obligation to support its neighbors during crises besides sharing happy occasions.
In new neighborhoods, however, where villas are arranged in a gridiron layout, houses are built in the middle of lots and surrounded by ten foot walls. Cars can be parked in garages connected to the villas so that the family does not leave its home without the car. The small corner shop of the traditional neighborhood no longer exists in the new one, and the family must travel by car to do its daily shopping at a central supermarket located several blocks away. In short, structural features of the new neighborhoods discourage social integration among the families living there.

What will be the ultimate result of these pressures on the traditional extended family? To answer this we should look at the development of the isolated nuclear family in other cultures.

The phenomenon of the nuclear family appeared with the Industrial Revolution in western countries, and in developing countries. The number of independently housed nuclear families increases with the rate of westernization and industrialization.

The main reasons extended families split up into nuclear families are job opportunities, overcrowded dwellings, and changes in social values from one generation to the next.

In terms of housing, the negative features of family splitting are:

1. increased demand for housing
2. increased family expenditures
3. have reduced opportunity for young, small families to own their home.

The extended family structure takes care of many social needs, and an increase in nuclear families will heighten demand for services to children and the elderly.

The international consultants and architecture/contractor firms paid limited attention to these socio-cultural characteristics. The packaged, pre-fabricated high-rise housing built in the country's major cities have an the potential to foment unfortunate social change, as the potential beneficiaries will face varying degrees of discomfort when they occupy the units. These residents will come from the lower middle class and low income groups -- probably the most conservative layer of society -- and will have spent most of their lives in extended-family households.

A number of general factors should be considered before we move into the main part of this discussion:

- The limited number of high rise apartment buildings (over six stories with an elevator) all over the country are generally occupied by foreign families and single persons working for firms or government agencies and upper-middle class Saudi families who have moved from their original homes to large cities for financial opportunities and education. These families are smaller than usual in Saudi Arabia, and their living in apartments is regarded as a transitional step.
The tenants of walk-up apartments are mostly foreign families whose heads of families have come to work as teachers, engineers, physicians, or skilled laborers. The Saudi families living in walk-up apartments have come from their original villages and towns for jobs and educational opportunities, or were forced to leave their former homes for various other reasons. These tenants in contrast belong mostly to middle-income groups. Their residence is walk-up apartments is expected to be temporary.

Low income families generally occupy indigenous houses, traditional houses, or shanties. They have low educational levels and their average family size is larger than in high- or middle-income families. Characteristic employment for these people ranges between jobs at the bottom of the government employment hierarchy to various forms of unskilled labor.

The preceding observations suggest that pre-fabricated walk-up and high-rise housing is unsuitable for income groups which have had no previous experience in that type of housing. The environment to which they were accustomed is completely different from high-rise living.

Furthermore, it could be an unpleasant experience once these families discover that:
they are no longer free to carry out alterations or make creative modifications in their environment in order to suit their needs or tastes;

there is rarely any means of expanding the unit when the family increases in size;

because of poor sound-proofing, their children's normal behavior will often have to be curbed in order not to disturb neighbors;

they can no longer let their preschool children play near the home, except on private balconies, or in access corridors. Even these locations are rarely suitable because of the danger that a child may fall off a balcony and also because noise from children playing in access corridors may annoy neighbors and cause strained relations among adults;

they must cope with the inconvenience caused by:

  elevator breakdowns
  false fire alarms
  water and electricity shut-downs (frequent during the summer)
  odors and insects from common garbage disposal facilities
long waits for elevators, particularly inconvenient when they are carrying several bags of groceries

- they are no longer able to distinguish the neighbors living in their same building from nonresidents (outsiders), while multiple entries to the building provide no control over persons entering. Vandalism and such crimes as murders, muggings, and rapes tend to occur most frequently on fire escapes, in corridors and elevators.

Finally, for these families, it will be inconvenient -- to say the least when they discover that there is insufficient privacy, that their windows are below those of adjacent highrise apartment buildings, and that conversations and family quarrels can be heard by their next-door neighbors. Particularly for women, visual privacy outside the apartment will be compromised by face-to-face encounters in elevators, stairs, and corridors resulting in uncomfortable situations and fears concerning behavior that is seen traditionally as immoral. These potential inconveniences were not realized until all the high-rise housing projects had been completed. Therefore, in order to avoid the expected consequences, the housing authority published an instruction manual, which prepared the future residents to operate their apartments (Fig. 5.5). Indeed it is a how-to-operate manual, because,
Fig. 5.5
Source: Ministry of Public Works and Housing.
if these apartments were really suitable and well-adapted to local conditions, people would know how to live in them and would have no need for such a manual. Interestingly enough, this manual reminds us not only of the manuals that come with every brand-new car and appliances, but also of Le Corbusierien catch-phrase "the house is a machine to live in." Thus, the Saudi Arabian high-rise public housing is experienced as a machine to live in requiring training in its proper operation. It is a uniquely literal interpretation of such Le Corbusier's idea.

While the design criteria of the Saudi new cities indicate a greater appreciation of the climatic and cultural factors that condition the context of these cities' urban growth, this has not always been the case, and even the master plans of these cities clearly indicate planning concepts and architectural forms which reflect social and residential inequality. These are critical issues, particularly if one takes the responsibility of creating a new community for a group of Muslims. Equality among Muslims is not only the principle of Ikhowan (the brotherhood) of the 1920's, but it is an Islamic way of life. It is clearly manifested in two of the five pillars of Islam, the Hajj (pilgrimage): during which every Hajji (pilgrim) wears simple white clothing. The rich and the poor, king and peasant, are all indistinguishable, all are equal. The fasting during Ramadan is not intended to make people suffer from hunger. Rather the philosophy of fasting is not only to remind the rich that there are people who do
not have food to eat, but also to stress equality among all Muslims, in which no adult Muslim is exempt from this religious observance.

Islam consequently prohibits strongly any act that shows any sign of arrogance. Such social behavior has been condemned in many verses in the Quran and Hadith. The thirteenth Hadith is an example:

On the authority of Abū Hamza Anas ibn Mālik may Allah be pleased with him, the servant of the Messenger of Allah (may the blessings and peace of Allah be upon him), that the Prophet (may the blessings and peace of Allah be upon him) said:

None of you [truly] believes until he wishes for his brother what he wishes for himself.

It was related by al-Bukhārī and Muslim.  

It is the belief of the author that while many people from the western world regret such social habits and the implications of such distinctions between rich and poor, in some way or another it has become an acceptable element in the field of urban planning. It is also my belief that with such large-scale and complex endeavors, a certain level of planning is necessary for the purpose of achieving orderly development. But indirect emphasis on residential inequality only encourages social disintegration. If the decision-makers, master planners, and architects take seriously the challenge of creating new communities that conform to Islamic doctrine, they should regard the potential households of the new cities as equal, and provide them all (rich and poor) as much as they can with new houses of similar standards and quality.
5.3 The Third Development Plan

The third development plan will continue to base the strategy for economic development on the same three key directives that guided the second plan: the diversification of the economic base; development of the kingdom's manpower resources; and the distribution of the benefits of national wealth to all sectors of the population. Within this broad framework, however, there are fundamental differences between the respective strategies of the second and third plans.

By fully utilizing the infrastructure created in the second plan, the third plan will proceed to diversify the economy in the direction of capital-intensive development. As infrastructure is de-emphasized, there will be greater emphasis on the creation of increased output capacities in the productive sectors, together with expansion of key development resources such as energy and water.

The third plan's growth targets are constrained by a policy requiring new employment to correspond as closely as possible to the domestic availability of new Saudi manpower. The non-Saudi labour force will be consolidated at about its present site, although its skill-composition will be kept flexible to meet any demands for special skills and expertise.

In terms of housing strategy, the government will continue its construction programs. However, the emphasis will shift, giving greater attention to residential accommodation for lower-income families.
The principle target for the housing sector is to complete the public housing projects under construction or about to be remodeled before the close of 1403 AH (1983 AD). These include 12,601 apartments and villas already under construction, (2,633 villas and 9,968 apartments), three housing projects comprising 2,100 partially completed villas, and the 1,152 apartments for Riyadh's rush housing scheme (see table 3). On completion of the rush housing programs, residents' committees will be formed to assume responsibility for the operation and maintenance of their dwellings.

During the third plan, 10,000 new public housing units will be constructed; 750 will be located in Khafji, and the remainder in Mecca, Medina, Riyadh, Buraydah, and Qatif. To complement the construction of new dwellings, a program will be introduced to provide serviced plots for lower-income families. This program proposes the allocation of 14,800 plots in at least 13 different locations. Priority will be given to the 10,800 plots which have already been identified and for which site designs has been prepared.

A special project will also be undertaken to construct 7,000 housing units to provide lower-income households with adequate housing.

Studies will be undertaken, one on housing statistics to document the number and condition of housing units in the kingdom, and one documenting the characteristics of substandard housing in the cities.
TABLE 3
SECOND PLAN HOUSING ACCOMPLISHMENTS (1975-1980)

<table>
<thead>
<tr>
<th></th>
<th>Second Plan Target</th>
<th>Second Plan Achievements</th>
<th>Percent Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Permanent Housing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>52,500</td>
<td>53,600 (1)</td>
<td>102</td>
</tr>
<tr>
<td>Private</td>
<td>122,100</td>
<td>150,000</td>
<td>123</td>
</tr>
<tr>
<td><strong>Temporary Housing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Housing</td>
<td>51,000</td>
<td>51,000</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>225,600</td>
<td>254,600</td>
<td>113</td>
</tr>
</tbody>
</table>

(1) Including Government agency housing.

Other programs planned include the construction of housing for employees of government agencies. Approximately 58,800 units will be built under separate programs within the operating plans of several ministries and agencies. A project is also planned at Mina to provide facilities for pilgrims.

It is estimated that the private sector will be responsible for the construction of an additional 181,000 units, or approximately 67 per cent of total new dwellings entering the market during the third development plan. It is also estimated that, in total, 267,153 housing units will be constructed during the third plan period. The government will continue to make interest-free loans to individuals for the construction of personal residences and, according to market needs, to individuals and real estate companies for the development of rental units. It is estimated that during the next five years over SR13.8 billion ($4.1 billion) will be made available for personal loans and over SR800 million ($240.9 million) for investment loans.

These loans will be made only for residences in those places approved in national, regional, or district centers and in accordance with municipal plans for the installation of public utilities.

To improve organization, greater attention will be given to increase the collection rate on loan repayments. Specifications for standard designs of houses suitable for Saudi Arabia will be made available and studies will be undertaken of the structure and growth of the housing center
and housing demands over the next twenty years.\textsuperscript{9} The emphasis on to lower-income housing is a clear indicator of the shortcomings recognized in the housing strategies of the Second Development Plan. Another positive indication is that the proposed implementation of the housing related statistical and documentation studies. Besides statistical information, one hopes these studies will supply more complete data and coherent understanding of the traditional houses that will fall under the categories of "substandard" housing stimulating awareness of the disappearing architectural and cultural heritage.
5.4 The Case of Mecca's Traditional Houses

One of the more convincing lessons of the present is that Saudi Arabia's rapid development plans have had profoundly disruptive effect on the provision of contemporary housing. This leads back to a question asked at the beginning of this study: "Can new and unusual circumstances be met while still honoring the culture and tradition?" To understand the ability to control and channel the introduction of new techniques with minimal socio-cultural disruption demonstrated in the history of the traditional Meccan house, a brief analysis of these structures is necessary.

The pre-Islamic history of Mecca dates back to the time when Abraham (Ibrahim) and his wife Hagar (Hajar) and their son Ishmail came from Palestine. After the death of Ismail, his two sons who had lived in two different sections of the city gave rise to two clans. These clans, in time, formed several tribes, which settled around Zamzam, the only well.

In the middle of the fifth century A.D., Qusay b Kilab unified these tribes to become the first chief of Quraysh, the tribe from which the prophet Mohammed came.

The Quraysh was the first tribe to build permanent houses. Before that, in Mecca, shelters were merely groups of tents scattered in the valley. The first houses in Mecca were purposely built without square roofs; instead, they had a doorless front courtyard where pilgrims could stay. Also the
houses could not exceed the height of the "Ka'ba" (sanctuary) so that they would not overlook the sanctuary.

Mecca was located in a valley between rocky hills, which were composed of basalt, granite, and some limestone. These hills supplied the city with basic materials. For roofing, doors, and windows, wood was used from the bark and leaves of palm trees and some other local trees. To construct the stone houses, the local builders used the rubble-stone ("al-Rakham") method, building without mortar. This was employed until very recently, particularly for fencing the "Hosh", or open spaces beside the houses.

As Islam began in 622 A.D., the development of residential units continued and by the time of Umayyad and the latter Caliphats, the local builders could construct houses of several storeys. During the tenth and twelfth centuries, a dramatic feature appeared in Meccan houses, which now included new details (such as the increased number of floor levels and the wide projecting windows).

Shams al-Din Abu Abd Allah al-Muqaddasi described Meccan houses in the tenth century A.D. (4th century A.H.):

The houses of Makkah are built of black, smooth stones and also of white stones; but the upper parts are of brick. Many of them have large projecting windows of teak wood, and are several stories high, whitewashed and clean. (12)

Two centuries after al-Muqaddasi's description, Ibn Jubayr, a well-known traveler of the twelfth century A.D. (6th century A.H.) alluded to the function of an important element of the Meccan house - the flat roof:
We passed the nights on the roof of the place where we stayed, and sometimes the cold of the night air would fall on us and we would need a blanket to protect us from it. (13)

Since the time of the Mameluks and Ottomans (1250 - 1910 A.D.), these new elements have been elaborated and modified with the use of new building skills and imported building materials.

In tracing the methods by which innovations were introduced into the traditional housing of Mecca, we notice two methods: indirect and direct. In indirect method, the enlargement of the Great Mosque played a major role in the transformation of the building skills and techniques of local master builders. The history of the Great Mosque's enlargement goes back to the second Caliph Omar Ibn al-Khatab (circa 17 A.H. - 638 A.D.). The second enlargement was during the Caliph Othman period (26th A.H.) Later Caliphs and Muslim rulers (rulers from Damascus, Baghdad, or Cairo) used the expansion of the Holy Mosque as an excuse to justify themselves as worthy of the title "Amir a-Muminin" - "The Prince of the Faithful." They sent money, building materials and even master builders from their capitals to undertake the expansion. The use of arches and columns and the detailing involved in their construction in the Great Mosque were picked up by local master builders and used widely in the construction of the traditional Meccan houses. Interestingly enough, in 1979 Mu'a'ilim Addallah Kamal, a veteran master builder, told the author that just before the modern building
materials and techniques were introduced in the 1930's, he used to go to the Mosque to study how the Egyptian master builder connected the stones in the Mosque's colonnade.

Although we do not have a detailed description of the large projecting windows indicated by al-Muqaddasi, it is the author's belief that the mashrabiyyah of the early-twentieth-century traditional houses of Mecca are most properly to be seen in a modified version of those projecting windows. The wood-carved motifs of these mashrabiyyahs and the external main doors reflect a wide range of influence, including Mameluk, Ottoman, and even Indian influences (Fig. 5.6 - 5.7). These subcultural influences on the traditional Meccan houses are also apparent on the external doors and arches, as well as in decorative motifs on the arches used within the traditional Meccan houses. (Fig. 5.8 - 5.9).

Several other architectural elements and details used primarily in public buildings were modified and used in domestic buildings. Among them is the Dome of al-Qushashiyyah: A smaller replica of this dome covers the upper-level kitchen in one of the houses surveyed. (Fig 5.10). The direct method for the introduction of new building materials and techniques was first used by the Muslim philanthropists who brought with them building materials and perhaps master builders to build Madrassas (schools) and Ribats (lodgings) for settled pilgrims. (Fig. 5.11).
Fig. 5.6 The influence of the Indian wood carving technique appears clearly on the mashrabiyyah and the external door of a traditional house in Mecca.
Fig. 5.7 Evidence of Mameluks and Othomans influence on the Meccan mashrabiyyahs.
Fig. 5.8 Arches found in the traditional houses were used for both: functional purposes—as shown in the upper image—and also used as decorative motifs—as shown in the lower images.
Fig. 5.9 Decorative motifs of arches udes inside the traditional houses of Mecca. The tow images show motifs widely used in India.

Fig. 5.10 Mecca: Bird-eye view of al-Qushashiyyah Hammam.
Fig. 5.11 One of many endowed ribats (lodgings) built in Mecca for the settled pilgrims.
The other source of direct introduction was the immigrant master builders who settled in Mecca, who applied the techniques of their native countries while adhering to local practices and requirements. The brickwork on the parapets of traditional Meccan houses is an example of this influence (Fig. 5.12). According to almost all Meccan master builders the author interviewed, the brickwork introduced by Persian master builders, many decades or perhaps even centuries earlier, and which no Meccan master builder could recall. Interestingly enough, the Ājur, the local term for the burnt bricks, is in fact a Persian term.¹⁴

These direct and indirect methods influenced the local Meccan house building techniques. However, the traditional houses that we will discuss below were, by no means disregarded the local conditions and socio-cultural values (Fig. 5.13).

Next to the main entrance of the house, there is an entrance hall ("dīhliz"), having a floor of either sand or cement. On one or two sides, wooden benches (karauit) were arranged, where the master of the house used to receive unexpected visitors. On either or both sides of the hall, one could find small rooms ("maqaid"), which could serve as business offices for the master of the house in his trade, for twāfāh (guiding pilgrims), for the reception of intimate acquaintances, as sleeping rooms on occasion, or for rental to other businessmen. In the case of houses built in the valley, to avoid the hazard of flood the floors of these rooms were on
Fig. 5.12 The brickwork on the parapets of Meccan traditional houses is one of many examples of subcultural architectural influence.
Fig. 5.13 A typical traditional house in Mecca, plans, section, and isometrics.
a level higher than that of the hall. In some houses one could find a few steps below the hall a small room "qabow", used as to store merchandise or luggage. The adjoining rooms served all sorts of purposes. One could accommodate close friends who would not need to go to the upper stories, or have a library or writing room, etc. In this floor, as on every floor of the house, there was a water closet "bayt al-ma, taharah", which was also fitted out as a bathroom separated by a small wall. These water closets and bathrooms are served by water storage tanks built on one side of the wall or by a large clay vessel "zir". On the ground floor, where the back wall of the house is not joined to other houses or mountains, a back door lends access to a courtyard which is surrounded on all sides by buildings and connected with the main street by a narrow lane.

On the upper stories, the number and size of the "buyut" (residential units) varies; each story has a water closet. As we go up, the interior space of each story is progressively diminished, so that necessary terraces ("sutuh") may be provided; e.g., on the second story, part of the floor area will be taken for terraces and the third story thus has that much less squarage (See again Fig. 5.13). For Meccans, terraces (sutuh) are an important element of the house because many activities take place on them, such as drying washed clothes, sleeping in the summertime, or family gatherings after sunset, where people enjoy cheerful social intercourse in comparatively fresh and cool air. To accommodate sleeping,
the terraces were divided by small walls, generally of brick. To provide privacy while allowing cooling breezes, these bricks were arranged in an overlapping pattern with a space between each two bricks to let the air through. Care is taken, for instance, that every married couple in a house have their own terrace for themselves and their children; or, where several such couples must share a terrace, it may at least be divided into separate parts by installing partitions. With this in view, a small low room "mebit" is often built on such terraces to receive the nuptial bed. In the case of extended families with several married couples living in one house each married couple has, in addition to the main reception room (majlis), (usually on the first floor), their own majlis, usually located in the front facing the street. In the reception room, a wide window with projecting balconies may be found "roshan", "Mashrabiayyah". Along the walls and behind the windows, wooden benches "karauit" are built and furnished with mattresses and hard pillows. Before entering the reception room, one must pass through a small room "suffah". Here, unexpected visitors may be received if, for instance, the reception room is occupied by women. On both sides of the reception room, there are essential rooms such as the kitchen "matbakh", other sitting rooms, water closets, and a space for storage "khazanah". The married couples who share the same story will usually make the necessary separations by curtains, wooden partitions, and so forth. For the sake of privacy and to avoid disturbing the neighbors, each apartment has its own
entrance, arranged to avoid facing each other. In general, the living atmosphere within the house is arranged so that unwanted strangers will not disturb the privacy of the family. If part of the house is rented, the privacy of the occupants of the upper story will be preserved.

This general description of the traditional house of Mecca applies to all houses surveyed by the author during the summer of 1978. Although some houses are characterized by very elaborate details, others are very simple (Fig. 5.14). This is one factor that makes the traditional houses rich in variety while adhering to local conditions and local cultural values.

The case of Mecca's traditional house shows us that there would be more to learn if we apply today's knowledge and understanding to yesterday's experience. The Meccans did not build in a given fashion for centuries without a good reason. They did not have the sophistication we have today, but their results were effective, comfortable, and practical. Inasmuch as the traditional Meccan house is a good example of how new elements and special needs can be addressed while maintaining social values, it is theoretically possible, once again, to address new wants while minimizing socio-cultural loss.
Fig. 5.14 General view of three traditional houses of Mecca.
CONCLUSION
CONCLUSION

Our discussion of contemporary housing in Saudi Arabia draws heavily on an analysis of the related economic growth and the overall development process. It would be helpful at this stage to define more explicitly the relationship, as we understand it, between the development of contemporary housing in Saudi Arabia and cultural influences. We do not suggest that Saudi society should close the door on housing-related innovations developed by other societies, nor should it restrict building of houses to a traditional idiom using conventional building materials and techniques. We are keenly aware of the strong and legitimate desire of most government authorities and housing officials to achieve the objectives outlined in the development plans. We are equally cognizant of their desire to improve the living standards of the Saudi people by providing them with the most modern housing models possible.

The dilemma surrounding the issue of housing stems from the attempt to adapt sophisticated proposals, advanced building technology and modern ideas to the economic, geographic and climatic and cultural ideology of Saudi society, a society in which all of these aspects are undergoing rapid and profound transformation.

In the span of three decades through which contemporary housing in Saudi Arabia has been developing, we realize that government concern for housing issues has been greatly
influenced by the economic situation of the country and the urgency and intensity of its development policies.

We can trace changes in government concern regarding housing over the decades. Through the 1930's and 1940's, the policy was significantly laissez-faire. During the 1950's, after the private ARAMCO Home Ownership Program, the government's first initiative in housing comprised project to house government employees. These early mass housing projects marked a turning point in the nation's living patterns. Foreign influence in planning and architectural principles determined the architecture of these early modern homes. Architects introduced modern sanitary conveniences, and new standards of comfort and life-style reflected Western norms, while the conditions required for psychological stability and the crucial socio-cultural values of Saudi society were simply ignored. This lack of insight led people to abandon the well-suited spatial organization defined by traditional houses in favor of the modern living environment offered in villas and apartment buildings.

During the 1960's that internal government policies were directed largely towards social welfare, in reaction to the mismanagement and financial abuses of the late 50's; yet the government, faced with financial problems, found it easier to leave most housing construction to the private sector. During the 1970's the increase in wealth from oil revenues loosened the financial constraints and, at the same time, applied pressure to develop rapidly.
The rapid industrialization and development led to severe inadequacy of essential infrastructure, including airports and seaports, and shortages of goods, building materials, manpower, and housing. The acute housing shortage, along with ambitions on the part of the housing officials to raise living standards, led public authorities to adopt experimental housing systems whose drawbacks had already been demonstrated in the nations where they were first developed.

The Real Estate Development Fund played reverse but equally unhelpful role. Despite the fund's good intentions, its activities in combination with land speculators, surveyors and architects, resulted in chaos, waste, and extravagance. In addition to urban sprawl -- one may see a villa built virtually in the middle of nowhere -- the extravagance and exotic designs of villas themselves are among the negative results of misguided planning policy; in this case, a matter of many headed decentralization (a largely reverse in that most of the ills I have pointed to in this thesis are attributed to too much centralization.).

Despite the apparent aim of the new cities' master planners to produce flexible and robust plans which could adapt to a range of future contingencies, zoning regulations applied by the master plans tend themselves to effect profound social change. No matter how well-intentioned is this endeavour in environmental and social terms, the previous continuum of visual harmony and social integration was
ruptured; the settlement pattern reflects the new criteria as imposed by the zoning regulations.

By placing emphasis on designing certain residential areas for specific social groups according to their occupational status or income level, the important principle of social integration was violated. Poor families are no longer able to live near their wealthier relatives, nor can a married son reside near his father's house if his father happens to live in a new neighborhood earmarked for particular government employees or occupational or professional groups.

The logic behind these housing programs is well grounded. However, the introduction of modern Western architectural plans and principles created tension with respect to local residential environments and socio-cultural values and patterns. There are two chief factors involved in this conflict: First, the government's central economic planners paid insufficient attention to formulating appropriate national housing policies, and they failed to take into account the impact that modern housing types and designs would have on the overall local residential environment and thus on Saudi society generally. Also international architects and architectural firms played an influential role in specific housing design, with profound cultural ramifications for the local residential environment flawed planning. We will not find a better example of insufficient thinking than in the drastic shift from one extreme housing policy (rushed, high-rise, high-density) to another (low-rise, low density).
Such a radical change in policy suggests that the initial policy was inappropriate, but that does not necessarily mean that a directly reverse second building policy is the right solution.

If we measure the effectiveness of government housing policy in terms of increased numbers of housing units, then the Saudi policies have been successful; they did construct in a remarkably short period of time the highest number of residential units ever known in Saudi Arabia. But if the national effort is measured by its ability to provide a decent home and a culturally suitable environment for every Saudi family, then much remains to be accomplished.

Housing in Saudi Arabia is currently passing through a critical historical stage. There is a state of urgency as shortages of every type are experienced, involving not only building materials and personnel, but even adequate information on which to formulate of policy. There is not yet an efficient system within the Ministry of Public Works and Housing for collecting data or monitoring plans, and implementation and construction procedures. Planning data collected when regional physical plans and master plans were being prepared are already outdated. Neither co-ordination nor cooperation obtains between the Ministry of Public Works and Housing and the rest of the government ministries where housing is concerned.

Instead of using data to plan and to cooperate in their work, the ministries vie with one another to spend their
allocated budgets on competitive, uncoordinated, prestigious housing projects, with no coherent reference to local characteristics and needs. The most disturbing result is the use of inappropriate standards and values in the development plans. Extemporaneous decision-making on housing projects has led to the depressing current situation, where the advantages of a highly sophisticated building technology are allowed to outweigh the social disadvantages. Therefore, much of the housing developed in Saudi Arabia responded to the values placed on exotic physical appearance and technological feasibility. These depressing conditions might be tolerable if there had been no precedent of the assimilation of building techniques and materials to traditional Saudi house-building. The case of the traditional houses of Mecca indicates how the Meccan master-builders were able to adapt new building techniques and materials. The knowledge of and respect for their own culture and traditions of the Meccan master-builders allowed them to address special needs, for example, Pilgrims' accommodation, using new building techniques and materials while still honoring local culture and traditions.

Today many people are confused, and lack a feeling of belonging (Classic anomie in the sociologists's jargon). People need a sense of place--connections to a place they know and where they sense they belong. This might be a social place, as it was in the old days when family groups gathered in ancestral homes. The housing authorities' preoccupation with the urgent need for projects has tended to deflect their
attention from a rational consideration of the basic social and cultural principles underlying the traditional house forms. The increasing complexity and vagueness in design principles and form characteristic of the traditional houses made it difficult for the housing authorities to balance adhering to traditional socio-cultural norms and utilizing modern technology. They could not understand that different building techniques and materials could produce two traditional houses of the same type (for instance, the courtyard house) and that therefore appropriate design was just as important as materials or techniques. The creation of a suitable and responsive house relies on the awareness and sensitivity of the builder, not on his materials or techniques. It is the traditional socio-cultural norms and utilizing modern technology. They could not understand that different building techniques and materials could produce two traditional houses of the same type (for instance, the courtyard house which, as we have seen is built of mud and lime stone) and that appropriate design, therefore, was just as important as material or technique. The creation of a suitable and responsive house relies on the awareness and sensitivity of the builder, not on his materials or techniques. It is the special talent of the traditional builder to blend the merits of innovation with local, cultural, and natural conditions to create a well-balanced social and physical living environment. The design of a healthy social environment begins with an understanding of
heritage and the socio-cultural milieu and requires an accurate self-assessment by the users -- the people who will live in the houses--present and future.

This study has applied to a particular time period. While it studies and discusses past and present housing conditions, it also directs the reader's attention to the next decision-making stage. Saudi architects can no longer be allowed the excuse of inadequate exposure to different practices. They now have virtually unlimited materials, and models and techniques that relieve them of the disciplines enforced on master builders of the past by scarce materials and limited choice.

But now they must temper their new opportunities with sensitive choice and self-discipline. They must harness the new technological know-how, and modify it to fit their socio-cultural frame of reference, to develop the best and most suitable living environment for Saudi society. Since it was possible for the Meccan houses to absorb a new technique into their local traditional values, it should also be possible for modern Arabian planners and architects to address new needs and problems without sacrificing the specificity, richness, texture, and integrity of the culture from which it emerges.
NOTES

INTRODUCTION

1. For instance, the use of the mashrabiyyahs in all traditional housing in Saudi Arabia's western region was an adaptation of an Egyptian model. Nevertheless, the mashrabiyyahs were subject to careful modification according to local conditions.


5. Contact between western and non-western societies took place throughout history and relationships were influenced by the nature and pattern of the circumstances of the time. The present-day relationship between the societies of these two worlds has its roots in the Industrial Revolution of the 18th century. Throughout the 19th and most of the 20th centuries, this relationship passed through different phases and modes, the most important of which was the colonialization period, resulting in the many Third World countries known today. The next phase is the relationship under discussion, "the common interest relationship" between the societies of these two worlds. This relationship characterizes their present day affairs.


7. In the example of physical and social problems which resulted from the national housing policies and programs, one can see how these policies fail to respond to local conditions such as ecological characteristics and the significance of local urban patterns. The social
segregation and crowds which many housing projects produced as a result of housing programs undertaken to eradicate physical and social problems was evidenced by the formation of squatters' areas caused by rural immigration and the low standard of living that many deteriorating localities experienced. Often the relationship between physical/social problems and housing policies and programs is counterproductive, and proper solutions will not be effective unless they are tackled from both sides.

8. The cultural contacts between the industrialized world and Third World countries happened after the Industrial Revolution.

9. While it is true that common interests reflect equal benefits and influence, it is hard to believe that the powerful party (in this case, the developed world) does not exercise any form of cultural leadership over the less powerful party (Third World countries). Such cultural leadership differs in form and is very much dictated according to the different policies and goals which each developed country chooses and executes. It differs, also, according to the state of the needs and the nature of the limitations each developing country encounters.

10. 1932 is the year in which the four main regions of the Arabian Peninsula (Najd, Hijaz, Hasa, and Asir) formally consolidated under one ruler (King Abd al Aziz ibn Abd ar Rahman Al Saud) and under one name, "The Kingdom of Saudi Arabia."


12. For more information, see the following literature: Helen Lackner, A House Built on Sand (London: Ithaca Press, 1978); George A. Lipsky, Saudi Arabia (New Haven, 1959).
NOTES

CHAPTER I


5. Ibid., pp. 22-23.

6. Ibid., pp. 21-22.


8. This is because the air reaches the Hijaz region after traveling a long distance from its source.


10. This is because the saturated air collides with the mountain tops.

11. Mecca is a good example of a settlement affected by these torrential floods. In his book Tareekh Mecca Ahmed al-Sibaai mentions the many torrential floods that have struck Mecca from the beginning of time.


15. Harris, op. cit., pp. 65-78.

NOTES

CHAPTER II

1. After conquering most of Najd in 1911, King Abdul-Aziz looked toward al-Hasa and Hijaz. To ensure effective control, he sought a way to unify his forces in a structure which would cut across tribal allegiance and create a commitment to a common leader and objectives on one hand, and on the other hand, create an armed force which combined the qualities of the town dwellers with the mobility of the bedu. This is how Ikhwan movement came about. The term Ikhwan mean brethren of Islam, who vied in Puritanical devotion, while overlooking tribal differences and disputes. For more information on Ikhwan movement see Ahmed, Shamekh, "Spatial Pattern of Bedu in Settlements in al-Qasim region, Saudi Arabia" (Ph.D. Dissertation, the University of Kentucky, 1975.) and Christine Moss Helms, "The Cohesion of Saudi Arabia", The Johns Hopkins University Press, Baltimore, 1981. pp. 127-150. A brief discussion of Ikhwan settlements is included in Section 4.3 of this study.

2. The British representative was Sir Percy Cox, Chief British Political Officer in Mesopotamia.


5. By 1927 the U.S.S.R., the U.K., France and the Netherlands had recognized King Abdul-Aziz's rule in Hijaz and established consulates in Jiddah.

6. In addition to supplies from the British, machine guns and rifles, motorized transportation, and radio and telephone installations were introduced into the country after the first decade of the 20th century.
8. Helen Lackner, p. 33.
12. Such as government administrators, managers, clerks, teachers of modern subjects (mathematics, science), engineers and scientists.
14. For example, in the Asir region where crops and animals are the most important items for the economy of the region, we find that in most cases that storage spaces and animal stables occupy the ground floors of the houses, while in Hijaz, where merchandise and imported goods are essential for the Hijazi economy, one finds in multi-story houses portions of a whole ground floor utilized as a male reception area where business could take place and where goods and merchandise could be stored. In Najd, where dates are the essential product, a certain space for storage was usually utilized to store the crop for off-season consumption.
17. This interview was conducted during the summer of 1979.

22. Such social ties extended from the individual member to his closely related family up to the outmost level of tribal social-structural hierarchy.

23. For example the breaking up of the extended family structure in favor of the nuclear family pattern.

24. It has to be realized here that the issue of neighboring houses concerns only the physical aspect, rather than a social one as it used to be.
FOOTNOTES

CHAPTER III


5. Ibid., p. 472.


9. Ibid., p. 472.


15. Ibid., p. 96.

16. Ibid., p. 96.


18. Ibid., p. 341.

19. Ibid., p. 342.
20. Lackner, p. 98.

21. Ibid., p. 98.


25. Ibid., p. 343.

26. Ibid., p. 137.

27. Lackner, p. 137.

28. Coon and Franck, p. 137.


30. Mr. Ibrahem al-Husayn started his work in the office as a draftsman in the late 1950's and at the present time is acting as office manager.

31. This information was acquired through a brief interview with Mr. Ibrahem al-Husayn, the engineering office manager, and with Mr. Abdullah at Dhubayb, the former manager of the Department of Government Properties (Summer 1980). See also Saleh al-Hatheloul, Tradition and Change in the Physical Environment: The Arab Muslim City (unpublished paper, 1980), pp. 13-16.


33. The accuracy of this information is uncertain, because of lack of documentation and the demolition of the apartment building.


36. According to Mohammed A. Saleh, the average eating time for men (in Muqallat) is 25-30 minutes; then the men return to the reception room. After the male guests have finished eating and all have returned to the reception room, the female guests move to the Muqallat for the meal. The average eating time for women is over an hour.

37. For instance, in the center of Qatif the houses are of several stories. The lower rooms have small windows, while the uppermost story has large arched openings piercing the walls for ventilation.


40. It is perhaps appropriate to indicate here that although the terms cited earlier (propaganda, informational-educational, and cultural program) seem to evoke a distinctive intention, the methods that ARAMCO used show us how these terms were integrated (for instance, propaganda and information, or education and cultural programs) in order to serve ARAMCO's general objectives. Among these objectives were: winning the admiration and satisfaction of the native workers toward its operation, and creating a glamorous image of the modern life style which the dream house (villa) symbolizes.

41. According to Carleton S. Coon and Peter G. Franck in their article "Operation Bulliste", by March 1952, the company was managed by fifteen departments. Six of these departments were operating in the Eastern region of Saudi Arabia. The remaining departments, however, occupied a 20-story skyscraper in New York City. Among the departments operating in Saudi Arabia were: oil operations (three divisions), materials supply, community services, engineering and construction, product distribution and local relations departments.

3. At this point we should not question the credibility of the Program Officials in their profession, nor their knowledge of the local traditional houses. We certainly do not have to be concerned about whatever attitude they may have about the native company workers, and their traditional living environment. The attitude may or may not have been similar to what Raymond F. Mikesell and Hollis B. Chenery have described in their book, "Arabia
Oil; America’s Stake in the Middle East": "It is not enough for the company simply to train workers and to pay good wages. An Arab cannot suddenly be thrust into a job paying more money per week than he ordinarily may have seen in a whole year and then be sent home at night to his tent in the desert or to a mud house in his primitive oasis village. The worker must be sociologically conditioned to a different mode of living if he is not to be spoiled in the process." For more information, see Raymond F. Mikesell and Hollis B. Chenery, Arabian Oil: America's Stake in the Middle East (Chapel Hill, NC: The University of North Carolina Press, 1949), pp. 81-82.

43. For more information see ARAMCO yearbooks, ARAMCO World, the Oil Caravan magazine (in Arabic), Sun and Flare magazine and the Arabian Sun news bulletin (in English), ARAMCO 1981.

44. See Fred J. Harsaghy, pp. 275-359.


46. Although the Company has radio broadcasting, this media of communication remained limited to the non-Arabic-speaking listeners. Therefore, its role in influencing the local inhabitants is unaccountable.


49. Ibid., p. 6.

50. Ya’qub Salam, Oil Industry Exhibit (Ma’rid Sinā’at al-Zait) in Oil Caravan (in Arabic), published by ARAMCO, pp. 25-30.

51. The Weekly Mecca Gazette ("Umm al-Qura") was first published in Mecca in 1924, and afterwards became the official newspaper. al-Idha’ah al-Saudiyah was a monthly magazine published by the Directorat General of Broadcasting, Press, and Publications. Its first issue appeared in 1955 (1375 A.H.).


54. It should be noted, incidentally, that during the writing of this study and for less than thirty years after their construction, these particular apartment buildings were (in a very obscure decision-making process) declared unsuitable and no longer safe to be used as residences. Therefore, in a very short time (60 days) the residents of those apartments were given eviction notices and by May 1982 (Sh'aban 1402) those three apartment buildings had ceased to exist. Their sites were rapidly asphalted, paved and designated as car parking lots. The evacuated tenants were given a compensation of approximately $23,000 (Saudi Riyal 80,000), and were not granted government relocation.
FOOTNOTES

CHAPTER VI


5. Ibid., p. 472.


9. Ibid., p. 472.


15. Ibid., p. 96.

16. Ibid., p. 96.


18. Ibid., p. 341.

19. Ibid., p. 342.

20. Lackner, op. cit., p. 98.

21. Ibid., p. 98.


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41. According to Carleton S. Coon and Peter G. Franck in their article "Operation Bulliste", by March 1952, the company was managed by fifteen departments. Six of these departments were operating in the Eastern region of Saudi Arabia. The remaining departments, however, were located in New York City, occupying a 20 story skyscraper. Among these departments operating in Saudi Arabia are, oil operations, with three divisions, the materials supply, the community services, engineering and construction, product distribution and local relations departments.

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Hollis B. Chenery have stated in their book, "Arabia Oil; America's Stake in the Middle East": "It is not enough for the company simply to train workers and to pay good wages. An Arab cannot suddenly be thrust into a job paying more money per week than he ordinarily may have seen in a whole year and then be sent home at night to his tent in the desert or to a mud house in his primitive oasis village. The worker must be sociologically conditioned to a different mode of living if he is not to be spoiled in the process." For more information, see Raymond F. Mikesell and Hollis B. Chenery, Arabian Oil: America's Stake in the Middle East, The University of North Carolina Press, Chapel Hill, 1949, pp. 81-82.

43. For more information see ARAMCO yearbooks, ARAMCO World, the Oil Caravan Magazine (in Arabic), Sun and Flare Magazine and the Arabian Sun news bulletin (in English), ARAMCO 1981.

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NOTES
CHAPTER V


6. Ibid, p. 441

7. Ibid, p. 449

8. Ibid, p. 451, According to the plan 86, 153 dwelling will be constructed by the public sector and 181,000 dwellings will be built by the private sector.

9. For more information about housing policy of the Third Development Plan, See Appendix,


11. Ibid, pp. 103-117.


The interview with Mu'allim Abdallah Kamal took place in the summer of 1979. Currently, Mu'allim A. Kamal is a well-known Meccan contractor. Before the introduction of modern building materials and technology, he used to build traditional houses with the same traditional techniques he acquired through the skill development process discussed earlier in Chapter 2.


This description of the traditional Meccan houses, based on a paper submitted by the author to the Symposium on Islamic Architecture and Urbanism, Dammam, 1980.
APPENDICES
APPENDIX I

Bayt:

The term "bayt" means a covered shelter, where one may spend the night. It is a common Arabic word for dwelling whether in the tent of the nomad of the house with its simple components of room and walled open space in front, such as the houses of the Prophet's wives (Buyut Zawjat al-Rassul). See Creswell, Early Islamic Architecture. The bayt could be used as an individual self-contained medium size dwelling, generally for one small nuclear family with a flexibility for expansion to accommodate the increase of family members (it could also be called Dar - another Arabic word for medium to large house). The usage of the two terms "bayt" and "dar" to designate a particular house, can be recalled from Ibn Shabbah when he was describing the location of Rabah's house, where he used the two terms for the same house.

In Arabic the definition (bayt) is also used in a metaphorical and figurative sense. For instance, bayt aal Arrassul, which designated a nobility and prestige for the person who has the surname (See Section "The Basic of Leadership and Nobility" in ibn-Khaldun's The Mogaddimah.

The bayt may sometimes designate a sanctuary: thus in Arabic with the article, al-Bayt is applied to the holy place at Mecca, called al-Bayt al-Haram (Sacred House) or al-Bayt al-Atik (ancient house). For more information about the term, see Ibn al-Manzur's Lisan al-Arab, and Encyclopaedia of Islam.

In larger houses (larger Dar sigl Dar), one can find part or parts of the house which can also be called bayt, such as the living units of Meccan houses (see also al-Tanukhy's Nishwar, al-Khatib al-Bughdadi's Tarikh, and the Thousand and One Nights.

Dar:

The term "dar" is most commonly used to designate a house. The root of this word comes from "dara" (to surround), which is applied to space surrounded by walls, buildings, or nomadic tents. Unlike the term "bayt" the word "dar" relates more to a physical form than a metaphysical sphere.

Dars tend to be larger than the bayt, with more rooms and utilities, such as latrines and baths. Generally, dar has a wide range of sizes. We can place it into simple classification:

First, Samll Dar. This type has limited room space elements and generally has no hammam (latrine). It can also be called "bayt."
Second: Medium Size Dar. In general it has one or two courtyards (in the case of Meccan houses, two or more terraces), and a larger number of rooms according to family size, with the probability of accommodating one or more dependant servants.

Third: Large Dar. The size of this type results from a combination of two or more smaller dars, and its elements tend to be more specialized for specific functions, and commonly accommodate more than one social group (the principal extended family or families, the servants who live in the house and servants who work only periodically).

According to the size of this type of dwelling, it can be called "medina" or "qasr". The usage of the two terms "dar" and "medina" for a particular house can be derived from the account of al-Samhudi's Wafaa al-Wafa about Yazide ibn Abdul Malike's Dar in Medina. When he asked a medinee (man from Medina) delegate in his presence about his dar, the Medinee answered Yazide that he did not know that he (Yazide) had a dar in Medina, but when Yazide asked for further explanation, the Medinee explained to Yazide that his dar (Yazid dar) was not merely a dar, but it was regarded as a medina in Medina (city within a city) because of its spaciousness.

Most early Fustat dars were generally large complex buildings, some of which were composed of elements other than regular residential elements; for instance, dar al-Tamr which had commercial shops, storage and warehouses, and dar Abd al-Aziz, which has a mosque within its boundary. (For more information, see al-Maqrizi's Khitat Misr).
APPENDIX II

King Faisal's Ten Point Program, 6th November 1962.

1. Inasmuch as the system of government in any state should be a true reflection of the development achieved by the community, His Majesty's Government has been anxious to develop the Saudi Community educationally, culturally, and socially, so that it might reach the level that would be truly represented in the form of a unified system of government calculated to achieve the ideals of the great eternal goals set in our Sublime Shari'a. From time to time the form of government in Saudi Arabia has in fact undergone certain developments which reflected the development of our community and tried, at the same time, to help the community to reach a higher level. His Majesty's Government believes that the time has now come for the promulgation of a Basic Law for the Government of the country, drawn from the Koran and the Tradition of His Prophet and the acts of the Orthodox Caliphs, that will set forth explicitly the fundamental principles of government and the relationship between the governor and the governed, organize the various powers of the State, and the relationship among these powers, and provide for the basic rights of the citizen, including the right to freely express his opinion within the limits of Islamic belief and public policy. The previous Cabinet started to develop the Consultative Council so that it might play its part as a regulatory authority for the country. This study, together with the additions and modifications to be made thereto, will become part of the Basic Law, to be promulgated without delay, which will be a true picture of the honourable level reached by our nation and an admirable specimen of the Islamic system of government, drawn from the letter and spirit of the Shari'a. What helps in the attainment of this supreme goal is that the principles of our liberal Shari'a are resilient, susceptible of development, suitable to meet all circumstances, and applicable everywhere and at all times according to the requirements of time and place.

2. His Majesty's Government was not content merely to think of a Basic Law that would take care of the rules of central government, but has also undertaken various studies for the purpose of drawing up legislation that will regulate the system of local government in the various provinces of the Kingdom. All these studies of the draft legislation for the provinces have now crystallized and the promulgation of this legislation will not be long in coming and will, when promulgated, constitute an efficient factor in pushing forward the wheels of the administrative, political, and social progress of our youthful state.
3. His Majesty's Government is anxious for the Judiciary to enjoy immunity and high standing, for it is the torch of right and the symbol of justice, and whenever we elevate it and make it more sacred we achieve one of the basic objectives of Islam. We have firmly resolved to redouble our efforts towards this goal and to issue a law to perfect the Judiciary which shall be directed by a Supreme Judicial Council. We have also resolved to create a Ministry of Justice to supervise the administrative affairs of the Judiciary, and attached to it shall be the office of the State's Public Prosecutor to look after the interests of individuals and defend their rights and, in cooperation with the various State courts, to fulfill the role of the trusted guardian who defends the oppressed and strikes down the oppressors.

4. Insasmuch as the texts of the Koran and Traditions are fixed and limited, while modern times and the experience of the people in worldly affairs are constantly changing rather than being limited, and in view of the fact that your youthful state is ruled according to the letter and spirit of the Koran and Traditions, it has become imperative for us to give greater attention to jurisprudence and for our jurists and Ulema to play a positive and effective part in the discussion of important matters of State in order to arrive at solutions derived from Shar'a and in keeping with the interests of Moslems. His Majesty's Government, has, therefore, resolved to create a Judicial Council consisting of twenty members chosen from among the outstanding jurists and Ulema to look into matters referred to it by individual Moslems. It shall also serve as a potent instrument for the enlightenment of all the purposes of overcoming the obstacles standing in the way of sound progress.

5. His Majesty's Government is fully aware of its duty to work in earnest to spread the call of Islam, strengthen it, and protect it by word and by deed. It has adopted and will go on adopting all means necessary for the performance of this noble task.

8. The prime characteristic of this glorious Islamic nation is that it is the best nation ever known to promote good and shun evil. Shari'a had demonstrated the virtue of keeping to Islam's noble mission as well as the virtue of those who carry it out. Shari'a has made it incumbent upon them to direct others to the path of God gently and through good counsel, and to do their utmost to fill the hearts of people with love, goodness, and righteousness. His Majesty's Government has, therefore, resolved to reform the Committees for Public Morality in accordance with the Shari'a and Islam's lofty goals, for which they were originally created, and in such a way as to extirpate to the greatest extent evil motives from the hearts of people.
7. His Majesty's Government feels that one of its most important duties is to raise the nation's social level; the State has played an important part in this field. It has provided free medical treatment and medicines for its people, both within and outside the Kingdom, and it has done the same thing in the field of education, which is free of charge at all levels. Indeed, it has granted generous financial aid to students, helping them to afford the necessities of life, it has sent thousands of students to all parts of the world, at its own expense, to study all fields of knowledge. It has not only exempted many food items from customs duties, but has also granted huge subsidies to lower prices for consumers. Recently the Social Security Regulations were promulgated to make the State fully responsible for the support of the aged, the disabled, orphans, and women who have no means of support. Soon all the needy will have enough to save them from the shame of having to ask others and to enable them to live in dignity. When the State presents to the working class a law protecting them from unemployment, we shall have achieved the social level that is still a dream entertained by many civilized nations of the world, and have actually realized the ends of true social justice without the State's having to restrict the freedom of individuals or to rob them of their money and their rights, His Majesty's Government was not content merely to ensure sustenance of its people and to provide job opportunities, but it has also earnestly endeavoured to introduce important changes in the social structure and to make available innocent means of recreation for all citizens.

8. His Majesty's Government believes that the economic, commercial, and social development that has reigned in our society over the years is still, in many fields, in dire need of regulating, and therefore a large number of important regulations will be issued gradually whereby the State will, before long, have a complete body of laws that will make for progress and greater activity and attract capital. The State will also set up independent bodies to implement the various regulations issued. All the above shall be in keeping with Shari'a and with the best interests of the nation.

9. Financial revival and economic development are the Government's prime concern and, aside from maintaining the strong financial position enjoyed by the Kingdom in comparison with the various countries of the world, His Majesty's Government has adopted and will continue to adopt strong and important measures to lay down substantial programmes for reform that will continuously spur economic activity so that all individuals in this Kingdom will enjoy a high standard of living. One of the most important things to be brought into being shortly, God willing, will be an extensive road programme to link all parts and cities of the Kingdom. Tens of millions of riyals will be spent in the
study of water resources and on making water available for agricultural and drinking purposes and the Government will construct the dams necessary for the preservation of rain waters and the creation of pasture land. Heavy and light industries will be given effective help that will protect them and attract capital. With the help of God, Saudi Arabia will soon become an industrial country, agriculturally self-sufficient and, with various sources of revenue, thus being able to perform its duties towards its people. Aside from the amounts allocated in the State budget for the implementation of projects, His Majesty's Government has resolved to allocate all the additional amounts it will receive from Aramco in satisfaction of the rights it claims from that company for previous years to a special production budget whereby all such amounts shall be spent on development projects such as roads, dams, public utilities, etc. This will greatly help the Kingdom's economy and will hasten the completion of many development projects. The study of the creation of an industrial bank and an agricultural bank is now in its final stages and the General Petroleum and Mineral Agency will soon come into being. These three agencies, together with other Government and private agencies, will take part in the development of the country's resources and in the exploration for mineral and other wealth.

10. The attitude of the Shari'a towards slavery and its keen interest in liberating slaves is well known. It is also known that any slavery existing at present fails to fulfill many of the Shari'a conditions laid down by Islam to allow slavery. Ever since its foundation, Saudi Arabia has been faced with this problem of slaves and slavery and has striven by all gradual means to abolish slavery, first by prohibiting the importation of slaves and imposing penalties on the violation of this prohibition, and later by prohibiting the sale or purchase of slaves. The Government now finds a favourable opportunity to announce the abolition of slavery and the manumission of all slaves. The Government will compensate those who prove to be deserving of compensation.

These, in short, are the fundamental steps that His Majesty's Government proposes to implement. There are undoubtedly many other matters in which this Government is concerned and everything will be announced in due course. We pray God to keep our steps on the right path and to lead us to success in whatever may satisfy His will.*

* This summary of the Program is based on Gerald De Gaury's book Faisal, King of Saudi Arabia, (New York) Frederick A. Praeger, Publisher, 1967). pp. 147-151.
It is reported that the designers of Medina housing project (which is a joint venture consisting of Saudi consultants and Houston based designers and management firm 3D/International, 3D/I) used a computer-aided design system to provide master planning, infrastructure design and landscaping services. Beside the single-family homes for a total of 11,000 residents, the community will include schools, mosques, clinics, civic facilities and shopping centers. Since the Medina housing project is located within the holy city, where only Muslims can enter, Muslim contracting firms with Muslim workforce have an advantage in bidding for such projects. Thereby, joint-venturing with local subsidiaries, two Turkish construction firms had won the contract. These firms are Enka Construction and Industry and Kutlutas.
APPENDIX IV

A. Housing Achievements

Ten years ago, most of the urban and rural population lived in substandard housing. During the First and Second Plans significant and impressive progress has been made in increasing the number of modern housing units and in improving the overall quality of housing stock. Today, over half of the urban and rural population lives in well constructed buildings, many of which had the same amenities as found in other developed urban areas.

At the beginning of the Second Plan an acute shortage of housing had developed which led to a rapid increase in construction and rental costs. In response, during the five year period the rate of house construction averaged more than 40,000 units per year compared to 17,500 units per year during the First Plan. This resulted in the construction of over 200,000 new dwellings.

Public Sector

The public sector's contribution to housing construction has been significant. About 53,600 residential units were built during the second half of the 1970's. Among these units, 4,752 apartments have been constructed in three rush high-rise projects. The remaining housing units comprise apartments and villas and were built through the general public housing programs and through other Government agencies. The Third Development Plan indicates that in addition, studies and designs for housing projects in Burayda, Medina, Mecca and the Southwestern Province have been completed. Construction was planned for completion before 1402.

Less success has been achieved in the Ministry's program to provide serviced plots for the construction of houses for low and middle income families. None of the 44,300 plots envisaged for the Second Plan have actually been allocated.

Private Sector

Mainly in response to the funding program of the REDF, the private sector was responsible for adding 150,000 dwellings to the Kingdom's housing stock, exceeding the estimated Second Plan target of 122,000 (See Table 3 in section 3 of Chapter 5).

In addition to the increase of permanent housing to the stock, the need for temporary housing for additional manpower has also been met. Large contractors were required to house their employees, which forced them to import housing units. Camp housing suppliers brought in more than 51,000 units which were estimated to be the quantity required to meet the need.
Despite the overall housing surplus, there is still a significant proportion of Saudi households living in unsuitable accommodation. Unless attention is directed toward those households which are unable to afford the market cost of houses, residential development is unlikely to continue with its impressive rate of construction in the near future.

B. Residential Credit

Since making its first loan in mid-1975, the REDF has disbursed about SR 30 billion in more than 150,000 loans for the construction of new personal residential property. These loans are made to married citizens 18 years and older or unmarried citizens of 21 years of age or older, regardless of social status, place of residence, or the need for a residence. The Fund has also disbursed SR 1.5 billion in approximately 7,500 loans to individuals and real estate companies to construct at least another 15,000 residential buildings for rent. These investment loans are made for about half the estimated cost of construction for a new residential building. They account for about 9% of the total number of units constructed using REDF financing. The investment loans generally finance the construction of multi-family buildings of 3-15 units and deliberately encourage small-scale landlords to provide rental units for both Saudi and expatriate households. Investment loans are only reviewed and approved by one of the seven REDF officers in the Kingdom. Table 4 summarizes REDF lending since 1395 A.H. (1975).

Table 4

<table>
<thead>
<tr>
<th>Type of Loan</th>
<th>1975/76</th>
<th>76/77</th>
<th>77/78</th>
<th>78/79</th>
<th>79/80</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Residential</td>
<td>2,159</td>
<td>8,749</td>
<td>7,198</td>
<td>5,264</td>
<td>6,757</td>
<td>30,127</td>
</tr>
<tr>
<td>Residential Investment</td>
<td>-</td>
<td>152</td>
<td>336</td>
<td>460</td>
<td>576</td>
<td>1,524</td>
</tr>
<tr>
<td>Total</td>
<td>2,159</td>
<td>8,901</td>
<td>7,534</td>
<td>5,724</td>
<td>7,333</td>
<td>31,651</td>
</tr>
</tbody>
</table>

These loans were a principal factor contributing to the success of the private sector exceeding their Second Plan target of 122,100 new dwelling units.

In the first three years of operation, the REDF allowed the branches to the two commercial banks to receive applications and disperse loans for personal residential construction before referring the documents to the REDF. Cooperating professional staff and contract employees on a part-time basis are also used to perform technical reviews
and special administrative functions. In so doing REDF has been able to cut the time between applications and disbursement to an average of about 3 months.

In 1978, the REDF developed four lending levels for personal residential loans, varying between SR 100,000 and SR 300,000. It developed a loan and technical review process to assess work progress and the existence of sensible house plans prior to loan disbursement. Its also began reimbursing assisting banks for placing and servicing loans and repayments. Recently it introduced an inducement program for personal loans repayments whereby borrowers making payment on time receive 20% discount, with an additional 10% discount if payment is made in one lump sum. This replaced all prior repayment subsidies.

Objectives and Policies

Objectives. Five major objectives will guide urvab and rural development during the Third Plan:

(1) To promote better health, welfare, and general improvement of the living conditions of Saudi citizens in urban and rural areas through the provision of basic infrastructure, municipal services, and housing;

(2) To develop commercial, industrial and residential potential of those cities and towns designated as being of national, regional, or district importance;

(3) To ensure that all Sausi households have access to adequate residential accommodation at reasonable costs;

(4) To continue the promotion of private sector residential development through the provision of low cost loans to Saudi individuals and real estate companies;

(5) To consolidate the organizational and administrative structure of the municipal and rural services sector;

Policies. In accordance with the above objectives the following policies will be implemented:

(1) Operate and maintain existing and planned municipal systems effectively so that citizens receive services in a timely and economical manner;

(2) Invest in and provide residential credit only for projects in centers with productive capacity, and only within the planned infrastructure network of those centers;

(3) Develop and execute a structured strategy for municipal capital investment which will foster greater coordination of investment in each city. For the
purpose of the Third Plan, this policy defines priority projects as the provision of drinkable water, adequate sewerage systems, storm drainage, and roads;

(4) Focus residential policy on eliminating the constraints on housing encountered by low income population;

(5) Continue the decentralization program by establishing more municipal administrative units;

(6) Continue to send officials for training, making use of the facilities of the Institute for Public Administration to train Saudi nationals in municipal and residential administration;

(7) Transfer water distribution systems presently operated and maintained by the Ministry of Agriculture and Water to MOMRA in the cities, towns, and villages where MOMRA* has administrative designations;

(8) Enforce the building code regulations when promulgated for private buildings in cities, towns and villages;

(9) Study the possibility for developing revenues from user costs in respect to municipal and rural services;

(10) Assure that those cities, towns, and villages which have problems due to their topography or other reasons will get the proper storm drainage systems to protect lives and property.

* The Ministry of Municipal and Rural Affairs.

This information based on the Third Five-Year Development Plan.
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