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AN ANALYSIS OF THE EFFECTS OF MODERN PILGRIMAGE ON THE URBAN GEOGRAPHY OF MEDINA

A THESIS SUBMITTED FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

BY

MOHAMMAD S.I. MECCI

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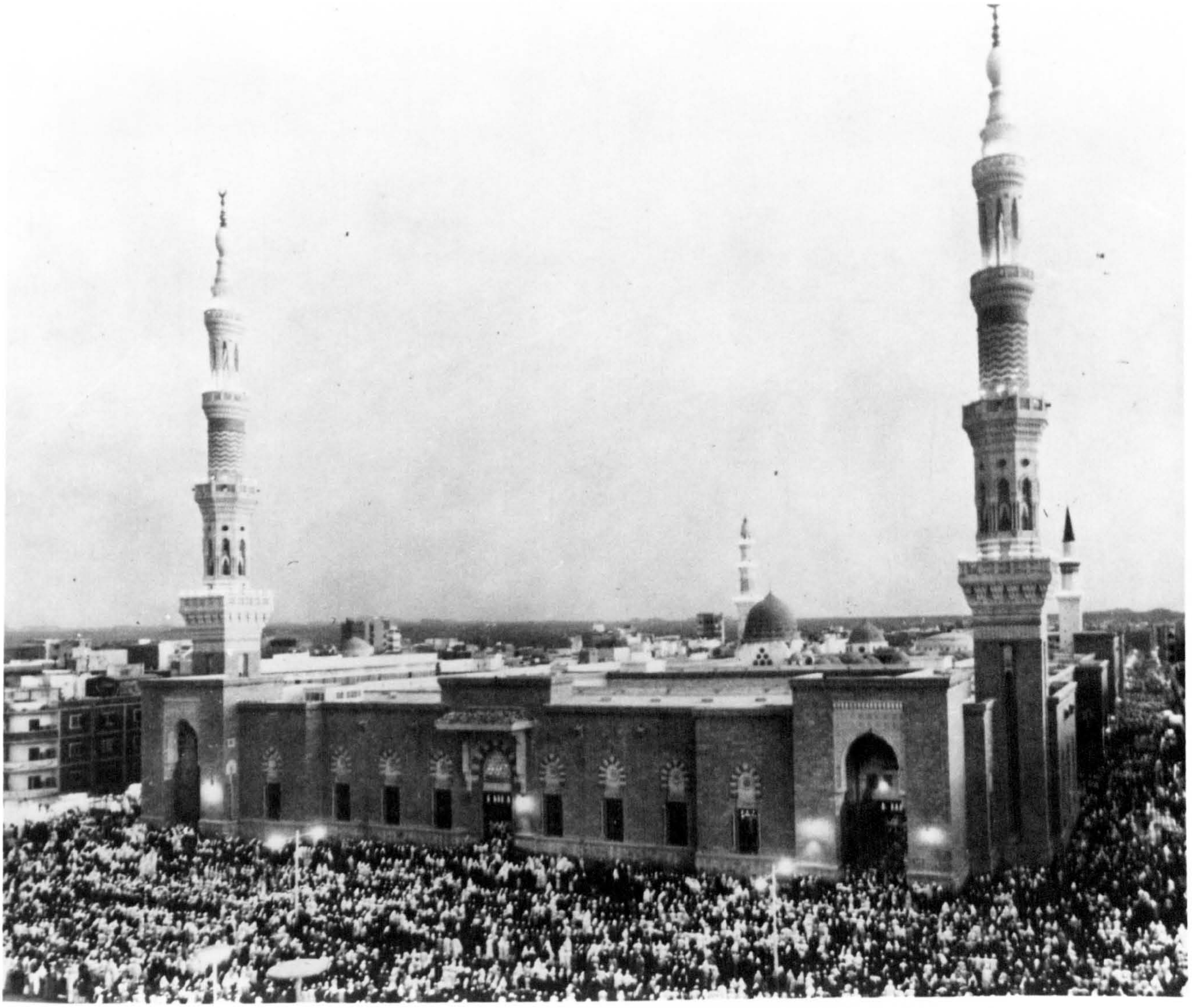
PRESENTED TO THE DEPARTMENT OF
GEOGRAPHY, UNIVERSITY OF DURHAM, U.K.

October, 1979

بســـــــم الله الرحمـــــــــن الرحيـــــــــم

" Hajj thereto is a duty men owe to God,- those who can afford the journey "
(The Korán : Surat Al-i-Imran,97).



This work is dedicated to Medina, in gratitude to tje city in which the author was born and brought up, in the hope of returning the privilege by humbly participating in its welfare.

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Abstract

This thesis examines the effect of the Muslim pilgrimage on the city of Medina in the Western Region of Saudi Arabia. Being the second most important city in the Islamic World the visit to Medina is undertaken by the vast majority of pilgrims who visit Mecca. It is this important religious function, together with Medina's centrality in the local settlement hierarchy that accounts for its rapid population growth in recent decades, and the number of pilgrims continues to increase. The religious and regional functions of Medina are manifested in the physical structure of the city, as well as in its social, economic and cultural characteristics. In particular, housing, the provision of services such as water and electricity, and intra-city transport prove to be major problems. Patterns of consumption, marketing and pricing are all affected by seasonal fluctuations created by the massive influx of visitors. It is shown that some 66% of Medina's annual income is derived, in some way, from the pilgrimage, far higher than expected. Some suggestions are introduced in the conclusion of this work for a more rational approach to urban planning in Medina, and pilgrimage management.

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PART ONE

GENERAL INTRODUCTION

CHAPTER ONE

INTRODUCTION

1.1 Aims and Scope of Study.

The prime aim of this study is to undertake a geographical analysis of the relationship between the Muslim pilgrimage*, as a cultural environmental factor, and the urban geography of Medina. It is hoped to bridge the gap in the literature towards understanding this relationship and its consequences. In spite of the importance of pilgrimage, geographers, economists, and planners appear to have neglected the role that pilgrimage can play as an incentive for regional and local development. Although there have been many studies concerned with certain aspects of pilgrimage (Chapter 2), no study has yet attempted to examine its local spatial impact, or the importance of incomes accrueing to local people serving the pilgrims. Furthermore, no major study has yet examined the pilgrimage in Medina as a geographical/social phenomenon, as opposed to an approach from merely a religious viewpoint.

Such a study is becoming an urgent necessity if the pilgrims are to be accommodated and served without inconvenience and danger to the safety and health of residents and pilgrims alike. Hardship and danger stem from shortages created within Medina as a result of the existence of the floating population during the pilgrimage season. Hence, a huge increase in demand for goods, services and space occurs, while the pilgrimage is in many ways detrimental to Medina's physical environment. The evaluation of these problems has been an interesting aspect of this study.

The specific objectives of this research can be defined as follows:

a) To establish the nature and extent of the physical impact of the increasing number of pilgrims visiting Medina, with special reference to the period between 1950 and 1976, during which the area has witnessed great changes in pilgrim traffic and structure. Some reference is made to events outside the period to provide a better understanding of certain phenomena (Chapters 3, 4, 5 and 6).

b) To attempt a cost/benefit survey of the pilgrimage on the Medina Region. The pilgrimage of 1976 is taken as a case study (Chapters 7 and 8).

c) To examine the effect of the pilgrimage on the social process in assimilating non-local traditions, skills and population composition (Chapter 9).

---

* Referred to synonymously as "Hajj".

d) To examine the assumed pilgrimage revenue as on other sources and to outline possible strategies for developing facilities for pilgrims and benefits to the locals (Chapter 10).

It is hoped that by dealing with these issues throughout the thesis, a contribution will be made to the scant quantitative knowledge of the benefits of the pilgrimage and lead eventually to improvements in this sector. This may provide a basis for future studies, leading to more rational strategies for balanced urban expansion and population growth, especially in the Western Hijaz Region of Saudi Arabia.

The urbanisation process in Saudi Arabia is the cumulative result of several basic trends. Rural-urban migration occurs due to the weakening of the traditional way of life and the desire for regular and better paid employment, which the city appears to offer. An important factor is also the high natural increase of population, both in rural and urban areas. The important question is whether this urbanisation process will focus on a few primate cities or whether a more dispersed pattern of urban centres will emerge. As the first trend is the base of the country's urbanisation, it is appropriate to question whether the size and regenerative capacity of the physical and cultural environments are sufficiently responsive to allow sustained economic growth and population expansion in urban settlements. One may argue that cities may grow and still be supplied from their hinterlands due to improvements in transport. This idea seems more applicable to industrial cities which can reinvest the profits generated by their export trade in manufactured goods. These profits can cover transport to both near-by and distant areas, as well as creating better local services. The situation in a so-called "pre-industrial city" such as Medina differs substantially as agricultural land is in very short supply and continual expansion of the urban area threatens this valuable resource. Thus the city's expansion into a surrounding area must be carefully planned on sound economic criteria especially in an arid environment.

Medina represents an abnormal city; although it is not an industrial city, the pilgrimage has encouraged the growth of its population, and thus its urban area developed independently from that of the immediate surrounding areas. Yet the volume and speed with which the built-up area grows and the changes in physical structure in the last 25 years or so is alarming, since it creates a host of city planning, management and socio-economic problems, the most obvious being housing the urban poor. This growth reflects the general trend in Saudi Arabia of urban population increasing faster than the total population in recent years. Saudi Arabia's population increased by

about 112% between 1962 and 1974, while the urban population in cities over 100,000, increased by about 178% in the same period [63: p.22; 152: p.227]. These figures may become more meaningful if compared with the world trend. For example, world population increased by only 17% between 1950 and 1960, whereas the urban population of cities over 100,000 increased by about 64% over the same period [96; p.5]. It has become necessary to control the speed of Medina's growth to ensure a sound economic base and prospects of employment, but without damaging the inherited historic structures of the city.

The present lack of such a rational approach to growth may be attributed to two factors:

a) The economic factor, resulting from the increase in oil production and prices since the late 1930's, which provided the country with a vastly increased income. The per capita national product increased from an average of SR 455 - 900 in 1957 to about SR 5,290 in 1970/71 [406: p.9]. This large fiscal growth induced a major increase in individual incomes from the expanding service sector, which in turn increased purchasing power and reduced dependence on pilgrimage and agricultural products. The high purchasing power encouraged the import of many necessary and luxury goods from abroad, thus the public sector was an attractive source of employment to many people, at least until the mid 1970's.

b) The planning factor. Government development policy lacks the idea of corporate planning in terms of resources and their management. The official intention is to reduce the government income from individual pilgrims. Thus development programmes connected with pilgrimage are financed by the oil sector and not by the pilgrimage sector. The abundance of financial resources from oil may sometimes lead to irrational redevelopment programmes, resulting in the loss of many historical sites which could have been a valuable source of income from visiting pilgrims in future. Government development projects are concentrated on major urban centres connected with the pilgrimage, while other needy small towns such as Al-Wàjh and Al-Leith are neglected, although these once benefited from pilgrimage. This trend will doubtless continue unless rational and guided development plans are set up to diminish the gap between major urban centres and the rest of the country, especially rural areas.

The above facts indicate both the urgency and complexity of investigations into the urban geography in Saudi Arabia. A rigorous approach is essential to meet the demands of people living in urban centres in a coherent way, and to

provide insights into future trends in the components of these demands. Despite the importance of such urban studies, few have been carried out to date in Saudi Arabia. M. Abul Ela (1965), S. Malik (1973) and A. Ash-Sharif (1976) have carried out geographical studies on Riyadh. A. Daghistani conducted a regional study of At-Taif Region in 1976. In 1976, I. El-Elawi and Al-Shuaiby carried out studies of certain Eastern Province settlements. This Region was also studied by S. Shiber in 1968 but from a planner's and architect's perspective. The literature on urban planning appears mostly in inaccessible technical reports and government publications (see section 1.4 for examples), often too specific for comparative purposes or generalisation. The relationship between urbanisation and economic development was vaguely expressed only in national industrial, or agricultural programmes. However, work other than these reports, either approached urban studies in a regional context, emphasising factors such as topography, climate and geology, which comprise a large proportion of the study (as in Abul Ela, Ash-Sharif and Daghistani), or they concentrate on only one sphere of interest in the city, such as migration (as in Malik's thesis), or on planning (as in Shiber's "Recent Arab City Growth").

Little emphasis has been placed on theoretical models of urban structure, patterns of migration, urban economic processes, or on city hinterlands. In addition most general publications on Saudi Arabia emphasise the recent oil wealth and rapid change in economy and society. This aspect is, of course, inescapable in any consideration of Medina, but they emphasis its peculiarities while omitting many points of at least equal significance. Rapid changes in economic life may be becoming less peculiar as a world phenomenon. Thus it may prove of greater value to have more systematic in-depth studies of the urban structure to emphasise other outstanding features, which in the case of Medina is the pilgrimage. Other aspects which might provide a key to continuity of growth such as agriculture in the surrounding areas also deserve more attention. Nevertheless, these studies represent the beginning of an understanding of some of the complex forces which shape the city, and indicate the need for more analysis of the processes and patterns of contemporary urbanisation.

The modern trend in urban geography was defined by H. Carter as involving "All processes of economic, social and political themes in relation to one phenomenon, the city" [58: p.1]. W. Davis can be considered as representative of the recent ideas of urban geographers; he suggested three interconnected components for an analysis in urban geography. These are the elements which make up the urban complex such as morphology, functions and population

and the interaction of the elements, such as movement of population and physical changes in the city. This interaction would result in the third component, which is the system of urbanism, whose processes need to be interpreted by urban geographers [58: pp. 20 - 21]. Therefore, the themes of both H. Carter and W. Davis are concerned with the broad geographical features of a city rather than one section of it. This will be the approach adopted in this thesis since it is necessary to provide a many faceted appraisal of the pilgrimage using geographical perspectives.

This study, therefore, seeks to integrate the morphological, functional and social forms of Medina by showing the mutual relationship between the structure of the city and its functions, and the related population composition and distribution. In identifying these relationships, this study emphasises the importance of characteristics neglected in most former studies which deal with the execution of the development plans rather than the problems arising from their implementation. It is intended, therefore, to explore whether the contemporary urban problems in Medina are the result of the spatial variation in the nature of places, of human behaviour, or both.

It has long been customary in many cities to interpret urban land use pattern and their relevance to the physical fabric, especially that of the city centre, in terms of market forces. In broad terms these forces relate city development to economic and demographic trends, both nationally and within the city's regional sphere. However, the Medina case may prove otherwise. Although the application of economic theory is of fundamental importance in terms of quantities and types of goods and services which its hinterland is able and willing to purchase, thus stimulating urban land use change and development, changes in the urban form of Medina reflect a series of factors, some of which are independent of the market forces. This study indicates that the religious factor is the most dominant force influencing the morphological form of Medina. The analysis of this form as affected by the pilgrimage is easier to appraise than the other economic and social elements.

In the absence of workable geographical theory to appraise the economic effect of pilgrims, it is helpful to refer to other fields with similar problems. The similarity between the case of pilgrims, who are drawn to the pilgrimage region by its spiritual significance, and that of the recreationists, who are attracted to a resort by its recreational amenities is obvious. Attraction, on both sides is the same as far as empirical measurement is concerned; both are influenced by factors such as income and cost. Archer and Owen's "Towards A Tourist Regional Multiplier", (1971) perhaps ranks as the

major comprehensive effort to create a general typology of benefits from tourist movements. Their analysis proposes several major points of relevance to this thesis.

a) The study of income and cost should be concerned not only with national level but also with individual regions within a state where there is expected to be more leakage from the regional economy. Although one agrees with the first point one is not sure about the second as it depends on the available resources of each region and official policy in exploiting them; notably whether or not to allow foreign investment.

b) The wider a region's economic base, the fewer are the leakages and consequently the higher will be the multiplier. Otherwise, income will leak away to the rest of the country or abroad to pay for goods manufactured outside the region, and as profits, interest and rent to property owners living in other areas.

c) It is assumed that the effect of tourist spending on the national economy generates income of several times the original amount. This may apply to an industrial society where many goods are produced within the country, but this is not so in Saudi Arabia, where expenditure on pilgrimage projects is greater than the income derived from it (Chapter 10).

d) Goods and services with a high wage and net profit content add more to the regional economy than those with a higher leakage element. This has proved true in the case of the pilgrimage for local food production and some services such as accommodation.

e) The regional benefit accrueing from different categories of tourists will also vary, because of their different expenditure pattern. This again is true in the case of pilgrimage in Medina, where money spent on private accommodation had a more immediate and direct impact than pilgrimage spending in hotels.

The author's case study of Medina embraces all the above points and furthermore includes other variables to define the pattern of pilgrim spending in Medina; variables such as the income of pilgrims and its relationship with time and mode of travel to Medina, i.e. visiting Medina before or after visiting Mecca and travelling by planes, buses or cars (Chapters 2 and 8).

In addition to the economic implication of pilgrimage, the mobility of people is a phenomenon which has existed since the dawn of history, and is motivated by a variety of incentives, political, economic and religious. It

has attracted the attention of many geographers, dealing with movements associated with nomads, refugees and labourers. The pilgrimage is one of the most important, sometimes permanent and often temporary, movement of people, which is often motivated by non-economic factors. B. Lewis noted in the Encyclopaedia of Islam that Hajj was the most important agency of voluntary, personal mobility before the age of the great European discoveries [144: p.38].

The actual mechanics or consequences of migration on the city are the focus of only a few studies in the Middle East. However, the most extensive work in that field is that carried out between 1961 and 1976 by Professor J. Abu-Lughod in 12 research works on Cairo, Tunisia and Morocco. Her article "Varieties of Urban experience" (1969) incorporates her themes over a 16 year period. The major facts which she considered and which are relevant to this work are:

a) Permanent migrants, which are important to a city's population growth, often increase faster than the natural increase in the supporting rural base.

b) Migration helps to infuse the city afresh with rural traditions.

c) To understand the varying consequences of migration, one should closely examine its magnitude, characteristics and systems of absorption such as type of occupation in the city.

d) Occupational composition of a population may denote facts broader than their economic role in a country, and can be used as an index to a way of life. It serves to condition workers, not only by their experience and contacts, but by their remunerations, which create even greater differences in the lifestyles of the people. This means that some jobs will always be associated with low wages despite time honoured experience.

e) With the gaining of the country's independence, the role of foreigners in the economy became less significant. Immigration also decreases at times of epidemics of diseases and violence.

f) There is a change in the pattern of immigration, and in recent years it has become more of a nuclear family unit. Thus any study of migrants' adjustment to city life must be revised in the light of this shift.

g) Differences in origin and social background of migrants are reflected in specific sections of the city.

h) Migrants from rural areas live mainly on the periphery of the built-up area of the city. Here the commercial use is minimal which testifies to the low purchasing power of residents on marginal areas of the city.

i) Finally, kinship is said to bridge any divisive social grouping, linking classes within the city with the rural population in the countryside. This traditional cohesion is now being supplemented by easy communication and national government.

The foregoing points indicate the range of factors important to any study of city dwellers, and will be used as an outline base for this work; J. Abu-Lughod argued that her themes have a wide application throughout the Middle East [2: p.182]. The examination of Medina's migration implications supports Abu-Lughod's themes in overall terms, but some qualification is necessary. Migration proved to be an important element in Medina's population growth and migrants have affected its structure physically and socially by stereotyping buildings and lifestyle for their areas of origin. The number, characteristics, origin and occupational change of migrants to Medina was analysed to obtain a better understanding of their effects on Medina. Occupation and level of income were used in this work as indications of educational level (Chapter 8) and demands for certain services (Chapter 6). Abu-Lughod emphasised the minimum effect of foreigners in the economy of her area studies in recent years. This leads to the important factor in the case of Medina, that is to emphasise the role of the religious function which deserves greater consideration than Abu-Lughod is evidently willing to give it. Medina's religious significance continuously attracted foreigners to reside in the city and to overcome class and cultural barriers. Also due to the influx, for economic reasons, of migrants from foreign countries such as Pakistan and Afghanistan, the dominant pattern of immigrants is still one of single people and not of family units as in Cairo for example, where most migrants come from the countryside. It is noticed that migrants occupied areas within Medina and on its peripheries, and again sometimes due to religious influences (the expansion of Al-Haram*) they were displaced to different areas. The absence of commercial use in the periphery is due mainly to the magnetic importance of the central area close to Al-Haram, and although of people of middle and high income groups (with good purchasing

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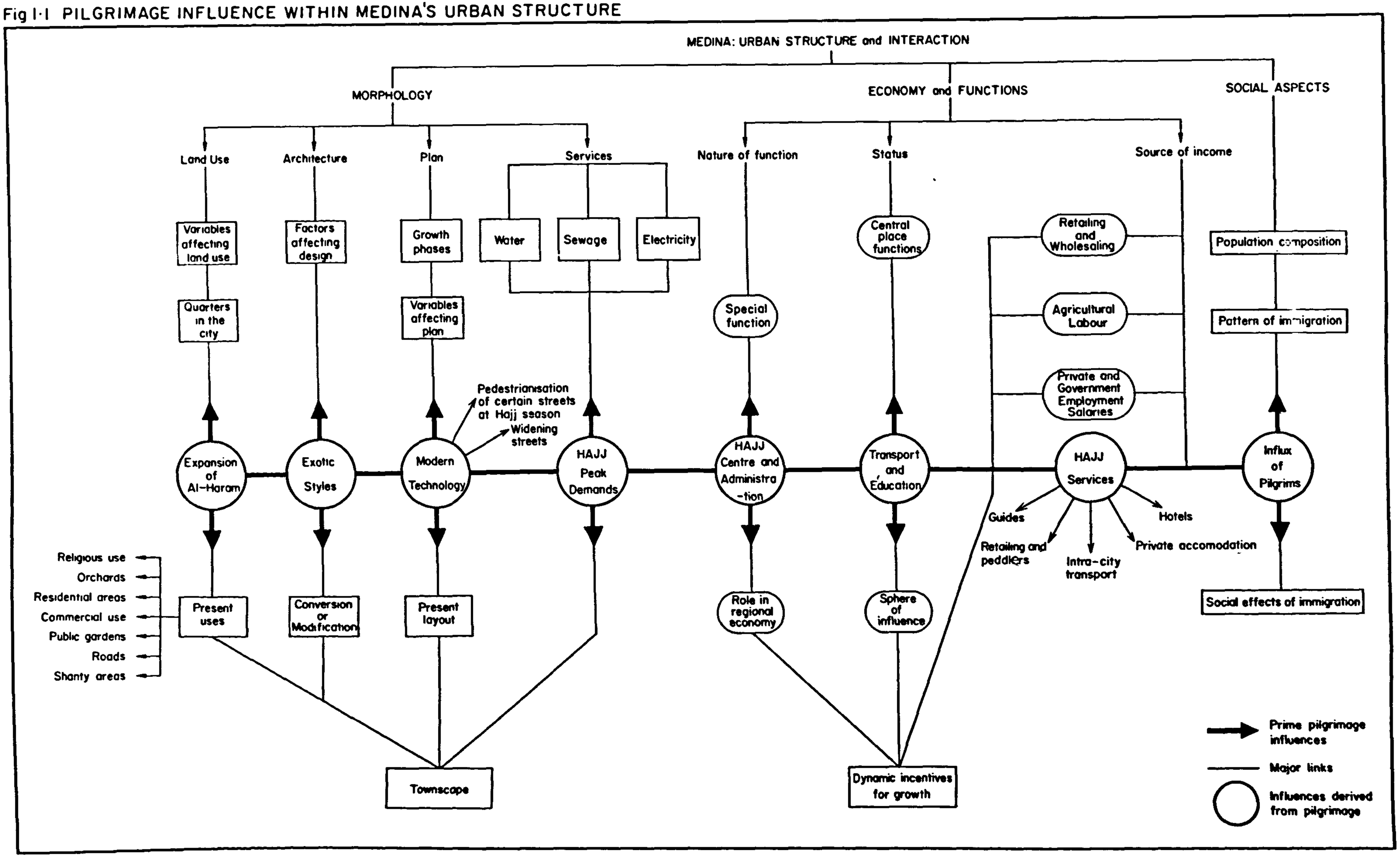
* Only in Medina and Mecca and sometimes in Jerusalem, are the main mosques called Al-Haram; in other cities throughout the Muslim World they are simply called the great mosque. Al-Haram means "Sanctuary and interdicted area" and denotes great sacredness to Muslims. Thus throughout this study Medina's mosque will be identified by the Arabic word "Al-Haram". Al-Haram literally means "the Haram", and when such an Arabic definite article, as well as As At and Ash are used to precede an Arabic word in this thesis, the English version will not be used to prevent repetition in meaning.

Fig 1·1 PILGRIMAGE INFLUENCE WITHIN MEDINA'S URBAN STRUCTURE



power) live on Medina's peripheries (see Chapters 4 and 9).

Finally some comments on Figure 1.1 must be mentioned, showing the relationship between the various physical, economical and social variables of the study. The study reveals the challenge presented by the influx of pilgrims. The ready availability of capital and modern technology such as modern transport and construction methods enabled the general structure of the city to respond rapidly to this influx. Such changes are apparent in the different elements of Figure 1.1. For example, because of the pilgrimage, the morphology of the city has been changed; streets have been widened, more roads have been built, streets originally planned for motor traffic pedestrianised at Hajj time, and Al-Haram, has been enlarged several times. This has changed the extent of the different land uses and the general plan of the city, which in turn affects the extent of services to the new areas on the city periphery in addition to peak demand occurring at the Hajj season. The economic base also has some special elements, for example, the activation during the Hajj season of certain services of economic benefit to both local and non-local people. The centrality of Medina in the hierarchy of settlements in the region brought it many benefits, such as improving transport around Medina which brought agricultural and livestock products to be exchanged and delivered to other regions of Saudi Arabia. The religious importance of Medina also led to the establishment of the Islamic University, which attracted scholars from within Saudi Arabia and abroad, in addition to its popularity as a centre for high schools and institutions, not found elsewhere in the Medina Province until recently.

Figure 1.1 has been simplified to emphasise the importance of the pilgrimage in Medina's urban structure. In reality relationships are obviously far more complex. For example, the influx of pilgrims has both direct and indirect effects. The direct effect is on population composition and housing style and the indirect one is that created by the expansion of Al-Haram area resulting in change to the land use pattern, causing the relocation of commercial use. This latter stage has encouraged many people to convert their houses to commercial use and led to changes in style or complete clearance.

1.2 The Pilgrimage and its Place in the Geography of Religion.

Another important scope for studying the pilgrimage is related closely to the geography of religion, which is still only at a rudimentary stage and therefore justifies the inclusion of some comments devoted to the subject. A few studies have attempted to clarify the distribution of religions and formulate systematic ideas concerning the impact of religion, on the cultural

landscape and the degree to which religion impinges on human behaviour. In the latter two aspects the effect of pilgrimage was rarely examined. There is a rich field for geographical research to examine these effects. This can be suggested if one looks at the significance of the environment for the evolution of pilgrimage; the way its institutions modify the environment; the way it spreads and interacts with other religions; and the regional circulation associated with visits to other holy shrines. These themes will not be followed very closely in this study.

However, it can be said that the geography of religion is mainly connected with the general effect of religion on the cultural landscape [333: p.1]. In an authoritative study by E. Issac it is possible to trace the development of the geography of religion [69: pp. 1 - 14]. Issac suggests that from time immemorial geography began with religious geography, the framework of which was more important in the orient than the Christian World in the formation of the landscape. This can be seen in the work of Arab geographers in the 8th - 14th Centuries A.D., who produced vast amounts of literature on pilgrim roads, describing localities and general geography. Although the knowledge of some holy places grew, geography in the modern sense was unknown. Researchers, until the 19th Century, looked for geographic determinants in a religious context [333: p.12], where many of them were either part of or motivated by specific religious institutions or organisations.

Whilst studies have been carried out in the west on religious subjects, these could not be classified as part of the geography of religion, but rather as ecclesiastical or biblical geography. Even in the 19th Century there emerged Atlases and ethnic maps relevant to the distribution* of certain rites and myths reflecting religion, but the geographical context was not the focus of the study, and most studies hardly went beyond a more or less detailed description, seldom giving an explanation of geographical effects.

Studies dealing with religion as a geographic factor influencing the cultural landscape, have only emerged in the last few decades. Some cultural geographers involved with such studies are G. Le Bras, X.de Planhol and G. Cholvy in France; P. Fickeler and H. Hahn in Germany; W. Zelinsky and D. Sopher in the United States; E. Huntington and J. Gay in England.

G. Le Bras was interested in religious studies since the 1930's, but his work, which contributed to the geography of religion, can be considered as beginning in 1945 when he tried to assess the vitality of areas, depending on

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* For example, G. Gerland included on his maps in the Berghaus Atlas of 1848, distributions of religions, symbols of the form of plants and animals and the location of places of spiritual enlightment in the world.

church attendance statistics. He collaborated with F. Boulard in 1952 to produce a map of France dividing it into regions of different levels of religious practice. In 1957,X. dePlanhol produced a rigorous study on the effect of religion on the land it has controlled, and the modes of life which it has dominated. There is a great understanding of the link between pilgrimage and the economic relations of the people. In 1968,G. Cholvy followed Le Bras and Boulard in analysing about 100,000 questionnaires of those attending Catholic churches in regions of Southern France. The proportion varied according to age, sex, marital status, occupation and region; the low level of religious practice was attributed to economic and social factors. The advance of urbanisation has affected the religious withdrawal in the private sphere.

In 1957, P. Fickeler systematically summarised the basic phenomena common to Asiatic religions with a general comparison. His work covered aspects such as holy feasts, symbolism, religion's effect on venerating certain directions and positions, the symbolic meaning of certain numbers, time and motion, and venerating certain plants and animals. In 1958, H. Hahn investigated the relationship between denominations or religious sects and social structure and the attitude of different sects towards economic life and the effect of such attitudes on the formation of landscape.

In 1961, W. Zelinsky divided the U.S.A. into religious regions depending on church members' denominations. He extensively used the 1952 American census of churches and church membership. "The Geography of Religion" by D. Sopher in 1967 illustrated the main dimensions dealt with in the geography of religion, such as the religious organisation of space and distribution of world religions.

In 1951, E. Huntington, a geographer, analysed the effect of the environment on religion; a subject probably of greater interest to theologians. He argued that types of worship, such as rites celebrating the Rain God in India and the Nile God in Egypt, are defined by geographical factors. He also suggested the effect of climate on the flourishing of religion as a high ethical and spiritual standard exists in regions with high climatic energy and vice versa; suggesting areas in the north of the hemisphere as the proper ones for Christianity. He argued that the desert regions have been the determinant factor in shaping the monotheism of Juddaism, Christianity and Islam. In 1971, J. Gay reviewed sources of religious data in England and gave reasons for their deficiency. He analysed the spatial distribution of particular religious groups in terms of social and economic factors as well as of peculiar historical circumstances and their relationship with population

density. The relative absence of previous studies of this type is explained in terms of fragmentation, paucity and unreliability of the available data. In this book, the census of church attendance of 1951 was used extensively; he also forecast the future of non-Christian religions in England. Among 59 good maps appended to his book, there are many distribution maps of the different sects and church followers in England.

It is clear from the literature reviewed above that most writers on the geography of religion concentrated on the distribution of religious sects within the Christian religion and on attendances at different churches. Some followed clear concepts such as the effect of religion on environment, for example, the German geographers H. Hahn and P. Fickeler, or the effect of environment on religion such as E. Huntington. Yet, there is a distinct lack of comparative studies between denominations in different regions. This could have been attempted by converting district measures of memberships or attendance into 'location quotients', which might lead to geographical grouping of features of more than one area of denomination. It can be said that from the late 1960's until the present time, the approach of the American geographers ranks as a central focus for students seeking theoretical inspiration.

However, this kind of study seems to be absent in the Muslim World. Apart from the work of A. Gabriel on the geography of religion of Persia, this field seems to have been ignored. A. Gabriel investigated the effect of religion on the way of life, customs and tradition in Iran and their manifestation in the cultural landscape. He was concerned not only with sacred buildings but also with use of land and form of settlements. He gave accounts of the ancient Persian and pre-Islamic religions, the number of followers, their rituals and their cultural sites. Special attention was focused on the Shi'ea as a special form of religion in Iran. The work includes a summary on the minorities which may be identified in the form of other religions in Iran today.

The scarcity of such studies in the Islamic World and especially in Saudi Arabia, may be due to religion being considered as a one coherent system, while in the Christian World or in India, religion is a grouping of several historically related but relatively independent sub-systems. For example, the Protestants and the Catholics have their separate institutions. The division of Islam into Shi'ea and Orthodox communities is of a different order and has not resulted in the separation of the Islamic community into two or more self-sufficient parts in their tradition and institutions. Although sometimes exceptional cases are found in many religions, where some sects are

strongly idiosyncratic, such as the Druze in Islam and Mormans in Christianity; these are not fully accepted by the mother religion. This does not imply that the geography of religion is not applicable to an Islamic country where a wide range of relevant facets exist, as suggested earlier in this section.

It is hoped that this study will make some contribution to the examination of Islam's effect on landscape. The value of the research in the geography of religion may be clarified in the sections concerned with the comparison of the importance of the Hajj to Muslims with other pilgrimage adherents, the capacity of Al-Haram and how it grew to hold people and the circle of visiting holy places in Medina. The small number of these places (Chapter 2) in a city which annually surges with huge numbers of pilgrims, and the simplicity of their structure, may indicate that among simple religions where the relationship between God and man is direct, sacred structures are by no means elaborate. There is no Islamic equivalent to the Christian Parish Church, even in rural areas. The allocation of space for religious purposes such as Al-Haram and the cemetery, may be a useful topic for further study in the geography of religion of the Islamic city. However, the content of this study does not cover many aspects of the geography of religion, but it is hoped to focus the attention on the need for further research.

1.3 The Thesis Structure.

Part one of this thesis provides a general introduction to the subject. The main body of the work starts in Part two where Chapter three examines the general aspects of urbanisation in Saudi Arabia in which an attempt has been made to find out how Medina compares with other Saudi and Middle Eastern cities in hierarchical organisation, function and status in the urban system. General factors influencing the change of urban structure such as national oil wealth and haphazard decision making have been identified. Chapter four pays closer attention to Medina and investigates the importance of the religious function and particularly the important influence of the pilgrimage on its physical structure. The impact of the pilgrimage on land use change is analysed, and the extent to which traditional patterns of retailing survive in the contemporary structure is also discussed. Emphasis is placed on discovering the role of government projects and planning regulations in Medina, and an attempt is made to bring out other reasons behind contemporary land use patterns. Chapter five examines the effect of the pilgrimage in the Medina Region and on development of traffic and settlements leading to Medina city. The effects of the seasonal influx of pilgrims on water resources are studied in Chapter six.

Part three deals with the nature of capital formation through activities such as trade, agriculture and pilgrim services. In Chapters seven and eight, commercial expansion is discussed due to the increasing number of pilgrims, the historic and religious importance of Medina which attracted economic activity to Medina rather than in any other part of the province, thus enlarging the city's trading hinterland. The influence of the pilgrimage on seasonal fluctuation for goods and services and opportunities for work is explored. Consideration is given to methods of more efficient marketing, meeting demands during periods of excess demand and use of facilities in seasons of less demand. The social implications of the pilgrimage are also dealt with in Part three, especially in Chapter nine which considers aspects such as migration and its effects on population composition and characteristics.

Part four draws together the overall processes discussed in the previous research noting in particular the immense economic impact of the pilgrimage on the private sector in Medina and the grave problems created for town planning and management, mainly resulting from migration, influx of pilgrims and uncoordinated development schemes. Certain recommendations are made for improvement which it is hoped may contribute to the debate regarding the importance of Hajj to the area. The recommended solutions to some of the problems give the work a practical side which may be of value to the area and its people.

1.4 Data Sources and Problems.

Geographical resources of Saudi Arabia and its cities are very scant and Medina is no exception, especially in Arabic literature. Some useful geographical material on Medina can be found in a few lines or paragraphs in historical books and travellers notes. Other specialised sources are useful but proved to be problematic due to limitations imposed by inadequate or incomparable data, and the considerations of confidentiality. The main sources of material can be summarised as follows:

a) Environmental data. The most recent and sufficiently detailed physical information on Medina can be found in the reports of the Ministry of Petroleum and Mineral Resources which concern the geological structure of Saudi Arabia. [156; 157]. Climatological data can be found in reports of Record Stations of the Ministries of Defence and Agriculture [123; 154]. The physical geography of Medina was studied in an M.A. thesis in 1975 [422: pp. 3-21] and thus it will not be repeated in this study and will only be quoted when necessary.

b) Population data. The country has not yet published a national census and there are no official organised records of the essential data. For example, birth statistics have only been recorded in Medina since 1965, and there are no

records of marriages or divorces. A population census was carried out in 1962 but the government cancelled its results, however it is permissable to use the statistics and they are better than nothing. Another census was carried out in 1974 but its detailed results were not released before the completion of this work. Some data has been issued from some governmental ministries or administrations in reports of their yearly activities.

The above reports are tabulated in a statistical year book published annually since 1965, by the Central Statistical Department of the Ministry of Finance and National Economy which gives valuable data on Medina as well as on other major urban areas in Saudi Arabia. One of the difficulties of consulting this source is that some data is given for the country as a whole, without a breakdown into sub-regional or city levels. Also, as a source of information for the statistical year book, the various official departments do not coincide with each other in their definition of the different regions or provinces. For example, one administration may define Medina as the urban area only, others may also include surrounding countryside, while a third group may include the whole region. Other data not available in the statistical year book can be obtained from its sources as published pamphlets, for example, the number of foreign pilgrims* coming to Saudi Arabia - which can be traced back to 1927; or as archive records, e.g. death statistics which can be traced in Medina back to 1943; and water and electricity consumption data from the late 1960's.

c) Cartographic Sources. The available maps on Medina require much adjustment and processing, especially that produced by the Town Planning Office in 1971 on the scale 1:5,000. As this was based on air photographs all buildings appear black, and it needs to be redrawn so that their distribution can be determined. There are two maps, one geographical and one geological covering the whole of Saudi Arabia, on a scale of 1:2,000,000. Other detailed geographical and geological maps of Saudi Arabia are available, made up of 22 sheets by the Ministry of Petroleum on the scale of 1:500,000; these were published in 1963 by an American firm. Information on Medina can be found on sheet numbers I-205A and I-205B.

d) Consultancy Reports. Several consultant firms on contract to various Saudi ministries have submitted reports in later decades on specialised aspects. For example, in 1968, Sogreah ccmpany, on contract to the Ministry of Agriculture and Water, issued a report on Medina water supply. Robert Matthew on contract to the Municipal Affairs Department have issued several reports and plans for improvements in Medina since 1971, of these only one report concerned with estimating the number of pilgrims visiting Medina was

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* Data for pilgrims from Saudi Arabia itself is available only since 1971.

issued in 1974, and these are mentioned in the bibliography.

The above sources, with limitations, provided essential background. Information on population composition and income and expenditure on different services was also required, and this was obtained from investigations carried out during three field trips to Saudi Arabia.

The first field work, undertaken between January and February 1976, included a survey of all available information in all agencies relevant to the pilgrimage, both public and private. Permission was obtained to spend some time among unclassified files in the archives of various offices. Much valuable detail was also drawn from some Arabic MSS, and books published in both Arabic and English in the fields of history, geography and religion. A second period of fieldwork, conducted during pilgrimage time in November to December 1976, was used to conduct a questionnaire on pilgrims visiting Medina concerning their mode of travel to Saudi Arabia and to Medina and their income and nationality. Most guides were of great assistance in interviewing large numbers of pilgrims, especially non-Arabic or non-English speaking pilgrims. As a result it was possible to process a total of 787 questionnaires completed by pilgrims. Information was also collected in November to December 1976 concerning pedlar traders and taxi drivers coming to the area in this season from other parts of Saudi Arabia or from outside the country.

In the period May to August 1977, a third intensive field study was carried out to collect information regarding pilgrims' guides, accommodation, pedlar traders, trade units, government employees, population composition, cafes and petrol filling stations. One person was employed and five relatives offered their assistance, which proved extremely valuable in carrying out this field work. It was originally intended that the work would commence immediately after the pilgrimage season, when pressure would be eased and better, more accurate responses could be obtained. Unfortunately, official permission for the trip from Riyadh University took so long to obtain that the schedule had to be abandoned. All the objectives of the trip were, however, successfully accomplished through the assistance and cooperation of the officials concerned, or their deputies.

Other information found to be lacking after completion of the field work was kindly provided by replies to questionnaires and letters sent to various officials in Medina to assess the impact of Hajj on some aspects of the city's development not covered in the author's surveys. A computer was used for the calculation of certain correlations and drawing some complicated graphs.

It is clear that a wide range of information was needed to achieve the aims of this study, but several problems and limitations were unavoidable, and

this may have reduced the degree of success of certain sections. Lack of statistical data was a major problem in this study, and affected a variety of aspects both public and private; population; Medina's visitors; business incomes; and income and expenditure in the services sector. The above limitations have minimised the value of any attempt to use statistical analysis. The choice of the techniques used in this work was determined by the availability of data and its quality.

The various sample surveys conducted by the author are either small, or not highly accurate. They are small because the potential time and resources at the author's disposal were inadequate to cover larger surveys, especially when such surveys required more than one person to execute. The sample surveys were sometimes inaccurate, especially when concerned with people's income or origin; these matters are regarded as private to the individual concerned and many feel that discussing income may cause the "evil Eye" to be turned on them. Queries regarding a person's origin may put an immigrant in a peculiar position; often he does not regard himself as a foreigner, but as genuinely indigenous. Often he will dodge answering such a question or he may claim to be of local origin, although it is clear from physical features that he is not. However, although such limitations do exist in some parts of the analysis, they did not preclude the attainment of sound results in the areas where the main emphasis of this work lies, and even with the weakest sources, maximum effort has been made to ensure that they are in fact reliable. The help of an official vehicle from Riyadh University and the company of an official representative of Medina's Amirate, gave those interviewed more confidence, helping them respond more readily, and with greater care and attention.

CHAPTER TWO

THE PILGRIMAGE: INTRODUCTORY PERSPECTIVES

2.1 Aspects of the Geography of Pilgrimage.

The aim of this section is to consider the broader dimensions of the pilgrimage, which will provide a useful background with which the Hajj may be compared in the subsequent sections. In general, the pilgrimage may be defined as a journey undertaken to any place reputed as sacred [93: vol. 17, p.925]. The chronological start of the practice of a pilgrimage is thought by some writers to be only within the two mellenia ending circa 1950 A.D. [215: p.97], while others place it between 1000 and 1500 B.C. [42: p.3]. A third group suggest that the first mention of a place of pilgrimage was only as early as 200 B.C. [257: p.13], although all agree that it was well established by the time of Christ.

The Encyclopaedia Britannica states that India is the oldest region to have practiced the pilgrimage [93: vol. 17, p.925], but some writers proclaim the holy mountains of Tai Shan in Central China as the oldest organised place of pilgrimage [277: p.52]. However, while it may be true that almost "every race has a religion" [392: p.13], not every religion recognises the pilgrimage as an essential component. For instance, in the pre-Christian era, pilgrimage was unknown to the Germanic religions [93: vol. 17, p.925]; thus, in the Celtic religion of the "Cult of the Head" the fundamental concept was always that the Deity resides in some definite locality and has significance only to the people of that locality. More recently certain political parties within some areas banned the pilgrimage, and the Bolsheviks disapproved of all religious processions, especially the pilgrimage [277: p.52].

Nevertheless, some pre-Christian religions laid stress upon pilgrimage. For example, it was, and still is, an important element of life in India. In Isralite history, it became obligatory for certain local Jewish people to make the pilgrimage to Jerusalem on one of the three festivals of Passover, Shabu'ot and Sakhot [217: p.173]. But in most religions, there is no absolute rule regarding the holiest place; even in Christianity the holiest place has fluctuated somewhat between Jerusalem, Rome and Santiago de Compostella in Spain. In Europe, in the Middle Ages, the word pilgrimage generally implied a journey to Santiago de Compostella, while other pilgrims went to the other two established centres of Christianity; these were called "Romens" or "Palmers" respectively [208: p.60]. Over the Centuries, the whole religious idea in the

west has changed with regard to certain other places, as happened to Velzelay in France after the 13th Century [33: p.94], the tomb of Thomas à Becket in Canterbury, England in 1538 [4: p.2], and many other shrines have been neglected completely. Hinduism also lacks the idea of a holiest place and in India generally which has many religious rituals, the pilgrimage, while still of immense value, is not essential to spiritual welfare [257: p.13].

The importance of pilgrimage has also varied with time. In the Middle Ages in Europe, travelling from shrine to shrine was considered a worthwhile opportunity for travel. The European pilgrimages of the Middle Ages had far greater impact than the modern pilgrimage. As the Encyclopaedia of Religion and Ethics suggests, pilgrimage produced the Crusaders and widened the knowledge of the world. The countries involved had greater intercourse through religion, commerce, literature and art, and some obscure villages and towns achieved fame as national religious shrines [115: p.22; 175: p.196]. The most important outcome of the pilgrimage in this period was the Crusaders, and the belief of most participants in religious rewards.

The decreasing importance of pilgrimage in the west has become more marked in recent years. However, pilgrims are still drawn to certain places with favourable climatic conditions and for historical, social and academic reasons, as is the case with some places in Central America [207: p.53], or with Jerusalem since the 19th Century [418: p.10]. The attitude of modern pilgrims to Chartres in France is very different from the Middle Ages. The fear of hell and of God's wrath on the Day of Judgement are no longer the motivating factors for the modern-day pilgrim [33: pp. 94-95]; modern pilgrimages are much more lighthearted and many combine pilgrimage with visits to secular places, but even so some westeners still undertake the pilgrimage for religious reasons only. For example, in Mexico, pilgrims come from as far as Rome to the shrine of the Virgin of Gouadalupe seeking togetherness and the elimination of divisiveness [217: pp. 203, 209]. However, the modern mobility of people may have reduced the distinctive importance of pilgrimage as a motive for travelling.

Thus in the past and present, movements of people to holy places has been an important element of people's mobility. Only the concept of sanctity makes the movement of pilgrims unique in its purpose. Migrations motivated by reasons other than religion obviously add to the problems of places visited by pilgrims, but the significance of sacred places of pilgrimage (of particular interest to the geographer) is still distinctive in the resultant characteristics identified in urban systems where the religious function is predominant. These include the assignment of certain functions to particular classes of

families. For example, the key to the door of the Ka'aba (the House of God) in Mecca has been kept by the same family for generations; the same phenomenon is found in India. The continual or periodic flow of pilgrims across borders led to the establishment of new routes, through which came trade, social influences, cultural exchange, political integration, and often epidemic diseases. The stress of pilgrims' numbers on local urban and economic systems sometimes necessitated the creation of special institutions to minimise the disturbance or imbalance of activities when the pilgrims pass through, although such action may involve much expense for the authority concerned.

The importance of the pilgrimage to a religion may influence the extent of pilgrims' movement both in distance and numbers. Distances travelled by pilgrims vary greatly, for instance Muslims coming to Mecca travel from all over the world. In India, pilgrim movement concentrates within the Indian continent and varies from a regular visit of a day or so to the local shrine or river, to a trip of several thousand kilometres once in a lifetime. In the Christian World, apart from major centres of pilgrimage, local centres with limited attraction are also common [435: p.XXIII].

The volume of pilgrims may also vary between pilgrimage centres, and there are possibly other places which attract more pilgrims than the holy places of Saudi Arabia. For example, the estimated three million pilgrims at Rampur Madh Sonpur in India in 30 days [176: p.65], outnumbers the Hajj assembly at Mecca. On a spot near Allahabad on the Ganges river in India, newspaper reports estimated the number of pilgrims in 42 days as between 10 to 15 million [335: p.48]. Pilgrims to Mashhad in Iran increased from 332,000 in 1967 to an estimated three million in 1976 [90: p.336]. Santiago de Compostella in Spain had about two million visitors in the holy year of 1965, many of them foreigners [196: p.16]. In 1973, the number of pilgrims in Lourdes in France was estimated as 3.5 million, but it was difficult to distinguish between real pilgrims and tourists, who it is suggested may be more than organised pilgrims, who probably account for only about 17% of visitors to Lourdes [270: pp. 325, 326, 328].

Holy places and pilgrim resorts have been studied in different parts of the world and there is a great deal of literature relating to pilgrimage, but as J.S. Birks noted, the pilgrimage has received great literary and artistic treatment, but has generally been given little attention by the social sciences [43: p.29]. It has aroused the interest of some writers for its adventure, religious rewards, emotional and excitement aspects, effects on health and even political spying, but only limited study has been undertaken

on pilgrim organisation, and measuring problems and impacts on the social, economic and demographic characteristics of pilgrimage centres. This may be due to the dearth of demographic and other essential data in many countries, making geographical studies of religion difficult. This is why until the present time, it has been impossible to draw a map of the distribution of pilgrimage places in the world, apart from a few comprehensive studies of pilgrimage sites in certain areas, such as in India where sites totalled 142 [42: p.87], and Mexico which contains about 18 pilgrimage sites [217: p.192].

A brief review of studies on pilgrim centres may be helpful. B. Thirunstsnam in 1957 performed a study on Tiruttani settlement in India regarding the effect of a nearby temple on the function and structure of Tiruttani. In 1962, I. Karve recorded her experience of the hardships, emotion, rewards and spiritual value of her pilgrimage to Pandharpur in India [340: pp. 13-29]. A. Bharati wrote a valuable work on Indian pilgrimages in 1963, in which he examined the ancient and modern rituals of pilgrimage, the motives for visiting shrines and holy sites and the role of pilgrimage in present India. Although his work is written from a theological standpoint, it includes some valuable information on the spatial pattern of holy sites [257: pp. 135-167]. In 1974 Bhardwaj described many Indian religious sites in an historical and cultural context, in addition he analysed samples of pilgrims origins, castes, motives for pilgrimage, distances travelled and means of travel in 12 centres in the north of India.

In the Christian World several studies have been carried out on pilgrimage and pilgrim centres. In 1957, W. Starkie described the roads radiating from Santiago de Compostella in Spain, carrying the pilgrims and giving details of rituals performed by pilgrims. In 1963 and 1964, I. Dowse gave accounts of pilgrim shrines in England and Scotland respectively. In 1971, J. Ingham wrote on the importance of pilgrimage in Mexico and he related the organisation in the distribution of chapels in Mexican villages to a clan-like model in names and symbols. In 1974, V. Turner wrote in an anthropological context about the pilgrimage. His work incorporates valuable information to geographers such as the scale of some pilgrimages, factors affecting that scale and their importance to the believers and to settlements as well as some information on the distribution of pilgrimage shrines in Mexico in which he differentiates between the location of shrines in Mexican localities and other Christian centres.

The Muslim pilgrimage has been of interest to both Muslim and non-Muslim writers. Apart from describing some shrines of local or regional importance, such as Mashhad in Iran, Boujad in Morocco and Jabal Mosa in Sinai, much of

the writing on the pilgrimage to Mecca, has only described the pilgrimage rituals, the movement of pilgrim caravans, and the people and places they visited. Examples of Muslim writers are shown in the description of the journey, of the moorish traveller, Ibn Jubair through Arabia in the 12th Century A.D., the travels of Ibn Batutah in the 14th Century A.D. [71: pp. 333-334], and Ibrahim Rifat Pasha in the 1920's.

Surprisingly, detailed knowledge of the Muslim pilgrimage became clear in the west only in the 19th Century, through the works of European travellers who declared their faith in Islam in order to visit the Islamic Holy Cities. These included J.L. Burckhardt, R.F. Burton and Ali Bey El-Abassi in the 19th Century and A.J. Wavell and E. Rutter in the first half of this Century. Knowledge of the Muslim pilgrimage also came to the west through Muslims to whom English was second language, such as those from India and Pakistan such as Aley Beg in the 19th Century, and more recent writers such as Essad Bey and M. Hamidullah in 1938, Sayed Ahmed Khan in 1968 and Sayed Idris Shah in 1969.

The most recent works on the Muslim pilgrimage have tried to appraise the problems involved in the huge gathering of pilgrims in one area at a specific time, and some of them give long descriptions of the rituals in order to provide a better understanding of the subject. For this reason, the present thesis will not deal with pilgrimage rituals, which can be followed up in the references at the end of the thesis. Examples of the recent works are R. King's article (1972), which presented a new geographical context of Hajj in dealing with various essential components as well as explaining the historical development of the Hajj. An Aramco World feature publication (1974) recorded the experience of some scholars and a newly converted Muslim in the Hajj. In addition to the description of Hajj rituals it describes the problems of the Hajj, such as overcrowding and the huge expenditure by Saudi government on projects serving the pilgrims, as well as giving an account of western travellers visiting the holy areas in Hijaz. S. El-Hamdan's Ph.D thesis in 1976 and the 1977 article of G. Rowley and S. El-Hamdan can be considered, up to the present time, the most useful studies of the Hajj. They gave geographical and planning dimensions of the Hajj problems such as the change in the travel patterns and the impact of the pilgrims on accommodation, transport and water resources in Mecca and the nearby Holy sites. R. Jackson's M.A. thesis (1977) discussed, to some extent, the changing dimensions and size of pilgrimage, transport problems in the Hajj area, and health aspects of the Hajj. Other studies sponsored by certain international organisations have focused on the effect of the pilgrimage on the undesirable

flow of epidemic diseases, e.g. those by M.A. Farid in 1956 and A. El-Halawani in 1964.

In both ancient and modern works on the pilgrimage, writers have concentrated on Mecca as the first Holy Islamic City, and the pilgrimage area lying nearby. They generally give little consideration to Medina, the second Holy City of Hijaz which has close connections with the pilgrims, and is highly influenced by them, as will be shown in the following Chapters.

2.2 The Characteristics of the Hajj.

The main concern of this section is to show how the Islamic pilgrimage differs from others in its concept, and that it takes place at a specific time of the year and this has far reaching implications on the services, activities, and planning throughout the pilgrimage region.

2.2.1 Antiquity and continuity.

In Arabic literature the word pilgrimage or Hajj has many different meanings, but the one which has become most prevalent means the intention to visit a venerated place or person [3]: vol. 5 , p.4, 95]. Over the years it has become confined to visiting the holy places in and around Mecca at a specific time of the year. It is, therefore, apparent that the word pilgrimage has quite different meanings in Muslim and non-Muslim circles.

For Muslims the journey to places other than Mecca (and even to Mecca when specific rituals are not performed), is not called a pilgrimage, but a visit or "Zyarah". This thesis is entitled "The effect of pilgrimage" since Medina is mainly visited at pilgrimage time by pilgrims to Mecca. The visit to Medina is associated with its importance as the burial place of the Prophet Mohammad, who encouraged people to visit him both during and after his lifetime, to obtain his love and intercession on the last Day of Judgement [2]: vol. 4, pp. 136-137; 7: pp. 35-60].

However, Arabic historians trace Arab knowledge of the pilgrimage to very ancient times, some dating it back to the rebuilding of the Ka'aba at Mecca by the Prophet Ibrahim after the global deluge at the time of the Prophet Noah [11: p.123], which is said to have taken place in the latter years of the second millenium B.C. [9]4: p.23].

But it is certain that during the "Second period of Ignorance of Jahiliyyah" which occurred in the three Centuries before the rise of Islam in 610 A.D., the Arabs made the Hajj to Mecca, revered the Ka'aba and observed the holiness of Mecca by abandoning their tribal feuds within its boundary during certain months of the year, a period known as "Al-Ashhor Al-Horom", but the pilgrimage was of more commercial than religious importance. At that time,

however, the pilgrimage rituals varied between tribes and differed from some of the Islamic rituals, although others were, to some extent, adopted by Islam and are identical to those performed by Muslims today [7: pp. 183, 185, 194]. This suggests knowledge of pilgrimage rituals in Arabia dating back to pre-Islamic times.

During the Jahiliyyah period, contact was established between the idolatrous people of Mecca and the Christians and Jews who discussed their rival creeds when they came to trade in the markets around Mecca [231: p.10]. It is possible that the rituals of the pilgrimage developed amongst the Arabs at this time, when the various tribes openly discussed their very different rituals and ceremonies of the pilgrimage [115: p.185]. This may bear out the idea mentioned in section 2.1 above of some knowledge of pilgrimage in other parts of the world before Arabia; however, it remains true to say that it reached its zenith under Islam, especially after the conquest of Mecca in 630 A.D. [250: p.11].

The sanctity of the Ka'aba as a pilgrimage destination at Mecca to tribal Arabs long before the advent of Islam gives the area a special distinction since Jewish and Christian Holy places acquired their sanctity only after their religions became established. Some writers state that the pilgrimage to the Holy places of Jerusalem only became important after the construction of churches by Constantine the Great in the third Christian Century, and the Catholic Church has only accepted the idea of pilgrimage since the third Century [93: vol. 17, pp. 925-926].

Thus the theory of some modern historians who tried to prove that the whole idea of pilgrimage in Arabia was brought by Jews who migrated from Palestine after their persecution by the Romans [238: vol. 1, p.32], is impractical. It is known that Palestine was invaded by Rome in 63 B.C. and that Jerusalem was destroyed about 40 years after the death of Christ [111: p.171]. This means that when the Jews migrated to Arabia, pilgrimage was already an established phenomenon in the area. However, the fact that the Muslim Pilgrimage has its roots deeply implanted in history, together with its unchanged ceremonies for the last 14th Centuries, makes it rather remarkable. No neglect occurred with the holy Islamic places in Mecca and Medina, only increases or decreases in pilgrim numbers linked with fluctuations in economic and political circumstances in the Islamic World. Cycles in world trade and prosperity account for some of the changes in the fortunes of pilgrimage. For example, the decline in numbers making the Hajj in the early 1930's is directly attributed to the world economic depression [420: p.34]. Countries producing certain primary products such as rubber and

sugar from South East Asia and cotton from Africa are the worst affected by any slump in world prices.

Continuity is due to the fact that Hajj is an essential part of the faith, as one of the five pillars of Islam. Without a firm belief in it, the Islamisation of a person is incomplete; dispensation of its execution may be granted on several grounds as will be explained in the section on "Obligation". The deep-rooted tradition of the pilgrimage in Muslim belief lies behind the rejection of any suggestion to dispense with the rituals of the Hajj, although the increasing number of pilgrims causes many problems both to the region and financially to the whole of Saudi Arabia.

2.2.2 Obligations.

It is necessary for any Muslim who has the ability* to make a pilgrimage to Mecca at least once in his life. This obligation is only a moral one; the matter is left to the freewill of each person and there are no sanctions or laws making the pilgrimage compulsory to any Muslim. This was not the case in the 13th Century in Europe, especially in France where the Church imposed pilgrimage, as a means of punishment, on those who committed small offences against the faith, or threatened the security of urban communities [33: p.100; 213: p.107].

The importance of pilgrimage in Islam encourages Muslims to carry out the Hajj rituals respectfully; they are not concerned with the beauty of the landscape or the invigorating climate, or other features of the environment. The plenary indulgence gained from the pilgrimage rituals and the strong belief in the benefits of Hajj is the driving force behind some pilgrims travelling part or all the way to the Hijaz on foot [185: p.140; 366: p.272].

In Islam the obligation of pilgrimage has naturally encouraged many Muslims to undertake the pilgrimage rituals. Many of the pilgrimage rituals need to be performed in certain places and at specific times of the day, such as the standing in Arafat and the stoning of the devil's symbol in Muna; in recent years that has meant the concentration of about one and a half million pilgrims in specified places. On this basis the pilgrimage rituals would appear more important in Mecca, and especially the nearby holy areas, where more of these rites are performed by all pilgrims within the limits of time and space than in any other place.

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* "Ability" means possessing the necessary funds for the journey and to maintain his family at home, and also the mental and physical strength to undertake the journey.

It is important to understand the form of the rites in order to comprehend the complexity of the whole process which underlines the problems and risks of overcrowding in certain places as explained in Chapter nine. Since this work is concerned with Medina, it seems necessary to understand the pilgrims' rituals in that city. As was explained earlier in this Chapter, much has been written on the pilgrimage rituals in Mecca, but little on those undertaken in Medina.

Medina is a unique urban centre in Hijaz whose religious function provides its main attraction to pilgrims and visitors, although visiting Medina is not a stipulation of the pilgrimage requirement. The purpose of a pilgrim's journey to Hijaz is mentioned earlier. The journey to Medina or "Zyarah" can be made at any time, before or after the Hajj or may even be excluded since it is an optional visit. Unfortunately, no accurate statistical information is available on the number of pilgrims visiting Medina, but from a sample survey conducted by Robert Matthew in 1392 A.H. (1973) it was estimated that 99% of all foreign pilgrims and about 83% of all pilgrims (Tables 9.10 and 9.11) visited Medina [425: p.5]. Saudi pilgrims have a tendency to avoid the crowded peak periods and postpone their visit to another, less crowded time of the year. They often choose to visit Medina during the months of Rajab and Ramadan, the seventh and ninth months of the Arabic year. Rajab is the month in which Muslims believe that the Prophet Mohammad ascended into heaven, and Ramadan the month in which they fast from dawn to sunset. However, although only 22% of the Saudi pilgrims visited Medina at the 1973 Hajj season, the total percentage of all pilgrims visiting Medina is considerable (Table 2.1).

TABLE 2.1 TOTAL NUMBER OF PILGRIMS AND PROPORTION VISITING MEDINA, SAMPLE SURVEY, 1392 A.H. (1973 A.D.)

Type	Pilgrims to Mecca		Pilgrims visiting Medina	
	Number	%	Number	% of total pilgrims to Mecca
All pilgrims	803,000	100	666,420	83
Foreign pilgrims	636,000	100	629,690	99
Saudi pilgrims	167,000	100	36,780	22

Source: Regional and Town Planning Office, 1974, The Hadj; Medina's Hadj Survey, Final Report, Municipal Affairs, Jeddah, p.5.

TABLE 2.2. PILGRIMS NUMBERS, 1927 to 1976

Year A.H.	Year A.D.	Number of foreign pilgrims.	% increase over former years	Number of pilgrims from inside Saudi Arabia.	% increase over former year.
1345	1927	90,662	-	-	
1346	1928	96,212	+ 6.1	-	
1347	1929	90,764	- 5.7	-	
1348	1930	81,666	-10.1	-	
1349	1931	38,045	-53.4	-	
1350	1932	29,065	-23.6	-	
1351	1933	20,181	-30.6	-	
1352	1934	25,191	+24.8	-	
1353	1935	33,898	+34.6	-	
1354	1936	33,830	- 0.2	-	
1355	1937	49,517	+46.4	-	
1356	1938	67,224	+35.8	-	
1357	1939	59,577	-11.4	-	
1358	1940	32,152	-46.0	-	
1359	1941	9,024	-71.9	-	
1360	1941	33,863	+275.3	-	
1361	1942	24,743	-26.9	-	
1362	1943	62,590	+153.0	-	
1363	1944	37,857	-39.5	-	
1364	1945	37,630	- 0.6	-	
1365	1946	61,286	+62.9	-	
1366	1947	55,244	- 9.9	-	
1367	1948	75,614	+36.9	-	
1368	1949	99,069	+31.0	-	
1369	1950	107,652	+ 9.0	-	
1370	1951	100,578	- 7.0	-	
1371	1952	148,515	+47.0	-	
1372	1953	149,841	+ 1.5	-	
1373	1954	164,072	+ 8.6	-	
1374	1955	232,971	43.1	-	
1375	1956	220,722	- 5.1	-	
1376	1957	215,575	- 2.0	-	
1377	1958	209,197	- 4.5	-	
1378	1959	207,171	- 1.0	-	
1379	1960	253,369	+28.4	-	
1380	1961	285,948	+ 5.7	-	
1381	1962	216,455	-21.9	-	
1382	1963	199,038	- 8.9	-	
1383	1964	266,555	+32.0	-	
1384	1965	383,319	+ 8.8	-	
1385	1966	294,188	+ 3.8	-	
1386	1967	316,226	+ 7.5	-	
1387	1968	318,507	+ 0.6	-	
1388	1969	374,784	+17.8	-	
1389	1970	406,295	+ 8.4	-	
1390	1971	431,270	+ 6.1	648,490	
1391	1972	479,339	+11.2	562,688	-13.2
1392	1973	645,182	+34.6	571,769	+ 1.6
1393	1973	607,755	- 5.8	514,790	-10.1
1394	1974	918,777	+51.2	519,290	+ 0.9
1395	1975	894,573	- 2.6	663,294	+27.7
1396	1976	719,040	-19.6	737,392	+11.2

Sources: 1 Statistical Section, 1974-1976, Pilgrim Statistics, Agency of the Ministry of Interior for Passport and Civil Service, Jeddah, pp. 35, 36, 37

2 Central Department of Statistics, 1972-1974, Statistical Year Book, Riyadh, pp. 157, 171, 173

N.B. 1971 was the first year in which information about internal pilgrims was made available.

The rituals carried out in Medina, unlike those performed in Mecca, are less complex and do not require a specified stay, although it has become traditional for almost all pilgrims to visit certain places. The main requirement is that pilgrims visit the Prophet's tomb in Al-Haram and other historical mosques and tombs. These include the Koba mosque which is the first mosque of Islam, the tombs that contain the martyrs of the Auhud Battle, and Al-Keblatain mosque where it is said that the Prophet Mohammad was ordered by God in 2 A.H. (623 A.D.) to change the direction (Kiblah) to be faced whilst praying, from Jerusalem to the Ka'aba in Mecca [109: pp. 61, 78]. Other places to be visited include the six mosques on the site of Al-Ahzab battle which took place in early Islamic times, and the Baqei Al-Gharqad, the cemetery which holds the graves of the wives, daughters, sons and companions of the Prophet (Fig. 4.12). Some pilgrims visit other historical sites but the most important factor governing the length of a pilgrim's stay in Medina is the belief that great reward from God will accrue when a Muslim performs 40 prayers in Medina's Haram, and this takes eight days. In 1976, the author's sample survey revealed that the average length of a pilgrim's stay in Medina was nine days, and this will be elaborated later in this thesis (Chapter 8).

Unlike the rituals in Mecca, whereby the pilgrim gains redemption by virtue of the ritual sacrifices, the visit to Medina is optional as is the performance of these rituals. A pilgrim would suffer no harm if he omitted any of the above mentioned rituals nor if he performed them in a different order. However, the rituals carried out in Medina have had a great impact on the physical and functional characters of the landscape surrounding the holy places of the city. These will be discussed in detail in later chapters.

2.2.3 Other changing characteristics of the Hajj.

Although pilgrimages are made to many other parts of the world, it remains a unique phenomenon in Saudi Arabia as it takes place over a very short and specific time of the year. In other parts of the world, such as India or Spain, a pilgrimage may be made throughout the year, although some places have several peak periods [42: p.219]. Perhaps one of the most important aspects of the Hajj is its scale, which has fluctuated considerably over the years. Improved communications and transport have shortened the pilgrims' stay in the pilgrimage region and increased their numbers, especially since the end of World War Two (Table 2.2). Thus, recently, pressure on services and pilgrim facilities has been concentrated into a short period. Until the late 1950's, however, because of the relatively slow means of transport, pilgrims allowed extra time for the journey. Sometimes they arrived in Medina in advance of the pilgrimage, thus pressure on services

was not so severe.

The extension of source areas for Muslim pilgrims from all parts of the Islamic World makes the pilgrimage an important medium, both culturally and economically. The cultural influence is apparent in the introduction of customs and skills in the pilgrimage region (Chapter 9). The economic effect of foreign pilgrims is great, in that many work opportunities are created, and foreign currencies are brought into the pilgrimage region. This effect of the Hajj is not confined to the chief destinations, but also affects localities en route to the pilgrimage area. For example, the existence of the Hajj still explains the presence of a considerable number of West Africans in the Sudan as well as solving the problem of labour shortages at harvest time [43: p.299; 280: p.224]. In contrast, it would appear that the majority of pilgrims in India are of local origin, although a tiny minority come from adjacent areas such as Tibet and Kashmir [42: p.122]. Their effect on the general economy of India is minimal.

The Muslim pilgrimage also has a political aspect. In the past rulers competed to gain power over the pilgrimage region. In pre-Islamic time, the tribes of Quraish considered themselves to be the custodians of the Ka'aba [74: p.76]. With the expansion of the Islamic Empire and the change of residence of rulers and political administration from Medina to Damascus in 661 A.D. and later to Baghdad in 750 A.D., every ruler wanted to assert his position by administering the holy places and holding the title of custodian of the two great mosques in Mecca and Medina known as "Al-Haramayn". This privilege was earnestly sought later amongst the rulers of the Fatimids, Ayyubids and Mamluks and even the Authmanids as it gave them the prestigious title of Khalipha of the Muslim World.

The competition between rulers to control the Islamic holy places either out of political ambition or out of a philanthropic feeling of duty may have benefitted the area, since each ruler added to the region's infrastructure. For example, some built aqueducts to carry water over long distances in Mecca and Medina, others built or cleared roads for travellers such as the Zubaydah road from Baghdad to Mecca, built in 800 A.D.

The pilgrimage area was a meeting place for revolutionaries to exchange ideas and plan for action. Examples of this occurred when a party of Medinese came to Mecca on pilgrimage in pre-Islamic times (620 A.D.) and heard of the beginning of a new religion in Mecca; they contacted the Prophet and took his message to Medina [47: p.19]. Another example is the alliance formed between some Berbers after the pilgrimage in Mecca when they plotted to overthrow the last Aghlabid ruler in 909 A.D. [47: p.158]. This aspect of the

pilgrimage may be the reason behind the action of the Colonial Dutch government in Indonesia in 1928 of imposing return tickets on pilgrims to prevent them from staying permanently in Mecca. Some pilgrims were even prevented from going because of suspicions that these were going to Hijaz to agitate against the Colonial government [387 : p.103]. Since 1926 the Saudi government policy has been to prevent the Hajj from being exploited by any state or group for political gain.

One last important aspect of the changing character of the Hajj concerns medical improvements in the area. Concentration of pilgrims has been a health hazard, not only in Saudi Arabia, but also in many pilgrimage foci. For example, it has led to the pollution of some of the sacred rivers of India. Disease and deaths have increased in the proximity of these rivers. Often rituals are disorganised, being carried out in densely crowded areas, and pilgrims may be killed by being pushed under the wheels of carriages, either by accident or design, as happened in Puri in India [257: p.163]. In 1954, apart from deaths caused by diseases, about 500 pilgrims were crushed and suffocated to death near Allahabad [335: p.48]. Until the present time medical care for pilgrims in India is still left to private organisations which are financed by individual private enterprises [42: p.1], which often leads to a poor health service. In Saudi Arabia the death rate among pilgrims has also been high. In 1954 in Medina alone it was 0.21%. [423]. However, the situation has changed remarkably in the last one and a half decades since the Saudi government is attempting to provide a healthy environment for all pilgrims and offering free health services.

In Saudi Arabia, deaths among pilgrims are attributed, to a great extent, to the heat and also to contagious diseases, especially malaria. In 1959, 454 deaths attributed to heat stroke alone (about 66% of all deaths among pilgrims in that year) were recorded at Muna near Mecca [307: p.284]. Although in 1962, for example, the Hajj took place during the summer months, this rate was reduced to about 19% of all deaths [307: p.284], due to improvements in facilities provided for pilgrims, such as the free distribution of water, ice and salt tablets.

Regarding diseases, the spread of cholera in the Hajj area in the mid 19th Century, resulted in a series of international agreements in conjunction with the cooperation of the Saudi Arabian government. This led to the International Sanitary Regulations of 1951, concerned with the provision of sanitary control over pilgrim traffic [309: p.829], as in the past overcrowded vessels had appalling sanitary conditions resulting in many deaths en route (estimated by Aley Beg in 1896 to be 10%. of pilgrims from India before arrival in Mecca [17: p.63]. Within the pilgrimage region, the agricultural area surrounding Medina City displayed an inadequate drainage system and became a

natural breeding ground for malaria. In 1951 the Royal Hospital treated 4,876 malaria cases and recorded 343 deaths from malaria [309: 831], with the result that the health authority initiated an intensive programme of DDT spraying in the area. Pilgrims also carry the germs of contagious diseases which spread to the country of origin of other pilgrims. This emphasises the significance and danger of pilgrimage in Saudi Arabia owing to the vast area from which pilgrims are drawn to the holy places, and stresses the responsibility of the various authorities in the country to make the pilgrimage as safe as possible. Such awareness may be the reason behind the decreasing death rate among pilgrims. Figures for the pilgrimage sites as a whole indicate a decrease from 3.3‰ in 1959 to 0.6‰ in 1962 [307: p.284], partly as a result of sanitary improvements in the area. Similarly, in Medina, total deaths among foreign pilgrims showed a general decline (Table 2.3); from 199 in 1959 to 23 in 1973 (1.07‰ and 0.04‰ of the total respectively).

The improvement in the health of the pilgrims has contributed to the general reduction of death rates in the Medina area. For example, it decreased from 11.8‰ in 1962 to 7.7‰ in 1972. However, pressure on health facilities is apparent with the influx of pilgrims. In Medina, for every 268 local people there was only one hospital bed in 1972, whereas in At-Taif there was one bed for every 40 people [61: 1973, p.89].

Since the late 1950's the government has entered into agreements with other Islamic states for aid with the maintenance of health standards in the pilgrimage area, either by sending medical missions to care for their nationals to lessen pressure on the Saudi facilities, or by vaccinating their pilgrims before embarking to Saudi Arabia. The quarantine stations provide an indispensable barrier against the spread of epidemic diseases, and since the 1950's have freed the Hijaz pilgrimage from special health measures. After about 65 years of international concern and sanitary control, it is now considered a disease-free gathering. Exceptions do occur occasionally, for example in 1975, some Nigerian pilgrims died of cholera, but the outbreak was quickly brought under control [292: p.19].

On a conservative estimate the Health Authority spends about £57 million annually improving facilities in the Hajj area [248: p.20]. However, this is not the only pilgrimage expenditure, as indicated by the budget figures of the Ministry of Pilgrimage and Endowment; the available figures, begun in the Saudi fiscal year 1382/83 A.H. (1962/63 A.D.), show that the ministry budget was just over £4 million (excluding new projects), whereas in the 1385/86 and 1393/94 A.H. fiscal years the budgets were £10 million and £25 million respectively. The Ministry of Pilgrimage was created, in addition to gathering revenue from

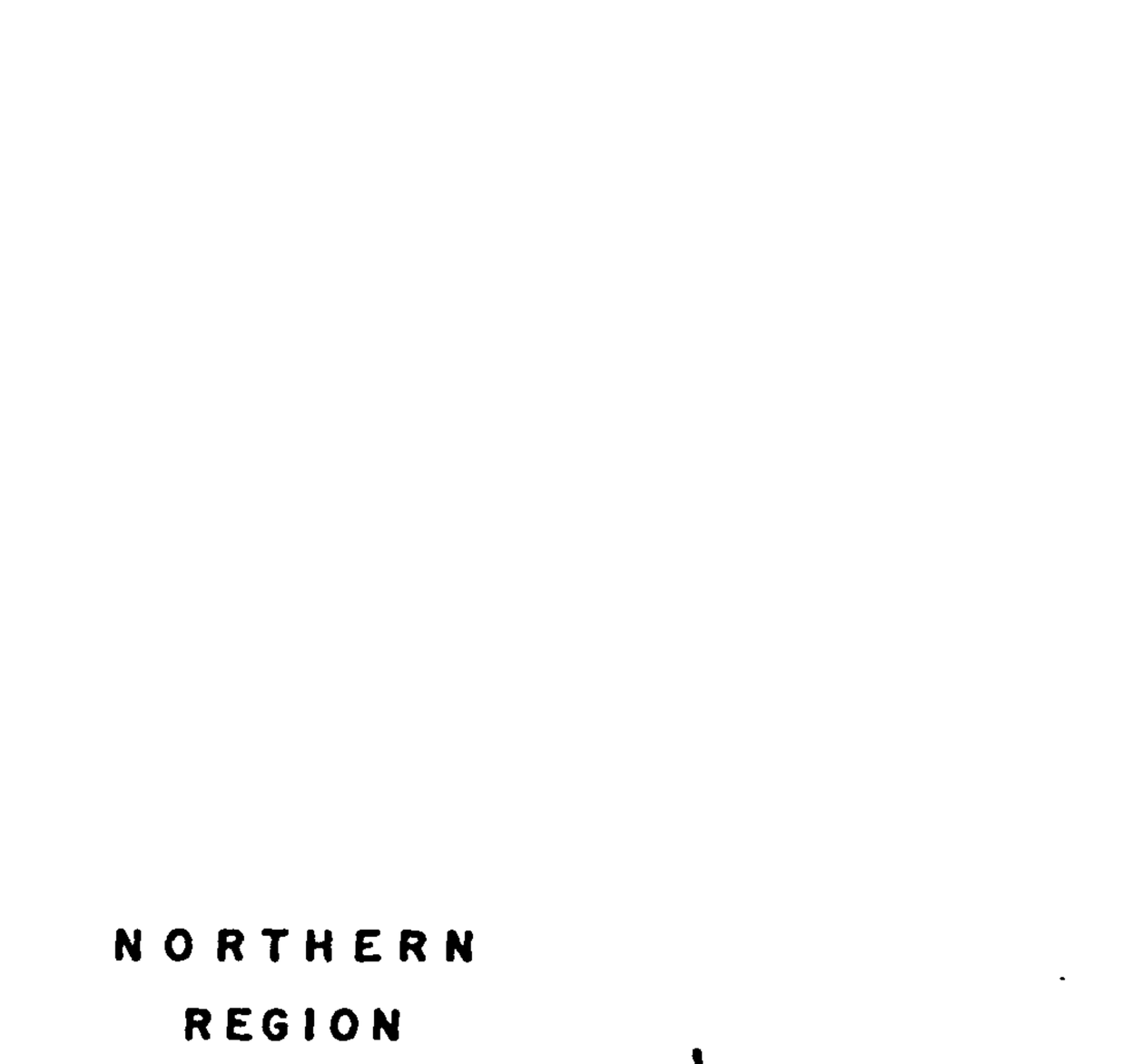
TABLE 2.3. DATA ON PILGRIM NUMBERS AND MORTALITY IN MEDINA CITY.

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
No. of foreign pilgrims.	207,171	253,369	285,948	216,455	199,038	266,555	283,319	294,118	316,226	318,507	373,784	406,295	431,270	479,339	645,182
99% of foreign pilgrims expected to visit Medina*	205,099	250,835	283,088	214,290	197,048	263,890	280,486	291,177	313,064	315,322	371,036	402,232	426,957	474,546	638,730
Deaths among pilgrims visiting Medina	199	180	147	247	46	109	99	119	106	78	29	156	243	26	23
%	1.07	0.72	0.52	1.15	0.23	0.41	0.35	0.41	0.34	0.25	0.08	0.39	0.57	0.05	0.04

* See section 2.2.2 for explanation.

Sources: 1_ Statistical section, 1976, Pilgrims Statistics, Agency of the Ministry of Interior for Passport and Civil Service, Jeddah, p.35.

2_ The Administration for the Affairs of the Dead, Data Sheet, Medina.


NORTHERN
REGION
WESTERN
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REGION
EASTERN
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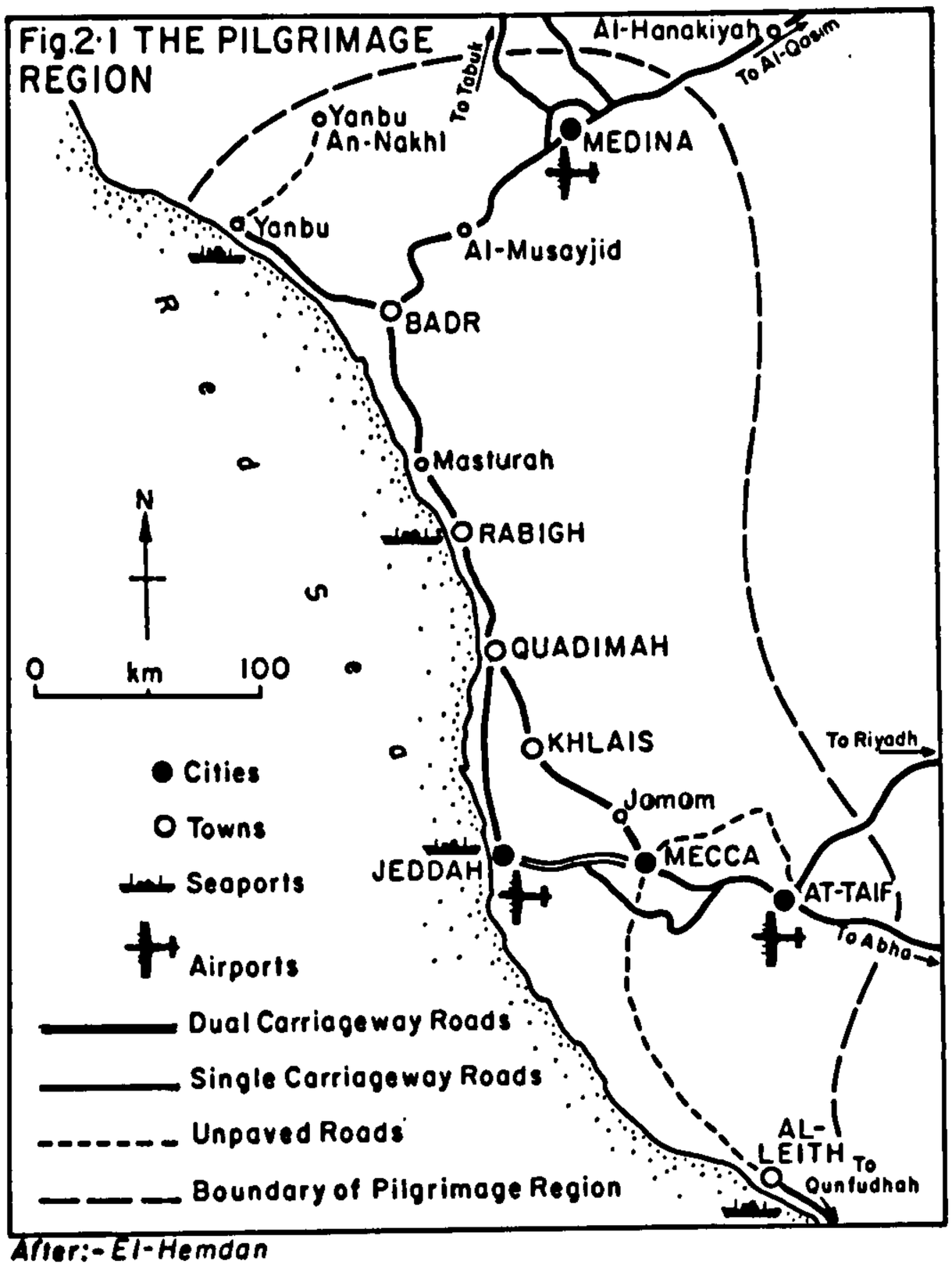
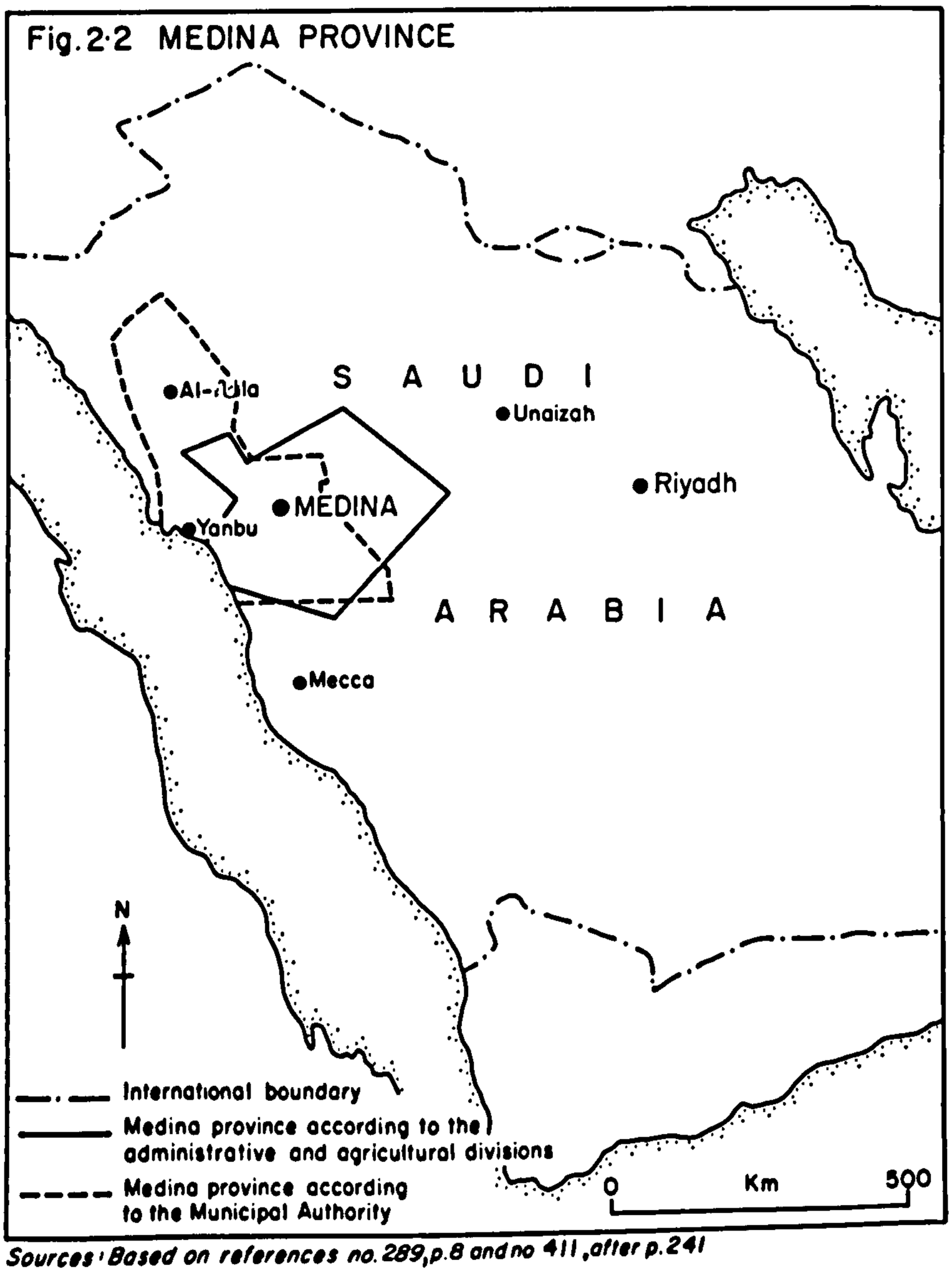
SOUTHERN
REGION
RUB
AL-KHALI

Fig.2·1 THE PILGRIMAGE REGION



After:- El-Hemdan

Fig.2·2 MEDINA PROVINCE



Sources: Based on references no. 289, p.8 and no 411, after p.241

pilgrims, to ensure the care and welfare of pilgrims and to organise and supervise the pilgrimage, thereby making it safe and pleasant for all pilgrims. The expenditure of such projects accounted for approximately 13% of the Ministry budget in 1385/86 (1965/66) and about 40% in 1393/94 (1973/74) [61: 1965, p.227; 1966, p.293; 1974, p.368]. Since the pilgrimage fee was abolished in 1952 the expenditure of the Ministry of Pilgrimage has been funded from oil revenues [229: p.117].

It must be concluded that pilgrimage represents a large part of government expenditure and only by the concentrated efforts of the Saudi administration are serious health hazards avoided during the Hajj today. Even now, the pilgrimage is a potential source of disease and infection which, without the meticulous attention paid to hygiene by the Saudi government, could quickly develop into an epidemic. Only through scrupulous management and efficient immigration control can the Hajj be performed safely. To achieve this has been a long and difficult struggle.

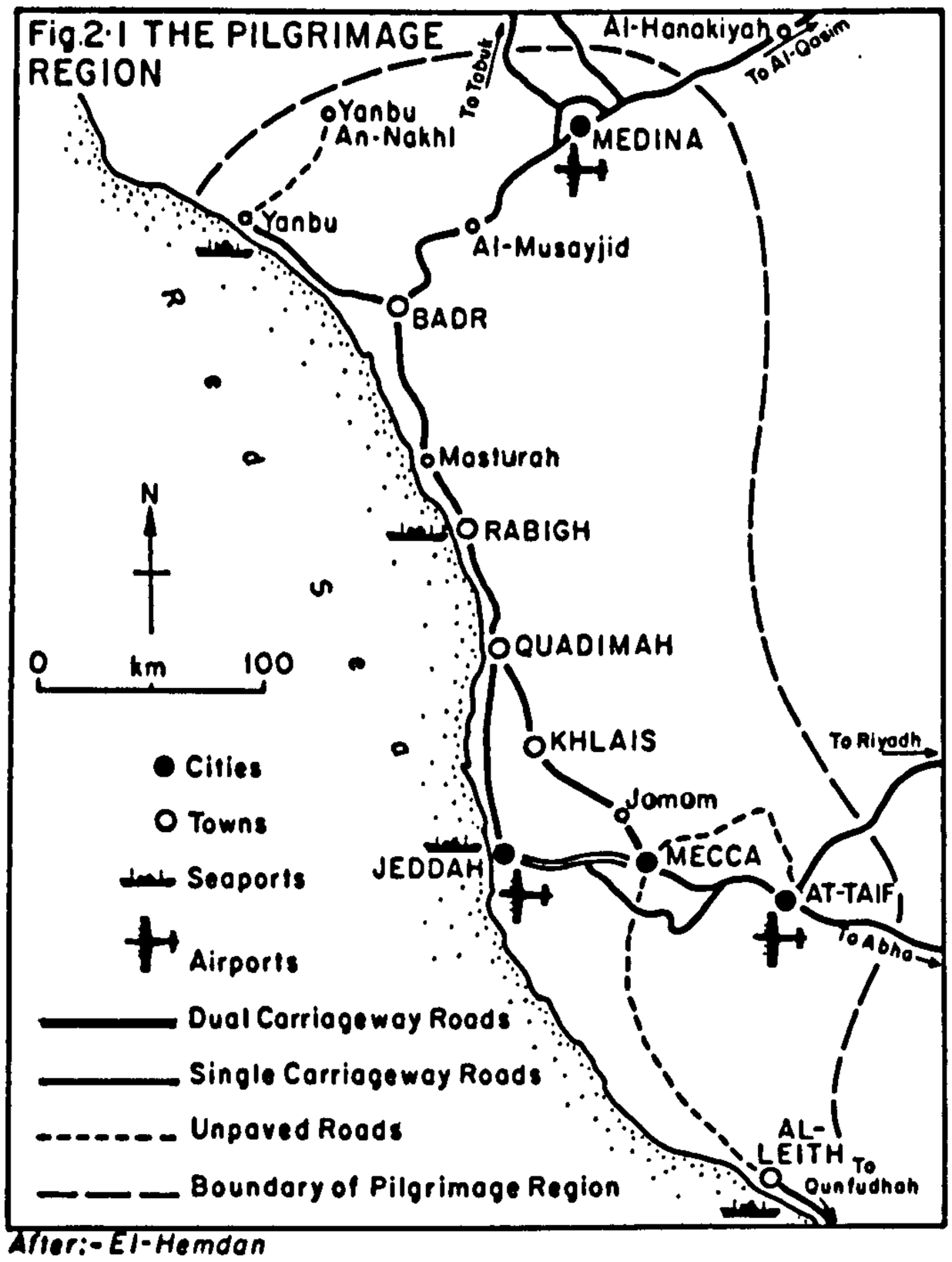
2.3 Regional Impact of Pilgrimage.

The approach of this section involves a gradual narrowing of perspective from the general characteristic of the pilgrimage to a particular examination of the pilgrimage region, and Medina itself. Thus, it will be divided into two sub-sections; the first deals with the pilgrimage region as a whole, and the second will concentrate on competition and balance between the two main centres, Mecca and Medina. But first a few facts about the pilgrimage region and the particular area of study within this region are necessary.

S.El-Hamdan suggested the boundary of the pilgrimage region, based on the degree of influence of pilgrims' activities, should extend from a line joining the port of Yanbu and Medina in the north to a line joining the port of Al-Leith and At-Taif in the south, and from the Red Sea in the west to a line joining At-Taif and Medina in the east [416: p.23]. This region includes five cities, Mecca, Medina, Jeddah, At-Taif and Yanbu, in addition to four smaller towns with municipal status - Al-Leith, Rabigh, Khlais and Badr (Fig. 2.1). There are also a large number of villages and hamlets which are affected by the pilgrimage according to their distance from major cities and main roads. The region is connected to the north, east, west and very recently to the south, by a good network of roads, in addition to three airports and three seaports. Most of them are now equipped with good facilities for receiving pilgrims.

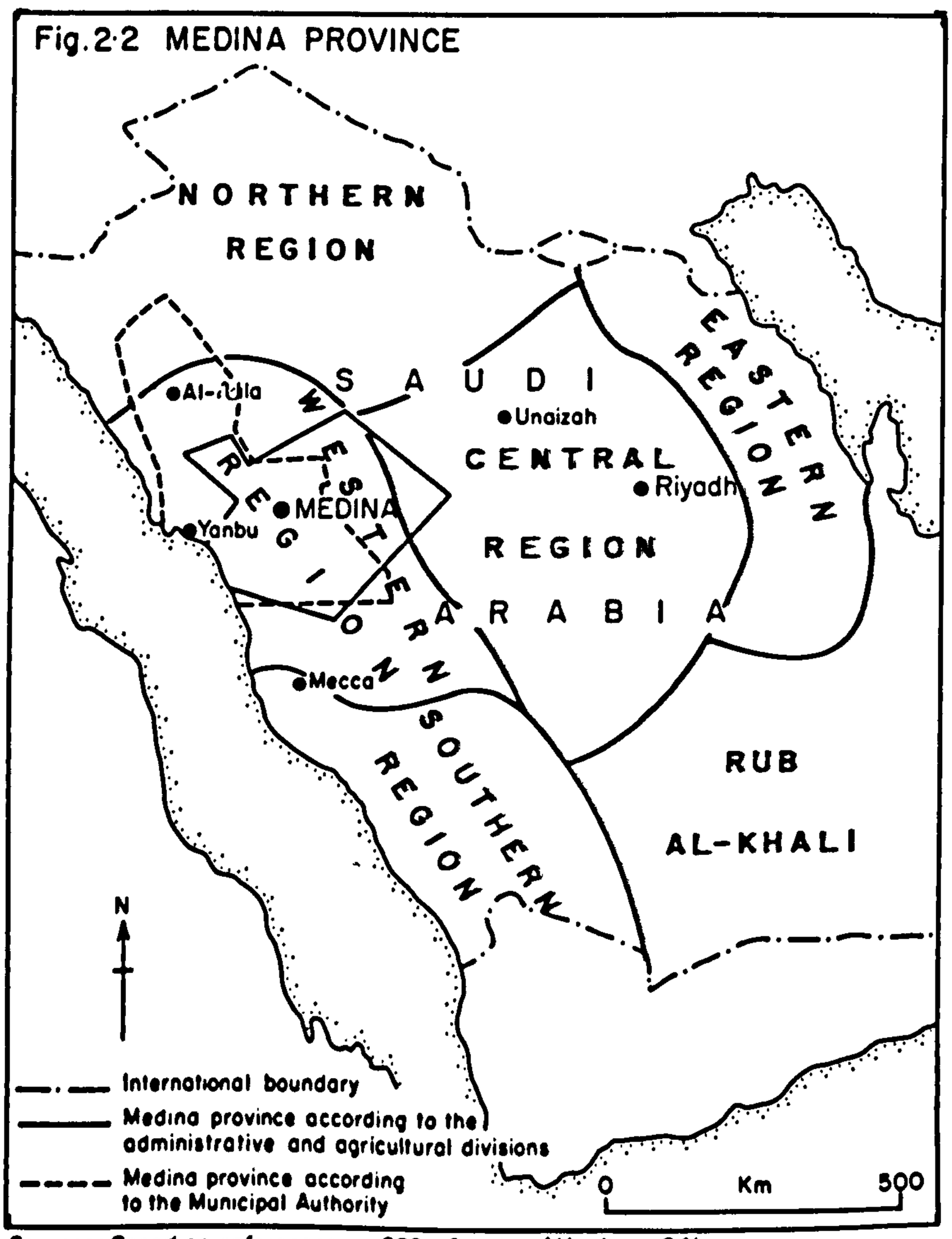
The bulk of this thesis will concentrate on the city of Medina for reasons explained earlier, but where necessary some reference will be made to

Fig.2·1 THE PILGRIMAGE REGION



After:- El-Hemdan

Fig.2·2 MEDINA PROVINCE



Sources: Based on references no. 289, p.8 and no 411, after p.241

other cities and villages either in the Medina administrative area or in other areas.

There is no official definition of the extent of Medina Province and every government ministry has its own criteria on which to base its definition according to the service which it offers to the area. Medina's Administrative Province or "Amirate" has changed little since it was annexed to the Saudis in 1925, although some small places have apparently been excluded or included at different times since then. As our concern in this study focuses on the pilgrimage and its effect on water resources, trade, communication and population, it seems sensible to adopt the relevant ministerial divisions, i.e. those of the Ministry of Agriculture, the Medina's Municipality and the Administrative Amirate. These boundaries are shown in Figure 2.2.

The boundaries established by the Ministry of Agriculture in 1954 [411: p.24] are similar in extent to the administrative division of the Amirate, and the two can be indicated by one line as shown in Figure 2.2. Medina's Municipality has been active since the Authmanids who ruled Medina from 1517 to 1916. An effort was made by the Ministry of Interior to reorganise this division in 1962, and a second attempt was made in 1970 [289: p.8] to define its extent. This is shown in Figure 2.2.

Thus the complex boundaries of the different ministries are a handicap as in some data the figures for a certain place may be added to one Province, whilst in other statistics they may be attributed to a different Province. For instance, in one division, Yanbu or Al-Ula are found in Medina Province, while in another division they are not. It is worth remembering that these boundary lines are in any case only approximations, as no real survey has been made of the boundaries of the Province.

2.3.1 Major characteristics of the pilgrimage region.

According to the 1962/63 population census, it would appear that this region has the largest settled population in Saudi Arabia, nomads accounting for only 3.4% of the region's total population. Yet it is this relatively small proportion of the region's population that supplies an essential number of animals, particularly for consumption during the Hajj season when the slaughter of livestock is a required ritual. In 1962 there were 223,850 animal livestock in this region, about 40% of this number being in Medina Province [209: pp. 58, 86, 121]. The bulk of agricultural produce, however, is supplied from the settled rural areas in close proximity to the city of Medina. There are some 31 Km^2 of land under cultivation in the Medina Province (7 Km^2 of which is found in Medina's immediate surroundings), second in rank to

Al-Leith where some 75 Km^2 are under cultivation. The transport problems in Al-Leith Region delay delivery to the markets while the advantageous location and superior communication connecting Medina prove important to the marketing of goods throughout the pilgrimage region. In the smaller areas of other valleys in Hijaz and the Tihama Coast only 24 Km^2 and 20 Km^2 respectively are under cultivation. However, despite local agricultural produce the region is still far from being self-sufficient in foodstuffs to meet the seasonal increase in demand. The deficit is met with imports from other regions of the country or from abroad. In this respect, Medina is very interesting as it is the administrative centre for a wide area in the west of Saudi Arabia extending beyond the pilgrimage region, and its influence as a market centre extends further to the east to include parts of the fertile Al-Qasim Region. To the west its effect extends to Yanbu An-Nakhl and to the north to Taima. These contacts have eased the supply of goods, especially fresh food, to pilgrims in Medina, more than in Mecca.

Improvements in transportation within Saudi Arabia and the countries of origin of pilgrims have been major factors influencing the pilgrimage region. Their impact clearly influenced pilgrim numbers and modes of travel, which in turn had great influence on the physical structure of different parts of the region. Airports and seaports have been discussed earlier in this section, but with regard to road journeys, vehicles used by pilgrims making the Hajj numbered 50,044 in 1970 [61: 1972, p.157], increasing to 111,809 in 1976 [212: p.38]. Pilgrims arriving by land normally use the vehicles in which they made the journey from their homeland for all movements on the regional road system; this could have the effect of doubling the volume of traffic on some roads and has had an impact on entry points to Medina.

Easier and more comfortable travel has encouraged many more people to undertake the pilgrimage, although it is now more expensive, and this fact led to the assumption that more people from the high and middle income groups are attending the pilgrimage. This assumption was tested in Medina and proved to be true (Chapter 8). The ease with which making the Hajj is now possible, and the belief in the rewards gained from its execution, combined with an absence of restrictions on entry to Saudi Arabia for the Hajj, encourages many people to repeat the pilgrimage. S. El-Hamdan suggested that there seems to be no relationship between income (as deduced from occupation) and the number of pilgrimages made. The average number of pilgrimages which had been made by the foreign pilgrims interviewed by El-Hamdan was 2.60. For example, unskilled manual workers had made 2.23 visits, the mean number of trips made by retired people was as many as 4.37, while students had only been 1.50 times. (See Chapter 8 for explanation.) The survey also showed that only 61.1% of the

sample were making the pilgrimage for the first time [87: p.199]. Thus, for example, on the same measure, 38.9% (or 279,707) of the 1976 total (719,040 foreign pilgrims) were not first time pilgrims.

The survey also revealed a relationship between mode of travel and the number of times people were making the pilgrimage; a clear tendency emerges for overland pilgrims to repeat the pilgrimage more often. With few exceptions, pilgrims from countries sharing borders with Saudi Arabia have, on average, made the pilgrimage between 2.63 and 5.18 times. There is a decline in the number of pilgrims as distances increase, even with countries easily accessible by road from Saudi Arabia. This becomes more obvious as one travels further north to Turkey and Yugoslavia and further east to Afghanistan. The vast majority of pilgrims from countries which still depend on sea travel were first time pilgrims, whereas air travel encouraged greater repetition of the pilgrimage, as was the case with West African pilgrims [416: pp. 200-202].

As well as affecting the urban structure of several centres the influx of these pilgrims has also affected certain vital services such as water and electricity supplies and facilities which vary considerably between cities, depending on the role which each one plays in the pilgrimage. When Medina was examined in this respect (Chapters 6 and 8), it proved to be much affected by the pilgrimage. It now seems appropriate to consider other major urban centres in the pilgrimage region to show the functional significance of Medina.

For topographical and historical reasons most pilgrims to Mecca have come via Jeddah. For example, in 1976, 96.6% of foreign pilgrims arriving by air and 88.8% of those arriving by sea, entered Saudi Arabia by Jeddah. In 1976 Jeddah airport handled 361,891 pilgrims. This huge influx put great pressure on the airport facilities, which had to handle over 400 flights per day during the Hajj season, compared with only 120 flights per day during the rest of the year [302: p.39]. Saudi Arabian Airlines (SAUDIA) also have difficulty in meeting the demand for air transport during the Hajj, and have to hire extra planes from other airlines during the pilgrimage season.

A new international airport is under construction to the north east of Jeddah to cope with pilgrim traffic and increased commercial air freight. Certain other facilities are provided in Jeddah such as quarantine facilities, isolation hospitals, and camping areas or 'pilgrims cities' to cater for pilgrims coming by both air and sea. Four of five pilgrim Transport Companies have their head offices in Jeddah. These companies specialise in transporting pilgrims between the Holy Cities, Jeddah and the pilgrimage area (Muna, Muzdalifa and Arafat) and they remain idle for the rest of the year.

Pilgrims arriving by air at Jeddah far outnumber those coming through Medina; in the 1976 pilgrimage season only 9,552 pilgrims (1.3% of all pilgrims coming by air) came through Medina airport. It is worth noting here that Medina airport could be improved to receive more international flights especially for pilgrims who prefer to visit Medina before performing the Hajj rituals in and around Mecca. In contrast with Jeddah's positiin as reception point for pilgrims travelling by sea or air, Medina is an important route for overland pilgrims. In 1976, 118,066 pilgrims (44.8% of all pilgrims coming overland) passed through Medina, while no overland pilgrims went through Jeddah, due no doubt to its geographical location. As a result two camping areas were established in Medina for the pilgrims' vehicles. In 1976 pilgrims coming through Medina seaport (Yanbu) totalled only 7,218 persons (8.9% of all pilgrims coming by sea), compared with 71,805 persons arriving by sea at Jeddah.

In recent years accommodation in Jeddah's hotels has been used to relieve the congestion in Mecca, especially for rich pilgrims who can afford the daily 75 Km journey between Jeddah and Mecca. Jeddah's importance in this respect has led to the creation of a new kind of agent or "Wakeel". The function of these agents is to collect pilgrims in Jeddah and arrange their transportation to Mecca or Medina.

Jeddah has exploited its favourable location advantageously. The communication system has been developed to give maximum accessibility to other parts of Saudi Arabia and to the outside world. Non-Muslims are allowed to enter Jeddah, but not Medina. The head offices of some important national public agencies, such as the SAMA office (the Central Bank of Saudi Arabia*) and SAUDIA head office, are in Jeddah. Many ministries maintain their regional offices in Jeddah and not in the capital of the Province (Mecca). More important is Jeddah's import-export function, which extends beyond the pilgrimage region to the whole of the west of Saudi Arabia. The foregoing emphasises the fact that Jeddah has greater national and international importance in Saudi Arabia and is less dependent on the pilgrimage than Mecca and Medina. In addition, peak demands in the consumption of water and electricity in Jeddah occur during the summer rather than the pilgrimage season [416: p.68].

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* It moved to Riyadh only in November, 1978.

Yanbu is a small port town on the Red Sea, 246 Km west of Medina, and is only 60 Km away from the agricultural areas of Yanbu An-Nakhl which has links with Medina through the road between Yanbu and Medina. Its main function is fishing, but transportation and industry are becoming increasingly important as a result of the government's efforts to activate the harbour. Since the early 1960's the government has undertaken an extensive programme to enable Yanbu to receive some of the pilgrimage traffic. The second development plan of 1975 to 1980 included plans to attract industry to the town and to construct specialised facilities at the port to serve the industrial complex [158: p.441]. This seems vital to relieve pressure on the port of Jeddah and spread development programmes throughout the region and away from the main traditional centres (Mecca, Medina, Jeddah). Accommodation facilities are poor, but recent building of services may help Yanbu regain some of its former share of the pilgrimage traffic, which was lost many years ago to Jeddah. However, Yanbu's importance to the pilgrimage is only in its handling of pilgrim traffic to Medina, and thus the effect of pilgrims on its economy and structure is small compared to Medina.

At-Taif city, whose main activities are agriculture and tourism, lies approximately the same distance (85 Km) from Mecca, as Jeddah, but plays a less important role in the pilgrimage. Due to its mild summer weather and abounding natural beauty, it became a tourist centre for Saudis, but also serves as a sub-regional administrative centre for areas to the south and east of Mecca Amirate. Its importance as a market centre extends beyond the pilgrimage region to include localities such as Afif, Tarabah and Al-Khurmah, and the pilgrimage is only of secondary importance to At-Taif. The construction of the asphalt road from the east to Mecca through At-Taif gave it a connection with the movement of overland pilgrims from Afghanistan, Pakistan, Iran, Iraq and the Gulf States, and it is also a halt station for pilgrims coming from the South-Yemen. One of the places of interest to pilgrims in At-Taif is Al-Abbas's mosque founded by the Prophet's uncle in the seventh Century A.D. It may be suggested here that At-Taif could play a greater role in the pilgrimage region considering its cool, dry climate, and its airport could be improved to relieve pressure on Jeddah whose hot and humid climate proves a disadvantage.

Al-Leith, a small fishing town on the Red Sea, plays no role at the present time in the pilgrimage traffic, although it was important in the 18th and 19th Centuries. It could possibly regain its importance in the handling of pilgrim traffic if the necessary facilities for receiving pilgrims were improved. This would not be easy since it is 191 Km from Mecca via a

mountainous road which makes it less favourable than Yanbu which is easily accessible to Medina through a natural break in the escarpment to the east.

It is clear that the impact of the pilgrimage on city life is great in Medina, being exceeded in importance only by Mecca, which will be elaborated in the following section.

2.3.2 The historic rivalry of Mecca and Medina.

This section is of special interest and has two major themes, first to indicate the geographical complexity of Medina, and secondly, to show, in some detail, the value of pilgrimage to Medina, in addition to other physical and human resources of the Medina Region. In contrast, the city of Mecca has grown to become more dependent on the pilgrimage trade as a source of revenue. In Medina other elements of the economy also developed such as commerce, agriculture and administration, although the pilgrimage remains very important. In fact, the pilgrimage has been a major factor behind the modernisation of agriculture and economic activities (Chapter 9). In consequence, Medina became more involved with surrounding areas, in spite of its small size compared to Mecca. Furthermore, the existence of another major Holy City in the region and the competition between them in serving pilgrims emphasised the importance of pilgrimage to Medina and helped in the growth of some services such as the pilgrims' guide system and accommodation. These certainly affected the general city structure.

The significance of the Hajj and religious rivalry between the two cities of Mecca and Medina goes far back in history. The geographical location and the religious function made Medina a unique city. It supported not only its own people, but also became a place for investment, thus its importance can be suggested to be characterised by changeability and relativity according to social, political and economic changes. A historical analysis is vital in order to understand the effect of such fluctuations and the strength of Medina's functions.

In pre-Islamic times Medina was mentioned in Minaean writings as a trade centre on the ancient trans-Arabian route [18: p.395], having good connections with both central and eastern Arabia. The route had increased in importance since the third Century A.D. and several stations flourished along it. From these trade routes, Mecca became a well known centre [246: p.132; 394: p.330], due to its midway location on the road and its old religious significance. The growth of Mecca's market activities may be closely connected with the development of the city as a centre for pre-Islamic pagan pilgrimage [223: p.141], as trade was conducted at the fairs taking place during the

pilgrimage season [319: pp. 267-268]. Mecca's policy of neutrality in the severe struggle between the large powers of Rome and Persia in the fifth Century A.D. was of great value in its development as it became an ally of both opposing forces. Its financial and commercial importance increased with the shrinking political and economical systems in Yemen at the time [377: pp. 25, 28]. Mecca's trade became linked to the world by both land and sea routes.

At that time Medina was not a dangerous competitor to Mecca. It had its share from the overland trade route and to some extent benefitted from Al-Jar port which received ships from Aden, Ethiopia and the Far East, but the location was not the sole advantage of the Medinese. The site of Medina, characterised by its volcanic and light argillaceous soil which made it famous as a fertile oasis with an abundant water supply, caused it to become to some extent self-sufficient and less dependent on only its location for importance (a main station on the north-south caravan road) as was the case with Mecca. Medina, protected as it is by surrounding lava and mountains is easily defended, and therefore became safe at unsettled periods. It was also a flourishing market for internal trade between the different regions of Arabia, and this resulted in the development of several fairs in its different quarters [21: vol. 2, pp. 747-748; 422: pp. 145-146]. This partially explains why until the present day, the Hajj has been relatively of greater importance to Mecca than Medina, as a relatively high proportion of Medina's annual income (more than one third) now comes from non-Hajj sources (Chapter 10).

With the advent of Islam in the early years of the seventh Century A.D. a new function was added to Medina, which guaranteed it continuity and survival. It became united as an urban area, being previously composed of separate scattered villages or quarters, and became the religious and political capital for the Islamic state from 622 to 661 A.D. Consequently, Medina became established as a major economic centre as treasures and people poured into the city [118: pp. 52, 54]. Thereby, the new religion did not seek a completely isolated haven, as was the case for the founding of some other cities in recent times such as Salt Lake City in U.S.A. [320: p.209].

If Medina offered no serious competition to Mecca in pre-Islamic times, this could not be said to be true after the coming of Islam for several reasons:

a) it captured one of Mecca's most important functions by becoming capital of the new Islamic state. Before Islam, Mecca had been theoretically, the capital of almost all of Arabia;

b) when the Prophet Mohammad fled to Medina, many rich people and traders followed him, thus depriving Mecca of their skills and of capital investment;

c) in the first half of the seventh Century A.D., the influx of treasure from newly conquered lands far outweighed Mecca's former profit from trade [368: p.17]. In the year 623 A.D. goods in the Quraish caravan returning from Damascus were estimated to be worth about £50,000 [41: p.172], and another source estimated Mecca's income from trade to equal £300,000 a year [108: p.42]. Taxes from Bahrain alone during the reign of the Khalipha Omar (634 to 673 A.D.) reached five million dirham [118: p.54], (the dirham is said to be only one-tenth of a dinar, which is equal to one pound sterling [129: p.520]). This means that the value of the taxes was about £500,000.

The change of Medina's position from only a station on the trade route to a multi-function capital continued only for a short time (622 to 661 A.D.) This reflects the circumstances surrounding the Prophet Mohammad's search for support for the Islamic faith. The unfavourable reception in Mecca and At-Taif forced an alternative to be sought. In Medina, however, due to the fragmentation and tension between tribes, the Prophet found an ideal situation as they were in search of a leader to unify them [74: p.81]. Hence, Islam was readily embraced and Medina became a temporary sanctuary which permitted its development.

Medina's location, though better than that of At-Taif, with its suffocating mountainous interior location, was not exactly perfect for the development of the newly-emerging Islamic state, though preferable to Mecca's southern location away from the expanding northern, eastern and western frontiers of the new state. Thus Medina may have sheltered Mecca (which increasingly became a religious centre of world-wide importance), the first Holy place of Islam, from the political struggle, but it was impossible to keep Medina, the second Holy place of Islam, isolated from such struggles until certain civilised and strategic northern urban centres such as Damascus, about 1300 Km north of Medina, were conquered.

A. Smailes noted that political change is the most sudden and striking in its effects on the fortunes of a town [205: p.60]. Medina lost its political and economic function when Damascus became the centre of the Aumayyed state in 661 A.D., but retained its value as a trade, religious and cultural centre, thus preserving its lively activities. It became famous among the cultural capitals of the Islamic World, such as Damascus, Al-Kairawan,

Fas, Baghdad and Cairo. A variety of scholars came to Medina either for religious studies or merely for pleasure, as it won the dubious reputation of harbouring the best and most obliging singing girls [47: pp. 68, 118; 109: p.128]. This is not always so in other holy places which retain only their religious function and have not developed into major urban centres [207: p.51]. Here emerges the importance and uniqueness of Medina among the holy cities of the world. It is the destination of numerous Muslims who come yearly to fulfil the obligation of the pilgrimage, and are served by the local people. This is no ordinary religious function as Medina, along with Mecca, is the centre of faith in the Muslim World, and this can never be changed. In fact, other settlements within the Medina Province or nearby, with similar characteristics (i.e. located on an old trade route and with agricultural hinterlands), such as Al-Ula and Taima, developed less rapidly than Medina with its religious function. Likewise Medina itself did not develop to the same extent as Mecca in spite of the many factors to sustain growth in the Medina area.

After the decline of the Abbasid state in 1258 A.D. Medina fluctuated between independence and rule by Meccan Sharifs [10: p.119]. In both cases it was supported financially and politically by foreign authorities, especially Egypt, Iraq and Yemen. At the time of its independence the Medinese were subordinated only by Egypt while the Meccans alternated between support by Cairo and Baghdad [409: p.73]. Sometimes the Sharifs of Mecca gained their political control over Medina and At-Taif as a result of their economic and military strength, fostered by the wealth derived from the pilgrimage in the 13th Century [229: p.30].

Since the first half of the 15th Century the unsafe conditions and high taxes charged by the seaports in the south of Arabia caused traders to seek alternative ports; they moved to more northern ports, e.g. Yanbu, thereby creating good opportunities for income to the Medina area. This situation did not continue for long as the Sharifs of Mecca realised the importance of this source of revenue, and successfully diverted the traders to Jeddah, which also served Mecca [419: p.182]. By the Middle Ages Medina was no longer considered as important a trade station as Damascus, Aleppo or Cairo, but maintained its attraction to Muslims as the location of the Prophet's tomb. In 1513 the Portugese tried hard to diminish the religious heart of the Muslim World by organising a military campaign to Mecca and Medina through the Red Sea, which fortunately failed [354: p.23]. This disrupted peace in Mecca more than in Medina as the former was nearer to the coast.

This state of power fluctuation continued until the annexation of the

whole of Hijaz to the Authmanid Sultans in 1517 A.D. No great change occurred during the Authmanid period (1517 to 1916), in the tug of war between the inland and coastal routes, until strong competition arose from steam boats in the first half of the 19th Century. Thus the number of Syrian pilgrims coming by land via Medina decreased from between 10 and 12 thousand in 1836 to only three thousand in 1852, and pilgrims coming by sea totalled 94,000 compared to only 47,000 by land [81: pp. 71-72]. In actual fact the Turks segregated the areas from the outside world with the result that Medina declined in importance and lost its contact with other cultures except through pilgrims. The contact with Europe may become clearer from the works of 19th Century travellers such as R. Burton or Ali Bey. The accounts of travellers and historians indicate that most of Medina's inhabitants had to make their living by serving pilgrims [231: p.79; 240: p.50]. Lucrative and large scale investments were hard to find in Medina and financiers desiring this type of return concentrated on countries such as Egypt and Syria [50: p.374]. This resulted in greater emphasise being given to activities linked to the pilgrimage trade. Without this means of earning a living many of the city's inhabitants would have been unable to remain in the area, since trading activities, especially in the 19th Century, were very minor, serving only the local market [50: p.374]. Thus at this period Medina's economy was weak by comparison with that of Mecca.

The impact of the Hijaz railway on urban form is a theme to which it will be necessary to return later. Here it is sufficient to record that after the completion of the Hijaz railway in 1908, pilgrims from Egypt and North Africa, as well as those from Syria, chose this safer route, consequently the old land route to Medina was discarded in favour of the railway, and Medina actually prospered as a result, and its population increased from 20,000 to between 60,000 [11: p.28; 182: p.439] and 80,000 [134: p.152; 174: p.56; 213: p.28]. The railway also affected the sea routes, as pilgrims coming by sea preferred to return by rail to avoid the long waiting at the quarantine check points. In 1912 there were 19,000 pilgrims returning by rail compared to only 8,000 arrivals [81: p.72]. After the First World War, the destruction of the railway caused pilgrim traffic to revert to the ports of Yanbu and Jeddah.

The political situation in recent decades has been stable in Saudi Arabia, although less attention has been paid to rural and nomadic areas than to urban centres, which may have drawn former rural residents towards the urban centres such as Medina. It can be noted that migrants to Medina from the rural areas of Saudi Arabia composed 20.6% of the city population in 1972, while migrants composed only about 18% of Mecca's population for the

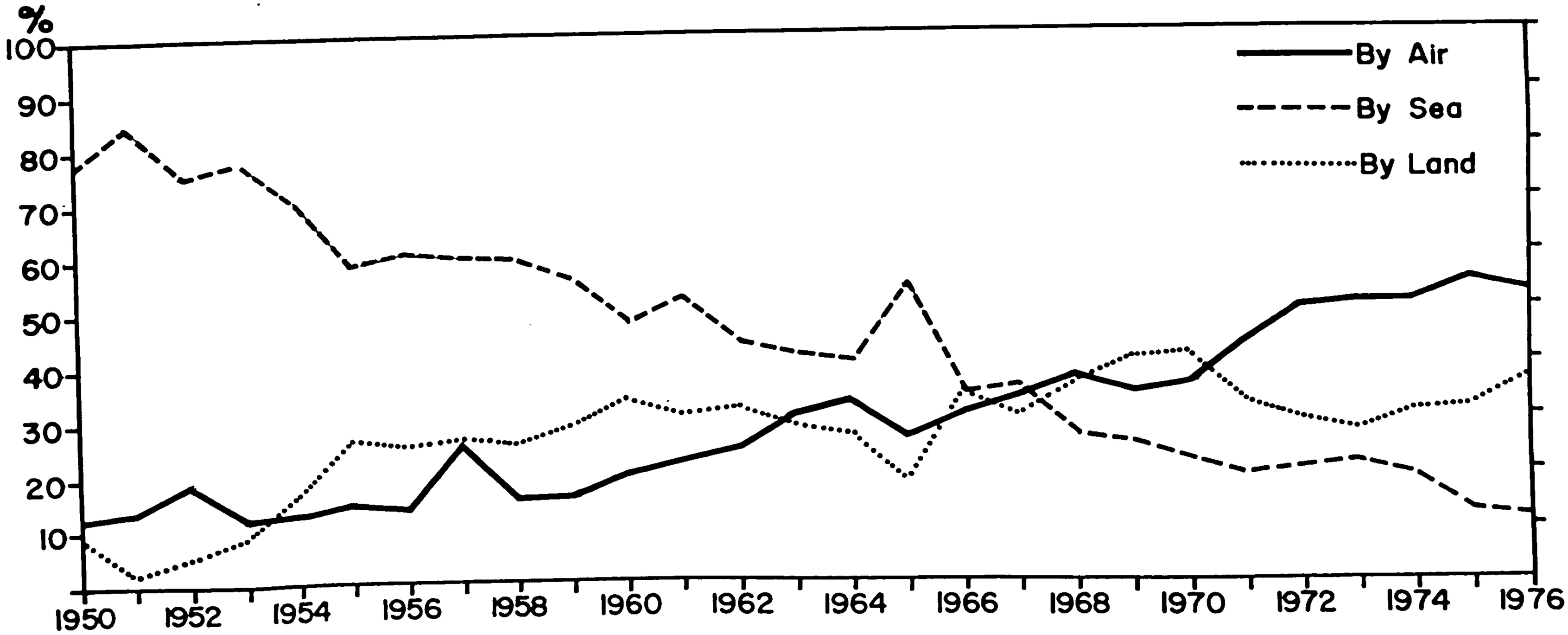
same period [426: part 2, pp. 18, 267]. This may be due to the proximity of Mecca to Jeddah which is very attractive to Saudi migrants (about 36% of Jeddah's population). However, contemporary Medina has regained and extended its status as a market and administrative centre for a wide area of Saudi Arabia, although it remains less important than other Saudi cities, such as Jeddah, as a centre for international trade. The administrative and commercial activities of Medina have created a wide variety of job opportunities in recent years, thus freeing the city's inhabitants from the 19th Century heavy dependence on Hajj activities.

But since the late 1930's the oil industry has rapidly changed the situation, as it contributed to development and change in various areas of Saudi Arabia; oil revenues have allowed large sums of money to be fed into the economy of many settlements, a factor which has ensured their continuing existence and growth. Medina benefitted from this revenue through government spending on employment and development projects. However, on the other hand, it has meant less dependence on pilgrimage and agricultural revenue.

In the 1950's vast improvements in sea travel made it possible for pilgrims to travel in comfort and safety, and Jeddah became the main seaport in Hijaz. The increasing number of pilgrims travelling by air further emphasised the importance of Jeddah, and all these conditions favoured bringing pilgrims first to Mecca through nearby Jeddah. It may be true, as some writers suggest, that the first place visited by pilgrims will benefit from the bulk of their expenditure [153: p.63], as they are more inclined to spend money generously at the beginning than at the end of their visit. This assumption was tested in the pilgrims' survey carried out by the author in November to December 1976, and the results revealed that the average daily expenditure of a pilgrim visiting Medina after Mecca is £21 compared to £29 for those visiting Medina first, thus supporting the theory. An additional factor was that a high percentage (about 77%) of the pilgrims visiting Medina first, were from the high income group.

After the construction of the Riyadh - At-Taif road to Mecca in 1967, traffic from the east and north east was diverted to this road instead of the unpaved direct road through Ar-Rass to Medina, even though the first road covers about 1426 Km, and the second one only 930 Km. After the construction of the road between Medina and Al-Qasim in 1969, traffic in Riyadh and the east was diverted to this road through Ar-Rass, and in 1970 diverted again from this at Al-Batra (Chapter 5). This diversion brought a proportion of the traffic to Mecca via Medina, especially at Hajj time. There is no data on changing traffic patterns on this road, but the records of fuel consumption

Fig 2·3 FOREIGN PILGRIMS BY MODES OF ARRIVAL, 1950 to 1976



Sources: (1) Central Department of Statistics, Statistical Year Book (2) Statistical Section, Pilgrim Statistics

in the stations before and after the building of Al-Qasim - Medina road and that between its villages may indicate the changing flow of people, especially along this road, first to Mecca or Medina (Table 2.4).

TABLE 2.4. MOTOR FUEL CONSUMPTION IN AFIF, AR-RASS AND AL-BATRA BEFORE AND AFTER THE COMPLETION OF AT-TAIF - RIYADH AND AL-QASIM - MEDINA ROADS

	1966	1967	% change	1969	% change	1970	% change
Ar-Rass	45,076	30,740	- 32%	64,642	+ 110%	56,671	- 12.3%
Afif	49,750	409,575	+723%	389,150	- 4.99%	489,944	+ 25.9%
Al-Batra	-	-	-	75,312	-	93,456	+ 24%

Source: Based on unpublished data obtained from Petromin, Riyadh.

More recently, since 1975, with the completion of the road to the small towns in Sodair area north of Riyadh, drivers to Medina found a new easier route to Medina through Sodair and Buraydah which avoided the obstacles presented by the twisting slope of Dirab on the old road to Riyadh. However, this road is mainly favoured by lorry drivers.

The asphalting of the road between Medina and Yanbu in 1956 and improvements to its seaport in 1967, were aimed at reducing pressure on the port of Jeddah during the Hajj season, to enable it to handle pilgrims and cargo travelling to Medina. Thus a perusal of the figures of 1960 to 1976 indicates the changing trend of pilgrims and freight coming to Yanbu and Jeddah. In 1960, 0.34% of the total pilgrims' sea traffic coming to Hijaz passed through Yanbu, and 0.30% and 8.92% of the total pilgrim sea traffic in 1970 and 1976 respectively [61: 1965, p.273; 1971, p.173; 212: 1976, p.11]. These changes appear very small and seem to correspond to the general trend of sea travellers, whose numbers decreased drastically in favour of air travellers (Fig. 2.3). For example, the number of Egyptian pilgrims coming by sea in 1970 decreased by 99.9% on the 1960 figure, and those from Morocco decreased similarly, while numbers travelling by air increased by 274.6% from Egypt and by 102% from Morocco for the same years. The number of pilgrims coming by sea in 1976 showed a 54.4% drop over those in 1974 [212: 1974, p.18; 1976, p.11], which reduced the pressure on Jeddah seaport and rendered it capable of receiving most pilgrims coming by sea, and also allowed Yanbu to cater more easily with goods arrival at Hijaz. It increased its capacity for handling goods from 6.6% in 1965 to 13.4% in 1970 on all cargo into Hijaz [61: 1971, pp. 263, 265]. This meant that for goods transported to Medina, the nearest

large town to Yanbu, costs could be greatly reduced in comparison with those coming from Jeddah, and consequently their prices would be similar to goods in Mecca, the nearest large city to Jeddah, and this is without doubt an extra attraction for pilgrims coming to Medina.

Mecca and Medina have always competed in improving their services to pilgrims in order to derive greater revenue from them. For example, in 1949 there was a 96% difference between the profits earned by a guide in Mecca and his Medinese counterpart to the advantage of the former [288: pp. 69, 71]. By 1974, the difference was only 88% [159: p.1]. In 1975 the government defined the number of pilgrims which each guide in Mecca and Medina might service in order to prevent them attempting to cater for too many pilgrims without seriously considering their welfare (Chapter 8). The Meccan guide derives greater revenue from each pilgrim, due to the greater service which he offers. As a result of this decree the difference in profits between guides in Mecca and Medina was reduced even further to only 55%.

In conclusion, it can be said that the pilgrimage to Mecca, like many other pilgrimages has been carried on since time immemorial. Being an obligatory part of the Muslim faith ensured the continuity of pilgrimage, although the number of pilgrims has fluctuated greatly. Pilgrimage is still of fundamental value to Muslims as to some Indian groups, although its importance has diminished in the Christian World. It must, however, be admitted that some Muslims now make the Hajj for the social prestige attached to the pilgrimage rather than for purely religious reasons.

Although the Hajj is of fundamental importance to the structure and economic life of some centres in the west of Saudi Arabia, it does not now have such an overwhelming economic impact on Medina's population, but the religious spirit which is the major motive behind building and developing the area, remains. There are problems associated with the Hajj such as urban congestion, poor hygiene, and strain on existing facilities at the points of destination. Thus, forward planning has been undertaken by international consultant companies; some of their plans have already been executed, and others are waiting execution. All these improvements are aimed at serving the ever-increasing number of pilgrims, improving facilities and traffic conditions, and restructuring the shopping and religious areas of the city. This has led to competition between Mecca and Medina to derive maximum benefit from pilgrims.

The competition between Mecca and Medina was activated in earlier Centuries by the slump in world trade or by political unrest in the different parts of the Muslim World which affected the number of pilgrims. In recent

decades a more stable world, improved and fast transport, and a national policy of balancing the services between Mecca and Medina have reduced these effects. However, the influx of unlimited numbers of pilgrims may stress the facilities in the pilgrimage region to the limit forcing a quota system, perhaps in liaison with the various contributory countries. This limitation may adversely affect the livelihood of local people, especially in areas of complete dependence on Hajj such as Mecca.

Here again, Medina would have a strong position especially if the agricultural area was restored, and the growth of the city directed properly. Capital could be saved and the local economy strengthened by exporting surplus agricultural produce, money thus derived could be used to improve living standards. This would create a balance of Hajj and non-Hajj resources and would be a decisive factor in determining the population which the city can economically sustain. An integrated plan for the two sectors should be developed to keep the economy properly balanced.

Part Two

The Physical Effect Of Hajj

CHAPTER THREE

URBAN GROWTH IN SAUDI ARABIA

Saudi Arabia does not benefit as much from the pilgrimage today as in the past, since oil revenues form the main basis for the national economy. The effects of petroleum exploitation are manifest in other regions of the country, creating many opportunities for employment. Oil exploitation is above all reflected in rapid urban growth. This chapter will examine the consequences of such rapid urban growth on both national and regional scales, thus providing the setting for an analysis of factors affecting urban growth in Medina. The intention is to stress that whilst the pilgrimage is of prime importance to the Medina Region, it should not be viewed as the only influence upon the structure and growth of Medina; several other general factors have also affected land use changes and growth of the city. In Medina, whilst oil revenue is indirectly important, it is not the most important source of cash flow into the local economy. Increased revenue from oil has notably resulted in government investment in expanding facilities offered to pilgrims. Other examples of the effect of these factors on urban growth are the national policy of centralization of development which has directed resources to certain centres in preference to others, and also, the unqualified decision making (as discussed in this and the preceeding chapters) which has determined the direction and scale of urban change. Certain strategies relating to future urban growth will be proposed in this chapter with the aim of achieving a more balanced spatial development, which should keep pace with national and local economic development.

3.1 National Growth and Development Since the 1930's.

In order to appreciate Medina in its regional context, it may help to shed some light on the pattern of urban growth and development over the whole of Saudi Arabia. Until the 1930's, Saudi Arabia was composed of unsettled areas, dotted with scattered villages and walled towns. Since the exploitation of oil in the 1930's, and the influx of immense oil revenues to the country in the late 1940's, the country has taken vast

strides in economic development and urbanization. In fact, the revenue from oil is creating a veritable volcano of possibilities, whose eruption may be devastating in its effect on population distribution, growth and development.

In the late 1960's, the population of Saudi Arabia became concentrated into three major zones:

a) Along the western coast, where 60% of the settled population was concentrated [221:p.62], particularly associated with the commercial and industrial activities of Jeddah and other smaller ports which provide easy contact with overseas countries. Pilgrimage also promotes the active commercial life and has stimulated some aspects of the economic and social development of this zone(Fig.2.2).

b) The Central Region, where about 25% of the settled population was found, encouraged by proximity to the capital (Riyadh), the offices of government ministries and some potential industrial and agricultural ventures.

c) The Eastern Region, where 10% of the settled population resides, drawn by the flourishing oil industry. The remaining 5% of the population are scattered throughout the country. For comparision, in the 1930's these percentages were 52% in the Western Region, 36% in the Central Region, 5% in the Eastern Region and 7% in other areas which suggests less concentration than that in the 1960's.

The sudden acquisition of wealth through oil resources has created almost as many problems as it solved. It resulted in more population concentration within the Western, Central and Eastern Regions as it attracted, and still attracts huge numbers of foreigners and indigenous rural dwellers. In the 1962/63 population census, the number of nomads was estimated to be 21% of the total population of Saudi Arabia of about three million, while in 1932 they were estimated to be 58.7% of the total population [113:p.78]. Similarly, the number of non-Saudis increased; in 1932 they composed 8.4% of the total population. Unfortunately, the 1962/63 census did not give estimations for total non-Saudis in the country, but some recent figures may show the influx of foreigners to Saudi Arabia

attracted mostly to the urban areas. By mid 1975 there were over half a million Yemenis and at least 320,000 other expatriates (mainly Egyptians, Sudanese, and Pakistanis) in the country, working in construction and lower occupational categories. In 1974 a total of only 400 South Koreans were working in Saudi Arabia, mostly as street sweepers, but by 1975 their numbers had grown to 40,000 working mainly in construction [297:p.500]. Due to a serious shortage of cleaners and refuse disposal workers during the Hajj season of 1396 A.H. (1976), the Ministry of Municipal and Rural Affairs entered a contract with Pakistan to supply 15,000 street cleaners [293:p.4]; unfortunately, the contract was only signed at the end of the first half of the Hajj season. Such influxes of foreign workers help explain the high level of urbanization in the country, urban growth exceeded 9% per annum in 1973 [222:p.47;91:p.80], double the world average of 4 - 4.5% per annum [91:p.74] and exceeding some other parts of the Arab world such as Algeria which recorded only 4.4% until 1970 [220:1972, p.80].

These urban newcomers required some form of accommodation, and this in turn promoted the relaxation of control over physical growth in various cities. Until the late 1960's, improved communications such as the development of roads and railways played a major part in the growth of cities [399:p.264], and the only physical controls were imposed by natural and artificial obstacles, such as the volcanic lava flow to the east and west of Medina, and the presence of airports to the north of Riyadh and Jeddah which, until the mid 1970's marked the limit of their expansion. Only in the present decade did planning begun to define the direction of the growth of cities, despite planning institutions that have been in operation since 1959 [94:p.62], their strength and involvement has been inadequate. The absence of comprehensive regional policies for development together with the relaxed controls over urban growth resulted in the polarization of urbanization and economic growth at selective locations. Hence, the immediate impact of the development process was concentrated in only a handful of the 11,193 localities in the country. The concentration of development in these selected localities probably originates from the

traditional importance of these centres whose historical role in commercial, industrial and religious activities was advantageous to more recent development. Very few alternative centres, in the form of new towns, have appeared in the country, thus further concentrating the development process in the traditional, established centres.

Table 4.1 shows that the large centres of urban population concentration, i.e. Al-Hofuf, Jeddah, Mecca, Medina and Riyadh, lie on a central axis through Saudi Arabia. Outside the major cities, the rural and nomadic population accounted for three quarters of the total population in 1972 [22:p.69]. There exists a great variation in city size between Riyadh, which along with Jeddah reflects an almost unrivalled position in population size, while Al-Khobar can be categorized with many similar settlements of the same population and less, which in turn indicates the

TABLE 4.1 URBAN POPULATION AND INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES IN MAJOR CITIES

Major Urban Cities	Urban Population 1972	Industrial Units 1974	Commercial Units 1974	Employees in Agricultural firms 1971	Employees in Non-Agricultural firms 1971
Al-Hofuf	106,000	19	1,450	8	2,375
Al-Khobar	25,000	32	736	-	-
At-Taif	106,000	19	4,219	89	7,483
Buraydah	58,000	11	816	-	-
Dammam	65,000	87	1,765	-	-
Jeddah	370,000	255	11,020	11	34,495
Mecca	301,000	59	7,056	27	14,438
Medina	137,000	23	3,545	2	6,770
Riyadh	381,000	278	16,563	128	38,678
Total	1,549,000	783	47,170	265	104,239

Sources: 1 - Robert Matthew, 1972, Al-Haikal Al-Iklimi, Municipal Affairs, part 2, Riyadh, p.5 (Arabic)

2 - Industrial Studies Development Centre, 1973/74, Bian Al-Masanie Al-Kaémah, Riyadh (Arabic).

3 - Central Department of Statistics, 1971, Nataej Hasr Al-Moassasat li Am 1391 fi Al-Mantikah Al-Goharbiah, Al-Wosta wa Ash-Sharqiah, Riyadh, pp. 14 - 50 (Arabic)

scarcity of medium-sized towns. However, the above mentioned nine centres account for only 31% of the total population, but 96% of the industrial units, and 81% of the commercial units. This indicates the uneven distribution of development in the country. Even among the nine main centres of population the distribution is uneven. Medina being a prime example of this, where the number of industrial and commercial units to population is lower than that found in the main centres. Furthermore, it occupies only the fourth rank in relation to population, the fifth in relation to the number of commercial units, and sixth with regard to industrial units (Table 4.1). This process reinforces itself as centres progressively expand, so does the difference in the balance of development increase, as even more people are attracted from the less developed areas. As Hirshman noted, such development may be beneficial for the city, but regional imbalance will increase [146:p.288].

It is thus relevant to measure the true basis for the process of urbanization which requires detailed information of the total number of workers in agricultural and non-agricultural occupations. Unfortunately, the lack of such information prevents the application of methods of measuring rates of urbanization, but with some adaptation, it is possible to arrive at some approximate results. Applying the available data of the number of workers in firms covering agricultural and non-agricultural activities, but not the total labour force engaged in such activities*, the Davis and Golden method of measuring the basis of urbanization can be applied. This takes the percentage of economically active males not engaged in agriculture and the percentage of population in cities of 100,000 and over [281:p.7]. The application of this theory for comparative purposes between countries has been criticised because factors behind urban growth are so varied [375:p.115]. Here, however, it will be applied to

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*There is no recent available figures for people engaged in agriculture in Medina, and as the official figures of workers in agricultural firms include only those units providing services to farmers, this presents a drawback to the accuracy of any calculation.

the three main regions (Western, Central and Eastern), using the information in Table 4.1. The resulting correlation coefficient between urbanization and industrialisation was 0.66, which is surprisingly much higher than the 0.395 calculated by Sovani for developed countries [375:p.115]. Thus, the results appear to indicate that in Saudi Arabia, urbanization may partially be associated with industrialisation. There is no significant evidence, however, to suggest that industrialisation has preceded urbanization as it did in Western Europe. The contrary may indeed be true. Saudi Arabia, in common with many of the countries of South West and South East Asia, has experienced massive in-migration to its cities. The percentage of persons living in cities in many of these Asian countries is now higher than in the west, and has far out-paced the growth of industrial employment in urban areas. This is a pseudo-urbanization as it has not been accompanied by the required economic developments necessary to sustain large urban populations, and has resulted in the emergence of many city slums and peripheral squatter settlements [132:p.157]. The social changes in city life which have occurred as a consequence of this very rapid growth have in many instances been undesirable. [140:p.42].

In planning for the future, the massive increase in the financial resources of Saudi Arabia should not preclude all thought, initially, of developing other sources to reduce the dependence upon a single, exhaustible raw material. One must learn lessons from the past pattern of development. For example in the fourth century B.C., trade reached its zenith in the settlements along the trade routes of the Arabian Peninsula [246:p.9]. However, after this time, and especially after the first Century A.D. when direct sea links were established with India [246:p.9], and after several parts of the area were conquered by foreign forces (such as Yemen by the Abyssinians from 525 to 575 A.D.), trade in the area suffered severe setbacks. Many inland cities vanished and the standard of living fell [399:p.29]. Only those towns which had an agriculturally based economy which had in addition religious functions, such as Medina, or a strong religious community, such as Mecca, managed to survive [200:p.20]. After the two important events, which marked the end of medieval times

and the decline of Arab civilization, the fall of Constantinople, in 1553 A.D. and the discovery of the Cape of Good Hope sea route in 1498 A.D., most inland Arabian cities lost their connection with the outside world almost entirely. The only exceptions were Medina and Mecca, which retained their connections through the Hajj, and also with the traditional caravan routes through the interior of Arabia.

In today's terms, the use of oil revenues to develop the state economy should concentrate not only on the provision of infrastructural facilities, but balanced regional development as well. Moreover, development should not concentrate on established major urban centres, neglecting the rest of the country. The ideal strategy must be to develop every region's own resources after a scientific survey, in an attempt to spread the spatial benefit of such resources, for example, oil-based industry in the Eastern Region, the pilgrimage and agriculture in the Western Region, and agriculture, livestock and associated industries in the Central Region. A paper prepared by a United Nations expert on the potential areas for development in the Arab World, and detailed strategies of diversifying the basis of urban growth to release pressure on present urban centres should be of great value to planners and decision makers in Saudi Arabia [328:pp.93-102].

As the non-renewable resources of the world are steadily diminishing, there is a strong move afoot in advanced countries to depend increasingly on the replenishable resources. This requires a better understanding of the ways in which the ecological systems can be modified and nurtured, to increase the rates of productivity necessary for human survival and for the maintenance of recognised standards of living [336:p.544]. It is just as important to ensure this type of planning in developing countries, in order to provide improved standards of living. Therefore the Hajj which proved of great benefit to the economy of the Medina Region (as explained in part 3) for centuries could give greater benefit to the area if its problems were defined and plans were introduced to relieve them. To other regions the problems which present natural barriers to agriculture and industry, such as the scattered nature of the rural areas, could be overcome by, for example, improving the road system. Some attention should be paid to

developing the rural areas and providing them with modern amenities (chapter 7).

3.2 Processes of Urban Planning and Growth .

The argument concerning whether or not Middle Eastern cities originally had planning is frequently elaborated. The relevance of the argument cannot be evaluated until it is viewed within the context of a specific area at a specific time and situation. It is true that the Middle Eastern cities have great structural similarity [95:p.293], but they also exhibit a rich variety resulting from their different locations. As Hourani argues, many factors, some physical and others human, affect the shape of a city [119:p.21], and there is no doubt that these factors vary from one city to another as streets and dwellings follow the contour of the land on which the town is built. Human decisions also affect the location and design of the buildings, and with these variations it is very hard to define a broad rule for the character of the Islamic city.

Some writers explicitly or implicitly, deplore the Islamic city for manifesting uncontrolled growth or rough design. Creswell claimed that the Arabs both in the pre-Islamic era and after the advent of Islam, had no fine architecture or buildings [75:vol. 1, p. 7]; Morris suggested that planned urban form must have appeared after the first settlements had acquired urban status through organic processes [161:p.9]; Ettinghausen suggested that crooked lanes and lack of open spaces in the Islamic city are evidence of the non-existence of planning [95:p.305]. Others stressed that the Islamic city depended for its growth on individualism, and civic feeling was weak [36:p.202;192:p.10].

It is the author's view that one should not examine the matter merely in the light of present circumstances, but should also bear in mind the effect of man's adaptation on his current environment. The difference lies not only in the type of city structure, but in the way the structure functions, and the way it is perceived by local people in this Century compared to previous Centuries. The city plan may be considered inadequate from the point of free access and movement of motor vehicles, whereas another school of thought may consider its informal character of great value.

The Islamic city may appear to have developed haphazardly and with irregular shape, but in fact it represents functional harmony [97:p.63; 347:p.322].

Many Islamic cities have their roots in pre-Islamic times, and had already passed an unplanned stage of growth suggested above by Morris. Planning in many of these ancient cities had been governed by topographical and celestial factors, such as protection from wind and sun or belief in location relative to astrological phenomena [59:p.61]. Moreover, there are records of certain Middle Eastern cities which have been planned; Baghdad began in 765 A.D. on a two mile radius circular plan [318:p.125], and Raqqa was laid out in the form of a horseshoe. The traveller, Richard Burton observed that Medina had, after Cairo, the most regular streets and planning of all the Asian cities which he had visited [55:vol.1, p.288]. Although De Planhol commented on the unplanned Islamic city, he included a description of wide streets in Mecca and Medina compared to other cities, and suggested that the width of the streets was one reason why these cities could cope with the vast numbers of pilgrims visiting the area each year [81:pp.20, 22]. Such descriptions suggest that planning did exist in the area.

More precise analysis of planning can be explained by the organisation of public and civic life, and the introduction of design such as the courtyard house, to counteract environmental factors, which provided certain ground-rules for the original design of cities. The structure and organization of cities in the Middle Ages, with the heart of the city centred around the main mosque; the palace of the ruler, with the main streets radiating from the centre towards the other quarters and the city gates, were a reflection of administrative and functional convenience [322:pp.109-110]. As Herbert pointed out the straight, noisy streets of some cities are not always ideal, whereas the crooked lanes of some Middle Eastern cities provide a measure of psychological comfort to the beholder [97:p.325]. Along these twisting alleys, the private houses and the mosques were built to a specific design and the style of building around a central courtyard has been traditional for many centuries. Along this line of thought, Shafi defines architecture

as being primarily the general plan and organization of the main parts of a building, while the details and the elaboration reflect the characteristics of the people who live in them [198:p.43]. Whether a city's buildings are advanced or primitive, they reflect the architectural style of the men, who invented, changed and developed them according to vogue. Moreover, the medieval guild system included a class of professional architects [322:p.111], indicating a knowledge of house planning.

The tradition of building houses with complete agreement between neighbours, regarding the limits or the width of streets and alleys was established in early Islamic times, any complaint being resolved by the municipal officer. Known as "Muhtasib", this officer's job was to supervise the market, the maintenance of physical facilities and the standardisation of weights and measures; he also acted as judge in matters of land encroachment, but when complaints became complicated, he transferred them to the court [225:p.153;322:p.109]. Prior to the establishment of the modern municipal system in this Century, each quarter had its own representative, or "Umdah", who looked after that quarter's affairs at the governor's council; this is yet another example of the existence of some form of responsible administration. The success of municipal co-operation is shown by the fact that Medina had paved roads and squares as early as Muawiah times between 661 and 667 A.D. [21:vol.2, p.739].

The Islamic city has thus, through time, achieved some sense of order. Medina is no exception and had, in contrast to many other cities, a strong civic feeling. No doubt there were subdivisions within the city based on ethnic or functional variations, but the Medinese have always been proud of being citizens of this area, partly due to Medina's religious significance. Some people even came to spend their last days in Medina, to die and be buried there [229:p.52]. Some of them bring only enough money for their journey to Hijaz, expecting to die there [285:p.63]. When travelling to other parts of the Islamic World, Medinese receive a sincere welcome and are considered extremely lucky to have lived in Medina.

After examining Medina in the context of Islamic city planning, the following paragraphs will consider Medina as a case study for the investigation

of problems facing the modern growth and city planning in Saudi Arabia. The form of elected municipal council introduced to Medina by the Authmanid in the middle of the 19th Century was linked to the governor. After the coming of the Saudi regime in 1925, regulations were drawn up in 1926 governing functions, responsibilities and authority of the municipality; thus its scope became clearer, and included authority to plan and organise the city and supervise and protect public property [41:pp. 261-263].

During the last 30 years, in common with other urban areas in the country, Medina has undergone uncontrolled and shapeless growth, "mushrooming" around the original medieval core [52:p. 109]. Certain factors may partly excuse this uncontrolled growth:

a) The new income from oil exports eradicated the financial difficulties of the government, and the new era vastly increased government expenditure on infrastructural projects, which further stimulated rural to urban migration. Medina was unprepared for this sudden influx, immigrants were left to build their own homes in a haphazard fashion around the city.

b) There was no longer a need for the city to be walled, now that the long struggle between citizens and Bedouins was over, and the city could, therefore expand outwards in every direction.

c) Pilgrimage is an extra factor in Medina compared to many other cities of Saudi Arabia. It has motivated the government to spend some of its vast income to carry out projects changing the city's appearance to serve pilgrims without direct financial returns. As the government does not levy tax on income, much of the wealth derived from the pilgrimage falls into private hands, leaving the government the meagre income from quarantine taxes (Chapter 10), and it is forced to depend on its oil revenues for development programmes. Projects such as the enlargement of Al-Haram created housing problems for the city's inhabitants and pilgrims trying to settle in Medina, no longer could cheap accommodation be found in the city and thus they were forced to construct new residential areas at the periphery.

d) Economic and social changes continued at a high rate in the last 30 years; for example, the introduction of motor vehicles further emphasised

the unsuitability of the old physical structures in the new pattern of life and necessitating its modification. These changes were manifested in the expansion of the city, associated with a rapidly increasing population, encroaching upon valuable agricultural land. This resulted in yet more jobless agricultural workers seeking employment in the city. In the developed countries during their first stages of development in the 19th Century, rural-urban migration was due to the labour requirements of the urban industrial area and not to the push factor created by a diminishing agricultural area [234:p.203]. From Haig's point of view, it is inevitable that the growth of an area and the intensive use of its resources would raise land prices and lead to the use of inferior resources [316:p.186], but unfortunately, in Medina, the urban area is expanding at the cost of valuable agricultural land, a process which is probably irreversable.

Another view regarding sustaining settlement resources is apparent in the words of Al-Saleh, "the city is likely to be most exploitive of the resources in its hinterland while it is growing, and as it grows it attracts resources from wider and wider areas" [406:p.297]. This understanding of the nature of urban growth, should be given special attention in planning the development of cities in arid areas such as Medina. Steps should be taken to ensure that agricultural lands are not encroached upon, and until now, this has not been the case in Medina.

e) The municipal authority has a deplorable lack of power and insufficient experience of planning to decide exactly how the city should be run. It hastened to demolish the old structure creating an untidy mess of mixed buildings. In general, as Dwyer noted, official policies towards problems of spontaneous growth in the Third World are characterised initially by a benign neglect [88:p.167], and this is what has happened in Medina. As in other underdeveloped countries, indiscreet officials have accepted bribes to grant permits and prevent the prosecution of wrongdoers [235:p.144]. Since 1974 such procedures are no longer possible; a branch of the Town Planning Office was opened in Medina with sole responsibility for planning and granting permits. They have a doomwatch body to assess specific problem areas, and the right to demolish any building which violates

their code and the town plan. Nevertheless Medina has not escaped certain serious mistakes in planning from time to time. For example, in Bab Ash-Shami area in 1977 a planner from the Town Planning Office replanned plots of unused land with the result that one building was constructed without access, which led to heated arguments and complaints. The planner, who had a share in one of the plots had used his authority to draw up a foolish plan.

There are unfortunately many other examples of improvised decision-making and lack of experience in Medina, especially when planning and execution are from within the area. The problems were further aggravated by changing to foreign experts on contracts since the mid 1960's. One good example of this is found with the pavements in Al-Manakha street, which were altered five times since 1960; vast sums of public money were wasted every time, and only the style or form was changed, and no real consideration was given to future increases in the number of pedestrians. Significantly the city municipality has required radical staff reorganisation; 13 principals have been appointed to Medina's Municipality since 1925 [211:1969, pp.129, 137], of these, one remained in office for 12 years. The majority resigned voluntarily after acquiring property in the city, and due to increasing public gossip concerning their newly acquired wealth. By contrast, only seven governors or "Imirs" have been appointed to Medina Province and five representatives of the Ministry of Finance have been appointed since 1925 [10:pp.140-141].

Several buildings have been erected when owners have obtained prior warning of redevelopment projects, in order to obtain more generous compensation from the government, as occurred with some buildingsin Bab Ash-Shami area in 1972. Additional building also occurs when the owner is an important official who is either in charge of such project or has some connection with someone who has; such an incident occurred in Al-Fairozia area in 1977.

The above factors are indicators of unsound decision-making in Medina and are the main reasons behind the confusion now evident in Medina's urban structure. The irresponsible local attitude and the resultant policy

conflicts is one of the main reasons why recent redevelopment programmes have been strictly controlled by central government, which may have slowed down work on such programmes. The government sought to sign contracts with more experienced foreign contractors, but this meant further waste and leakage of national revenue. Great benefit is derived from these contracts by both the large foreign contractor and their small local sub-contractors, through bids accounted for by commissions and other "grace and favour" payments [338:p.17]. One conclusion which can be drawn here is that effective measures to tackle this daunting trend need to come from within the area and from the people familiar with the problem. This can be done by introducing new methods of urban environmental education and by controlling the inflation which brought pseudo wealth to some individuals and caused others to imitate them.

As inflation was a primary cause of housing shortages which existed throughout the country, it can be seen as an important factor in limiting the process of urban growth. It is very difficult, even for the economist, to measure the rate of inflation with any accuracy in Saudi Arabia, as it consists not so much of a general rise in prices, but as a result of a series of wild upward rushes in the price of specific items, caused by sudden and often, unforseen shortages. Estimates by some experts put the inflation rate at 40% in 1975 and 60% in 1976 for the average consumer [268:p.14;194:p.5].

These shortages also pushed up house prices and increased the cost of many projects. Examples of this occurred when a consultant or executive company failed to find suitable accommodation; they were prepared to pay grossly inflated prices with the result that landlords were encouraged to sell or rent their property to these foreign firms rather than to locals and they in turn pass on the price increases to their customers (private or public) by charging higher prices than necessary for their work.

The cost of new buildings is directly influenced by the high price of land, raw materials and the increased wages of labourers. In 1976 a [illegible] one m^2 of land cost about SR 3,500 (£636.4) in the north of Medina where growth was taking place, compared to only SR 120 (£21.8) in 1974.

Therefore, the 42 m^2 required for a one storey building would cost approximately SR 147,000 (£26,727).

Dramatic price increases were also observed in the price of raw materials; a sack of cement weighing 50 kgm which cost about SR 6-8 (£1.09-1.45) in the early 1960's, rose to SR 28 (£5.09) in 1975 and early1976, but fell by the end of 1976 after the introduction of government subsidies to traders. The sand for concrete construction, which formerly cost about SR 8 (£1.45) for a full truck, increased to SR 25 (£4.55) in 1975 and SR 40 (£7.27) in 1976; one tonne of round steel for construction which cost between SR 650 and SR 760 (£118-£138) in the early 1960's, cost SR 1,100 (£200) in 1975 and SR 1,900 (£345) in 1976. The wages of unskilled labourers have also increased dramatically from SR 8 per day in the early 1960's to SR 35 in 1975 and even to SR 50 in 1976. The wages of skilled labourers increased from SR 18 in the early 1960's to SR 80 in 1975 and SR 150 in 1976.* These increases are of course common to the whole of Saudi Arabia and the pilgrimage has had little effect on the actual price of building materials, as explained in chapter seven, but it is undoubtedly a cause of increasing demand.

The position is made even more drastic by the shortage of building labourers in the area. The development projects have absorbed most of the labour force leaving the private sector, which cannot compete with the high wages offered for such projects, at the mercy of the remnants of the labour force. The present acute labour shortage at all levels has been partially solved by importing labour from outside the country. Until 1972 about 60% of all workers in the construction industry and public services were non-Saudi [427:p.50]. In fact the expatriate workforce provided a partial solution to the national labour shortage, but created more problems by placing pressure on housing, and resulted in a demand for even more accommodation. This is found especially among the skilled, highly paid labour force, who can compete with the lower income groups, both local and foreign.

These changes came at an unfortunate time, as prices have risen

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* Personal investigation.

at a much faster rate than per capita income. The social survey carried out by Robert Matthews' Company in 1971, estimated that some 57% of householders had a monthly income under SR 400 (£72.7), 41% between SR 400 and SR 2,000 (£72.7 - £363.6) and 2% over SR 2,000, They also estimated that over the next 20 years per capita income would increase on average by a factor of 2.5, with the same pattern of distribution [428:p.59]. Adopting this assumption would give the following percent in 1976; about 55.8% of household income would be under SR 400 per month, 41.6% between SR 400 and SR 2,000 and only 2.6% over SR 2,000. It is clear that the increases in income are low compared to the increases in prices, and this is a serious situation for the majority of people in the lower income groups.

All the above factors restrict the process of development and controlled growth, and tend to increase and widen the gap between costs in general and income upon which redevelopment depends. The remedy for the above problems may depend on reducing the rate of inflation. The key to Saudi Arabia's future anti-inflation policy may rest in strict government control over its spending. The system of foreign companies seeking local partners should be reconsidered and regulated, as such joint-ventures have resulted in certain companies paying very high commissions to such partners or intermediaries. Measures could be taken to control the temptation to invest the newly increasing oil revenue in none other than beneficial and more productive projects.

Finally one may conclude that the understanding of urban problems in Saudi Arabia is a complicated matter which at present cannot be analysed correctly due to lack of statistics. This knowledge and other information is necessary for any sound, future plan. Such shortcoming at present, however, may be the reason behind the occasional sudden decision-making taking place in the area creating chaos in city planning. In fact it may be argued that many ancient city centres throughout the Middle East, as in Medina would prove good case studies as they had a sense of planning which was adequate for the people, resources and circumstances in earlier times,

while the present uncontrolled change in city structure, discussed in detail in the next Chapter, is the result of superficial understanding of the nature and culture of the area, and the lack of controlled urban growth. This would suggest the need for preserving the old structures(in the next Chapter, why and how this might be done will also be explained) and controlling the new one. The major factor necessary to smooth rational development would be balanced regional economic development, a diversification of resources, the creation of productive projects and development of services, especially housing. These elements have been outlined in this Chapter. The following Chapters will assess city services provision in order to meet the demands of both the permanent and floating populations and the analysis of other associated effects of the pilgrimage on the physical and social characteristics of Medina.

Chapter Four

Urban Growth And Structural Change In Medina

This chapter outlines the recent stages of Medina's growth to show how it is inextricably associated with the effects of the pilgrimage. Three aspects of Medina's development are of interest; a) the sequence of growth over the last 25 years or so, b) a comparative study of the adequacy of the newly built-up areas to accommodate people forced to leave their homes around Al-Haram, and c) an examination of the influence of the Hajj in creating a central urban area similar to that found in advanced countries, where normally only business premises and temporary inhabitants are found. Understanding these aspects may eventually lead to improved arrangements for the planning and management of a city in the processes of urbanisation.

4.1 Central Area Growth and Change

The marked physical growth and change has only become apparent since 1950 when the enlargement projects associated with Al-Haram began, signalling the modern development of Medina /193: p.247/. Medina, as a city, is centered around Al-Haram, which without doubt is the most important activity generator within the Holy City. It serves as the focal point of the central area, and has exercised a dominant influence over the whole city since early times. This coincides with the ideal structure of the pre-industrial city discussed in section 4.5. Since the time of the Prophet Mohammad in Medina (622 to 633 A.D.) Al-Haram has been the centre around which the city has grown /9: p.210/, and around which clustered the various trading and distributing activities which thrived on the activity created in the religious core. The influence of the pilgrimage is clearly of major importance to Medina, and is reflected in the increased economic activity related to the general increase in the annual number of pilgrims over the past 30 years. Consequently, an urgent need arose for the provision of accommodation and services to cater for the increasing number of pilgrims. Enlargement of Al-Haram is one of the important contributions which the government is making, to cater for the growing number of pilgrims congregating for prayer, radically affecting the physical structure of the central area.

Fig.4·1 THE CENTRAL AREA IN WALLED MEDINA BEFORE 1950

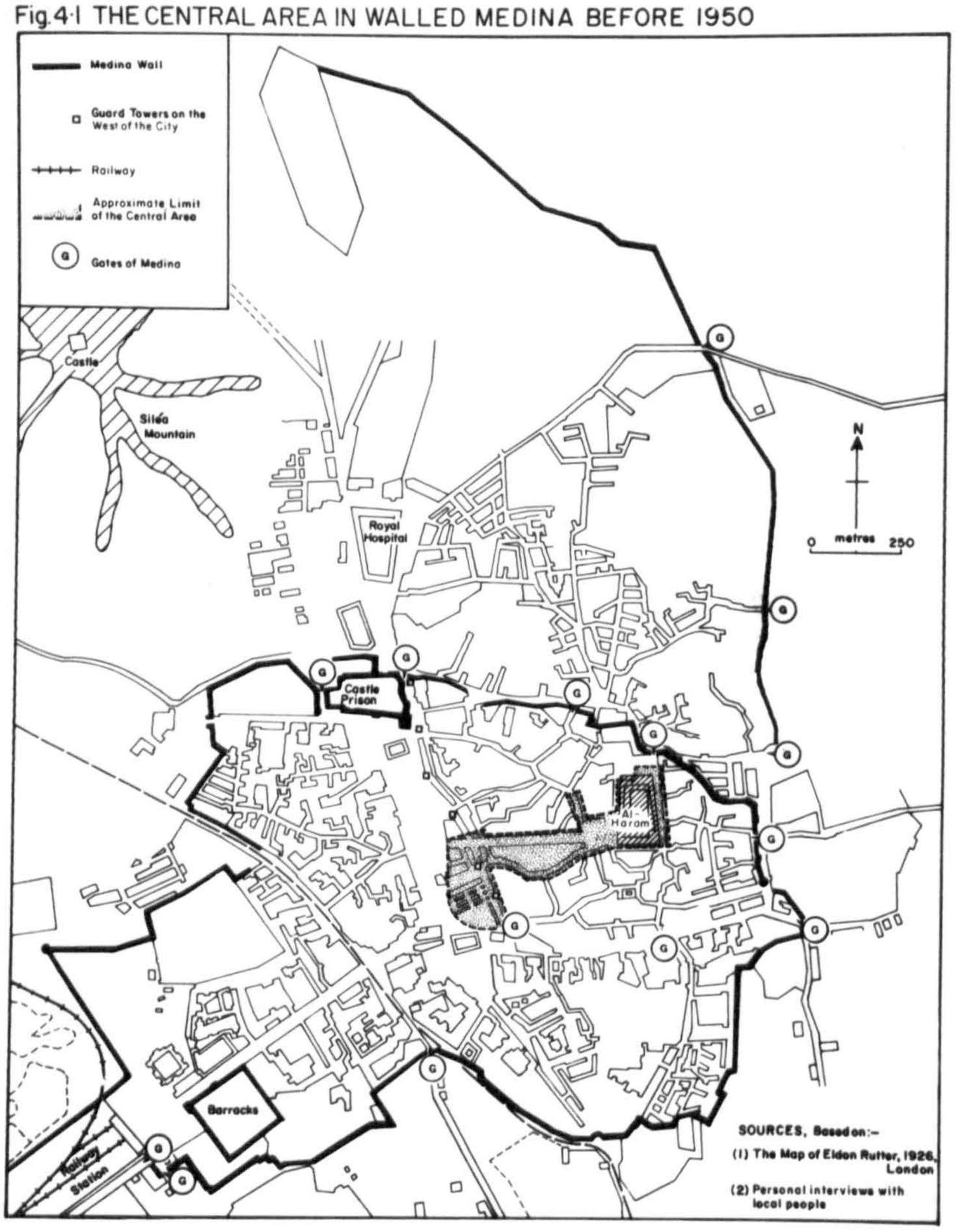
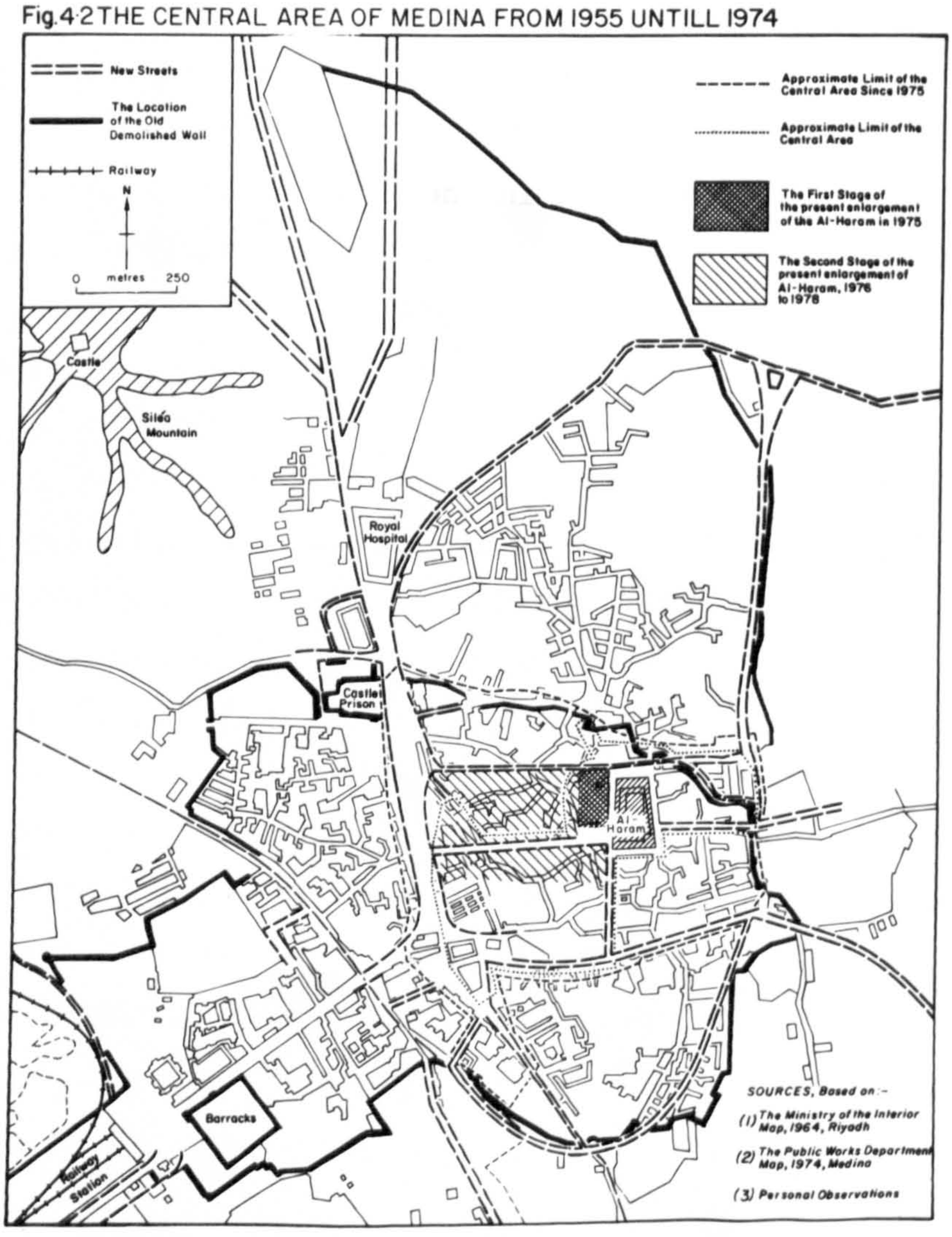


Fig.4·2 THE CENTRAL AREA OF MEDINA FROM 1955 UNTILL 1974



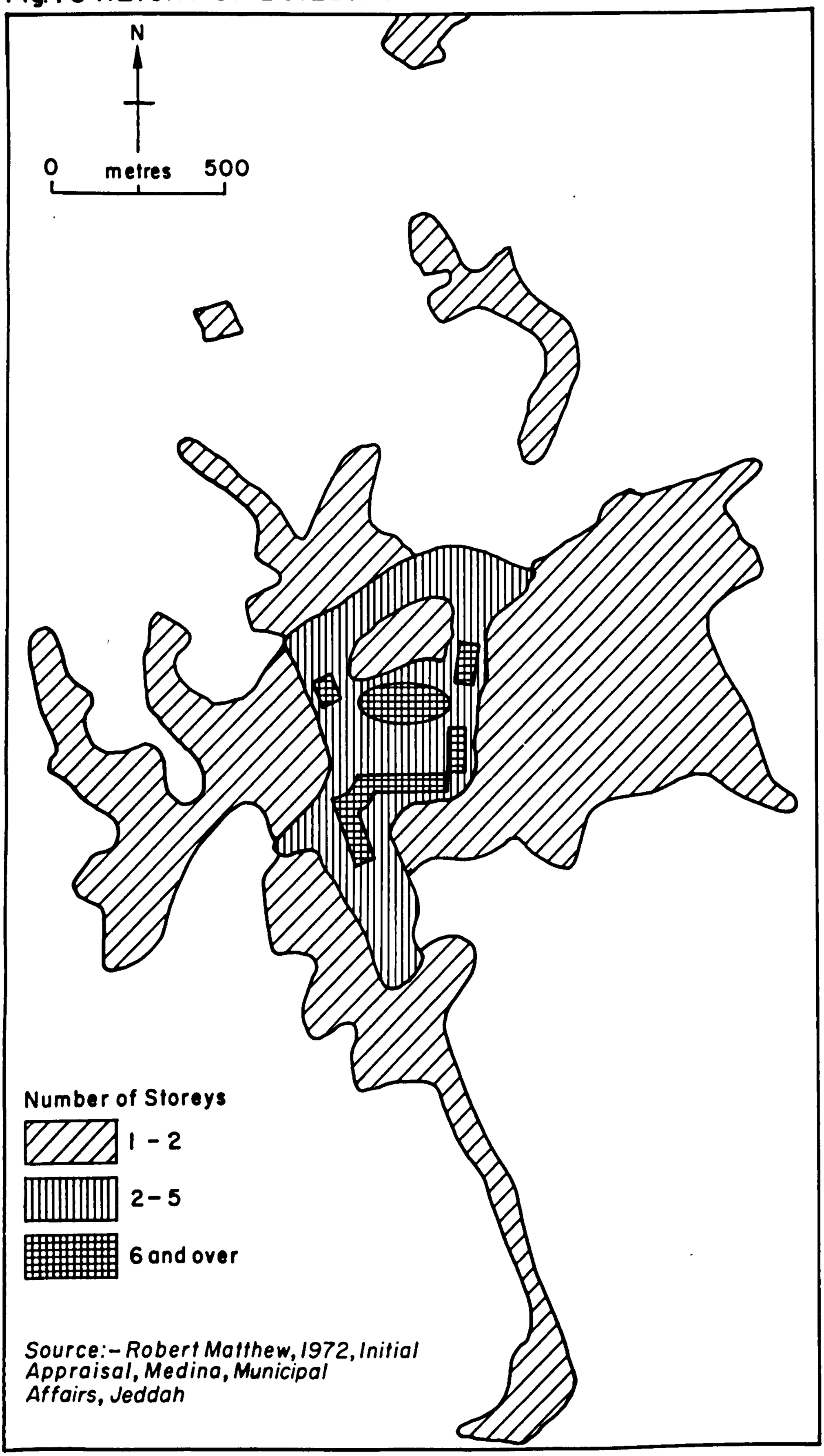
4.1.1 The Enlargement of Al-Haram, 1950 to 1955.

Until the late 1940's the total urban walled area of Medina, according to Philby, was approximately 1.4 Km^2 (Fig. 4.1), 20% or 0.28 Km^2 of which was accounted for by the central area (the religious and commercial area) [174: p.54]. In the old walled town, both pilgrims and residents were fairly evenly distributed throughout the city, within easy access of Al-Haram. Most main streets leading to the various quarters radiated from Al-Haram area, often facing one of the doors of Al-Haram. Bab Al-Majeedi Street faced the northern gate of Al-Haram (Bab Al-Majeedi); Al-Ajnyyah Street faced As-Salam gate in the west, and from these main streets branched the secondary streets or alleys, which penetrated the different quarters. Sometimes the buildings were directly linked with Al-Haram, as was the case in the south of Al-Haram where there were no doors. The centre of Medina exhibited a remarkable functional harmony between home and workplace, which urban planners in other developed countries may well envy. Unfortunately, this harmony in Medina has been somewhat weakened under the guise of improving facilities considered essential for modern development.

One example of improved facilities is the first extension of Al-Haram which took place between 1950 and 1955. The Ministry of Finance and National Economy was the authority responsible for this extension, which increased Al-Haram in size from 10,303 m^2 to 16,327 m^2. An extra area of 16,231 m^2 was demolished in the environs of Al-Haram in order to lay out access roads and squares. In addition, 6,247 m^2 of the old Haram was rebuilt [402: pp2. - 3]; this means that only a small fraction (39%) of the original traditional style of the building remained. This enlargement may seem small when compared to that carried out to Al-Haram in Mecca between 1955 and 1970, which extended its area from 29,122 m^2 to 190,000 m^2 [136: p.154]. However, with the relatively small scale expansion of Al-Haram in Medina at this stage, the central area, with its commercial functions, were forced to occupy new land to the south, east and west of its previous boundaries (Fig. 4.2). This relocation resulted in remarkable changes in the land use of the central area and of the population distribution. Many residential buildings were demolished to make space for the new streets, shops or suqs, such as the new vegetable suq in the south of the old limit of the central area, and the squares around Al-Haram. Parts of some former dwelling houses were also converted into shops.

It is reported that 200 houses and 100 shops were demolished in the

Fig.4·3 HEIGHT OF BUILDINGS



Source:- Robert Matthew, 1972, Initial Appraisal, Medina, Municipal Affairs, Jeddah

1950 to 1955 project [136: p.194]. Unfortunately, there is no information as to the number of families or people evacuated. The area involved was close to Al-Haram and was a very popular residential area; many owners rented part of their property to a second family and if it is assumed that only half the owners of these demolished properties did sub-let their property, it means that approximately 300 families were forced to find alternative accommodation. Even the families who did not sub-let on a regular basis often rented part of their homes during the Hajj. If the average size of a family in Medina is taken to be five persons [422: p.88], a total population of 1,500 would require rehabilitation. The true figure is probably even higher, as the municipal reorganisation of the city which took place at the same time to improve vehicular access to Al-Haram, resulted in even more demolition. Statistics regarding building construction permits go back only to 1956 and in that year Medina's Municipality gave permission for 420 housing units,* more than Al-Haram project alone necessitated.

Although the city expanded on the perimeter, the need to accommodate and serve pilgrims, who always desire to be as close to Al-Haram as possible, increased demand for land in the core area. This demand resulted in high density development in parts of the centre through vertical growth of buildings, with blocks of four to six storeys or more emerging in and around the city centre (Fig. 4.3). Prior to 1960 buildings greater than four storeys were unknown in Medina; the resultant skyline isolated Al-Haram and its 13th Century Islamic design (1900 A.D.) from the rest of the old town, being further obscured by the construction of new circular roads. There are a number of ways to overcome the associated problems with the pilgrims desire to reside near Al-Haram. For example, the diversion of some pilgrims to areas relatively further from Al-Haram, providing necessary facilities in these areas and improving access to the city centre and Al-Haram by judicious use of public transport (possibly by underground trams). The suggestion of buying electric buses to prevent endangering the health of pilgrim crowds through air pollution from exhaust fumes would be particularly useful here [89: p.152].

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* From unpublished data in Medina's Municipality

Plate 4.1 Crowded oilgrims at prayer outside Al-Haram (seen in the background).

Plate 4.2 Arched sides of Al-Ainyyah street (compare with Plate 4.1 where the arched sides have been demolished in the late 1960's initially to widen the street. Later in 1976 the whole street was demolished to make way for the enlargement of Al-Haram).

Despite the above changes, Al-Haram's capacity became increasingly inadequate. Taking into account the minimum area required for each person to pray ($0.47m^2$), the enlarged Haram can hold only 35,000 people at any one time. According to the 1962/63 unapproved national census, the adult population of Medina who may be expected to carry out the five daily prayers totalled 33,799 [60: p.41]; the area of Al-Haram is more than adequate for these daily demands, even during the Friday Ceremony. However, during the Hajj season much congestion is evident in the area. Unfortunately, data on this subject is scant. In 1962, for which data is available for both adult nationals and foreign pilgrims, the total number of foreign pilgrims visiting Saudi Arabia was 216,455 [212: p.26]. If we assume that only a proportion of this number, equal to the local adult population, would be present in Medina at any one time during the Hajj season (as others may be in other parts of the pilgrimage region, e.g. Mecca), it is apparent that with the presence of both visiting and residential populations the area of Al-Haram would be unable to cater for this accumulated demand.

In 1973 there were more than 200,000 pilgrims visiting Medina over a period of 10 days [425: p.71], each wanting to perform his prayers within Al-Haram. The area of Al-Haram would have had to be some 24,000 m^2 to accommodate these pilgrims, much more than the actual area available.

4.1.2 The Enlargement of Al-Haram, 1974 to 1978.

Further enlargement of Al-Haram was thus considered necessary. The Ministry of Finance and National Economy was again the authority responsible. In 1974, it began demolishing an area of about 7,600 m^2 on the west of Al-Haram; this increased the capacity of Al-Haram by only 16,170 people, and the new regulations imposed by the government, prohibiting more than 100,000 pilgrims to be in Medina at any one time brought some measure of relief [425: p.77]. However, the resultant capacity was still inadequate during the Hajj; by 1972 the local population had increased to about 137,000, of whom 62,568 or 50.8% were adults [427: part 2, p.18]. These figures emphasise the lack of space for people to pray, and many perform their prayers outside Al-Haram in the surrounding streets (Plate 4.1).

Another stage of expansion thus began in 1976, with more demolition to the west of Al-Haram. The work of clearance ended in November 1977, and a contract was signed with a national company to fence, tile and roof the new extension. Work began after the pilgrimage season of 1977 [251: p.16]. Altogether 186 buildings were demolished in the first stage

(Fig. 4.2), and a further 484 buildings in the second stage [424], adding approximately 93,750m^2 to the area of Al-Haram, raising its total area to 127,475m^{2*}, capable of accommodating some 271,225 people. This would appear adequate for both the local population and pilgrims, for this decade at least.

Many people faced displacement as a result of redevelopment plans. In 1972 it was estimated that the population of the central area was 62,770, with an average density of approximately 35,000 persons per Km^2, reaching 50,000 persons per Km^2 in some places [429: pp. 6,43]. The two stages of the latest enlargement absorbed a total of 0.1 Km^2, which would suggest that about 3,500 or about 6% of the total city centre's inhabitants lost their properties. Without Al-Haram project, it may have been difficult to control the city centre population and prevent the overcrowding familiar in many other Middle Eastern cities. For example, in Tunis the density is 52,000 persons per Km^2 [353: p.260], and a similar level is found in Baghdad [423: p.98].

The difficulty lies in the multiple importance of Medina's centre and the need to avoid causing a breakdown in its functions as a religious, commercial, and residential centre. In Medina the important characteristics and relationships between home and workshop often sharing the same building in the central area, as described previously in this section, have been greatly disrupted. This may be confirmed by the fact that the employment in Medina's centre was 13,358 in 1972 and 49.5% of these employees resided in the centre [425: p.61]. By 1976 the number of jobs had increased to 15,849, but only 42% of these employees were residents of the central area**.

The development of Medina's central area was welcomed by people living in former marginal areas, which now became functionally part of the city centre, as this attracted more remunerative activities to their properties, but it also meant disrupting the tenants of the demolished residential areas. These are unquantifiable costs of the redevelopment scheme and, as Hill noted, these changes mean extra social costs for the community [325: p.20]. There is an urgent need to strike a balance between the initiators (plan making authorities) and the respondents (local residents) to make redevelopment programmes for the local arena emerge in a coherent and organised manner.

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* Taking into account the area occupied by the former squares on the west of Al-Haram.

** Estimation of Labour Bureau, Medina.

One method of overcoming the adverse effects of any scheme is to adopt the principal of compensation, whereby the beneficiaries of the scheme compensate the losers sufficiently to mitigate the extent of their loss. This procedure is based on fulfilling the "pareto conditions", that an increase in welfare only occurs when no one is made worse off /389: p.133/. However, it must be noted that even if a change of welfare is known to have taken place, a fulfilled "pareto condition" does not necessarily specify the scale of change, as in our case the compensation may be adequate for some property owners, but not for others sharing or renting it. In Medina's centre properties are mainly religious trusts or "Waqf properties". Thus any financial compensation will go to a small minority of property owners, whereas the majority of occupants are tenants with a considerable number of middle or limited income groups.

Compensation and demolition work for Al-Haram cost the government some SR 250 million in the first stage and SR 450 million in the second stage of the second enlargement scheme, compared to only SR 55 million for the 1950 to 1955 enlargement scheme /136: p.195/. If the total area of streets and alleys is divided by the total cost, it would give an approximate cost per square metre of land in the city core of SR 1,750, although the government paid as much as SR 5,000 - 10,000 for some plots in this area. Thus the project put increased pressure on land in the central area, this was reflected in a great change in land value; the price per one m^2 of land in the free market rose from SR 1,000 (£181.8) in 1972 to SR 15,000 (£2,727)* in 1974 and to about SR 48,000 (£8,727) in 1976**. Thus people forced to evacuate from the central area may have great difficulty in purchasing alternative land within the city centre with the money received as compensation for their demolished property. The relocation of some public buildings, e.g. several suqs, has been sponsored by the authorities concerned, but many other trade and residential areas in the private sector displaced by compulsory purchase orders were often forced to make a rapid adjustment without financial help.

Comparing the central area land prices in Medina with those in other cities may give an indication of the scale of increase in Medina. Al-Hofuf underwent development programmes in its central area influenced by the neighbouring oil fields, but prices did not reach the peak levels achieved

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* One Pound Sterling equalled SR 5.5 in December 1976, and this figure will be used throughout this work except for certain years where it is necessary for accurate analysis.

** Figures derived from interviews with officials of the Land Department in Medina's Municipality.

in Medina. Al-Hofuf had a central land price as high as SR 1,000 per one m^2 in 1974 [415: p.358], while land prices reached SR 1,400 (40% more) in Medina in the same year. By 1976 the price per square metre in Al-Hofuf was SR 30,000 (£5,455) and in Medina it was 60% higher. Similarly comparison of changes in land price in Medina with other cities outside Saudi Arabia proves interesting. In Damascus, the price per square metre rose from between approximately £21 - £27 in 1965 to between approximately £42 - £199 in 1968; in Amman it rose from between approximately £98 - £123 in 1965 to between approximately £120 - £296 in 1969 [82: p.30], and to £344 in 1974 [204: p.25].

The uncontrolled changing pattern of land use in Medina may also have contributed in rising rents. Every landlord could ask whatever he wished, and this created further difficulties for the middle and lower income groups. As a result, in 1976, the government intervened and imposed a law for bidding rent increases for existing tenants, but not for new tenants. As soon as a tenant had been driven to the outskirts of the centre of the city by compulsory eviction by the authorities concerned, the rent was automatically raised to the incoming tenants.

The generous compensation paid by the government to land and property owners was a strong motive for these increases; the cost of municipal development projects was approximately SR 600 million in 1975/76*, and the cost of acquiring land for street widening is expected to be about SR 510,705,000 (£22,855,455) up to 1981 [429: p.111]. There is no doubt that some of this expenditure found its way into the local economy, but it also had a detrimental effect in that it caused a sharp increase in income in only part of the private sector. The short-term profit attracted some local people to invest in land speculation, abandoning their fixed income government jobs since the law did not permit government employees to have other occupations until 1975. But the alarming increase in the number of government employees resigning, led to this now being rescinded in 1976, allowing them to have other jobs outside official government hours of 8 a.m. to 2.30 p.m. The best solution, however, might be to uproot the original cause, by preventing land speculation as far as possible. In Pakistan an act was passed in the 1960's on the recommendations of the United Nations to penalise the owners of any land that remained unused over a certain period of time, which proved useful in this respect [1: p.128]. Such regulations would also embrace the Islamic tradition of the state acquiring

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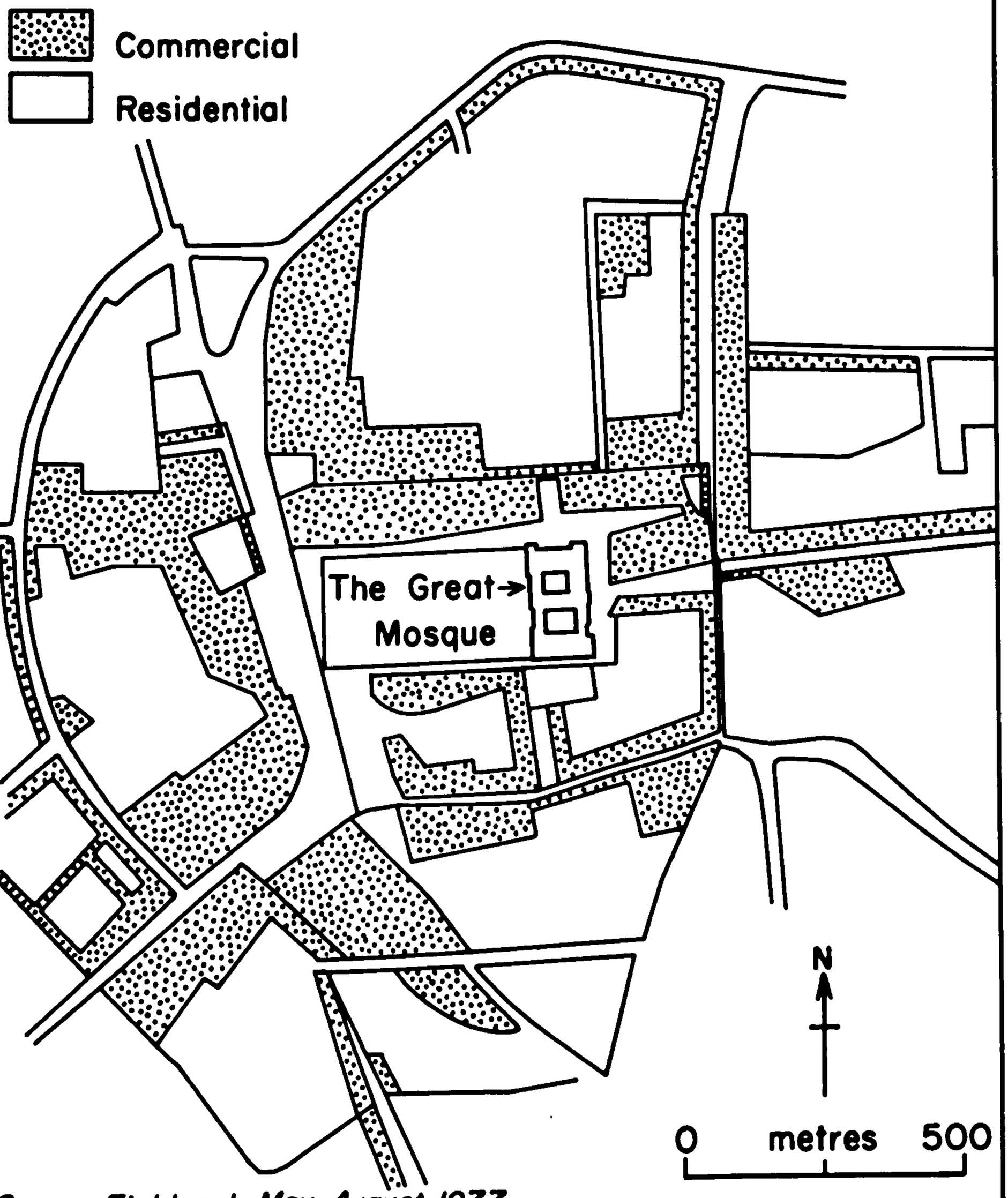
* Kamil, Ghalib, 1976, Hazehi Biladona, A television programme broadcast on 2nd February, Medina.

Fig.4·4 THE PRESENT STRUCTURE OF THE INNER CITY IN MEDINA



Source: Fieldwork, May-August, 1977

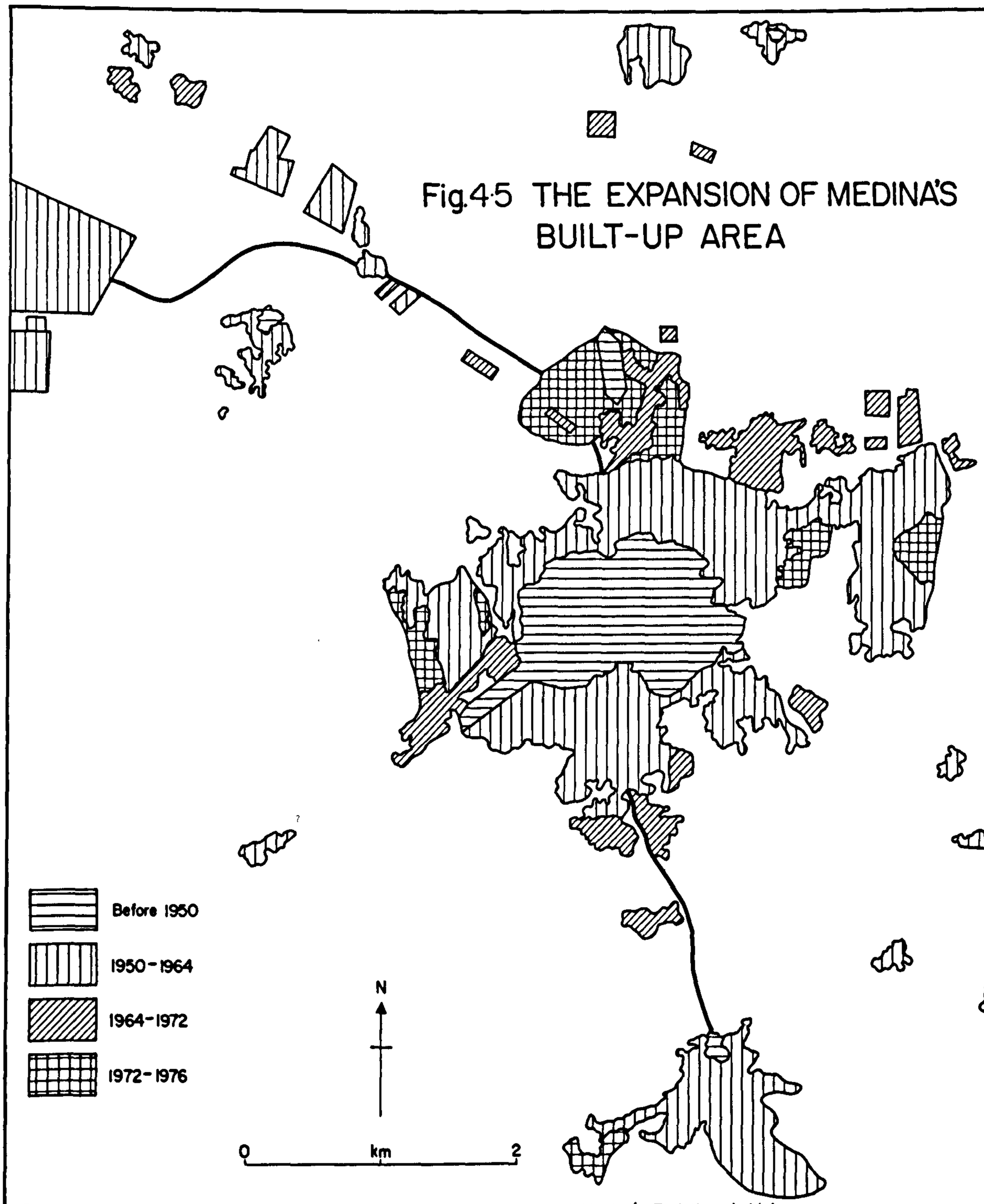
land which the private sector cannot make productive within a certain length of time [57: pp.35-36].

The last effect of the expansion of Al-Haram is concerned with the influence on the spatial pattern of land use development. Al-Haram extensions have been instigated to the north, east and west, forcing tenants in these area either to move to the city outskirts or to the south. In-movement to the south of Al-Haram has been highly selective. The southern part of Al-Haram is the most holy area and contains the oldest parts of Al-Haram including the "Kiblah" where Muslims face the "Kaaba" in Mecca five times daily in prayers. Consequently the neighbouring quarters of the city such as Koba quarter have become the residence of the richest part of the population. This group has been willing to accept the in-movement of commercial activities from other parts of the central area which have been cleared for the extension of Al-Haram, but garages and engineering workshops have not been welcomed, and have thus been forced to seek locations on cheaper land to the north of the city.

These recent developments have restructured the city extensively. No longer does it approximate to the traditional pattern ofa pre-industrial city such as those proposed by Sjoberg, with industrial activities in the core, and the involvement of the population of peripheral areas in agriculture. Like many other modern Middle Eastern cities, Medina now has several manufacturing activities scattered around the periphery of the city (see section 4.5). Only in the southern quarters do traditional structures remain, with suqs leading to Al-Haram.

At present there are no roofed suqs remaining in Medina and only a small part of the western side of the clothes suq in the south west of Al-Haram remains showing the original architecture prior to the recent development projects. The clothes suq which functioned as an important commercial centre from earlier times until the 1960's, has been relocated in the emergent commercial arteries. Commerce is spreading in Al-Manakha street, which faces the western side of Al-Haram, and which is growing as the main artery for the retail trade. This may be due to its tradition of commerce since early times and its location in association with the older, now vanishing suqs. The road to Jeddah in the west of Medina, in the area called Bab Al-Anbariah, is also developing as a trading axis. Intensive trading is developing in Abi-Zar and King Abdul Aziz streets in the east, and in Darb Al-Janaiz street in the south. Thus these areas and their vicinities, will become the districts for intensive development with the almost certain result that pressure on land will be greater here than elsewhere in the city.

Fig.4·5 THE EXPANSION OF MEDINA'S BUILT-UP AREA



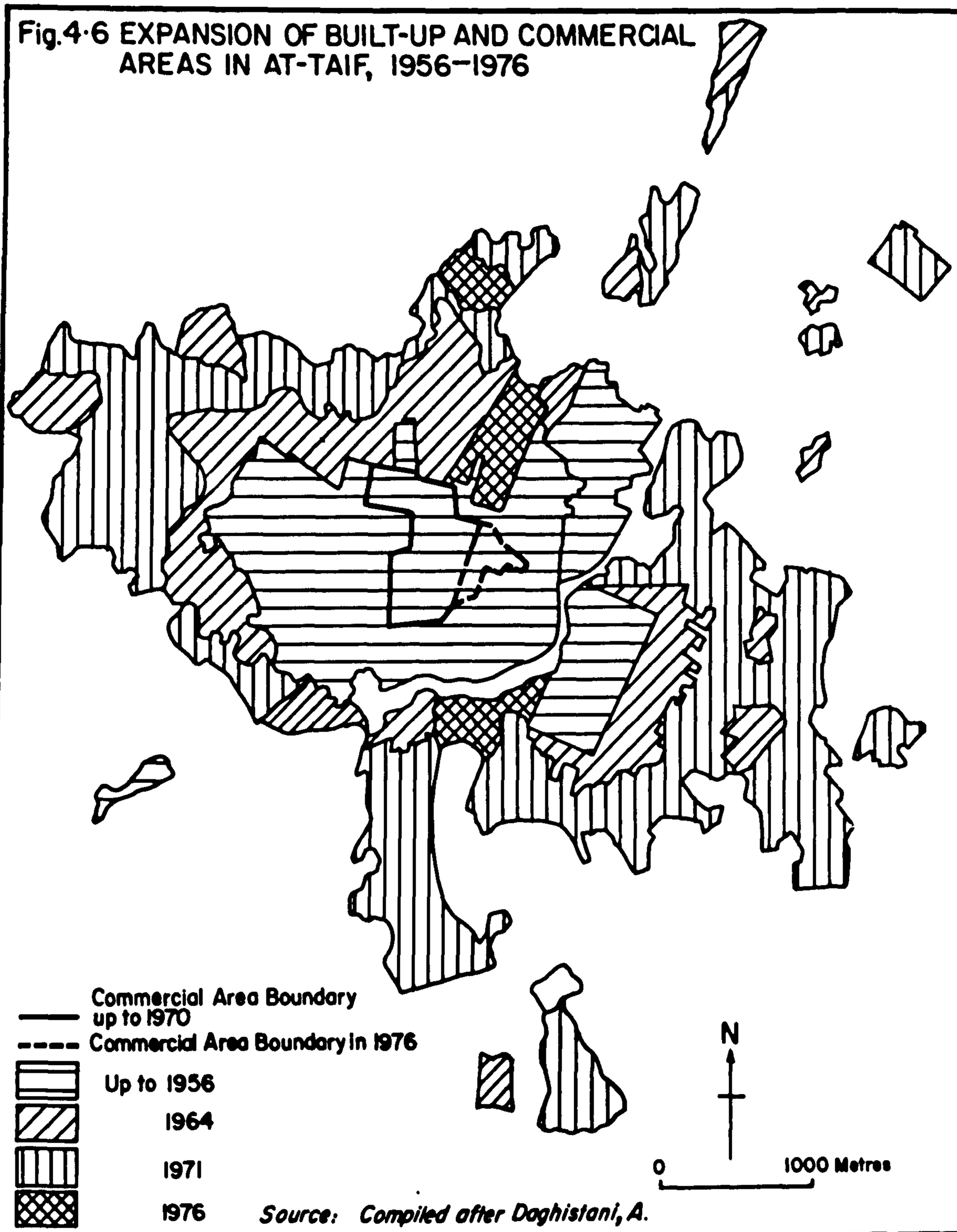
Sources Based on:- (1) Regional and Town Planning Office, 1972, Map of Medina's Evolution, Jeddah
(2) Robert Matthew, 1976, Map of Medina's Urban Growth, Jeddah

Figure 4.4 shows the present structure of Medina's core, which indicates the continued cohesion between the religious and commercial areas of the city. Such cohesion was logical in the past when the city and its commercial area was compact, to give maximum utilisation of a limited area and facilitated defence in earlier times, strengthening the social ties between people. Surprisingly, such cohesion is still strong at the present time. Security has now been tightened up in the whole town and improved transport and communications mean that the police can quickly get to the scene of any disturbance, with the result that several police stations formerly scattered throughout the city, have disappeared. Police activities are now being centralised in one location. Land formerly used for military purposes, particularly when the city was walled, has now been converted to other functional uses, e.g. the barracks of Bab Al-Anbariah quarter were converted in the 1970's to a large building complex accommodating government offices; in Bab Ash-Shami, the former castle on the northern edge of the city wall was demolished in the 1960's partly to widen Al-Manakha and Bab Ash-Shami streets; the remainder being sold for private housing development. The city wall was itself replaced by a modern ring road, a common phenomenon in many Middle East cities [233: p.16]. Despite these transformations, commercial and religious land uses are still associated with each other. This may indicate that at the present time, the central religious area has had a considerably greater impact on the development and location of suqs, than the historical traditions of earlier times, in seeking protected space in the city centre.

Finally, to understand the scale of change and the effect of the pilgrimage as a factor for change on Medina's central area, a brief look at changes taking place in other Saudi Arabian cities and other countries, possibly with different bases of development, would be appropriate. For the purpose of comparison, two main examples will be taken: At-Taif city in Saudi Arabia and Aleppo in Syria.

In 1965, At-Taif's urban area was 3.9 Km^2; it reached 4.8 Km^2 in 1964, 9.7 Km^2 in 1971 and 14.3 Km^2 in 1976 [414: pp.68-75]. Medina, on the other hand, developed from 1.4 Km^2 before 1950 to about 7.0Km^2 in 1964, 11.1 Km^2 in 1972 and about 13.0Km^2 in 1976 (Fig. 4.5). The central or commercial core of At-Taif, where its business activities take place and where the tomb and mosque of Ibn Abbas (the Prophet's cousin) are found, until 1970 was only 0.005 Km^2 (Fig. 4.6). After the establishment of the new commercial extention to the north west, its area increased to 0.03 Km^2 [411: p.264]. Medina's commercial and religious centre increased after the first extension

Fig.4·6 EXPANSION OF BUILT-UP AND COMMERCIAL AREAS IN AT-TAIF, 1956–1976



Source: Compiled after Doghistani, A.

of Al-Haram in 1955 to about 0.5 Km^2 and in 1976 it was further increased to 1.4 Km^2 (Figs. 4.1, 4.2). This perhaps confirms the effect of the religious core on the extension of the central area, although the whole built up area did not extend as far as in At-Taif, thus indicating the shortage of housing in Medina (as explained in Section 4.2). Thus it is clear that the great size of Medina's centre and its fast growth rate have, to some extent, been reflected in the extension of the whole built up area. This can be seen by examination of the Municipal Budgets of both At-Taif and Medina from 1965/66 to 1972/73 (Table 4.2); not included is the cost of Al-Haram enlargement projects, which have been discussed on page 70. The budget allocated to the municipality of Medina increased at a rate ten times that of At-Taif's for this period, which is attributed to the gigantic re-development projects in the centre of Medina.

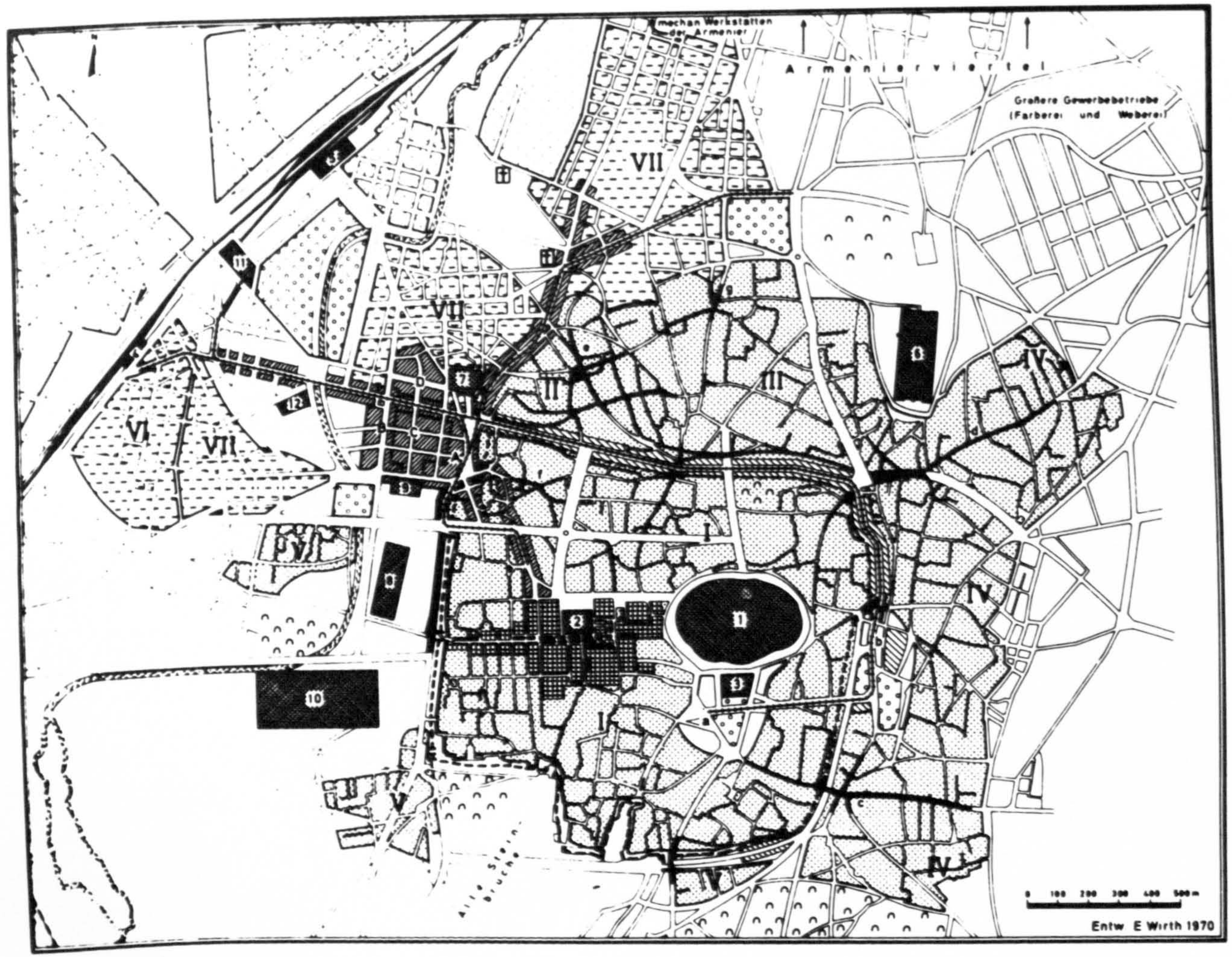
TABLE 4.1 COMPARISON BETWEEN THE BUDGETS OF MEDINA AND AT-TAIF MUNICIPALITIES

Fiscal Year	Medina (£)	% Change		At-Taif (£)	% Change	
1965/66	2,060,471	-		1,090,909	-	
1966/67	1,655,333	-19.7		1,454,545	33.3	
1967/68	2,207,218	33.3		909,090	-37.5	
1968/69	1,610,479	-27.0	58.0	727,272	-20.0	5.9
1969/70	1,540,560	-04.3		545,454	-25.0	
1970/71	1,677,237	08.9		727,272	33.3	
1971/72	2,360,497	40.7		1,545,454	108.4	
1972/73	3,256,364	38.0		1,636,363	5.9	

Sources: (1) Municipal Affairs, 1973, Municipal Services, No. 1., Riyadh, p.70.

(2) Unpublished data in Medina's Municipality.

In relation to Aleppo, building was confied within its 19th Century walls until 1931, when the French put the first plan for extending the urban area into practice [423: p.189]. They built the modern town outside the old one, and transferred all important functions to the new zone; this was also done in Rabat [84: p.202]. After the Second World War, when the country gained its independence, old and new were united by demolishing the city wall and opening new streets in the old quarter. However, the holy area in the centre remains as it was before, although the commercial activity swung away to the north west of the old city it is still linked with the traditional suqs by shopping "ribbons". The grid iron street pattern used in the old city since early times survived from Hellenistic or Roman times [35: p.197]; this may reduce the traffic difficulties encountered in other



- Public buildings
- Central bazaar with khans
- Modern commercial quarter
- Local bazaar sub-centre
- Warehousing area outside bazaar
- Old town and old suburbs in 1850
- New residential quarters, between 1890 and 1930
- Post 1945 residential quarters
- Public open space and parks
- Cemeteries
- Traces of walls and gates of late middle ages
- Tram line, 1950
- Railway
- Large suburban church

Fig.4·7 THE EVOLUTION OF ALEPPO

Source :- After Wirth F., after page 3

cities with blind or crooked alleys, and ease the pressure on local authorities to open new streets and widen existing ones, as happened in Medina. The information given above stresses that, compared to Medina, no great changes occurred in Aleppo (Fig. 4.7).

Even in some other religious cities receiving pilgrims of other religions, such as Lourdes in France, which in 1973 received about 3.5 million people [270: p.325], changes are not great*. Unfortunately, it was not possible to trace a map of Lourdes for the 1950's (the commencing date of this study period), to compare changes with more recent times. But according to a reliable source*, the town's streets did not change and some extensions have been built, but mainly on its peripheries (Fig. 4.8). On the other hand there have been many new buildings erected in the city itself, but no parts have been encroached upon by others as is happening in Medina.

4.2 Changes in Areas Surrounding the Central Area since 1950.

With the expansion of Al-Haram it was inevitable that such large re-development projects should be accompanied by uncontrolled growth and the emergence of squatters' settlements. A spate of building activity began almost immediately both in the open area within the city and on its edges. It is clear that basic land use in the centre of Medina's present urban area is still dominated by the religious and commercial function. Alexander suggested that a city's growth is usually associated with the central area becoming gradually less dominant with respect to the whole urban area [12: 7]. This may give Medina a certain uniqueness due to the importance and effect of its religious core, which is still affecting the growth of the whole urban area.

It can be said that two main factors combined to influence Medina's past, and to some extent its present, expansion. The yearly influx of pilgrims, and the topographical character of the area. The increasing number of pilgrims is a potential energy, causing the growth of the urban centre, and generating urban expansion into the hitherto undeveloped areas on the fringe, while rapid, frequently uncontrolled changes occur in the landscape as a result of the powerful impact of this urban expansion. The topographical conditions of the region have limited the expansion to certain areas.

The main built up area including the old town, lies in a flat hollow traversed by Bathan Valley, at an altitude between 600 and 610 m, sloping gently to the north. The recent expansion extended over some lower areas in the north, reaching 598 m above sea level and higher in the east and south,

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* Syndicate D'Initiative of Lourdes, 1977 in a letter to the author on 29th November, ref No. CM/CL/77/11/10750.

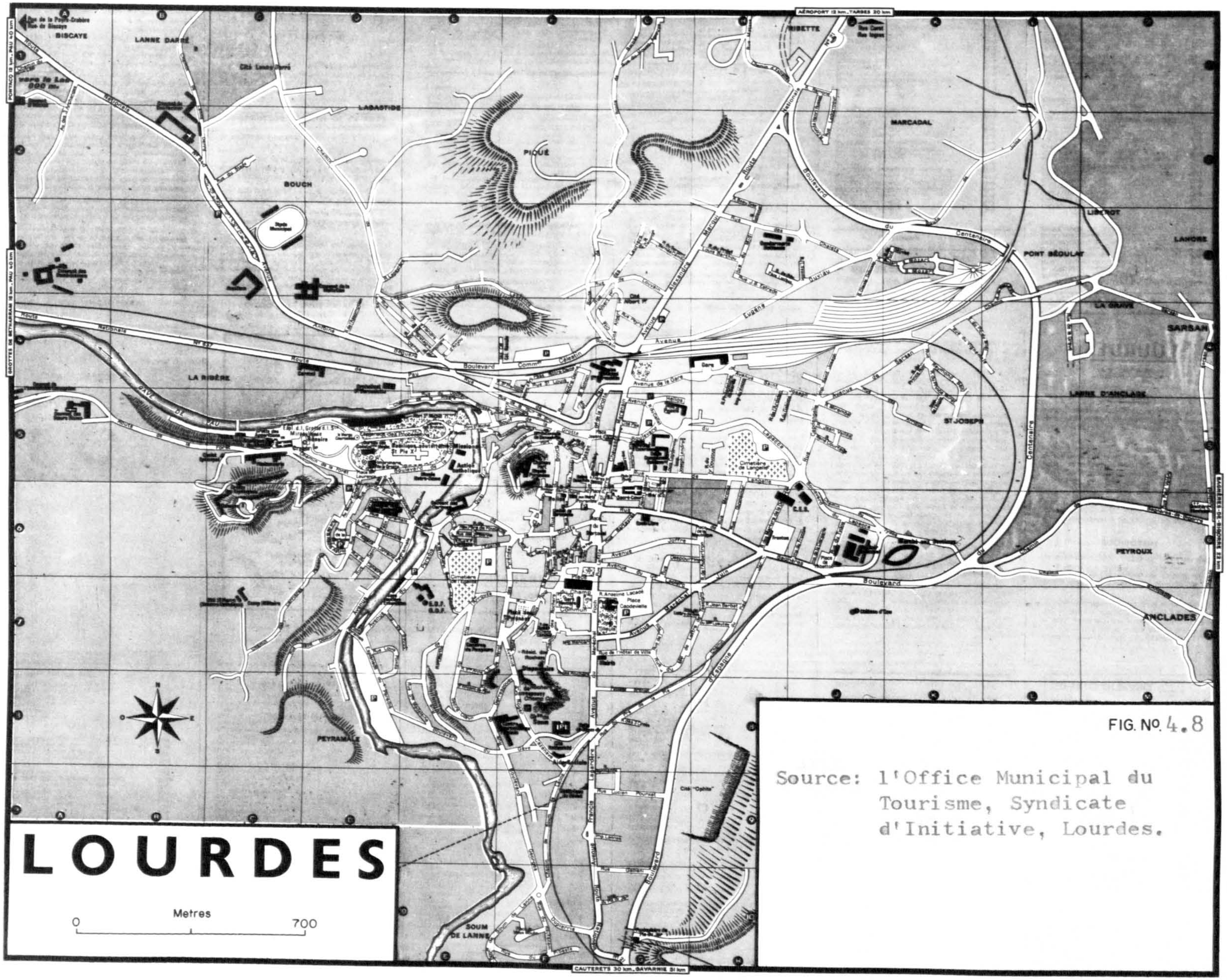


FIG. No. 4.8

Source: l'Office Municipal du Tourisme, Syndicate d'Initiative, Lourdes.

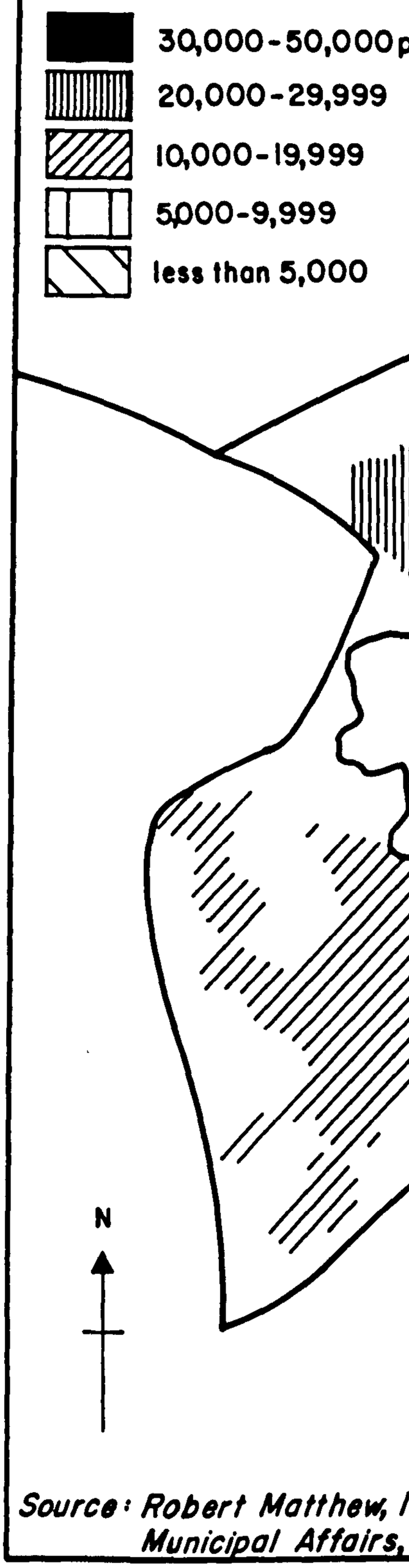
reaching 620 m. Until 1975 the main obstacle to modern buildings was the lava flows on the east, west and south of Medina, which harshly defined the urban limits, although some squatter and shanty areas with dwellings made of make-shift materials and no proper services have spread there since the late 1950's.

After the first enlargement of Al-Haram (1950 to 1955) and the programme undertaken by the Municipality for organising the inner part of the city until 1965, roads were constructed to link it with the newly developed suburbs and the historical sites. During the early stage of this period growth did not follow a specific direction, but gradually it has adopted the direction of a distinct arm, running north-south along the main roads, with some shanty areas to the east and west, possibly due to the influx of workers in Al-Haram projects, who put up their poor shacks in a haphazard fashion on vacant land near the old wall. The homes of the wealthy are built in a more orderly manner along roads where public services are already available. Thus one finds several arms extending from Medina's centre towards the separate villages, creating arterial growth, which coincide, to some extent, with Ismail's model for Arab city growth (see section 4.4). This happened with Koba and Al-Awali areas in the south and Sayyed Ash-Shohada in the north. Eyre and Breese argue that such uncontrolled growth is an indication of urban vigour or subsistence urbanisation, i.e. rapid or existing urban population growth rather than urban breakdown, [308: p.395; 14: p.5], but does not imply a condition of shared poverty [223: p.176], since unemployment is almost non-existent as the country is undergoing rapid development and still finds it necessary to import labour from abroad. However, several writers have indicated that in order to have a sound pattern of land use and growth, and to avoid over concentration of urban life, public and infrastructural facilities must be planned and provided in advance [206: p.163; 66: p.215]. Such planning would surely prevent the finger-like growth now taking place in Medina and help more national development in a coherent pattern.

Detailed examination of the finger-like growth in Medina indicates that growth towards the south took place along Koba and Al-Anbariah streets, due to the availability of areas of underdeveloped land. Development along Koba street is distinguished by villas or detached houses, owned almost exclusively by people in the higher income groups. Growth in this area was also motivated by the presence of the government office complex which attracted many people wanting to live near their place of employment; however, this advantage was removed when the government offices were relocated in 1972 to a more western location in Al-Anbariah street.

In 1972 the population in Koba and Al-Anbariah accounted for about 43% of the total population of the city, and a high density of population is

Fig.4·9 POPULATION DENSITY OF MEDINA, 1972



Source: Robert Matthew, 1972
Municipal Affairs, Riyadh

observed in these area (Fig. 4.9). This is due to the fast rate of development that has characterised the area, and also to the existence of low income groups on its edges. Along Koba and Al-Anbariah roads, high buildings and blocks of flats three to seven storeys high predominate, whilst further away from the road buildings are less closely packed. The population density in these areas is 10,000 to 20,000 persons per Km^2 close to the road, falling to some 5,000 persons per Km^2 further away from the road [422: p.91].

The Western and Eastern Harrats which also witnessed development have a similar population density, but for a different reason; in the Harrat it is caused by the closely packed shanty structure, which grew up as a result of the influx of migrants seeking cheap land; almost all these migrants are in the lower income groups and their household size is larger than average. Another reason for the high density in this area was the shortage of suitable building land. Interestingly, the religious factor had its share in developing these areas as these migrants consider the walk to Al-Haram in the city centre as a penance for God. Such thinking has its effect on the urban growth of Medina; making people more willing to spread out of the centra-settled areas. This had actually happened before the increase in popularity of cars, when a visit to Al-Haram required a conscious effort on account of safety and poor roads on the city's extremities.

In the north also, growth followed the same pattern along the main streets of Al-Matar, Sayyed Ash-Shohada and Sultana streets. Side roads were gradually developed between these streets in the vicinity of the urban area. Buildings here are mainly blocks of rented flats, especially in Al-Matar street which is more recently developed than the others. This pattern seems similar to many other Asian cities where growth corridors between city and airport are noted [107: p.278]. The density here is higher than in the southern part of the city (Fig. 4.9) due to the concentration of development along the roads, but there are wide, open areas, as it contains the mouth of the hollow in which the old city lies, and this gives the area great potential for further development. This has been the pattern since 1975, where the major growth of Medina has been in the open spaces around the present urban area; in eastern and north eastern directions, which covers the Eastern Harrah, and to the north and north west of the present urban areas, which includes the quarters of Sayyad Ash-Shohada and Sultana (Fig. 4.5).

The extensions to Al-Haram and the destruction of a large residential area aggravated the housing problem; the availability of land in the north of

Medina at a lower price than in the south of Medina accelerated the above developments. However, population density in the far north and south is still the lowest in Medina, being less than 5,000 persons per Km^2, suggesting that the population distribution pattern is moving towards the familiar western pattern of a low density core and outer periphery, with a middle belt of somewhat higher density.

In analysing the adequacy of the new built up area compared to the demolished properties in the centre of Medina, the number of permits for new buildings after the first and second projects for enlarging Al-Haram will be used. The adequacy of the new buildings for housing people after the first project (ending in 1955) has already been discussed (see page 67). The severe shortage of housing clearly began in 1974 with the enlargement of Al-Haram which by 1976, resulted in the loss of 670 properties. The southern extension of the central area also resulted in 530 more homes being demolished, making a total of 1,200. For the same period (1974 to 1976) the permits for new buildings issued by Medina's Municipality totalled only 365*, 65% of which were subsidised by interest-free loans from the newly established government owned Real Estate Lending Bank**. One of this bank's limitations is that its legislation stipulates that it will provide loans only for those who can provide 30% of the total cost of the first floor of the proposed building. Increasing prices meant that not everyone was able to raise this amount of money, and consequently not everyone could benefit from this scheme, though some people do manage to obtain additional private loans.

The 1962/63 population census estimated that there were 15,859 houses in Medina [60: p.41], and in 1971 the Robert Matthew's survey estimated the number of dwelling units in Medina to be 27,000, indicating a growth rate of 7.8% per annum. Using the same growth rate, it could perhaps be estimated that the number of additional houses needed for the period 1971 to 1976 would be 1,569, whereas only 895 building permits were granted during that period. This would mean that by 1976 there was a shortage of some 674 homes to house the city's natural population increase. Adding this figure to the houses needed as a result of the redevelopment of the city centre, would raise the total houses required in 1976 to 1,874. Had the two proposed housing projects (discussed in the next section) been executed quickly, they would more than adequately compensate for these losses. Meanwhile these delays are one of the main causes of the housing problem in Medina.

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* Unpublished data from Medina's Municipality.

** Unpublished data from the Real Estate Trading Bank.

The housing problem has been further aggravated by the fact that most pilgrims prefer to reside within the city centre, near to the Holy Haram, where they like to perform their five daily prayers. The centre has, therefore, been mainly taken over by accommodation for pilgrims, and the suburbs are occupied by local people who can afford to travel daily to the centre. Some people have more than one property; one on the outskirts for their own occupation, and the other in the city centre, which is rented to pilgrims during the Hajj and closed during the off-season period. Thus, although there is an urgent need for housing, many buildings stay empty most of the year, as it has proved extremely profitable to rent these buildings during the Hajj season to groups of pilgrims, for example, those from Iran [252: p.6]. In the 1976 season the situation changed, as the pilgrims concerned did not arrive in such large numbers as in previous years; in 1975 about 74,095 pilgrims came from Iran compared to only 39,296 in 1976 [212: p.22]. The disappointed speculators suffered loss of income, and were forced to rent to other pilgrims. This change of circumstances may prove beneficial and encourage the owners to rent their buildings to local people for the rest of the year.

The preceding circumstances, together with other general factors which have parallel cases in other areas of the country and discussed in Chapter three, were the reasons behind the setting up of a new Ministry of Housing in 1975, which initiated a new form of housing subsidy and housing policy. The Ministry authorised the Town Planning Office to plan a new housing area, which signifies the start of a new era in Medina, where growth is linked to advance planning of services and facilities, and for the first time, a housing programme is being undertaken by the public sector.

The Town Planning Office chose two areas in the east of Medina, the Eastern Harrah and the South Eastern Harrah (Fig. 4.10). It, therefore, became possible to plan modern housing developments in an area which for many years had presented an obstacle to development and growth due to its harsh topographical conditions. Had such plans been possible in earlier times, they would almost certainly have prevented the growth of the shanty settlements. Recently some modern buildings, such as the Opthalmic and Chest Hospitals, have emerged near the main roads in the Harrat areas.

The Town Planning Office has put forward a plan for houses and services laid out in square-shaped units, in the two parts of the Harrah*. The 869 units in the South Eastern Harrah each have an area of 60 m^2, giving a total of 52,140 m^2. Adding the service areas will give a total area of 104,280 m^2 for the whole scheme. It is planned that these housing units will be made available to lower income groups. New buildings in this project are planned

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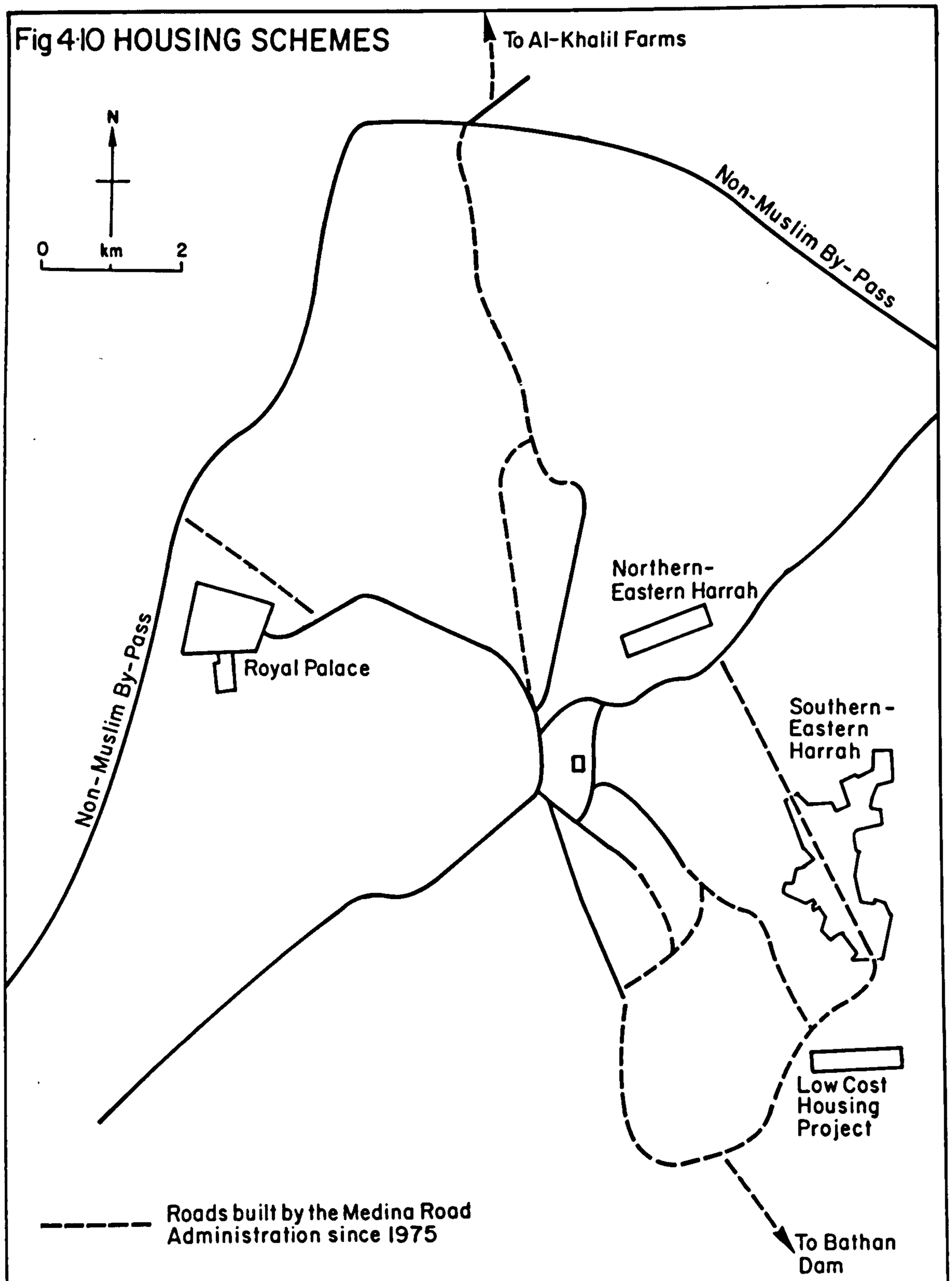
* The information on this project is from an unpublished report in the Town Planning Office, 1976, Medina.

Fig 4·10 HOUSING SCHEMES



Sources:–
(1) Town Planning Office, 1976, Map, Medina
(2) Road Administration, 1976, Map, Medina

to leave two metres on the main facade of a plot and one metre on the other sides, which could possibly prevent over-crowding existing in neighbouring shanty dwellings.

Another project is being mooted in the south of Medina by the Ministry of Housing and the Ministry of Finance and National Economy for low cost homes on an area of approximately 200,000 m^2, which is nearly double the previous area; this site will provide homes for a total of 1,738 families. By mid 1979, these projects were still only ink on paper.

Another response of the government is the opening of roads to connect Al-Matar street, Al-Awali, Kurban and Bathan areas (where the proposed housing projects lie) which will form a great attraction for planned growth. Roads have also been constructed to connect Mekai'il and Koba areas in the south and Al-Ayon and Sayyed Ash-Shohada in the north (Fig. 4.10); the total expenditure of approximately SR 19 million reflects heavy governments expendicture. It is suggested that large scale development of scattered infrastructural facilities would be illogical in an arid area, of limited resources [378: p.206], but in the case of the study area, it is experiencing a period of great wealth, which should be utilised efficiently for the maximum benefit and future prosperity of the area.

4.3 Development Control.

The form of decision-making found in Saudi Arabia is unique; as Pertez pointed out, central administration here is very different to the western image of Saudi Arabia's monarch, which is not absolute and autocrat [172: p.406]. Grunebaum noted that the power of a religious movement has a great effect on the basic value judgements which organise the cultural system of a society [226: p.15]. In Saudi Arabia decisions are strongly influenced by tribal and religious leaders, and Medina is no exception to this rule. In the early stage of Saudi Arabia constituency in the late 1930's, fanatic religious figures strongly opposed the installation of radio communication between Medina and Riyadh, and only after long and heated arguments was the government able to continue with these development programmes [189: p.33; 311; p.14]. The first enlargement of Al-Haram carried out under Saudi rule in 1950 to 1955 was motivated by the press (which reflected public opinion, especially that of pilgrims from India) who pressed King Abdul Aziz to give serious consideration to the project [286: p.1; 287: p.1].

The second enlargement project between 1974 and 1978 was instigated by the religious leaders "Aulama" and other leaders of the Islamic World, who objected to the extremely crowded conditions in the streets around Al-Haram where men engaged in religious duties mingled with women shoppers. Some of

the Aulama, such as the Deputy Principal of Medina's Islamic University repeatedly requested the political leaders to take steps to increase the area available for prayer around Al-Haram even if this meant waiting for some of the extensions to Al-Haram. Further pressure was exerted by the King of Morocco when he visited Medina in the late 1960's and was appalled by the crowded conditions around Al-Haram. He even suggested to the King of Saudi Arabia that the costs could be shared by other Islamic nations, but this suggestion was not acceptable to the Saudi Arabia government.

The religious significance of Medina makes it a special case compared to other major cities, where structural changes are governed mainly by environmental planners and administrative bodies, but there are other cities elsewhere whose structure and landscape are affected by religious factors [232: pp. 12, 147]. Quick decisions by unqualified persons are not always the best ones, and this is vividly illustrated by the last enlargement of Al-Haram, which was undertaken without a deep and comprehensive survey of actual local conditions and needs being carried out.

The misjudgement of local conditions can be explained again by the example of the first stage of the latest extension of Al-Haram when the Ministry of Finance and National Economy signed a contract with a national company in 1975 to cover the cleared area with a metal roof. In a few months a span roof was constructed, but in a few weeks this had been blown down by wind, due to the absence of one of the simplest rules of engineering, that of making an outlet for air. Thus another contract was signed with a German Company to make another stronger cover taking into account the local climate. This is an indication of the imprudence decision making and the absence of a policy to examine the adequacy of projects or plans.

The misjudgement of needs can be explained by the fact that the last enlargement of Al-Haram was initiated so quickly by the Ministry of Finance and National Economy. The only survey that has been done is one to outline and define properties for the purpose of compensation in an area on the west of Al-Haram thought to be adequate to meet the demand of current numbers of residents and pilgrims. This same Ministry also recommended another potential expansion to the east of Al-Haram to meet the demand by the 1990's, according to a master plan of the whole city carried out in 1973 [428: p.132]. The consultants responsible for the replanning of the central area of Medina produced a report which appeared in 1975, i.e. after the project had started in late 1974. However, the consultant company did not recommend more expansion of Al-Haram to the east, as originally suggested by the Ministry of Finance, but reinforced suggestions for expansion to the west. Also recommendations were not based on future forecasts for demand of residents and pilgrims [429: p.72].

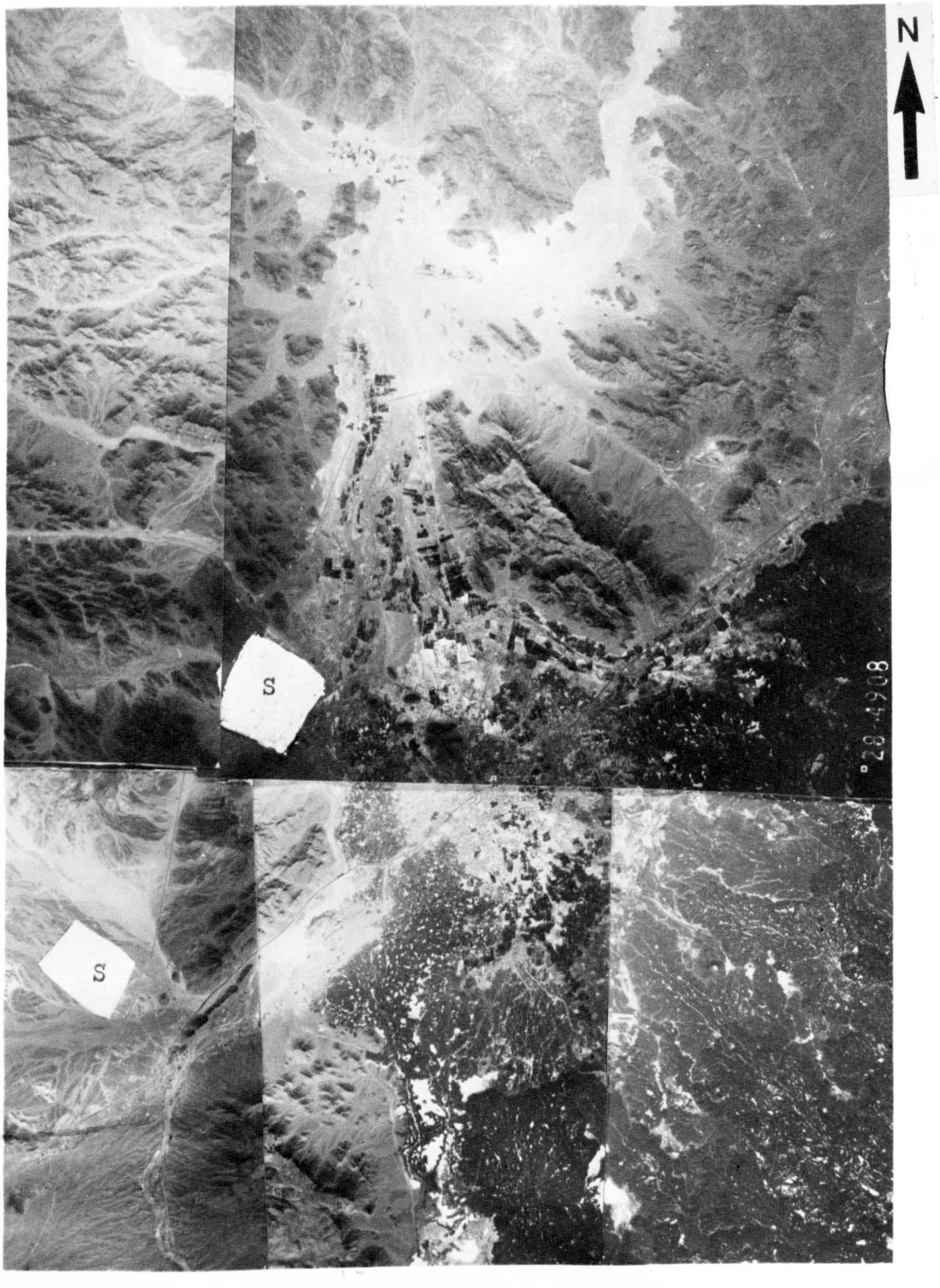
Such a prediction is a complicated procedure as multiple factors need to be taken into consideration, such as the economic development in the Islamic World in general, the cost of travel to the pilgrimage region and the size and level of growth of population in other Muslim states sending pilgrims in increasing numbers. Moreover, they did not recommend any alternative policy for relieving future pressure of pilgrims on space in the centre of Medina, such as controlling the number of pilgrims coming to Saudi Arabia. The absence of insight into these matters implies inadequate consideration necessary for sound planning. The intention of the consultant company was to improve the commercial area and inner roads with no consideration for the most important factor in Medina's life, that is the pilgrimage. These drawbacks are not the result of a lack of finance or appreciation of the problem, but the lack of consistent involvement in such problems and the slow official procedure, resulting in a great pressure from religious leaders to relieve crowded conditions around Al-Haram. Alternatively, the demands for extra area could have been evaluated in the 1960's to give more time for surveying and reviewing of the situation. This absence of consideration and fore-thought in the development projects has had a fundamental effect on the asthetics of Medina, and in some cases, reduced revenues by the loss of accommodation and space, which could have absorbed adequate numbers of pilgrims without the present extravagant redevelopment plans, which were executed and yet found eventually to be unsuitable.

The creation of a completely altered physical pattern within the central area will mean considerable disruption to the existing character and fabric of the city. The traditional layout of the old city is considered by some planners to be obsolete for modern purposes [97: p.329]. But the impractical stereotypes suggested by certain foreign consultants in the new plans, while being wholeheartedly accepted locally, could be detrimental to the overall environmental characteristics. This includes the widening of the city streets and compensating the losses of other land uses by vertical expansion in concrete buildings. This type of building leads towards smaller room design and less natural ventilation. Instead air-conditioning is becoming the norm, without which these rooms become intolerable in the hot season, and electricity supply is not always reliable. The traditional structure of the old city has been evolved through the ages; it reflects Medina's history and must not be demolished without careful thought. To preserve the personality of Medina from being destroyed it may be wise to alter the old pattern only where absolutely necessary, such as widening the entrances of the old quarters. Gradual change will allow ideas to be absorbed and a suitable local interpretation to emerge [356: p.90], which seems eminently suitable for a religious area. The old

pattern has great value for many people and any redevelopment project should not ignore this; heedless redevelopment could lead to disharmony between the people and their environment, and development should consider the personal preference of the people as well as the technical implications. The old pattern should be adopted as a guide and bases for modernisation suitable to the arid nature of the area. As a result of present redevelopment, much of the outstanding beauty of the old architecture is disappearing, such as the arched sides of the roads (Plate 4.2), which are being demolished to widen streets. These arches can be adopted on new pavements even with the use of modern construction materials. Similarly the wind-tower or "Jillah" as a means of ventilation, without relying on a power source, could be incorporated in the new buildings against the event of power failures. Furthermore, the old buildings can be useful to house businesses and people who rely on low rents, but who are vital to the functioning of the city [130: pp. 202-212], although in Medina rents are high, even for the older buildings. In short, the old part of the city should be surveyed and planned by professional experts, totally independent of commercial consideration. As a result of such surveys, old buildings in good condition could be preserved from demolition and replacement by blocks of flats, not allowing the automobile to dictate the form of the city centre.

In order to preserve Al-Haram's dominant religious atmosphere, more rigorous control is required over vertical developments thoughout the entire city, to ensure an orderly and balanced skyline. At present, no such control exists, and six-storey buildings can be found in close proximity to two-storey buildings in the vicinity of Al-Haram. These high buildings should not be allowed to dominate or rise above Al-Haram - they should be kept in harmony with the architectural style of Al-Haram. High rise buildings could be allowed in certain areas as in the shadow of Sile'a mountain on the edge of the city centre.

The conservation of heritage must include an appreciation of the ensemble urban fabric not merely monuments, but a total city-scape [283: p.83]. While the problem may appear daunting, a more realistic consideration of the urban heritage would result in less severe disruption. From the capacity of Al-Haram given on page 69, it seems that the proposed demolition in the second stage of the enlargements of Al-Haram could be avoided by adopting alternative solutions. The old part of Al-Haram after the first stage of 1974 to 1976 extension, can accommodate 71,755 people; adoption of the successful method used in Mecca's Haram would prove valuable, i.e. increasing the floor space area by making a two-storey mosque. In Al-Haram of Medina this would provide space for about



S = Security Areas

Fig.4·11 AERIAL PANORAMIC VIEW OF MEDINA SHOWING THE POTENTIAL SPACE FOR GROWTH TO THE NORTH, SOUTH EAST AND SOUTH WEST,

130,200 people*, and this exceeds the total number of pilgrims allowed in Medina at any one time. Moreover, other mosques away from the central area, such as Koba mosque could be enlarged to accommodate local prayers at peak periods; thus leaving Al-Haram for the use of pilgrims.

This approach would save precious buildings being demolished for the second stage of the enlargement of Al-Haram. Some harmless widening of access roads to Al-Haram could be permitted in certain places, after study and agreement between planners, conservationists, and decision-makers.

It would appear also that there is no need for streets to be widened in the old town, as increasing numbers of pilgrims are pressing the authorities to pedestrianise some streets around Al-Haram, and the old streets could provide a basis for a future pedestrian network. It would be wasteful to demolish the historic area around Al-Haram for motor traffic, as in only a few years traffic could be banned. In recent years there have been many examples of successful pedestrianisation in the west, without drastic alteration to the basic structure of streets.

Changes should not take place on the sites immediately around Al-Haram, but on the more marginal areas commencing from Al-Manakha street and westward. In Medina, where the centre is flat, the opportunity for future growth is not too limited and planning arrangements have accordingly flexibility compared with Mecca, the other Holy City. Mecca is surrounded by mountains and expansion took place along adjacent meandering valleys and on the lower slopes of the mountains.

On the edges of the city, initial evaluations indicate that sufficient land exists to accommodate the projected population and those displaced from the city centre; a comparison between Figure 4.5 of Medina's built up area and Figure 4.11 (aerial photograph of Medina), supports this. Some parts of the Eastern Harrah are still free of development and, as can be seen from Figure 4.9, population density here is lower than on the Western Harrah; further growth could usefully be directed towards these areas.

The parts of the Eastern Harrah inhabited by low income groups may well change their character in future with the completion of housing programmes, which would attract more people from the more densely populated areas, who would not be forced to create shanty dwellings. The presence of low income groups in shanty areas is, as Turner suggested, not such a problem as the fact

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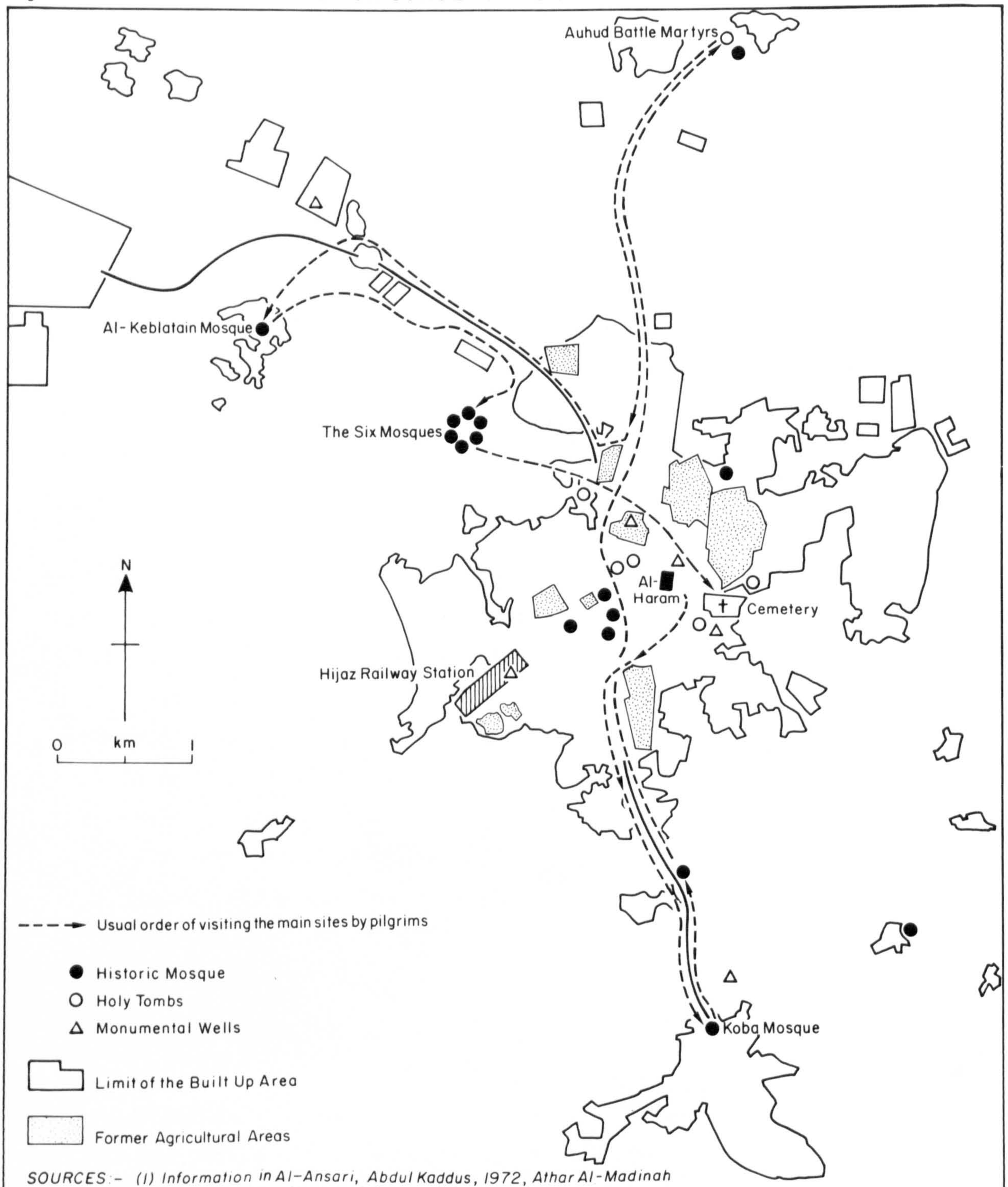
* This assumes no alterations are made to the remaining building which pre-dates 1950.

Fig. 4·12 AREAS AND PLACES FOR CONSERVATION



SOURCES:- *(1) Information in Al-Ansari, Abdul Kaddus, 1972, Athar Al-Madinah Al-Monawarah, Medina. (2) Medina's Municipality (un-dated), Medina's Guide Map. (3) Personal Fieldwork.*

that they are uncontrolled [217: p.509]. Such a housing programme would, in addition to controlling the growth of the city, prevent operation of the popular theory that shanty towns act as a push factor for movement towards the central area [423: p.111]. The direct opposite would occur as people from the central areas would be encouraged to move out to the newly developed suburbs. The growth of shanty areas and the associated low standard of living could also be controlled by developing the rural economy to prevent in-migration (Chapter 7) and by controlling immigrants, particularly those pilgrims that remain after the pilgrimage season, as well as those expatriate workers (Chapter 9).

A polynuclear pattern of growth could be adopted, as there are several localities of potential value. Aurwah area, about three Km west of Medina's centre, is primarily a recreational area, noted for its cafes, although there is some residential development in this area which could be expanded. Further west lies Abiar Ali area, about six Km south west of Medina's centre, where there is a historic mosque. This area is known as "Miqat" because pilgrims coming through Medina announce here their intention to carry out the Umrah or Hajj and start the Ihram and its ceremonies. This is the western point of entry to Medina, and is also a religious boundary as the non-Muslim by-pass passes within one Km of the Abiar Ali mosque. This means that this area has a great potential religious value. The power station, the television station and Teacher Training Institute are located in this area, and it has potential space for growth. Vast areas in Abiar Ali area have been allocated to government ministries and may act as a constraint to private growth, but this situation can be changed by surrendering some of these government plots for development to reduce pressure on the inner city area. The availability of essential services such as electricity and roads in this and the other potential growth areas, indicates potential growth areas around Medina without the need for extensive redevelopment of Medina's centre which has recently resulted in the demolishing of the old structure. What is required is a plan for allocating the different land uses.

4.3.1 Areas of historic and aesthetic value.

Pilgrims and visitors who come to Medina, either at Hajj time, or outside the seasons as in the months of Rajab and Ramadan, visit the historic places which saw the emergence of the new Muslim state, as well as praying in Al-Haram and visiting the Prophet's tomb. Medina has numerous historic buildings and sites, either inside the city or on its perimeter, many of which are attractive to pilgrims and visitors for their aesthetic, religious, and historic fame.

The major historic elements are the mosques, saints' tombs, historic wells, old suqs, the remains of the old city gates, and the cemetery (Fig. 4.12). The old city is one of the most important areas in Medina, as it contains the tomb of the Prophet Mohammad. There is an urgent need for a conservation policy for important buildings in this area and also the provision of other suitable

facilities, such as souvenir kiosks and guides. These areas should be reviewed at regular intervals, for example, once every five years as in Britain [214: p.18], by the Municipality of Medina or by creating a new institution for the purpose.

In the Holy City of Medina, recreation and conservation simultaneously represent the most important aspects for consideration when improving Medina's structure. The striking contrast between the vast, arid, basaltic area in which Medina lies, and the date-palm gardens and Al-Haram with its minarets and impressive green dome in the centre, underlines the importance to the city, of green areas for relaxation, prayer, contemplation and rest, and the word "recreation" has a clear spiritual bearing when used in this context.

The recreation area within the city itself is mainly around Al-Haram. Many people go to Al-Haram to pray, to visit the Prophet's tomb, or to attend religious lessons and speeches. During Hajj, the area is crowded with pilgrims and pilgrimage may be considered as a kind of spiritual recreation. For many local people and also those in other Muslim countries, the pilgrimage is the best opportunity to have a break away from home [363: p.57; 386: p.56]. Due to the presence of one main commercial centre around Al-Haram of Medina, many people also shop and spend their leisure time in the area. Thus, improved facilities are necessary, such as the provision of seats, public toilets and ablutions.

After the first enlargement of Al-Haram (1950 to 1955) two large public toilets were built to the west of Al-Haram which proved extremely beneficial. However, these were demolished in the first stage of the second enlargement of Al-Haram, only being replaced at Hajj time with removable air-plumbed toilets. Many pilgrims from countries with different backgrounds and cultural standards do not know how to use such advanced toilets, with the result that many of them become blocked due also to a shortage of attendants and cleaners. The same situation is observed in Mecca, which has sufficient public toilets, but by the middle of the Hajj season many are out of order due to lack of maintenance. After the 1975 Hajj season these temporary toilets were removed, because the smell from them was quite obnoxious. In 1975 beautiful 19th Century shops with arched facades were altered as an annex to Medina's Municipality, but in 1976 it was altered to provide additional public toilets. However, this conversion was not finished until well into the Hajj season, causing much inconvenience to pilgrims. There are some other small public toilets in the city centre, but they have never worked properly. The need is urgent for more toilets.

Another aspect which may inconvenience pilgrims walking around the city

and visiting its historical sites is the refuse disposal system. In Medina this consists of boxes which are left in streets for householders to dispose of their rubbish; these are regularly collected by street cleaners and deposited in specific sections of each quarter where special vehicles collect them to be burnt outside the city [410: p.2]. The haulage of waste becomes difficult at Hajj time, and this represents a great health hazard. An effort is required, to make people aware of the need to keep the city streets clean and tidy, and it is also necessary to improve the efficiency in refuse collection.

As the working week becomes shorter* and more time is available for citizens leisure activities, many visitors also come to Medina in the off-pilgrimage season, and some thought must be given to catering for them. Certain buildings of architectural value could be improved and opened to visitors for public recreational use. For example, instead of the legendary Hijaz railway yard in Bab Al-Anbariah being used as a car park, the site could be developed into a museum of historical interest to both visitors and local inhabitants. A site adjacent to the yard could be utilised for the car park. Sile'a mountain has several Authmanid castles or watching towers, which give a beautiful panoramic view of the city and its surroundings, and these sites could be developed as recreational areas. There are several private libraries in Medina containing rare books and manuscripts, but there is no large modern public library, although in early times, pilgrims and scholars came to Medina to absorb its knowledge and culture [94: p.143]. The provision of such amenities would reinforce the aims of the second Saudi development plan by creating amenities to attract visitors to the Holy Cities during the non-Hajj period [64: p.283], so that the projects planned for pilgrim accommodation could be fully utilised.

There are some green areas with recreational and leisure potential but they are often privately owned, although due to family ties, many people benefit from these gardens. Pilgrims sometimes visit the outskirts of the city to enjoy the cool breeze in the palm gardens [174: p.73] and until recently, due to a lack of inexpensive accommodation in the city, pilgrims pitched their tents beside or in these gardens. It would appear of vital importance to protect these green and agricultural areas, if necessary by integrating them with the changing structure of the city. The green lands extend to the south, south-west and north of the city. Some agricultural areas which used to be within the urban area (Fig. 4.12) have now mostly been encroached upon by buildings

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* Since October 1975 government employees have worked only five days per week, instead of six.

and streets, but these areas deserve to be preserved as open spaces. In advanced countries such as Britian, open space for recreation already comprises the second main category of land use [40: p.175].

The standard suggested by the British National Playing Fields Association in 1925, of 24,000 m^2 as the recreational area required per 1,000 head of population was endorsed by planners and local governments as recently as 1973 [166: p.22; 275: p.91; 112: p.26]. The recent tendency towards modernisation and replacing the old buildings with high-rise buildings may necessitate adopting such concept in planning the city. Within Medina, the deteriorating green land totals approximately 2.5 Km^2, sufficient for approximately 104,166 people, compared with the total population of the city of about 159,000 people. Moreover, the remaining green land in the city centre is equal to only 263,800 m^2, and could cater for about 11,000 people, compared with the total inner city population of about 63,000. This indicates a shortage of open space for leisure, especially since most pilgrims and visitors reside in this area. It is hoped that strict regulations will be introduced to prevent the green margin from being further reduced, as was the case with those examples in the inner city. With most of the city centre land use devoted to the important religious and commercial functions, recreational facilities have been sadly ignored. Cooperation between official arboriculturalists and private horticulturists remaining within the city built-up area, are essential to provide recreational-ecosystems where private orchards could be open to the public and economically beneficial to the private owners through entry fees as well as crop yields. Such cooperation would preserve and enhance the quality of Medina's landscape and environment, and also maintain the distinctive character of the area. Trees, contribute towards screening the effect of traffic and reducing the level of noise [314: pp. 21, 25]. Greenery also gives organic scale in the urban space and provide relief from the base outlines of concrete and asphalt, particularly in areas such as Medina, where in summer the heat is often unbearable. This makes green areas a necessity, and not, as some believe, a luxury, for which people must be prepared to pay [70: p.14].

The above suggested levels of recreation which may be incorproated both physically into the growth areas of the city, and socially where meeting places are an important feature of past traditions. Other traditional forms of leisure can be traced during the very early stage of Medina's growth and after when it became walled in the ninth Century. During the early development of the city and especially at the time of the Prophet Mohammad, three sports were particularly encouraged; swimming, horse riding and game shooting. The city was composed of separate quarters with open spaces between; there was room for

horse riding in what are now Al-Manakha, Bab Ash-Shami and Sultana streets [21: vol. 4, p.1172]. In the Ghaba area north of Medina, hunting was an important recreation for the Medinese, especially for those who had some links with the desert whose tribal culture associated hunting with knighthood and warrior myths. Hunting is now rare due to poor game preservation in the past, and recent conservation laws to protect the few remaining animals.

To the casual observer, the traditional walled city may appear to lack open spaces [162: p.6], but both indoor and outdoor recreation were popular within the walled city; space for almost all recreational activities was privately owned. Indoor recreation was stimulated by the grouping and architecture of houses which improved personal relationship in the old city thus ameliorating the social environment. Neighbours, especially women, could chat in the morning hours, when men were at work, from house tops or from windows or doors when streets were free from passing strangers. Courtyards meant that there was space for relaxation in the cool of the evening. Many large buildings such as those in As-Saha street had two courtyards; one for men and the other for women, and often these courtyards had artificial fountains and palm trees to make them more attractive, cool and relaxing. Until the 1950's Turkish baths were enjoyed in Medina as a form of indoors and outdoor entertainment for both sexes.

Outdoor leisure activities were practiced in the yards of dwelling quarters. The design of the quarters with residential propinquity, courtyards and narrow streets definitely improved relationships between neighbours and minimised the risk of depression and loneliness. The relationship of rooms to courtyards, of the houses to their neighbours and to public areas represented by markets, roads and mosques, give physical expression to man's role as a family members, neighbour, and citizen. A cluster of courtyard houses has a cellular structure which suggests that each unit is part of a social organism. The intensive use of privately-owned palm gardens, orchards and springs in and around the city for recreational purposes can be considered as a product of the close relationships existing between citizens even without family connections. The present trend towards small housing units for individual families, the continuing change from traditional building designs with their indoor recreational facilities, and reduction in the green lands in and around Medina, have all placed extra responsibility on planners and public authorities to provide clean recreational space.

4.3.2 The growth of shopping centres.

Shops, businesses, official premises, and residential use are all found in Medina's central area today. The central area (extending between Al-Matar

street in the north, An-Nakhawlah street in the south, Abi Zar street in the east and Al-Manakha street in the west; Fig. 7.5) has about 437,500 m^2, 2,750 m^2 for every 1,000 people; less than the recommended scale in developed countries. For example, British standards suggest 4,000 m^2 per 1,000 people should be allocated to the town centre with its shops, offices and public buildings [197: p.47]. In Medina it is hardly likely that the area required for central area uses will be directly proportional to the city's population. Medina is also an important centre for the population within its immediate provincial area, many of whom visit the city and are additional to others visiting as pilgrims. As these people also shop in Medina, however, the changing pattern of demand for luxurious and bulky goods has resulted in shops which require a vast floor space, which together with competition from other land uses such as religious functions, has in turn resulted in an exaggerated redevelopment of the central core. It may be suggested that by adopting trends of certain developed countries who have located shopping precincts outside the city centre, a move towards a commercial area better suited to the population may be possible. This will help prevent further destruction of the old structure of Medina's city centre.

In some cities it may be rather difficult to ascribe a definite role for city centre redevelopment, owing to the diffusion of the city's population, which can be catered for by neighbourhood centres [12: p.35]. In Medina it seems likely that the majority of the population derives benefit from the city centre, because until now only the centre has been equipped to cater for all the needs of the people. This may make Medina's centre coincide with the hypothesis that the most urbanised type of retail outlets are also those which are most heavily concentrated in the central business district of a large city, rather than in retail sub-centres and outlying areas [166: p.271]. These outlets include meat and fish markets, fruit and vegetable stores, bakeries, egg and poultry dealers, men's and boy's clothing stores, women's ready-made clothes stores, shoes and tailor stores, radio and jewelry stores, book and stationery stores, leather goods stores, and camera stores. But in Medina some of the demands from rural and nomadic activities are also provided for in the centre. For example, these include the dealers of building materials, farm equipment and water skins. Apart from the obvious benefit they may derive from use of the area, there may also be intangible benefits gained from the enjoyment and spiritual value derived from its intrinsic and religious atmosphere.

The concentration of commercial activities in the core of Medina can be ascribed to several mutual religious and social factors: a) Traders wish to be as near as possible to Al-Haram to quickly execute the four prayers* which

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* Muslims must perform five daily prayers; the first takes place at dawn, whereas most shops do not open until after sunrise.

fall during the working day; public work is not permitted at prayer time, and although there are other smaller mosques in the area people prefer to pray in Al-Haram. b) Shoppers, especially pilgrims who stay around Al-Haram, like to shop close to their lodgings, and consider it enjoyable to shop at times between praying, especially in the cool of the evening. Only one hour elapses between the end of the sunset prayers and the beginning of the night prayers, and people wish to remain close to Al-Haram during that period in order not to be late for the night ceremony. Most shopkeepers selling souvenirs and gifts to pilgrims prefer to be near Al-Haram where demand is high. c) Many local residents, particularly the women, regard shopping partly as a recreation, often combining their shopping with a late afternoon or evening visit to Al-Haram. With the exception of a few small items bought locally, most people shop in the central area, combining business with pleasure. Most shops selling ladies' goods such as clothes, shoes, cosmetics and jewelry are found around Al-Haram.

The dramatic attraction of Medina's core also results in great variations between the rents in the core and those on the periphery of the centre. For example, a shop owned by the author on the outskirts of the central area used to be rented for SR 800 (£145.5) per annum; this shop either stood vacant or was used for storage, and for a time was used as a workers' residence instead of for its true purpose; in comparison, a similar shop in the core area commanded a rent of SR 7,000 (£272.7) in 1974. Since 1975 rent of the former has risen to about SR 3,000 (£545.5) per annum and a new shop in the central area now commands a rent of SR 40,000 (£727.7) per annum.

The religious value of the central core suggest that it would be sensible to create new neighbourhood commercial centres which would in no way detract from the importance of the central area. Medina seems an ideal city for such centres following the suggestions by Burns, that cities with populations greater than 150,000 can provide a sufficient threshold demand for specialised centres, and those with residential development more than three Km from the main centre should encourage the development of neighbourhood centres [53: pp. 37-38]. The reasons for the emergence of controlled sub-urban tracts of housing with adequate local services have been summarised by Kelly as follows: increasing population decentralisation, increased use of the automobile, increased congestion in the central business district, lack of parking facilities in the downtown area and changing consumer habits [344: pp. 424 - 425]. All these points appear, from the above study, to be of increasing relevance in Medina, sufficient to justify the emergence of such sub-centres in the city. These sub-centres are necessary to provide a sound balance between

housing and other social amenities.

The formation of such sub-divisions may create a form of dualism in the commercial function of the urban structure, with the simultaneous existence of old and new centres [51: pp. 36-37], but what is suggested here is not that the new centres should undermine the prestige of the old one, and replace its traditional function, but that they should be complementary centres aiming to alleviate congestion in the central core, and serving customers in the best possible conditions of hygiene and comfort. Sufficient services in these sub-centres, in conjunction with the location of the new ladies' clubs in the suburbs may reduce overcrowding in the city centre. These clubs may well fulfil the needs of many women seeking spare time recreational pursuits of a non-religious nature. In addition to this alternative, the attendance of women in secluded clubs in the suburbs would reduce the shameful activities of some of the younger members of the society who frequently annoy the women when they gather in more public and religious areas.

4.4 The Contemporary Structure of Medina.

It is clear from the previous study and the following Chapters that the urban structure of Medina has been influenced by many factors. Hoyt elaborated those factors which affect the structure and growth of American urban areas - migration, the desire of families, transportation, growth of wealth, universal ownership of cars, steel-frame skyscrapers and elevators [34: pp. 245-250]. Almost all these factors have affected Medina to a certain degree, but to find out how far the changing structure of Medina fits in with the structural pattern of other cities, several concepts of city structure must be considered. However, the following discussion may suggest that the present land use pattern of Medina is remarkably different from the conventional models of urban structure.

There are several theories dealing with the general structural form of cities in the Western World. In 1925 E. Burgess suggested that urban land use tended to display a zonal organisation concentrically arrayed about the city centre, and each zone had a certain function [51: pp. 47-62; 52: pp. 117-129; 267: pp. 178-184]. In 1939 H. Hoyt maintained that the process of movement of land uses followed a definite path in one or more sectors of the city according to the pattern of rent in an area. Land uses extended outward along communication axes thus producing the sector; they do not encircle the city at its outer limits. Essentially, Hoyt emphasised the directional element in controlling land use contrasts rather than distance as implied in Burgess's model [120: pp. 245-250]. In 1945 Harris and Ullman suggested that cities do not grow simply about a single central business district (CDB), but are formed by the progressive integration of a number of separate nuclei into the urban fabric. Each

nucleus becomes specialised in a certain function according to local characteristics which control the emergence of separate zones or sectors [321: pp. 7-17]. These theories were developed in America or West European cities, in situations totally unlike Saudi Arabia. Harris and Ullman argue that the internal pattern of each city is unique in its particular combination of details [321: p.12], and application of their ideas to a non-western city must therefore be undertaken with particular caution as the comparison is a matter of tentative investigations rather than generalisation.

Sjoberg's theory of the pre-industrial city [203: pp. 67-142, 182-271], however, serves as a more useful model for an Islamic city up to the first half of this Century. The chief features are:

a) The pre-eminence of the central area, with its religious hub, over the peripheral areas; this area serves as a focal point for social life, and only the 'elite' own houses here. This can be clearly applied to Medina, but as has been seen earlier on page 72 , officials and high income groups have lately spread out to the south of the city in modern villas in Koba area.

b) Spatial differentiation is based on ethnic, occupational and family ties, and mobility is low. This differentiation was strong in Medina until the late 1950's, but with the demolition of the city walls and the Ahwash* gates, construction of asphalt roads, and the introduction of cars, ethnic divisions have weakened, inter-community moves have increased, and a greater degree of inter-mingling has been observed (see Chapter 9).

c) Spatial differentiation in land use is very low and crowded conditions are the norm. In fact, in Medina's urban area, different housing patterns emerge (villas, traditional buildings and slums). The traditional concentration of the suq was weakened by the introduction of mixed retail activity and this trend can also be seen in developed countries [312: p.283]. Newcomers built their shelters on the outskirts of the city in the Eastern or Western Harrah, and this reduced residential congestion in the old urban area.

d) Some occupations need a peripheral position, e.g. populations engaged in agricultural activity. In Medina several activities have migrated to more outlying parts of the central core of the city, and new industrial workshops emerged on the periphery. Agriculture land was included inside Medina's walls, but now residential areas have substantially encroached on agricultural land, bringing farming activity to an end on many plots within and outside the city.

e) The technological base of the pre-industrialised city is rudimentary; this is true of almost all under-developed areas, but the wealth of Saudi Arabia

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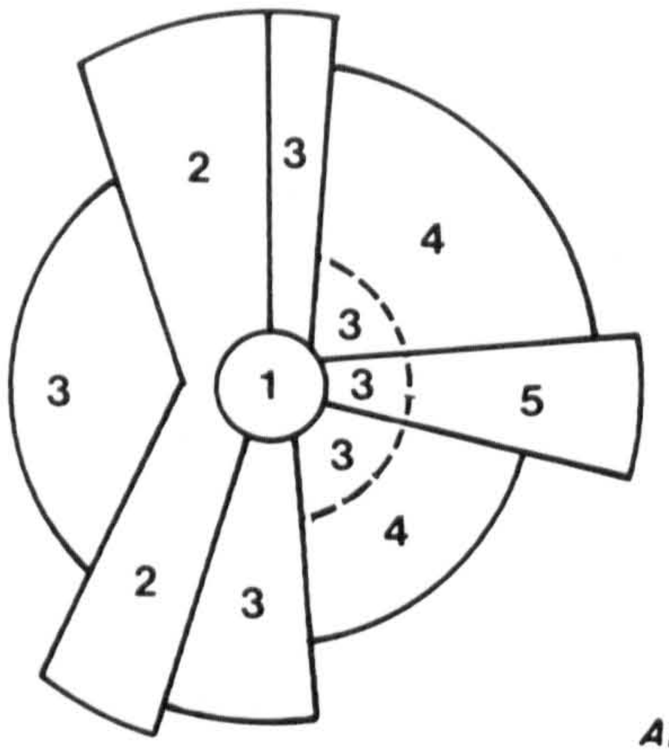
* plural of Haush: a sub-division of a quarter.

Fig.4·13 URBAN STRUCTURE THEORIES

SECTOR THEORY



1 CBD

2 Wholesale light manufacturing

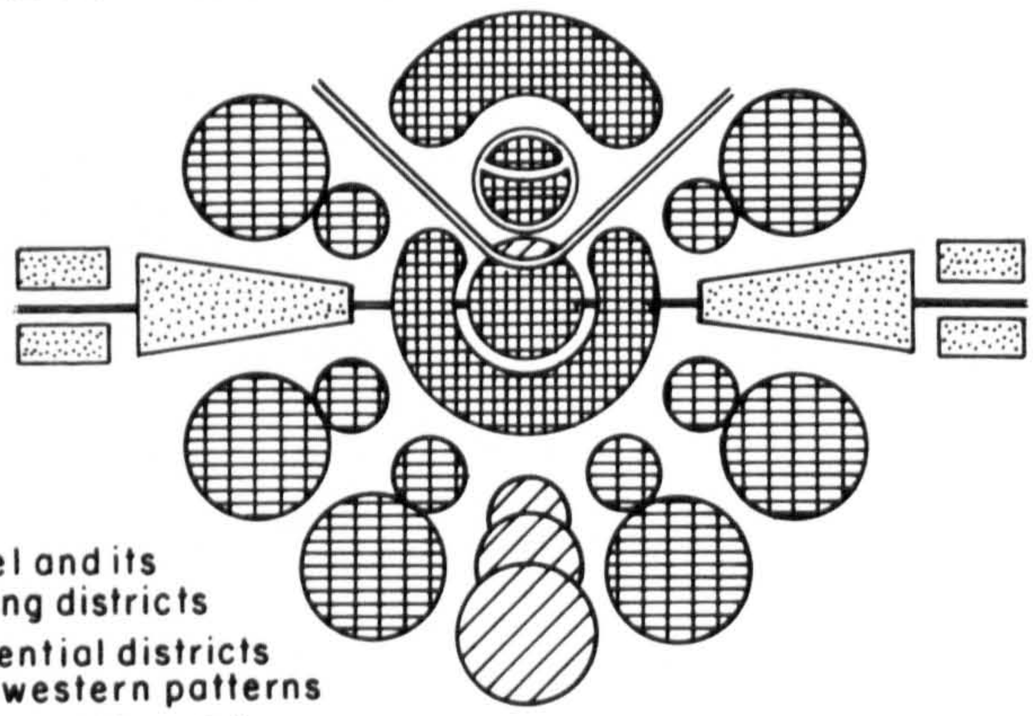
3 Low class-residential

4 Medium-class residential

5 High-class residential

After: Harris

PHASE THREE IN THE EVOLUTION OF THE ISLAMIC CITY



The citadel and its surrounding districts

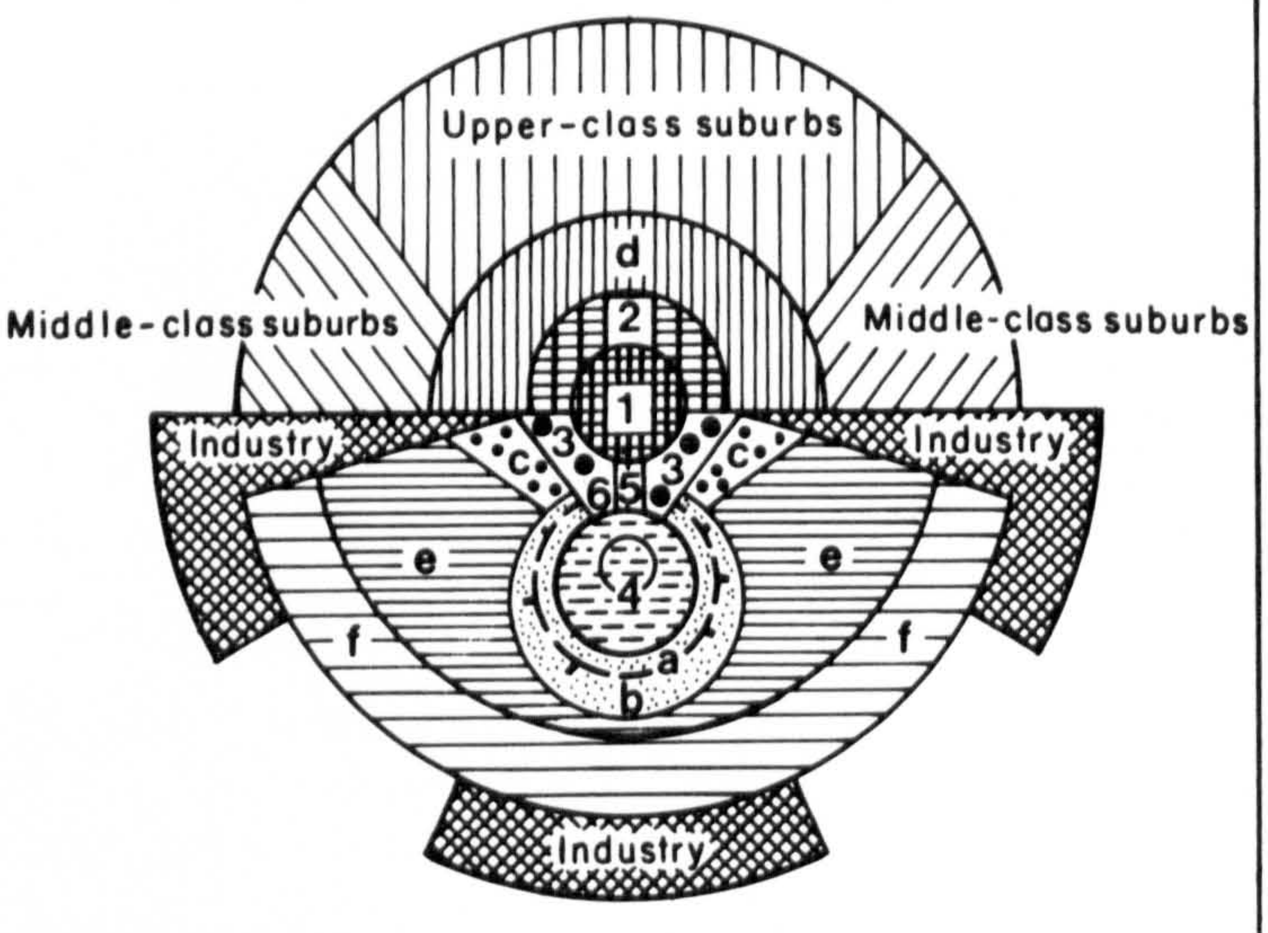
New residential districts following western patterns

The gradual shifts of the new central business district

New industrial locations

After: Ismail

MODEL of a BI-NODAL CITY BASED ON TEHERAN



1 CBD-core: Main western-type shopping streets

2 CBD-fringe: mostly modern economic functions

3 CBD-fringe: formerly upper class suburbs and first modern administrative functions

4 Bazaar and its fringe

5 Area of traditional shopping streets

6 Arg, or former palace quarter

a Former town wall

b Area of traditional building

c Old upper class quarter

d Ring of modern apartment houses

e Residential area of wide social classes

f Slum zone on the fringe of the town

After: Seger

has meant that it can import technical knowledge from advanced countries.

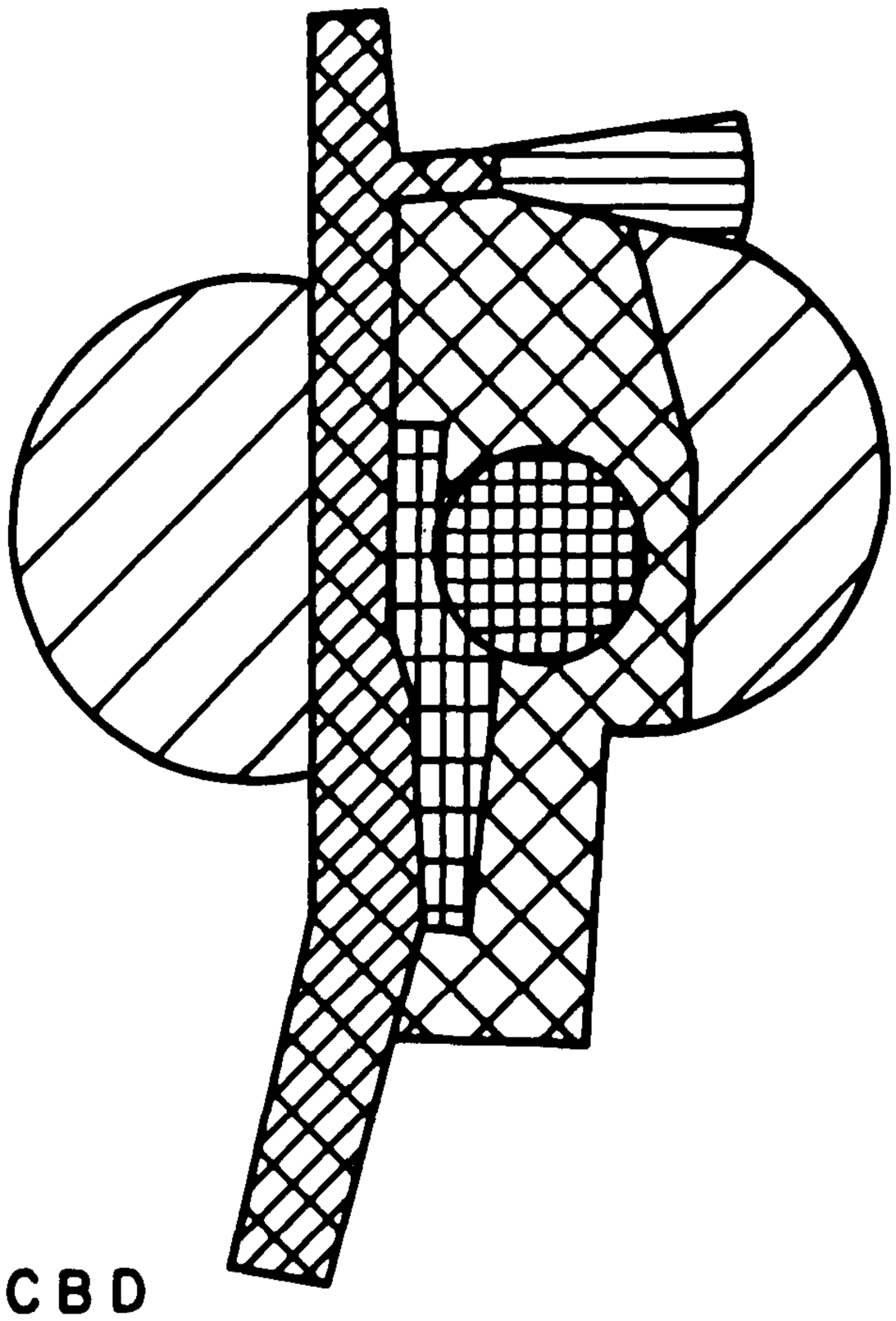
Thus Sjoberg's model has some significance, but due to regional diversity and the time scale involved, it must be cautiously applied. In 1972 Ismail developed a three-phase model for the morphological evolution of the Arab city [330: pp. 122-123]. This model uses Cairo, Damascus and Aleppo as bases, and describes both medieval and more recent physical growth based on the location of different land use elements, with a nucleus for urban growth. The three cities mentioned earlier all had satellites situated on their main land or river routes, and both they and their satellites experienced subsequent horizontal growth until they merged. Growth continued to fill in space between the former satellites; some suqs moved to the newly founded districts and the older ones experienced a gradual physical decline. New districts for light and heavy industry emerged on the peripheral areas of each city. This pattern of growth is remarkably similar to what happened in Medina (see section 4.2) although the suqs did not move to the new districts outside the city, but modified their boundaries or relocated within the old city, and this behaviour was attributed to the religious significance of the city centre.

In a recent study, Segar attempted to develop a schematic model based on the functional structure of Tehran [370: p.36] which has some similarity to Ismail's model (Fig. 4.13). Segar suggested that the model is applicable to other oriental cities with some modification. The city was divided into three main parts: a) the centre of the city, b) the residential area, and c) the industrial area.

a) The centre is sub-divided into three further parts, traditional, transitional and modern. The traditional core is the sole centre of shopping for lower income groups and very often for the lower middle classes. The change in the bazaar development may depend largely on improved standards of living of the lower classes. The modern centre developed near the upper class residential area and is characterised by the latest and most modern institutions and shops. The transitional area, which is more apparent in colonial cities, lies between the modern and traditional city cores and starts at the upper class suburbs; as the city expands it may be functionally associated with the more traditional element of the city.

b) The residential area is divided into two parts. Middle and upper income groups represent the first part and live in the ecologically favourable areas, especially in the suburns. Between these suburbs and the CBD lies the belt of modern multi-storey tenement houses and mostly occupied by middle classes. The second part comprises the residential areas of lower income groups, which lies in the old part of the city and the neighbouring quarters. Towards the

Fig.4·14 SCHEMATIC STRUCTURE OF MEDINA



CBD

Commercial Axis

Light Manufacturing

Areas with dominance of High Class

Areas with dominance of Medium Class

Areas with dominance of Lower Class

Source : Field observation

fringe of the city they are surrounded by a slum zone with different degrees of poverty.

c) Industry prefers large areas on the fringe of the city. New projects of industrialisation are concentrated in special industrial areas, while older works together with businesses, are mainly situated at arterial roads.

The value of Segar's model for the oriental city is considerable, but it is difficult to give it universal validity. The topographical element of the particular city has to be taken into account in affecting the direction and location of different uses, while the socio-economic and socio-cultural elements dictate the degree of change. Therefore, if Segar's theory is to be applied it must be used with considerable caution.

The above mentioned special elements may be explained by the case of Medina, where due to the strong attraction of Al-Haram and also the absence of a real colonial western influence, no sharp social gap is detectable in the urban structure. Tehran is different to Medina in size, and so has developed a multiple pattern of growth and structure. Medina, as explained in section 4.3 still depends on its sole CBD, which is expanding to meet the requirement of all classes of the population. Although Medina seems analogous to the model with wholesale trade being moved to city centre fringes, this is not due to the low prestige of such trade as suggested by the model, but to the power exerted by expansion of Al-Haram. The preference for higher and middle class to reside in the best area of Tehran which is characterised by its modern multi-storey tenement houses, and for industry to emerge on the fringe of the city, seems to coincide with Medina's condition.

Medina's present urban structure is the result of many historic, social and economic development factors. Thus a combination of the sectoral theory of Hoyt, the third and final phase of Ismail's morphological model and the bi-nodal model of Segar would be closest to Medina's urban structure than any single theory (Fig. 4.14). Medina's special pattern and diversions from all the previous models is based on the following points:

a) The city centre is still the main centre for commercial, spiritual, recreational and to some extent residential uses, and there is an absence of alternative concentration of activities as in Segar's model, thus putting great pressure on Medina's sole functional centre, i.e. city centre. The close relationship between Al-Haram, pilgrims and local people, gave the city centre a power of attraction to old and new businesses, and made Medina different to some other cities where main zones of concentration in early times was said to be dominant through its tradition as a professional quarter without other special powers of attraction [371: p.45]. This is confirmed

by the filtering process taking place in many Western and Middle Eastern cities, where new businesses have been established in other parts of the city.

b) The second circle of transition zone in the concentric zone theory, with businesses and light manufacturing industries encroaching on residential areas and encircling downtown is not found in Medina. Actually one finds a commercial axis extending to the south and an industrial axis to the north-east, inhabited by higher, middle and lower income groups. Wholesale trade is not segregated from the main commercial areas, but has spread to shops or other buildings in residential parts of the centre. This gives Medina's centre a greater variety of activities than those defined for western cities which normally only had shops, offices and public buildings [324: pp. 208 - 209].

c) There is no industrial zone in Medina, as it is not an industrial city. However, with the existing light industry, garages and workshops dispersed throughout the city, there is no absolute negative locational effect between these and high quality residential areas. For example, some workshops and garages are found in Al-Matar street in an area further away from the city, yet there is also residential use for high income groups on the part closest to the city. The most important factor affecting these locations is the availability of cheap land.

d) In the sector theory and in Segar's model of Tehran it is suggested that lower class residential areas are found in proximity to the CBD and on the outskirts of the city. In Medina, there are now some segments inhabited by low income group migrants in the east and west of the city, but higher income groups are found in the centre near Al-Haram. High income groups also have consolidated to the south of the city, and more recently to the north.

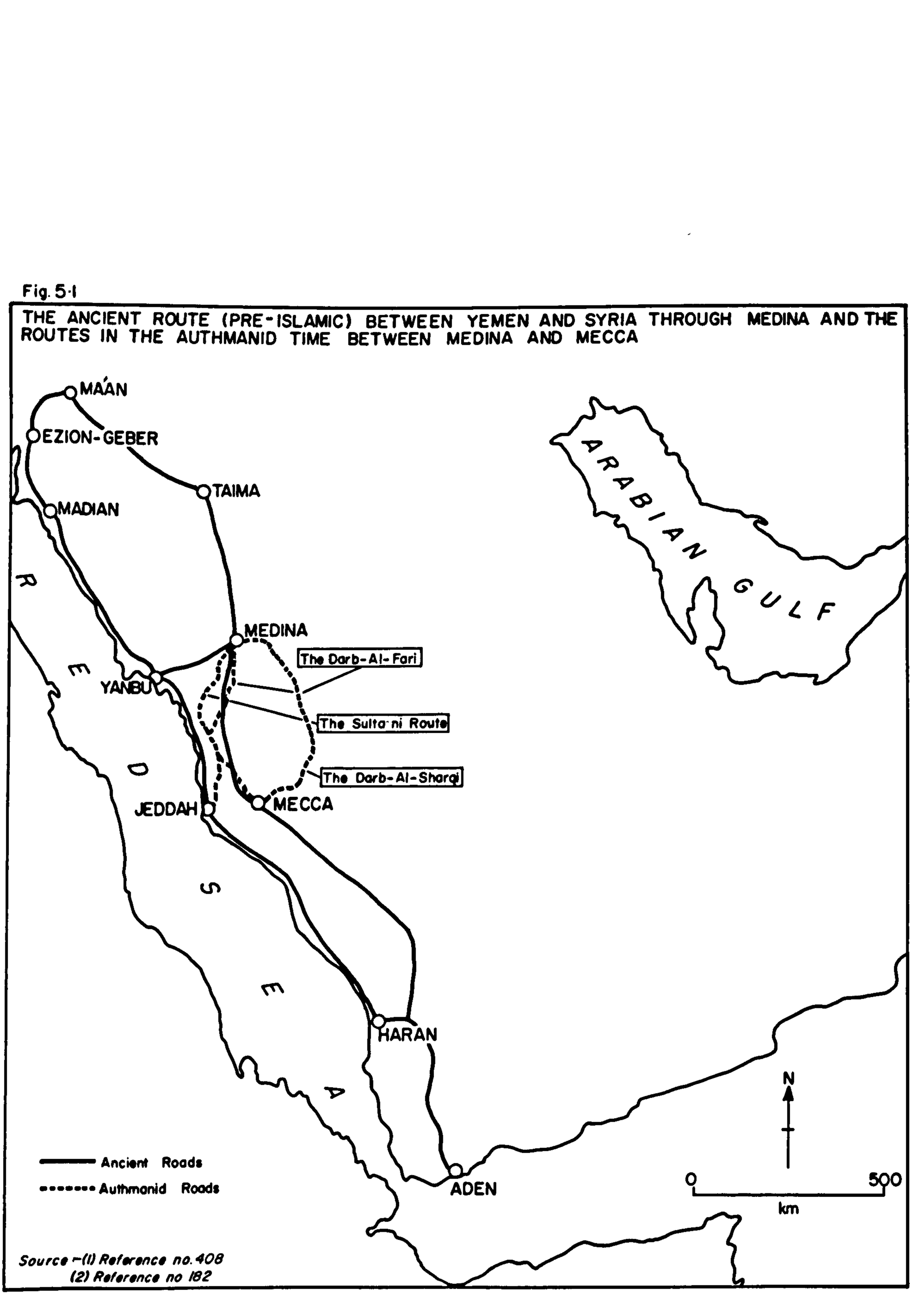
e) The present stage of development in Medina deviates from that suggested by Burgess, who indicated that areas of slight increase and attraction for population is usually reflected by cheap land prices, which is found entirely on the outskirts of the city [267: p.184]; it has been explained earlier that in the north of Medina, which has seen increases in population, land was cheap, but on the other hand, vacant areas with high prices around the centre have witnessed an increase in population and development.

f) The multiple nuclei theory and Ismail's model also do not exactly apply to Medina, as the different kind of land uses tend to occur sometimes in patches from the city towards other neighbouring villages and finally engulfing them rather than surrounding several nuclei.

In conclusion one can say that the religious core of Medina is the dynamic force in affecting the progress of redevelopment programmes and the city's structure and growth. In the 1976 pilgrimage season, work on Al-Haram enlargement project stopped for about 50 days due to the presence of pilgrims in the area, as demolition work would have polluted the air with dust, thus discomforting the pilgrims [294: p.3]. In spite of the enlargement of Al-Haram which created space for prayer, it also created some other shortages in the city such as housing and green land. The immense attraction of this core to both locals and pilgrims led to a special pattern for Medina's growth, but it also stimulated continuous alteration in the location of land uses within the city and on its periphery. These alterations are sometimes rapidly being undertaken which led to losses of historical buildings of architectural value and to inadequate growth for longer term needs for facilities. This situation presents an urgent need for controlling growth, especially in the central area; it does not imply a ban on development or redevelopment as both are indispensable functions of a living city, but does suggest the enforcement of regulations on such development in a systematic fashion with an adequate survey for future needs. The poor constructural and hygienic conditions of certain areas on the outskirts of the city can be overcome by the quick execution of housing programmes which should be ready before the start of any redevelopment project or allowing settlers to come to the area. Moreover, other physical facilities should be improved to meet the increasing number of pilgrims and residents, such as sub-commercial centres and recreational facilities. The latter might be a great asset to both local residents and visitors, besides preserving some of Medina's historic and aesthetic heritage.

Fig. 5·1

THE ANCIENT ROUTE (PRE-ISLAMIC) BETWEEN YEMEN AND SYRIA THROUGH MEDINA AND THE ROUTES IN THE AUTHMANID TIME BETWEEN MEDINA AND MECCA



Source – (1) Reference no. 408
(2) Reference no 182

CHAPTER FIVE

THE PILGRIM ROADS AND URBAN GROWTH

The aim of this Chapter is to investigate the degree to which settlements in Medina province and beyond have been affected by pilgrim roads. It will be necessary to consider the history of pilgrim roads, and in more recent years the adequacy of modern road networks in linking Medina with surrounding localities. Consideration also will be given to the effect of the increasing number of pilgrims on the capacity of roads, and on the religious atmosphere in the centre of Medina.

5.1 Factors Affecting the Roads before the 20th Century.

It appears that the environment was the main factor influencing the direction of ancient routes while other factors such as political unrest and safety from raids by bandits, affected the development of these roads. Before Islam, Medina took no part in the pilgrimage to Mecca, forming only a main halt on the famous trade route (Fig. 5.1) between the Kingdoms of the South (in Yemen) and those in the North (in Syria). These routes date back to 3 000 B.C., the time of the Minaeam in Yemen and the Phoenicians and Babylonians in the North. The ancient Egyptians also had a trading relationship with Southern Arabia as early as the fifth Dynasty in the 28th to 17th Centuries B.C. [347:p.128].

Several environmental factors influenced the direction of the routes and these characteristics affected their popularity with caravanners. These factors are briefly outlined below.

5.1.1 Topography.

To a large extent, topographical factors determined the alignment of the caravan routes around Medina. By comparison with areas north (2,200 m at Madian) and south (about 3 000 m near Abha), Medina is low-laying (about 600 m above sea level). The area south of Medina is part of the Sarat mountains and is mostly rocky. From Medina as far as Al-Ula (428 Km north of Medina) travelling is easy, and the road follows the central line of the valleys. After Al-Ula, sand dunes extend into the narrow passes from the large An-Naufud desert in northern Arabia, and continue as far as Tabuk. Beyond Tabuk we find sand and jagged sandstone.

but this section of the route is easier than the first, and caravans tried to follow the courses of wadis and avoid the harsh land. Sometimes pilgrim routes in sandy areas were paved with stones to protect their tracks, as was the case with the Kufa-Mecca pilgrim road [405:vol.2, plate Xiv(2)]. During the rainy season, sudden torrents made travel difficult, but in the sandy areas there is no drainage problem as rain immediately soaks into the sand. In the rocky areas, run-off is rapid and rainwater finds its way either west to the sea, or the sandy areas of the east. Most caravan routes have either kept to the eastern edge of the Sarat mountains or the coastal plain between these mountains and the Red Sea.

The mode of transport was governed by the nature of the route, e.g. donkeys or mules for inside the city and to its suburbs, and camels for longer distances outside the city, through the desert where it was necessary to travel for long periods without food and water. Even if water was available, donkeys were unsuited to the sandy tracts of the desert and the rocky Harrat, and sandy routes were unsuitable for wheeled carts. As a result the movement of people and goods was slow; volume was limited by the carrying capacity of the animals, and a journey from Damascus to Medina took at least 16 days. However, the camel remained the main form of transport until the first quarter of the 20th Century, when it was replaced by more modern forms of transport. This popularity of camels, due partly to the pilgrimage, created more profitable markets for camels than donkeys in Hijaz. Donkeys prospered more in the Eastern region where flat land prevails.

5.1.2 Climatic Conditions.

The heat made travelling along desert routes more difficult in summer, and people travelled at night and during the cool hours of the early morning. The very hot summer wind (As-Samom) and the accompanying sand storms also affected travel. Drivers feared the latter as the camels became very nervous and difficult to control sometimes becoming dangerous, injuring or even killing people. This wind often covered the desert routes with sand, forcing the caravan guides to plot their route through the

desert by the stars.

5.1.3 Water Supply.

Travellers on these routes were dependent on both temporary and permanent sources of water; the temporary sources being the seasonal courses of water and the pools which filled up during the rainy season, while the permanent sources were from wells and springs. Caravan drivers were familiar with the location of these wells and springs to obtain vital water. In early times the Muslim governors ensured abundant water supplies by digging wells and providing numerous water installations over a vast distance along some routes, e.g. the Tabukiyyah route in the Aumayyed period (661 to 749 A.D.). At the time of the Abbasid Khaliphas Al-Mansor, Al-Mahdi and Ar-Rashid (754 to 809 A.D.) the roads between Iraq and the pilgrimage area were well supplied with reservoirs, wells and latrines and the distances between the 35 stations [15:pp. 281-356] along the route were well marked [419:vol.1 , p. 260]. Along other roads caravans planned their route through areas where drinking water was available. During the dry summer season when water was scarce, the owners of some private wells tried to sell water at inflated prices. After the rainy season when temporary sources dried up, caravans were forced to rely on these permanent sources.

Tribes often imposed a tax on caravans passing through their lands, e.g. the Harb tribe on the route between Mecca and Medina, and people paid gladly to safeguard their lives and secure water. The harsh conditions resulted in the total extinction of some places along the routes, for example Faid on the Medina-Najaf route was once an important source of food and water to those who had already crossed An-Naufud desert or were about to do so, with the result that it became a permanent halt station. In addition, some halt stations could not survive and some became merely names in history, and one reason for this was the exhaustion of their water supply (for example Al-Khaif on the Medina-Mecca route in the early Islamic era).

Comparing the above factors with those affecting the location and construction of modern roads suggests that the most important factors within the

study area are financial and technical; for example, the Sarat mountains affected the construction of the Medina-Jeddah road. Initially this road was not economically acceptable to the government due to the high cost of overcoming that barrier. It was necessary to blast parts of the Sarat mountains on bends to ensure road safety and this increased construction costs.

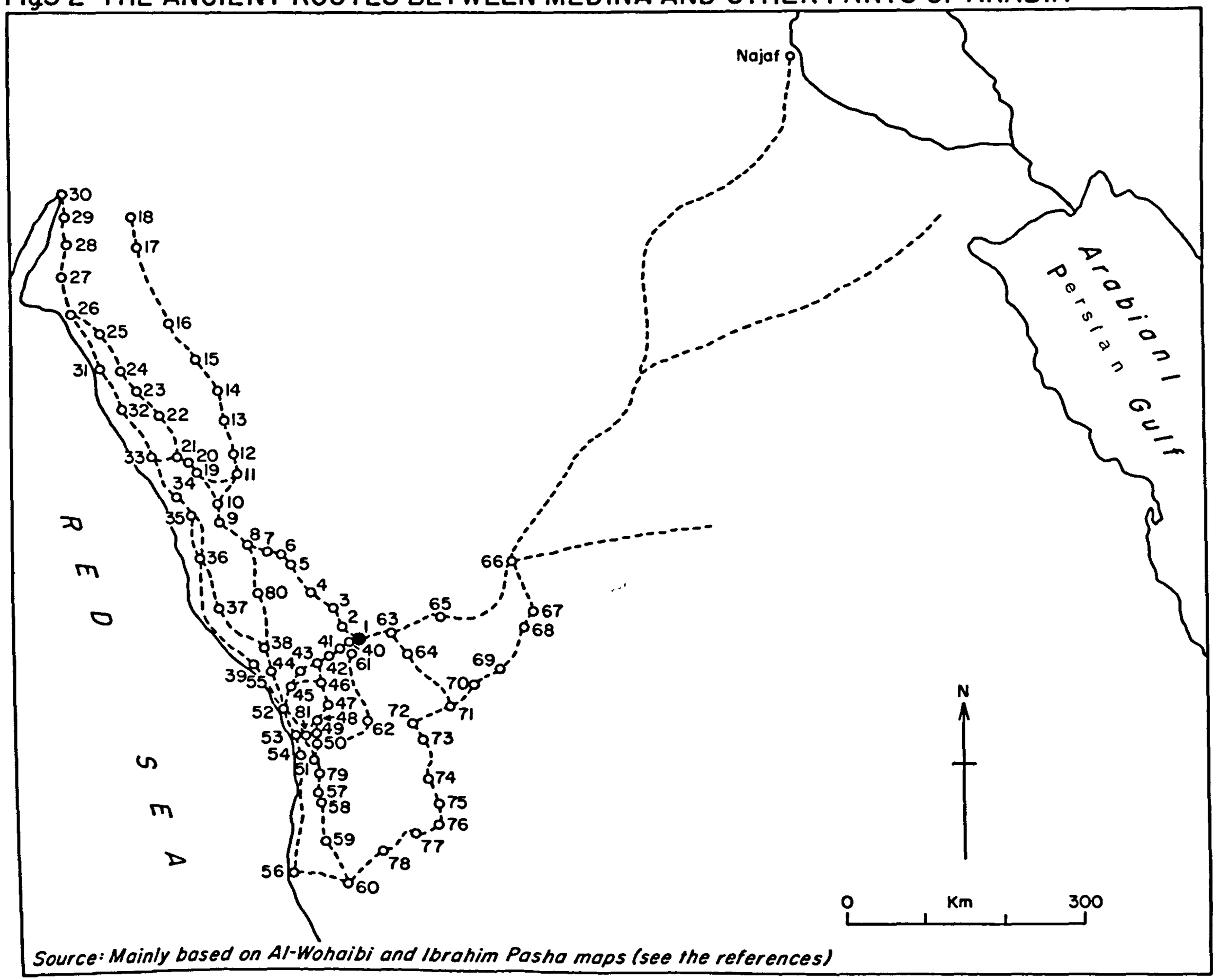
The road connecting Medina with other cities in Saudi Arabia face an important problem, that of drifting sand, which in many places obliterates the asphalt roads. In other provinces of Saudi Arabia (e.g. the Eastern Province), oil has been sprayed on the sand to prevent it covering the roads. The oil used in this process is a high gravity penetration oil, of great value in road construction, but still proving the best method of protecting such roads from sand. Plantations are impractical on long roads in arid areas, except near towns. The problem of soil erosion caused by rainstorms and flooding wadis also affects today's roads, especially if the road is above ground level. Consideration was given to this problem in the new scheme undertaken by two companies between 1964 and 1972 for rebuilding the Medina-Jeddah road, with the side slopes being covered with stones wherever erosion could be expected.

Non-environmental factors such as a shortage of technicians and labourers have also affected road construction, but these deficiences have been overcome by importing foreign technicians and labourers. Formerly, the lack of technical ability caused both delay in the construction of roads and their poor quality. Furthermore, in the 1950's road building was almost entirely monopolized by a national contractor, the firm of Bin Laden. This monopoly may have resulted in limited experience being applied to the design and construction of roads over a wide area of the country, as proved in the 1960's when parts of the Medina-Jeddah and the Medina-Tabuk roads were resited after their destruction in the torrential winter floods. The involvement of different local and foreign firms in constructing roads since the late 1960's, provided the area with wider experience, in road design and ensured better location for roads.

5.2 Decline and Evolution of Settlements and Implications.

The factors explained in the previous section greatly affected the

Fig5·2 THE ANCIENT ROUTES BETWEEN MEDINA AND OTHER PARTS OF ARABIA



Source: Mainly based on Al-Wohaibi and Ibrahim Pasha maps (see the references)

KEY TO FIGURE 5.2

1.	Medina	41.	Malal
2.	Dhu-Khushub	42.	As-Sayalah
3.	Uwal	43.	Ar-Rauha
4.	As-Suwaida	44.	As-Safra
5.	Birmah	45.	Badr
6.	Al-Marr	46.	Ar-Ruwaithah
7.	Balakith	47.	Al-Arj
8.	Al-Marwah	48.	As-Suqya
9.	Al-Anab	49.	Hasha
10.	As-Suqya	50.	Al-Abwa
11.	Qurh	51.	Al-Juhfah
12.	Al-Hijr	52.	Al-Jar
13.	Al-Junainah	53.	Al-Turaifa
14.	Al-Aqra	54.	Rabigh
15.	Al-Akhdar	55.	Masulan
16.	Tabuk	56.	Jeddah
17.	Dimmah	57.	Qudaid
18.	Suragh	58.	Khulais
19.	Al-Baida	59.	Usfan
20.	Al-Sarhatain	60.	Mecca
21.	Bada	61.	Koba
22.	Shaghb	62.	Al-Fur
23.	Al-Kilabah	63.	At-Taraf
24.	Qalia	64.	Al-Arhadiyyah
25.	Al-Agharr	65.	Batn Nakhl
26.	Ainunah	66.	An-Naqirah
27.	Madyan	67.	Al-Mawan
28.	Sharf Al-Bal	68.	Ar-Rabadah
29.	Haql	69.	As-Salilah
30.	Ailah	70.	Al-Umaq
31.	Al-Nabk	71.	Al-Madan
32.	Duba	72.	As-Suwariqiyyah
33.	Al-Wajh	73.	Sufainah
34.	Habban	74.	Hadhah
35.	Hanak	75.	Al-Mislah
36.	Al-Haura	76.	Al-Ghamrah
37.	Al-Ahea	77.	Dhat Irq
38.	Yanbu (the valley)	78.	Nakhlah
39.	Yanbu (the port)	79.	Kulayyah
40.	As-Shajarah.	80.	Al-Is
		81.	Waddan

location of caravan routes. With regard to settlements, they have had opposing effects, bringing life to some and death to others. Five specific factors have been responsible for changing the nature and volume of pilgrim traffic: the rise of Islam in the seventh Century A.D.; the increasing insecurity of travel across the Arabian Peninsula from the ninth Century A.D.; the importance of sea travel from the 18th Century A.D.; the operation of railway traffic between 1908 and 1916; and the introduction of the automobile and the building of roads since the 1920's.

5.2.1 The Rise of Islam.

Islam brought about a different type of movement, based on people rather than goods. Traffic converged on the holy areas of Hijaz and roads often sought the easiest, most direct route. As a result some famous halt stations such as Taima (a main way-station on the north-south Trans-Arabian trade route) were by-passed by the pilgrimage roads, and throughout the seventh Century A.D. most pilgrims from Syria used a more westerly route [23:p.325]. Taima was very important as a meeting place for caravans from Gerha (an old city on the Arabian/Persian Gulf), Petra (the capital of the Nabataean state in the north of Arabia in the fourth Century A.D.), Sheba (a state in Yemen at that time) and Babylon. By the time of the Sassanid Empire in Persia in 224 A.D. this road had begun to deteriorate, as the Persians and Romans paid more attention to war than trade [99:p.161]. In the sixth Century A.D., the two main powers (Persia and Rome) collapsed, and the new state of Islam was formed in Medina. It was important for the growth of the Islamic state to establish pilgrim routes; no longer of much importance, Taima was replaced by Tabuk and As-Suqya (Fig. 5.2). However, Taima still had a fertile agricultural area, and retained its value to the local people; it was also a main station for postal services in medieval times [80:p.250].

Another example was Al-Jauf in the far north of Arabia. Famous since ancient times, it flourished as a meeting place on the road between Babylon and Petra, especially after the decline of the Gerha-Petra route in the second Century A.D. [233:p.100;246:p.135]. Known in early Islamic times, as Dumat Al-Jandal, it was described in the seventh Century A.D.

as a well fortified town, whose people had a blood relationship with Dumat Al-Hira in Iraq. It is said that the Prophet Mohammad invaded Dumat Al-Jandal while he was in Medina (622 to 633 A.D.) and the second Khalipa Omar expelled its people to Al-Hira as they were non-Muslim [21:vol.4, pp.1212-1214;14:pp.140-141]. This drastically affected the town which eventually became merely a small settlement surrounded by nomads.

Along the old Maarib-Petra route there is Madain Saleh; where the Prophet is said to have urged travellers to pass quickly and not to eat and drink unless absolutely necessary, especially when passing through its gorge. This is based on the belief , also mentioned in the Koran [139:11,61-68;15,81-84] that this is the home of the Thamud tribe, upon whom God wrought vengeance [138:pp.19-21;273:p.536]. Therefore, although this area has good agricultural land and precious archaeological resources, few people like to live there. At harvest time the area has many fertile pastures and wild mandarins which are left untended. It also attracts foreign collectors, who offer the Bedouins generous bribes to rob the area of its priceless historic relics.

Meccan traders sometimes took a short cut from Badr to reach Wadi Al-Kora at Al-Marwah, without passing through Medina. This route became familiar to the Quraishi caravans who were not allowed to pass through Medina, during the first eight years of the Islamic state. The route declined after Mecca became part of the Islamic state in 630 A.D. and was afterwards rarely used by the Syrian caravans, which preferred to by-pass Medina and go directly to Mecca. This affected Al-Is settlement which lay away from the main inland and coastal roads (Fig.5.2). In pre-Islamic times, Al-Is was described as a place growing a famous kind of date which was named after it, while some of its inhabitants fished in the Red Sea. After Islam many of these people fled to Medina and thus Al-Is declined to a small fortress village [23:pp.81-82].

The commencement of Islam did not always effect a decline upon settlements. A preference was observed for some areas, e.g. Al-Juhfah (p.107). This, along with the influx of pilgrims from every Muslim community, enlarged the sphere of influence of the pilgrimage with the

development of stopping points along the route, to provide travellers and pilgrims with food, water and fresh beasts of burden. Although Tabuk existed before Islam, it acquired its present name in early Islamic times and was described as having palm groves, springs and being well fortified from the time of the Prophet in the seventh Century A.D. [14:p. 73].

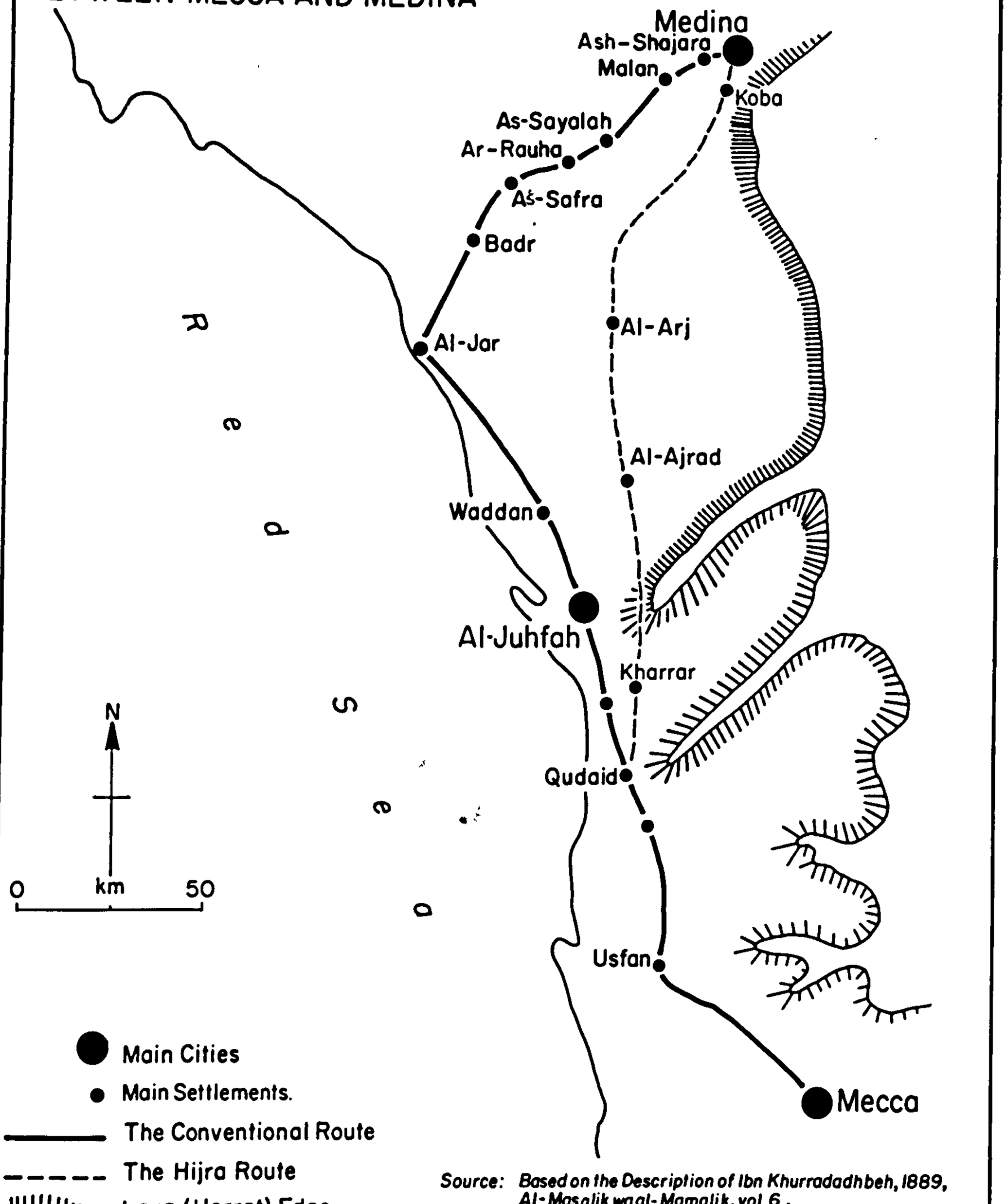
At the time of the Prophet Mohammad, in the year of the Badr Battle in 624 A.D., the Prophet hated passing through the valley of As-Safra; the names of its mountains and people represented an evil omen to him. He followed another valley to the north of As-Safra called Zafran, and it was this route that was later adopted by the Egyptian caravan between Medina and Yanbu [21:vol. 3:p. 1024].

Pilgrim routes followed some of the older trade routes, thus preserving the importance of settlements such as Faid and Medina. In pre-Islamic times, Faid was a halt station between Gerha in the east and Petra in the north, but later became a halt station on the Iraqi pilgrim caravan route. Al-Harbi mentions that the Khalipha Authman (643 to 654 A.D.) was the first to construct canals and cultivate the land around Faid [15:pp. 279-280]. It became the seat of the Iraqi pilgrim Administrator, or "Amir Al-Hajj". The Abbasid Khaliphas (749 to 1258 A.D.) provided Faid with residences for the Khaliphas, their relatives, pilgrims, and forts for their troops. Shops and mosques were also constructed in this settlement [405:vol. 1, p. 165].

Medina was also a halt station on the Maarib-Petra trade route, but its importance increased with the rise of Islam. It had several tribal markets which gradually united in one place in the west of the city outside the religious core around Al-Haram. At first, trade was carried on from open stalls until the time of Hisham Ibn Abdul Malik (Aumayyed Khalipha, 684 to 705 A.D.) whose governor of Medina, Ibrahim Ibn Hisham, took over the market (now known as Al-Manakha street) and built shops with rooms above them for rent [5:pp. 124-134]. The alignment of the present north-south through road, and the names of the gates (i.e. Egyptian and Syrian gates) where pilgrim caravans from Syria, Egypt, Mecca and Yemen

THE CONVENTIONAL AND HIJRA ROUTES BETWEEN MECCA AND MEDINA

Fig.5·3



Source: *Based on the Description of Ibn Khurradadhbeh, 1889, Al-Masalik waal-Mamalik, vol.6, Leiden, pp.129-131.*

congregated, suggests that it follows the line of the ancient caravan route, and partly explains why commercial activities have developed on the west and south of the old city. The importance of this route may explain why the market was not founded in the east of the city where the post Islamic caravan from Najd terminated.

Although it may appear arduous and primitive, the value of caravan travel in the development of trade and long distance travel cannot be overlooked. Often (as in the period between the reigns of the Aumayyed Khaliphas, Muawiah the first and Muawiah the second, 661 to 683 A.D.), these routes made it possible for Medina to transport surplus crops in various parts of Arabia, and the people of Medina made full use of their agricultural opportunities.

5.2.2 Insecurity of Travel.

The Hijra route (used by the Prophet Mohammad when he migrated from Mecca to Medina in 622 A.D.) followed certain short cuts to avoid the Quraish tribe of Mecca. These deviations, originally to avoid the Prophet being taken back to Mecca, were followed by pilgrims for some decades (Fig. 5.3). In the following Centuries the route was used infrequently, yet it may be the same as was followed by Abdullah Ibn Az-Zobair when he rebelled against the Aumayyed Khalipha of Damascus and fled from Medina to Mecca in the eighth Century A.D., passing through Al-Fur, which does not now exist.

The time of the Abbasid Khalipha Al-Motawakil (847 to 861 A.D.) can be considered as a bad period in the history of the Hajj, when roads became insecure and neglected. In examining the situation, examples will be given which may illustrate some features of the area. Three factors can be said to have contributed to this insecurity. First, the invasion of Arabia by the Carmathians (who originated in the eastern part of Arabia) who robbed and attacked pilgrim caravans from the east and north east of Arabia at the end of the ninth Century A.D. [6:p.20]. Second, foreign invasions, such as the Crusaders' attempts to invade the Holy Cities from the north through Taima and from the sea through Yanbu and Rabigh [94:p.158;168:p.398]. The Mongol destruction of Baghdad in 1258 A.D. forced pilgrims from Iraq, Iran and the rest of the eastern lands to travel

via the Syrian road through Damascus [405:vol.1, p.77]. The third factor, the attack of pilgrim caravans by desert tribes was a direct result of the first two. Attacking pilgrims became a common practice by tribesmen; for example, the Tai tribe attacked an Iraqi caravan in 898 A.D. and Bano Saleem robbed a Syrian caravan in 965 A.D., and for several years pilgrims from Iraq and Iran stayed away from the Hajj [23:p.35;409:pp. 33,35]. In the 13th Century A.D. the Persian travellers Abdul Al-Karim Ibn Aqibat found it impossible to travel by the Kufa-Mecca road (Darb Zubaydah) due to dangerous, unmarked roads, and shortages of water and food [402:vol.1, pp.114,115]. Tribes often bargained for pilgrim safety; this resulted in the authorities paying generous sums of money to the Bedouin tribes on the main roads to ensure pilgrims safe passage [20:p.306;37: p.239] which, together with their booty, considerably supplemented their income. Yet both the settled population and pilgrims suffered from these circumstances. For example, at the time of the struggle for Medina between the Saudis and the Turks in the early 19th Century, pilgrims were robbed along the road and caravans sometimes were forced to turn back with their journies almost complete, yet without visiting Medina. This reduced the number of pilgrims and stimulated Medinese hatred to the Saudis, for being the cause of their financial difficulties [50:pp.394,395]. The short supply of food and water for settlements on routes forced some pilgrims to pay as much as five dirhams (£0.5) for a 0.45 Kg loaf of bread and several pieces of gold for a draught of water [405:vol.1, p.29].

Ever since the seventh Century A.D. the Iraq-Mecca route seems to have oscillated between northern and southern Najd, depending on political stability. For example, Faid which in medieval times was a flourishing settlement of Central Arabia, suffered when the route was diverted through Riyadh in the 19th Century. In the same manner pilgrim traffic was diverted from Riyadh to Al- Qasim in the north, due to the existence of the so-called fanatic Wahabi in Riyadh which caused the Shi'ea to choose more northerly routes in the first quarter of the present Century. This diversion inconvenienced some craftsmen in Riyadh as they lost some of their earnings from passing pilgrimage traffic [408:p.107].

On other routes, increasing attacks from Bedouin tribes caused pilgrims to favour coastal routes at the end of the ninth Century A.D., resulting in heavy caravan traffic along these routes, although they were not really desirable due to high temperatures, humidity and meagre water supply. The inland stations, such as those on the Ailah-Medina route, suffered from this diversion. The section between Bada and Suqya Al-Jazl along this route used to have three stations (Al-Shaghab, Al-Sarhatain and Al-Syfya), but these settlements became only names in history since their desertification in the 11th Century [23:pp. 320, 327-328]. On the coastal routes some changes affected places such as Al-Jar.. Considered as Medina's port in the first two Islamic Centuries, its importance declined in favour of more suitable ports.

Though there were main routes in the south of Medina, travellers often changed their route, sometimes to take a short cut and often to avoid travelling through the lands of certain tribes. Since early Islamic times the road to Mecca began in the west or south of Medina, travelled through As-Suqya and then to Wadan (Fig.5.2). Many different routes are found in the mountainous area between Ar-Rauha and Al-Juhfah, where there are many valleys and villages. One reason for this could be that travellers from Medina to Mecca may have had business in certain villages. In consequence the caravan would adapt its route to oblige these travellers, especially if this wish coincided with the tribal land of caravanners. Evidence of insecurity on this road is the relocation of Al-Juhfah (now Rabigh) in the late 11th Century, since part of the route on which it is situated, was replaced by a coastal route. In consequence it ceased to be a 'miqat*', and the old site lay in ruins until the present time [23:p. 39].

From the 12th Century the route through Ar-Rauha and Badr was considered particularly safe, although it was longer than the old route (through As-Suqya) and had no adequate water supply [23:p. 363]. As a result 'As-Suqya settlement, now known as Um-al-Birak ("ponds mother" - for its abundance of sweet water), which flourished in early

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*Explained on page 85.

Islamic times, became completely obsolete as it lay between mountains and pilgrims feared ambush [401:p. 32]. It linked with the conventional route to the east of old Al-Juhfah, where it continued to Mecca. In late Centuries, the old route became known as the Darb As-Sultani, and until the 1920's there were two south-western roads from Medina to Mecca, the Darb As-Sultani (the Royal, or official road) and the Darb Al-Farai (the secondary road) as shown in Figure 5.1. Although the former (400 Km) was longer [171:p. 54] than the latter (314 Km) [15:pp. 427-465] , it was safer and more widely used, and was also the route taken by the Authmanid troops (1517 to 1916) whose wheeled carts preferred it to Al-Farai road which partly crossed lava areas. This may be the reason for finding 11 stations on As-Sultani road compared with seven along Al-Farai road. The weakness of the Authmanid state at the end of the 19th and the beginning of the 20th Centuries affected the routes and cities in Hijaz; clans of the Harb tribe often attacking Medina, climbing the city walls and pillaging.

Until very recently the political and safety factors affected the direction of pilgrimage routes. For example, in the 1960's political unrest between Saudi Arabia and Yemen, and sometimes between the two Yemen Republics directed the pilgrim roads from South Yemen to a more easterly site near the desert. This diversion made the facilities of some localities insufficient to meet the needs of pilgrims. For example, the wells at Hisn Al-Abr faced increased demands and sometimes created friction between pilgrims, locals and Bedouins [34:pp. 7, 65]. Another example is the Israeli occupation of Sinai which affected the overland pilgrims, from North Africa. For example, overland pilgrims from Algeria, comprised 5.3% of all pilgrims in 1966, but this percentage dropped to 0.7% in 1967 [61:1967, p. 21;1968, p. 14] ; this no doubt affected earnings of some tribes in Sinai who used to benefit from passing traffic. Some localities such as that around Sheikh Awad's shrine in the south of Sinai were left with only the elder people of Jebaliyeh tribe in the site, while younger people found employment in Israel. These elders could not afford to repair their shrines and from time to time asked fellow tribesmen in

cities to subscribe to repair work [232:pp.38,46].

With the unification of Arabia in the 1920's, however, travel in the area became much safer; marauders were detered by severe punishments, thus attacks on settlements were stopped and travellers and pilgrims felt safer in carrying quantities of cash which may have been beneficial to those settlements en route.

5.2.3 The growth of sea travel.

In the tenth Century A.D., the insecurity of travel across Arabia led to the decline of pilgrim traffic on the Darab Zubaydah and Basra-Mecca road (with an extension to Medina). Pilgrims who formerly used these routes to reach Mecca and Medina preferred to go around Northern Arabia to Syria and join the Syrian Hajj caravan, or to go around the south coast of Arabia and join the Yemeni Hajj caravan [79:p.25] . The situation worsened when sea travel improved as this shifted the pilgrims' travel pattern from land to sea, thus caravan entrepots virtually ceased. Pilgrims from East Africa, East and South East Asia were encouraged to arrive at one of the Red Sea ports of Yanbu and Jeddah and then travel the remaining short distance overland to Medina and Mecca; pilgrims from North Africa and Egypt did the same. The steamship routes encouraged many pilgrims to come by sea, and this is demonstrated by the Indonesian pilgrims, almost all of whom travelled by sea to the Hijaz; in 1880 constituting about 12% of all foreign pilgrims and in 1914 50% [384:pp.148-149]. The cutting of the Suez Canal in the late 19th Century turned the Red Sea into an important waterway, linking east and west. Transporting pilgrims became lucrative to the Dutch and British-Indian Steamship Companies [366:p.271], but spelt disaster to caravanners and inland stations, although the increasing sea traffic did mean more pilgrims for Mecca and Medina. As a result, the pilgrimage only influenced a small area in Arabia compared to early times, and during this period all routes with the possible exception of those along the north-south inland corridor, declined and their stations were reduced to a minor significance. For example, Burton who, travelled on part of the Kufa-Mecca road in the 19th Century mentioned that a traveller could go three days without seeing water [55:vol.2, p.51], which may be an

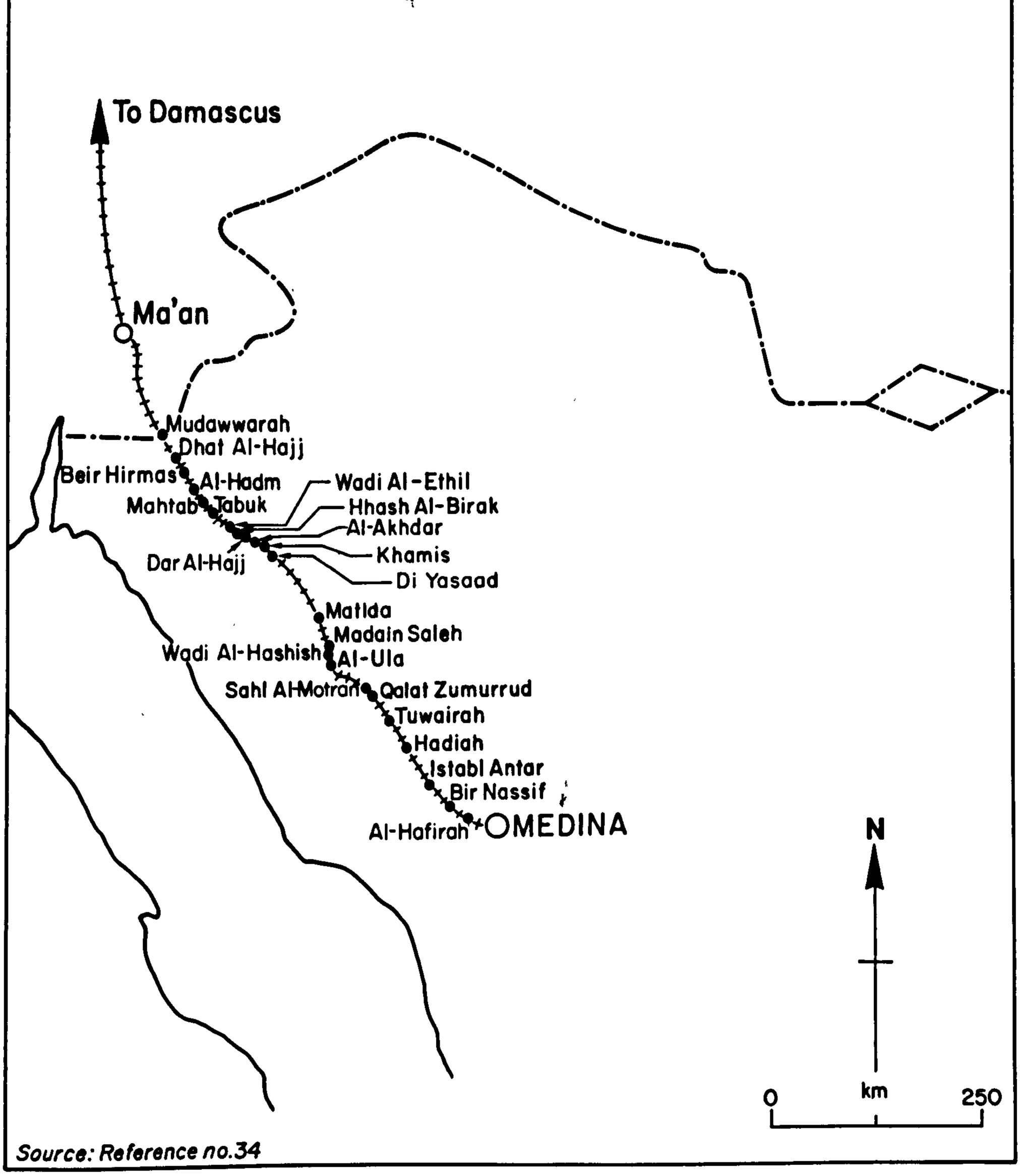
indication of the small number of stations along this road, compared with 35 stations in the eighth Century when the maximum time for travel between these stations was no more than one and a half days (p. 100).

The inland route from Medina to Damascus was diverted at Al-Ula to Al-Wajh. The latter was very important in ancient times, being the sea port of Al-Hijr, the inland capital of Madian Region and from Burton's description it appears to have been equally important in the 19th Century [54:vol. 2, pp. 108-117]. Roads radiated from it, linking the port with Al-Ula and then Medina on the old inland road, with Yanbu southwards and Ailah northwards on the coastal route. Yanbu replaced Al-Jar in 12th Century during the time of the Ayobids, the governors of Egypt, becoming the port for Medina [290:p. 16], although it had been in existence before Islan [19:p. 46].

Although the route from Medina to Yanbu is shorter (246 Km) than that to Al-Wajh (about 417 Km), the latter has its advantages. Situated on the coastal pilgrim route it is easily reached by a short sea journey from Suez, and was mostly used by Egyptian and other north African pilgrims, especially those who disliked the sea journey in the unsound vessels of that time. The journey from Suez to Al-Wajh took two days compared to five days to Yanbu [246:pp. 37, 44]. The crossing from Al-Wajh to Medina took 12 days and only seven days from Yanbu [246:pp. 41, 44]. It would appear that the saving in time was not so important to travellers as the psychological feeling of security derived from the longer route largely overland.

In the 1950's vastly improved sea transport made it possible for pilgrims to travel in comfort and safety, and Jeddah became the main sea port in Hijaz, bringing pilgrims nearer to the holy sites. The increasing number of pilgrims travelling by air also strengthened Jeddah's importance and these factors combined to reduce Al-Wajh, and to some extent Yanbu, to the insignificant position they now occupy. The development of Yanbu's harbour and other facilities to cater for pilgrims did not come up to expectations, possibly due to the general decline in sea travel (as explained in Chapter 2). The closure of the Suez Canal between 1967 and 1975 brought

Fig.5·4 THE HIJAZ RAILWAY



Source: Reference no.34

the pilgrim traffic into the port of Yanbu to a complete halt, and only from 1976 has the harbour taken an increasing share of sea travellers.

5.2.4 The Hijaz railway.

The construction of the railway (1900 to 1908) during the Authmanid Empire once more made internal trade between productive areas economically viable. Although it was originally built for military purposes and the safe transport of pilgrims, it was shorter than the traditional camel routes. This line resulted in the formation or survival of 23 halt stations between Medina and Ma'an in order that the engines could be changed and passengers could refresh themselves (Fig. 5.4). Al-Batnony counted 44 stations between Ma'an and Medina (Table 5.1) although most of them are now unimportant due to the destruction of the railway in 1917. As also indicated in Table 5.1, the mean distance between the stations is only 19 Km, indicating a regular frequency of stations along the line which may reflect the original military function of the railway. Stations such as Qalat Zumurrud resembled more a military base than a refreshment post for pilgrims. The negative effect of the Hijaz railway on settlements was not as much as that on the business of caravanners for the long distance journies between Damascus and Medina.

It would appear that the rebuilding of this line, which linked Medina with the outside world long before the present asphalt road network, should be a fundamental consideration in any suggestions for developing the area. The direction of this inland route coming from Turkey provides an alternative genesis for the area's transport development. Elsewhere such development is normally associated with routes leading from coastal ports [376:pp.503-529]. The line would re-establish strong economic ties between Syria and Hijaz, as it lies along the traditional ancient trade route. The geographical, historical and economic circumstances of the railway line harmonize with a number of natural factors, and considerable variation in resources and production result from different natural conditions through about 30 degrees of latitude (15 to 45°N).

Although for economic reasons, the International Bank for Reconstruction and Development advised against rebuilding the Hijaz railway [127:p.63],

TABLE 5.1 THE HIJAZ RAILWAY STATIONS

Stations	Distance in Km Between Stations
Ma'an	-
Ghadir Al-Hajj	16
Beir Ash-Shydyah	12
Aqbah	27
Batn Al-Ghol	6
Wadi Ar-Ratm	10
Tal Ash-Shahm	16
Ar-Ramlah	9
Mudawwarah	17
Halat Ammar	23
Dhat Al-Hajj	13
Beir Hirmas	24
Al-Hadm	22
Al-Mahtab	23
Tabuk	15
Wadi Al-Ethil	28
Dar Al-Hajj	24
Mustabiqah	11
Al-Akhdar	5
Khamis	22
Di Yasaad	23
Al-Moazam	17
Khashm Sana	31
Ad-Dar Al-Hamra	27
Al-Matlaa	24
Abo Taqa	14
Al-Marjam	12
Madain Saleh	25
Al-Ula	25
Al-Badaye	19
Mashhad	13
Sahl Al-Motran	22
Qalat Zumurrud	15
Al-Beir Al-Jadid	23
Tuwairah	18
Al-Mudarraj	26
Hadiah	17
Jadʿah	22
Abo An-Neam	8
Istabl Antar	26
Bowair	19
Bir Nasif	20
Bwat	19
Al-Hafirah	21
Al-Moheet	19
Medina	15
Total 46	843 Mean Distance = 19

Source: Al-Batnony, M.L., 1909, Ar-Rihlah Al-Hijaziah, 2nd ed. Matbaʿat Madrasat walidat Abbas Al-Awal, p.237, Cairo (Arabic).

attempts to rebuild it were made in 1947, 1954, 1962 and 1963 by the Saudi, Jordanian and Syrian governments [380:p.24] . They considered the cost of rebuilding the line reasonable (about £20 million) [344:p.67] compared with expenditure on other projects connected with the pilgrimage, but conflict between either governments or companies delayed the completion of the line. Plans were included in a new project to continue to Yanbu and perhaps to Mecca [380:p.24]. In 1965 the construction of the line was indefinitely postponed as there was no financial guarantee for the company holding the concession from the Jordanian and Syrian governments; It would now seem that there is little real intention to pursue the extension of the railway, as there are good trucking services between Syria and Jordan on one side and Saudi Arabia (through to Medina) on the other. However, railways are economically superior to other forms of overland transport in relation to long distances notably in the transport of heavy goods and the mobility of large numbers of passengers [183:pp.305, 307;272:p.245]. Thus, rebuilding the railway could be beneficial not only for Medina city but for other urban areas along the route, and perhaps to the sea ports now receiving much redevelopment, such as Yanbu. In large countries with scattered settlements, railways constitute an important link for development between their remotest points.

The Eastern Province of Saudi Arabia enjoys an ideal pattern of complementary roads, railways and seaways. Its oilfields are served by good roads, and it also has the only railway in the country, which at present connects Dammam and Riyadh, through Dhahran, Ibqiq, Al-Hofuf, Ain Harad and Al-Kharj. The province is also served by two main sea ports, Dammam and Ra'as Tanurah, and this pattern of one mode of transport complementing another could be profitably repeated in the Western Province through rebuilding the Hijaz railway and reviving the port of Yanbu. In fact, the historical and economical relationship between Yemen , Hijaz and Syria relates to a north-south axis, based on sea or overland routes, this being crossed by the old east-west axis of the historical and economical relationships between Najd and Hijaz, through the two points of Mecca and Medina. The axes between Najd, Mecca and Jeddah

at the present time constitute a complementary situation of good quality roads and a first class sea port (Jeddah); which requires only a railway to connect Riyadh, Mecca and Jeddah. This would link the two ports of Dammam and Jeddah connecting east and west coasts of the country, a distance of approximately 1,500 Km. In consequence regional mobility in the whole country would be increased, especially in the rich southern agricultural province, following completion of the asphalt road between Jeddah and Jizan. However, the second crossing point at Medina needs greater effort for complementary development. In addition to the railway between Damascus, Medina and Mecca, another line is required to connect Riyadh with Medina and then Yanbu, linking the east and west coasts together at yet another point, Yanbu. This axis, of 1,835 Km between Yanbu, Medina, Riyadh and Dammam would help to activate mobility throughout the central and northern parts of the country. The urgent need for this line is emphasised by the fact that during each pilgrimage season, a crisis arises when there is a shortage of gas cylinders in Medina, Jeddah and Mecca. These cylinders have to be transported on lorries from the Eastern Province, and this proves extremely inconvenient. Rebuilding the Hijaz railway and improving the port of Yanbu are important steps in obtaining greater benefit from Medina's good location.

As a railway must operate on commercial principles to operate efficiently, income must cover costs, and it is impractical to suggest re-opening the line merely for the seasonal Hajj traffic, as the railway company would suffer heavy financial losses. Although the bus companies only operate during the Hajj, the roads are in constant use, and it would be uneconomical to maintain the railway lines for such a short period of use.

Lack of data prevents an accurate forecast, but the number of pilgrims travelling by land has increased significantly over the past ten years, and increases would have been even greater if the Suez Canal had remained closed, as many North African pilgrims would have come to Syria by sea and then continued their journey to Medina by rail. The re-opening of the Suez Canal reduced the suggested relationship between rail and sea travel. As explained in Chapter two, sea travel is losing

much of its share of the pilgrimage traffic in favour of air and overland routes. Thus the railway as an overland means of transport could successfully compete with other forms, as for many, it may still be preferable to a long sea journey.

From a social point of view however, benefits from rail travel which could mean a reduction in accidents, and less congestion on roads, far outweigh the loss of revenue. If revenue derived from retaining the railway does not justify the costs, then it is hoped that the government will consider granting subsidies. Benefits derived from the railway are difficult to estimate. When it first opened between 1908 and 1916, indirect non-financial benefits were enormous as there were no paved roads or public air transport. Recently road accident figures for Medina Province (178 fatal accidents in 1968; 279 fatal accidents in 1970) [61:1969, pp. 121;1971, p. 115], indicate that the railways could be of importance in reducing road congestion and increasing safety. Even greater benefits might result, especially at Hajj times, particularly if the line was extended to Jeddah or Mecca. The main problem in renovating the railway is that the line crosses three countries (Syria, Jordan and Saudi Arabia), of varying economic standards, and so far, no satisfactory agreement has been reached between the countries concerned, as to sharing the financial burden. If the railway was owned by only one state there would be fewer problems; there is no hesitation in subsidising national airlines, because of the enormous prestige they brought. For instance, in 1972, airline revenues in Saudi Arabia amounted to SR 241,288,972 (about £43,870,722) whereas its budget for the same year was SR 313,860,498 (about £57,065,545), the deficit being made up by the government [179:p. 18].

The railway skirted Medina on the west and followed the west bank of Bathan valley and the eastern edge of the Western Harrah. An area of approximately 0.09 Km^2 on the west of Al-Anbariah quarter was chosen as a locomotive depot. The city was initially expected to expand in a northerly direction outside the wall, and indeed some development occurred there; however, the railway expanded westwards as no settlements were expected to be built on the Harrah. This brought the line near to Al-Anbariyah

gate, which led to the caravan route to Mecca, and this was especially important as it was then thought that the line would continue to Mecca, with a branch to Jeddah [147:p.69]. After the destruction of the Hijaz railway in 1916, Al-Anbariah station was abandoned and parts were used for other purposes, e.g. a fire station and a taxi station for people travelling to Mecca and Jeddah. The most recent use (1976) was as a camping ground for pilgrims travelling overland. In the modern rebuilding project, it was planned that the railway line would end at Sultana, four Km north of Medina centre, without passing through the city, as buildings have been erected around the old station as a result of the increasing population of the city. The new site for the railway station is outside the city, so that noise from the trains will not disrupt the peace of the inner city. This re-siting of the railway station will inconvenience only those passengers without luggage who formerly walked to the station.

5.2.5 The introduction of automobiles and road construction.

Cars were first used in Medina when the Turkish military ruler Fakhri Pasha (1910 to 1916) introduced them [245:p.1197]; thus Medina had the first railway line and the first motor vehicles in what is now Saudi Arabia. The Sharif (ruler of Mecca) used a car at the time of the first World War, after its first use in Medina [245:p.1197]. The use of cars became public in 1927 when an automobile company was formed to transport pilgrims to Mecca, Medina and Jeddah [216:p.110]; only two years after the first cars were imported during the new Saudi reign [219:p.64]. But in the Eastern Province of Saudi Arabia away from the influence of the pilgrimage, cars were not in general use until 1933, after the discovery of oil.

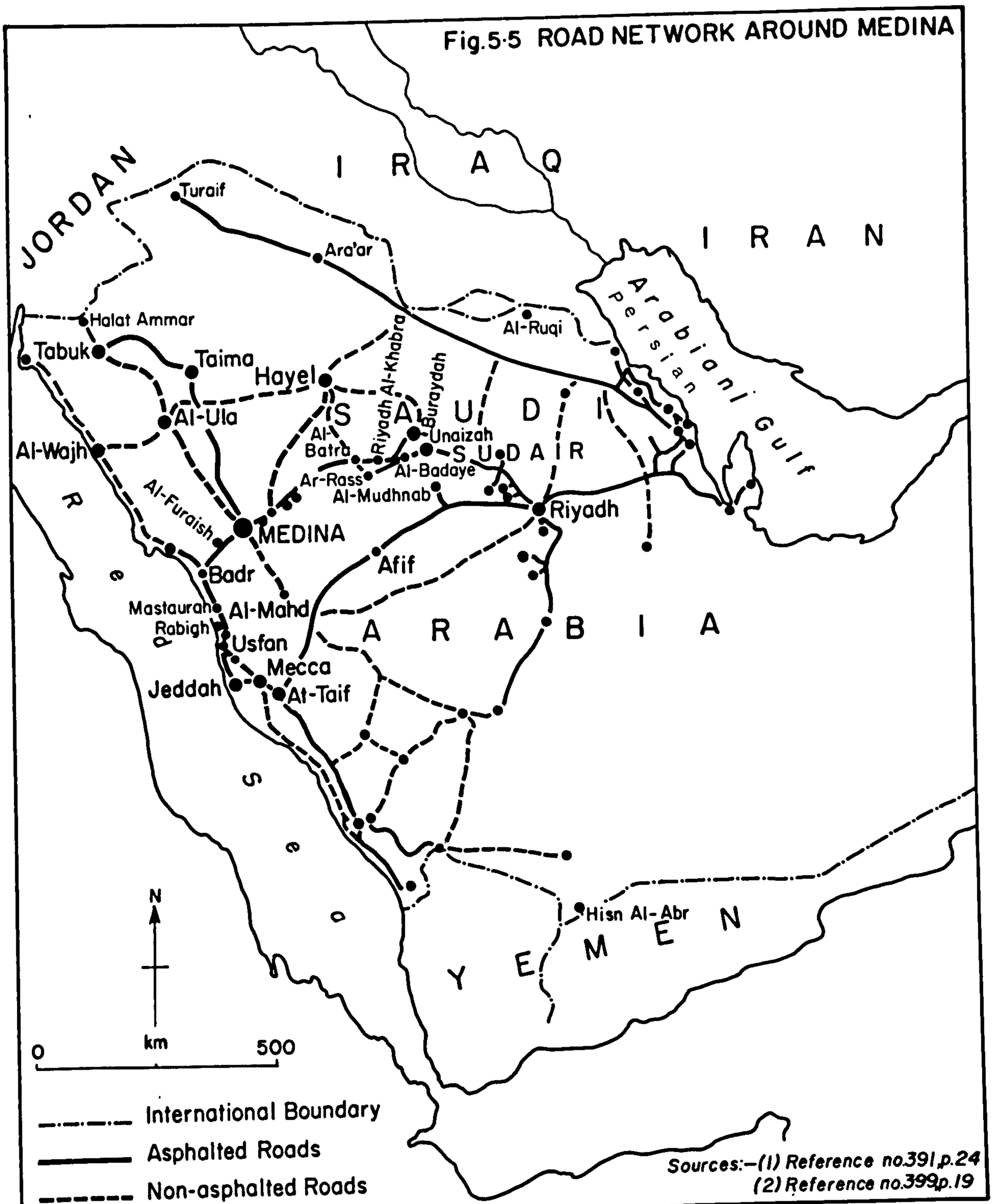
With the coming of the Saudi regime in 1925, routes became safer and modern transportation methods were employed, although some villages and towns in Medina Province still had transport problems due to a shortage of modern roads connecting them with Medina. At first, in the absence of any paved road, the camel and the automobile went side by side, with the camel, which was considered safer, more reliable and perhaps equally comfortable, and sometimes not much slower, still

taking the greater share of the traffic. Thus a great influence was exerted on old settlements at this stage, as modern transport followed the old routes; for example, in 1935 a motor service was inaugurated between Medina and An-Najaf on the unpaved road, but this saved two to four weeks on the sea route around the Arabian Peninsula to Jeddah and then to Medina [274:p.107], as a result of the diversion of pilgrims from Basra-Medina or An-Najaf-Medina to avoid attack from bandits in the 18th and 19th Centuries. Eventually the motor car dominated other traditional modes of transport with the spread of asphalt roads which were not greatly subject to climatic changes and social circumstances. The stability of these factors, plus safety from bandits made transport fast and comparatively cheap especially after the introduction of motor vehicles.

However, the Hajj can be considered an important factor in the development of modern roads, financed by oil wealth. The 73 Km road between Mecca and Jeddah, constructed (1936 to 1938) by Egyptian engineers and financed from the religious trust "Waqf" of Mecca's Haram [27:p.154], reflected the government's weak financial position. In its early days, the government of Saudi Arabia was apparently more concerned with uniting the country (then divided into several states) than with road construction. Settling disorder within the country was given priority over improving roads, as this ensured better working conditions. The road between Medina and Jeddah (424 Km) partly crosses over a mountainous area and required a great deal of capital investment. In consequence the Mecca-Jeddah road remained the only paved road in the country for 12 years. Here again is further proof of the fact mentioned in the former section regarding the direction of the first penetration line. In the case of modern roads, it would appear that direction emanated from the pilgrimage cities which are inland settlements rather than coastal ports such as Yanbu or Jeddah. This penetration, in addition to facilitating the movement of pilgrims to Mecca, extended the hinterland to contain Jeddah as an outlet for employment and contact with the outside world.

After the commercial exploitation of oil in 1938, increased government

Fig.5·5 ROAD NETWORK AROUND MEDINA



Sources:–(1) Reference no.391,p.24
(2) Reference no.399,p.19

revenue made the construction of other roads possible. Thus the Medina-Jeddah road was built between 1950 and 1955, and in the same period a 15 Km road was built to link Medina with its airport and another 30 Km road linked Al-Taif with its airport. This brought the total length of the road network in the Western Region, where the pilgrimage takes place, to 542 Km, compared to only 400 Km in the Eastern Region where the oil fields are located [399:p. 79]. The Western Region road network surely increased mobility of people, especially pilgrims, which could be economically beneficial to settlements en route as well as the pilgrimage cities in the Hijaz. This argument can be supported by the fact that before constructing these roads only 9.6% of foreign pilgrims came overland in 1950, compared to 27% in 1955.

The direction taken by modern pilgrim roads appears to have had less effect than the old traditional roads on the structure or location of activities inside Medina. A greater effect has been the recent influence of the expansion of Al-Haram on Medina's structure (Chapter 4). Road building has, however, affected the morphology of some other settlements. In Rabigh and Masturah the main streets and the shopping areas followed the direction of the road.

Medina still is one of the cities with the best road links with the major cities of Saudi Arabia (Fig. 5.5), and with neighbouring countries, such as Jordan, Syria, Lebanon and Iraq. Medina now has three main asphalt roads suitable for cars; one in the north leading to Tabuk; one in the north-east leading to Al-Qasim and Riyadh; and a third in the south west leading to Yanbu, Jeddah and Mecca.

The Medina-Tabuk road (686 Km) completed in 1964 and improved in 1974, did not follow the old pilgrimage route through Al-Ula (an oasis sometimes supplying Medina with vegetables and dates, especially at Hajj time), and other settlements, and eliminated the effect of the pilgrimage on these settlements. However, the construction of this modern road has also defined the points of entry into the country; travellers coming overland from Western Europe, Yugoslavia, Turkey, Syria, Lebanon, Jordan and Palestine enter Saudi Arabia at three points - Halat Ammar, Turaif and Ara'ar on the border with Jordan, but all continue south to Medina

through Tabuk and Taima. Thus the benefits accrueing from the pilgrim traffic are concentrated on these towns, which exert a strong "pull factor" to people from surrounding areas. This marks a complete reversal of circumstances. The new asphalt road passes through Taima and Khaibar restoring them as communications centres on routes which passed through to the north or south prior to Islam.

To the east, Medina and Riyadh were connected by a road via Ar-Rass; with increased growth in road traffic, improvements to road surfaces and routes were necessary creating diversion of traffic for some distance, as drivers always sought the shortest and most comfortable route between Riyadh and Medina. For example, after the construction of the Riyadh-At-Taif road in 1967, traffic from Medina was diverted to the new road via Jeddah, Mecca, At-Taif, Afif and then to Riyadh (about 1426 Km), or direct from Medina to Afif (on an uneven paved road) and then by the new road to Riyadh. After the construction of the road between Medina and Al-Qasim in 1969, traffic to Riyadh was diverted to this road through Ar-Rass, Unaizah or Buraydah, and then to Riyadh. This resulted in settlements such as Sukhabirah and Tarab on the old unpaved road between Medina and Afif being effectively erased from the map. Later, in 1970, villages in Al-Qasim were connected, drivers discovered that they could save 30 Km, by diverting at Al-Batra to Riyadh Al-Khabra, Al-Badaye and Unaizah without going through Ar-Rass. In consequence Ar-Rass suffered loss of revenue from diverted traffic.

On the other hand increasing traffic on the road to Riyadh, the east and the north-east led to the growth of other services, such as coffee houses and petrol stations, at existing stations such as As-Suwaidrah, An-Nuqrah and Auq'lat As-Soqor. New stations also emerged, such as Al-Henakiah, Ash-Shiqrah and Al-Batra. Al-Henakiah is a settlement dating back to early times and the location of the road to its south attracted two petrol-filling stations and four coffee shops. Ash-Shiqrah, also located away from the settlement of that name witnessed the building of a petrol-filling station and two coffee shops. Al-Batra grew from scratch, now having two petrol-filling stations, three coffee shops and a car repair garage, as the result of a short cut for traffic from Medina to Umaizah which by-passed Ar-Rass in

1970 (Fig 5.5). Some 25 people have now settled in the area to cater for travellers, and most of these shop in Medina or Al-Qasim. Pilgrims travelling overland from Iraq, Iran and other Asian countries, through Al-Ruqi (an entry point in Saudi Arabia) continue to Medina via Al-Qasim, while all that remains of the caravan route (Darb Zubaydah) is ruined wells and reservoirs which became only sites of interest to archaeologists [405:vol.1, p.410]. Maintaining these wells and reservoirs also benefits Bedouins living in the vicinity.

To the south the road between Medina and Jeddah shortened the journey from two days to about six hours, but has also affected the settlements along it. It did not follow the old routes, but adopted a longer, more inland route (the new road is about 424 Km, while the old roads are between 314 and 400 Km) [219:p.56], and by passed many places especially those on the Darb Al-Farai, such as old Al-Musayjid (or Ar-Rauha), Bir Al-Ryan, Al-Madik and Bir Abbas (or the old Ar-Routha). As-Suqya again suffered as in medieval times, but for different reasons; not for safety but because the main road now by-passed the settlement, and the only road close to it is that used by local people. Settlements and stations on the Darb Ash-Sharqi, carrying pilgrims from Najd or Iraq and neighbouring areas no longer benefitted from the travelling pilgrims, as the roads to Medina and Mecca no longer passed through them. Almost all their activities, e.g. coffee shops and those selling water to travellers have suffered, and are now used only by Bedouins.

Completion of the rebuilding of the Medina-Jeddah-Mecca road in 1972 brought some changes in parts of the road. Masturah, Rabigh and Al-Furaish have been by-passed to prevent accidents caused by fast travelling vehicles. As a result, five out of seven coffee shops formerly selling food and water to travellers have been forced to close down in Masturah, and the same happened in Rabigh. Some settlements have lost their importance as resting places not because of relocating of roads, but due to the development of faster transport. This was the case with Wadi As-Safra, which now survives only as a cluster of houses inhabited by local farmers, but which was described by Burton in the 19th Century as a

thickly populated, walled settlement, with shops selling grain, rice and bread at prices competitive to those in Medina [55:vol. 1, p. 254]. The deterioration in retail trade in Wadi As-Safra is not due solely to increase in the regular income of the local people, which makes them indifferent to passing traffic (as suggested in other areas by Stewart [376:p. 242], but to the introduction of cars and good asphalt roads. Drivers who formerly stopped in Al-Furaish, Wadi As-Safra and later in Badr (the last point in As-Sarat mountains towards the coast) now travel much faster and have no need to stop in Wadi As-Safra with the result that the coffee houses there have been forced to close down. A similar situation arose in Al-Wasta and Al-Hamra; the former was described as having a thousand houses and the latter a hundred houses until the 1920's [141:pp. 32-33], whereas now each has only a handful of inhabitants, and most of the original buildings lie ruined. As well as the introduction of modern roads this deterioration can be attributed to the attraction of better jobs and higher income in Medina, while agricultural production continued to decline as a result of water shortages.

Not the least of these changes was the opening of new coffee shops opposite Al-Furaish (especially for serving heavy vehicles) and Rabigh settlements, which provide refreshment and a place to sleep. The owners of some coffee shops, forced to close by the moving of the road, did not leave the area completely, but merely moved to new sites outside the settlement.

Drivers only stop once or twice along the road to refuel and take refreshment, usually at Badr and Abiar Ali, many not stopping at all between Medina and Mecca or Jeddah. This information emerged during a survey conducted by the author in the 1976 pilgrimage season, at the entrance to Medina along the Medina-Jeddah road. Only passenger vehicles were interviewed; and 59% of drivers interviewed stopped twice on the road, 31% stopped once, and 10% did not stop at all. This means that settlements on this road do derive benefit from 90% of such traffic. In the case of Badr and Abiar Ali (both historic sacred sites), this income provide greater benefit to the Medina Province as a whole. Further analysis

of the 59% and the 31% of drivers indicate several distinct categories. In the case of drivers stopping twice, 43% stopped at Badr and Abiar Ali and 16% stopped at Badr and Rabigh. In the case of those who stopped only once, about 13% stopped in Abiar Ali, 10% stopped only in Badr, 5% stopped only in Rabigh and 3% stopped only in Masturah*.

Finally, it may be relevant to mention briefly the decision to locate facilities for communities along the Medina-Jeddah road; a decision which is sometimes governed by local opinion. For example, Sa'adah (population 400) and Qadimah (population 250) are located approximately 20 Km apart. When the Ministry of Education wanted to build a school in Sa'adah, Qadimah inhabitants protested bitterly; they objected to their children travelling 20 Km to attend classes, theirs being the oldest village. They asked for the project to be abandoned and for two schools to be built, one in each locality. As there was no suitable building available for hire, in 1970 the authorities compromised by building the school half way between the two settlements, on a site where there was nothing other than a well. Such a solution indicates short-sighted decision-making, which may result in the creation of a new settlement at this location lacking in certain other facilities. If local opinion was considered by building two schools, this could improve the future situation as population is increasing, and greater employment is being created by the establishment of quarrying in the adjacent area. Such improvements may encourage passing traffic, especially that of pilgrims and heavy vehicles, to stop on the 100 Km journey between Masturah and Qadimah or Sa'adah.

5.3 The Effect of the Hajj on Road Capacity.

The Hajj is an important factor in the seasonal increase of road traffic due to pilgrim movement in the pilgrimage region. The unit commonly used to measure traffic is the passenger car unit (p.c.u.), this being a measurement of the effect of one passenger car on the capacity of roads, and different types of vehicles are given different p.c.u values according to their size. These values range between 0.5 p.c.u. for cycles and 3.0 p.c.u. for buses [195:p.2]. The maximum capacity of roads

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*Abiar Ali and Badr are located in Medina province, while Rabigh and Masturah are in Jeddah area.

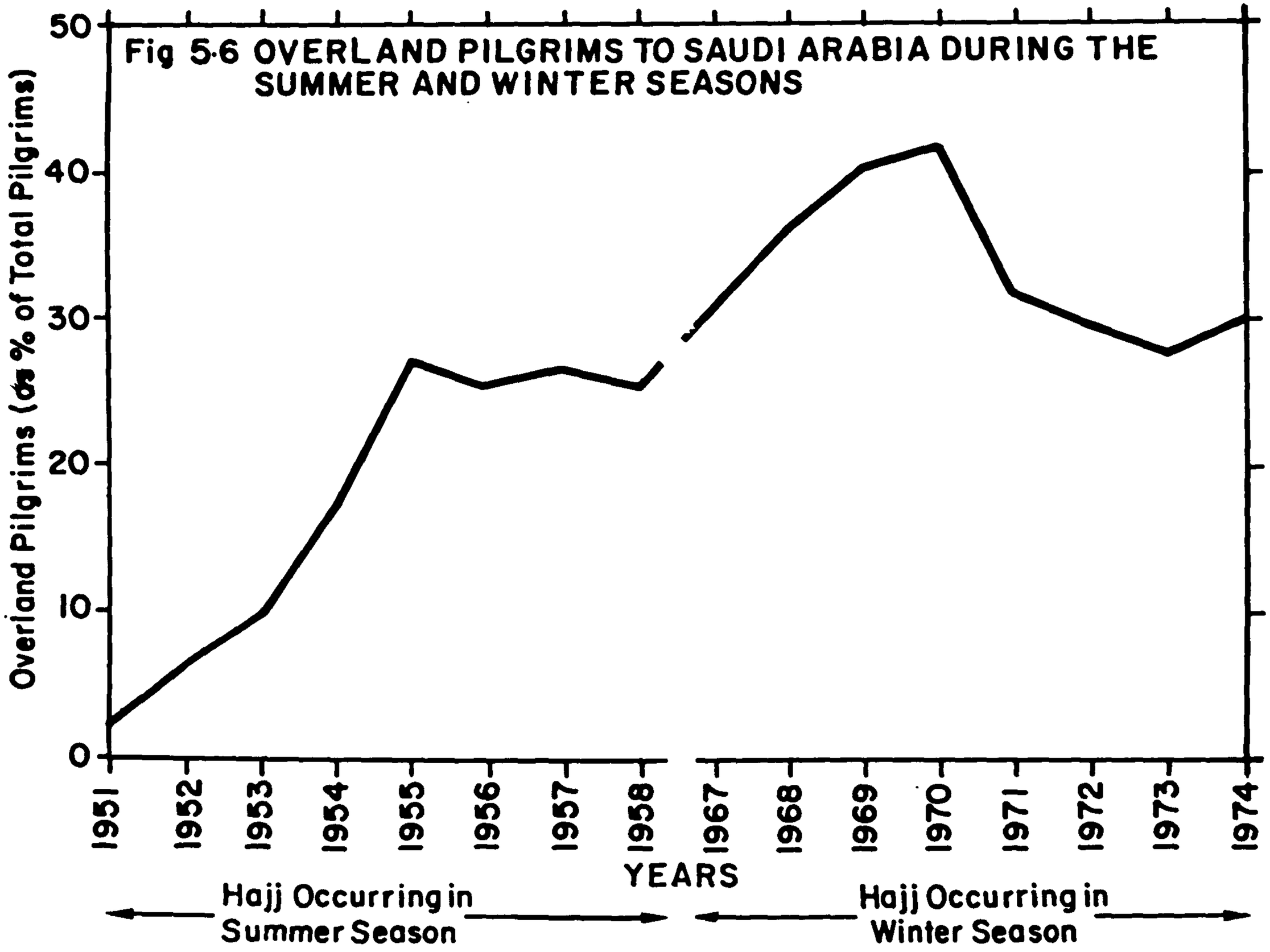
varies between 9,000 p.c.u. per day for a 7.5 m single carriageway and 66,000 p.c.u. per day for a 15.0 m dual carriageway [195:p.11]. An important concept related to road capacity and traffic conditions is the level of service which includes speed and travel time, traffic interuption, safety, driving comfort and operating costs [117:p.7]. This concept may be more applicable to traffic within cities. Unfortunately, no traffic survey has yet been undertaken in Medina and thus the above concept will not be discussed further.

Pilgrims travelling overland to Saudi Arabia use their vehicles on all journeys between Medina and other parts of the pilgrimage region. Available figures for 1972 indicate that foreign pilgrims brought with them a total of 17,219 assorted vehicles [416:p.259]. As mentioned in Chapter eight, in 1976, more than 94% of pilgrims arriving in Saudi Arabia by sea and air used vehicles already available in the region for travelling to Medina. S. El-Hamdan estimated that pilgrims coming by air and sea needed 17,757 vehicle journeys (10,317 car journeys and 7,440 bus journeys) between cities, in the pilgrimage region, during the whole of the 1973 pilgrimage season [416:p.259]. This estimate seems very low as it is not enough to carry the total number of pilgrims coming by air and sea (487,519 foreign pilgrims in 1973) to Medina in single trips, and El-Hamdan's estimation is capable of transporting only about 386,400 pilgrims on a single journey. Furthermore, it is probable that a high proportion of Saudi pilgrims also travel by car and these, added to the normal traffic on the road, make up the heavy volume of traffic around Medina during the Hajj season.

TABLE 5.2 VOLUME OF TRAFFIC ON THE ROADS LEADING TO MEDINA.

Road	Max.daily traffic during the season* (p.c.u/16 hours)	Max.daily traffic during the off-season** (p.c.u. /16 hours)
Medina-Tabuk	1,762	1,090
Medina-Al-Qasim	1,467	0,907
Medina-Badr	8,491	4,350

* date of count is 15/12/1392 A.H. (1973)
** date of count is 25/4/1391 A.D. (1972)
Source: unpublished data in the Department of Roads, Ministry of Communication, Riyadh.



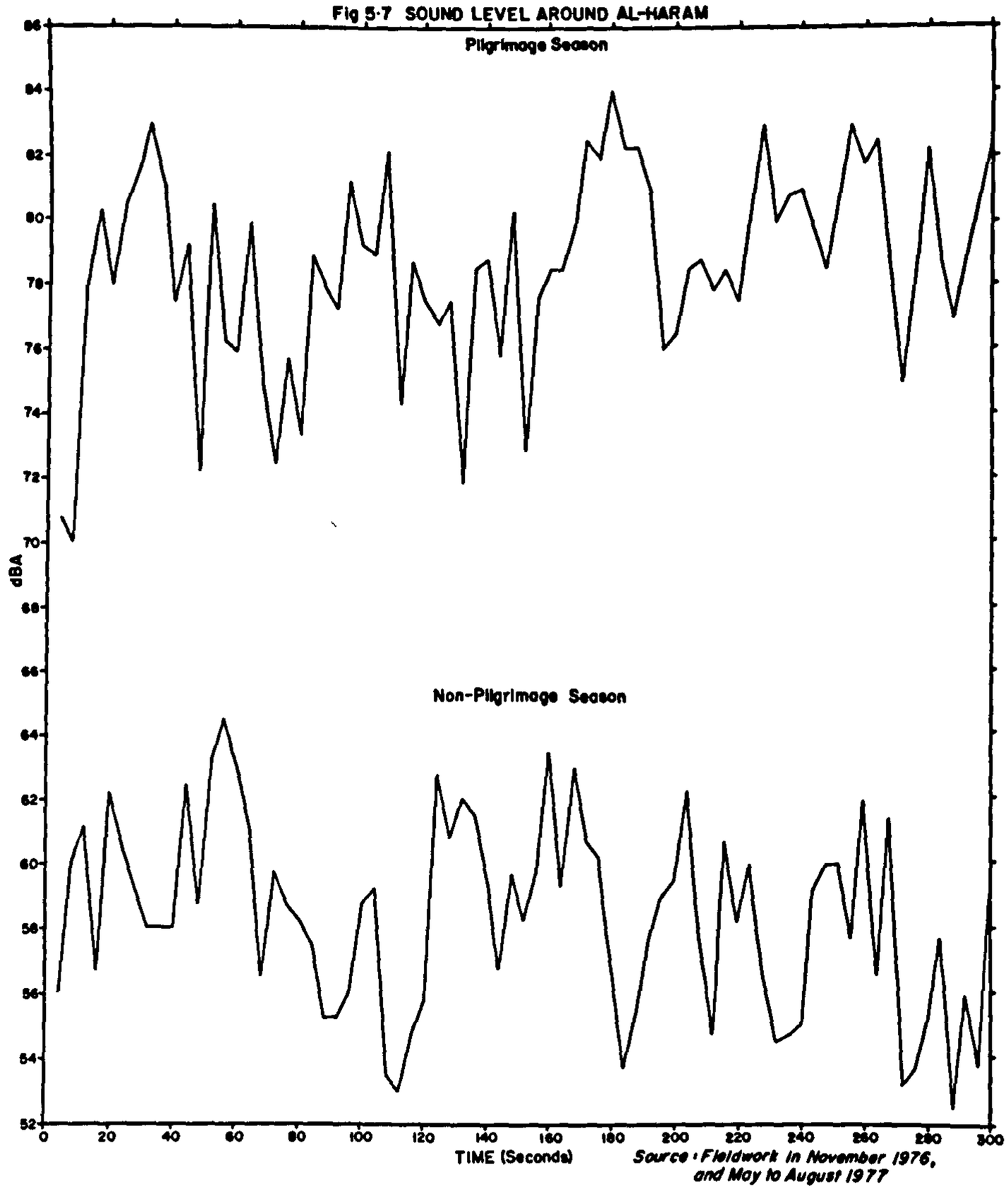
Sources :— (1) Reference no. 123 (2) Reference no. 212

A comparison between traffic in the pilgrimage season and the off-season on the main roads around Medina may be more useful (Table 5.2). All calculations in the above table were carried out during the 16 daytime hours. Assuming that the late night time (8 hours) total was approximately half the day time figure, this would result in the first two roads, which are both single carriageway, carrying less traffic than their capacity. Only on the road between Medina and Badr leading to Yanbu, Jeddah and Mecca does traffic exceed capacity during the pilgrimage season.

The number of pilgrims coming overland increases annually; in 1972 only 29.5% of foreign pilgrims came by land, but by 1976 this percentage had increased to 36.6%. The fleet owned by the Pilgrim Transport Companies is increasing; in 1973 they owned 2,793 buses and 685 passenger cars; each operating for long periods as work was available only during the pilgrimage season, and vehicles remained idle for the rest of the year [416:pp.251-252]. In 1975 the Companies acquired 2,000 new buses through interest-free loans from the government [372:p.7]. By 1983 overland pilgrims are likely to account for about 40% of all foreign pilgrims coming to Saudi Arabia [365:p.1070]. The foregoing facts indicate the immensity of the problems created by the cavalcade of vehicles bringing pilgrims to Medina over the next few years, and it is evident that urgent improvement of roads is required in the whole pilgrimage region, especially around Medina. Medina lies within a mountainous region and the roads have many more bends, which make driving more hazardous as the volume of traffic increases.

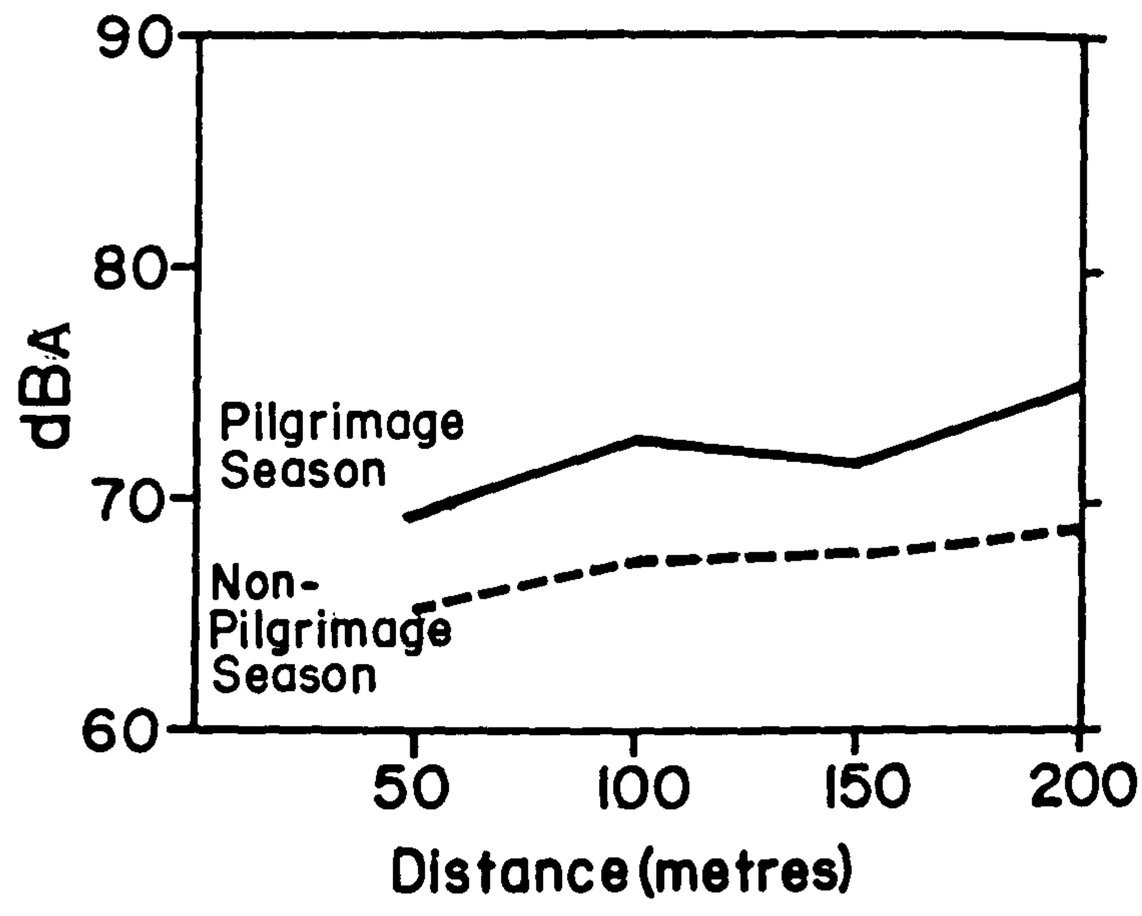
General observations may indicate that pilgrimage road traffic is affected by prevailing weather conditions (Fig. 5.6). In 1958 when the pilgrimage took place in June, about 25% of foreign pilgrims came overland and in 1974 when the pilgrimage occurred in January, the percentage travelling overland was 30%. These figures should not be taken at face value, as other variables such as road conditions and political or economical circumstances in the different parts of the Muslim World, control pilgrim numbers. A more detailed examination of Figure 5.6 may explain this; in the early 1950's road conditions were poor, but with the improvement of the road between Medina and Jeddah, Mecca and Yanbu in 1955, the number of overland pilgrims coming to Saudi Arabia increased sharply. Similarly when

Fig 5·7 SOUND LEVEL AROUND AL-HARAM



Source : Fieldwork in November 1976, and May to August 1977

Fig.5·8 THE RELATIONSHIP BETWEEN SOUND LEVEL AND DISTANCE



Source: Fieldwork in November 1976, and May to August, 1977

the pilgrimage occurred in winter (1967 to 1974) roads were much better than in the 1950's, but the political condition affected the number of overland pilgrims. For example, due to the events in Jordan and the closure in 1971 of the border between Jordan and Syria, their number decreased sharply and the Middle East War caused a further decrease in 1973. Furthermore, the correlation coefficient between the number of pilgrims coming overland and the maximum average temperature at Hajj season for the period 1951 to 1958 when the pilgrimage took place in summer season, was 0.12, compared to 0.10 for the period 1967 to 1974 when the pilgrimage took place in winter. The significance for both correlations was less than 5%, indicating the weak relationship between pilgrim numbers and temperature. However, even with the expectation of a relatively small increase in overland pilgrims over the next two decades, due to improved air travel [12:p.1070], the overall growth of pilgrim numbers will necessitate an increase in the number of local vehicles for the movement of pilgrims between the holy areas; present road conditions are inadequate for such an increase.

5.4 Sound Levels Around Al-Haram .

This section is of unusual interest, as it is the first time such a study has been attempted for Saudi Arabia. It will examine and appraise the effect of the overcrowding which takes place around Al-Haram during the pilgrimage season and how the atmosphere coincides with, or differs from the anticipated religious atmosphere around it. Traffic is prohibited within a 200 m radius around Al-Haram, so the main concern here is with measuring the sound generated by humans for the purpose of communication, i.e. speech, prayer and advertisement or selling.

Figure 5.7 shows the results obtained using a CS16A sound meter for half an hour before the sunset prayer during the 1976 pilgrimage season. This time was chosen as being representative, as shoppers are still active and people are walking towards Al-Haram to perform their prayers. Measurements are carried out by reading the sound level meter at regular four-second time intervals and recording the reading over the period of the sample, which is five minutes at each location on each side of Al-Haram,

giving a total time of sample of 20 minutes around Al-Haram. The time over which readings are taken appears short, but this enforced shortening is due to the crowded conditions in the area and the necessity to avoid struggling crowds affecting the meter frequency. Experts in this field believe that 20 minutes is sufficient to obtain a close approximation of sound level [83:p.20]. However, as this study is the first of its kind in the area, findings are only regarded as general statements, which could provide an interesting starting point for further research and experiments.

Figure 5.7 also indicates that the effect of the pilgrimage is to increase almost all sound levels to higher than the average recommended levels 65 d BA (decibel pressure level) in areas where there are only people and no traffic [29:p.10]. Some other sources suggested that even this average level reduces the ability to comprehend speech and suggests 55 d BA as a maximum for comprehension [39:p.204], and 45.d BA for possible relaxed conversation [306:p.437]. This high sound level might become a source of annoyance, and it is better to call it noise or unwanted sound, although the degree of desirability of the noise is variable. For example, shops with audio equipment relay recitations from the holy Koran, or religious prayers with or without music. Whether such noise is unwelcomed and inconvenient to prayers is not considered offensive by the shop owners who profit from these broadcasts. Whether the psychological effect is beneficial or not should not be ignored. Indeed methods of control, pertinent to advertisement, especially regarding loud speakers and large neon signs, should be imposed in order to maintain the religious atmosphere around Al-Haram, so that people who have travelled many miles to obtain the blessing of the holy area of Medina may feel the natural spiritual atmosphere.

It is noted that average sound levels generally increase as one moves further away from Al-Haram and near to road traffic. The exception is at the 100 m point of measurement where sound level did decrease at the moment of recording, but not to the level of the first point of measurement (Fig.5.8). This possibly due to the bottleneck structure of the area which at this distance becomes narrower, in comparison with the noise in the squares around Al-Haram on one side and the road traffic noise on the other. In

contrast to these bottleneck areas are the squares around Al-Haram where more people can congregate and where there are more shops.

The study would be more pertinent if it made comparisons with sound level in the off-pilgrimage season. Figures 5.7 and 5.8 showing the results obtained by carrying out the same measurements in June 1977, during the off-season. The excitement of Hajj and loud advertisement does not exist at this time which results in low sound levels around Al-Haram, even lower than the 65 dBA recommended level. The average sound level also shows a steady increase with distance from Al-Haram, but not on the Hajj time scale as unlike during the Hajj season, there is no overcrowding around Al-Haram.

The foregoing discussions indicate that Medina and indeed the whole pilgrimage area has witnessed a change in character, the nature and density of settlement patterns as well as in its road network. This changing pattern meant the diversion of benefits to more suitably located communities. A. Abdo noticed that transport development in Saudi Arabia is a phenomenon of a cyclical nature rather than a continuous process [399:p. 336]. These could be identified in this chapter as the pre-Islamic, Islamic and present-day cycles, each motivated by certain unique factors. The international transit trade produced the first cycle, the rise of Islam produced the second and the advent of oil was responsible for the third. The end of each cycle is usually brought about by a weakening of the motivating factor. Thus transport development is a continuous process within each cycle, but not throughout its history.

The pilgrimage is one of the five pillars of Islam. As its ideology is carried vigorously into new and distant lands, new converts from these areas have begun to make the pilgrimage to the Holy cities of Arabia. The new network of roads serves not only the pilgrims, but their regions of origin, and settlements of the pilgrimage area. These would almost certainly have taken a different form had the pilgrimage not been centred in Mecca and Medina.

In certain stages of development, pilgrim transport gave a certain shape to settlements as can be seen in the Hijaz railway terminal on the

west of Medina early in this Century. However, certain settlements, may respond negatively to the development of pilgrim roads, as was the case with Al-Ula and Faid. These roads brought cultural and social integration between the study area and the different parts of the Islamic World. The pattern of road traffic relates closely to the quality of the road network, the location of main settlements and the pattern of travel. The cyclical nature of road development and the present dependence on oil revenue for developing roads could eventually bring the present cycle to a halt when the oil fields dry up. This would, as suggested in the former Chapter, necessitate the development of a modern economy aimed at creating a stimulating new social life with new activities, and would change the present growth in transport and possibly in other fields, from one of a cyclical nature to one of a continuous process.

The modernisation of lifestyle in the area also has a depressing effect on the nature of the pilgrimage. This is explained by traffic congestion inside the city and the destruction of the religious atmosphere around Al-Haram by the noisy hustling commercial activity.

CHAPTER SIX

WATER RESOURCES AND THE HAJJ

The aim of this Chapter is to explore whether there is a water shortage during the Hajj season in Medina, and what might be done to augment supplies. First, it is necessary to discuss the nature of water supply and consumption in Medina, and to establish whether agricultural demands affect the level of urban supplies.

The water resources of Medina, like those of almost every other part of the world, are dependent upon climate, geological formations and topography. These aspects are beyond the scope of this Chapter, and have been studied by the author in 1975 in a former research project on the urban geography of Medina [422:pp. 29-64], but a short summary of environmental factors may be useful here. Total rainfall fluctuates from year to year, sometimes with remarkable differences; it reached as high as 103.8 mm in 1971 and as low as 0 in 1957, or, as suggested by Beaumont the average precipitation in Medina is 38.1 mm per annum [255:p.43], which means that Medina's climate is characterised by ardity. The high summer temperatures commonly in excess of 40° c (sometimes reaching 47°c), mean that evapo-transpiration rates are high for almost three quarters of the year. For example, in 1970 the total evaporation was 3,936 mm and the total rainfall over the year was only 14.3 mm [422:p.30], as a result of this ardity there are no perennial streams in the area. Instead disruptive sudden floods resulting from the high intensive rainfall, together with the low infiltration rates of the soils, are a relatively frequent occurrence in the area. This means that since early times the area has depended on underground water, either sub-surface or deep ground water. As Medina lies surrounded by a mountainous area of igneous and metamorphic rocks, its water resources are concentrated in alluvial deposits along the lines of ancient and more recent valleys and in deep storage traps. The sub-basaltic aquifer which extend beneath the Rahat Harrah lava field in the South of Medina is served by a catchment area which extends over 7,100 km^2 [430:p.9]. This is the field on which Medina depends for its domestic water supply. The new method of supplying water through pipelines and the increasing demand (estimated at 150% between 1974 and 1980)

[254:p.23], of the growing indignous and visiting population, puts further strain on water resources. The government is now seriously concerned about finding other sources, such as the desalination of sea water to meet future demands.

6.1 Agricultural Water Consumption.

At present, irrigation relies mainly on individual extraction from ground water through private wells. Unfortunately there has yet been little attempt to survey agricultural water supplies. However, by estimating agricultural consumption, utilizing existing knowledge of the cultivated area of each crop and its ideal water requirement, an impression of consumption can be reached. Consequently, the results achieved by this approach are essentially theoretical, as the quantity of water drawn from the wells used for irrigation is not efficiently monitored. However, it is hoped that it will present provisional figures which can be used beneficially in future improvement in the area.

Consumption is expressed as depth of water in cm per km^2. The consumption of agricultural water useage revealed a total consumption of 7,691,238 m^3 in 1972 (Table 6.1) or 1,066,746m^3 per km^2. This means that average agricultural water consumption was about 21,072.m^3 per day for the whole of 1972. This quality of water is sufficient for crops but there is no doubt that more water is extracted for agricultural purposes, as, according to estimates by experts of the Ministry of Agriculture , up to 79% of all water pumped from the wells is wasted before reaching the crops, due to the use of unlined earthen irrigation canals and unsuitable storage ponds. When this leakage is taken into consideration, the actual volume of water pumped for agricultural purposes rises to 100,474 m^3 per day or 36,624,942.m^3 per annum, If the figures of decreasing agricultural land and that of water consumption per km^2 (which has been explained on page 138) are applied, the agricultural water consumption would decrease to 34,689,365 m^3 in 1976.

This is a huge volume of water to extract from an arid area, and undoubtedly puts pressure on the water resources of Medina's aquifer, whose reserves are estimated to be about 5,000 million m^3 [427:p.40]. Unlike some of the more moist places of the world which require only infrequent

TABLE 6.1. ESTIMATED AREA IN Km^2 OF DIFFERENT CROPS AND THEIR CONSUMPTION OF WATER IN THE IMMEDIATE AREA OF MEDINA, 1972.

Crops	Cultivated area in Km^2	Consumptive use rate in cm per year.	Total agricultural consumption of water in m^3
Alfalfa	1.18	170.05	2,006,590
Barley	0.26	47.10	112,460
Beans	0.05	45.77	22,885
Cabbage	0.01	38.99	3,899
Carrot	0.09	38.99	35,091
Cucumber	0.07	45.80	32,060
Dates	2.84	137.19	3,896,196
Dry Onions	0.13	36.90	47,970
Egg plant	0.12	17.20	20,640
Garlic	0.13	53.34	69,342
Grapes	0.52	137.21	713,492
Green Onions	0.06	38.32	22,992
Henna	0.03	108.54	32,562
Honey Melon	0.06	28.78	17,268
Lemon	0.20	45.44	90,880
Lettuce	0.10	18.64	18,640
Mandarins	0.01	42.43	4,243
Millet	0.02	37.32	7,464
Oranges	0.11	37.13	40,843
Peppers	0.04	32.49	12,996
Pomegranates	0.11	53.45	58,795
Pumpkins	0.05	39.57	19,785
Spinach	0.01	25.07	2,507
Tomatoes	0.34	33.58	114,172
Water Melon	0.13	34.64	45,032
Wheat	0.43	47.14	202,702
Other Vegetables	0.11	36.12	39,732
Total	7.21	1427.20	7,691,238

Sources: 1 - Hydrology Division, 1973, Consumptive Use Requirements of Crops in Saudi Arabia, Ministry of Agriculture and Water, No. 67, Riyadh, p.33.

2 - Statistical and Agricultural Economy Department, 1972, Census of Agriculture of Medina Amirat, Ministry of Agriculture and Water. Rivadh.

irrigation, irrigation in Medina is carried on continuously every year. For instance, in southern England and the Midlands, irrigation of crops occurs in only five years out of 10 and irrigation takes place, on average, only 40 days per year [359:pp.15,16]. Sooner or later Medina's water reserves will be unable to meet demands.

6.2 Domestic Consumption.

The urban water supply to Medina is the sole responsibility of the Ayn Az-Zarqa Administration which is a branch of the Ministry of the Interior.

Unmetered extraction at the source of domestic supply is a handicap to an accurate estimation in this section; however, the measured consumption of the different areas of Medina, whether supplied by metered pipes or water tankers, gives some idea of the city's total domestic consumption. This estimation is not, however, 100% accurate as it is impossible to calculate the leakage which often occurs from pipes between the source and the consumer, especially in the old network.

Water consumption in premises served by metered pipes is shown in Table 6.2. Not all of Medina's urban area is connected with pipes, however, and there are several places, such as the Eastern and Western Harrat, Al-Ayon and Sayyed Ash-Shohada quarters still supplied by water tankers. This supply system spread to the outskirts of the city in the 1960's, and reflects a new period of urban growth resulting in a marked difference between the water service offered inside the city and on its outskirts. In 1975 there were 40 water tankers each with a capacity of 7.6 m^3, and 10 water tankers each of 11.4 m^3 capacity, at work in Medina, making a total of 340 trips every day at ordinary times; this would raise the water consumption of Medina in 1975 to 5,017,593.4 m^3. However, there are other methods of obtaining water for domestic purposes, such as public standpipes or "Kabbas" which distribute water to certain streets and quarters of the city. In 1974 it was estimated that there were about 600 Kabbas in Medina discharging about 8,500 m^3 per day [412]. Assuming that the same number were operating in 1975, this would raise the water consumption to 8,120,093.4 m^3, giving a daily domestic consumption of 22,246.8 m^3. This gives a 2.8% growth rate in domestic consumption

between 1972 and 1975; a similar rate was observed in Britain for the period between 1955 and 1960, although the total volumes consumed were different [362:p.9].

TABLE 6.2 WATER METERED CONSUMPTION IN M^3

Year	Consumed water	Number of consumer units
1968	1,204,675.4	4,881
1969	1,502,783.5	5,450
1970	1,635,587.9	5,980
1971	1,583,959,3	6,489
1972	1,705,367.3	6,952
1973	1,355,266.9	7,158
1974	1,215,134.8	7,181
1975	3,959,876.9	9,100

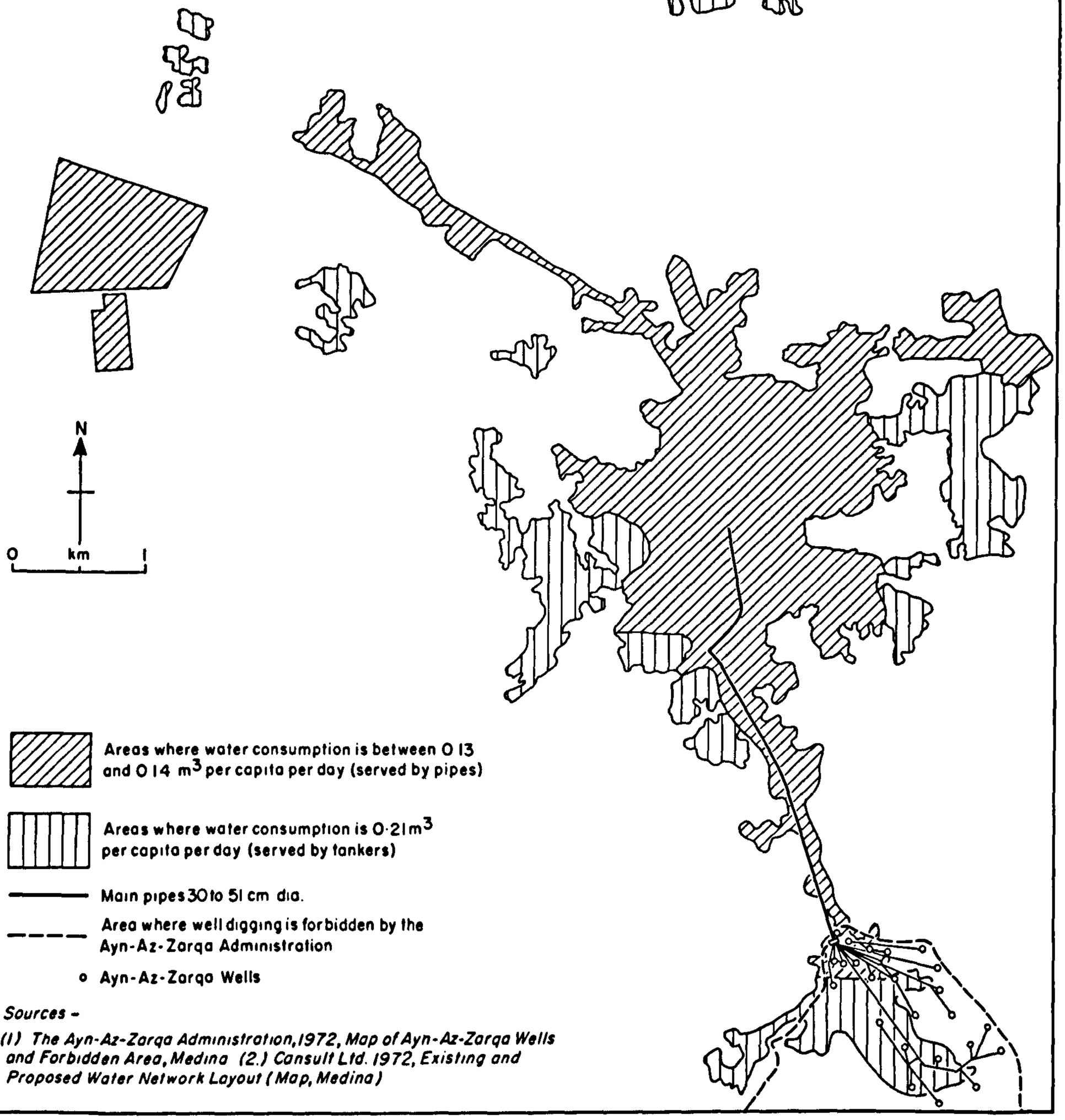
Source: Ayn Az-Zarqa Administration, Unpublished Data, Medina.

It is clear from Table 6.2 that the number of consumer units almost doubled between 1968 and 1975, and water consumption has almost trebled, partly due to the pilgrimage. Extension to Al-Haram, to cater for the increasing numbers of pilgrims, caused the rehousing of many citizens, and resulted in the Ayn Az-Zarqa authority opening its door to unlimited consumers. 1975 saw great growth in many tall buildings in the city and the inhabitants of these multi-story dwellings shared water use costs, the water meter being attached to the building and not to separate dwelling units. This also led to more people being connected to the city's piped water network. Also, for the first time in Medina's history, piped water was made available to parts of the Western Harrah.

In Medina, the daily per capita consumption of water was 0.13 m^3 in 1972 (reaching 0.14 m^3 in 1975), apparently higher than that of Mecca, the first Holy City in Hijaz, which recorded only 0.09 m^3 per day in the same year [412], possibly indicating that pilgrims have a greater effect on the water resources of Mecca than Medina. In comparison with other parts of the Middle East, the daily domestic consumption of both Medina and Mecca

Fig. 6·1

MEDINA WATER SUPPLY AND CONSUMPTION



Areas where water consumption is between 0 13 and 0 14 m^3 per capita per day (served by pipes)

Areas where water consumption is 0·21 m^3 per capita per day (served by tankers)

Main pipes 30 to 51 cm dia.

Area where well digging is forbidden by the Ayn-Az-Zarqa Administration

o Ayn-Az-Zarqa Wells

Sources –

(1) The Ayn-Az-Zarqa Administration, 1972, Map of Ayn-Az-Zarqa Wells and Forbidden Area, Medina (2.) Consult Ltd. 1972, Existing and Proposed Water Network Layout (Map, Medina)

seems very low. For instance, in Tehran, up to 1972 consumption was about 267 million m^3 per annum [253:p.428], with daily per capita consumption of water of 0,21 m^3. The difference could be explained by differences in standard of living. Unfortunately there are no available figures of per capita income in Tehran to support this statement.

The low average per capita consumption of water in Medina may also be a reflection of the different methods of supply adopted. In 1972 Robert Matthew estimated that 44% of Medina's population received water direct from the mains via metered connections; 7% relied on tanker supplies and 49% on public standpipes. A knowledge of the output of each source suggests the variation in per capita water consumption between the different areas of Medina (Fig. 6.1). For instance, applying the above percentages to the water consumption figures of 1975, and allowing a slight adjustment for the increase units receiving a piped supply mentioned in Table 6.2 from 1972 to 1975*, it can be seen that the areas supplied by indoor pipes have a per capita consumption of about 0.14 m^3 per day. Areas supplied by public standpipes have a per capita consumption of approximately 0.13 m^3 and those supplied by tankers have a per capita consumption of about 0.21 m^3. It is evident from these figures that the majority of the population have a low per capita consumption and it is surprising to see that the areas supplied by tankers, chiefly inhabited by low income groups, have the highest per capita consumption.

In Medina application for piped water, as well as being governed by the ability of the authority concerned to supply the water, also depends on other special factors such as the topographical condition of the area, which often prevents subterranean pipes being laid, e.g. in areas such as the Western and Eastern Harrat. This creates different social areas in the the city. However, the high water consumption in those areas supplied by tankers can be attributed to a number of factors such as household size, the nature of supply and per capita income.

In Table 6.3, two areas were chosen to represent those supplied by tankers and indoor pipes, to show the correlation between water consumption, family size and income, and it can be seen that family size has a greater effect than income upon water consumption. At the low income

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* Thepercentage would become 49.9%, 8.1% and 42% respectively.

TABLE 6.3. WATER CONSUMPTION AND PER CAPITA INCOME IN SAUDI RIYALS AND NUMBER OF PERSONS PER DWELLING IN AL-ANBARIAH AND WESTERN HARAH QUARTERS, 1975.

Quarter	Persons per household	No. of house-holds	Size of samples of house-holds	Income and water consumption per capita per day in m^3				
				SR 100-300	SR 301-700	SR 701-2,000	SR 2,001-5,000	SR +5,000
Al-Anbariah				(940)*	(1,770)*	(1,040)*	(80)*	(20)*
Western Harrah				(2,330)	(2,125)	(935)	(40)	(-)
Al-Anbariah	1	190	19	0.17	0.18	0.10	0.13	0.16
Western Harrah		415	42	0.18	0.18	0.12	0.14	-
Al-Anbariah	2	395	39	0.11	0.12	0.14	0.17	0.18
Western Harrah		645	64	0.10	0.11	0.15	0.13	-
Al-Anbariah	3	645	64	0.10	0.19	0.15	0.15	0.16
Western Harrah		665	66	0.12	0.14	0.14	0.12	-
Al-Anbariah	4 - 8	1,830	183	0.13	0.12	0.13	0.14	0.14
Western Harrah		3,040	304	0.15	0.18	0.12	0.11	-
Al-Anbariah	9 - 14	750	95	0.19	0.10	0.12	0.12	0.12
Western Harrah		645	64	0.13	0.12	0.10	0.10	-
Al-Anbariah	+ 15	40	20	0.14	0.13	0.10	0.11	0.12
Western Harrah		20	10	0.15	0.13	0.18	0.18	-
Total		9,280	970					

*Figures in parentheses represent total numbers of heads of households within that income range.

Sources: 1 - Robert Matthew, 1975, Action Area: Central Area, Municipal Affairs, Jeddah.
2 - Compiled from unpublished data of Ayn Az-Zarqa Administration.
3 - Field work, January to February, 1976.

level, with a greater number of persons in the family, per capita water consumption increases, possibly due to the traditional ways of washing and cleaning, which waste much water. This is more apparent in the Western Harrah, which is supplied by free tankers, than in Al-Anbarish area which is almost all metered. Among medium and larger sized families with a lower income, water consumption is higher than in large families in the high income group. This might be untrue in other cities such as Jerusalem, where increases in family size with a lower per capita income are accompanied by greater reductions in per capita water consumption. But increases in income in smaller households are accompanied by rising per capita consumption [279:p.808]. It may be speculated that inefficient use of water by non-metered consumers could bring the per capita consumption of the whole city of Medina to the levels of other developed areas in the world. For instance, in England it is estimated that the daily per capita consumption per head will rise to 0.27 m^3 by the end of the Century [355:p.421]. This could happen in Medina only if non-metered areas exceeded metered areas, and this is unlikely as most of the population of Medina are eager to obtain indoor piped water. But one cannot ignore the effect of low income on water use. It is clear from Figure 6.1 that the area adjacent to the main water resources of Medina are supplied mostly by tankers and consequently have different levels of water consumption to areas with a piped water supply. This mainly reflects the low standard of living of people in this area, who cannot afford to have piped water, but do not mind too much as the water resources are quite near to their homes.

The above discussion may suggest that despite different methods of water distribution, everyone receives reasonable supplies of water to meet their every day demands, assuming that all methods are working regularly. But this assumption is not true. Although considerable improvements have been made to the quality and volume of piped water available in the city compared to the early decades of this Century, there is still a water shortage in parts of the city especially at peak demand, such as the Hajj season (section 6.5).

6.3 Projected Water Demand.

The implication of the growth in water consumption of Medina projected in this section is serious, and underlines the need to consider long term

planning of water resources for the city. In order to estimate such a projection, several factors should be taken into account, population growth and per capita water consumption being the main factors. The latter, in turn, is influenced by several factors such as improved standards of living and the efficient pattern of water distribution, as well as the prevalent pattern of dwellings. Using the daily per capita water consumption in 1972 of 0.13 m^3 [422:p.48], and the increase in 1975 to 0.14 m^3 (see p.133) may give some basis for a prediction of the per capita consumption by 2000 A.D.

Accepting the detailed work carried out in 1975 on Medina's population growth, which gives an annual average natural growth of 20.3‰ [422:p.71], and the difference between the estimation of Medina's population resulting from the confidential results of the 1962/63 (71,998 people) and 1974 censuses (198,186 people), which gave an annual average growth of about 9,054 persons resulting from immigration, some prediction can be made regarding future domestic demand for water.

The annual demand can therefore be calculated in broad terms, as being between 25 million m^3 and 32 million m^3 by the year 2000 A.D. (Table 6.4), resulting in an upward trend in total water demand, although the agricultural demand is declining. As the result of the 1974 population census which seems very high and unacceptable officially, another lower estimate has been attempted, based on the 1962/63 census and Robert Matthew's estimation of Medina's population in 1972. The resulting estimation of population will be used throughout this thesis.

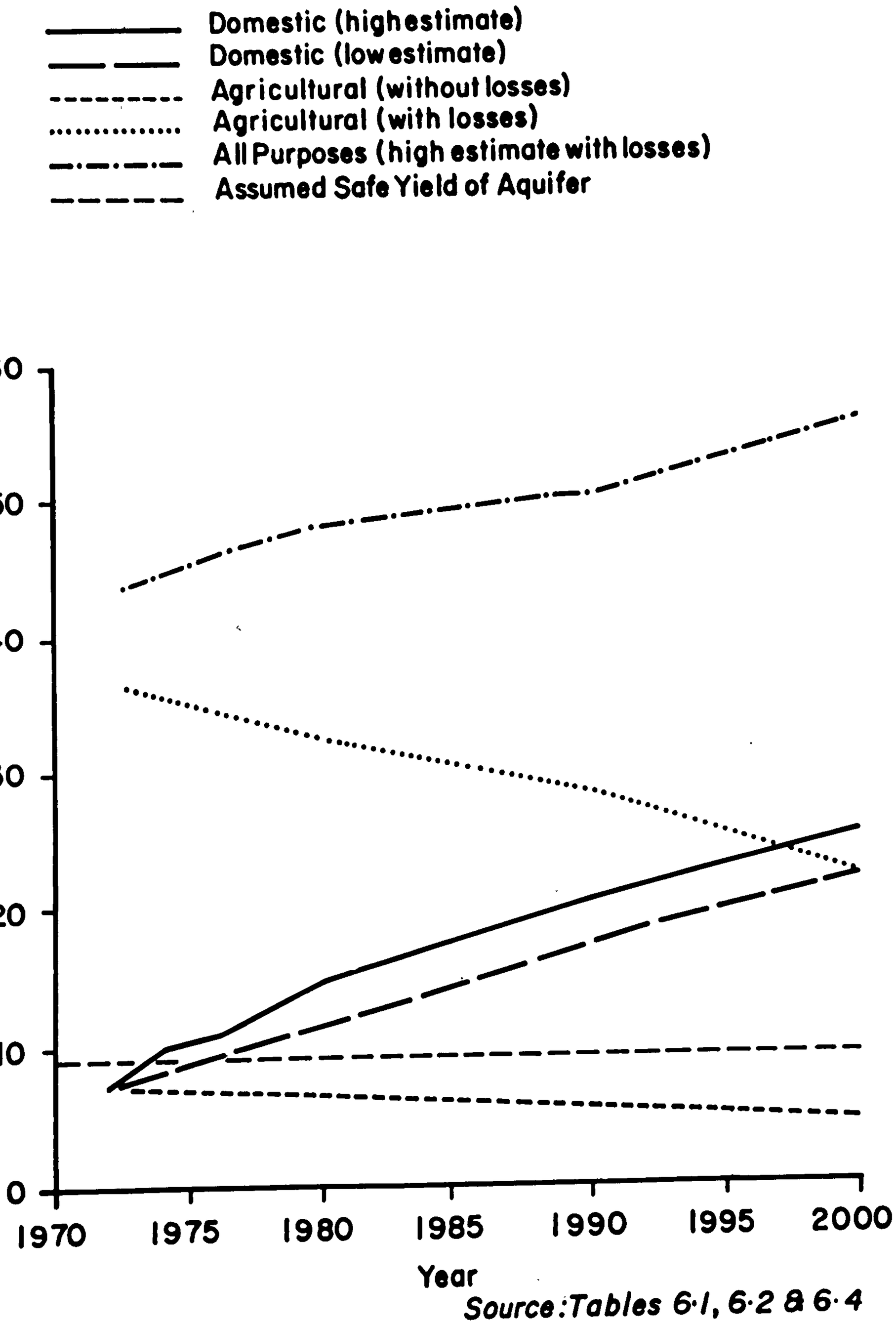
TABLE 6.4 FORECAST PHASED DOMESTIC WATER DEMAND

Year	Population Growth		Total Demand (million m^3 per year)	
	Low estimate	High estimate	Low estimate	High estimate
1962	71,998 (1)	71,998 (1)	-	-
1972	137,000 (2)	-	7,181,375	-
1974	-	198,186 (3)	-	10,127,305
1976	159,776 (4)	221,285 (4)	9,505,897	11,463,794
1980	282,553 (4)	269,358 (4)	11,327,401	15,262,810
1990	234,494 (4)	350,089 (4)	17,483,047	21,723,053
2000	296,435 (4)	432,459 (4)	24,885,702	31,569,529

Sources: 1- Central Department of Statistics, 1963, Population Census, Riyadh, p.41.

2- Robert Matthew, 1972, Al-Haikal Al-Iklimi, Municipal Affairs part 2, Riyadh, p.18 (Arabic).

Fig 6·2 MEDINA WATER DEMAND



Source: Tables 6·1, 6·2 & 6·4

3. Central Department of Statistics, 1977, The Statistical Indicator, No. 2, Riyadh, p.22.
4. Calculated from expected population increase.

The above forecast seems very high, but is only a prediction, based on the assumption that the present tendency of continued immigration of experts and workers will continue to the end of the Century. This policy is certain until the end of the second development plan in 1980, and may be expected to continue, but it is uncertain whether continued immigration will be necessary in the next development plan.

Agricultural water consumption at the present time is only approximate, and it is very difficult to indicate exactly what the magnitude of demand might be by the end of the Century. However, in view of the diminishing agricultural land* and the urban expansion, land at present used exclusively for agriculture, could change in role and character, thus bringing about a considerable reduction in water requirements.

Future agricultural demand for water, the consumption per square kilometre and the decreasing areas of agricultural land was taken into consideration in an attempt to estimate future requirements. It is suggested that agricultural land is decreasing at a rate of 1.36% per annum; this would result in an agricultural area of about 4.4 km^2 in the year 2000 A.D., with an agricultural water requirement of 4,934,841 m^3 or 23,499,247 m^3 depending on whether or not the water losses mentioned on page 130 are taken into account. The domestic and agricultural demand of water, plotted in Figure 6.2 indicate that a hidden domestic water shortage has existed from 1974 onwards at the high estimate, and since 1976 at the low estimate in terms of the balanced yields of available aquifer (section 6.4). For total agricultural and domestic demand, a hidden shortage has already existed since 1972, and although the agricultural consumption is assumed to decrease by the end of the Century, the total consumption will not fall to the safe yield of the aquifer. The present and expected increase in overall consumption of water which is at present a hidden shortage, may eventually become a real shortage in that consumption exceeds natural replenishment and underground

*The figures in Table 6.1 indicates 13.6% less agricultural land in 1972 than in 1962.

supplies will dry up. Accordingly, contingency plans to meet the projected rapid rise in demand must be instituted immediately.

6.4 Limitations and Solutions.

Taking into consideration the amount of the reserved sub-basaltic alluvial water (mentioned on page 130), it is evident that this reserve will be capable of meeting the city's requirements only for another 60 years or so, and only by more costly, deep digging upstream in the old valleys under the present basalt formation to the south of the city. This is due to the characteristic of the aquifer which consists of impervious substrata at depth of 70 to 80 m; in the 1950's the depth was between 15 and 20 m.

The catchment area serving Medina's aquifer is essentially the Aqiq valley system, which receives short and heavy rainfall; for example, in 1969 precipitation was recorded for only five days during which 82.9 mm of rain fell [61: 1974, p.24] . Bleasdale noted that precipitation for 200 days per year is more beneficial than twenty heavy rain storms of short duration [265:p.122]. Moreover, many geographers have noted, in urban areas, buildings and streets usually reduce the infiltration of water to the soil underheath [326:p.431]. The construction of an urban drainage system invariably reduces the drainage density of the catchment and consequently reduces the time needed for the overland flow to reach the drainage line.

In Medina the catchment area serving its aquifer receives an average annual rainfall of some 15.4 million m^3 , of which about 11.0 million m^3 infiltrates to the aquifer and passes down to Medina [430:p.12]. Part of the remainder is lost to the eastern Sabkhas (flat salty lands) and other small valleys such as Rabigh and Haurah; some is run-off and eventually lost through evaporation. The downstream base flow into the Hamd valley to the north is estimated to be about 1.8 million m^3 per year. It can therefore be said that the safe yield to service Medina and to maintain the water balance of the Medina aquifer is 9.2 million m^3. The present agricultural and domestic water consumption of Medina is about 80% beyond the safe yield, the deficit being made up from the water stored since ancient times. This has profoundly altered nature's balance of ground water recharge and loss, and it is possible that the complacent attitude regarding future supplies may not be justified.

The authorities in Medina must not be blind to the fact that people must pay an economic price for water, and have more regard for conservation of water for future use. Introducing a pricing policy for water may well discourage unnecessary waste. Establishing a national code for water conservation would be of great value in this very arid zone. Such regulations are definitely in accordance with the religious laws, which, since the beginning of Islam, arranged the principles of digging wells and constructing canals so that they would not damage the quality or quantity of water in existing ones [57:pp.17, 46], as well as discouraging people from extravagent use of water, even if it was taken from the sea [186:p.81].

However, it can be said that Medina, and indeed the whole country, is a water deficient area, and unlike some more fortunate areas in locations further north, has no surplus water [374:pp.413,424]. Developing and extending primary water resources may become more costly beyond certain standards [260:p.783], and at some points, recycled water and desalted sea water and underground brackish water supplies will provide an increased supply at a lower cost than that of primary sources. The present national wealth may justify the high expenditure on these alternatives, but it is dangerous to be too optimistic regarding the country's wealth, and it is imperative that action be taken while financial resources are available to ensure that different parts of the country have a cheap supply of water.

The shortage of water indicated in the preceding paragraphs may necessitate the search for alternative water supplies, particularly at peak times (in summer or during the Hajj season), which are vital prerequisites for the growth and development of Medina. This water shortage led the government to seek alternative sources. Thus in the second development plan of 1975 to 1980,it commissioned the construction of a desalination plant on the Red Sea, south of Yanbu [391:p.25], which is expected to yield 76,000 m^3 per day, in addition to 300 MW of electricity, resulting in an additional supply of 27,740,000 m^3 per annum. It is expected to be ready by 1980, and by this date its yield of water will be 58% of the area's agricultural and domestic requirements, but about 80% greater than the domestic requirement alone (see Table 6.4). This movement of water over hundreds of kilometres will provide a good basis of continued economic growth in

the area. Agricultural consumers can find other supplementary water resources (explained below) when needed, even more so in recent times, but desalination, which requires large scale projects to meet its huge demands, is not economically viable for use in agricultural activities at the present standard of desalination technology. This inviability may become more acute if the present decline in agricultural land is reversed in the future. The cost of desalted water production in the U.S.A. may give a general impression; it was estimated that in 1973, 4.6 m^3 of desalted water cost the U.S.A. £0.38 [173:p.16], compared to £3 in the early 1960's and £0.60 in 1971 [103:p.7], showing an enormous reduction in costs over the years. This figure is even higher in Saudi Arabia as the cost of desalinating 4.6 m^3 was about £18 in 1971, due, essentially, to the cost of importing equipment and technical knowledge from abroad [103:pp.101,102].

However, the problem is not only the cost, but also of how to use the water and electricity produced by the plant. In the case of Medina, it may be suggested that the excess yield of the desalted water should not be wasted. It can either be stored or redirected to benefit other settlements, such as Yanbu which is also facing water supply problems. Storing this water will be of great benefit to Medina in peak demand periods such as the pilgrimage season (Section 6.5) which will alleviate pressure on present facilities of water storage and extraction from the aquifer. This solution may raise the question of the ability to store such excess water in view of the prevailing environmental conditions such as high temperature and seepage rate. This exceptional problem may be tackled in two ways. Either finding an area close to Medina with less underground run-off, such as the ancient traps now supplying Medina, than is at present generally experienced; thus storing the excess water in these locations, or using the generated electricity to pump excess water production to areas of moderate climate as around At-Taif, to be stored on the surface. The second solution, however, does not seem feasible due to the long distance and cost factors of laying pipes which will not be used for direct supply.

Another alternative may be to start the desalination plant with less production than capacity, thus production can be increased at peak demand. This approach may also reduce the problem of excess electricity (at 1976

consumption rate of electricity, the demand for electricity in Medina is only 5% of the desalination plant capacity of producing electricity; see Chapter 8). The excess can be used in the proposed industrial complex in Yanbu suggested in the second development plan (1975 to 1980). Thus, the timing in the application of modern technology is a critical consideration and an investment decision of this kind could be one of the key determinants of the area's long-term development prospect. At present, and may be by the end of the Century, Medina can absorb the water produced by the desalination plant, but it is very difficult to envisage a similar ability to absorb electricity. Therefore, this analysis does not justify investment in desalination at the present time without the development of means and activities able to absorb both the excess production of water and also electricity in an economical fashion.

The alternative for desalination projects is the treatment of effluent from the new sewage plant, which could be used to irrigate fodder crops, tree crops or public open spaces. One obstacle to using this effluent is the reluctance of farmers to using such water, and the objection of citizens to buying their products. This can be tackled by education. Objection to using recycled water is not unusual and is observed in many parts of the world, including developed countries such as Britain and the U.S.A. [269:p.616;359:p.22]. If people can be encouraged to use the waste water for irrigation, and if the land is then chemically treated, this treatment could be highly significant in enriching the land. The use of waste and sludge as fertilizer is not extensive [73:p.56], but it has been found from a sample survey on 500 American cities that land treatment (taking into account several imput measures for each treatment such as land, labour, chemical or effluent materials, cost of treatment plants and their maintenance) is economically better suited for small urban areas compared to the high cost of obtaining fresh water from afar [269:pp.218,220].

If one supposes that in Medina treated water accounts for about half the water supplied for domestic use, this means that only about 15% of agricultural requirements can be supplied by this recycling procedure in 1980; but this is only a beginning; domestic consumption is expected to increase and consequently the volume of treated effluent will also increase.

Plate 6.1 Some former agricultural lands are now no longer being cultivated due to water shortages.

However, what is needed is the employment of new methods for irrigation purposes. Using pipeline on lined cemented canals, and employing techniques such as sealing paints and plastic material for tightening leakage at saddle joints, would reduce losses through seepage. This will raise the percentage of alternative water resources available for irrigating the crops and save the natural water resources for domestic consumption. These techniques have proved extremely beneficial in other parts of the country such as the Harad project, which raised the irrigation efficiency to 75 to 80% [434:p. 75]. It has been suggested that this seepage could be useful in recharging the ground water [36:p. 87], it must be remembered, however, that in the case of the prevailing climate, water is brought to the surface level through capillary action, resulting in high soil salinity and a white surface crust of salt, hence the seepage water could only penetrate to a shallow depth.

Another solution adopted since 1974 by Medina's water authorities to cope with the increasing domestic demand has been to purchase a share in the use of private agricultural wells in the south of Medina. In 1976, work finished on the two stages of this project which linked 24 private wells to small tanks which terminated at the main concrete tank in Koba area south of Medina. This reduced the water available for agricultural purposes, but the shortage has been reduced recently by the disappearance of some of the cultivated land as a result of opening several wide streets in the south of Medina to create a ring road reducing traffic congestion inside the city, especially during the Hajj. Agricultural land in this area should be preserved since it is famous far and wide, as an agricultural and recreational area. This may be partly due to the intensively cultivated orchards and the excellent climate and atmosphere, especially on summer nights; some writers have likened it to the "Ghotah" of Damascus [8 :p. 168].

The cultivated areas on the east and north boundaries of the city faced an uncertain future due to the shortage of local water, lack of attendance and expansion of the urban area, which threatens to envelop these green lands. Some of the former agricultural lands are now already no longer being cultivated (Plate 6.1). Medina owes much of its present

character to the green areas surrounding it, without which the city's atmosphere and characteristics would be completely different, especially as until very recently some of these green lands have penetrated the central area. As many traditional characteristics of the city should be conserved as possible to ensure that the unique features created by virtue of these green areas and gardens, agriculture and ambience, are preserved, whilst being integrated within the structure of the city. In assessing the future provision of water facilities to the area, some of these farms could be used as open space for the public. An example of this integration can be applied to the preserving of the old railway yard in Al-Anbariah quarter and incorporating an adjacent existing but shrinking farm into the recreational proposal for Medina (discussed in Chapter 4). Provision of such green areas might be associated with suitable urban use, such as schools and clubs, which need such areas to prevent the building growth from scarring the beauty of the land.

Finally the area's mountainous location could be beneficial as dams could be built on the slopes of the mountains to save water. Initially, plans must be made to survey and study the possibility of rebuilding some of the ancient dams in the area, such as Asem and Antarah dams. Actually, in early times when weather conditions were favourable, such dams were built in the area to conserve the two fundamental elements of agriculture - the water and soil [8:pp.51-53], as in other arid parts of the Middle East such as the Central Negev [43:p.182]. These dams seem even more important at the present time with the increasing demand for water and the drier climate which prevails.

6.5 The Impact of Hajj on the Water Supply.

Conditions have not always been the same in Medina. In pre-Islamic and early Islamic times, and probably until the first half of this Century, Medina's water supply depended not only on underground water but also on rain and spring water of low salinity, as well as on relatively shallow wells. It is said that at the time of the Prophet (622 to 632 A.D. when the Islamic Hajj began) there were 70 wells and 24 aqueducts in the area [37:p.197]. In the 11th and 12th Centuries Medina had 15 springs [5:pp.386-389;21:pp.1271-1274]; the number fluctuated until it reached 44 springs in the early

1930's [110:p.271]. The water supply at that period was adequate for the small area of the city which, until the early years of this Century, measured only 437.4 m long and 578.8 m wide [184:p.20]. These wells were used for domestic and agricultural purposes.

Water was drawn from these wells and springs or aqueducts either by leather pails "dalou" or other traditional methods for lifting water, and only since the 1930's has water been mechanically pumped [174:p.71]. Uncontrolled pumping, aggravated by the area's dry climate, has reduced the level of water in the area and necessitated the use of artesian digging for obtaining water. Thus the comparatively good water supplies of early times stopped and a resumption back to these standards largely depends on good organization.

The extent to which past and present methods were applied to solve the water problem depends on the interplay of several factors, such as the human factor, availability of capital, level of technology, political stability and the degree of state direction. For example,in 1517 A.D. the aqueducts supplying Medina with water were destroyed due to lack of maintenance and this depressed the city's population until financial and technical help came from the Authmanid Sultan Sulaiman [13:p.286]. More recently, in 1930, as part of a scheme to counteract pollution, the Health Centre in Mecca suggested that the old canal system should be replaced by a new metal pipe system [8:p.265], but this was not implemented until the late 1950's because of financial difficulties. In 1936 a sudden flood of the Aqiq valley destroyed the aqueducts carrying water from many springs to farms. Farmers' efforts to clean and restore these aqueducts failed as this was a costly operation which neither they or the state could afford [13:p.283]. In 1957 the water shortage in the summer Hajj season was due more to defective machinery and inadequacy of reservoirs than to the ability of the aquifer. Thus in these relatively early times, pilgrims were not reported to have affected the water supply although they caused the population of the city to increase temporarily, for example, in 1814, by about 15% at one time during the pilgrimage season [50:pp.248,399]. This may be due to the availability of water resources from several different sources, as opposed to one as in the modern supply.

In contemporary times a steady flow of available capital and government assistance has enabled the local authority to improve water supply methods. Present water shortages are due not only to a shortage of available water, but also to the defective system of water distribution, exacerbated by the pilgrimage demand. In 1976 the pilgrims increased the city's population by about 60% at one time during the pilgrimage season which led to poor flow of water due to a burst in the pipe network and also to the fact that because of limited storage capacity and the slow speed at which natural seepage can refill the wells, neither of which can operate at the level of water demand at this time. Until the late 1960's water carriers helped to alleviate the result of insufficient water supply, but they charged exorbitant prices during the Hajj season. The price of 1.8 m^3 of water arose from SR 0.5 during the off-season to SR 2.4 during the Hajj season. Presently, large buildings without adequate water supply accommodating pilgrims are forced to buy water privately from tankers. These tankers, each of about 8.0 m^3 capacity raise their charge from SR 100 (£18) during the off-season to between SR 400 and SR 600 (£72-100) during the Hajj season. But for other small buildings and non-wealthy people, the Ayn Az-Zarqa Administration moves some of its tankers, which normally supply the peripheral areas, to supply quarters inside the city with an apparent shortage. The tankers stop on the side of a street or in the middle of a square, and people help themselves by filling what they can carry. It is a familiar scene in the pilgrimage season to see children and adults carrying leather or plastic buckets and kerosene tins, hustling between the water tankers and their houses. This was particularly noticeable in 1976 in As-Sunbuliah and Al-Dirwishiah, subquarters of Bab Al-Majeedi. This state of affairs does not only affect the central quarters of the city, but also affects peripheral areas by reducing the number of tankers supplying them with water.

The State direction to improve the water supply, motivated either by concern of the welfare of the pilgrims or political ambition, was of great benefit. For an example of political motivation is the scheme instigated by Muawiah (the first Aumayyed Khalipha who ruled from 661 to 676 A.D.) for the provision of water was apparently to serve the city and its visitors,

but the hidden reason was to abate the resentment of the Medinese against his taking the Caliphate from Ali and transferring the seat of the Caliphate from Medina to Damascus. The present attitude of serving pilgrims and citizens is clear from ruling elite, who consider themselves the custodian of the two Holy Harams of Mecca and Medina. This has encouraged the government to seek technical advice from abroad to tackle the problem of water shortage before it reaches unmanageable proportions.

It is obvious from the above outlines that the Hajj is having a greater impact on the water resources than ever before. The recent impact is elaborated in the following sections.

6.5.1 The trend of water consumption .

The available figures for water consumption in Medina go back only to 1968 (1388 A.H.). Table 6.5 uses Arabic months to show the periods of high and low water consumption, which differ from year to year according to the Gregorian calendar. These figures are only for water distributed by the pipe network, as most pilgrims are accommodated inside the city. It is clear from Table 6.5 that three peaks of water consumption exist during the year, namely Summer, Ramadan and Hajj months. Summer is a natural reason for an increase in water consumption, and consumption would increase even more if Ramadan or Hajj took place at the same time. Thus, there is a close relationship between these peaks and the season in which they fall, indicating that the climatic condition is the most effective factor in the consumption of water. During Ramadan water consumption increases because many people from inside the country and from other Arab countries come to Mecca to carry out the religious rituals ("Umrah"); some visit Medina, whilst others simply spend the fasting month in a holy place such as Medina. Hajj is the most spectacular season for attracting people to the area, and results in a high demand for services, the most important of which is water.

This can be proved by examining the figures in Table 6.5. The Arabic year 1388 began on 31 May 1968, when the weather was cool (see Appendix A). Gradually, with the increasing temperatures of August and September, water consumption increased to an unprecedented level; it declined slightly until the month of Ramadan, when it again increased, even though the weather

TABLE 6.5. WATER METERED CONSUMPTION IN MEDINA BY MONTH IN m^3

Month	1388 (1968/69)	1389 (1969/70)	1390 (1970/71)	1391 (1971/72)	1392 (1972/73)	1393 1973/74)	1394 1974/75)	1395 (1975/76) *
Muharram	34,413.7	105,092.2	118,050.7	142,669.9	137,742.4	97,164.3	93,965.4	367,256.0
Safar	91,089.3	102,987.6	129,158.8	134,607.6	131,942.3	101,940.3	104,096.8	189,584.7
Rabi Al-Awal	100,248.0	116,822.9	130,807.9	126,004.7	137,769.9	99,640.0	96,759.9	309,836.0
Rabi Al-Thani	100,403.5	123,301.2	139,605.3	164,615.9	158,865.7	98,524.8	98,493.7	264,923.0
Jumada Al-Ula	91,173.6	113,829.5	134,927.6	150,444.2	162,373.7	94,488.7	97,488.7	317,198.6
Jumada Ath-Thani	62,518.8	141,333.7	135,234.7	142,005.8	181,180.0	122,415.8	123,315.5	232,567.0
Rajab	87,398.7	122,622.0	130,567.9	139,416.0	145,391.4	134,446.0	84,781.3	392,867.0
Shaban	89,713.0	131,122.7	130,037.9	137,459.0	110,926.4	141,183.4	90,876.2	324,561.3
Ramadan	110,748.9	128,274.8	175,704.3	118,161.0	110,219.8	101,379.5	100,398.9	426,627.0
Shawwal	60,464.8	130,052.3	142,670.0	140,529.0	106,321.0	113,880.7	94,601.9	312,482.0
Dhu Al-Qida	171,383.8	154,071.2	142,482.3	175,704.7	165,739.0	146,676.2	138,917.6	491,984.6
Dhu Al-Hijja	136,119.3	133,273.4	125,359.8	163,778.0	156,895.6	103,461.0	91,176.2	329,989.7
Total	1,204,675.4	1,502,783.5	1,635,587.9	1,583,959.3	1,705,367.3	1,365,266.9	1,215,134.8	3,959,876.9

*Figures in parentheses represent the equivalent Gregorian year.

] Indication of summer months.

Source: Ayn Az-Zarqa Administration, Unpublished Data, Medina.

was cold. Consumption fell, only to rise once more in the Hajj period (the last two months of the Arabic calendar). Surprisingly, the highest consumption of water during the Hajj season takes place in Dhu Al-Qida month, whereas the rituals of Hajj are carried out during Dhu Al-Hijja month, but this is due to the fact that most of the pilgrims who visit Medina before Hajj almost all do so during Dhu Al-Qida month. Overland pilgrims from the north east are not allowed to enter Medina during the ten days immediately preceding Hajj, so they will not be late arriving in the holy area of Mecca. This automatically reduces water consumption in Dhu Al-Hijja month, and is a result of the religious law that all pilgrims should be in Mecca from the eighth to the 12th of Dhu Al-Hijja and it is only by the 14th day that pilgrims begin to come to Medina. As a result the number of pilgrims in Medina during half of the month of Dhu Al-Hijja is low, resulting in a corresponding drop in water consumption in Medina at that time.

A similar pattern is observed in the other years given in Table 6.5, and it can be seen that in six of the eight, analysed water consumption is higher in the first month of the year than in the second. This may be due to the close proximity of Muharram month to Dhu Al-Hijja month, when many pilgrims, especially those from the south and south east of Asia are still in the area.

Water consumption has risen almost every year, except for 1393 and 1394 A.H. This may be due to the smaller number of pilgrims in 1393 resulting from the 1973 Middle East War, and to the inefficiency of the distribution network in 1394, when work was under way to provide a new pipe network to replace the old one in parts of the city.

Recognising the limitation imposed by the short period for which data is available to see the exact effect of when the pilgrimage falls in summer, some conclusions can be drawn from the data which is available. The Arabic year of 1388 started on 31 March 1968 and 1395 commenced on 14 January 1975, and there is a smaller observed difference between the total water consumption of two summer months (August and September) and the two months of Hajj in the year 1395 than in 1388. The water consumption in the two months of Hajj increased by about 50% over August and September in 1395, while the increase was about 60% in 1388. In 1395, Hajj took place during the winter,

and in 1388 it occurred in spring, and there is a definite rise in water consumption when the Hajj took place in the warmer weather.

Further examination of Table 6.5 may be useful in drawing up a classification of water consumption based on the intensity of use during the main peak periods. Table 6.6 took the average daily consumption during the Hajj season as a base for comparison. The results indicate that Hajj has the greatest effect on Medina's water consumption followed by Ramadan and then summer. Summer months record the smallest increase over the normal daily level of consumption, possibly due to the fact that many people take their holidays elsewhere during this period.

TABLE 6.6 COMPARISON OF AVERAGE DAILY WATER CONSUMPTION AT DIFFERENT PEAK PERIODS OF THE YEARS, 1388 TO 1395 A.H, (1968/69 TO 1975/76)

Periods	Index
Hajj	100.0
Ramadan	91.1
Summer	85.2
Rest of the Year	82.3

Source: Table 6.5

The increased consumption of water during the pilgrimage season must accelerate the process of exhausting the underground water (section 6.3). Without the pilgrimage, the aquifer would be sufficient to supply the city for the next 70 years instead of 60. The expected future growth in overal number of pilgrims coming to the area by 1993 (Chapter 9) may increase the pressure on water supply even more as it could reduce the ability of the aquifer to supply the city to only 40 years. The importance of the Hajj regarding water consumption deserves more analysis, particularly the spatial aspects of water demand during this period.

6.5.1.1 The location quotient.

The location quotient method is a means of providing a comparative

calculation of a certain area's share of a particular activity and its percentage share of some basic aggregate [128:p.124] . Here, this method will be employed to build up a general impression for identifying water consumption levels for quarters throughout Medina, and will indicate the relationship between a quarter's share of the water supply during the Hajj month and its share of the overall yearly consumption of the city. In an area where the location quotient is greater than unit, this means that it has a particular attraction for different types of consumers, and ought to be given special attention, whereas an area of less than unit ought to be further developed to increase its potential residential attraction. The location quotient expression used by some geographers, adjusted to this study, is:

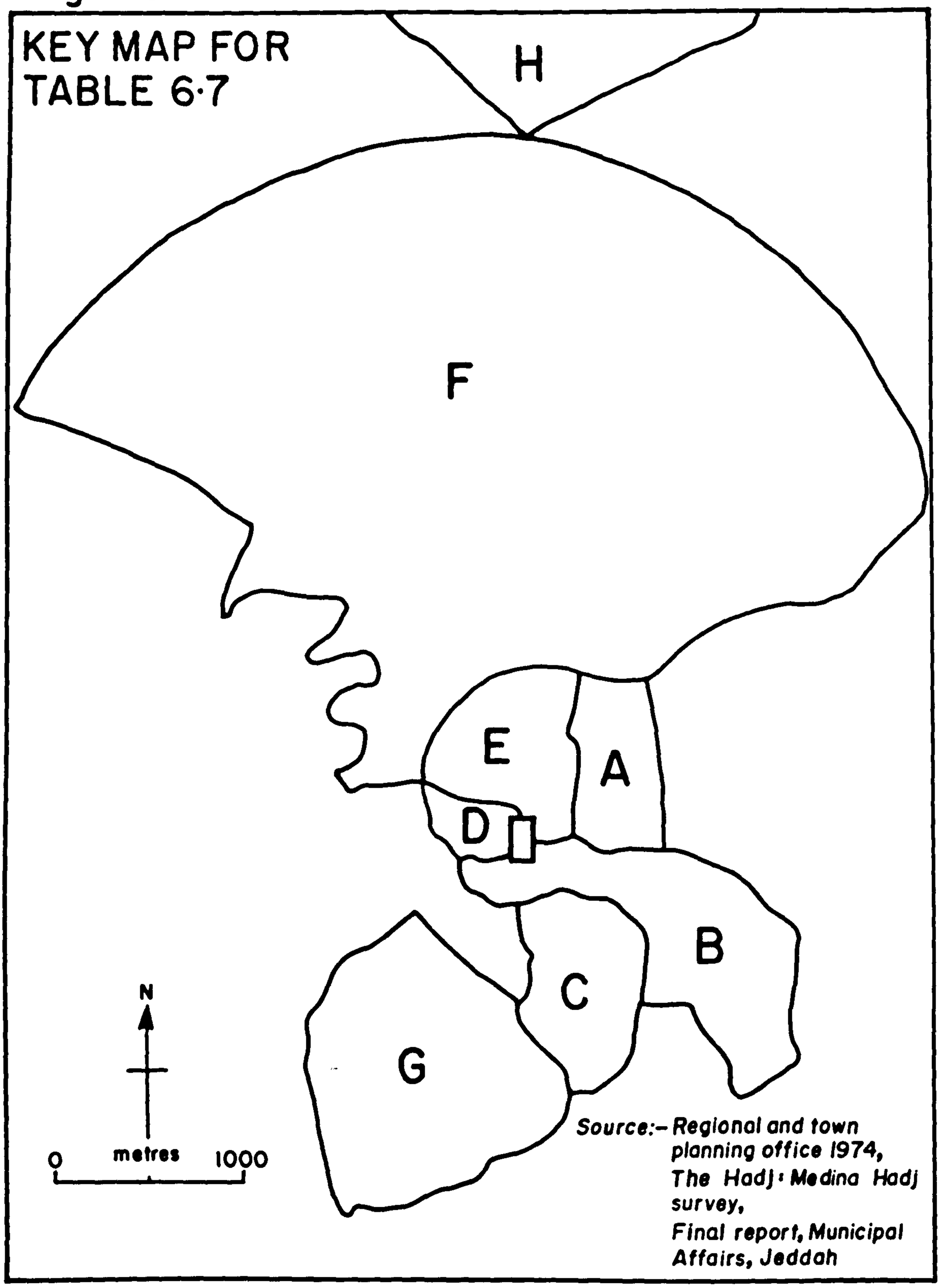
$$\frac{XiH/Xi*}{X*H/X**}$$

where : Xi.H = denote water consumption in quarter i in the Hajj period.
X*H = denote water consumption in all quarters in the Hajj period.
Xi* = denote water consumption in quarter i all year.
X** = denote water consumption in all quarters all year.

Table 6.7 depicts the location quotient for water consumption in eight central and suburban quarters of Medina (for the location of these quarters see Fig. 6.4). Unfortunately, it was impossible to apply this method on all quarters of Medina, due to the lack of sufficient data on these areas. However, the following observations can be made. In 1390 (1970/71) water consumption during the Hajj season was lower than the average for all quarters (1.08), in Bab Al-Majeedi and Koba quarters, but over the year it approached the general average. Bab Al-Majeedi is a central quarter and Koba is a residential area occupied by the high and middle income groups, which, if we accept the theory that higher income and improved living standards imply higher water consumption, means increased water usage. This means that these areas have less than their fair share of the total water consumed in the city. In the following years water consumption increased in most quarters (although some showed a slight decrease) until 1395, when there was a sharp decrease of varying degree in almost all quarters. This indicates the deficiency in Medina's water supply, even though it almost doubled, and this is probably explained by urban development, increase population, and a rise in the number of pilgrims. The 1395 high increased

Fig.6·3

KEY MAP FOR TABLE 6·7



Source:- Regional and town planning office 1974, The Hadj: Medina Hadj survey, Final report, Municipal Affairs, Jeddah

consumption in Koba quarter may be due to the influx of more residents and commercial activities into this quarter after the start of demolition for Al-Haram enlargement. Apart from 1395, the year 1393 has a smaller

TABLE 6.7 THE LOCATION QUOTIENTS FOR WATER CONSUMPTION

Quarters	1390 A.H. (1970/71)	1391 A.H. (1971/72)	1392 A.H. (1972/73)	1393 A.H. (1973/74)	1394 A.H. (1974/75)	1395 A.H. (1975/76)
A. Abi Zar	1.28	0.93	0.62	1.13	0.93	0.50
B. Al-Awali & Al-Aghwat	1.21	0.87	0.43	0.99	1.63	0.55
C. Al-Jidiadah & An-Nakhawla	1.01	0.99	0.63	0.60	0.95	0.51
D. As-Saha	2.21	1.27	1.21	1.10	1.05	0.47
E. Bab Al-Majeedi	0.34	0.82	1.30	0.84	1.03	0.64
F. Bab Ash-Shami	1.13	0.69	1.34	0.50	1.61	0.56
G. Koba	0.46	2.45	0.87	0.92	1.10	1.60
H. Sayyed Ash-Shohada	1.00	0.93	0.52	0.89	0.99	0.54

* Figures in parentheses represent the equivalent Gregorian year.

Source: Calculated from unpublished data, Ayn Az-Zarqa Administration, Medina.

total unity than the others, for the reasons explained on page 149.

The central quarters of Abi Zar, As-Saha and Bab Al-Majeedi; Al-Jidiadah, Bab Ash-Shami and Koba are on the edge of the central area, and Sayyed Ash-Shohada and Al-Awali are on the edge of the city. It is noticeable that almost always the central quarters have a high degree of water consumption even in 1395, the year of deficient supply, and this is undoubtedly due to the high demands of the Hajj months, as a proportion of the total amount consumed in these areas. This is supported by the greater share borne by these central areas in the accommodation of pilgrims, e.g. in 1972, As-Saha quarter accommodated 20% of all pilgrims visiting Medina, while Sayyed Ash-Shohada only catered for 0.3% of the total [425:p.40].

Adjustments appear to have been made after 1394 when water distribution was uneven, and quarters such as Sayyed Ash-Shohada and Bab Ash-Shami received a greater share than other central quarters. This might be due to a rapid upsurge in urban development in these areas. Generally, most quarters of Medina have a low location quotient, and in most areas where it has increased, this has been influenced by the Hajj.

6.5.1.2 The coefficient of localization and redistribution:

As Walter Isard has pointed out, the location quotient is only an exploratory testing of specific activity [128:p.126], and is more valuable when used in conjunction with other methods. The coefficient of localization serves the purpose of providing a semi-detailed and comparable analysis for water consumption.

This method was extensively used to measure the regional concentration of industry [128:pp.251-252]. It has been adjusted to this study, and the results and the method of calculation are shown in Table 6.8. It is essentially a comparison of the percentage distribution by quarter of water at Hajj season with the quarter percentage distribution of the base magnitude. The index represents extreme concentration as values approach one, while an index of zero represents an equal spread of events. A quick glance at Table 6.8 would give some idea of the situation in the different quarters. The value of the coefficient is always between 0.05 and 0.17 in the whole period from 1390 to 1395; this indicates a tendency towards over distribution of water consumption in Medina as the coefficient value is approaching zero. This diffusion may be due to extension and improvement of the distribution network. But a detailed examination may show some variation of water consumption by quarter. The quarters in the centre of the city such as A, D and E . have a high share during the Hajj season compared to the share of the whole area throughout the year. Quarters F and G, which are on the edge of the central area had a relatively low share at Hajj season especially in the early 1390's, which means that they are only marginally affected by the season, probably due to the fact that these areas, especially Koba area, are inhabited by people from the higher income groups who do not depend on the pilgrim trade for their livelihood. Thus, the findings of this method may confirm the result of the former section in a low location quotient for most non-central quarters.

TABLE 6.8 ESSENTIAL DATA FOR COEFFICIENT OF LOCALIZATION (CL)

Quarters and Variables	1390 (1970/71)	1391 (1971/72)	1392 (1972/73)	1393 (1973/74)	1394 (1974/75)	1395 (1975/76)
A - 1	11.2	10.0	10.1	10.5	14.7	10.5
A - 2	9.3	10.2	15.4	7.9	17.5	11.9
A - 3	1.9	- 0.2	- 5.3	2.6	- 2.8	- 1.4
B - 1	4.2	3.1	5.3	6.1	12.6	4.3
B - 2	3.7	3.2	11.6	5.2	8.6	4.4
B - 3	0.5	- 0.1	- 6.3	0.9	4.0	- 0.1
C - 1	9.3	11.1	5.5	12.2	8.7	9.8
C - 2	9.7	10.6	8.3	17.1	10.2	10.9
C - 3	- 0.4	0.5	- 2.8	- 4.9	- 1.5	- 1.1
D - 1	20.1	11.1	11.4	14.9	5.3	9.6
D - 2	9.7	8.2	9.1	11.4	5.6	11.4
D - 3	10.4	2.9	2.3	3.5	- 0.3	- 1.8
E - 1	24.0	21.0	30.5	20.0	18.3	19.4
E - 2	19.4	24.2	22.1	20.1	19.8	17.0
E - 3	4.6	- 3.2	8.4	- 0.1	- 1.5	2.4
F - 1	18.2	14.4	16.2	5.8	10.7	7.5
F - 2	22.5	19.6	11.5	10.1	7.3	7.4
F - 3	- 4.3	- 5.3	4.7	- 4.3	3.4	0.1
G - 1	9.3	26.7	19.2	22.2	23.3	35.0
G - 2	21.8	20.8	18.7	20.3	23.7	32.9
G - 3	-12.5	5.9	0.5	1.9	- 0.4	2.1
H - 1	3.7	2.7	1.9	8.3	6.4	3.9
H - 2	3.9	3.2	3.4	7.9	7.3	4.1
H - 3	- 0.2	- 0.5	- 1.5	0.4	- 0.9	- 0.2
CL	0.17	0.09	0.16	0.09	0.07	0.05

A - H = Quarters, as mentioned in Table 6.7
1 = % of water consumed during the Hajj season by each quarter.
2 = % of all Medina's water consumed by each quarter.
3 = Difference (1-2)
CL = Adding all positive or negative differences and dividing the result by 100.

Source: Calculated from unpublished data of water consumption in quarters of Medina, Ayn Az-Zarqa Administration, Medina.

A horizontal analysis of Table 6.8 gives us a general value of the coefficient of redistribution, i.e. the deviation between several areas of distribution of water consumption from 1390 to 1395. There is no general rule to control the tendency of distribution in one direction, which varied erratically from year to year; for example in 1390 it was very high in quarter A, it fell in 1391 and 1392 and rose even higher in 1394. The other quarters show a similar variation in the value of distribution. The non-central quarters F and H have a more minus deviation, indicating little relation to the Hajj season. For example, quarter F has three minus values of six, and quarter G has two minus values of six. The situation in Sayyed Ash-Shohada (quarter H) is unique; this quarter has five minus values out of six indicating the disappearance of the pilgrimage effect on this quarter, due to its location on the edge of the city. This fact is also borne out by the almost even distribution of water consumption in this quarter throughout the year. For example, if we consider two months not in the Hajj season, such as the sixth and seventh months of the years 1390 and 1394, the water consumption was 14.8% and 15.0% of the total consumption of this quarter, respectively, while it was about 16.0% and 15.6% in the Hajj season for the same years. However, it can be hypothesized that Medina's water consumption pattern becomes more concentrated as pilgrims concentrate in certain areas, and then becomes more diffuse with the influx of pilgrims and improvement in distribution network and change in urban structure.

6.5.1.3 Water consumption ranked by individual quarters.

Ranking has been based on the varying amounts of water consumed in Medina's quarters during both the Hajj season and the whole year, in order to present a clear picture of the relative consumption strength of each quarter. Ranking was obtained for each of eight quarters during the six years from 1390 to 1395 A.H. (Table 6.9).

It is apparent from Table 6.9 that several quarters share the first rank; and distinct variations can be observed between the Hajj season and normal periods. For example, the first rank is occupied by non-central quarters G and F for five out of the total of six years, whilst for the Hajj season, five of six years are occupied by central quarter E. The last rank is almost totally occupied by quarter H, which on a limited number of occasions in 1393 and 1394 became strong enough for promotion to the sixth and seventh ranks.

TABLE 6.9 WATER CONSUMPTION RANKED BY INDIVIDUAL QUARTER

Rank	1390 (1970/71)		1391 (1971/72)		1392 (1972/73)		1393 (1973/74)		1394 (1974/75)		1395 (1975/76)	
	Total	Hajj	Total	Hajj	Total	Hajj	Total	Hajj	Total	Hajj	Total	Hajj
1	F	E	E	G	E	E	G	E	G	E	G	E
2	G	F	G	E	G	F	E	G	E	G	E	G
3	E	D	F	A	A	G	C	D	A	A	A	A
4	C	A	C	D	B	D	D	C	C	B	D	C
5	D	G	A	C	F	A	F	A	B	C	C	D
6	A	C	D	F	D	C	H	H	F	H	F	F
7	H	B	B	B	C	B	A	B	H	F	B	B
8	B	H	H	H	H	H	B	F	D	D	H	H

Source: Based on unpublished data of Ayn Az-Zarqa Administration, Medina.

It is observed that in most years, quarters A, D and E occupied one of the first four ranks during the Hajj season, although not for the rest of the year, and this indicates the strong influence which the Hajj exerts on these central quarters.

Understandably, the last four ranks in Table 6.9 are more complex, and the position of quarters between these ranks fluctuates much more than in the first four ranks, and it can be seen that quarters G and E are almost always in the first and second ranks.

In accordance with the underlying theme of this study, which was to correlate the water consumption pattern in Medina and the Hajj in an attempt to evaluate the area's water potential, it would appear that the most suitable method of the three suggested is the second, i.e. the coefficient of localization. This method is based on the percentage of water consumed at the Hajj season and its immediate relationship with the total consumption of the quarter and the city, which result in explaining the degree of centrality of each quarter in relation to its water consumption. The ranking method, since it simply depends on total numbers without any relationship to other activities, is sometimes misleading. It is clear from Table 6.9 that quarter D is sometimes in a low rank, although it is in a central location, and this is probably due to its small size in comparison with quarters such as Koba, or Bab Ash-Shami where water consumption is high in relation to population.

The above three methods, together with an appraisal of the existing water distribution network, can provide the basis for a preliminary judgement, and emphasizes whether or not development is necessary to correspond with the water requirements of certain areas. Cansult Ltd., the Canadian Consultant

Fig. 6·4

MEDINA WATER SUPPLY
(NETWORK LAYOUT)

(All pipe sizes given in Cm)

Existing Water Line

Proposed Water Line

Valve

Fire Hydrant

N

0 metres 250

Source:- Cansult Ltd., Medina ,1972

Engineers are now responsible for the design of a new water distribution network, and have already supervised the installation of the first stage (finished in 1976) of the new network of 51 cm diameter trunk mains (Fig. 6.4). Subsequent stages of construction, including laterals and house connections, as well as a pumping station at Koba area are also under construction.

At present, there are 11 storage tanks in Medina of varying capacities (the smallest holds 50 m^3 and the largest 12,000 m^3) situated in a number of places; their total capacity is 24,900 m^3. This means that they hold only 1.12 days of average demand for the city; this volume seems very low for cases of high seasonal demand or periods of interrupted extraction, and indicates the inability of these tanks to cater for the city's demands from 1978, as predicted in Table 6.4. The distribution network begins at the main tanks in Koba area (4 Km south of the city centre) with asbestos pipes of 30 - 56 cm diameter between the tanks (see Fig. 6.1). Water is then conveyed by 51 cm diameter cast iron pipes to Bab Ash-Shami area at the edge of the centre of Medina (in addition to the old 30 cm pipeline). From these mains, water links of 10, 15, 20, 25, 30 and 40 cm diameter pipes distribute the water to the different parts of the city. Pipe sizes decrease with distance away from the main source of supply in order to maintain an efficient water pressure, sufficient to reach as much of the city as possible. As-Saha quarter, which has been seen to have some concentration of water use for part of the year, is near the main network and has no problems in maintaining an adequate supply. Abi Zar and the eastern part of Bab Al-Majeedi quarters are quite some distance from this main network and are fed by small bore pipes (Fig. 6.4); any increase in demand would, therefore, create a deficiency in supply to these areas. In actual fact, these quarters are still connected to the old network which is subject to burst pipes. It would be of value to construct a similar large diameter main in the east of the city to cater for the increasing demand in these areas as well as the growing demand in the new developing urban area in the far eastern part of Medina. Furthermore, if the local authority wishes to develop the outlying areas on the basis of a modern town extension, other pipes with smaller diameters may have to be installed in many new peripheral developments. Future plans may have to cater for the present water shortages in ensuring that the water distribution network can exceed normal domestic demands in order to supply everyone at the time of the Hajj.

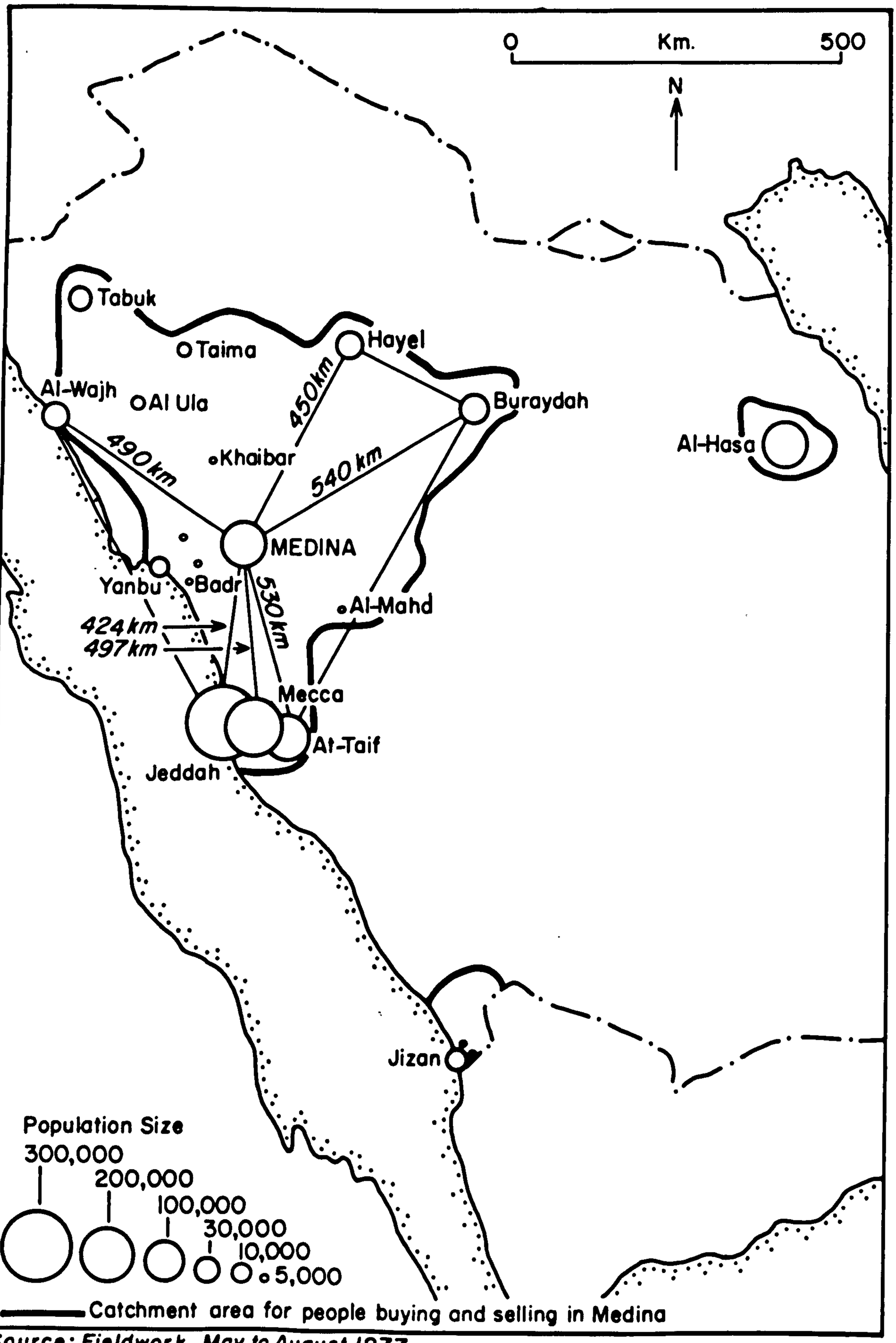
These methods could be indirectly useful in improving the disposal arrangements to be commensurate with the water consumption of the increased population and rising numbers of pilgrims. Such arrangements would eliminate the old method of infiltrating wastage to the ground which leads to pollution of water resources and eventually to the spread of disease within the city (and other parts of the world via visting pilgrims). In the 1950's, it was estimated that 34.8% of all disease (amongst pilgrims and citizens) was the result of water-borne epidemics [337:p.200]. At the present time, such diseases have been reduced by preventing private wells being dug inside the city and around the prohibited area of Ayn Az-Zarqa Administration in the south of Medina, although the old ground hole disposal method still exists. The treatment of drinking water with chloride at the main tanks has further reduced the incidence of these diseases. However, it still remains to connect the different parts of the city, especially the congested areas and those consuming a high proportion of Medina's water supply, to a sufficiently wide disposal network.

At the very least, it can be said that the water resources which at present are inefficiently used should be more wisely directed in the future to conserve this precious, but limited resource. These efforts would result in balanced urban and agricultural growth. Such improvement would contribute to a diversified economic base for the area. Medina, no doubt, has the potential for producing such a base, and requires only a wise directed plan. A plan of this type could make agriculture attractive to private investment and arrest the present situation - a world phenomenon which, as Westebbe noted, causes a decline in farm income in the face of increasing urban incomes[234:p.204].

PART THREE

THE ECONOMIC AND SOCIAL EFFECTS OF HAJJ

Fig. 7·1 CATCHMENT AREA OF MEDINA'S MARKET



Source: Fieldwork, May to August 1977

CHAPTER SEVEN

RETAILING AND MARKETING IN MEDINA

Due to the greater activity in the Medina Region during the pilgrimage season, seasonal prosperity associated with the Hajj needs to be examined. It is necessary to evaluate the importance of the pilgrimage to the economic life of the region, and to understand the effect of mass movement of people, and the nature of certain related problems. This Chapter therefore seeks to analyse several factors reflecting the economic importance of the Hajj, including:

a) Medina's import and export trade and its commercial relationship with surrounding areas. Such analysis suggests that Medina has a capacity to survive without its religious functions, which does not necessarily apply to many other religious centres.

b) The pattern of consumption of foodstuffs, which reveals the importance of Medina in evolving a special pattern of consumption which evolved primarily through the pilgrimage.

c) The organisation of trade which was also influenced by the pilgrimage, an important factor in affecting the degree of divergence from traditional patterns of retailing.

d) Trading incomes. A comparison of the income of trading units during the Hajj season and at the rest of the year provides a reliable index of the economic effect of the pilgrimage on trade in Medina.

7.1 Imports and Exports.

Medina's location, in relation to other neighbouring settlements, is shown in Figure 7.I.Medina forms the centre point of a circle, radius between 424 km and 540 Km. Distance is highly significant in such an arid area occupied by only a few isolated settlements. Thus Medina's favourable geographical position favoured its historic role as a distribution centre for local and foreign produce, intended for centres within the circle such as Khaibar, Al-Ula and Taima, and more peripheral locations such as Jeddah, Buraydah and Hayel. Figure 7.I also shows the approximate catchment area for people shopping or exchanging goods in Medina*. Goods bought by people from

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* The definition is based on personal experience and local traders were asked about the catchment area of their customers.

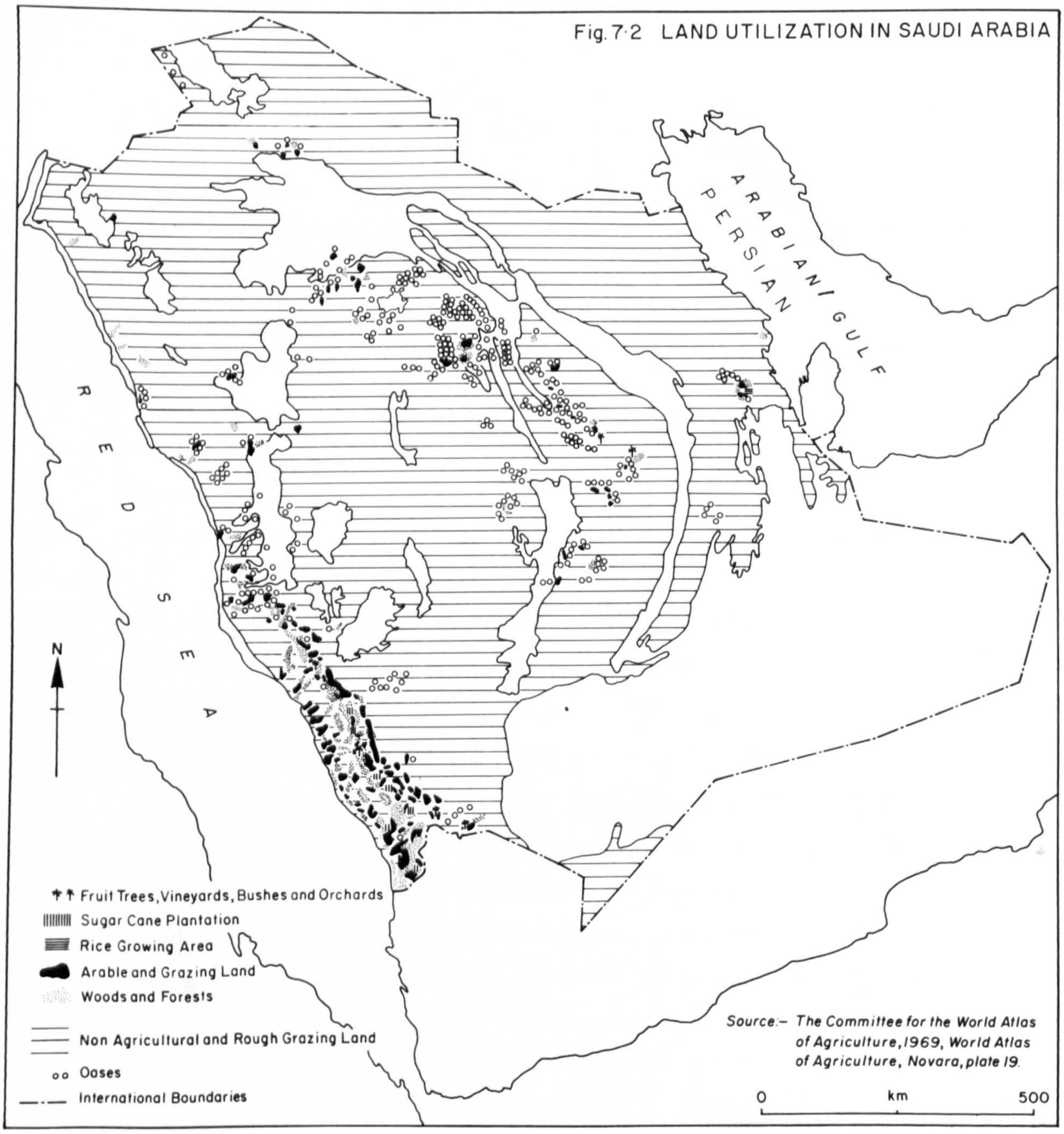
Jeddah (mostly food) are different from those of Al-Ula (mostly luxury items); yet such details on shopping behaviour are beyond the scope of this work. Distance becomes even more significant if the size of the other urban centres is considered; according to the unproved results of the official 1974 census, Medina Province has a population of 512,294 with 1,742 localities, of which Medina is the largest [368 : p.227]. This indicates the regional importance of Medina. Medina's trading facilities make it an important post in the west of Saudi Arabia, with a high concentration of purchasing power in Medina, in comparison with the rest of the province. Good roads link Medina and Jeddah, a major national port for imports and exports.

Trade is the most obvious area for the expansion of employment, as there is no opportunity for the development of heavy industry and relatively little potential for light industry and local handicrafts. It may be expected that commercial and retail establishments will continue to employ a significant proportion of the work force, and could eventually become the largest single sector. Indications of this trend are reflected in the reduction in the number of workers engaged in agriculture and diminishing agricultural land (as explained in Chapters 3 and 6), and the recent tendency to leave government jobs for more profitable fields (Chapter 4).

It is not surprising therefore to discover that in 1972, 22% of the economically active population worked in some form of trade and distribution, making it the second largest employment sector, just below the 32.4% engaged in government work [427 : p.38]. The proportion engaged in commerce in Medina seems to be higher than in either Riyadh or At-Taif (14.2% and 19% respectively) [426 : p.38]. This may be due to the recent introduduction of a wider range of activities in Riyadh such as manufacturing industry and employment in the government sector. In the case of At-Taif, this is manifested in joint activities with nearby Jeddah. Moreover, Mecca and Jeddah are non-agricultural and compete fiercely for the produce of some localities in Fatimah's valley. For example, the area of Al-Jomoom (situated 30 Km north of Mecca and about 75 Km east of Jeddah) sometimes finds a profitable market in Jeddah rather than Mecca, in particular products such as vegetables and pabay [331 : p p. 28, 29]. Medina has little serious competition with its tributaries due to its size and unique significance to Muslims.

As Stewart noticed, the larger the urban share of total population the higher is the proportion of urban population serving the whole of the region [376 : p.232]. Under this concept Medina's overall functional interchange reflects a stronger relationship with the smaller surrounding settlements than that displayed in relationships with cities higher in the urban

Fig. 7·2 LAND UTILIZATION IN SAUDI ARABIA



Source:– The Committee for the World Atlas of Agriculture, 1969, World Atlas of Agriculture, Novara, plate 19.

hierachy, e.g., Riyadh and Mecca. The continual strength of this relationship between Medina and surrounding settlements may be attributed to its religious function which led to the development of services directed to the needs of its population and those of its regional hinterland as opposed to national and international exchange. This is further reflected in Medina's relative independence. Until the late 1960's, Medina was comparatively independent of the rest of Arabia for farm produce; with about seven Km^2 of cultivated land surrounding it, the city can still be considered self-sufficient in the production of dates, fruits, vegetables and fodder. Some centres of production to the north use Medina as an outlet for their surplus of fruit and market garden produce, especially at times of exceptional demand, as in the pilgrimage season. Of these centres, Khaibar exports tomatoes, egg plant, melons, marrow and beans to Medina; Al-Ula sends pomegranates, oranges, lemons and grapefruit; Badr and Wadi As-Safrah send tomatoes, and more recently, Al-Qasim area has begun to export water-melons, onions and oranges. In summer, water melons also come from such widely scattered places as Badr, Masturah, Rabigh and Yanbu An-Nakhil to the west of Medina. At Hajj time, Medina imports the best dates produced at Khaibar, Al-Ula and even Al-Hasa in the Eastern Province of Saudi Arabia to meet the increased demand from pilgrims who greatly appreciate Medina's dates, often taking them home as gifts from the Holy City. Of course the development of marketing between Medina and Al-Hasa has been affected by high transport costs, especially in recent years which has caused losses to producers [431 : p p. 63,165].

At times of sufficient local supplies, prices might be maintained at such low levels that produce subject to transport costs was not always highly competitive, thus encouraging producers in some areas such as Wadi Al-Fura to dispose of their products at Jeddah rather than Medina. Other producers as in Wadi Al-Abwa preferred to send their produce to Medina, in the hope of gaining the blessing of the Holy City; such attitudes make the Medina area unique when the motives governing its trade are considered.

Fish, fresh, dry or salted, is imported mainly from Yanbu which sends about 25% of its total production to Medina*. Ummlajj, another Red Sea fishing port exports about 8% of its total catch to Medina*. Livestock comes to Medina mainly from the South West of Saudi Arabia from Jizan, Abu Arish and Sabya areas (Fig. 7.2). Figure 7.2 shows extensive good grazing land compared with other parts of Saudi Arabia and the animal population in

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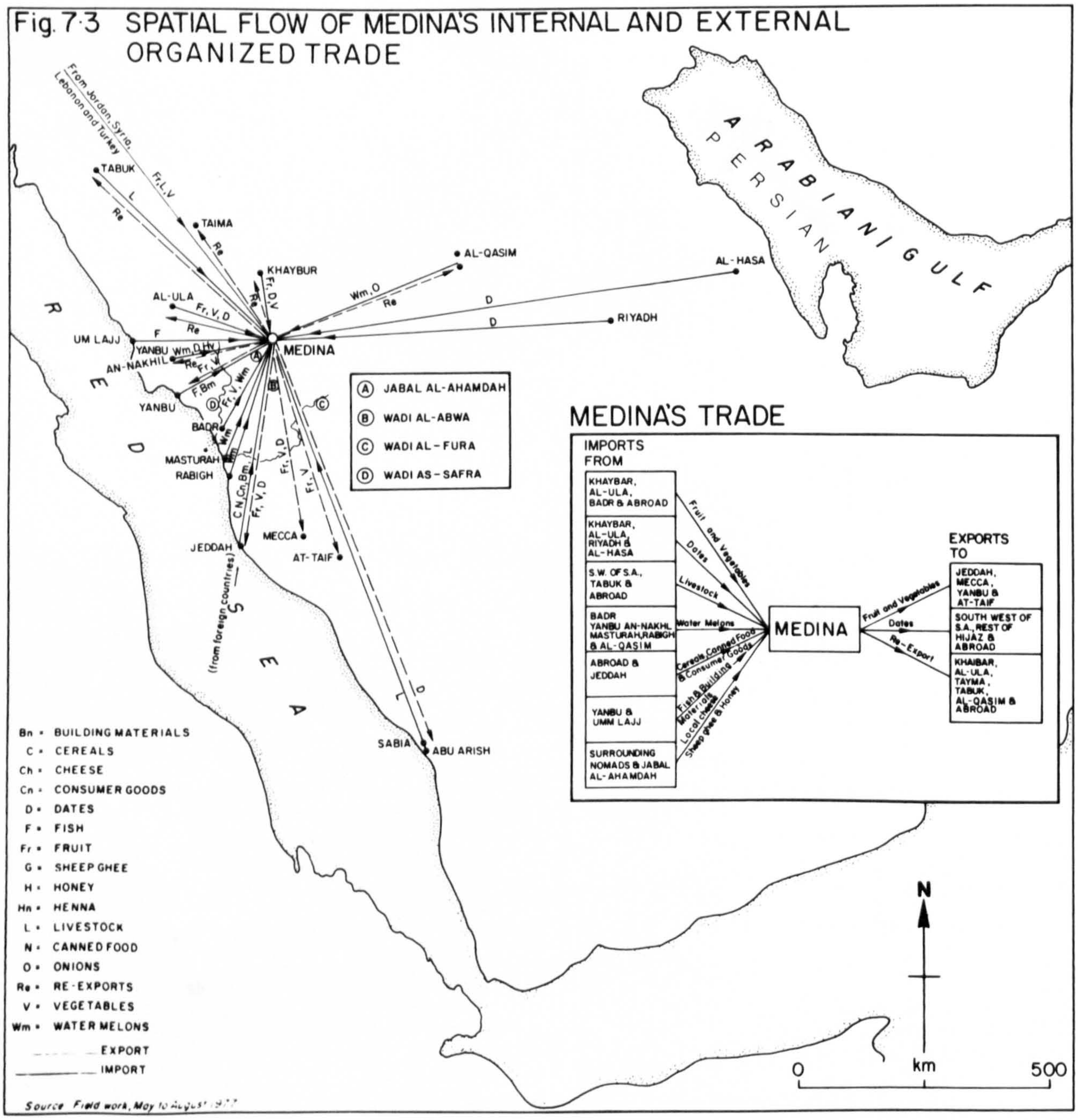
*Estimated from personal investigation in these areas.

Fig. 7·3 SPATIAL FLOW OF MEDINA'S INTERNAL AND EXTERNAL ORGANIZED TRADE



MEDINA'S TRADE

Source Field work, May to August 1977

these areas is the highest in the country. Some livestock are nevertheless imported from Hayel and Tabuk in the north, while foreign imports come from Jordan, Syria, Iraq, Turkey, Sudan, Eritrea, and more recently from Australia.

Medina also imports some foreign goods via Jeddah with some items arriving direct from abroad; these goods are itemised below in decreasing order of value*.

a) Consumer goods, including transport and electric appliances;
b) Cereals and their derivatives (rice, wheat, maize, flour, processed cereals, biscuits and pasta products);
c) Meat, including sheep, cattle, goats and poultry;
d) Sugar and confectionary;
e) Dairy produce, including powdered milk, butter, cream, cheese and eggs.
f) Fruit, such as oranges, apples and bananas;
g) Margarine, cotton oil and olive oil;
h) Tea, coffee and cardamon;
i) Canned goods, such as tomato sauce, fruit, vegetables, juice and fish.

Medina's imports far exceed its exports; its main export is dates (Fig. 7.3), of which it produces some 8,200 metric tons a year [209 : p.111] from 545,100 productive palm trees [149 : P.46]. The dates are exported in large quantities for both human and animal consumption. Dates are exported to the pilgrimage areas of Mecca and Jeddah, and are carried home by pilgrims; thus the pilgrimage opens up a small export market. Outside the pilgrimage season, the main outlets for this trade in Saudi Arabia, are the hilly areas of the South West of the country, where dates cannot be grown successfully. Medina's dates were exported at times of off-peak demand to the Eastern Province, which was once active in exporting dates to India, and the Gulf states, and to the FAO, which distributed them to the poor countries of the world [149 : pp. 368-394]. Lesser exports of Medina Province include grapes, tomatoes, turnips, radishes, egg-plant and marrow which are sent to markets in Mecca, Jeddah and Yanbu.

Local agricultural productivity may suggest that Medina would have survived without the pilgrimage as a small market town for the surrounding rural area. Today, however, because of the influx of pilgrims and newcomers, Medina's trading hinterland deviates from the local and regional scale and has adapted to modern demands, especially those of the pilgrims. With accelerating population increase to more than a quarter of a million by the

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* Estimated by Medina's Chamber of Trade.

year 2000 (Chapter 6), the hinterland could grow to include the whole of Al-Qasim Province to the east and as far as Tabuk in the north. The development of both traditional local trade patterns and modern patterns of trade can be identified in three categories of goods flowing into and from the city:

a) Goods which are imported and consumed within the city by locals and addition demand of pilgrims, these include food stuffs and fuel.

b) Materials which are imported and processed to be exported through pilgrims to outside Medina and the country, these include cellophane used in packing dates and certain kinds of woods and precious stones used for making roasaries.

c) Goods of foreign origin imported to be exported abroad through pilgrims, these include souvenirs, prayer mates, radios, cassetted, televisions and watches. The latter two categories create prosperity for traders in Medina, especially with prices exceeding ordinary times as will be shown in section 7.4.

7.2 Consumption.

The consumption patterns within Medina are governed to a certain degree by the foreign element in the temporary and permanent population. Both the foreign contingent of the pilgrims, together with the large expatriate population permanently based in Medina (some 21 % of the total population were non-Saudis in 1972) enhance the demands for foreign imports to the region. Unfortunatly there is no detailed information on the consumption level of consumer goods and the impact of the pilgrimage, but consumption can be expected to be greatly influenced by the pilgrims reflected in increasing imports of such items

(mentioned in section 7.1) and cost of items sold during the pilgrimage season compared to the of-season (mentioned in section 7.4). However, because of Medina's population structure, a more sophisticated consumption of food stuffs results than in some other smaller localities in the province and, indeed,in the early 1960's than in some of the bigger cities such as Riyadh. When the first university in Saudi Arabia was founded at Riyadh in 1957, the influx of students from all over the country, with their varying tastes in food, demanded a wider range of goods and inconvenience was caused to some students by the poor variety of food available in the capital, in particular vegetables.

Also, in the late 1960's the consumption level of certain items of produce in the Hijaz was different from that in Riyadh, possibly due to different cultural and demographical features among the population of the two areas. For example, the annual per capita consumption of rice in Medina was 50 Kgs, while in Riyadh it was 51 Kgs; the per capita fruit consumption was 61 Kgs in Medina and 21.5 Kgs in Riyadh; vegetables consumption reached 47 Kgs in Medina and only 39 Kgs in Riyadh; date consumption reached 58 Kgs for Medina and 60 Kga in Riyadh; canned food consumption was 5.2 Kgs in Medina and 23 Kgs in Riyadh [430: p. 105]. The last figure is possibly explained by the increasing number of foreigners in the capital, whereas non-Muslims are not allowed to settle in Medina. At the present time, the consumption pattern in Riyadh may be diversified than that of Medina, but there is still much scope for change due to the improvement of road services and fast transport.

In addition to foreign residents, the high and middle class income groups comprise about 44% of Medina's population. These groups consume a wider range of goods, some items of which may be too expensive or sophisticated for the low income groups or rural and desert migrants. The results of a survey carried out by the Sogreah company among 500 families living in Medina in 1968 confirms this. This survey examined the type of food eaten during a normal day, i.e. not during religious feasts, such as Ramadan or the pilgrimage season [430 : p.10]. The results, given on Table 7.1, indicate that normally, most families consume mainly rice and bread. The survey also revealed a high consumption of sugar, milk and dates, but gave no figures of total consumption. However, Table 7.2 indicates that the per capita consumption of sugar and dates is one of the highest. In western developed countries such high consumption may be indicative of a poor diet, and may have some correlation with death rates [317 : p.82]. However, in Medina, fruit and meat consumption is also high; this no doubt counteracts the ill effects of high consumption of these other foods and there is no evidence of the vitamin deficiencies found in other developing countries. The fact remains that in Medina only 36% of all families consume at least one of the 'other products', the most frequent being fish, eggs, canned goods, potatoes, pasta products, sweetmeats and honey.

TABLE 7.1 CONSUMPTION RANGE FOR MEDINA, 1968

PRODUCE	% of families consuming the produce			
	Once daily	Twice daily	Three times daily	Not regularly
Beans	43	5	-	52
Bread	66	22	4	8
Cheese	40	15	-	45
Fruit	24	5	1	70
Jam	16	2	-	82
Meat	41	7	-	52
Olives	27	8	-	65
Rice	54	28	1	17
Vegetables	46	6	-	48
Other Products	24	11	1	64

Source: Sogreah company, 1968, Taamin Al-Madinah Al-Monawarah Bil Miah, Ministry of Agriculture and Water, Riyadh, p.102 (Arabic).

Average consumption data for the main foodstuffs, can be seen in Table 7.2, but this information is only approximate for the following reasons:

a) The survey was carried out in the 1960's, since when there have been great improvements in living standards;

b) The cross-section of the population interviewed may not be a true representation of local consumption;

c) No checks were made to verify the accuracy of the survey;

d) The survey only referred to normal consumption, and disregarded the effects of regular religious feasts such as the pilgrimage season. Based on this survey for normal times and the available indices of average main food consumption in the countries from which the pilgrims originate, Table 7.2 would give, where possible, a more reasonable estimate for total consumption in 1976, taking into account the important regular event in the area, the pilgrimage.

The mean per capita consumption of pilgrims is fairly high and sometimes closely resembles Medina's consumption. Table 7.2 shows the great effect of Hajj on food consumption in the area, and it is evident that during this short season, consumption is many times higher in the area than for the remainder of the year. For example, the consumption of both fresh and canned fish was about 546% higher and milk 1,232% higher. This is confirmed in an unpublished report by Medina's Chamber of Trade which estimated the consumption of raw materials in Medina bakeries. In the first half of 1396 A.H. (1976/77) consumption was 39,000 sacks, each weighing 45.4 kgs; in the second half (which included the pilgrimage season) consumption was 150,000 sacks, 65% of them during the two months of Hajj. These estimates almost coincide with the per capita consumption mentioned in Table 7.2 for flour and wheat crops, taking into account the total population and the seasonal influx of pilgrims.

Medina's per capita consumption for some produce is better than many other regions, and examination of data for other countries with regard to major products corroborates this. For example, in Medina the annual per capita consumption of cereals (which are a main source of calories in the Middle East) was 210 Kgs in 1976; in Lebanon it was 200 Kgs, in Iran 288 Kgs, in Syria 315 Kgs, and in Egypt 336 Kgs. The annual per capita sugar consumption in Medina was 19 Kgs, compared to 17 Kgs in Egypt, 23 Kgs in Lebanon, 28.8 Kgs in Iran and 29 Kgs in Syria. Annual fruit and vegetable consumption was about 118 Kgs per capita in Medina, compared to 156 Kgs in Egypt and 176 Kgs in Syria and 262 Kgs in Lebanon, but only 45 Kgs in Iran. The annual per capita consumption of meat was 34 Kgs in Medina and 10 Kgs in

TABLE 7.2 MEAN AND TOTAL FOOD CONSUMPTION ESTIMATION FOR MEDINA IN 1976

Items	1. Mean normal consumption (gms per capita per day)1	2. Mean normal consumption (kgs per capita per year	3. Total Normal consumption (tonnes per year)	4. Mean pilgrims consumption in countries of origin (gms per capita per day)2	5. Total pilgrims consumption based on Column 4 (tonnes for 8 weeks
Canned fish) fresh fish)	1.1	0.4	63.9	32.4	398.1
Canned fruit	3.7	1.3	207.7	-	-*
Canned Vegetable	2.5	0.9	143.8	-	-
Cheese	4.4	1.6	255.6	-	-
Cream,Butter	3.6	1.3	207.7	-	-
Dates	158.9	58.0	9,267.0	33.3	335.2
Flour	137.0	50.0	7,988.8	-	-
Fresh Fruit	107.0	61.0	9,746.3	146.5	1,474.8
Fresh Vegetable	128.8	47.0	7,509.5	359.0	3,613.9
Fruit & Tomato Juice	7.1	2.6	415.4	-	-
Margarine	26.0	9.5	1,517.9	-	-
Meat	93.2	34.0	5,432.4	32.9	311.2
Pasta Products, Biscuits, processed cereals	24.7	9.0	1,438.0	-	-
Powdered milk) Fresh milk)	12.3	4.5	719.1	163.9	1,649.9
Rice	139.7	51.0	8,148.6	251.3	2,529.7
Sugar	52.1	19.0	3,035.7	35.3	355.4
Sweetmeats	8.8	3.2	511.3	-	-
Tea	3.6	1.3	207.7	-	-
Tomato Sauce	8.0	2.9	463.4	-	-
Wheat,Barley	298.6	109.0	17,415.6	291.3	2,932.4

*Indicate unavailable data.

Sources:

Column 1 - Sogreah Company, 1968, Taamin Al-Madina Al-Monawarah Bil Miah, Ministry of Agriculture and Water, Riyadh, p. 103(Arabic).

Column 4 - Compiled from May, J.M. and Jarcho, J.S., 1961, The Ecology of Malnutrition In the Far and Near East, New York, pp. 36, 67, 107, 164, 250-251, 297, 318-319, 339, 382-383-427, 500,528,572,614-615, 668, and Palwardham, V.N., and Darby, W.J., 1972, The State of Nutrition in the Arab Middle East, Michigan, pp. 217, 232, 235.

Egypt, 14 Kgs in Syria, 16 Kgs in Iran and 31 Kgs in Lebanon. The high per capita consumption of meat can be attributed to the effect of the pilgrimage or religious occasions. Table 7.3 shows the increasing number of animals slaughtered on such occasions of the year. However, in some other countries supplying pilgrims the per capita consumption of meat is low either for economical reasons (as in Egypt and Pakistan) or for traditional reasons (as in India, where about 85% of the population are Hindu and eat no meat [369 : pp. 623, 655].

It is clear from Table 7.3 that religious occasions are the most effective factors in raising meat consumption. In almost all the available data, the month of Ramadan has the highest meat consumption. This may be due to the fact that although people fast during the day, special dishes are prepared for the occasion, which involves cooking larger quantities of a wider variety of foodstuffs which leads to higher consumption rates.

The above table may be somewhat misleading in ranking the pilgrimage months of Dhu Al-Qida and Dhu Al- Hijjah second to Ramadan, although in this season there is a high demand for lamb and mutton, as almost every family slaughters at least one animal as a sacrifice (although this is not compulsory for poor people).

The figures show increased consumption at Ramadan when meat is purchased from the market, which in turn is supplied from the municipal slaughter house. During the Hajj, however, people buy live animals direct from the livestock market to slaughter on their own property in accordance with religious rituals. The number of animals butchered in private do not appear in the municipal records as confirmed by the Sogreah company's estimate of livestock handled daily at Medina's livestock market in 1968. The estimate was 15 camels, 70 cattle, 300 sheep, 200 goats [430 : p.113], and these estimates would give a higher figure for animals sold in the market, than figures for certain months in Table 7.3.

If a more comprehensive analysis is required, it may be difficult to correlate the information in Table 7.3 of the number of animals with the peak period consumption, due to the varying size of the animals. However, converting the total number into weight may be useful for the purpose of comparison. Weights are measured using Foda's formula which considers the average weight of a camel as 600 Kgs, 150 Kgs for cattle, 20 Kgs for a sheep and 15 Kgs for a goat. The dressing out percentages are 50% for a camel, 50% for cattle, 50% for a sheep and 40% for a goat and these are taken into account. Thus the formula would be as follows [100 : p.1]:

TABLE V.3 ANIMALS SLAUGHTERED IN MEDINA'S SLAUGHTER HOUSE

Month and Kind		1387 1967/68	Wt. in tons.	1388 1968/69	Wt. in tons	1389 1969/70	Wt. in tons	1390 1970/71	Wt. in tons	1391 1971/72	Wt. in tons	1392 1972/73	Wt. in tons	1393 1973/74	Wt. in tons	1394 1974/75	Wt. in tons	1395 1975/76	Wt. in tons
	Camels	222		130		160		105		283		136		247		340		288	
Muharram:	Cattle	127	91.8	94	56.8	90	62.8	164	81.9	157	117.1	274	95.7	172	118.2	264	125.8	120	115.1
	Sheep	4795		3869		4026		4696		8229		6044		6706		6908		6833	
	Goats	3617		773		1053		4056		1089		2670		4529		2671		3400	
	Camels	299		161		118		137		190		163		228		266		260	
Safar	Cattle	85	106.0	91	59.4	87	59.7	101	81.0	161	87.5	177	87.0	99	104.0	151	127.0	129	91.2
	Sheep	4953		3774		3033		3153		5551		5291		6667		8272		5140	
	Goats	4877		745		3022		6360		4048		2629		3050		1957		2104	
	Camels	261		176		161		120		158		160		308		314		304	
Rabi 1:	Cattle	215	99.9	88	60.7	82	64.4	152	91.1	251	136.9	177	85.3	108	119.3	152	115.9	125	102.5
	Sheep	4295		3831		2851		4085		10004		4235		6247		6542		5327	
	Goats	4205		620		3331		6622		3876		4123		4849		3122		3012	
	Camels	265		178		165		138		161		158		333		178		312	
Rabi 2:	Cattle	70	100.2	72	63.9	84	67.1	135	84.4	110	96.7	152	93.6	98	123.8	157	112.8	141	163.1
	Sheep	5616		3742		3583		3013		5375		5130		6374		6275		4584	
	Goats	3555		688		2534		6863		5118		4556		5051		5886		3991	
	Camels	240		232		184		135		173		250		332		363		308	
Jumada 1	Cattle	91	100.8	61	71.2	120	86.9	136	86.4	174	102.6	139	93.5	74	115.9	112	112.4	100	95.0
	Sheep	4827		4196		4169		3332		4839		3919		6069		5059		3737	
	Goats	3353		1098		4616		6784		6221		4643		4315		4204		4345	
	Camels	206		244		214		172		190		250		390		356		469	
Jumada 2	Cattle	109	82.0	64	68.7	161	102.2	158	89.9	151	108.9	164	93.1	97	135.5	91	106.4	191	159.5
	Sheep	4469		3864		4782		3608		5085		3722		7040		5147		8204	
	Goats	2798		879		5435		5970		6872		4643		4975		3264		4977	
	Camels	170		86		226		210		183		266		404		383		340	
Rajab	Cattle	137	83.8	1238	234.0	172	100.2	174	99.0	196	116.8	218	114.6	167	145.9	121	117.8	105	108.8
	Sheep	6184		14010		5540		5182		8169		7005		7813		6070		5488	
	Goats	825		7227		3449		4134		3047		4486		4674		3048		3380	
	Camels	128		76		201		150		162		252		356		428		306	
Shaban	Cattle	135	66.8	1257	234.6	155	92.9	235	100.7	232	110.9	225	122.2	216	135.2	130	120.7	122	102.8
	Sheep	5010		13996		5980		5278		7585		7438		7502		5221		4123	
	Goats	414		7375		2066		4983		2940		3464		3657		3925		5015	
	Camels	138		105		249		232		216		338		446		454		530	
Ramadan	Cattle	207	106.0	1476	303.9	255	125.7	249	106.8	402	153.7	344	153.3	203	149.1	155	146.4	277	138.7
	Sheep	6734		18626		8022		7256		10536		10611		8138		7450		5206	
	Goats	4208		10225		2925		955		3386		1111		3451		4375		3631	
	Camels	143		87		122		188		144		215		282		324		354	
Shawwal	Cattle	132	67.2	1976	207.3	108	65.0	222	116	264	95.7	209	94.2	219	127.8	145	131.0	211	132.4
	Sheep	4968		12450		4942		7307		5758		5012		7911		7325		7085	
	Goats	290		6346		627		3917		3082		3026		3178		4601		3912	
	Camels	123		70		146		208		183		208		401		421		416	
Dhu Al-Qida	Cattle	149	70.6	1056	214.7	267	104.5	344	119.2	429	122.2	412	136.6	393	174.9	241	164.1	328	180.4
	Sheep	5231		13252		8020		8174		7319		8642		9240		8777		10676	
	Goats	764		7023		979		1387		3027		3262		5639		5479		4651	
	Camels	142		59		117		193		121		233		284		312		319	
Dhu Al-Hijja	Cattle	120	62.3	1156	210.4	208	87.6	206	114.6	391	103.1	189	98.6	381	124.9	187	119.8	124	147.3
	Sheep	3797		12039		6914		7538		6496		5563		7385		6407		9580	
	Goats	1410		7388		798		957		2455		2768		1712		3740		4361	
	Camels	2277		1612		1963		1992		2164		2629		4011		4139		4206	
Total:	Cattle	1577	1037.4	7729	1785.6	1789	1019.0	2285	1171.0	2917	1352.0	2680	1267.8	2227	1574.5	1906	1500.0	1973	1476.0
	Sheep	60879		107649		61862		62622		85016		72612		87092		79456		75983	
	Goats	26014		50387		28835		52988		45161		41381		49080		46266		46779	

Sources: 1 - For the years 1967-1970 from Municipal Affairs, 1967 to 70, An-Nashrah An-Nisfiah li Ihsaat Al-Baladiat, Riyadh, tables 2 - 6, 3 - 4, 3 - 4, pp.48,88; 1968, tables 3-4, 3-4, pp.47,204; 1969, tables 3-4, 3-4, pp.364,68; 1970, tables 3-4, p.66

2 - For the years 1971 to 1975 from unpublished data from Medina's Municipality.

$$\frac{\text{Total number x total weight x dressing out rate}}{100 \times 1000}$$

Foda's average weights of animals appeared to be very exaggerated and led to misleading results by showing a high consumption of camel meat; this is contrary to the real situation, and it can be seen that in the main meat market there are 40 shops selling mutton and lamb, compared to only six shops of the same size selling camel and cattle meat. Thus a correction for the above average weights will be applied here, derived from unpublished data in Medina's Municipality and based on three years total weight and number of animals slaughtered in Medina. This adjustment gives the camel, cattle, sheep and goat an average weight of 228 Kgs, 109 Kgs, 17 Kgs, 13 Kgs, respectively.

Results for the nine years covered by Table 7.3 showed that daily consumption during Ramadan increased by 14.6% (or 9,749.8 Kgs) over the daily consumption of the Hajj season which was 8,507 Kgs, and by 29.7% over the consumption of normal times of the year; daily consumption during the Hajj was 12.8% higher than at normal times. It is evident from Table 7.3 that Ramadan is the prime factor affecting meat consumption, followed closely by the Hajj, although in some recent years of the study period (e.g. 1394 and 1395), Hajj consumption has deviated from this general rule, and exceeded consumption during Ramadan. This may be due to the current trend towards a more expensive life-style and a reduction of wastage of meat during Ramadan.

The table also indicates that mutton and lamb are most popular followed by camel, with goat meat and beef alternating in third and fourth places, and this pattern is possibly due to environmental and social factors. The camel is a desert animal and is more appreciated by nomads, whereas cattle are more useful to rural dwellers, these two animals are predominant in the respective diets of these people. On migration to the cities former nomads and rural dwellers maintain their preference for camel and beef meat. Sheep and goats are small animals and can sometimes be raised within the households, this makes them more popular with established city dwellers; as their meat is expensive, sheep and goats are more popular with high and middle income groups. These characteristics give Medina a more individual consumption pattern than other areas which have greater ties with rural and desert dwellers. For example, in 1967, 90.4% of meat consumption in Buraydah (the capital of Al-Qasim Province in the centre of Saudi Arabia) came from camels, beef comprised 6.5% of the total, sheep 2.3% and goats 0.8% [211: 1967, pp. 55,105]. In Medina, for the same year, mutton and lamb accounted for 79.8% of total consumption, camel 25.0%, goat 13.0% and beef 8.3%. Medina

Fig 7·4 THE LOCATION OF SUQS IN 1950 (The Date of Initiating the First Saudi Enlargement of Al-Haram)

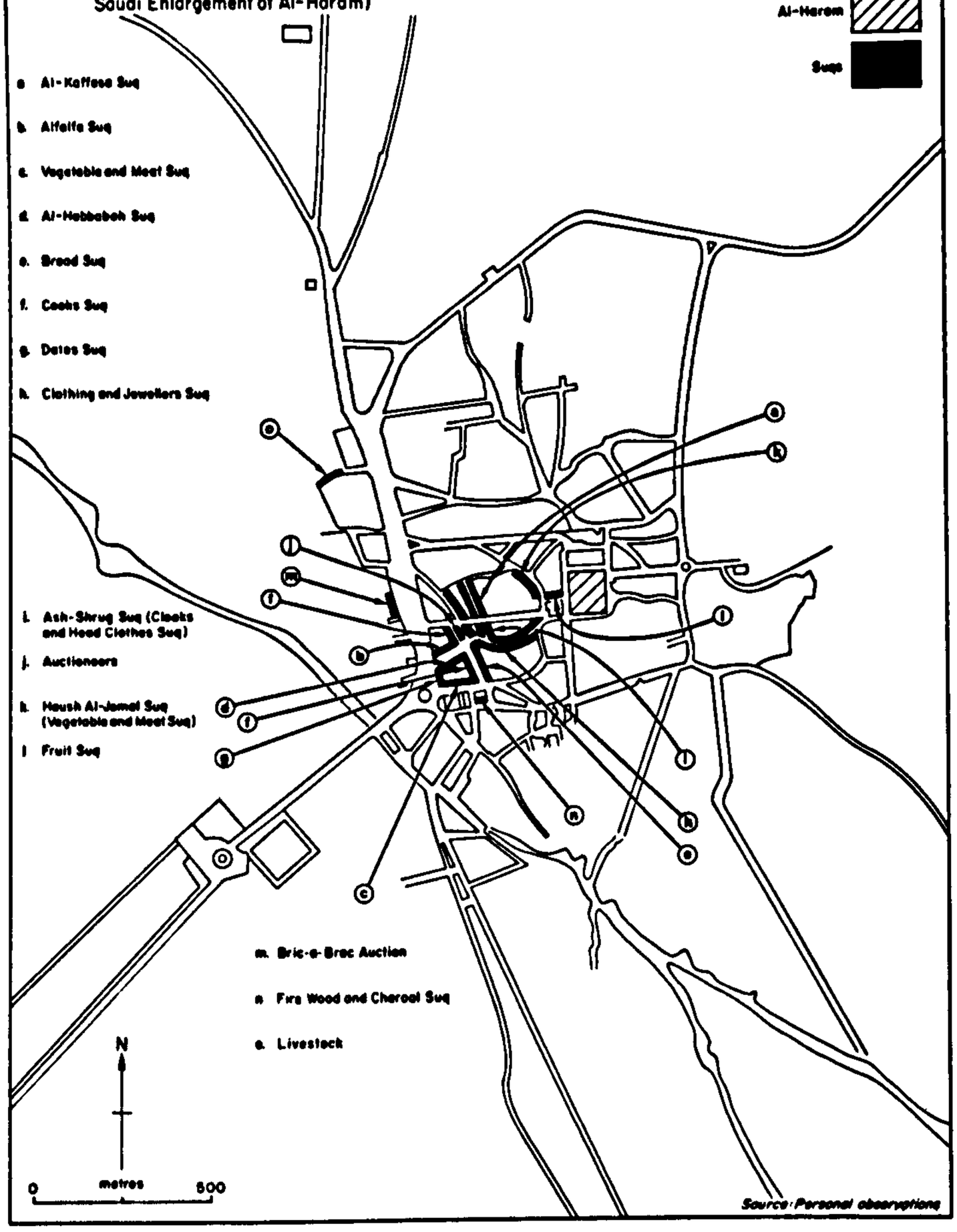
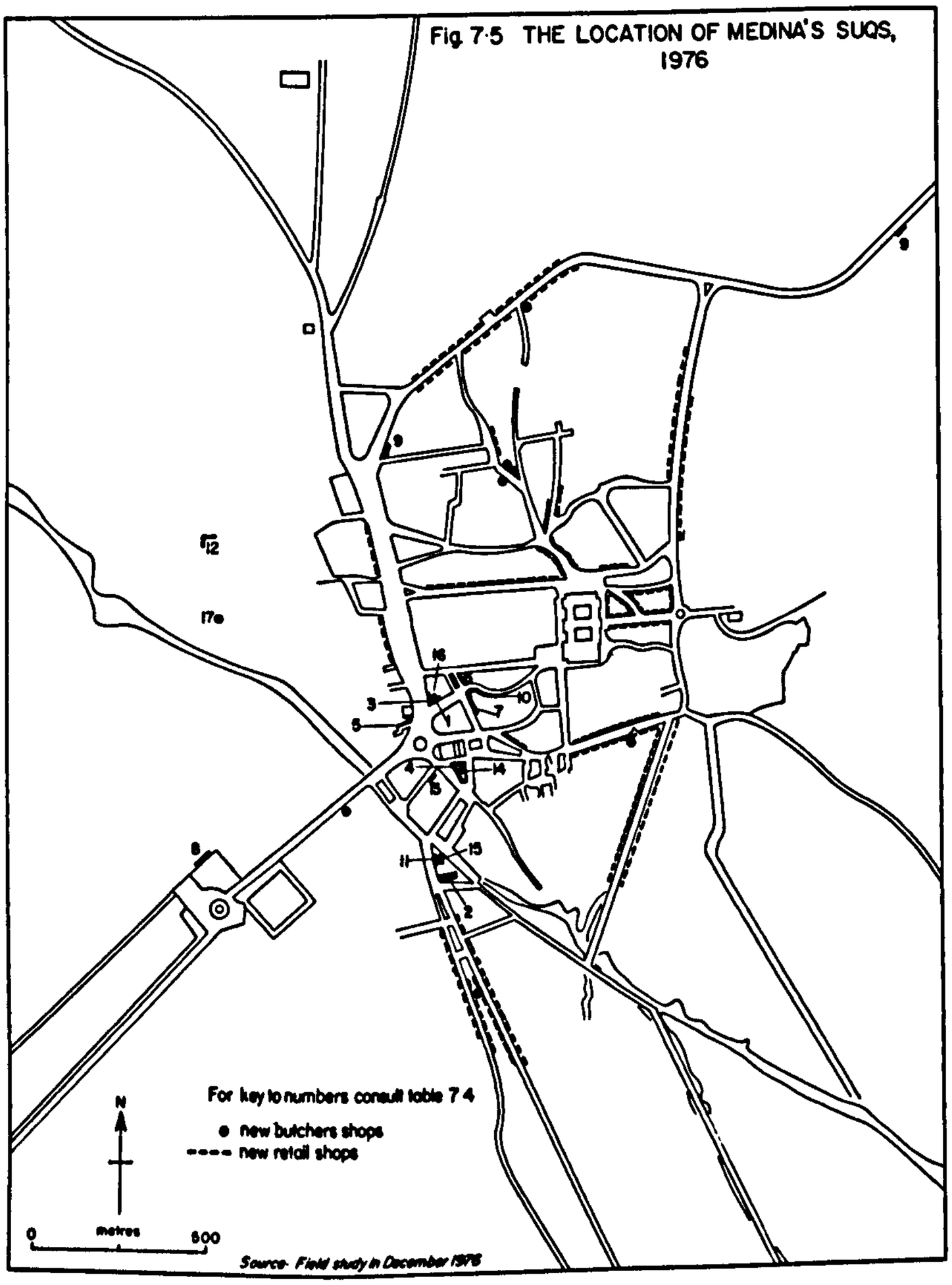


Fig. 7·5 THE LOCATION OF MEDINA'S SUQS, 1976



may also differ from areas outside Saudi Arabia such as Egypt or Lebanon where consumption of mutton and beef is most common [150 : p.349; 170 : p.237]. This again may be due to the more recent nomadic connections of Medina with the rest of Saudi Arabia.

7.3 Organisation of Trade

The volume of trade and the variety and number of its components rely heavily on the operation and facilities of its marketing circuits. The basic principle of trade organisation in Medina is specialisation i.e., the sale of only a few commodities or groups of commodities. A distinction can easily be made between markets for fruit or vegetables, dates, fodder and meat, on a spatial and an economic basis e.g., the income of traders of domestic utensils is higher than those selling bric-a-brac items. The continued existence of the traditional activities in the markets or suqs is an indication of this great specialisation and the complementary nature of the commercial life in Medina. Such specialisation probably originated with the tendency (found in many Middle Eastern cities [322 : p.146] and some African and Asian countries [194 : p.27]) of the members of a family or clan selling the same or associated commodities close to each other. Over time, the emergence of trade guilds and ethnic and religious associations encouraged such juxtaposition until it became the general pattern for trade organisations until the present time when there is less blood relationship between traders. This controls competition and keeps all traders in business with reasonable, or by present standards, minimum marginal profit. This is probably the result of increasing affluence and Medina's value as a focal attraction which is encouraged by the small independent shops. Small shops are still the accepted pattern in Medina and this is suggested by the fact that in 1971, 64.9% of Medina's economic establishments were directed and run by one person (normally the owner) whilst larger establishments with one to four employees accounted for only 30.6%; only about 5% had a higher number of employees [62 : p.35]. However, this pattern of small shops does not reflect the size of market demand, whereas in some western countries the size of the department store reflects local market demand [194 : p.43].

The strength of the traditional pattern of clustered shops can be deduced from tracing the development of markets. The development of Medina's markets and their activities is shown in Table 7.4 and Figures 7.4 and 7.5. The process of the suqs' movements is long and detailed, affecting the size, shape and centre of gravity of individual clusters. But here, in order to save space, only the situation of the suqs immediately before the 1950 to 1955 enlargement of Al-Haram and the present time will be discussed.

TABLE 7.4 MEDINA'S SUQS : LOCATION AND FUNCTION, 1976

Serial No.	Suq.	Function	Location	Index of Dispersion
1.	Al-Habbabah	Cereal Market	West of Bab Al-Masri gate	4.2
2.	Al-Halakah	Wholesale market for fruit and vegetables	South of Dates suq.	5.7
3.	Al-Kabbanah	Local honey and sheep ghee	East of Al-Manakha street	0.5
4.	Al-Khan	Retail market for meat and vegetables	South of Police Building	0.6
5.	Al-Manakha Auction	Second-hand articles	North of Abo Bakr Mosque	1.5
6.	Ash-Shruq	Women and men's cloaks	North west of clothes suq.	0.2
7.	Bread	Bread, cheese, olives and mint	South east of Al-Habbabah suq.	4.3
8.	Bric-a-Brac etc Auction	Old doors, windows, wood and miscellaneous	North of Al-Anbariah quarter	6.2
9.	Car Auction	Second hand cars	Bab Ash-Shami and Al-Matar Streets	8.3
10.	Clothes	Clothes, pharmacy, local sandals and jewelry	East of Al-Habbabah suq.	6.8
11.	Date	Dates	South of Al-Khan	2.4
12.	Firewood and charcoal	Firewood and charcoal	Western end of Bab Al-Koma street	6.7
13.	Fish	Fresh fish	West of Al-Khan	0.5
14.	Fish	Fried fish	The centre of Al-Khan	1.5
15.	Fruit	Imported and home grown fresh fruit	East of the Date suq.	5.5
16.	House Utensils	Wholesale and retail house utensils	North of Al-Habbabah suq.	4.6
17.	Livestock	Camels, sheep, cattle goats and donkeys	As-Saih area	3.2

Source: Fieldwork, November to December, 1976.

The great changes which occurred in the centre of Medina after 1975 as a result of the expansion of Al-Haram, caused many alterations in the distribution of the suqs and weakened the traditional, specialised groupings familiar until 1974. For instance, the 'Cooks suq'* was driven out of the commercial core either by competition from other shops or redevelopment plans. Cooks now practice their profession in their own or their customers homes. Some other suqs, parts of which escaped demolition, retained their names and some of their original activities; this was the case with Al-Habbabah and the Bread suqs, where the southern side of the former and the western side of the latter were demolished to make way for a car park in the city centre. As a result, almost half the active units of each suq were dispersed throughout the city centre and its periphery.

Therefore, the effect of the pilgrimage, represented in the expansion of Al-Haram, has clearly emerged in the last two and a half decades as a major factor affecting the instability of the commercial core. Other factors affecting retail patterns may be attributed to market demand, ethnic conditions and government intervention. With Al-Haram engulfing of space around it and the increasing number of shops, resulted in noticeable pressure within the centre. Many trading units desire a central locality in the remaining buildings and compete to acquire rented property; this results in rising rents, with buildings leased to the highest bidder. For example, the demolition of Haush Al-Jomal suq and Saud street on the west of Al-Haram forced some butchers and clothes shops to move away from Al-Haram. The butchers in Bab Al-Majeedi quarter moved to a more northern site of the same quarter as they could not afford the high rents which could be paid by clothing and associated shops as haberdashers and souvenir shops that had moved from Saud Street, but even so, clustering still continued in this area. An ameliorating factor for the movement of butcher's shops is the disappearance of demand from the immediate surroundings of the old Haram with the demolition of some residential areas. Some butchers from Haush Al-Jomal were forced to break away from the traditional concentration by moving to Al-Matar, Al-Anbariah, An-Nakhawlah and Koba streets.

Al-Kaffasah suq in the west of Al-Haram specialised in making cages and bedsteads from the stalks of palm fronds. When the popularity of this craft declined, shop owners were powerless against the invasion of tailers, whose trade improves with population increase (most Medinese have their garments

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*These chefs cater for people having celebrations at feasts for any occasion; people bring their own foodstuffs to be prepared and collected later.

tailor-made while the few shops selling ready-made garments are normally patronised only by rural people and pilgrims buying gifts). However, this suq was demolished in 1976 and tailors dispersed throughout the city centre. These changes indicate a growing tendency towards less concentration and greater intermingling of activities and functions on the periphery of the centre.

The demolition and rebuilding of shops around Al-Haram resulted in the regrouping of shops orientated towards the pilgrim trade (e.g. souvenir and gift shops); around the holy area food shops were pushed out towards the centre margins. Around Al-Haram there is also a tendency towards streets specialising in goods of foreign origin, for example, watches and ready-made clothing. Good examples of this type of specialisation are found in Ar-Romiah and King Abdul Aziz streets.

It is clear from Table 7.4, using the indices of dispersion* (the mean of all distances from the centre of gravity), that the activities which create dilapidated conditions in the city centre such as car auctions and Bric-a-Brac auctions, and those with a large number of units, have a high value of dispersion. The degree by which activities are tied or dispersed depends not only on their historical association with the core, but also on the degree of competition which is often influenced by the pilgrimage.

7.3.1 Retailing facilities.

This section will describe the scale and proceses of the various trade activities in Medina. In Al-Habbabah suq only four shops remain for the retail and wholesale sale of all types of cereals. This pattern of wholesale cereal shops being located in the central area may be due, amongst other factors, to the shopping habits of the Medinese, who are accustomed to buying their rice and flour in large sacks; it was, therefore, necessary for this type of wholesale shop to be near retail food shops. In this respect, Medina and many other Middle Eastern cities differ from western cities, where most families shop almost totally in retail shops and do not bulk buy. As their shopping trips to wholesale establishments are infrequent, and many people now shop by car, there is no real need for the wholesale shops to be located in the central area. This trend is changing in

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*for further explanation on the detailed method of calculating centre of gravity and degree of dispersion see Varley, R.P., 1968, Land Use Analysis in the City Centre with Special Reference to Manchester, M.A. Thesis, University of Wales, Aberystwyth, pp. 31-34; Davis P., 1977, Data Description and Presentation, 2nd reprint, Oxford, pp. 25-29.

western society, and many people now bulk buy to offset the high cost of living. The extension of Al-Haram and redevelopment programmes in the centre resulted in demolishing part of Al-Habbabah suq, which forced most of its units to move to other sites on the periphery of the centre, such as Bab Al-Koma area. This was made more convenient for shoppers by improvements in the transport service, but wholesale trade units do not surround the city centre by a zone of transition, as suggested by some urban structure theories, e.g. the concentric zone theory of E. Burgess explained in Chapter four.

In Al-Khan (meat and vegetables suq) there are 106 units, each vegetable unit is run by one retailer, but the meat units are shared by two people, who also share the rent. Outside Al-Khan, 28 smaller traders display their wares on mats in the open or under an unwalled roof.

Located in As-Saih area on the west of the city the livestock market operates daily and handles both local and imported animals. It is usually busiest during the afternoon, as people prefer to buy animals for slaughter within 20 hours to be ready early the next morning.

The fruit market has 50 wooden, privately owned shops*, the site is new and there are plans to build a multi-storey shopping centre. The wholesale trade of imported fruits and some vegetables is carried on from four air-conditioned warehouses, each selling different kinds of imported fruit and vegetables.

Dates are sold in 36 specialised wooden shops owned by traders, but the site is only temporary as the old Date suq was demolished in 1975 making way for a car park. There are a further 14 shops in various parts of the city, and during the pilgrimage season of 1976 another 67 small vendors sold dates on the open market. Packed dates can also be obtained direct from Medina's four date packing factories, but such boxes are almost always sold from date shops and, at the pilgrimage time, from grocery shops in the city. The Date suq customers are almost all of rural or nomadic origin (86% of all customers)* for whom dates are still a staple daily foodstuff. The urban population visit this suq during the month of Ramadan as traditionally it is considered a religious blessing to break the fast at the end of a day by eating dates. In the pilgrimage season it is crowded with pilgrims (98% of customers)** buying the dates as gifts to take home.

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* personal investigation in July 1977

** personal investigation in December 1976

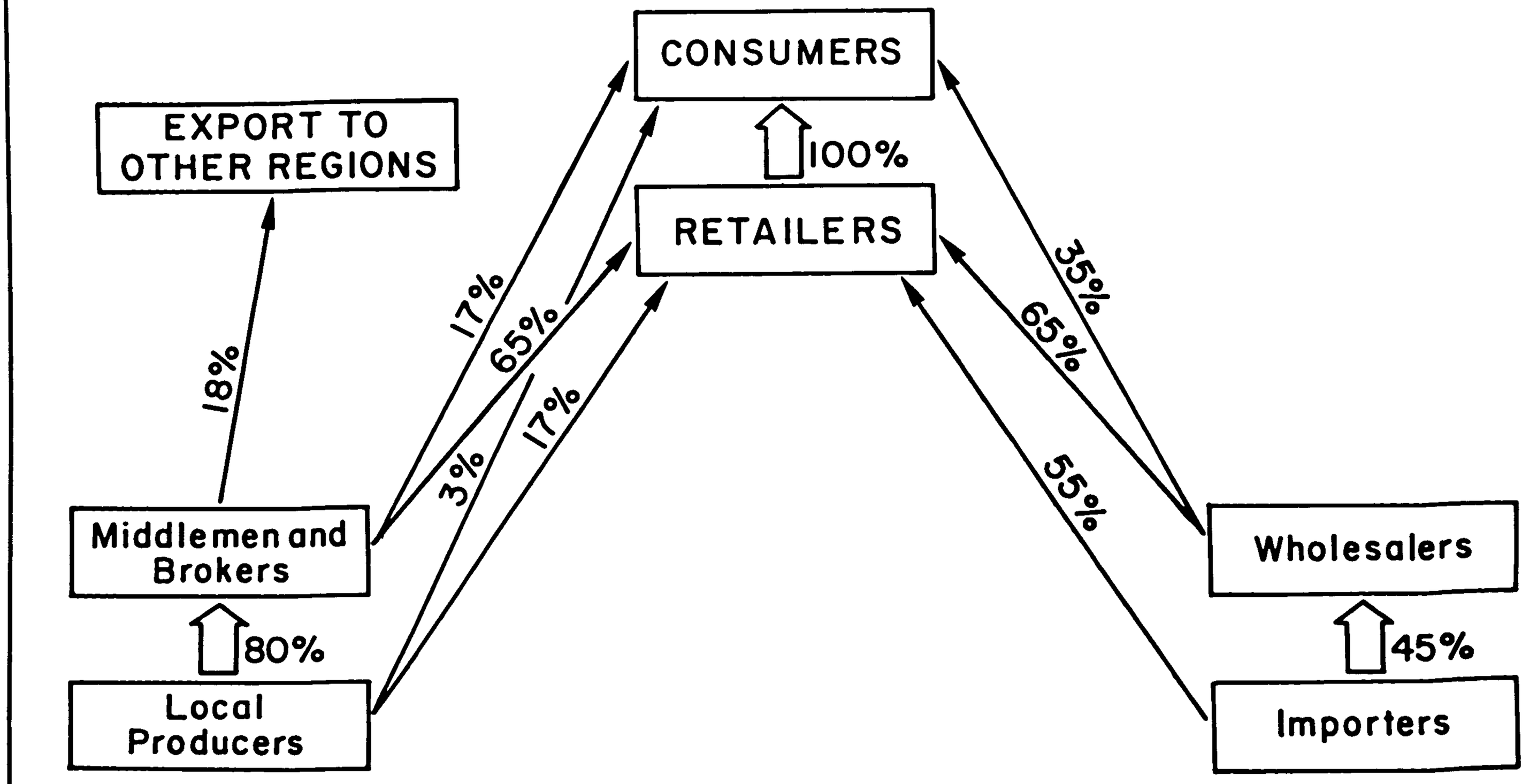
As there are no milk deliveries in Medina, many Medinese rear their own sheep and goats to provide milk. Thus alfalfa became an important fodder for local livestock. Originally alfalfa was sold by specialised shops only open in the morning, but more recently has been retailed from multi-functional shops. Until 1974,alfalfa was sold by ten shopkeepers also dealing in groceries and paint materials,the yields from alfalfa bringing some 10% of the total profits to the shopkeeper. However, by 1976 this suq has been totally demolished and the product was sold solely through the multi-functional shops found on the edge of the central area.

In 1977 there were some 430 grocery shops throughout Medina and this is the most rapidly expanding retail trade in the city*, supplying neighbouring people with many imported items. As small shops are still the most popular type of business, the grocer, who seldom suffers financial loss, is often the first to set up shop in a new residential area. However, this does not prevent the traditional clustering of grocers, as with other commercial activities in the city centre. For example, in Bab Al-Koma street on the edge of the city centre, there are eleven grocery shops in close proximity to each other. Until 1976 only three self-service stores existed in Medina; this represented the beginning of a breakaway from the traditional small shops. These are not up to western standards, however, and their high prices make them unattractive to ordinary families. Some price control is obviously necessary to prevent excessive price mark-up, practiced by irresponsible retailers desiring excess profit margins.

In 1971 Medina had a total of 2,277 retail units and 28 wholesale units [62 : p.34] and the former accounted for 64.2% of all establishments carrying on any form of economic activity in the city, compared to only 0.8% for the latter. The low percentage of wholesale units is explained by the fact that Medina's retail system is small and partly dependent on wholesale establishments in Jeddah, which has a greater environmental attraction for such establishments because of its banking facilities and easy contact with foreign agents. Another possible reason for such a low percentage of wholesale establishments is that many retailers have found it more lucrative to combine wholesale trade and retail activities. For example, in 1977 the grocery trade had five wholesalers, 60 combined retailers and wholesalers and 365 retailers. Thus the main retailers obtain their supplies direct from Jeddah without resorting to local wholesalers, whereas medium size retailers get part of their supplies from Jeddah and the rest from local wholesalers. Most of Medina's retail units are small; about 75% have only

*personal investigation in July 1977

Fig. 7·6 ORGANIZATION OF AGRICULTURAL MARKETING IN MEDINA



Source:– Fieldwork, May to August, 1977.

one employee, and about 20% have two to four employees [62 : p.35]. This means that Medina's retail system is largely dependent on local wholesalers, which in turn depend on wholesale import firms in Jeddah. Improved transport and communications, and the short distances between Medina and Jeddah have maintained this state of affairs for many years.

One conclusion from this section is that in some activities increasing demands during the pilgrimage season are met by similar increase in retailing facilities, while others meet such demand through their ordinary facilities. The latter group may aggrevate the problem of overcrowding in the only one commercial centre of the city and this might correspond with increased thefts from shops (Chapter 8).

7.3.2 Marketing arrangements.

With regard to the fruit and vegetable products of Medina and its hinterland growers bring their products to market themselves transported by animals (donkeys and camels) or more recently by motor transport hired individually or collectively. In Medina, these producers have the choice of three ways of selling their products; direct selling to the consumer as do vendors of local cheese and sheep ghee, by direct sale to a retailer or a wholesaler, as do fruit and vegetable suppliers from outside the area, or by employing a middleman to handle their produce as do most local suppliers of fruits, vegetables and fish. The latter is the most familiar pattern of marketing in Medina. Those who sell directly to the consumer are the ones with only small quantities for sale and who are willing to sell at minimum profit; also the idea of depending on a single wholesaler or retailer who is always liable to find another supplier is unattractive to the single, small producer. The system of employing a middleman is more attractive to the medium-sized producer, as the aim of the intermediary is to sell the farmers' produce at a public auction for the highest possible price, and this is always to the financial benefit of both parties. The producer will not return home with any of his produce and the middleman will benefit from a high commission. The middleman normally gets between 5% and 10% commission, but some charge as high as 15%; the cost of unsold or perished goods is always borne by the farmer. The middleman disposes of the goods either by selling at public auction, at which retailers and big consumers are the main customers, or by selling directly to retailers. In times of abundant supply surplus produce is sold to traders or middlemen from Jeddah, Mecca, Yanbu and At-Taif (Fig. 7.6).

Dates are brought to market by the producer either on hired or privately owned lorries (animals are rarely used today), here they are either sold by a

broker (who takes 5% commission) to the wholesalers, or directly from growers to shopkeepers. When the dates are sold through a broker an extra charge is made to the shopkeepers by porters who carry the dates from the wholesale market to the shops. A third way of selling is for a middleman to buy the produce of several growers and then sell to shopkeepers. The middlemen sometimes buy the produce before harvest, when the dates are still on the trees, and pay the farmer in advance to cover the cost of harvest labour. This situation has recently caused severe stress to farmers, middlemen are always trying to lower the prices they pay, while at the same time labourers are demanding higher wages. Also many of the younger members of the farmer's family are migrating to the cities, and he no longer has their assistance at harvest time.

Livestock are brought to the market either by owners assisted by shepherds or, occasionally, by the shepherds themselves. Beasts are brought in by lorries and on foot. In the market there are about 50 brokers who take a commission of SR 10 for each sheep or goat sold and 5% for other animals. If a broker cannot himself do the clerical work necessary to register the names of sellers, and value the transaction and commissions, he may engage a clerk for this specific purpose. Animals slaughtered at the slaughter house are bought by the butchers either from a local importer or from stock farmers at the livestock market. All beasts are examined by a veterinary surgeon before being taken in the slaughter house. For each beast slaughtered the butcher pays SR 5 to the keeper of the slaughter house, in this case, a representative of the Municipality of Medina.

The system of supply in the grocery trade is identical to that of other retailers, explained earlier in this Chapter. However, local wholesalers specialise in only a small range of commodities; combined retailers and wholesalers keep fairly well stocked stores and are usually able to supply a colleague who has temporarily run out of some commodity, or to sell directly to the higher income groups at a price half way between the retail and wholesale price. Most shops are only small and as a result shopkeepers of multi activities often have to hire another shop or part of a residential house in the centre or its periphery in which to keep their stock, goods must often be brought several times a day especially at busy times, such as the Hajj season, or in the case of bulk buying, to bargain in the shop and collect at the warehouse. For the Hajj season, retailers in general build their stocks several weeks before the season, to avoid any shortage.

Packaging of goods varies between commodities; local fruits and vegetables are usually brought to the market in bulk, and sometimes in crates or

bags of palm tree leaves or sack cloth. Tomatoes, grapes and mature dates are handled in wooden packing cases (weighing between 6 and 8 Kgs). Imported produce such as onions, potatoes, oranges and apples are packed in bags, or crates (approximately weighing 25 or 50 Kgs, 80 Kgs, 20 Kgs and 22 Kgs, respectively). All produce is sold unpackaged by weight or quantity.

Water melons are marketed in bags slit lengthwise and tied up with string leaving their contents visible. The producers sort out the smaller water melons for sale in batches of about 42, and the larger ones are sold in batches of about 22. Water melons are retailed singly or in portions. This latter method seems to create unhygenic conditions at pilgrimage time in the city, as the uncovered melons become subject to infections; unconsumed portions are thrown on the streets and become a fertile ground for bacteria. By contrast, with other vegetables and fruits, variety of choice of water melons is almost invariably influenced by the retailer, who sorts the produce into degrees of quality and price.

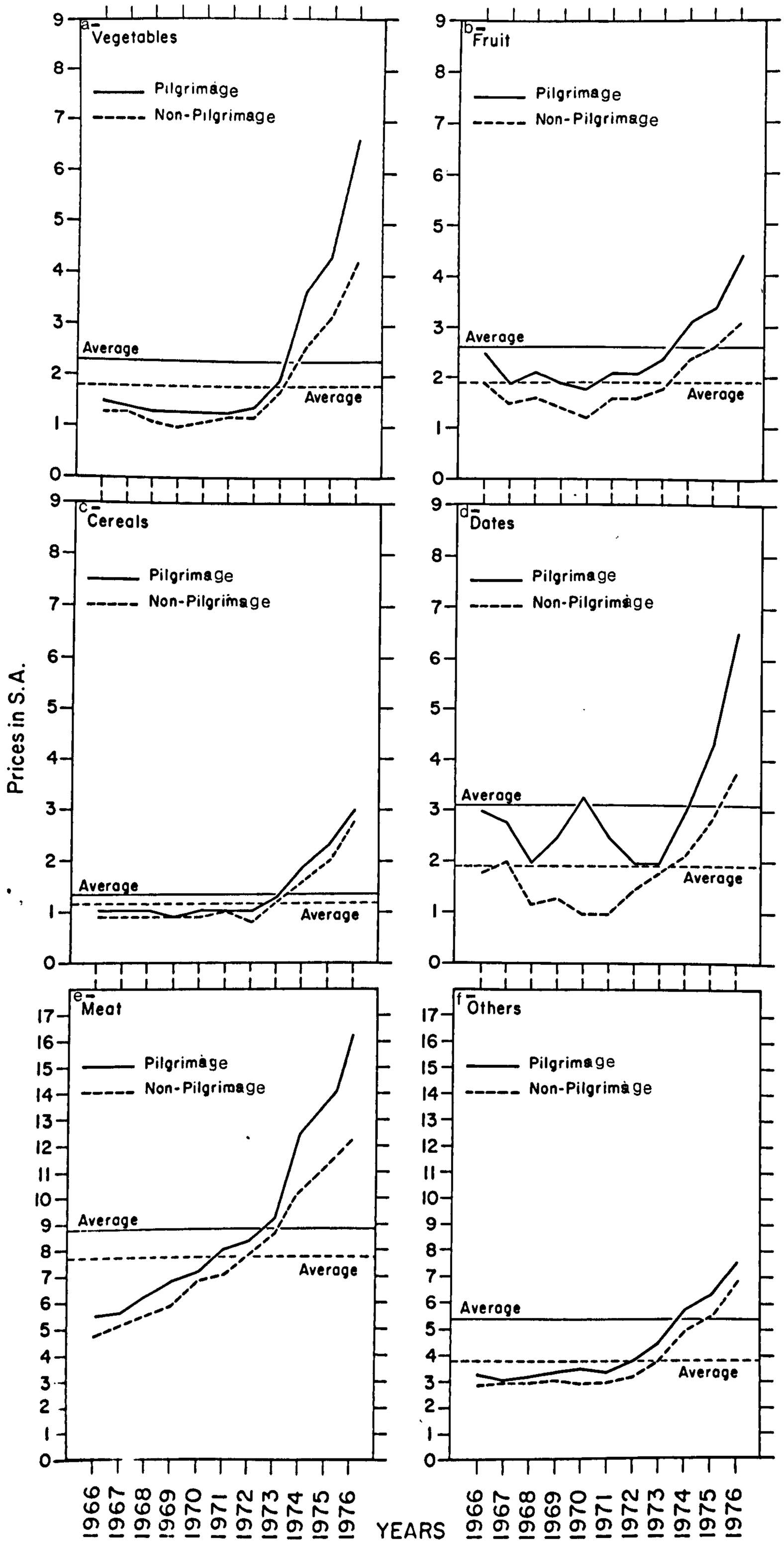
Dates sold wholesale are packed in three ways, in 20 or 50 Kgs, in gunny (jute) bags, in 25 Kgs steel drums, and in 10 or 15 Kgs kraft paper bags. Dates for export are separately packed at four factories in Medina. The most popular final product is a cardboard box containing 10 x 100 gm bags of dates, either plain or stuffed with almonds in place of their kernels.

The above methods of marketing and packing seem to create seasonal opportunities for work which is reflected in the increased number of trading units explained in the former section. During periods when individual crops are in season and hence found in abundance, and also at times of peak demand, such as the Hajj season, itinerent sellers can be seen throughout the city selling from small barrows. On the other hand the complex chain of marketing between producers and consumers, and the time lag in produce reaching the consumers, may create shortages, particularly when foreign supplies fail to be delivered. At other times of excess local production, vast quantities of produce may perish or is sold off at very low prices due to the lack of methods of processing or preserving this excess. This again supports the suggestion, discussed in Chapter three, for the development of local processing plants along similar lines to that of the date packing industry. Investment from the private sector could be encouraged in this field, particularly investment from those benefitting directly from the pilgrimage.

7.4 The Pricing System.

Unfortunately, there are no written laws governing price control in Medina. Traders market their goods at whatever price they think satisfactory,

Fig 7·7 SEASONAL FLUCTUATION IN MAIN FOOD PRICES



Sources: (1) Statistical Year Book, 1967-1974. (2) Field Work in November 1976 and May to August 1977

and can choose between a reasonable or excess profit. Only at times of crisis, when real or imagined shortages cause drastic price rises, does the local authority, represented in the Chamber of Trade, introduce standards for vital commodities such as food. Thanks to the structure of the trade area in Medina, the central location of commercial activities has created competition between retailers to lower prices to attract customers. Since there are no retailers' unions, every shopkeeper sells as he likes, there is no form of control and this sometimes is to the advantage of the consumer, he has a wider choice and can often force tyrannical retailers to lower their prices to the general standard. However, retailers sometimes behave as if they were members of a cartel, and keep prices high. Examples of this occurred in summer 1977, when there was an abundant supply of water melons on the market, but with prices as high as £3 each, there was a surplus of unsold melons. The retailers hoped to cash in on the sale of this seasonal product to cover part of their year-round expenses.

7.4.1 Price fluctuations.

In a marketing study it is of great interest to recognise price fluctuations, in order to be able to test both the efficiency of the marketing circuits, the effect of seasonal festivals(in this case the pilgrimage), and to evaluate the mean income of producers and traders. To fulfil these aims, retail prices for such items both during Hajj and ordinary times* for 11 years are analysed, and the results are shown in Table 7.5 and Figure 7.7.

It is clear from the above table that in the 1960's Hajj prices compared quite favourably with non-Hajj prices, with the exception of dates, the item most affected by the pilgrimage season. Since the 1970's most commodities have increased in price and the gap has widened between Hajj and non-Hajj prices, except for cereals which are supplied regularly from distant areas under the terms of international agreements and government subsidies. It is worth noting that in all the figures, average prices are invariably higher during Hajj periods. Average prices were calculated over the 11 years between 1966 and 1976, and until about 1970 both Hajj and non-Hajj periods were always below average, after which they increased dramatically. However, even when prices were below average it is clear the pilgrimage season had the effect of narrowing the gap between ordinary prices and average value; but by 1973 the Hajj prices so far surpassed ordinary prices

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*The year was divided into two halves, only one of which include the pilgrimage season; the average figure for each was calculated in the table.

TABLE 7.5. SEASONAL FLUCTUATION IN FOOD PRICES IN MEDINA

Commodity	Unit	Season	Prices in different years and periods									
			1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Vegs:													
Beans	Kg.	Hajj:	2.15	1.75	1.20	1.50	1.70	1.75	1.87	3.16	4.42	7.80	12.00
		non-Hajj	2.00	1.50	1.20	1.15	1.50	1.75	1.77	2.50	2.75	5.25	8.00
Black Egg Plant:	Kg.	Hagg:	2.15	2.00	1.35	1.12	0.87	1.50	1.42	1.50	2.25	3.25	6.00
		non-Hajj	2.00	1.75	1.18	1.00	1.00	1.33	1.33	1.32	0.84	1.78	3.00
Broad Beans	Kg.	Hajj:	1.60	1.00	1.38	1.45	1.40	0.90	0.75	1.00	3.50	4.50	8.00
		non-Hajj	1.50	0.83	0.75	0.75	0.80	0.75	0.73	1.00	2.50	3.50	6.00
Cabbages	Kg.	Hajj:	1.25	1.00	1.20	1.18	1.15	1.00	1.50	2.00	1.50	3.50	5.00
		non-Hajj	1.00	1.00	1.15	1.00	1.15	1.00	1.50	1.75	2.13	2.13	2.50
Carrots	Kg.	Hajj:	3.00	2.50	2.00	2.00	2.00	1.00	1.50	2.00	3.00	2.00	6.00
		non-Hajj	2.50	2.00	1.75	1.50	2.00	0.94	1.00	2.00	3.00	3.50	4.00
Cucumber	Kg.	Hajj:	1.00	1.29	1.30	1.25	1.13	1.50	1.35	1.50	2.25	3.75	6.00
		non-Hajj	1.00	1.00	1.03	1.17	0.89	1.08	1.00	1.38	1.50	2.20	3.00
Garlic	Kg.	Hajj:	-	-	-	-	-	-	2.87	5.72	7.25	7.86	10.00
		non-Hajj	2.00	2.64	2.81	2.85	2.89	3.00	2.00	4.66	6.00	6.33	8.00
Onions	Kg.	Hajj:	1.00	1.00	0.75	0.89	1.10	0.82	0.95	0.85	3.40	3.60	6.00
		non-Hajj	0.80	0.85	0.62	0.83	0.83	0.75	0.63	0.80	2.90	3.90	5.00
Peppers	Kg.	Hajj:	0.75	1.00	1.00	1.20	2.00	1.86	2.00	2.50	5.25	6.25	8.00
		non-Hajj	0.50	1.00	0.90	1.00	0.95	1.80	2.07	2.15	3.11	3.25	4.00
Potatoes	Kg.	Hajj:	1.15	1.90	0.84	0.90	0.96	0.98	1.00	1.50	3.75	3.95	6.00
		non-Hajj	1.00	1.25	0.62	0.44	0.82	0.76	0.95	1.30	1.95	2.00	3.00
Spring Onions	Each	Hajj:	0.20	0.15	0.15	0.10	0.20	0.20	0.25	0.50	0.75	0.75	1.00
		non-Hajj	0.10	0.08	0.10	0.10	0.15	0.20	0.15	0.20	0.35	0.75	0.50
Tomatoes	Kg.	Hajj:	2.00	1.17	1.35	1.12	1.00	0.90	0.80	1.31	5.70	6.70	10.00
		non-Hajj	1.50	1.10	1.00	1.00	0.87	0.90	0.78	1.00	3.70	3.90	5.00
Turnips	Kg.	Hajj:	1.00	1.00	0.60	0.90	1.00	1.90	2.00	2.00	2.50	3.25	4.50
		non-Hajj	1.00	0.75	0.50	0.65	0.80	1.87	1.90	2.00	3.00	3.25	4.00
Fruits:													
Apples	Kg.	Hajj:	2.00	1.66	1.55	1.25	1.50	1.74	1.82	2.54	3.00	3.27	4.00
		non-Hajj	1.50	1.25	1.00	0.80	0.80	1.00	1.50	2.00	2.75	3.00	4.00
Bananas	Kg.	Hajj:	2.00	1.58	1.50	1.52	1.39	1.50	1.38	1.50	2.00	2.00	2.50
		non-Hajj	2.00	1.42	1.30	1.00	1.20	1.25	1.25	1.35	1.68	1.75	2.00
Figs.	Kg.	Hajj:	4.00	4.12	4.00	4.00	3.66	4.17	4.00	4.00	5.00	5.50	7.00
		non-Hajj	4.00	3.08	4.00	3.50	1.97	4.00	4.00	3.61	4.39	4.81	6.00
Grapes	Kg.	Hajj:	2.50	2.80	3.00	2.46	3.00	3.56	3.13	2.12	2.50	2.81	3.50
		non-Hajj	1.50	1.86	1.30	1.38	1.23	1.39	1.39	1.38	1.62	2.19	3.00
Lemons	per 5	Hajj:	1.50	1.56	2.00	1.00	1.50	1.71	2.02	2.10	2.35	2.35	2.50
		non-Hajj	1.00	1.00	1.90	1.00	1.25	1.66	1.50	2.10	2.00	2.00	2.00
Oranges	Kg.	Hajj:	3.00	1.75	1.60	2.00	1.80	1.50	1.50	2.00	3.00	3.50	4.00
		non-Hajj	2.00	1.50	1.54	1.75	1.25	1.31	1.34	1.38	1.69	2.19	3.00
Pomegranates:													
1 - Small	per 5	Hajj:	2.00	1.00	1.90	1.75	1.97	1.50	1.00	1.50	2.00	2.00	2.50
		non-Hajj	1.00	0.75	1.40	1.00	1.00	1.00	1.00	1.00	1.25	1.25	1.50
2 - Big	per 5	Hajj:	4.00	2.00	2.00	2.00	2.00	2.06	2.00	2.00	3.25	4.00	4.50
		non-Hajj	4.00	1.83	1.50	1.64	1.75	2.00	2.00	1.98	2.00	2.87	3.75
Water Melons													
1 - Small	each	Hajj:	1.00	-	-	-	-	-	-	-	-	-	-
		non-Hajj	0.50	0.76	0.90	1.00	0.89	0.51	0.81	1.00	1.80	2.00	3.00
2 -large	each	Hajj:	2.50	-	-	-	-	-	-	-	-	-	-
		non-Hajj	2.50	2.00	2.50	1.75	2.00	2.50	1.50	3.00	4.00	4.50	6.00
Cereals:													
American Rice	Kg.	Hajj:	1.25	1.50	1.40	1.35	1.40	1.43	1.50	2.50	3.25	4.25	6.00
		non-Hajj	1.25	1.40	1.38	1.33	1.36	1.40	1.40	2.16	3.00	4.08	6.00
American Wheat	Kg.	Hajj:	1.00	0.80	0.80	0.80	0.77	0.70	0.65	0.93	2.00	2.47	4.00
		non-Hajj	0.90	0.71	0.77	0.76	0.77	0.66	0.61	0.90	1.20	2.20	3.50
Australian Wheat	Kg.	Hajj:	0.60	0.70	0.65	0.65	0.68	0.81	0.75	1.00	2.38	2.75	3.75
		non-Hajj	0.60	0.67	0.65	0.63	0.65	0.70	1.70	0.90	2.20	2.60	3.50
Barley	Kg.	Hajj:	0.75	0.70	0.70	0.71	0.65	0.55	0.58	1.00	1.50	1.58	2.00
		non-Hajj	0.50	0.55	0.55	0.61	0.61	0.52	0.55	0.83	1.17	1.25	1.50
Egyptian Rice	Kg.	Hajj:	1.75	1.70	1.60	1.56	1.65	1.88	2.00	1.95	2.00	2.48	3.00
		non-Hajj	1.50	1.55	1.50	1.55	1.60	1.75	1.00	1.50	2.00	2.25	3.00
Sudanese Millet	Kg.	Hajj:	0.90	0.85	0.82	0.80	0.90	1.10	1.25	0.90	1.20	1.20	1.20
		non-Hajj	0.90	0.80	0.79	0.79	0.90	1.08	1.00	0.87	0.94	0.95	1.00
Sudanese Sorghum	Kg.	Hajj:	0.50	0.60	0.65	0.65	0.65	0.70	0.70	0.90	1.00	1.20	1.50
		non-Hajj	0.60	0.60	0.60	0.63	0.65	0.66	0.65	0.88	0.95	0.95	1.00
Dates:													
1-good quality	Kg.	Hajj:	5.00	4.00	3.00	4.00	3.50	3.40	3.14	3.00	4.00	6.00	10.00
		non-Hajj	3.00	2.50	1.62	1.70	1.63	2.33	2.50	2.75	3.25	4.38	6.00
2-low quality	Kg.	Hajj:	0.90	1.50	1.00	0.90	3.15	1.50	0.88	1.00	2.00	2.50	3.00
		non-Hajj	0.60	1.40	0.77	0.89	0.45	0.50	0.50	0.90	1.00	1.20	1.50
Meat:													
-camel	Kg.	Hajj:	4.00	4.00	4.50	4.50	5.00	5.50	6.00	6.50	9.25	9.75	12.00
		non-Hajj	3.50	3.50	4.50	4.00	5.00	5.00	5.00	5.50	7.00	7.75	9.00
-cattle	Kg.	Hajj:	4.50	4.50	5.00	5.00	6.00	6.00	6.00	7.00	8.50	10.50	15.00
		non-Hajj	4.00	4.00	5.00	5.00	5.50	5.00	5.50	6.00	7.00	7.75	10.00
-goats	Kg.	Hajj:	5.50	6.00	6.00	6.50	6.00	8.00	8.00	10.00	14.00	15.00	18.00
		non-Hajj	5.50	5.50	6.00	6.00	6.00	7.00	8.00	9.00	12.00	12.00	15.00
-mutton	Kg.	Hajj:	6.00	6.00	8.50	10.00	10.00	12.00	12.00	12.00	18.00	18.50	25.00
		non-Hajj	5.50	6.00	8.00	8.00	10.00	10.00	12.00	12.00	14.00	16.00	18.00
Fish	Kg.	Hajj:	7.00	7.00	7.00	7.50	8.00	8.00	9.00	10.00	12.50	16.50	20.00
		non-Hajj	5.00	6.00	7.00	6.00	7.00	7.50	8.00	10.00	11.00	11.75	15.00
Others:													
Eggs	per dos.	Hajj:	2.20	2.00	2.00	2.25	2.50	2.25	2.00	2.50	3.75	4.75	5.00
		non-Hajj	2.00	2.00	1.95	1.90	2.00	2.00	2.00	2.50	3.00	3.25	4.00
Fresh Milk	Litres	Hajj:	2.75	2.00	2.00	2.00	2.20	2.00	2.25	2.50	3.00	3.25	4.00
		non-Hajj	2.50	2.00	1.50	2.00	2.00	2.00	2.00	2.50	3.00	3.13	3.75
Sesame Oil	Kg.	Hajj:	3.50	3.50	3.00	3.00	3.00	2.50	2.50	3.00	4.00	4.50	6.00
		non-Hajj	3.50	3.00	3.00	3.00	2.55	2.38	2.40	2.50	3.25	4.25	6.00
Sugar	Kg.	Hajj:	0.90	0.90	0.95	0.90	1.00	1.00	1.25	1.50	2.00	2.25	3.00
		non-Hajj	0.65	0.70	0.80	0.80	0.85	0.90	1.00	1.50	1.80	2.00	2.50
Tea	Kg.	Hajj:	9.00	9.00	9.00	10.00	10.00	10.00	12.00	14.00	16.00	17.00	20.00
		non-Hajj	8.00	9.00	8.50	9.00	9.00	9.50	10.00	12.00	14.00	15.00	18.00

Sources : 1- Central Department of Statistics, 1968-1974, Statistical Year Book, Riyadh; 1968, pp. 355-359; 1969, pp.347-351; 1970, pp.357-359, 364; 1971, pp. 195-197,206; 1972, pp. 193-195, 204; 1973, pp. 209-211,220; 1974, pp. 211-213, 222.

2- Fieldwork, November to December, 1976, and May to August, 1977.

as to overcome the average value, and this may weaken the significance of the average in Figure 7.7.

In details, in addition to the influence of the Hajj, prices appear to be affected by seasonal climate and the origin of a commodity. Between 1966 and 1976, the pilgrimage took place between December and March, which are cold months. Therefore crops yielded in this season either show a slight price increase during Hajj season, or remain stable, as was the case with peppers. Several other crops are only available in summer and supplies depend totally on imported goods; this is reflected in exceptionally high prices, or a total absence of the commodity as was the case with onions and cucumbers. This also means high prices compared to seasons with surplus produce, except for seasonal cereal crops which, as mentioned above, are imported throughout the year. Although there are seasonal fruits for both winter and summer, many varieties may still be found in the city markets all the year as they are supplied from more distant markets, such as Jordan, Lebanon and East Africa. Prices, however, fluctuate considerably. Similarly alfalfa is a permanent crop but it is cheaper in season of mild weather; also the volume of the crop is considerably affected by freezing weather, and this is reflected in extremely high prices in winter such as the drastic price rises of 1976, after a very cold winter when yields were reduced.

Values represented in Figurs 7.7 e and f are relatively high because they include some high price items such as tea and meat or because they reflect the recent drastic price increase of some items such as alfalfa. But in general the graph curves smoothly in its early years until 1972, when it shows a sharp rise, due to price inflation.

7.4.2 Profit margins.

Before reaching the consumer, local produce is usually handled by two middlemen, the broker and the retailer; both of whom take a profit margin. In so far as this margin is a profit in the strict sense of the word, it is an obstacle to efficient marketing of the produce. The definition of the critical line at which pure profit begins, is beyond the scope of this study, but an initial approach can nevertheless be attempted here.

The brokers profit margin from the producer is between 5% and 10% commission, on the value of the transaction. At first sight this may seem abnormally high, as the broker carries no risk since unsold products are returned to the producer; it is also true that the broker plays a vital part in the still relatively undeveloped trading pattern in which he exercises his skill. The producer never knows when, how, or to whom he sells his goods,

and it is the broker who is his link with the consumer. The producer also does not know how much to charge for his produce; if he tried to sell straight to a retailer, his ignorance of the market might cause him to sell at an uneconomical price. Here again, the brokers' knowledge, experience of supply and demand, and the resulting price levels are important factors on which to base the price of the commodities he handles.

Therefore, it is clear that the broker has an important job and provides a valuable service as long as producers are unfamiliar with market conditions. However, though this does not seem to warrant as much as 10% or sometimes 15% commission, part of this amount must be considered as additional income which the brokers are only able to secure because of a deficiency in existing trading arrangements. At present, the brokers' income is an unavoidable expense to producers.

The producers' profit margins are the most difficult to establish as they include many factors such as the cost of processing, labour, transport, commission to brokers etc. As many products come from outside Medina city boundary, calculation of their profit margins is not possible due to lack of information. With regard to foreign commodites, as mentioned in section 7.3.2, these are usually handled by importing firms in Jeddah, wholesalers at Medina and the retailers. The true profit margins of the first two could not be determined as their source of supply is outside Medina area. An attempt was made, as will be explained later, to measure local producers' returns in terms of purchase value of local goods at retailers, but still the net profit from such return could not be determined, as this enters into completely different field of study. As most local products are agricultural, most of the return is expected to remain in the area.

Retailers profit margins are also difficult to establish, personal interviews are not always successful as the shopkeepers are generally loathe to give details of their income. Many people consider that discussing their private affairs will bring the evil eye upon them, although some religious people do not mind discussing their income, as they are encouraged in the Holy Koran not to hide God's grace [149 : 93,117]. The only effective way in which to obtain this detailed information would seem to be to witness actual transactions taking place at the spot of wholesale selling, then buy the same items from a retailer and calculate the price difference. Table 7.6 gives the result of such an investigation by the author in February and December 1976, months which represent the off-season and the pilgrimage season respectively. Personal enquiries indicate that about 2.0% of retailers purchase costs goes to the local producer during the Hajj season compared to 0.73% during the off-season.

TABLE 7.6 PROFIT MARGINS ON SOME MAJOR COMMODITIES SOLD ON THE MEDINA WHOLESALE AND RETAIL MARKETS IN 1976

		Retailers purchase price SR		Retailers selling price SR		Profit % of selling price	
Commodity	Unit	Hajj	Non-Hajj	Hajj	Non-Hajj	Hajj	Non-Hajj
Local Products							
Carrots	per 100	4.0	2.8	6.0	4.0	33.0	30.0
Dates (good quality)	6 Kgs	5.0	4.2	10.0	6.0	50.0	30.0
Egg-Plant	8 Kgs	8.0	5.8	12.0	8.0	33.0	27.5
Tomatoes	14 Kgs	8.0	3.8	10.0	5.0	20.0	24.0
Turnip	per 100	3.2	2.8	4.5	4.0	28.9	30.0
Imported Products							
Apples	Kg	2.0	2.1	4.0	4.0	50.0	47.5
Bananas	Kg	0.9	0.9	2.5	2.0	62.0	55.0
Onions	Kg	3.0	2.5	6.0	5.0	50.0	50.0
Oranges	Kg	1.5	1.3	4.0	3.0	62.5	56.7
Margarine	283 gms tin	1.8	1.8	2.0	2.0	10.0	10.0
Millet	Kg	0.6	0.6	1.2	1.0	50.0	43.0
Rice	Kg	5.2	5.2	6.0	6.0	13.0	13.0
Sorgham	Kg	0.6	0.6	1.5	1.0	58.0	37.0
Sugar	Kg	2.0	1.8	3.0	2.5	33.3	28.0
Wheat	Kg	2.6	2.6	4.0	3.5	35.0	25.0
Total		48.5	38.8	79.7	57.0	39.2	31.9

Sources: 1 - Personal investigation 2 - Table 7.5

The profit margins appear high, and so far as could be established the value added at the retailer's level varies between 10% and 62.5% of the selling price at Hajj time, and between 10% and 56.7% at non-Hajj time. The effect of pilgrimage on increasing profit margins for some commodities such as dates and fruits is obvious, and at this time prices increased by almost double the ordinary price.

Profit margins are generally higher on imported products than on local ones. This may be justifiable for fruits and vegetables, which are perishable commodities mainly bought by well-off consumers, but it is certainly not the case with cereals, which a current consumer commodity under the supervision of the Chamber of Trade, and imports of which are subsidised by the government.

The high profit margins may be attributed to bad commercial organisation and because there are too many retailers. The large number of small retailers may be the result of the traditional adaptation to a particular economic situation (a typical feature of which is sometimes a state of under-employment) and of a social structure in which personal relationships play a large part. Dealing in very small quantities of goods, often selling on credit to customers they know well, these small retailers are bound to obtain very substantial profit margins which are impossible to reduce immediately.

Despite difficulty in obtaining information regarding income, a survey was undertaken in summer 1977 to collect statistics of total income and expenses for trading units in Medina. The officials who accompanied the writer encouraged the traders interviewed to trust him, and this made the survey highly successful. In this survey the occupiers of 2,173 units representing 63 different commercial functions were interviewed (representing nearly all trade units in Medina) and only 35 units (1.6%) were excluded from the survey, due either to the non-availability or non-co-operation of the traders.

The number of units interviewed in this survey seems slightly less than the number of trade units and their constituents given in the Ministry of Finance and National Economy Survey in 1971 (2277 units), but this may be due to the clearance of a large area on the west of Al-Haram including many shops which were not replaced. Another reason could be the destruction of 158 shops by fire (caused by an electric fault) in January 1977 in the clothes and Jewelery suq, thus preventing the survey being extended to this area.

However, it was sufficiently comprehensive to give reasonably accurate results, though it cannot be regarded as 100% accurate as it was not always based on recorded data, but only on information given verbally by traders. The results of the survey are summarised in Table 7.7.

TABLE 7.7 SOME STATISTICS ON TRADING UNITS IN MEDINA, 1976/77

Item	Category	Number
Total number of traders	(Saudis	1,945 traders
	(Non-Saudis	228 traders
Variety of functions		63 functions
Source of goods	(Medina City	999 trading units
	(Medina and other cities	968 trading units
	(Abroad	206 trading units
Total daily customers	(Hajj	133,679 customers
	(Non-Hajj	48,028 customers
	Time of the year	Value in SR
Total daily income	Hajj	5,709,970
	Non-Hajj	1,238,160
Value of imported goods	Hajj	2,416,997
	Non-Hajj	506,176
Value of local goods	Hajj	41,878
	Non-Hajj	15,555
Total daily wages and other expenses	Hajj	72,105
	Non-Hajj	64,380
Daily profit	Hajj	3,178,990
	Non-Hajj	622,049

Source: Field work, May to August, 1977.

Table 7.7 shows a majority of Saudis working in trade units. This is a result of the Royal decree in 1976 preventing foreigners from practicing trade, with certain exceptions in fields not attractive to Saudis. The non-Saudis traders column consists mainly of oppressed Muslim immigrants from the USSR Southern Republics, who have completely severed links with their original home land and are exceptionally treated in Saudi Arabia. This reduces the level of remittances by foreign traders, as these immigrants consider Medina their home and spend their money there. Taking these people into account would reduce the number of foreign traders by 33%.

The pilgrimage clearly increases the daily income of traders and the number of customers. The table also showed almost equal numbers of local

and outside suppliers, with the latter slightly in the lead. This means that there is a high seepage of revenue from pilgrims to outside the area and even outside the country, which is not an economically healthy phenomenon. According to the above table, about 42% of revenue from pilgrims went outside the area, indicating that the effect of pilgrimage benefits more distant areas. The percentage of profit from selling prices was 55.7% at Hajj time and 50.2% at non-Hajj time. When these figures are checked against those of Table 7.6 they appear high for the total, although not for some individual items.

This can be explained by the fact that Table 7.6 analyses only foodstuffs whereas Table 7.7 covers a wide variety of items with high and low profit margins. The important findings of this section, the evaluation of the economic effects of the pilgrimage are shown in Table 7.7. The results of the first draft calculation, which considered revenues and expenses indicated that the daily profit for traders at Hajj time was about 411% more than for an ordinary day which confirms what some writers have suggested, that traders profit at Hajj season is more than their profit in the rest of the year [241 : P. 39], but consideration of certain factors outlined below could affect this percentage.

About two-thirds of the profits of genuine foreign traders can be expected to be transferred to their original homeland, this would mean that about SR.34,269 (£5,272.2) would be sent home daily at Hajj time and about SR 4,233 (£651.2) at ordinary times. Another important fact here is that some goods of local origin can be eliminated from expenses as they circulate almost totally within the local economy with no outside contact. Computation produced total daily profit to the local economy as SR.693,370 (£126,067) at non-Hajj time, and SR 3,197,583 (£581,378) at Hajj time. The Hajj figure is 361% higher than that for normal times. Consequently it can be concluded that the additional daily profit resulting from pilgrims is about SR.2,504,213 (£455,311).

7.5 Suggestions for Trade Improvements.

The basic argument for improvement of trade is the present and anticipated overall expansion in demand due to rapid population expansion resulting from natural increase, migration and immigration factors (Chapter 3), and also to increasing numbers of pilgrims. Improved standards of living resulting from higher incomes will probably double per capita food consumption, but as explained in Chapter six, local supplies are expected to diminish gradually due to water scarcity and a consequent reduction in

farmland. The subsidies granted may be insufficient to intensify yield for the small, traditional farmer to keep pace with the rapidly increasing demand.

At the present time the demand for many local products such as fruit and vegetables far exceeds supply with the possible exception of dates and alfalfa. Thus an order of priority for an economic policy may be deduced from this state of imbalance between supply and demand. Rural- urban migration should be checked if possible, by providing better opportunities and amenities for rural dwellers and nomads. In fact the commitment of the Medina Province towards such policy was not encouraging. Its share of the Hijars (Arabic word for inducing Bedouins to settle in small settlements based on agricultural activity), introduced by King Abdul Aziz from 1915 [133 : p. 94] was very small compared to other provinces. Medina Province had only two Hijars while Hayel area in the north had 14 and Najd more than 20 [137 : p p. 454-456]. A continuation of this policy would be useful to meet the increasing urban demand for agricultural products.

In order to fully develop the rural economy it would be useful to give guidance to farmers to encourage them to use better techniques to grow the most suitable produce for the changing market for locals, pilgrims and visitors. This does not mean reducing the production of dates whose trees are part of the area's history, as well as being of great commercial benefit at pilgrimage time, and part of the staple diet of nomads, but possibly using the land in between the trees to plant vegetables, for sale in Medina's markets. Preference in the setting up of processing industries could be given to regions where the demand for consumer goods is lower. Dates which are already processed in Medina, provide an exceptional example but the industry could be further developed to provide more attractive products such as date jam, treacle, vinegar, alcohol for medical purposes, sweets, oil from date kerns, fodder for animals, sugar, date juice and date butter. Some of these products have proved useful in countries such as Iraq, Libya and the U.S.A. [149 : p p. 373-376]. In the late 1960's it was estimated that Medina Province had 545,100 productive palm trees each with a capacity yield of 60 Kgs per annum [149 : p p. 40,46]. This means that with the average per capita consumption of dates mentioned in Table 7.2 there is a surplus of approximately 103,859 Kgs which could be processed in various ways.

It seems more important therefore to concentrate of raising the produceres return for a given quantity produced rather than seeking additional outlets.

This can best be done by expert analysis to determine the best method of sharing the land between the various crops in order to ensure maximum financial return for Medina's production, bearing in mind the available water resources and allowing for various aesthetic aims connected with the city's historical and religious associations. The future volume of vegetables and fruits may well be augmented by supplies from the oases with agricultural potential which lie outside Medina Province, such as Tabuk on the main road between Medina and Jordan.

Improvements in the quality of produce may imply a change in production methods, the results of which can only be expected on a long term basis. Improvement of products should be encouraged in several ways in order to replace imported goods gradually with local ones. This can be achieved by laying down standards and implementing strict controls for products, along with technical aid and financial subsidies. Rewards for such improvements cannot be applied indiscriminately, but producers who improve the quality of their products should be properly rewarded.

Home rearing of animals for the supply of milk is a survival of old traditions hardly in keeping with present and future economic development. However, due to the changing trend towards smaller premises and recent strict regulations to prevent animals wandering on the city streets, many people are no longer interested in rearing of their own animals. In addition, alfalfa prices are continually rising, further discouraging local breeders. Thus establishing dairy farming on an industrial basis using alfalfa or other fodder such as processed date kerns, and grass growing outside Medina would be a practical step towards keeping pace with Medina's demand for milk. Surplus produce from other neighbouring regions with high livestock population, such as Al-Qasim, could be exported to Medina. This might also provide an extra incentive to producers to plant the more popular competitive vegetables between their palm trees in place of alfalfa.

Quality standardisation could have an indirect influence on marketing costs as it would reduce the risk of products being unsaleable or sold at a loss. However, it is still necessary to strengthen producer's position with regard to the middlemen and retailers. Although the middleman is at present an important link in the chain of agricultural production and exchange, he represents a potential threat to agricultural improvement, sometimes creating an artificial market by buying products at relatively low prices and selling them at high prices. The farmer, who gets a lower price than he deserves for his products, may be discouraged from producing certain goods, whereas the consumer who pays a high price can shift to foreign items.

In order to reduce unwarranted charges imposed by brokers it may be necessary initially to ensure better organised marketing arrangements with particular emphasis on defining more clear-cut marketing conditions. As C. Belshaw pointed out this needs an impersonal interaction of buyers and sellers without regard to factors such as those of Kinship [38 : p.8]. A practical way to improve the producers' position would be to implement a sales co-operative or a nationalised undertaking capable of recovering some of the profits now being pocketed by distributors. Such establishments should be founded with clearly defined aims to prevent them being jeopardised by antagonism and eventually failing. They should be operated by experts capable of sound control and fair distribution of profits. The main purpose of such establishments would be to negotiate prices and sales terms and help reorganise the old commercial circuits which often worked against the best interest of producers and consumers. Such producers would increase the capacity of the producer, but at the same time, strict official control is necessary in order that the consumer should not suffer. The experience gained by the UK in 1955 when a commission was appointed to report on the action necessary to improve the competitive position of the co-operatives is of great value [131 : p.52]. The diversity of the activities of such co-operatives, in vertical chains, such as wholesalers co-operatives and retailers co-operatives would be practical in dealing with such changing marketing methods and the large quantity of goods necessary to cater for the growing demands of a city such as Medina. But it may still be of value to preserve some of the traditional forms of marketing. Improved storage facilities, especially cool-rooms, could control the flow of goods and achieve stable prices and better marketing conditions, especially at times of surplus production.

Being a member of a co-operative, covering aspects such as marketing, sorting, packing and storing, the producer would be more aware of market conditions. Given these facilities, more producers would have an incentive to increase their output beyond subsistence or local community demands, towards market orientated products. Evidence of the successful influence of such procedures for improvement can be clearly seen in many countries with deep rooted experiences of co-operatives [169 :pp. 186-187]. The present policy of relaxing control on consumer prices, and no system of monitoring and recording price increases, must be reviewed.

The purchasing power of the market should also be improved, and in the long run this might be achieved by a social policy aimed at raising the lowest incomes. This could lay the foundations for an overall reorganisation

of local trading arrangements. The government act of 1976 which prevented non-Saudis working in trade proved very beneficial and many unskilled Yemenis went home after this clamp-down on illegal small traders [339 : p.18], though many managed to bend the law, acquiring national partnerships to continue in business. The authorities also tended to disregard those in jobs unattractive to Saudis, e.g. barbers and launderers. However, there is still little legislation governing the activities of retailers, and this requires special study. For example, it has been proved in many other countries such as Britain, Denmark and Italy, that regulations restricting the formation and location of new outlets, through some form of licensing can be beneficial [194 : p.55]. The construction of attractive kiosks which could easily be assembled and possibly rented from the city's Municipality, would be useful in reducing pressure on certain shops faced with excess demand, and also preventing the chaotic extensions of some shops as recently experienced. Priority of location for such kiosks would be the quarters furthers from Al-Haram such as Bab Ash-Shami and Koba, where it has been suggested there may be more pilgrims accommodated in the future than at present (Chapters 4 and 8).

Finally one may add that the temporary international trade involvement of Medina at the pilgrimage season should be encouraged to develop independently from Jeddah. This may not suit wholesalers and agents in Jeddah, monopolising the sale of certain commodities, as happened in 1978 when Medina merchants started importing cars from the free zones in Syria and Lebanon. The government could possibly allow the import of certain commodities from abroad directly to Medina, such items may include watches, and radios which are in great demand.

CHAPTER EIGHT

SEASONAL FLUCTUATIONS OF ACTIVITIES

The pilgrimage has an enormous economic impact on Medina as it creates a tremendous increase in demand for goods and services. During their stay in the area, pilgrims spend large sums of money on subsistence and travel in the execution of their religious duties. Such spending strengthens the local purchasing power and results in both local and foreign traders and the government pouring goods and services into the area and creating many employment opportunities. This spending also creates many activities exclusively associated with the pilgrimage, including guides and companies which transport pilgrims between the Holy Cities and the receiver ports. In addition the pilgrimage increases the volume of other activities such as retailing (discussed in the previous Chapter), the provision of accommodation, pavement peddling, coffee houses and intra-city transport. This Chapter therefore aims to analyse those aspects not previously discussed, to assess their effect on the economy of the area, and this discussion will be complementary to that of the previous Chapter.

8.1 Pilgrim Guides "Muzawireen or Adilaa".

Pilgrim guides are the people most closely connected with pilgrims and pilgrimage activities. They are counterparts to the "Mutawifeen", the Meccan guides, although the functions of the latter are more significant and their rewards greater than the Medinese guides. This helps to explain the fact that Meccan Mutawifs running their own businesses in 1969 numbered 1,006 and they in turn employed a further 1,994 guides [416: p.72], whereas in 1976 there were only still 115 main guides in Medina. In 1975 a government act defined the maximum share of pilgrims for guides in Mecca and Medina, in an attempt to encourage them to provide a better service without constant competition for increased numbers. It was decreed that no guide in Mecca could have more than 3,000 pilgrims while a guide in Medina must not have more than 10,000 pilgrims, based on the average numbers catered for over the past three years. These shares may be increased to 5,000 for Mecca and 15,000 for Medina by special decree [342: p.3]. The Meccan guides cater for

smaller numbers, but their rewards are greater as in 1976 they received SR 84.0 for each pilgrim compared to only SR 16.5 paid to the Medinese guides. The whole system is aimed at the comfort and convenience of pilgrims, with adequate financial returns for those involved in the service.

A Dalil (singular of Adillaa) or pilgrim guide inherits his profession and works during the pilgrimage season with his brothers, sons or other members of the family or sometimes with partners or employees outside the family and these people would normally speak the language of the pilgrims they look after. Over the years many of these guides have developed cultural and blood ties with particular countries through marriage.

The main function of a Dalil is to serve pilgrims during their stay in Medina. The services he provides include the provision of accommodation, guidance to holy places and shrines, and arranging for their conveyance between Medina, Mecca, Jeddah and Yanbu. Sometimes, but not often, meals are also provided by guides [354: p.439]. It is obvious, therefore, that the pilgrim guides have a wider range of duties than those covered by the English word "guide".

Although many of the guides serve more than one nationality, most show a preference for one specific nationality. Table 8.1 indicates that the strongest motive for specialisation in certain kinds of pilgrims is the government decision concerning the maximum quota of pilgrims. This cannot be taken as wholly reliable as many guides expressed extreme dissatisfaction with the government's decision to limit their allocation of pilgrims with little or no consideration being given to the real motive behind their specialisation. Their dissatisfaction is partially due to the practice of certain middlemen who intercept pilgrims at the entrances to Medina, claiming to represent the official guides and diverting the pilgrims to their own clients premises. At the end of the pilgrimage season guides have no proof of

TABLE 8.1 GUIDES REASONS FOR SPECIALISING IN SERVING CERTAIN GROUPS OF PILGRIMS

Language	Guides' Origin	Official Share	Language + Official Share	Origin + Off. Shr.	Language + Origin	Language + Origin + Off. Share
3.5	4.3	66.1	11.3	8.7	2.6	3.5

Source: Field Study, May to August, 1977.

serving these pilgrims and consequently their shares of the rewards from the government were reduced. The second highest percentage of specialisation of guides appears to be motivated initially by a knowledge of the language of certain groups of pilgrims, and mainly as a result of the government decree. Those who reported origin or language as reasons for their specialisation have a low percentage of 4.3% and 3.5% respectively, this is because most of these guides are small scale operators and do not consider the official share as a real motive, because the allocation lies within the range of their usual ability and service. Surprisingly, the percentage of those who reported that their motives were language and origin, and to some extent also the allocation system, was low. The present generation of guides have rarely retained the language of their country of origin as would their fathers; continual mingling with the local population has dulled their knowledge of their native language and their origin remains largely tradition.

Until 1975 the number of pilgrims served by each guide was dependent on several factors:

a) The length of time a guide has served in the profession upon which depends his reputation.

b) How a guide treats his pilgrims, the greater their satisfaction, the more assured he is of receiving more pilgrims next year.

c) Some guides visit the countries of origin of their pilgrims during the off-season contacting people and encouraging them to perform the Fifth Pillar of the Faith, offering to ease their prospective journey by good service if they become their clients.

d) Some guides provide cards bearing their names and addresses and a resume of their service for pilgrims to distribute amongst their friends and relatives on their return home.

e) Some advertise in the press of the native countries of their pilgrims.

Thus the number of pilgrims a guide acquires depends on the scale of active involvement in these methods for attracting clients. The writer's survey of 1977 revealed that before 1975 about 22% of guides employed one of these methods, 50% used two methods, 25% used three

methods and 3% used four or more of these methods. However, since the new regulation of 1975 these methods have little or no effect as every guide receives remuneration only for the number of pilgrims allocated to him by the government. This was disastrous for those guides who could not develop their business, and those only allocated small shares cannot afford to open offices to serve pilgrims during the present trend of rising costs. Many of the smaller guides now enter into contracts with larger guides to service their pilgrims, sharing a quarter or a third of the income. If these contracts were included, the total number of guides catering for pilgrims in Medina would be 193, and if their descendants, who have the right to be guides, were also included the number would rise to 1,272 [401: p.2].

The number and type of pilgrims he serves may be an important factor in defining the length of a guide's pilgrimage season. The guides survey revealed that on average a guide spends about two months of each year serving pilgrims, but in fact some of them exceed this average often serving pilgrims for as long as three months. Conversely there are others who reported pilgrims arriving only ten days before the commencing day of the pilgrimage and departing as early as 15 days after the end of the pilgrimage and for these the pilgrimage season lasts less than one month. The significance of this short duration is in its impact on employment, accommodation and other services which the guides try to maximise during a short stay.

It is noticeable that the length of stay is also dependent on pilgrims mode of travel and area of origin. For example guides who serve pilgrims from Pakistan and India, a high proportion of whom travel by sea, experience a longer pilgrimage season than those who serve pilgrims from neighbouring countries such as Iraq, Jordan or even beyond that such as Turkey. In the 1976 Pilgrimage season 30.5% of Pakistani pilgrims and 79.7% of Indians travelled by sea and guides serving these pilgrims experienced a pilgrimage season as long as three months. Pilgrims from Iraq, Jordan and Turkey travelling by sea accounted for 0.006%, 0.032% and 0.007% of their total respectively [212: 1976, pp. 1,3,4] and the pilgrimage season for guides serving these pilgrims lasted, on average, only one month.

The author's survey on benefits accrueing from the 1976 pilgrimage revealed that the total seasonal income to Medina's guides was some SR 8,683,500 (£1,578,818). Subtracting expenses from this figure gives a total daily profit to guides of SR 129,592 (£23,562). Taking into account the remaining 78 guides sharing profits without any expenses the profit would rise to SR 188,190 (£34,216). Moreover, if we include the guides' expenditure shown by the survey on local employees and local services or items such as electricity and vegetables the daily benefits to Medina's local economy from this sector would rise to about SR 195,451 (£35,537).

In the off-pilgrimage season most guides have other jobs, in fact the author's survey of occupation showed only 3.6% of them have no other jobs, apart from renting their premises to visitors who come to Medina on other occasions such as the months of Ramadan or Rajab. The total daily off-season income for all registered guides is about SR 5,467 (£994) which is only 3.8% of their daily income at Hajj season from pilgrims services fees.

8.2 The Significance of Length of Stay.

Until early this Century, when the steamship became the main mode of travel, pilgrims remained in the region for longer than they do now. Many started the pilgrimage journey from home as early as the sixth month of the Arabic year [353: p.269], whereas the pilgrimage proper does not take place until the 12th Arabic month. Many spent the month of Ramadan in the holy area (Medina or Mecca), while others stayed in the area after the pilgrimage until the third or fourth month of the next year.

S. El-Hamdan (1976) analysed the development of the pilgrim's stay in Saudi Arabia from 1951 to 1973 using the official statistics of the Ministry of Interior which give dates and numbers of pilgrim arrivals and departures each year. The conclusion reached was that there was a tendency towards a decreasing average length of stay from 66.3 days in 1951 to 36.2 days in 1973 for all foreign pilgrims [416: p.197], this means that nowadays the average stay of a pilgrim is almost half that of 1951. This short stay of a pilgrim in Saudi Arabia may be indicated by more recent statistics. For example, in 1392 A.H. (1973) 73.7% of all foreign pilgrims arrived by the first day of the month of Dhu Al-Hijjah (seven days before the beginning of performing the actual rituals of the Hajj), but in 1976 only 66.6% of foreign pilgrims arrived in the country by that date [416: p.190; 32: p.1]. With regard

to Medina, the author's 1976 survey of pilgrims revealed that the average stay is nine days. Unfortunately there is no data on the length of pilgrim's stay in Medina as early as 1951, but on the same basis of decreasing length of pilgrim's stay in Saudi Arabia, one can reach an approximate estimate of length of stay in Medina in 1951 of about 15 days.

The important fact which it is necessary to investigate here is whether the present short stay of pilgrims is accompanied by proportionately less spending. In relation to the whole country of Saudi Arabia, the records of the Saudi Arabian Monetary Agency show that the contribution of the pilgrimage towards the country's balance of payments has risen from about £23* millions in 1965 to about £392** millions in 1976 [191: 1977, pp.140-141]. Dividing the total amount of money brought in by the pilgrims by the total number of pilgrim days spent shows that the average daily spending increased from £2 in 1965 to £9 in 1976. Thus on average a pilgrim spends more money in the country than he did in early times, even though he now stays for a shorter period of time.

Pilgrimage expenditure in Medina has also increased over the years. In the second half of the 19th Century it was estimated that a pilgrim spent about £13 in Medina for an average of eight days, but by 1972 this had increased to £66.6 [422: p.81]. In 1976, the author's sample survey of pilgrims revealed a higher average expenditure in Medina, made up as in Table 8.2.

TABLE 8.2: AVERAGE TOTAL EXPENDITURE OF A PILGRIM IN MEDINA, 1976

Type	Expenditure		% of total 1976	% of total 1972
Accommodation	SR 329.0	(£59.8)	29.5	12.6
Gifts	SR 238.6	(£43.4)	21.4	56.5
Food	SR 208.0	(£37.8)	18.7	8.9
Transport	SR 98.3	(£17.9)	8.8	3.0
Religious donations	SR 38.5	(£ 7.0)	3.5	2.0
Others	SR 201.3	(£36.6)	18.1	17.0
TOTAL	SR 1,113.7	(£202.5)	100	100

Sources: 1. Field work, November to December 1976

2. Mecci, M.S., 1975, Aspects of the Urban Geography of Medina, Saudi Arabia, M.A. thesis, Dept. of Geography, Univ. of Durham, Durham, p.81.

* April, 1965 Conversion rate = SR 12.6 = £
** December, 1976 Conversion rate = SR 5.5 = £

This means that the cost to a pilgrim of one day in Medina has more than doubled in four years rising from about £8 in 1972 to about £23 in 1976. The national cost seems lower than that of Medina which may be because the first figure represents only the official receipts of the government and that declared by pilgrims, whilst the other is derived from pilgrims themselves who almost invariably bring more money into the country than they declare to official channels. Taking into account the estimate of the firm of Robert Matthew that 99% of foreign pilgrims visited Medina in 1392 A.H. (1973) [422: p.5], the above daily estimated expenditure would give Medina a revenue of about £144,150,000 in the 1976 pilgrimage season.

The findings of the 1976's pilgrims survey and its comparison with the percentage of 1972 survey indicates that the cost of making the Hajj has increased in recent years, which has caused hardship to some pilgrims from poor Islamic countries. The worst thing which can happen is if a pilgrim loses his money, since it is nearly impossible to remain comfortably in the area even if he decides to beg from other pilgrims in the street or from relatives. L. Blandford noticed that the pilgrimage is a time of increasing theft and accidents [44: p.114]. Records proved that in recent years more accidents of theft (and even accidental killings) among and by pilgrims have arisen during the pilgrimage season. For example in 1966 only three cases of theft were reported, while in 1976 the figure reached 32 in the pilgrimage season alone*. All this may be due to the sudden increase in the cost of living in the country and ignorance of costs among certain pilgrims forcing them into crime.

This is borne out by the findings of the above survey (Table 8.2) which indicates that expenditure on food and accommodation for a pilgrim has almost doubled. The pattern of spending has also changed. In 1972 priority was given to luxury items such as souvenirs and gifts, but by 1976, expenditure of these items had halved and food and accommodation were priority items.

The real effect on the economy of the area depends on the amount lost to other regions or outside the country, for example through imports, and the more goods or services produced locally, the smaller

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* Unpublished records at Crime Statistics Section, Public Security Department, Medina.

the leakage from the local economy. Thus, the recent fashion towards spending on food and accommodation may be beneficial to the area as these are largely of local origin, while gifts and souvenirs are mostly imported from abroad. In this chapter the effect on the local economy is explained and measured for every activity. The current trend towards high prices for food and accommodation is not always a good thing, in fact some economists believe that if prices were lower sales would increase and although profit margins would be smaller, the total turnover would improve by virtue of the increased volume of items sold [164: p.72]. This means that although leakage is high in the gifts trade, the fact that many traders are involved spreads the benefits of the pilgrimage over a wider sector of the population rather than concentrating on a few landlords and hoteliers. But the case of locally produced food suggests a soundproof backing in favour of the first argument although price fluctuations here are also governed by climatic conditions and peak demand (Chapter 7).

The rising cost of performing the pilgrimage has not been offset by the reduced time; this suggests that richer pilgrims are encouraged to perform the Hajj. This theory was tested in the pilgrim's survey of 1976, it was found that pilgrims come from a wide range of occupational categories. The different occupations were divided according to their level of income as in Table 8.3.

TABLE 8.3: PERCENTAGE OF PILGRIMS AND PER CAPITA MONTHLY INCOME IN £ FOR DIFFERENT OCCUPATIONS, 1976

Rank	Occupation	Level of income and percentage of pilgrims						
		less than £50	£51 - £200	£201 - £400	£401 - £600	£601 - £800	£801 - £1000	+ £1000
1	Professional	1.9	23.7	6.6	3.1	0.9	0.9	2.7
2	Unskilled Labour	15.2	10.0	2.7	1.9	-	0.2	-
3	Housewives	14.0	-	-	-	-	-	-
4	Skilled Labour	5.6	5.1	1.0	0.2	0.2	0.2	0.3
5	Retired	2.2	-	-	-	-	-	-
6	Students	0.9	0.5	-	-	-	-	-
		39.8	39.3	10.3	5.2	1.1	1.3	3

Source: Field Work, November to December, 1976.

Table 8.3 indicates that there is some correlation between income; educational achievements, and the number of pilgrims coming to Medina. The total share of the second and third columns which represent medium income level, and the fourth to the seventh columns, which represent the high income level, is more than the first one which represents the low income level (60.2% for the former and 39.8% for the later). The top row which includes professional and managerial classes has the highest value in the table, although they decrease as the income level rises. This may be due to the fact that most countries supplying pilgrims are from the Third World where the average per capita income approximates to the second and third level of income in Table 8.3.

Housewives constitute about 14% of the pilgrims occupying the third category of the occupational structure. But in the total sex structure of pilgrims women accounted for much more than 14% as many of them had some professional occupation although of lower medium income groups; in 1973, they composed 36.7% of all pilgrims to Saudi Arabia [61: 1974, p.170]. In the last Century women accounted for only a small proportion due to hardship of travel and insecurity, for example, Ali Bey (1803 to 1807) in his travel through Arabia estimated that only 2.5% of all pilgrims were female. The present increase in the numbers of women may be due to improved forms of transport but most of all to greater security in Saudi Arabia, but male pilgrims still constitute the majority. This is because, according to religious tradition, women are not expected to go on Hajj unless they are accompanied by a male relative, and this is yet another example of the difference between the Muslim pilgrimage and those of other religions. For example, 70% of all pilgrims going to Lourdes in 1973 were female, as most of these pilgrims came as tourists [270: p.327]. Housewives have low incomes either because they have never worked or are widows dependent on Social Security or because they must take low paid employment.

Retired people accounted for only a small percentage; only those with a government pension and a small private income could afford the pilgrimage, although some of these repeat the Hajj several times (Chapter 2) since they have no jobs to restrict their movement. Students also were few in number as the pilgrimage sometimes fell during term-time, as was the case during the author's survey in 1976. Dividing the above table into the economically productive (52.4%), which includes the first and fourth horizontal columns, and unproductive (47.6%), which includes

the rest, would prove the hypothesis that nowadays pilgrims are mainly from high or middle income groups. This would possibly be more significant if similar information was available, for previous years such as the 1960's before the present rapid price increases.

Another proof of the effect of income on pilgrims emerges on analysing the mode of travel of different income levels to the country and to Medina. Until the 1960's most pilgrims from South East Asia came to Saudi Arabia via cheap and slow sea travel. Pilgrims crossing the Sahara or Central African Savanna lands to reach Saudi Arabia, spent an average of two years on the journey, some took more than 30 years, virtually a liftime [174: pp.20-30; 258: p.47; 361: p.272; 366: p.272; 385: p.761]. J. Birks, in his thesis, makes the average nine years for performing the Hajj overland from West Africa, and agrees that this was almost the sole means of transport for poor pilgrims, although within this group he differentiates between pilgrims with disposable cash income and the kind of route they followed [935: pp.132,165,305]. This long and hazardous journey encouraged them to move in family units [43: p.299] which may be the reason behind the higher proportion of married African immigrants residing in Medina (see Chapter 9). Undoubtedly, some embark upon the pilgrimage as a result of such complex of factors as congestion on pastures, or increasing taxes on their livestock and to visit relatives in the east, as well as the basic desire to make the pilgrimage [43: p.49]. At the present time, air is the most favoured form of travel among pilgrims, even for the lower income groups from West Africa, due to the geographical location as well as recent political barriers as the journey by air is easier and faster than the long sea route around North or South Africa. However, although air travel is faster, it is more expensive and may cost some pilgrims their life savings which may be the reason behind the apparent popularity projection of a return to overland travel in the future by many West African pilgrims [259: p.216]. Sometimes the overland trip from West Africa to Mecca is more expensive than the air charter package due to the expenses of border duties, accommodation and illegal passages [435: p.183]. Some poor West Africans manage to travel much cheaper but through unsafe areas away from border posts, agents and guides [435: p.132]. The overland pilgrim undergoes much hardship and spends a comparatively longer time getting the necessary funds for the journey; however, it would probably take even longer if he stayed at home trying to save for an air flight to Hijaz

without a huge reduction in air travel fares. As soon as these pilgrims land at Jeddah most travel to Medina by bus which is cheaper than taxis, about 77% of pilgrims interviewed by the author in 1976 came to Saudi Arabia by air or sea, and of these 94% travelled to Medina by bus, the remaining 6% travelling by taxi or other means.

With regard to pilgrims from India, where opportunities for sea and air travel are almost equal, income level is the deciding factor. Amongst Indian pilgrims in 1976, 79.7% came to Saudi Arabia by sea and only 18.5% by air, about 97% of the first group and 41.5% of the second group came to Medina by bus, the remainder travelled by taxi or other means. Thus almost all pilgrims travelling by sea to Saudi Arabia complete the journey to Medina by bus, while a lesser proportion of the high income group travelling by air, complete the journey to Medina by bus.

8.3 Accommodation.

Accommodation is provided independently by guides, hoteliers and private houses in Medina. In the past these facilities coped with the seasonal influx of pilgrims with an acceptable degree of overcrowding. In 1392 A.H. (1973), Robert Matthew estimated that 83% of all pilgrims visited Medina. Applying this percentage to the 1976 total means that over 1,208,840 pilgrims visited Medina that year. Such a large influx means that the limited facilities which could cater for the needs of the city's small population became inadequate during the pilgrimage season. However, the type of accommodation revealed by the author's survey of pilgrims in 1976 indicated five main categories of accommodation (Table 8.4). It is appropriate in the following paragraphs to shed some light on each category.

Accommodation provided by guides is the most traditional and most commonly used by pilgrims. As a result, some of these guides own large buildings and operate their own businesses which provide them with a larger income than their fees as guides. Others rent buildings annually for pilgrim accommodation and this is the normal way of catering for large numbers of pilgrims; this too is a lucrative investment. There is, however, a third group of guides, depending on the number of pilgrims they serve, who accommodate the pilgrims in their charge in their own or rented homes for the period of their stay in Medina. The author's survey of the 1976 pilgrimage season showed that only 3.5% of Medina's guides used their own houses instead of hiring property to accommodate

TABLE 8.4 TYPES OF ACCOMMODATION USED BY PILGRIMS AND PROFITS AND LEAKAGES IN THE 1976 PILGRIMAGE SEASON

			E X P E N S E S						P R O F I T					
		1	2	3	4	5	6	7	8	9	10	11	12	13
Type of Ownership	% of all pilgrims	Income	Wages for non-Saudis	Wages for Saudis	Purchases	Maintenance	Rent	Taxes	Total leakage from income earning.	Total Profit	% of income	Total leakage from local economy	Total Profit to local economy	% of total original income
Guides Accommodation	61	42,139,800	615,222	212,853	65,300	100,704	4,876,681	24,334	5,895,094	36,244,706	86.0	502,728.0	41,637,072.0	98.8
Private Houses	23	17,734,900	48,000	22,000	12,563	219,693	1,315,417	-	1,617,673	16,117,227	91.0	190,815.0	17,544,089.0	99.0
Hotels ..	8	21,333,260	1,166,214	330,164	778,977	349,215	777,685	17,841	5,160,401	16,172,779	75.8	3,420,096.0	17,913,164.0	84.0
Friends or relatives	3	10,678	-	-	6,711	-	-	-	6,711	3,967	37.2	6,596.0	4,081.1	38.2
Others	5	106,200	-	-	14,580	-	-	-	14,580	91,620	86.3	14,334.0	91,866.0	86.5
Total	100	81,324,838	1,829,436	565,017	878,131	669,612	6,969,783	42,175	12,694,539	68,630,299	84.4	4,134,569.9	77,190,272.1	94.9

Source: Field Study in November to December 1976 and May to August 1977.

* Column 9 (Profit) = Income (Column 1) minus expenses (Columns 2 - 7).
Column 11 (Leakage) = Elements of expenses (Columns 2 to 7); see text, p.205.
Column 12 (Total profit to local economy) = total profit (Column 9) plus elements of expenses (Columns 2 - 7) which represent expenditure locally.

their pilgrims, 64.3% hired premises for their pilgrims, and 32.2% used their own and rented property.

Many guides rent houses before the season begins, basing their calculations on the number of pilgrims expected and the experience of previous pilgrimage seasons. Others start renting only when their pilgrims exceed the capacity of their own premises; however, there is a risk of not finding vacant properties or of only being able to rent at high prices. Equally, pilgrim numbers may fall below expectations as happened in 1976 (Chapter 4).

Many of the rooms provided by the guides are in high rise buildings which remain vacant during the off-seasons, or are rented out temporarily at other seasons such as the months of Ramadan and Rajab when Saudis and non-Saudis visit Medina and they may be charged more than a full year's rent for similar properties which are permanently occupied. The survey revealed that only 18.3% of the rooms used by guides to accommodate their pilgrims are owned by them, the remaining 81.7% are rented. This might ostensibly reveal a high leakage of guides revenue through rented houses, but in actual fact it is not a leakage from local economy, as it goes to the local private sector, except payment to non-Saudi employees, those which are for non-local goods and the taxes which go to the central government. The inflationary rents in the area are only very recent, and many houses used by guides are rented according to contracts concluded before the trend towards higher prices. The government act of 1975, preventing property owners increasing rents to existing tenants has prevented large losses in guides' revenue.

Apart from the private houses rented by guides, there are families who move into one room of a house in order to release the rest of the rooms for renting either personally or through middlemen. Due to the increasing number of pilgrims and the disappearance of many dwellings near Al-Haram, many private houses on the edges of the city centre began to accommodate pilgrims as in Bab-Ash Shami and Koba areas which before the 1970's rarely accommodated pilgrims.

These private house owners have fewer expenses than the previous category as they employ either few or no workers. They do not pay taxes and their only expenses go to middlemen, door keepers and their own rent and maintenance; the latter two items would be incurred whether or not they rented to pilgrims, but landlords are likely to spend more on maintenance for premises which are their own homes and not used solely

for renting.

Due to a shortage of hotel accommodation, only a fraction of all pilgrims can be provided with this type of accommodation. There are only 41 hotels of different classes in Medina, and their rates sometimes double or even treble during the pilgrimage season, making them very expensive for pilgrims of low income. The shortage of hotel accommodation is illustrated by the fact that most hotels reach capacity even in the off-pilgrimage season, but they ensure maximum benefit from the Hajj season by doubling their prices at this period of high demand. The author's survey of May to August 1977, showed that in the off-season only 55% of total hotel rooms were occupied, but the vacancies were almost wholly in hotels away from Al-Haram. Hotels near Al-Haram are always fully booked, and visitors prefer to stay in homes near to Al-Haram in preference to more distant hotels.

The economic impact of the hotels depends on the proportion paid out in wages and salaries to expatriate labour, the quantity of imported or purchased goods, and the payment to owners outside the area; these combined factors contribute to the relatively higher leakage of hotel revenue. The author's survey revealed nine hotels with outside owners in Jeddah, Mecca, At-Taif, Riyadh and Kuwait, indicating that their profits probably represented substantial leakage from the local economy.

31% of Medina's hotels were owned by local people and this reduced rent payment in Table 8.4 compared to other types of accommodation. Wages of Saudi hotel employees were higher than in other types of accommodation due to the fact that most Saudis work in the higher paid administrative and managerial jobs and compose only 18% of the work force in hotels, leaving the lower paid jobs such as waiters and cleaners to non-Saudis, many of whom are temporarily employed for the Hajj.

The fluctuation of hotel activity is clear from the high work force engaged during the Hajj season, for Saudis it increases by about 60% and for non-Saudis by about 41%. Income and profit are also greatly affected by increased seasonal activity; the total daily income for all hotels in the 1976 pilgrimage season was about SR 355,554 (£64,646) compared to an average of about SR 83,368 (£15,158) per day during the off-season; the total daily profit which was about SR 268,620 (£48,840) in the pilgrimage season, reached SR 41,055 (£7,465) for a similar day during the off-season. During the Hajj season only one of the 41 hotels did not produce a profit, but as this was a new hotel, its capital expenditure on purchased items was high and one season could not cover

the outlay. However, in the off-season about 34% of hotels reported losses, due to high expenses generated by high rents.

The fourth category of accommodation, with friends or relatives represents the smallest share of accommodation revenue as pilgrims in this category rarely pay rents, or only token ones. Therefore their share in the local economy is very limited in relation to accommodation, although their spending might be significant in other respects such as for food and transport.

The fifth accommodation category, referred to as 'others' includes camps in which pilgrims stay and are either officially assigned or merely set up on the open ground along main roads. Others sleep in cafes, especially popular with Yemeni pilgrims, on street pavements, in fields, and in the hostels of religious institutions. The contribution of this category to the local economy is obviously not very high, and many items (with the exception of beds) have not been considered in Table 8.4. Yet only a minimal leakage from these categories is expected. As the provision of beds is not the main function of cafes, this expenditure should be calculated separately. The traditional "mirkaz" (bed like seats) act as seats in daytime and can accommodate three persons comfortably, at night they are converted into beds. Cafes, especially those on the city's peripheries, store beds, pillows and blankets for their customers who are mainly workers or those in the low income groups but during the pilgrimage season their income from accommodation increases by 164% and their profit by 177%.

The main function of cafes and restaurants is boosted considerably by the Hajj. Yet with some pilgrims, such as the Kuwaitis and Iranians, bringing their own cooking utensils and some foodstuffs, the increased demand on local services is not directly proportional to the visiting population. The total estimated income of these local establishments in the Hajj season is SR 5,025,600 (£913,746) and the owners profits account for 53.4% of this income. Calculating the leakage of this income on the same basis as in Table 8.4 would raise Medina's economic profit to SR 3,834,120 (£697,113) which is about 76% of the income from this sector. Comparing this income and profit with off-season days shows increases of 74.7% and 142% respectively. The profit on off-season days is only 38.4% of the total income, almost half that during the Hajj.

In response to these increased returns and activities these units must increase their capacity to meet demand and this consequently creates work for other sectors; the work force in this sector increased by 40.6% during the Hajj period. Only 3.5% of workers at Hajj time and 4.9% at off-season are Saudis as nowadays this kind of work is unattractive to them, and this means a high leakage of revenue via expatriate workers. Seating capacity in cafes also increases by 32.5% during the Hajj period in 62.2% of the units only, as cafes located on the edge of the city did not increase their seating capacity. Extra seating is provided by using folding or metal chairs which can easily be stored in the off-season.

The relatively high number of chairs (2493) and workers (165) in the off-season time is an indication of the importance of cafes in the city life; due to the absence of other organised forms of amusement they provide a valuable amenity although Medina, unlike many other cities of Saudi Arabia, has alternative recreational facilities in the form of its surrounding private orchards. Cafes mainly provide customers with tea, soft drinks and hookah, and at night some provide meals and sleeping accommodation. Above all they provide a place for meeting friends, having a chat, or simply seeking relaxation especially on cool summer nights.

Following an overview of the ways of accommodating pilgrims, a numerical value may be assigned to each of the accommodation components. The multiplier formula:

$$\text{Total proportional income increase} = A \times \frac{1}{1-BC}$$

Where

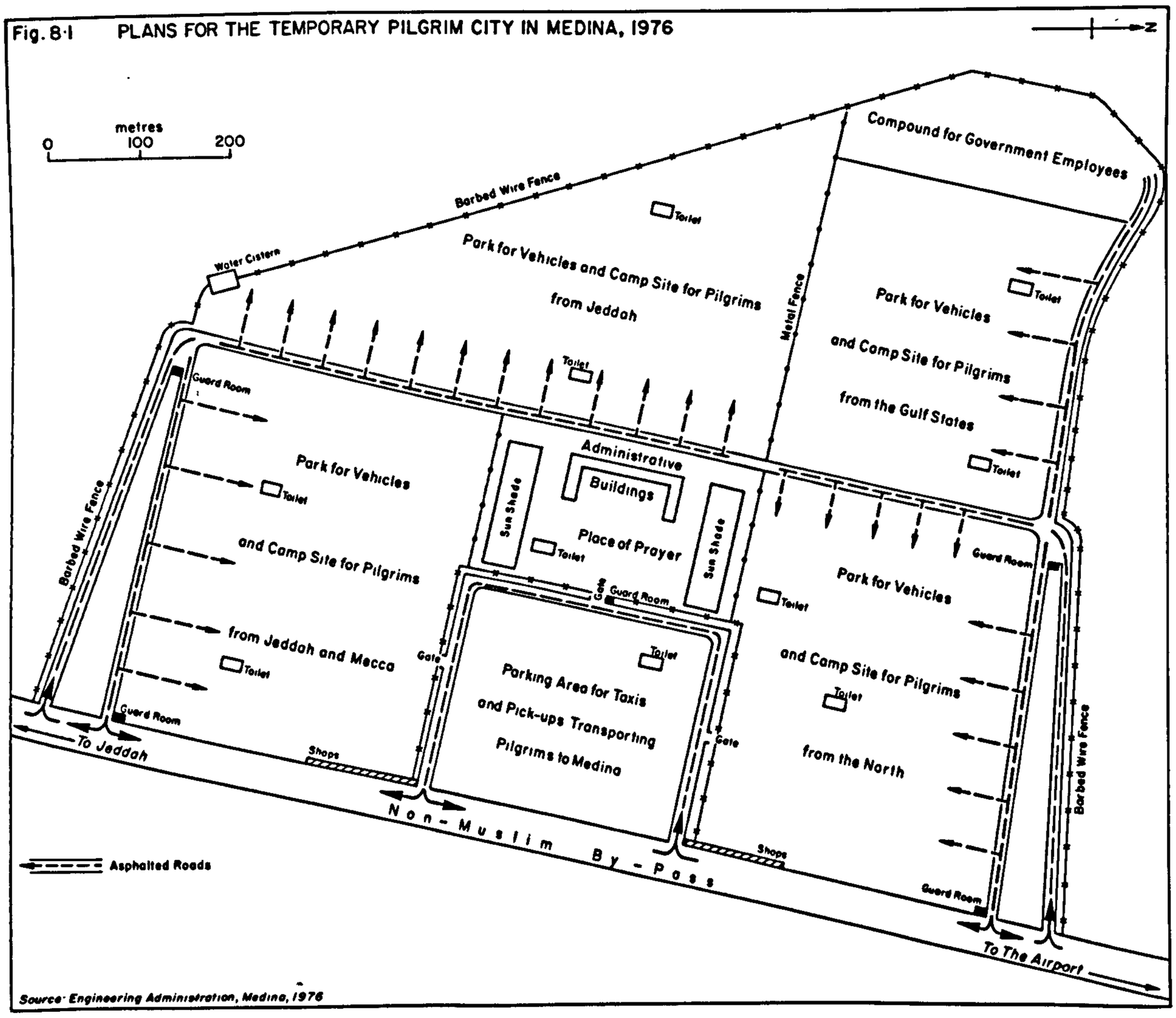
A = proportion of pilgrim expenditure remaining in the area.

B = proportion of income that the owner of the accommodation spends on local goods and services.

C = proportion of expenditure of local people (own or work in accommodation) that accrues as local income.

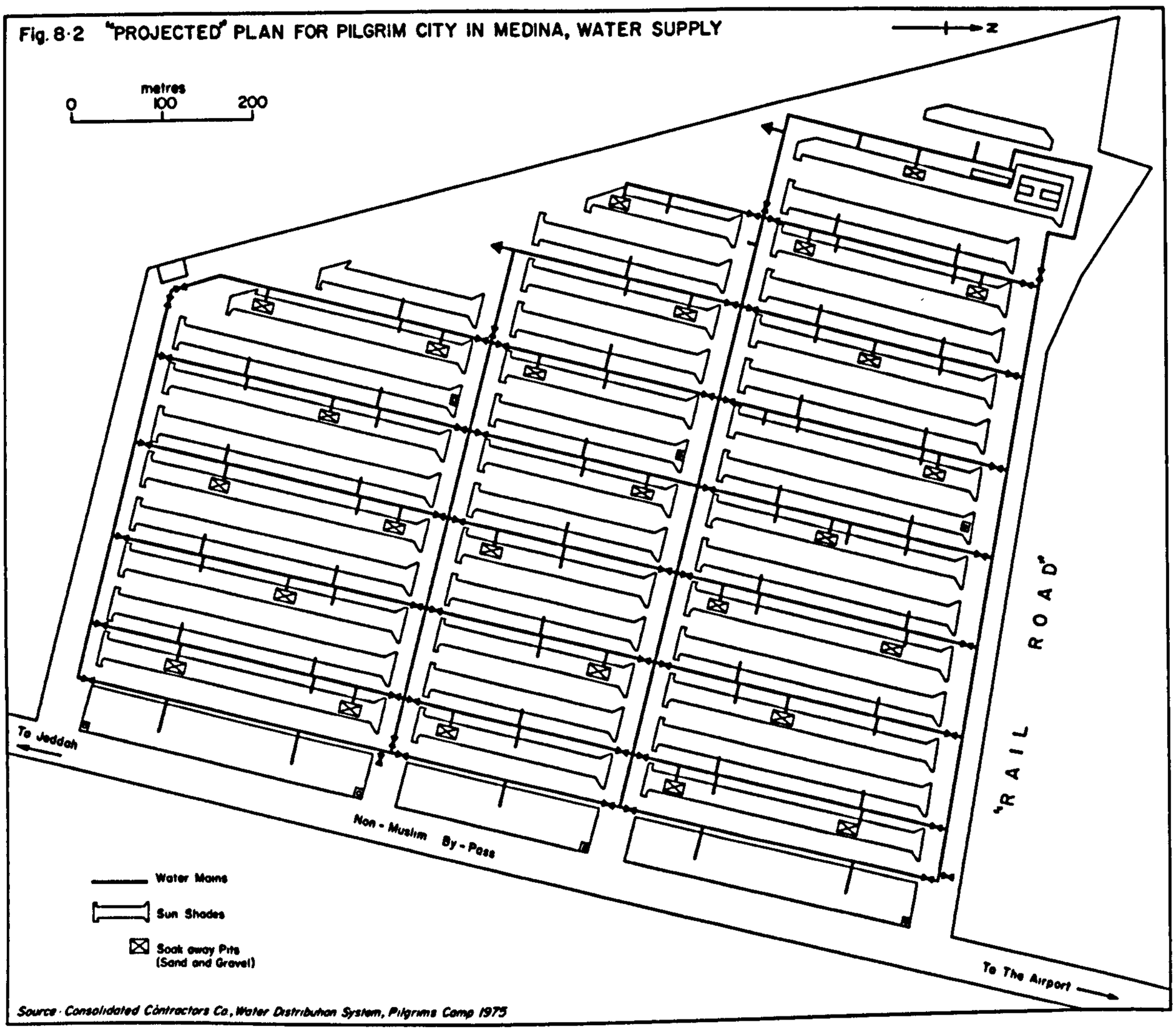
may be useful [249: p.290; 393: p.56]. This formula has been developed by Archer and Owen, but the developed version proved inadequate as it demands information of a type unavailable to the author. However, the original formula is a useful guide for an approximate evaluation of the benefits of the different kinds of accommodation to the economy, although its results in this section cannot be taken at face value, as the C element here is only an

Fig. 8·1 PLANS FOR THE TEMPORARY PILGRIM CITY IN MEDINA, 1976



Source: Engineering Administration, Medina, 1976

Fig. 8·2 "PROJECTED" PLAN FOR PILGRIM CITY IN MEDINA, WATER SUPPLY



Source: Consolidated Contractors Co., Water Distribution System, Pilgrims Camp 1975

estimation (based on a consideration of the nature of the expenditure of retailers discussed in the former Chapter). Nevertheless, applying the formula to the information in Table 8.4, it indicates different values generated from each pound spent by customers in each sector as follows:-

Guides' accommodation	=	1.91
Private houses	=	1.95
Hotels and hostels	=	1.79
Friends and relatives	=	1.40
Others	=	1.86

In each case the unit 1 is the initial £1 spent, benefit from which accrues from customers who are mainly pilgrims; the remainder is the total repercusive benefit to the area after leakages. Some of these expenditures are peculiar to Medina but others, such as hotels may be compared with other areas. For example, in Anglesey in Britain, in 1968, hotel profit to the local economy was only 25 pence of each pound spent by the tourists [249: p.293], and in Edinburgh, tourists created only 29 pence in 1976. The small amounts created from visitors spending in the two above areas are due to many factors; one of which is the leakage of profit to owners somewhere else in the country [224: pp.21,31]. Another reason is possibly the expenditure on high quality services. It is noted, therefore, that development or redevelopment of accommodation is increasingly necessary in response to the demands of pilgrims for housing and for more benefit to the local economy.

In considering the accommodation problem for pilgrims visiting Medina some thought has been given by the authorities to establishing a "pilgrim city" or camping sites on the outskirts of the city. Overland pilgrims are conveniently sub-divided into those travelling in private cars and those in other vehicles. Those arriving in private cars are allowed to enter Medina directly, while pilgrims arriving by coach, lorry and other large vehicles are diverted to the non-Muslim by-pass to park in a specially reserved area. Pilgrims then make their own way into the inner city, thus reducing traffic pressure within the city. In 1976 increasing congestion inside the city led to a prohibition of all pilgrims' cars from entering the city.

Necessary facilities such as a water supply, electricity, shopping extensions and sun shades are planned in the reserved area (Fig. 8.2). Although the initial site has been fenced and serviced by main roads

Plate 8.1 The outside of the camp for pilgrims arriving overland.

Plate 8.2 The inside of the camp for pilgrims arriving overland.

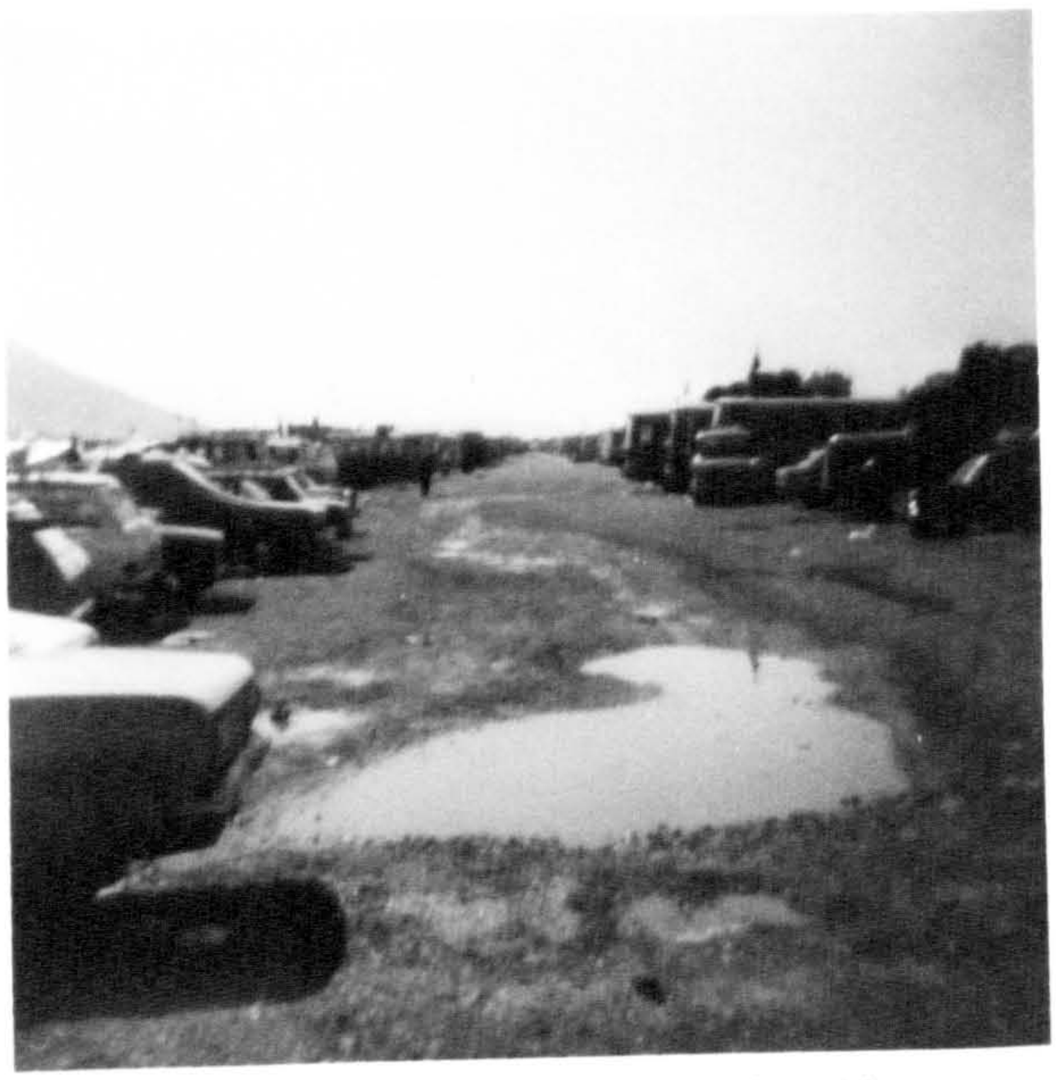


Plate 8.3 Waste water gathering in the camp for pilgrims arriving overland.

(Fig. 8.1, Plates 8.1 and 8.2) with official sites for police and fire engines, it would seem that the huge numbers of cars* and people gathering even for only a short time, create an unhygienic environment with, for example, waste water gathering (Plate 8.3), and an urgent solution such as the rapid execution of the planned structures are necessary to create a healthy environment for the city and pilgrims.

The idea of pilgrim city has, however, certain disadvantages; the construction of this city, which would only be used for a limited period of the year and stand idle for the rest, would be expensive. It would deprive the city of pilgrim spending in the active sector of its economy, i.e. accommodation. The pilgrim city is to be located about four Km north of the city centre and this could deter pilgrims from using such sites. All these difficulties lead to the conclusion that the best solution to accommodate the increasing number of pilgrims would be to develop some vacant land on the fringe of the centre, such as that to the east of Abi-Zar street, and exercise control over rents to suit pilgrims of low income groups and prevent the practice of poor pilgrims "camping out" on street pavements (Plate 8.4) because they could not afford proper accommodation on high fares. This type of pilgrim ignores the tenet of Islam which encourages only people physically and financially able to perform the Hajj without giving offence to themselves (by bearing intolerable hardship), or to the visited area (by creating economic and hygienic problems).

Although there is no complete official data for the real income and leakage from the aspects discussed above, rough estimates have been made based on the results of the author's survey which indicate that expenditure on accommodation is one of the major items, and has a high impact on the area's economy, since there is not much financial leakage from the region involved, except for part of the construction costs of hotels which were impossible to assess and might extend over several years.

8.4 Pedlars and Pavement Vendors.

These traders are an important element in the commercial activities and associated congestion during the pilgrimage season in Medina. This is due to the traditional small size of the commercial core (see

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* 10,000 cars at one time in 1977 [301: p.16].

Plate 8.4 Pilgrims making street pavements their abode.

Plate 8.5 Street vendors in An-Nakhawlah street.

Plate 8.6 Small pedlars at Hajj time in Medina.

Chapter 4), aggravated by the displays of these traders. There are no official statistics on the number of pedlars in the city, but a survey by the writer in November 1976 (pilgrimage season) and in June 1977 (off-season) revealed some significant facts.

The most striking point in Table 8.5 is the number of sellers and the variety of items sold by them in the Hajj season compared with the off-season. This is due almost wholly to the influx of traders of low income groups from Medina Province, from other provinces in Saudi Arabia and from other countries. Throughout the year these vendors are closely watched by municipal inspectors in an attempt to keep the city clean and free from pavement congestion. Some exceptions were noted for certain pavement vendors, such as eggs, mint, local sweepers and water-skin sellers, who are considered by the authorities to be vital to local trade and certain places have been assigned to their activities. These vendors from the countryside visit the market regularly selling small quantities of farm produce, and their numbers rarely fluctuate during the Hajj or non-Hajj season.

At the time of the Hajj similar surveillance of pedlars is carried out, and such activities have been prevented by decree [323: p.5], especially for foreigners who in the 1976 pilgrimage season comprised 27.6% of all pedlars. Congestion in the city, and to some degree relaxation on the part of the authorities has,however,encouraged pedlars to continue to trade, particularly where local people are sympathetic towards them, especially if a bond exists between them such as membership of the same religion sect. For example in the 1976 pilgrimage season many street traders from Al-Qatif in the Eastern Province of Saudi Arabia and from Bahrain were observed selling fabrics in An-Nakhawlah street (Plate 8.5). These traders, like many of the inhabitants of this street are followers of the Shi'ea sect, and when the local people see municipal inspectors approaching they open their house doors to allow these traders to hide their stocks. Apart from this, there is no real ethnic pattern behind the distribution of pedlars or pavement traders.

However, huge numbers of these traders do not trade in any specific spot in Medina but move around wherever trade is most profitable. When there are many from one country such as Turkey or Pakistan, they tend to congregate near each other, though for no better reason other than to chat between customers, but this does not happen when there are only a small number in any one street.

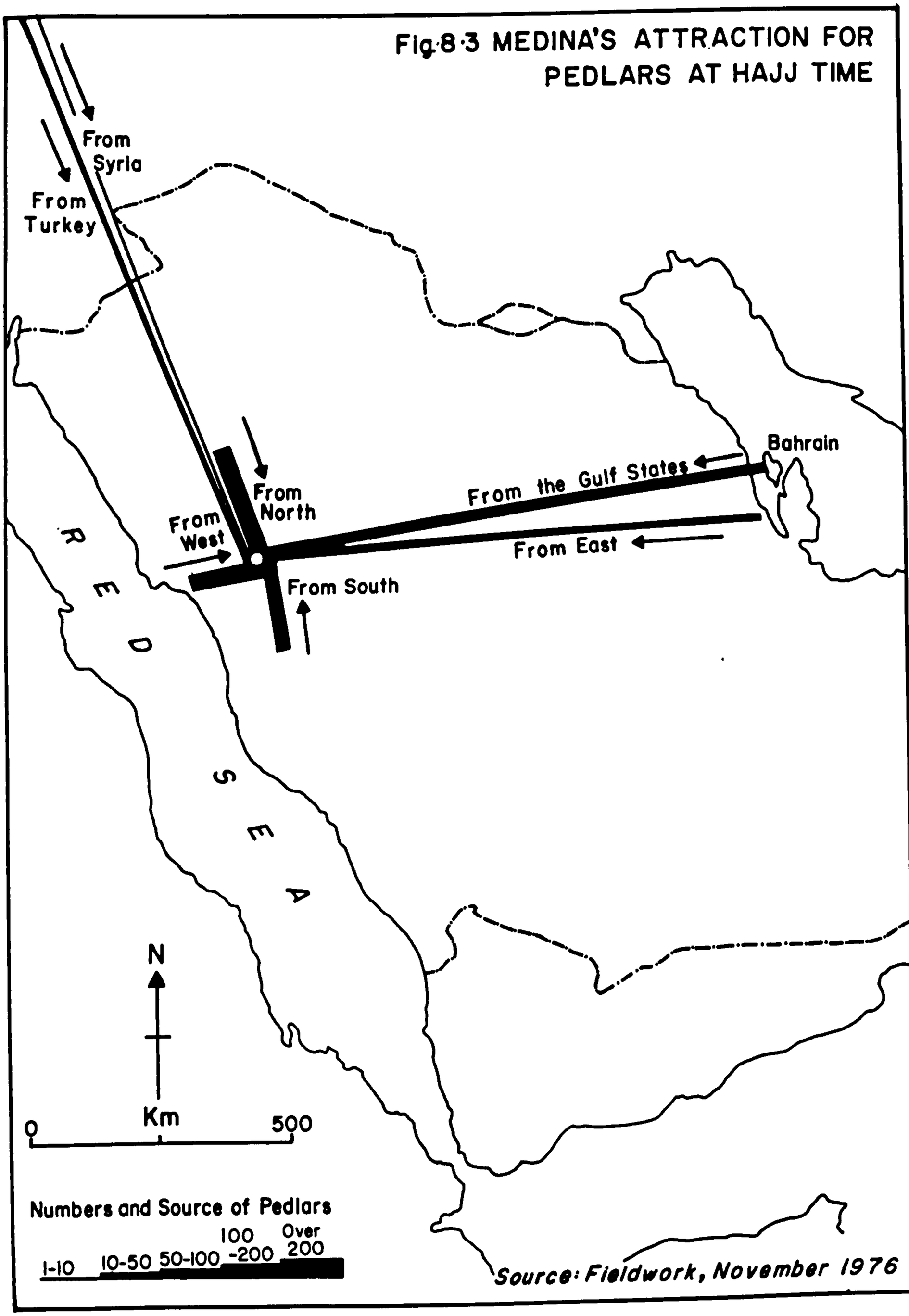
Almost all foreign pedlars trade in high value goods, for example fabrics by traders from the Gulf States, carpets by Iranians and Afghans

TABLE 8.5 NUMBERS AND INCOME OF PEDLARS AND PAVEMENT VENDORS DURING THE PILGRIMAGE AND NON-PILGRIMAGE SEASONS

Type of Vendors	NUMBER of PEDLARS		NATIONALITY				Average daily income per trader in S.R		Average daily expenses in S.R		Average daily profit per trader in S.R.	
			Saudis		Non-Saudis							
	Hajj	Non-Hajj	Hajj	Non-Hajj	Hajj	Non-Hajj	Hajj	Non-Hajj	Hajj	Non-Hajj	Hajj	Non-Hajj
Barters	18	7	8	1	10	6	30	18	7	3	23.0	15
Binnoculars	20	-	20	-	-	-	46	-	28	-	18.0	-
Boiled Beans, lupine & Fenugreek	6	4	-	-	6	4	15	10	10	7	5.0	3
Carpets	35	-	21	-	54	-	1,350	-	1,000	-	350.0	-
Children's toys	68	-	68	-	-	-	296	-	150	-	146.0	-
Cigarettes	45	18	12	-	33	18	31	18	25	12	6.0	6
Cold Beverages	26	-	21	-	5	-	150	-	98	-	52.0	-
Cold Water	10	-	9	-	1	-	20	-	0.5	-	19.5	-
Dates	67	-	67	-	-	-	186	-	93	-	93.0	-
Eggs	26	20	26	20	-	-	30	15	5	3	25.0	12
Fabrics & Cloths	75	-	21	-	54	-	1,500	-	900	-	600.0	-
Frankincense & Chewing Gum	25	5	19	2	6	3	112	45	80	30	32.0	15
Fruits	25	15	21	15	4	-	95	65	45	35	50.0	30
General Traders	156	20	145	18	13	2	107.5	35	83	25	24.5	10
Ihram Towels	11	-	11	-	-	-	560	-	425	-	135.0	-
Kohl(eye powder)	8	-	2	-	6	-	50	-	37	-	13.0	-
Local Sweepers	10	8	10	8	-	-	10	6	-	-	10.0	6
Matches	13	-	8	-	5	-	7	-	5	-	2.0	-
Mint	16	10	16	10	-	-	54	43	40	29	14.0	14
Nuts	7	4	7	4	-	-	78	55	54	33	24.0	22
Perfume	68	6	18	-	50	6	200	50	145	37	55.0	13
Photographers	25	-	17	-	8	-	200	-	40	-	160.0	-
Prayer mats	33	-	33	-	-	-	63	-	30	-	33.0	-
Rosafies and Necklaces	98	-	87	-	11	-	435.5	-	300	-	135.5	-
Ropes	35	-	27	-	8	-	54	-	43	-	11.0	-
Sandals	22	-	22	-	-	-	131.5	-	100	-	31.5	-
Second hand coats	18	4	12	2	6	2	88	56	46	35	42.0	21
Shoe Polishers	7	2	-	-	7	2	28	15	5	3	23.0	12
Socks	10	-	10	-	-	-	15	-	10	-	5.0	-
Tea	18	-	18	-	-	-	30	-	22	-	8.0	-
Traditional Head Caps	33	-	17	-	16	-	98	-	56	-	42.0	-
Traditional Ready made clothes	15	7	10	3	5	4	178	100	100	77	78.0	23
Watches	18	10	15	9	3	1	586.5	250	350	150	236.5	100
Water Skins	8	8	8	8	-	-	15	15	2	2	13.0	13
Others	50	12	37	4	13	8	47	28	31	18	16.0	10
Total	1,127	160	826	104	301	56	6,897	824	4,365.5	499	2531.5	325

Source: Field Study, in November to December 1976 and May to August, 1977.

Fig·8·3 MEDINA'S ATTRACTION FOR PEDLARS AT HAJJ TIME



Source: Fieldwork, November 1976

and perfumes by Syrians, Turks and Pakistanis. In general Saudi pedlars from Medina Province still benefit more from the pilgrimage season simply by virtue of their overwhelming number (Fig. 8.3). Officially traders from outside the country must leave by the end of the pilgrimage season, but those coming from the countryside or other villages in Medina province can be so attracted to the social life of the city that they remain with relatives to study or find jobs in the hope of increasing their earnings. This indicates an indirect effect of the pilgrimage on local migration.

Although a wide variety of articles are sold, many enterprises are very small, probably due to the fact that many pedlars are children working after a half day's study or even leaving their village or schools to live with relatives and work during this season (Plate 8.6). For this reason one finds that the average daily income for some pedlars - for example those selling matches, is less than £2. There is also a relatively high number of pedlars grouped under the heading "others" who are of only marginal standing as traders, e.g. the little boy who may be hawking a pair of scissors around one day and something totally different the next day; or the old African woman on the steps of the entrances of Al-Haram selling traditional toothbrushes made from a certain plant, or the plant known as "quro" used for chewing and usually sold to pilgrims and local residents of African origin.

The above may indicate the existence of a form of concealed unemployment, which economists believe to be a sign of weakness in the economy [169: p.41]. However, it is also argued that the involvement of children in the social and economic life of a city may prevent vandalism which has cost many societies millions of pounds [388: p.175]. Thus the country may do better to preserve the traditional pattern and award the child the dignity that goes with earning, though at the same time ensuring some measures to prevent this phenomenon from damaging the appearance and management of the city as has occurred in other oriental societies, for example in Hong Kong where every control procedure has ended unsuccessfully due to the great influx of refugees and the existence of illegal hawkers [151: p.36].

In the words of McGee "the degree of dualism is also undoubtedly affected by the economic base of any particular city" [151: p.37]. Dualism here means the existence of both the traditional system of trade represented in small shops, pavement sellers and itinerant pedlars and the modern type of commerce. The decreasing number of pedlars in Medina

in the off-season may reveal a trend towards an economy similar to the more developed countries; particularly as their increase during the Hajj is only temporary. Increasing per capita income may be partly responsible for the diminishing traditional trade system [151: p.41], as traders now have the money to pay rent on one settled location. In 1972, the average per capita income was £448 in Medina and about £434 in Hong Kong where pedlars have a drastic effect on the hygiene and appearance of the city [220: 1976, p.691; 429: pp.23,24]. Also increased wages and the availability of work opportunities have resulted in a reduction in Medina of pedlars who are associated in some societies with low wages [151: p.59].

To conclude, it is clear that the pilgrimage season is more profitable to pedlars when profits and purchasing costs are compared on certain selected items. For example, the purchase cost of supplies to sellers of boiled beans, luqine and fenugreek accounted for 66.7% of their returns during the Hajj, compared to 70% in the off-season. Corresponding figures for the cost of fruits were 44.4% during the Hajj and 53.9% in the off-season. Other goods and services which throughout the year are not sold by pedlars reaped a very high return during the pilgrimage season such as photographers whose costs represented only 20% of gross income leaving profits of 80%.

Pedlars are almost totally one-man businesses and their main expenses are on raw commodities. Knowing this expenditure and the average daily income would enable us to compare the approximate income of this sector in the pilgrimage season by applying the classical multiplier formula [17: p.56]. The formula is adjusted for this section as:

$$\text{Total proportional income increase} = A \times \frac{1}{1-BC}$$

Where A = proportion of pilgrim expenditure (through pedlars) remaining in the area.

B = proportion of income that pedlars spend on local goods.

C = proportion of expenditure of local pedlars that accrues as local income.

Using the information in Table 8.5, would result in a total income increase of 0.37. This means that every £ of pilgrimage expenditure in this sector probably created 37 pence of extra income to the area. Therefore, the repercussive benefit resulting from such expenditure can be calculated when the average length of stay or activity of these

Plate 8.7 Pick-ups waiting for pilgrim passengers at the entrance to Al-Anbariah pilgrim camp.

Plate 8.8.a Traffic congestion and pedestrians in the city centre.

Plate 8.8.b Crowds of people and traffic at the cemetery entrance.

traders in Medina in 1976 was known to be about 45 days. The result of the computation was SR 3,696,689 (£672,307). An estimate of the benefit to the local economy from such expenditure can be derived after subtracting the profit of non-local traders. The result would be SR 2,710,108 (£492,746).

8.5 Intra-City Transport.

This is the most difficult section in which to obtain information regarding income as those involved were constantly on the move. In travelling between cities, pilgrims use vehicles of the pilgrim transport companies, their own cars or local taxis and other types of vehicles. The first two will not be dealt with here as their contribution to the local economy is minimal, being only the purchase of fuel (which will be examined later in this section). With regard to the income of pilgrim Transport Companies, all owners and central offices are in Jeddah or Mecca and income leaves the area. Income to these companies in the 1973 pilgrimage season was estimated to be about SR 88,167,596 (£16,030,472) [416: p.293], but Medina had no share in it. Profit from this income is governed by many factors such as the import of vehicles and spare parts. Since 1975 drivers have also been brought from Egypt, as the increased cost of living makes the low wages of these companies unattractive to local drivers. Unfortunately no recent data is available on the expenditure and profits of Pilgrim Transport Companies, but for the period from 1955 to 1967 the annual rate of profit was estimated to be about 5% of income [399: p.317].

The 1976 pilgrimage season attracted vast numbers of private motorists from within Saudi Arabia, as well as pedlars from other countries and both of these sectors included a large proportion of non-local people. Contrary to some opinions [346: p.23], income was not confined solely to the pilgrimage region, but extended to areas beyond it, as is proved by the example of these two sectors, although pilgrimage has less effect on foreign drivers. This was mainly because the vehicles of foreign pilgrims are forbidden to enter the city, being forced to camp in a designated area outside the city, due to lack of parking space. The vehicles of Pilgrim Transport Companies and other Saudi public transport vehicles coming from Yanbu, Jeddah and Mecca are directed to a camp in the old railway station to unload their passengers. The location of these unloading stations away from the city centre has proved very profitable to the owners of the small Japanese pick-ups which are becoming more popular among rural dwellers and nomads who employ them

Plate 8.8.c Central pavements in a narrow street crowded with vehicles and pedestrians.

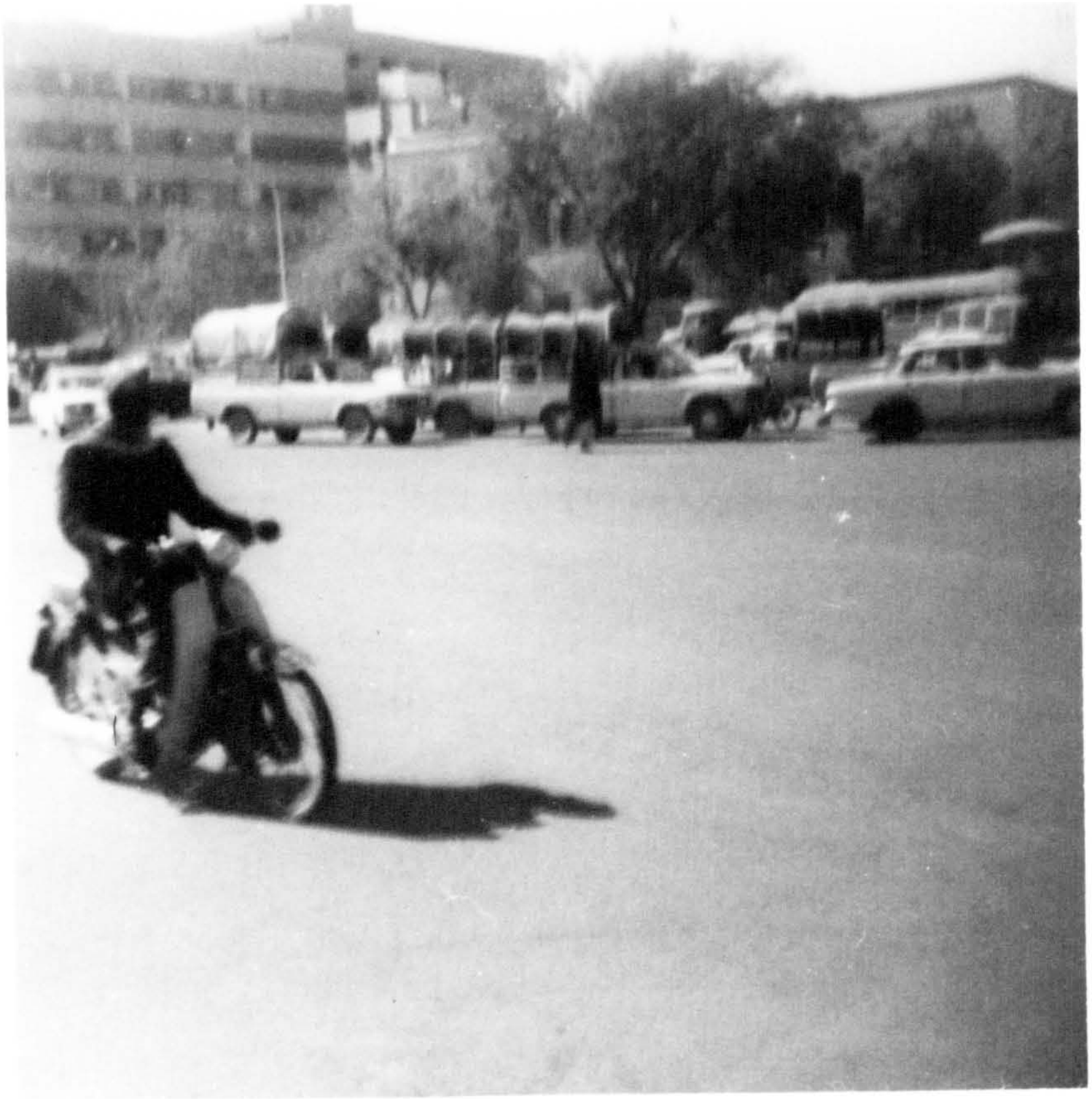


Plate 8.9 Traffic jam in the Bab Ash-Shami area.

to carry their belongings and in the pilgrimage season they are used to carry pilgrims and their luggage to the city centre and to various quarters. This helps relieve the severe parking problems. Local vehicles have also been closely watched by the traffic police and prohibited from parking in the city centre, and there are often long queues of these pick ups waiting for passengers at the entrances to the pilgrim camps (Plate 8.7).

Although pilgrim vehicles are not allowed to enter the city, its heart is still congested by local vehicles which is very dangerous for pedestrians, especially in the old streets where traffic and people mingle together (Plate 8.8a, b, c). Although some streets have been widened and provided with pavements they still appear to be inadequate, for example, in Abi-Zar street people crowd at the entrance to the cemetery (Plate 8.8b) and the commercial activity in that street is such that traders occupy parts of the pavements in front of their shop to display their goods. Thus, the crowd seeks respite on the central islands originally designed to separate the opposing traffic lanes (Plate 8.8c). Central islands seem unnecessary in such narrow roads when a painted line would suffice, and the pavements should also be widened for pedestrians and traders should be strictly prohibited from extending their display counters onto the pavement. If these measures are taken it will be possible in the season of high congestion for these roads to be converted to one-way traffic with two or three lanes. This will speed up the traffic and prevent accidents to pedestrians.

Outside the centre, similar congestion and traffic jams are observed at peak hours, more so during the pilgrimage season, and this is mainly the result of ignorance of driving regulations and the desire of everyone to cross first. This frequently results in traffic jams such as those which have often occurred in Bab Ash-Shami area where vehicles often come to a standstill around the fountain which is used as a round-about. In 1976 this wide fountain which was thought to be the cause of traffic congestion was consequently demolished and replaced by a manually controlled traffic box. However, this merely deprived the area of an elegant landmark but did not solve the problem (Plate 8.9). The potential solution for this problem would seem to be to improve driving standards by introducing strict regulations and practice for obtaining licences.

The economic impact of pilrims spending on intra-city transportation are revealed in the author's survey for the origin of drivers, their

daily income and expenditure, throughout the 1976 pilgrimage season (Table 8.6). These vehicles, unlike those of pilgrim transport companies do not specialise only in transporting pilgrims so their expenditure on spare parts should ideally be deduced from their income over the whole year and not only during the pilgrimage season.

TABLE 8.6 THE INFLUX OF INCOME AND EXPENDITURE OF DRIVERS IN MEDINA AT HAJJ TIME, 1976

Origin	No.	Average daily income per cap in SR	Average daily expenditure on fuel in SR	Average season expenditure on spare parts in SR	Average daily expenditure on accommodation SR	Average daily expenditure on food in SR
Medina City	763	768.4	8.0	50.0	19.7	35.0
West of Medina	377	827.9	9.0	100.0	5.8	15.0
East of Medina	121	671.5	6.0	113.9	6.9	10.0
South of Medina	113	816.7	9.5	500.0	5.0	12.0
North of Medina	75	1,310.3	10.0	100.0	4.4	15.0
Total	1,449	4,394.5	42.5	863.9	41.8	87.0
Average Total	-	878.9	8.5	172.8	8.4	17.4

Source: Field Study, November 1976

The survey revealed that in the 1976 pilgrimage season drivers originated from 52 localities excluding Medina city. These localities have been reduced to five broad areas as indicated in Table 8.6. Medina city has the lion's share due to the existence of pilgrimage activities within its boundary, followed by localities on its west, especially from Yanbu area which accounted for about 36.8% of the total. This again proves the great linkage between Medina and Yanbu which since early times was regarded as Medina's port.

Localities on the south and east of Medina each supplied about 8% of all drivers, although the distance differs between Medina and the furthest locality in each direction. For example, the furthest source on the south was At-Taif (530 Km) while in the east it was Riyadh (931 Km). It is interesting to note that although some drivers reported At-Taif as their origin and Mecca is only a stone's throw from At-Taif, they preferred coming to Medina rather than working in Mecca. When drivers

were asked about the reasons for this, they replied that they preferred Medina to Mecca, as the latter is very congested and one trip would take too long; visits to Mecca would therefore not be profitable to them. Unlike the 1960's, drivers from Riyadh are not attracted to Medina, as business in Riyadh is now profitable all the year round and those who replied to the author's survey had actually brought pilgrims from Riyadh to the pilgrimage area in Mecca via Medina. As their agreements were for round trips between the pilgrimage area and Riyadh, they make the best use of their spare time in Medina or Mecca by doing additional business.

The last group, from north of Medina comprised 17% of all drivers, most of whom came from small nomadic camps. It is they who appear to make the maximum investment and reap the greatest benefits from the pilgrimage season, as they have the highest daily incomes of all drivers. This may be due to their determination to improve their low standard of living by working hard to obtain maximum benefit, and this is confirmed by their expenditure, as they spend less than anyone on accommodation and spare parts.

Income generated from pilgrim expenditure on intra-city transport can be evaluated by applying the formula mentioned on pages 207 and 213. In applying this formula several considerations must be taken into account. First, none of a driver's expenditure on accommodation would be considered as leakage out of Medina, whereas expenditure on spare parts, which are almost all imported, would be considered as almost 100% leakage, with the exception of about 5% profit to local distributors. The expenditure of Medinese drivers on accommodation is remarkably high compared to others; probably because being home residents the cost of such accommodation must be met, whilst non-Medinese drivers spend the nights in their own cars, in cafes, or stay with relatives. The survey revealed that 100% of Medinese drivers slept at night in their own homes; of other drivers, 61% slept in cafes, 18% with relatives, 13% in their own cars and 8% gave no specific place. Expenditure on fuel shows almost total leakage to other regions or to the central government, except for the 3% return to the distributor. Expenditure on food has medium leakage as drivers mostly eat at restaurants which have a high proportion of local fresh food, but coffee, tea and sugar are all imported. Leakage here is very difficult to assess but based on the same scale as restaurants expenditure it can be estimated that leakage from drivers expenditure on food is about 57%.

Computation revealed that on the whole, each Pound spent on intra-city transport created an average increase of 78p, but this varied for drivers from each origin. For example, the highest income was among those from north of Medina, the better roads there causing smaller outlays, in contrast to lowest income which was among drivers from south of Medina, where high outlays occurred, especially on spare parts, which are of entirely foreign origin.

An income of 78p generated for every pound spent on intra-city transport by pilgrims would produce a total turnover for all drivers for their average stay in Medina of 28 days of SR 27,813,810 (£5,057,056). Table 8.6 clearly indicates that 47.3% of the sample survey were from outside Medina, indicating that this sector of income has high potential for spreading the economic effect of the pilgrimage season to a wide area of Saudi Arabia.

Thus, the real benefit to Medina city from the total share of benefits from pilgrims' expenditure on intra-city transport, for local drivers, pedlars, retailers and landlords in 1976 was SR13,072,490 (£2,376,816) and the financial benefit accrueing to other localities in Medina Province or other provinces of the country was approximately SR 14,741,320 (£2,680,240).

The survey did not in fact cover all the local drivers as some may have been absent (due to having their homes in the city) at the time of enumeration; expatriate drivers, who were the subject of particular consideration were each given a yellow card on being interviewed so that their interview would not be duplicated and it is almost certain that all non-Medinese drivers were covered by the survey.

There is no up-to-date data available on the number of Medinese drivers engaged in public transport in 1976, but in 1973 and 1974 totals of 4,351 and 5,619 respectively would give an annual growth of about 29%.* Assuming the same rate of growth during following years would give approximately 8,150 drivers in 1976. Accepting the above assumption would mean that the local drivers interviewed in the survey comprised only 9.4%, therefore applying the proportion of income generated by local drivers, which was 88p for the pound (slightly above average) would raise

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* Unpublished data at the Traffic Office, Medina.

the money created by drivers to SR 169,608,575 (£30,837,922). Benefits to the local economy from this sum would be about SR 156,440,684 (£28,443,760) which is a considerable share of the total money earned (almost 93%).

In connection with the study of the effect of transport on the local economy, it may be appropriate here to throw some light on the contribution of garages and petrol filling stations. There are 11 filling stations in Medina. The most exhaustive fieldwork was undertaken in this sector, revealing that owners were angry at pricing controls over petrol, which resulted in losses for the majority both at Hajj and non-Hajj times due to high cost of labour and transport.

Official penalties for ignoring the official rate are high - up to SR 10,000 (£1,818), and at the time of the survey one of the filling stations went out of business and eight of the remaining ten reported losses, although they continue in business by recovering part of their losses through providing other facilities such as washing and greasing cars and some admitted to alternative income from trading. The total daily losses of these filling stations were SR 6,568 (£1,194) during the Hajj and SR 12,966 (£2,358) in the off-season and it is clear that the Hajj has an effect in this sector, even if it is only to reduce the losses sustained by the filling stations by 49.3%. The losses will be calculated at the end of this study as leakage from the city's total profit.

However, the two filling station proprietors who admitted to any profit from facilities in their garages are located at the northern and southern entrances of the city, where they derive benefit from vehicles setting out on long journeys. The daily profit to the local economy from these two stations was SR 3,401 (£618) during the Hajj compared to SR 1,441 (£262) in the off-season, with high leakage from total income in both periods which reached 62.7% and 75% respectively.

At the beginning of 1977, the government attempted to review this situation and decreed a monthly subsidy of SR 2,000 (£363.6) to each station, but this continued only for two months before being withdrawn. A quick response is needed to prevent other filling stations being closed and this can be done, particularly by reducing transport costs on fuel, either by setting up a government company or by controlling the private petrol tanker prices; these costs are very high as Medina is more than 1,000 Km from the main source of oil in the Eastern Provinces of Saudi Arabia. Unless measures are taken shortly, high labour and transport

costs together with the controlled selling price leading to a low profit margin, will result in more garages closing so that the demand for fuel at the time of Hajj will not be met.

8.6 Electricity Demand; Seasonal Fluctuation.

This section can most conveniently be discussed in this Chapter. Even though it has no direct relationship with the economic returns discussed in previous sections, it nevertheless has neither direct or indirect effect upon the physical impact of the pilgrimage discussed in part two. Demand for this service increases during the pilgrimage due to empty premises being used for accommodation and also to increased demands created by the extention of shops over pavements.

Medina's electricity is mainly supplied by a single generating station owned by a private limited company located in the Abiar Ali area about six Km west of Medina. In 1974 the total generating capacity at the power station was 12.4 MW, however, generators do not always work at their maximum capacities. Although only 59% of the city population are connected to electricity mains, the load is too great during peak periods (demand in Medina reached 7.9 MW in 1974 [428: p.123], and cuts are inevitable as transmission mains carrying electricity are not planned to carry high loads, and it takes time to adjust to meet the increasing demand. A further 1% rely upon other small private generators [428: p.125]. In 1977, new generators were built to increase the maximum capacity to 37 MW, but in Medina work on replacing lines is a slow process.

The available data for electricity consumption goes back only to 1971 (Table 8.7). Medina and Mecca share the unique characteristic of having the Hajj as a main factor, and this creates heavy demands for electricity, as well as the extra demand in summer which is a feature

TABLE 8.7 MONTHLY KW AVERAGE FOR ELECTRICITY CONSUMED IN DIFFERENT PERIODS AND YEARS

Periods	1971	1972	1973	1974	1975	1976
Hajj	2,395,486.0	2,887,433.0	3,935,748.0	4.124,077.5	5,235,308.0	6,449,752.0
Summer	1,888,247.0	2,603,852.0	3,151,948.0	3,832,797.0	4,611.434.5	5,578,662.0
Rest of Year	1,711,160.2	2,097,205.0	2,623,832.0	2,878,185.0	3,226,822.5	5,059,365.5

Source: Unpublished data at Medina's Electricity Company

common to other Saudi Arabian cities. A characteristic feature of the pilgrimage peak is that it shows a sharp rise and decline during the short period of intense activity in Medina, whereas the summer peak rises and declines at a much slower rate over a longer period (June to September).

Table 8.7 shows the growth of electricity consumption over six years and it is clear that the average monthly peak demand at pilgrimage time is always higher than that of summer, which is in turn higher than that of the rest of the year. The peak demand for electricity during the pilgrimage season is on average 15.7% higher than the summer peak demand, and 43.5% higher than during normal times. The summer peak is only 23.5% higher than normal times.

In conclusion one can say that the shorter duration of pilgrims' stay in the area brought about by improved transport facilities, whilst making travel faster and more comfortable, has also made it more expensive. Such a tendency may increase the rewards of some services and economic activities connected with serving pilgrims, such as guides, pedlars and intra-city transport undertakings. This tendency is not always favourable, however, as it may sometimes create opposite effects. Examples of the negative effects are the hardship caused for some poorer pilgrims, by higher costs, untidy streets as a result of refuse from pedlars, and traffic congestion as a result of the influx of non-local vehicles. As opposed to permanent changes brought about by the effect of the pilgrimage (e.g. physical change discussed in Chapter 4), certain characteristics fluctuate with the seasons. Examples of these are the demand for guides, pedlars and intra-city transport, but the most important of these is accommodation which requires much more attention and organisation than the other examples mentioned if reasonable profits are to be made by owners and renters. Improving accommodation provided by guides has been discussed in Chapter 10; in comparison other forms of accommodation such as cafes, hostels and camps, need only to be directed and monitored, but not ended, as these types of services cater for the poor.

CHAPTER NINE

PILGRIMAGE AND THE EMERGENCE OF ETHNIC MINORITIES

The powerful religious magnet of Medina has resulted in a mixed population as a result of the settlement of immigrant groups. Population data, in both official sources and from consultant firms does not deal with the structure and composition of population in sufficient detail to show the effect of pilgrimage in attracting different minority groups. The author therefore undertook a sample survey between May and August 1977, involving nationality, type of work before and after arrival, and the time and reason for coming to Medina. It was hoped that this survey would show the effects of non-local inhabitants both socially and on occupation structures. This section will not deal in detail with the basic aspects of population as these have been dealt with in another place by the author [422:pp.65-101], and there is no additional data available for further research.

9.1 Ethnic Origins.

Today few people in Medina can trace their origins to one of the early Islamic or pre-Islamic dominant tribes in the area such as Bani Mazin, Bani An-Najar, Al-Awas and Al-Khazraj, the last two groups being descended from the Prophet's auxiliaries.* The descendents of the Prophet himself can still be traced in Medina in the Sayyids and Sharifs,** who were much stronger in the early Islamic times. Many of these now live in Mecca and Yanbu, and those who do live in Medina are primarily employed in agriculture.

The present population can be divided into four main groups:-

a) those related to a tribe in Medina Province, such as Harb and Johainah;

b) those related to a tribe in Saudi Arabia outside the province, or claiming to be Saudis but not able to trace their origin to any particular tribe;

c) Arabs from outside Saudi Arabia;

d) Non-Arabs.

In the words of J.I. Clarke, "While it is fairly easy to study foreigners within any particular country, it is more difficult to compare the data with

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* or Al-Ansar: these tribes believed Mohammad's message and sheltered him in Medina when the Meccans disbelieved and outlawed him.

** The Sayyids are the descendents of Husayn Ibn Ali (the Prophet's cousin and son in law) and the Sharifs are the descendents of Hasan Ibn Ali.

those of another country" [66:p.95]. In the study area both aspects are difficult to study due to insufficient data, and a comparison of the data is more difficult due to the nature of statistics concerning the characteristics of both the native and foreigner population as will be seen below.

The following surveys adopted different methods of assessing the volume of immigration in Medina making their results differ markedly; they may indeed be surprising at first glance.

In the 1962/63 suppressed census no information was available concerning ethnic groups. It defined two general groups - Saudis and non-Saudis. The non-Saudis numbered 10,910 persons, being 15% of the total population of Medina [60:p.43]. The Socio-economic sample survey conducted by Robert Matthew in 1972 provided useful information on the inhabitants' origins or nationality, but still in very broad terms. This survey revealed that 35.8% of the sample population of Medina were born in Medina itself, 28.3% were born in other parts of Saudi Arabia and 39.9% were born outside Saudi Arabia [427:p.18]. This indicates that immigrants and in-migrants comprised about two-thirds (64.2%) of the total sample population in Medina in 1972.

Another report by Robert Matthew in 1975 revealed that 22,764 of Medina's population were non-Saudis which meant that 17% of the sample surveyed were non-Saudis [429:p.23]. The author's sample survey in 1977, which was mainly concerned with the origins of the population, revealed that 26.2% of the population were from the Medina Region, 30.6% were from other parts of Saudi Arabia, 19.1% were of Arab origin, and 24.1% were of non-Arab origin; thus 43.2% of the total population were non-Saudis (Details of these appear in the following sections). These percentages cannot be completely accurate as many people who claimed to be born in Medina did not willingly answer questions on origin. However, the present data which reflects the influx of migrants may indicate the focal significance of Medina in the region and in Saudi Arabia as a whole.

It is clear that the percentage of non-Saudis in Medina increased between 1962 and 1977 and can be considered to be an important element in its demography, exercising much influence on the city's way of life.

9.2 Motives for Immigration.

It is suggested that the movement of people is influenced by the characteristics of their place of origin and destination, by intervening

obstacles (e.g. political factors), and personal factors [1 42:p. 290] . In Medina several reasons can be found for the migration of minority groups, some old and others new. One of the older causes was the slave trade, many captives being brought by Arab conquerors to Medina. Some of the invaders, for example the descendents of the Turks, remained in Medina. One of the new motives is economic such as the Yemenis who come to work in the area, and send money back to their homeland. The pilgrimage was also a strong motive, for many pilgrims remained permanently in Medina after the Hajj. It is still the prime reason why people come to Medina but it is becoming increasingly difficult for them to remain after the pilgrimage.

A quantitative impression of the pattern of motives for immigration to Medina can be derived from the author's sample survey (Table 9.1). This survey attempted to discover motives, both past and present, and revealed that the most important factor for immigration was economic, i.e. looking for work, or starting a new business. A detailed breakdown within this category reveals some variation between different nationalities. For example, the Afghans, and Southern Arabs almost all professed such a reason. Most immigrants in this category are of rural origin looking for unskilled work in Medina. The Saudis come to Medina perhaps to join the police or army. The Turks showed no particular economic motive.

Starting a new job or business was high among Saudis, especially those being sure of gaining government employment, such as students just graduating. The starting of a new business is distinctly less important for immigrants from Africa or Yemen where other motives apply. In contrast, the majority of northern Arabs are motivated by this factor; almost all of them entering the area had signed contracts.

"Mujawarah" is the immigration of Muslims to live near the holy tomb of the Prophet Mohammad. This motive is the main factor making Medina a microcosm of the extensive Islamic World through remaining pilgrims. Groups in which the obvious religious motive is strong include Africans, Maghribis, Shinqits and Turkistanis. This fact does not contradict the importance of the economic factor. While the religious factor is the most important, the central position of Medina and the opportunity of work there also influences migration. These groups,however, also wish to escape the

TABLE 9.1 MOTIVES FOR IMMIGRATION TO MEDINA OF HEAD OF HOUSEHOLDS INTERVIEWED IN THE SAMPLE SURVEY OF 1977.

Nationality	Looking for work		Starting new business etc.		Mujawarah and work		Education		Transfer		Joining relatives		Retirement		Marriage and work		Slavery		Total		% of total delivered questionnair
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Afghans	25	92.6	-	-	2	7.4	-	-	-	-	-	-	-	-	-	-	-	-	27	100	100.0
Africans	10	10.6	2	2.2	53	57.0	12	12.9	-	-	5	5.4	-	-	9	9.7	2	2.2	93	100	83.8
Indians	29	63.1	3	6.5	10	21.7	4	8.7	-	-	-	-	-	-	-	-	-	-	46	100	97.9
Jawah	-	-	-	-	-	-	5	100	-	-	-	-	-	-	-	-	-	-	5	100	100.0
Maghribis	8	44.4	-	-	9	50.0	1	5.6	-	-	-	-	-	-	-	-	-	-	18	100	72.0
North Arabs	-	-	28	82.4	3	8.8	-	-	1	2.9	-	-	2	5.9	-	-	-	-	34	100	100.0
Saudis	138	24.0	196	34.1	9	1.6	78	13.6	98	17.1	39	6.8	15	2.6	1	0.2	-	-	574	100	100.0
Shinqits	-	-	-	-	17	77.3	5	22.7	-	-	-	-	-	-	-	-	-	-	22	100	88.0
Southern Arabs	98	81.7	3	2.5	7	5.8	11	9.2	-	-	-	-	1	0.8	-	-	-	-	120	100	89.5
Turkistanis	-	-	-	-	15	93.8	1	6.2	-	-	-	-	-	-		-	-	-	16	100	76.2
Turks	1	14.3	-	-	2	28.6	4	57.1	-	-	-	-	-	-		-	-	-	7	100	100.0
Total	309	32.1	232	24.1	127	13.2	121	12.6	99	10.3	44	4.6	18	1.9	10	1.0	2	0.2	962	100	95.3

Source: Field Work, May to August, 1977.

depressed circumstances in their lands of origin such as was the case with the Shinqits before the independence of their country in 1960, or after the Communist invasion of the Turkistani Republics by Russia after the First World War.

Education is an old established reason for immigration, and is sometimes linked to the "Mujawarah" factor, e.g. for the Shinqits. It became increasingly important for some nationalities especially after the opening of the Islamic University in Medina in 1961. Thus one finds many Africans and Yemenis obtaining grants for study in Medina; such people had less motive for immigration to Medina before 1961. In addition, Medina attracts some Saudis for education because of its central religious significance and the good academic facilities.

The percentage of Saudi government employees transferred to Medina is high, although the real motive for this may sometimes overlap with other indirect ones, such as the application of some people to be transferred to Medina to be near their relatives.

Marriage was the motive behind only one case for Saudis, but 8.1% of African immigrants gave this as their reason. Others without a positive reason, probably followed their relatives to Medina.

Retirement is reasonably important among Saudis, who for religious reasons prefer to spend their remaining years in a holy place.

The final reason, that of slavery was found to be the least important due to the effective disappearance of the slave trade after the First World War caused by pressure from Muslim Leaders through the League of Nations to abolish slavery in Hijaz [367:p. 324] . People of such origin do not want to talk about their past, and only two cases of Africans were reported, but they now naturally consider Medina to be their home.

9.3 Type of Immigrants and Period of Immigration.

This section is a supplement to the previous one. The 1977 survey was concerned with origin, urban or rural, and the period of immigration. Table 9.2 reveals that almost half were of rural origin. Rural immigrants predominated, with four exceptions. Many of the Indians came semi-skilled in trades such as tailoring or cooking; they had gained their professional experience in urban areas, and this caused them to indicate that they had

TABLE 9.2 ORIGIN OF IMMIGRANTS AND DATE OF IMMIGRATION, SAMPLE SURVEY, 1977.

Nationality	Type of Immigrants				Time of Immigration									
	Urban		Rural		1950 and Before		1951 - 1960		1961- 1970		1971- 1977		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Afghans	5	18.5	22	81.5	-	-	-	-	3	11.1	24	88.9	27	100
Africans	28	30.1	65	69.9	19	20.4	32	34.4	20	21.5	22	23.7	93	100
Indians	30	65.2	16	34.8	7	15.2	3	6.5	7	15.2	29	63.1	46	100
Jawah	2	40.0	3	60.0	2	40.0	2	40.0	1	20.0	-	-	5	100
Maghribis	4	22.2	14	77.8	9	50.0	6	33.3	-	-	3	16.7	18	100
North Arabs	30	88.2	4	11.8	3	8.8	4	11.8	-	-	27	79.4	34	100
Saudis	331	57.7	243	42.3	121	21.1	141	34.6	182	31.7	129	22.5	574	100
Shinqits	6	27.3	16	72.7	15	68.2	4	18.2	2	9.0	1	4.6	22	100
Southern Arabs	34	28.3	86	71.7	4	3.3	27	22.5	44	36.7	45	37.5	120	100
Turkistanis	6	37.5	10	62.5	8	50.0	5	31.3	2	12.5	1	6.2	16	100
Turks	5	71.4	2	28.6	2	28.6	-	-	-	-	5	71.4	7	100
Total	485	50.4	477	49.6	190	18.8	225	22.3	261	25.8	286	28.4	962	100

Source: Field Work, May to August, 1977.

come from urban areas, even though they originated from rural areas. The majority of Northern Arabs are from urban areas and practice as doctors, teachers and engineers. The Saudis had a high proportion of urban migrants, this may be due to the Saudi government policy since the early 1960's to utilise jobs to integrate the people from different regions of Saudi Arabia; consequently many employees were transferred sooner or later from other urban areas (as explained in the previous section) although their origins may be rural or nomadic. This is confirmed by Table 9.2 which shows the high proportion of Saudi migrants in 1961 to 1970. The Turks are mostly from urban areas as they are religious scholars or calligraphists and such experience is mostly gained in urban areas.

The year 1950 was considered a base year for dating immigration, as it is the year of the enlarging of Al-Haram and the resultant change of the city's structural and economic base brought about by the flourishing economy when the oil revenue became sizable. The highest proportion of immigrants have arrived since 1971; this is closely related to the expanding opportunities accompanying economic improvement, which has attracted many immigrants both of urban and rural origins. The largest number of immigrants coming in this period were the Northern Arabs, who showed a fairly constant arrival pattern, and Afghans representing skilled and non-skilled labour. The lowest percentage was among the Shinqits and Turkistanis, this may be due to the recent improvements in the standard of living in Mauritania and particularly since its independence in 1960, as well as Saudi regulations restricting the stay of foreigners. This is suggested by the higher proportions in early periods when the restriction was not imposed. The same can be said for Turkistanis, whose influx to Saudi Arabia was greatly reduced after the breaking of diplomatic relations with the Russians in the late 1930's.

A high proportion of immigrants came 30 or more years ago especially among the Africans, Indians, Jawah, Maghribis and Turks.* These people consider themselves part of the area, and their descendents have gained some specialised skills such as electricians among the Africans, or government jobs among the Maghribis and Turkistanis. Similarly the Yemenis who stay longer in the area become specialists in some fields.

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*definitions for these groups are mentioned in section 9.5.

It should be mentioned that 48 householders (4.7%) of the 1010 people interviewed claimed no knowledge of the exact work or time of their fathers' immigration to Medina, and are therefore not included in the tables. Table 9.1 shows the nationalities who did not give complete answers and this meant that a considerable percentage of the questionnaire were excluded, which indicates the delicate nature of such enquiries.

It was hoped that this section would raise the valuable question of the effect of such immigrants on the age structure in Medina. Unfortunately there is no record of such information being available as the unofficial census conducted by the Central Department of Statistics in 1962/63 and the Socio-economic sample survey conducted by Robert Matthew in 1972 did not give minority group structures. They classified the whole population into groups with different methods applied to the two data sources, and they did not give any information about age-sex structure (Table 9.3). Accordingly such shortcomings would affect the reliability of any attempt to analyse age structure and growth.

TABLE 9.3 AGE STRUCTURE IN MEDINA

1962/63 Census			1972 Sample Survey			
Age Structure	No.	%	Age Structure	No.	%	
0 - 10 years	25,573	35.5	0 - 4 years	23,742	17.3	
10 - 30 years	25,252	35.1	5 -14 years	43,676	31.9	= 47.0
30 - 50 years	15,774	21.9	15 - 24 years	20,673	51.1	
50 and over	5,299	7.5	25 - 44 years	29,907	21.8	= 31.8
			45 - 64 years	13,659	10.0	
			65 and over	5,329	3.9	

Sources: 1 - Central Department of Statistics, 1962/63, Population Census, Riyadh (Arabic).

2 - Robert Matthew, 1972, Al-Haikal Al-Iklimi, Municipalities Affairs, Riyadh, part 2, p.18 (Arabic).

However, a compromise solution of broadening Robert Matthew's sample survey to the standard of the 1962/63 census would give some impression of the age structure. Thus 17.3% of the population would fall into the less than 10 years category in 1972, 47.0% in the 10 - 30 years category, 31.8% in the 30 - 50 years category and 3.9% in the 50 years and over category. This indicates the great growth of the second and third groups which are the active

age group, whose growth was doubtless contributed to by immigration in the last decade, as explained above. This is suggested by the decreasing percentage of the elderly in Table 9.3, although their total number has increased possibly due to newcomers coming for retirement, or improving health and environmental conditions.

9.4 The Changing Employment Pattern of Migrants.

In order to compare the type of work of local migrants and expatriats in Medina, with their former occupations at the place of origin, the author's sample survey included questions on change of work. The results are very complicated; for example, for the Saudis from outside the Medina Region, 56 different categories of work were noticed; for the Africans 48, and for the Southern Arabs 47. The change of location is also associated with the fact that the majority change to more skilled jobs. To simplify this for comparison, the changes were reduced to six main categories as in Table 9.4.

Table 9.4 shows that the Northern Arabs have the most immigrants (67.7%) bringing professions and occupational skills to the area. Next are the Turks, who since early times have worked as religious teachers, or as calligraphists. The Saudis seemed to secure a considerable number of skilled jobs, but this is only a generalisation as most of those interviewed were government employees who had gained positions in more attractive cities, such as Jeddah or Riyadh, then moved to Medina for family or religious reasons.

The number of unskilled workers migrating to Medina (including all those who came to Medina originally with unskilled jobs and those who may later have changed to skilled work) is higher than skilled workers (48.6% and 22.8% respectively). The largest number of unskilled immigrants are the Afghans, due to their recent influx as an alternative to the increasing departure of Yemenis, who have been affected by the 1976 Act preventing foreigners from working in certain jobs in the country, and also as a result of growing development programmes in their own country.

The percentage of immigrants gaining experience and skills in Medina is also high (28.6% of total). This is due to many agricultural workers from

TABLE 9.4 CHANGING EMPLOYMENT OF IMMIGRANTS IN MEDINA, SAMPLE SURVEY 1977.

Nationality	Changing from non-skilled to skilled work		Keeping the same skilled job		Keeping the same unskilled job		Changing from unemployment to employment		Employed or unemployed immigrants remaining unemployed or transferring to unskilled employment		Changing from skilled to unskilled work		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Afghans	-	-	1	3.7	21	77.8	4	14.8	-	-	1	3.7	27	100
Africans	30	32.3	5	5.4	8	8.6	20	21.5	28	30.1	2	2.2	93	100
Indians	10	21.7	11	23.9	17	37.0	4	8.7	3	6.5	1	2.2	46	100
Jawah	-	-	-	-	-	-	-	-	1	20.0	4	80.0	5	100
Maghribis	8	44.4	1	5.6	5	27.8	2	11.0	1	5.6	1	5.6	18	100
North Arabs	-	-	23	67.7	9	26.5	-	-	1	2.9	1	2.9	34	100
Saudis	177	30.8	161	28.1	88	15.3	110	19.2	35	6.1	3	0.5	574	100
Shinqits	7	31.8	2	9.1	-	-	9	40.9	4	18.2	-	-	22	100
Southern Arabs	36	30.0	10	8.3	44	36.7	16	13.3	14	11.7	-	-	120	100
Turkistanis	7	43.8	2	12.5	-	-	5	31.3	1	6.2	1	6.2	16	100
Turks	-	-	3	42.9	-	-	1	14.2	3	42.9	-	-	7	100
Total	275	28.6	219	22.8	192	20.0	171	17.8	91	9.4	14	1.4	962	100

Source: Field Work, May to August, 1977.

Africa, Yemen and Turkistan changing to skilled work in Medina, e.g. painters, barbers, and electricians, such trades being the choice of Africans, whilst builders, butchers, and launderers were chosen by Yemenis, and traders and government employees selected by Turkistanis. Some writers believe that the drift in developing countries from rural to urban areas is a choice between evils rather than stimulated by clear economic and social benefits [133:p.20]. The above evidence may question this in the case of Medina, since the number of people in the category representing those who gained experience in the city, is relatively high (Table 9.4).

The smallest percentage is of those immigrants changing from skilled jobs to unskilled jobs in Medina. Such changes are no doubt due to the high wages of some unskilled jobs such as street cleaning, compared to their original jobs. This was the case for some Afghans who used to be lorry drivers in Afghanistan. Some of these immigrants are changing to unskilled jobs for religious reasons, for example some Indian government employees become cleaners or doorkeepers in Al-Haram. Some Jawah immigrants who have been teachers in their homeland become students in Al-Haram or at some other religious institution in Medina.

Some immigrants who were employed in their homeland become unemployed or retire in Medina. This again is motivated by religious aspirations as they want to spend their remaining lifetime in worshipping and living on charity or begging. Some may be simply "work shy" as is the case of some Africans who rely on relatives and support from trusts in their homelands.

A study of the type of work done by immigrants before and after coming to Medina revealed that certain kinds of professions are predominant. For example, 9.9% of the African immigrants work in low prestige jobs, such as porters or carriers, and about half this percentage were occupied in such work before coming to Medina. The Africans work as car cleaners, barbers, manufacturing earth bricks and making traditional fans, mats and sweepers from palm fronds. Their women, especially widows, live on charity selling nuts or "Qoro"* to their own people or buttermilk, and also working as housemaids. About 19% of these African immigrants work as traditional wallplasterers. Some of them came as small boys and

*The fruit of certain plants brought from Africa for their own use.

Fig 9·1 APPROXIMATE LOCATION OF SEGREGATED MINORITIES IN MEDINA, 1977

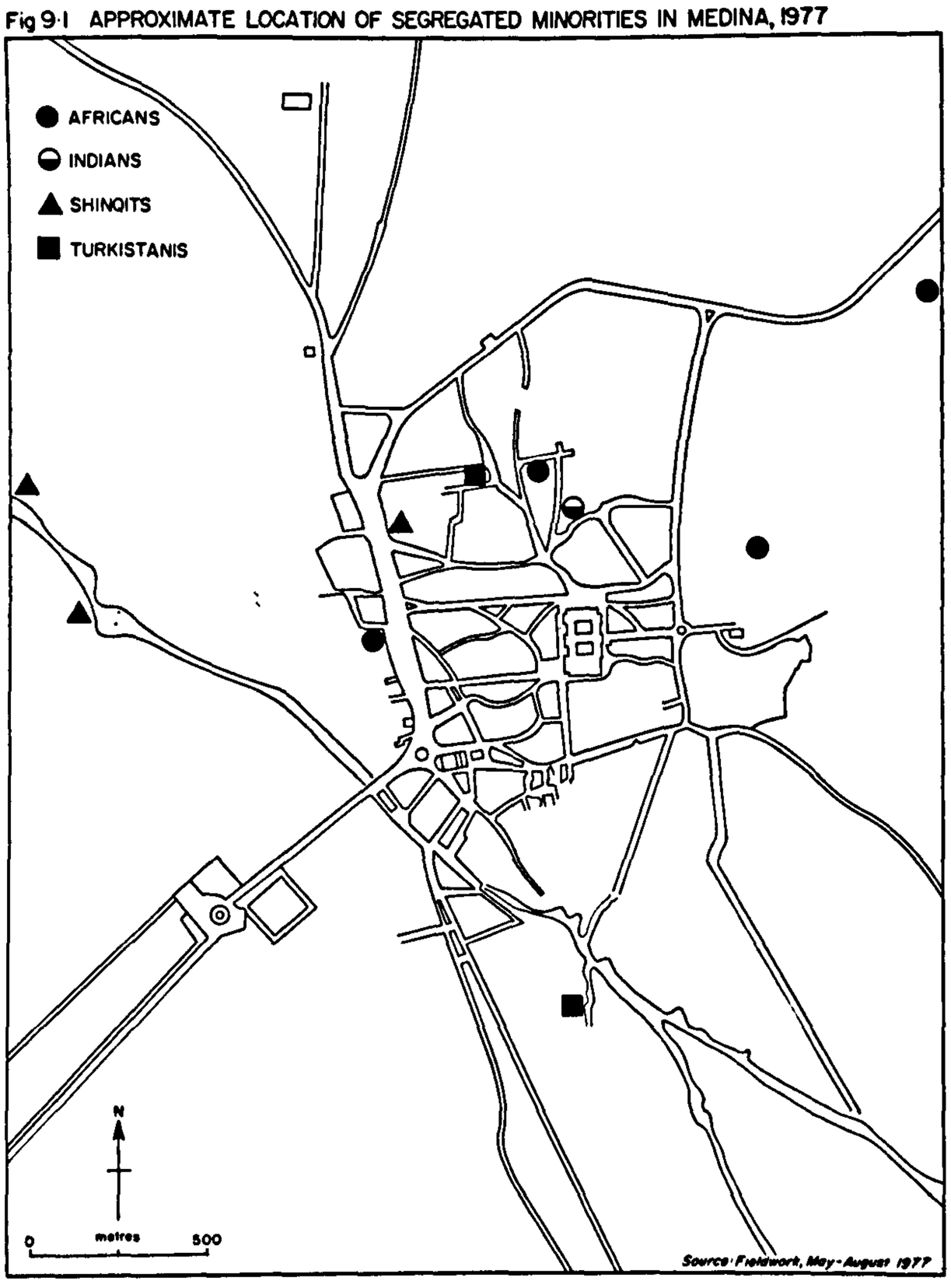
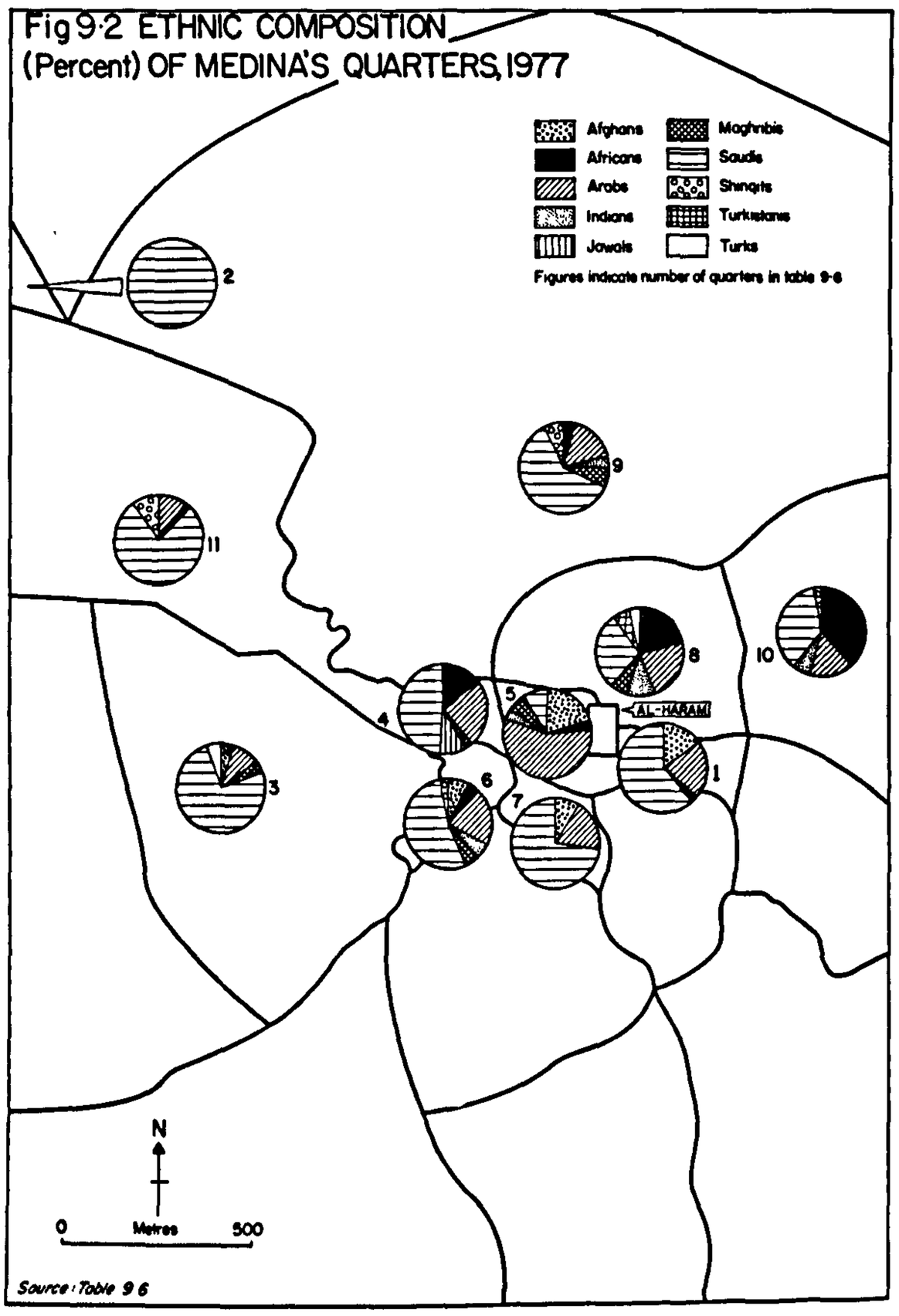


Fig 9·2 ETHNIC COMPOSITION (Percent) OF MEDINA'S QUARTERS, 1977



tend to undertake the same professions as their fathers.

Other examples of such specialization can be distinguished among other immigrant groups. About 17% of the Indians work as tailors; some brought their skills with them, while others were trained by relatives. About 30% of the Egyptians work as teachers, and about 33% of the Turks work as calligraphists. The Turkistanis are engaged in rubber and leather works, as drapers, haberdashery traders, and tailors who also specialise in the producing of head caps which are increasingly used by all people.

Finally a clear distinction in standard of living and kind of work is noticed among members of southern Arab immigrant groups, depending on whether they come from South or North Yemen. The Southern Yemenis are engaged in trade as drapers, electricians and bankers and the younger boys as house servants. They are renowned for their frugality in living, often in conditions far below the standard of their earnings. The Northern Yemenis can be found in a wide variety of activities and thus they spread into every part of the city where they can build or rent cheap accommodation. They are unfortunately reputed to be untrustworthy and are therefore not employed in banks or households.

9.5 The Composition and Distribution of Population: a) Overview.

The pilgrimage tradition made the whole Hijaz Region open to the outside world in contrast to some other parts of the Arabian Peninsula such as Yemen and Najd, which remained close for centuries [277:p.5]. The sacred status of Medina and the desire of many Muslims to reside in the city has resulted in a multi-national Muslim community.

Such accessibility led some to believe that Medina's population has lost its Semitic character [231:p.7], but as explained in the former section, it is clear that a lot of the inhabitants are rural migrants who live in tribal minority groups and have inter-married only within their own groups, which means that a considerable proportion of the population are still ethnically distinct.

For this study the immigrant population can be divided into nine main groups: Arabs, Afghans, Indians, Jawah, Maghribis, Nigerians, Shinqits, Turkistanis and Turks. The minority groups have a scattered distribution within Medina, and although most foreign groups at first dwelt in the city centre they have recently begun to gravitate outwards (Fig. 9.1).

9.5.1 The Arabs.

In addition to the traditional religious attraction of Medina for Muslims the booming wealth of the country caused by huge commercial revenue from oil since the late 1930's, has meant new jobs for many. Hence waves of immigrants, especially Arabs, were attracted to the area.

The Robert Matthew socio-economic survey of 1972 divided the Arab immigrants to Medina into two groups. The first group were from Southern and Northern Yemen, comprising 11.7% of the population. The second group comprising 6.3% of Medina's population came from all the Arab countries in the north, plus Egypt. The northern immigrants are mostly skilled employees and stay in the area for a shorter time than the southern immigrants [417:p.77], who have a very high proportion of unskilled labourers and stay longer to add to their relatively low incomes.

The sex ratio of females to males is low among these immigrants, being 34 females per 100 males among southern immigrants and 49 females per 100 males among northern immigrants [427:p.18], as many of them leave their families behind, an indication that they do not intend to settle permanently. This fact also may be applied to local migrants as suggested by the sex ratio of the Saudi population in the 1962/63 census, where there were 100 females per 110 males [60:p.4]. The low percentage of female migrants and immigrants may also be due to the restricted employment opportunities for women, unlike western societies, where often an equal or higher percentage of females are found among migrants especially from short distances [396:p.454;145:p.25;66:pp.74-75].

In addition, many Bedouins live in Medina, most of whom have settled in the fringe areas such as Western and Eastern Harrat, originating from the tribes living near Medina. Medina itself was within the area of the Harab tribe which extended from Medina in the north to Al-Qunfudah town in the south of Arabia. There was a saying among Harb people; "Harbi and his Medina behind him", which suggested that the Harb tribe was distinguished from other tribes by the existence of Medina (the Holy City) in its area. People from the Harb tribe are concentrated in the Western Harrah with groups from other tribes such as Jauhinah, Bali and a few of the Anazah.

In the Harrat Al-Jauboor sub-quarter south west of Medina, the inhabitants are related to the Harb tribe (e.g. Al-Jauboor and Roiatha people). At early stages of settling in the area, particular groups of migrants concentrated in certain areas, probably for safety and cultural reasons. At that time, mixing with other groups was not widely practiced, and this possibly explains the unity of sub-quarters and sub-tribal areas.

In the Awali area south of Medina there are Bani Ali of the Shi'ea sect who work in agriculture. In the Eastern Harrah, sometimes called Hautaim Harrah, residents are related to the Harb tribe such as Bani Amr and Awf; there are also many inhabitants from the Hautaim tribe. In the north of Medina, residents are from the Harb tribe particularly from Walad Mohammad.

It is clear that the Harb tribe is still the most numerous in Medina and as most members of this tribe have become sedentary, the term "Bedouin" cannot strictly be applied to them as the main characteristic of Beouins is the regular movement from one place to another seeking pasture for their animals. These people mainly work in the police and armed forces; in 1967 about 70% of police and army personnel in Medina were from the Harb tribe [403:p.14]. The author's survey in 1977 revealed that 21% of the Saudi migrants came to Medina to join these forces. Some Bedouins leave the police or the army either because of a wish for freedom, or because they find more beneficial ways of earning money, such as in government posts, taxi or lorry driving, or serving in cafe bars (i.e. coffee houses where men will congregate to drink, smoke, and discuss). However, they would not participate in what may still appear as menial tasks like serving food in restaurants or acting as barbers or in women's tasks like laundering activities. Such occupations are beneath their dignity.

The greatest difference between nationals and immigrants is that the first group has little ethnic homogeneity as they sometimes live in areas containing a mixture of different tribes and clans. The complexity of modern life in Saudi Arabia with its shrinking social ties has left Saudis living in multi-storey buildings isolated even from their nearest neighbours. In contrast, non-Arab minority groups are strongly homogeneous and live in discrete national groups segregated from other people. These united settlement

patterns, motivated by social and security considerations, provide the immigrants with greater strength and dignity in their expatriation.

9.5.2 Afghans.

The Afghans group is larger in Mecca than in Medina where they are known as Solaimanis, but as they have been absorbed into the population it is now difficult to distinguish them apart from their family names. There has been a recent increase in their numbers in the area due to the better wages in Saudi Arabia on the development projects in the area, as will be explained later, but the author's sample survey revealed only 2.7% of the population to be Afghans.

9.5.3 Indians.

The term is applied to people from both India and Pakistan. They are among the oldest non-local inhabitants of Medina. In 1814 Burckardt noticed that no pilgrim caravan crossed the city without leaving a few people behind; he also noticed Indians working in Medina and suggested that their number was less than in Mecca [50:p.372]. Later in 1853, Burton had the same impression [55:vol.2, p.67]. These immigrants have become Arab in character but they can be distinguished from other groups by their skin colour and body features as well as their family names. In the 19th Century they used to work as druggists and drapers, but now they occupy responsible positions in the city. Many of them have gained the Saudi nationality, and resent being called Indians. The new Indian immigrants, however, are not well respected and they group together either in the east of Bab Al-Majeedi quarter or in agricultural plots around Medina.

9.5.4 Jawah.

The term "Jawah" is a local name given to people from south east Asia. Hurgronje, in his study of Mecca pointed out that the term Jawah indicated people of Malay race, and the geographical boundary is perhaps from Siam and Malaysia to New Guinea [122:p.215]. Another source defined the use of the term "Jawah" in Hijaz to include the whole archipelago of the East Indies [230:p.52]. The Jawah are few in number in Medina compared to Mecca. The Medinese are placid people while the Jawah are hot tempered, so they are not very welcome in Medina and have settled in a part of Mecca known for its rowdiness and unkindness to pilgrims [55:vol.2, p.14].

The Jawah used to live around Al-Haram in Al-Kammashah and Haush Al-Jomal streets but these areas have been demolished during the 1974 to 1976 project to expand Al-Haram and the new generation have mixed with other people and now have highly responsible jobs [113:pp.97,98]. In Lawrence's time in Hijaz in the 1920's the Governor of Jeddah was a "Jawi" [141:p.45].

9.5.5 Maghribis.

The term "Maghribis" is applied to people from the North African countries of Libya, Tunisia, Algeria and Morrocco. This group is larger in Medina than in Mecca due to two main factors. First, the Maliki Islamic sect, which they follow, originated in Medina and became dominant in North Africa, thus Medina provided a convenient place for immigration. The other reason, suggested by the author's sample survey, is that the majority of Maghribis immigrants (80%) are of agricultural origin and Medina provided a more suitable place than the bare rocky land of Mecca. Although the majority of the present generation (91%) does not work in agriculture in Medina but in government offices and trade, there is evidence that some skilled farmers have come from North African Arab Countries. Families such as Al-Azhari and Ash-Shawi migrated from Morrocco and Tunisia and settled in Medina in the early 1950's, and are among the farmers who practice modern agricultural techniques [404:pp.287-288]. The Maghribis mainly reside in the Bab Al-Majeedi and Bab Ash-Shami quarters (6.2% and 6.9% of the total residence respectively). Their importance in Medina is illustrated by their name being given to a sub-quarter in the Koba area south of Medina.

9.5.6 Nigerians and Malis.

There is a large African minority group in Medina, mainly from Nigeria, Niger and Mali, known collectively as "Takarnah". This term is used in the whole of the Middle East and seems to have spread through the pilgrimages in the early years of the 14th Century [417:p.57]. The expression "Takarnah" is derived from Takrori, a large sect extending from western Sudan to Senegal, although this generalisation sometimes annoys non-Takrori people.

Early settlers lived mainly in big edifices called "Arbitah" (plural of "Robat")supplied by endowment trusts in their own countries.* Until the early 1960's there were five Robats in Medina belonging to Al-Takarnah,

*There are several other property trusts known locally as "Waqf Robat" for other poor groups, mostly built by wealthy pilgrims who wanted to give something to Medina's dwellers.

Plate 9.1 Tin sheets and sun dried bricks used for hut construction in the Eastern Harrah of Medina.

Plate 9.2 Mud walls emerge from behind the tin walls.

but with the changing structure of Medina and the extension of Al-Haram only two now remain, one in the Bab Al-Koma area and the other in the Bab Al-Majeedi quarter. A small gathering of these immigrants was noticed in the east of Medina, but the disastrous fire, caused by the shanty structure of the huts in the late 1960's and the local attitudes of owners of neighbouring buildings put pressure on the authority to ban any shanty huts in the area, putting many of these immigrants off the sites. However, they found alternative homes in the western part of the Eastern Harrah, such a movement possibly represent a first step towards breaking the traditional style of keeping the outlying areas for local migrant groups, although Al-Takarnah still cluster together on their new sites.

Their poor conditions can be seen from the kind of accommodation they build, usually tin huts often mixed with wood or sundried mud bricks (Plate 9.1) lacking running water and drainage facilities, and even sometimes lavatories. This type of accommodation may be due, in addition to the economic factor, to the climate, as Medina is hotter and drier in summer than their original homeland, thus the adoption of cheap tin plates and earth bricks may be suitable for their standard of living and local climate. In other cities of Saudi Arabia building styles were adopted by these groups such as straw huts in Mecca and tin huts in At-Taif due to the easy importation of such material from Africa in the former case, and cool weather in the latter case [414:p.155]. It is true that some of these building materials are available locally and once were the main building materials for the area. Some writers suggested that building of this nature can be considered as a new town built by popular resources and supported with a minimum of private and state funds, which indicate initiative and ability to settle and adapt a city life [101:p.16;243:pp.28-32]. Other writers have identified the economic potential of slums to the urban development process, such as the tax flows generated by slum families , a saving of investment and increased market for consumer goods in some south American urban centres [101:p.2]. But what concerns us here is the chaotic way in which such slum dwellings have been built, with no adequate facilities or planning permission which would require at least drastic improvement, not demolition. The city has many fine buildings, with both humble or luxurious facilities, built from traditional materials. The

ability to adapt to city life may come easily in aspects such as dress or washing and cooking customs, but as Abu Lughod noted, there is no indication that migrants necessarily pass easily from one pole (the least-sophisticated villager) to the other (the most sophisticated urbanite) [243:p.32]. Perhaps, the next generation of these immigrants, as well as local migrants, when educated and involved in the expanding urban sector, will try to improve their living conditions. This supports the argument of Chapter seven that more consideration should be given to the provision of education in the rural areas.

In Medina these immigrants sometimes use a certain process for building such as using tin walls to look like a temporary shelter, thus hiding their illicit construction activities behind from the municipal authority. After a while one may witness the emergence of mud walls from behind the tin ones which were built under cover of dark (Plate 9.2) creating a structure of low hygenic standard.

In addition to these people who came for religious and economic reasons, there are others who came unwillingly through the slave trade as Arabs preferred slaves to servants until recently [367:p.316]. Also some pilgrims used to sell their slaves in Hijaz if they became short of money [313:p.437]. There is some proof that these slaves or their descendants have settled in the area and not tried to leave it when the opportunity came [358:p.15; 367:p.317]. The group called "Mawalid ", (plural of "Muwallad") are a halfcast race resulting from intermarriage, or masters taking concubines, and they work in agriculture or as drivers. In this study they will be included in the African group as they are not considered to be Arabs by the Saudi people.

Another group are the eunuchs, called locally "Aghawat" (plural of "Agha") which in Turkish means "master". Some believe that maintenance of eunuchs was Persian practice from before Islam [55:vol. 1, p. 371], while others suggest a Babylonian origin [238:vol. 5. p. 33]. However, the custom is unknown in early Islamic times and according to some sources was only brought in in the Abbasid time (794 to 1258 A.D.), while others date the custom back as early as Aumayyed Khalipha Yazid Ibn Muawaih between 676 and 683 A.D. [238:vol. 5, p. 33]. The Turkish name for this

group supports the first suggestion, as the Abbassid were more attached to Turks and Persians than the former Aumayyed rulers.

Eunuchs are believed to have been introduced into Medina at the time of the Sultan Salah Ad-Din Al-Ayyobi who ruled between 1172 and 1193 A.D. [184:p.240]. Afterwards kings, rulers and rich people presented them to Mecca and Medina Harams as servants. However, eunuchs are known in non-Muslim areas such as the Roman Catholic Church [55:vol.1.p.371] and in Verdun in Spain in the 10th Century A.D. [47:p.187]. In 1977 there were 33 eunuchs connected with Al-Haram in Medina who have, in addition to regular salaries from the Ministry of Hajj, their own endowment trusts. As their total number, given by A. Crichton in 1833, was 500 [76:p.267] and by Rutter in 1928 was only 50, the indications are that the practice is sharply decreasing.

9.5.7 Shinqits.

The name "Shanaqita" (plural of "Shinqiti") is used in Medina to describe the people from the Western African Sahara. It seems that the origin of the name is the town of Shinqit in Mauritania, which dates back to the eighth Century [167:p.3]. Thus one may conclude that the term "Shinqiti" was brought to Mecca by the pilgrim caravans [22:p.413].

The previous generations of Shinqits had no specific work, but spent their time in religious study and worship. As they came from Africa they were accompanied by slaves who served their masters and worked for other people in the city to bring an income to their masters. Some of them were renowned for making talismans, based on witchcraft.

9.5.8 Turkistanis.

These immigrants are mainly from Central Asian Soviet Socialist Republics and the Chinese Republic and are known locally as Al-Bukhariah, which may be derived from Bukhara in Uzbekistan. Some writers suggest that their arrival dates from the formation of revolutionary republic between 1921 and 1924 in the USSR, or the holy war against the Chinese authorities in 1928 [414:pp.151,154]. After the Bolshevik party under Lenin came to power in the USSR in 1917, bloodshed and execution of 100,000 revolutionaries (most of whom were Muslims) occurred between 1941 and 1943 [351:p.14]. The victory of the communist party in China in 1949 put all kinds of restraints on the practice of their faith, so that many Central Asian Muslims

who escaped communism and fled to the central homeland of Islam in Mecca and Medina. Here they were assisted by the Saudi government who offered them security and work permits. After the breakdown of diplomatic relationship between Saudi Arabia and the USSR in 1938 more of these immigrants tried to come secretly to Hijaz or as holders of Afghani and Pakistani passports as many had emigrated to these countries.

The author's sample survey revealed that 1.6% of Medina's population are Bukharis. The total number of Al-Bukhariah in Medina may be less than in At-Taif or Mecca, possibly because the weather in At-Taif is much cooler than Medina or Mecca and is similar to that in their homeland. The opportunity for work is much better for them in At-Taif which has fewer groups of other immigrants. Mecca has a greater share of these people than Medina as they are fanatically religious people who wish to be as near as possible to the House of God. In addition they follow the Hanafi Islamic sect which has a great following in Mecca. For this reason one finds a whole street or a quarter called Al-Bokhariah in Mecca and At-Taif, something which does not exist in Medina. The new generation are increasingly involved in the city life and most of them speak Arabic in addition to their own language, but they can easily be distinguished from other groups by their facial features. Some of the older generation married Indians or Africans but the new generation mix with rich and well-known families, indicating the beginning of a cultural assimilation.

9.5.9 Turks.

The Turkish immigration was the result of the Authmanid dominance over Hijaz from 1517 until 1916. Their number in Medina is probably higher than in any other city in the Hijaz, possibly because Medina was a military base for the Authmanid who ruled the area, while in Mecca, for example the Sharifs shared responsibility with Turks. The Hijaz railway was instrumental in attracting the Turks to Medina and it increasingly became a resort for rich, old and religious immigrants who contributed to the growth of the city [174:p.56;422:pp.68,115].

At first the Turks kept to themselves because of pride and a different standard of living to other immigrants until in the 19th Century a number of halfcasts ("Sufat") were produced as a result of Turks marrying Arab women.

These halfcasts gained high and lucrative offices in Medina [55:vol. 2, p. 5], and the present generation of the Authmanid Turks, who can be distinguished by their fair skins and family names, are becoming less distinct and spreading throughout areas with middle and high income groups such as Bab Al-Majeedi and Koba quarters.

9.5.10 The Shi'ea.

Unlike the former minorities the Shi'ea are distinguished not on racial but on religious grounds, which results in occasional violence between them and other inhabitants. Such a distinction is not confined to Medina as it is noticed in other parts of the Islamic World. For example, under the Communist rule the Chinese Muslims are considered as a racial minority in China itself [271:p.698]. It is said that the Shi'ea sect originally emerged in Yemen in the second half of the seventh Century A.D., although it is now more common in Iraq, Iran and the Arabian/Persian Gulf [230:p.44]. Two main groups of Shi'ea reside in Medina, An-Nakhawlah who are Arabs although their exact origin is unknown and some writers claim that they are descendants of Al-Ansar (the Prophet's auxiliaries) [109:p.124], whilst others claim that they are descendants of the army who sacked and plundered Medina in the Harrah battle, at the time of the Yazid Ibn Muawiah's reign in 682 A.D. [167:p.124]. Alternatively they might be descendants of those Arabs professing the Shi'ea doctrine who were very numerous in Medina in the first Century of the Islamic era [184: p.246]. The last explanation seems most reasonable as it suggests that because of their doctrine and habits of marriage they became a distinctive but despised community in Medina.

An-Nakhawlah have formed a society of their own living together in the south of Medina in an area called An-Nakhawlah Haush, and they work largely in agriculture and as butchers. It would appear that the name An-Nakhawlah is derived from their work in agriculture, the main crop in Medina being the date which is called An-Nakhil in Arabic.

An-Nakhawlah do not like to mix with the non-Shi'ea people in the town and marry only among themselves. It is easy to distinguish An-Nakhawlah people as their skin is darker than that of most Medinese who mixed with other races. Shi'ea young people,however, have recently begun to marry outside Medina, but still not from other parts of Saudi Arabia as inter-marriage is not acceptable to them.

The other Arab group of Shi'ea called "Zaidi" came from Yemen; their power was built up in the ninth Century A.D. in Yemen [47:p.97]. As these immigrants came mainly for economic reasons, the contempt by locals is not as severe as that towards An-Nakhawlah. Zaidi Yemenis are not confined to one area, but can be found throughout the city.

9.5 The Composition and Distribution of Population: b) Analysis by Quarters.

The previous section discussed the composition and distribution of minority groups in general. This section analyses their composition and distribution in the different quarters of Medina.

Although the presence of minority groups in Medina as well as in Mecca is an important feature of the holy areas in Saudi Arabia, there has been no study on the size of these minorities or their effect on the local area. Comments in this section are largely based on the findings of two main statistical sources; the telephone directory, and a random sample survey of household heads conducted by the writer in the period of May to August 1977, when an approximately 4% stratified random sample survey of the 26,405 householders in Medina was interviewed. It was impossible to make a survey of the whole population of the city (estimated in 1976 at about 159,000), as such a task was obviously too great for an individual researcher. However, the origin of most people can be derived from that of the family heads, and the sample used was considered an adequate basis, but the size of the sample analysed was reduced to 3.6% for reasons explained on page 229 .

The 1962/63 census has not been used to a great extent because it divided the population only into Saudis and non-Saudis. The above two sources have served the purpose of providing reasonably detailed comparable data for minorities. The composition of Medinese householders, according to the above mentioned sources, is shown in Table 9.5. The telephone directory analysis was based on the subscribers surnames, together with information from local inhabitants. The results revealed that only about one-quarter of the population are of Saudi origin, another quarter came from other Arab countries, the remainder being of non-Arab origin who presumably came during the Hajj and settled permanently in Medina. This data source has its drawbacks as not all families have telephones; many people live on the city peripheries where such an amenity is uncommon. However, this analysis clearly revealed

that the percentage of people clearly of Arab origin (Saudis and non-Saudis) is not very high (Table 9.5).

The telephone directory may provide an indirect indication of the living standards of different groups, as groups with a low percentage of telephone subscribers may indicate less ability to afford this service and vice-versa. However, a large percentage of the people in the author's field survey were not telephone subscribers, e.g. Africans and Shinqits. The large number of non-Arab immigrants shown in the telephone directory, when compared with the sample survey, may reflect the attitude of people to the questionnaire. Many of the immigrants questioned had obtained Saudi nationality and, as Ali Beg noted, many immigrants claimed to be natives of Hijaz [17:p.208], having severed their ties with their homelands, and refused to give their country of origin.

To make some assessment of minority groups a breakdown of householders into areas is shown in Table 9.6 and Figur 9.2, based on the author's sample survey. Here the telephone directory method could not be used, as it is not divided into areas. The sample survey is more efficient in this instance but has its drawbacks because of accuracy answering the questionnaires.

However, high percentages of Saudis are found in all quarters, particularly those on the periphery. In Al-Anabis quarter, north-west of Medina, all people interviewed in the sample survey were Saudis (Fig.9.2). Flat land in this area (which in 1972 had a population of only 1,935) is limited, and most people are of the same clan. The topographical condition of the area may have proved a disincentive for mixed immigrants, and may have kept the total population of this quarter low compared to others. In the Eastern Harrah, the socio-economic survey of 1972 indicated that 83.7% of the population were Saudis. In 1977, the author's sample survey revealed that about 37.7% of the Eastern Harrah residents were Saudis, compared to 79.3% in the Western Harrah, although both are on the periphery of Medina. The recent high percentage of non-Saudis in the Eastern Harrah could be accounted for by Africans who were forced to move out of the city centre by extensions to Al-Haram, moving to the Eastern Harrah where the halfcasts "Muwalad" (see former section) were already living.

TABLE 9.5 COMPOSITION OF MEDINESE HOUSEHOLDERS BY NATIONALITY

Source of Data	Afghans %	Africans %	Arabs %	Indians %	Jawah %	Maghribis %	Saudis %	Shinqits %	Turkistanis %	Turks %	Total No.	Total %
Telephone Directory 1973/74	4.6	5.0	25.2	7.9	1.1	16.0	28.9	1.0	4.0	6.3	3697*	100
Author's sample survey 1977	2.7	9.7	16.0	4.8	0.5	1.9	59.7	2.3	1.7	0.7	962	100

* Lines connected to company offices and those with more than one number per subscriber were excluded.

TABLE 9.6 POPULATION COMPOSITION BY NATIONALITY IN 11 QUARTERS OF MEDINA, 1977

No.	Quarters	Afghans %	Africans %	Arabs %	Indians %	Jawah %	Maghribis %	Saudis %	Shinqits %	Turkistanis %	Turks %
1.	Al-Aghawat	14.8	-	18.5	3.7	-	-	63.0	-	-	-
2.	Al-Anabis	-	-	-	-	-	-	100.0	-	-	-
3.	Al-Anbariah	0.8	-	13.0	-	-	1.5	80.0	-	3.9	0.8
4.	Al-Manakha	-	15.2	19.6	2.2	10.8	-	52.2	-	-	-
5.	As-Sahah	20.5	2.5	56.4	2.6	-	7.7	10.3	-	-	-
6.	At-Tayyar	5.7	2.9	22.9	2.9	-	3.8	60.0	1.8	-	-
7.	At-Tajoori	9.7	-	19.5	-	-	-	70.8	-	-	-
8.	Bab Al-Majeedi	0.6	20.4	23.0	11.5	-	6.2	29.0	-	6.0	3.3
9.	Bab Ash-Shami	-	2.7	17.8	4.1	-	6.9	61.6	6.9	-	-
10.	E. Harrah	-	37.0	17.6	6.7	-	-	37.0	1.7	-	-
11.	W. Harrah	-	0.6	10.0	1.2	-	-	79.3	8.9	-	-
	Total	2.7	9.7	16.0	4.8	0.5	1.9	59.7	2.3	1.7	0.7

Source: Field Work, May to August, 1977.

The numerical strength of each individual group can be measured by a ranking method. Ranking was obtained for each group by calculating the percentage of each nationality in the population of any given quarter. It should be noted that the method of dividing the population into quarters is only an approximation, and the ultimate aim is to give a general impression which can be used to identify population trends throughout the study area. The population were classified into eight ranks (Table 9.7), the majority of quarters had six ranks and only one had eight, with the Saudis occupying the first position in almost all quarters. As-Sahah quarter seems at first to be an anomaly, but the area here is being increasingly occupied by hotels and shops which means that most of the population is temporary, and thus non-Saudi Arabs occupied the first rank. In the Eastern Harrah the Saudis occupied the first rank, but they had the same position as Africans due to factors explained earlier in this section. The non-Saudi Arabs occupied the second rank position in almost all quarters except in As-Saha quarter where many Afghans work in the watch trade in the main street and live nearby.

TABLE 9.7 PROPORTION OF HOUSEHOLDERS RANKED BY QUARTERS? 1977.

No.	Quarters	Rank 1	2	3	4	5	6	7	8
1	Al-Aghwat	S 63.0	A 18.5	g 14.8	-	-	-	-	-
2	Al-Anabis	S 100.0	-	-	-	-	-	-	-
3	Al-Anbariah	S 80.0	A 13.0	K 3.9	M 1.5	Tg 0.8	-	-	-
4	Al-Manakha	S 50.2	A 19.6	f 15.2	J10.8	I 2.2	-	-	-
5	As-Saha	A 56.4	g 20.5	S 10.3	M 7.7	I 2.6	f 2.5	-	-
6	At-Tayyar	S 60.0	A 22.9	g 5.7	M 3.8	If 2.9	-	-	-
7	At-Tajoori	S 70.8	A 19.5	g 9.7	-	-	-	-	-
8	Bab Al-Majeedi	S 29.0	A 23.0	f 20.4	I 11.5	M 6.2	K 6.0	T 3.3	g 0.6
9	Bab Ash-Shami	S 61.9	A 17.8	Mh 6.9	I 4.1	f 2.7	-	-	-
10	E.Harrah	Sf 37.0	A 17.6	I 6.7	h 1.7	-	-	-	-
11	W.Harrah	S 79.3	A 10.0	h 8.9	I 1.2	f 0.6	-	-	

letters indicate different nationalities as follows: g= Afghans, f= Africans, A= Arabs, I= Indians, J= Jawah, M= Maghribis, S=Saudis, h=Shinqits, K= Turkistanis, T=Turks.
Source: Table 9.2.

a-

b-

9.3 Shanty dwellings of Shinqits in Medina.

From the third rank and down the composition of nationalities is more complex, although the last three ranks (six to eight.) are less so because they comprise only a small fraction of the population. The third rank shows a large proportion of some immigrants in some quarters such as Africans in Bab Al-Majeedi and Shinqits in the Western Harrah. The Shinqits formerly lived north of the city wall on privately owned land, but recent construction on the vacant land outside the city wall and the widening of streets forced them to move to the eastern edge of the Western Harrah, although a few of them still live in the former position now called Bab Ash-Shami quarter. They live in tents or shanty huts of tin, wood and cardboard giving the area a chaotic appearance. (Plate 9.3 a and b) especially since the recent construction of tall buildings and asphalted roads in the area. Some of the young educated Shinqits now live in other quarters such as At-Tayyar (Table 9.2).

Among the smallest minorities are the Turks who concentrate in Bab Al-Majeedi, and the Turkistanis who reside in the centre of Bab Al-Majeedi quarter where they compose about 6% of the population. A recent extension of this group is found in Al-Mishrifiah sub-quarter in the Koba area. Unfortunately there is no information on their number in this quarter, but in the adjacent quarter of Al-Anbariah some 3.9% of the population are Turkistanis which may reflect a similar trend to that in Koba.

The predominence of some immigrants in some quarters is reflected in the per capita income. Table 9.8 shows that quarters with a high proportion of immigrants, both local and non-Arab, have low level incomes. It is clear that Al-Anabis quarter which consists entirely of immigrants has a majority of low income people. Similar conditions are noticed in the Harrat quarters, which contrast with quarters having a high proportion of Saudi or even Arabic temporary immigrants with a high income such as in Al-Anbariah, As-Saha and Bab Ash-Shami quarters. This is because peripheral areas have scant services and amenities and are consequently less attractive to top businessmen and rich people. In the Harrat areas, however, a few middle or high income groups can be found, this is explained by their preference to the traditional life style which is prevalent in these areas as opposed to the status of other residential areas.

TABLE 9.8 MONTHLY PER CAPITA INCOME OF HOUSEHOLDERS IN 11 QUARTERS OF MEDINA, 1972.

No.	Quarters	Percentage of householders in per capita income groups				
		SR 100 - 200	SR 201- 700	SR 701- 2,000	SR 2,001 5,000	more than SR 5,000
1	Al-Aghawat	65.8	18.4	15.8	-	-
2	Al-Anabis	88.7	11.3	-	-	-
3	Al-Anbariah	24.4	46.0	27.0	2.1	0.5
4	Al-Manakha	56.8	35.9	7.3	-	-
5	As-Saha	36.9	26.2	33.3	1.8	1.8
6	At-Tayyar	51.6	37.4	11.0	-	-
7	At-Tajoori	54.8	25.8	19.4	-	-
8	Bab Al-Majeedi	44.6	26.5	24.5	3.4	1.0
9	Bab Ash-Shami	32.7	31.2	32.4	3.7	-
10	E.Harrah	45.9	44.0	10.1	-	-
11	W.Harrah	42.9	39.1	17.2	0.7	-

Source: Robert Matthew, 1975, Central Medina: Action Area, Municipal Affairs, Jeddah.

The social security statistics are another indication of a low standard of living in quarters with a high proportion of migrants. Table 9.9 revealed high beneficiaries in the Eastern and Western Harrats, Al-Anabis and Bab Al-Majeedi quarter, but low beneficiaries in quarters with high income groups such as As-Saha and Bab Ash-Shami, It is pertinent to mention that the social security system is applicable only to Saudis, as its appliance to non-Saudis would double the number of beneficiaries in such poor quarters.

TABLE 9.9 SOCIAL SECURITY BENEFICIARIES IN 11 QUARTERS OF MEDINA IN 1976.

	Al-Aghawat	Al-Anabis	Al-Anbariah	Al-Manakha	As-Saha	At-Tayyar	At-Tajoori	Bab-Al-Majeedi	Bab Ash-Shami	E. Harrah	W. Harrah
No	175	306	168	145	46	113	135	523	215	899	1088
% of total	3.9	6.8	3.7	3.2	1.0	2.5	3.0	11.6	4.8	20.0	24.0

Source: Social Security Department, 1977, in a letter to author dated 3rd March.

With regard to the maritial status of these non-Arab immigrants, it would appear that the majority are married, 84.3% Africans, 86.5% Turkistanis, 90% Turks. Exceptions are noticed among the Afghans and Indians (8% and 23.4% respectively) where the newcomers are single people like Arab immigrants coming initially for economic reasons.

It appears that the difference in standards of living between central and peripheral quarters will vanish at the end of the government initiative, started in 1975, to replan isolated areas of the city and supply amenities and services to attract middle and high income groups.

Finally, one may refer to Zwemer's important article in which he spoke about Mecca and the holy area in Hijaz. Zwemer attributed the mixture of races in the area to the poor quality of government; moreover he described the holy areas as "the" sink-hole of Islam" [39?:pp.161,163] . In fact the religious aspiration of the area is the main factor in bringing together all the different constituents of population. The insecurity and weak government in the early years of this Century did not necessarily contribute to the existence of such different groups. Economic considerations did not enable the government to create adequate security, and frequently pilgrims from different nationalities fell prey to unscrupulous Bedouin tribesmen rather than to minority groups in the area. A fairly good example supporting this argument are the so-called pilgrims who left England secretly for Amsterdam and then to the New England in America in 1620; their descendants ultimately finding good fortune in the new land to create a powerful state [33:pp.206-208]. The fact that they were made up of different nationalities did not make them the "sink hole of Europe". Moreover, the unification of Saudi Arabia and the improved economy since the 1930's has resulted in a safe life for all citizens, although there are still some significant problems connected with the improving standards of the mixed society of the Hijaz.

9.7 Other Social Effects of Immigrants on Medina.

Abu-Lughod noticed that minority groups tend to build for themselves within the city a replica of the culture they left behind [243:p.23]. It is logical therefore that a continuous flow of pilgrims and immigrants will leave marks on the city's structure as well as its traditions, such influences can be shown as follows:

a) Generally speaking the local dialect in Medina resembles more closely that of Egypt and Sudan than other parts of the Arab World; this may be due to the historical and geographical relationship of the three parts. It is common to hear the different groups intersperce the Arabic language with some of their native vocabulary. Over the years such vocabulary has become used by different groups, examples being the Turkish words "Kahawaji" and "Estasion", meaning coffee waiter and railway station respectively. Other people who are more involved with foreign pilgrims become fluent in their languages.

b) The physical characteristics of these newcomers have had their effects on local people through intermarriage. Black Africans mixed with white or yellow people from Central Asia and Turks with natives, resulting in halfcast groups, but as the Saudi government's policy is based on the Islamic laws, which proclaim equal rights between all human beings, discrimination between races does not exist in Medina.

c) The influx of the different immigrant groups has had some influence on people's dress. During early Islamic times people dressed casually, but as Medina became connected with other parts of the Islamic World, particularly the beginning of the Aumayyed reign in 61 A.D., one can see Abbasid scholars dressed in black, Alid followers dressed in green, ordinary people in white [94:p. 144] and rich people in expensive silk Kashmiri clothes. The Turkish regime (1517 to 1916) which regulated clothing for different classes introduced the fez to distinguish the political leader from some religious turbaned leaders [47:pp. 266, 445].

In the 1950's and may be earlier, new fashions were noticed among Medina's women such as the "Sari", this was before the effect of television, which was introduced only in the late 1960's, and such influence surely came through pilgrims. The pilgrimage is also one factor behind the interchange of costumes between the different regions of Arabia. For example, the women or men's cloaks "Aba or Mishlah" are made in Najd and Eastern Arabia but are common in Hijaz.

d) The local culinary and folk traditions were a fertile ground for influence. For example the traditional horse beans dish (Egyptian beans or "fool") was introduced to Medina and Hijaz through pilgrims, and from Hijaz it spread

to other parts of Saudi Arabia. At the present time it is a popular dish for breakfast. Another food associated with "fool" is of Turkestani or Bukhari origin, this is the "Tamez", a Turkish word meaning clean. Tamez is a kind of bread made in a one-man operated charcoal oven and is eaten at breakfast with "fool". As the ovens are small they are found in almost every sub-quarter of Medina and are operated by Turkestani and Bukhari immigrants, although recently Yemenis have invaded this field. In 1976 there were 32 Tamez bakeries in Medina compared with only seven local bread bakeries.

Another dish originating from the Bukharis is the "Yaghmosh". There are two kinds, one baked in the oven and the other steam-boiled, and it is eaten in the forenoon. Other dishes have come from Indian and Jawah immigrants, including different kinds of sweets, Shabati bread and lentil dishes "Dall" from the Indians and a kind of fried crisp called "Kuruboh", brain soup and a sweet called "Aqar" from Jawah. The Yemenis sell a kind of tobacco called "Hommi" to their own people in Medina market.

The folk dancing music, called "Muzmar", with its drum beat seems similar to African fire music, which may suggest an African influence. Walking through immigrant areas one cannot escape hearing music and songs of different nationalities, such as Indian or local country music.

e) The architectural style of Medina has been influenced by many cultures. The Turks introduced magnificent large buildings with separate quarters for men, the "Salamlek" and women, the "Haramlek". There are many state and private buildings and mosques of Turkish style and with their unique cupola roofs and sprawl minarets.

The courtyard was quite unusual in Turkish houses [81:p.26] and its use declined during the Authmanid reign (1517 to 1916) so that the local inhabitants invented the "Jillah", a small opening in the middle of the ceiling to convey light and allow circulation of air with some means of controlling the amount of heat or light, as a means of coping with local conditions. Such devices cannot be seen in cities outside the Hijaz.

The familiar Turkish style of large room, wide windows, verandas, and high roofs [218:p.172] can be seen in Medina. The process of creating replicas

of homeland styles by other immigrant groups is seen in the shanty towns. For example, African huts with conical or leaning roofs. As most non-Arabic immigrants are in the low income bracket they affect the general appearance of some quarters unfavourably. High income groups with better standards of education are in a majority in As-Saha and Al-Anbariah quarters, where conditions are better.

Finally, one may point to the fact that the unrestricted immigration has had some adverse effects as foreigners compete with natives in many fields. Furthermore, the "open door' policy for immigration could lead to a severe loss of traditions and national unity and native customs. From time to time attention has been drawn to this situation and in late 1976 the government declared a prohibition of non-Saudis, which prevented the small Yemeni traders from undertaking certain activities in the country [298:p.27].

Since the late 1950's other restrictions have been put on the remaining pilgrims and their employment after the pilgrimage season, and the public have been warned against smuggling and harbouring such pilgrims or employing foreigners without licences, with threats of severe punishment. But with the booming development programmes since 1975, such restrictions have not deterred them. Furthermore, the need for these immigrants even led to the relaxation of the act preventing pilgrims taking up work in the holy areas. In the pilgrimage season of the 1396 Arabic year (1976) about 76% of street sweepers employed by Medina's Municipality had been pilgrims. The recent influx of Egyptians to Saudi Arabia has led to a sometimes unfriendly atmosphere between them and the natives. In 1978, the government took strict new measures to clamp down on illegal immigrants, giving them a limited period to correct their status or be deported (580 of them were arrested in Medina). These measures also affected immigrants and pilgrims who had resided in Hijaz since early times, which resulted in violence in Mecca against Saudi officials [303:p.37;304:p.39;305:p.38]. These facts indicate the problems caused by opening the door for pilgrims, and the lack of local workers, which perhaps supports the suggestion mentioned in Chapter three to restrict the government's spending in order to control inflation and, as mentioned further on in this Chapter, to control the number of pilgrims to guarantee a balanced growth of population.

9.8 Implications.

The preceding section of this Chapter explained that Hajj is not the only factor affecting the social structure of Medina. The centrality and the

administrative function of the city is an important factor in the assimilation of different groups into Medina, especially in recent years. This may imply that migrants bring greater diversity of skills and traditions. However, Hajj is one of the most important factors socially in giving a profound composition of population. Thus religion is one of the major factors which has controlled the social processes involved in urban change and religion remains the dominant influence in patterns of migration, in contrast to other urban centres in Saudi Arabia. The outcome of this migration in clustering minority groups does not necessarily mean discrimination amongst population as the Islamic religion unites them all. With a few exceptions, there is a great deal of integration between natives of Medina and some immigrants, especially those of foreign origin, where racial and religious loyalty replace tribal ties.

Shortage of accurate information about migration and population composition and distribution limits studies and practical planning decisions. The information obtained from the author's sample survey may give some indication of the importance of the population study and its bearings in Saudi Arabia.

Of particular interest is the pilgrimage movement. The Muslim pilgrimage appears to be only slightly affected by modern trends of materialism and declining interest which has plagued many religions [33:p.268] and pilgrim numbers increase annually. Improved transport and security in Saudi Arabia, particularly the provision of charter flights, has led to a substantial increase in the number of pilgrims, with some minor fluctuations [364:p.755] . The increasing percentage of pilgrims travelling by air may, however, reduce the annual variation in the number of foreign pilgrims as air travel is less sensitive to international politics and border crisis. In 1976, pilgrims accounted for only 0.12% of the total Muslim population of the world, which is increasing at about 2% per annum [263:p.17]. About one third of all pilgrims repeat the pilgrimage [416:p.388], which means that there is an ever increasing potential of pilgrims. It was thought that when the pilgrimage occurred during the hot summer season, numbers would decline, and when the day of Arafat fell on a Friday they would increase [264:p.28;387:p.122], but in a rigorous analysis based on a statistical analysis for the years 1927 to 1971, this was not found to be the case [416:pp.153-154,384].

The problem of increasing numbers of pilgrims may be aggravated by the absence of official records. Thus there is no check on the movement of people both in Medina and throughout the country, with the result that many foreigners remain in the area unofficially. When official searches are made for these people, they escape to other regions of the country or the Gulf States and return after the search has ended. To protect the area from overcrowding and to preserve traditional customs, it appears very important to introduce an official policy to deal with the increasing number of pilgrims.

A lively debate takes place every year, especially during the time of the pilgrimage season, on the desirability of restricting the number of pilgrims. The government's official attitude appears to be, not to limit numbers from Islamic countries [295:p.9], and even to encourage them by the provision of special accommodation [263:p.18], and the waiving of airport fees [296:p.5]. Such an attitude may be influenced by the highly sensitive political aspect of the pilgrimage; for example during the 1977 pilgrimage season, the Saudi Arabian daily newspaper "Okaz" tested the attitude of certain leaders; the President of the Northern Yemen encouraged limitation, while the Sudanese Minister of Interior severely criticised any suggestion of limiting pilgrims [291:p.7].

Even some local officials are against restricting the number of pilgrims, on the grounds that the more pilgrims there are, the greater are the economic benefits.* The main argument discussed in Chapter two, which differentiated between Muslim pilgrims and other religious pilgrims, is the strong spiritual motive for pilgrims coming to Hijaz. The government's desire to make the spiritual side successful without restricting the number of pilgrims seems impractical, however. It is true that the local economy is benefitting from the pilgrimage, but some means of gaining more benefits without disturbing the pilgrims religious spirit or endangering their comfort must be found. Examples of such means are suggested in this thesis, regarding food marketing (Chapter 7) and pilgrim accommodation (Chapter 10). The foundation of the Hajj Research Centre in King Abdul Aziz University in Jeddah in 1975, with its stated aims of investigating conditions which might help pilgrims derive the maximum spiritual and material benefits for themselves, and for the whole Muslim people [165:p.10] is a step forward. It is hoped that the

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*Information given to the author in a meeting with the Head of Medina's Customs Department and a member of the Hajj High Commission in Medina on 16th July, 1977.

centre will go beyond mere academic research, and produce positive suggestions for solving problems associated with the pilgrimage - especially if the research panel includes some decision-makers.

That the increasing number of pilgrims is causing Saudi officials some concern, is evidenced by the second development plan,"The growth in the number of pilgrims foreign and domestic.....each year to perform the Hajj duties continues to be impressive " [64:pp.281-282]. Another evidence is the encouragement of the government to the Saudis to leave the Hajj to first time pilgrims [263:p.17]. At the present time the Saudi government is concentrating on improving security and transport facilities for the increasing number of pilgrims, whose future numbers are always underestimated. [364:p.753].

As G.H. Blake aptly noted,"But how many more pilgrims could the historic sites associated with the Hajj actually absorb? At some stage physical limit must be reached,.....so far, congestion has been alleviated by a programme of building and construction at most of the important sites..... Eventually,however, engineering will have to stop" [263:p.17]. Some other western observers who seem unfamiliar with the deepest meaning of the Muslim pilgrimage have suggested the reforming of the callendar system or encouraging the pilgrimage throughout the year to solve the overcrowding problem [256: p.19]. Others even suggested the relocation of the Hajj sites in areas capable of absorbing more pilgrims than is possible at the present sites [420:p.120]. Such suggestions are out of the question and beyond contemplation as the pilgrimage was established 14 Centuries ago through the Koran and the Prophet Mohammad's sayings or "Hadith" and is an integral part of the Muslim belief.

Frequently the government media declare that official concern is for pilgrims to make the pilgrimage in every comfort and nothing should hinder their feelings. It is the writer's own view that introducing a quota system is the best means of securing the comfort of the pilgrims. Being a Muslim and having undertaken the pilgrimage several times, it is observed that the present pilgrimage is extremely uncomfortable due to the congested nature of some holy places despite the rebuilding of several important sites. For example, the area around the Prophet's tomb in Medina is very narrow with a

huge numbers of visitors. In Mecca the tradition of circling the area around the "Ka'aba" (the House of God) creates a bottleneck in spite of clearing the area several times since the 1950's for such rituals. In the pilgrimage area itself the place of "the stoning" the devil is unbearable, although several bridges have been built.

The congestion affects a pilgrim's concentration during his religious rituals as he is intent on getting away from the crowded area as quickly as possible to safeguard his life, especially from being trampled underfoot, as has occurred on several occasions. Moreover, he may be unable to fulfill the specified obligation of the Hajj, that the residence of pilgrims be within certain well defined sites in Arafat and Muna. Some researchers suggest that the physical dimension of the Hajj may overpower the spiritual aspect, thus reducing it to a set of mechanical actions, and turning it into non ideal Hajj where the pilgrim spends most of his time fighting the physical aspects of Hajj [190:p.33]. Thus one may conclude that regulating the number of pilgrims coming to Saudi Arabia is the solution, thus allowing a reasonable service during the short period of the pilgrimage to be offered and also to preserve the character of places from being changed beyond recognition. The allocation of such a quota should be the responsibility of all interested governments possibly based on a country's Muslim population, the age structure, and the percentage of "repeat" pilgrims per country. Such co-operation in decision-making might diminish any objections to the quota idea.

These circumstances and the sensitivity of the situation suggests the urgent need for the government to take steps to prepare public opinion for limiting pilgrim numbers before the situation reaches the point when the government is forced to make a sudden change in its former policy. The procedure started during the 1975 pilgrimage season of inviting leaders and officials of the Islamic World [29:p.1] to attend the pilgrimage which, after experiencing the problems first hand, might convince them of the need for a quota system.

The Saudi information media's idea of inviting newsmen from other Muslim countries to share their facilities during the pilgrimage time, could be more effective in informing Muslims throughout the world of the pilgrimage problems and perhaps cause every pilgrim to think twice before deciding to undertake the pilgrimage. Those who are unable to afford it must be educated to the fact that undertaking a pilgrimage is unnecessary if adequate means are not available.

The present indecisive official attitude prevents the idea of limiting pilgrim numbers and a thorough study should be made to try and predict future numbers in order to offer an accurate evaluation of the potential planning strategies that may be implemented to offset the chaos that could result from increasing numbers. It is true that projection is extremely difficult as the numbers do not increase regularly, and this, coupled with many factors such as political activity and unrest have made several past predictions incorrect; but it is still a necessary base for any development programme.

A study project has recently been carried out in Britain sponsored by the Saudi Arabian Ministry of Municipal and Rural Affairs to forecast pilgrim numbers during the period 1983 to 1993, based on consideration of economic development and rising standards of living in Muslim countries, travel costs, etc., in an attempt to develop a multiple regression model for accurate projection.* The result of the project was published in September 1978, where it was estimated that by 1983 the total number of foreign pilgrims will be 1,033,823, while a total of a half million Saudis was predicted; a figure already attained in 1971. By 1993 the total foreign pilgrims will reach 1.77 million. The total capacity of the Hajj sites was estimated to be 2.8 million people [365:p.1070]. These figures should be carefully watched as they pinpoint the increasing difficulties confronting the pilgrimage region in the strict time space. As at the present time pilgrims face great difficulties in order to fulfil the specified obligations of the Hajj.

The Medina Hajj survey conducted by Robert Matthew in 1392 A.H. (1973) as explained in Chapter two, indicated that some 83% of all pilgrims visited Medina. On this basis Robert Matthew projected the future growth of the total number of pilgrims until 1990, and those visiting Medina (Table 9.10).

TABLE 9.10 : GROWTH IN NUMBER OF PILGRIMS (CONDUCTED IN 1973)

Kinds	1391 A.H. 1972 A.D.	1392 A.H. 1973 A.D.	1395 A.H. 1975 A.D.	1410 A.H. 1990 A.D.
Total pilgrims	1,042,027	1,222,525	1,275,000	2,075,000
Medina's pilgrims	813,823	958,040	1,020,000	1,650,000

Source: Regional and Town Planning Dept., 1974, The Hadj: Medina Hadj Survey, Final Report, Municipal Affairs, Jeddah, p.59

*Rowley, G., 1977, in a telephone conversation with the author on 25th November.

PART FOUR

CONCLUSION

The total number of pilgrims coming to Saudi Arabia in 1395 A.H. (1975 A.D.), reached 1,557,867 [212:1975, p.37] which clearly exceeds Robert Matthew's estimates. Therefore, applying a similar growth rate to the total number of pilgrims visiting Medina, but taking into account the right figure for 1395 A.H., the city can expect more than Robert Matthew's estimates (Table 9.11).

TABLE 9.11 JUSTIFICATION FOR GROWTH OF PILGRIMS' NUMBERS

Kinds	1391 A.H. 1972 A.D.	1392 A.H. 1973 A.D.	1395 A.H. 1975 A.D.	1410 A.H. 1990 A.D.
Total pilgrims	1,042,027	1,222,525	1,557,867	3,105,387
Medina's pilgrims	864,882	1,014,695	1,293,029	2,577,471

Sources: compiled from:

1 - Table 9.10

2 - Statistical Section, 1975, Pilgrims Statistics, Agency of the Ministry of Interior for passport and Civil Service, Jeddah, p.37

In line with the Rowley and El-Hamdan estimate of total pilgrims to Saudi Arabia by 1993, Medina can expect [illegible] less pilgrims; about 1.9 million. This huge number will put enormous demands upon the limited essential facilities of Medina, such as accommodation and water resources. These limitations should be taken seriously, also taking into account the requirements of the increasing number of permanent residents, which at the present time the city authorities fail to do. The quota system may also strengthen the adequacy of efforts to clamp down the number of illegal residents in the area.

Chapter Ten

The Cost-Benefit Balance Sheet

10.1 The Cost.

Although the pilgrimage region represents only a small part of a large country with huge oil resources, the ever increasing number of pilgrims puts great pressure on the government to provide improved services. Moreover, the official attitude of the Sovereign of Saudi Arabia is benevolent towards the pilgrimage, a factor which favours the implementation of many development projects in the region. However, such expenditure on services and implementation of projects are not always a blessing, since it may lead to financial losses. Due to the seasonal character of the pilgrimage there is also a huge social cost to the community - in terms of the physical and human resources required to provide for the pilgrims.

In Medina the increasing number of pilgrims has necessitated the demolition of many old buildings to provide space around Al-Haram. The change to high rise blocks has led to a concentration of pilgrims within a small area around Al-Haram, creating congestion and dangerous conditions for both traffic and pedestrians. The great demand for accommodation in the centre of Medina in order to be near Al-Haram has resulted in property values and rents rocketing upwards, while the high returns during the short season has encouraged some owners to keep their property vacant during the rest of the year which may suggest that the human factor is highly influential. in the creation of Medina's urban problems. The extension of Al-Haram also reached to the boundary of the commercial centre; thus stimulating the change in Medina's land use pattern.

Medina's religious specialization has affected its urban system as it led to recent spatial separation and clustering of commercial and religious functions. This has given rise to a major diurnal flow within the city, between the religious and shopping centres on one side and the different residential quarters on the other, thus preventing the growth of any neighbourhood commercial centres which could relieve pressure on the central area. The effects of Al-Haram and the location of other shrines in Medina, in conjunction with people's behaviour pattern in visiting them, is of significance for the geography of religion. It is hoped that this study contributes to this geography by giving an example of the extensive effect of religion on the cultural landscape.

Since early Islamic times social conditions and physical and climatic features in the pilgrimage area have strongly influenced the pattern of movement of pilgrims and the roads they followed, resulting in the changing fortunes of many settlements along the pilgrim routes. The development of modern transport networks in both Saudi Arabia and the pilgrims' native countries has encouraged many more people to undertake or repeat the pilgrimage. The latter group in particular are contributing to congestion in the holy areas. Economic factors have also affected the mode of pilgrim travel; many now favour large vehicles (buses and trucks), but the use of these vehicles is increasing faster than the development of the transport network, especially around Medina.

The impact of the modern pilgrim road network in the pilgrimage region has little relevance to the structure of the city of Medina. Yet, in Medina, general transport development is haphazard, and the results are not always advantageous. For example, the recent ring road around Medina, planned and executed by the Road Department, encroached on good agricultural land. Roads inside the city widened by Medina's Municipality have also reduced the number of green plots within the city and have threatened historical buildings, while the enlargement of Al-Haram carried out by the Ministry of Finance meant the demolition of many buildings of local architectural value.

However, the improved accessibility between the inner-city and its peripheries due to the demolition of parts of the former, has encouraged the development of new areas on the city fringe; this has led to some more encroachment on to farm-land. Moreover, the demand on services such as water has exceeded capacity, due to inherent water shortage and the wasteful pattern of consumption which is encouraged by the extremely cheap supply. The problem of water shortages has recently been alleviated by the diversion of more water from agricultural to urban use; this has restricted expansion in farming and led to an increase in migration to urban areas, thus creating a shortage in agricultural labour. These shortages and diversion of water use has not only reduced the potential for agricultural production in the area, but has also become a threat to the environment. The decline of agriculture has led to a reduction of the scenic attraction of Medina area, but more critical are the ecological imbalances which arise from the misuse of water resources.

In the same manner that the adjustment of water supplies to seasonal fluctuations is difficult, the supply of other public utilities, especially electricity, becomes a major problem in times of high seasonal demand.

Apart from these physical costs, the pilgrimage has other financial dimensions. Many people assume that the income from the pilgrimage covers the expenses incurred by the government in providing goods and services to pilgrims in the Holy Cities, but no studies have ever been carried out to substantiate this hypothesis. The services provided by the government or private enterprise are not fully utilized throughout the year, resulting in a waste of resources in unproductive fields such as accommodation centres, quarantine facilities and under utilised pilgrim transport vehicles.

The continuation of Medina as a cultural, religious and administrative centre in the west of Saudi Arabia requires great expenditure on its facilities when compared with Mecca, which being larger is better able to cope with the influx of pilgrims and immigrants. A particular example of this adaption is reflected in the housing problem in Medina; in 1976 the accommodation prepared by guides for pilgrims absorbed only 61% of all visitors to the city and hotels absorbed only 8% (see Chapter 8), whilst the comparable figures for Mecca in 1973 were 76.3% and 8.2% respectively [416:p.213]. Facilities such as desalinated water in Medina would cost more than in Mecca because of its distance from the coastal desalination plant.

The second development plan of 1395 to 1400 A.H. (1975 to 1980) anticipates that the annual government investment in Hajj-related projects will aggregate well over SR 1,000 millions in the pilgrimage region (especially in Mecca, Medina and Jeddah areas) [64:p.282]. In the budget of the fiscal year 1976/77, SR 646,769,994 (£117,594,544) was allocated to Medina for development projects; from which SR 459,303,782 (£83,509,778) was consumed [300:p.1]; this sum includes the cost of projects directly or indirectly connected with pilgrims. The indirect costs were either motivated by direct ones, such as improving facilities in areas developed to replace those demolished around Al-Haram, or by general growth in both permanent and temporary residents, necessitating capital outlay on the water supply, sewage network, and street widening; the latter cost about £22,900,000 [357:p.12]. The recent enlargement of Al-Haram which took about four years to complete (from late 1974 to 1978),

cost the government about SR 700 millions (over £127 millions). The average yearly expenditure on the project was therefore SR 175 millions (£31,818,182). The total cost of all development schemes in Medina during 1976/77 was £115,327,960 or on average £315,967 a day.

In comparison the 1976/77 author's sample surveys of cost and income of trading units and temporary activities such as pedlars, pilgrim guides, cafes, accommodation, petrol stations and taxi drivers revealed a total daily cost of SR 4,940,778 (£898,323) in the pilgrimage season, which falls to about SR 713,700 (£129,700) per day in the off-season. This may indicate the effect of pilgrimage in enabling the private sector to compete with government spending at pilgrimage time.

Facilities for the provision of certain items such as food for pilgrims have proved adequate, but the method of supply does not lead to a just distribution of wealth among indigenous producers. Local agricultural produce is decreasing and when the deficiences are supplemented with imported goods,there is a leakage from the local economy. Middlemen also deprive local producers of reasonable profits and increase the cost to the consumer.

The services required to cope with the influx of a huge number of pilgrims increases the demand for labour in Medina during the pilgrimage season. The majority of these temporary employees come from the surrounding countryside, other urban centres and rural areas in Saudi Arabia and abroad.

However, in Medina and the country as a whole, there is an imbalance between development in general and labour as there are a large number of development projects creating a huge demand for labour which could not be sustained locally. The present open-door policy for foreign workers, in addition to aggravating the problems of housing and services, involved disbursements from oil revenue which should be conserved for the benefit of the nation. Moreover, when so many projects are executed simultaneously, coupled with the present slow growth in local expertise, it is uncertain that such projects can be sustained without negative effects and consequently tremendous losses to the national economy. Development projects may create certain employment activities, but if these developments are not utilized for the mobilisation of the area's own resources, then they become attached to the prime centres such as Riyadh, draining their resources to the benefit of the

latter, further strengthening the present centralization policies.

Nevertheless, the influx of non-local people and the improvements in transportation systems have created new and wider economic links between Medina and other areas. A considerable imported labour force is engaged in skilled and semi-skilled jobs; immigrants work as hotel managers, drivers and mechanics in the Pilgrim Transport Companies; this sometimes creates social friction between locals and the temporary expatriate residents. Many pilgrims themselves work whilst in Medina as pedlars and street cleaners, and some try to remain in Medina after the pilgrimage ends; this has created minority groups in the city which have modified the population structure over the years, and has affected the traditions, customs, tastes and life style of the population of Medina. The strong religious role of the area has therefore been a major force influencing physical structure, economy, and society of Medina.

10.2 The Benefits.

Money brought by pilgrims represents a boost to Saudi Arabia's balance of payments. G.H. Blake noted that before the advent of large oil revenues in the 1940's, pilgrims constituted the main source of hard currencies to the government by payment of a pilgrimage fee [262:p.324]. For example, the Turkish administration in the provinces of the Hajj received about £141,243 annually as revenue from pilgrims, in the first one and a half decades of this Century [397:p.161]. In 1932 the Saudi government charged fees of about £33 per pilgrim and quarantine fees of about £8 [229:p.300]. The estimation of about 50,000 per annum for the period between the two World Wars [135:p.4], gives some idea of government income from pilgrims (approximately £2,050,000). Some sources put the annual total government income before the advent of oil revenues at between £2.5 and £4 to £5 millions [3:p.159;229:p.300;278:p.36]. It is clear that the pilgrimage revenue represented a high proportion of the government revenue ranging between 40% and 80%. The pilgrimage fee was abolished in 1952, but foreign pilgrims still pay a quarantine fee of SR 60 (£11) to the government, in addition to the fees to private guides.

The rapid increase in oil revenues immediately after the Second World War, to more than three times the levels of the pre-war Hajj revenues,

enabled the implementation of radical changes in the country's social and economic structure, with massive expenditure on development. At present the revenue from the Hajj fluctuates, but lies between the second and third most important source of foreign exchange after oil, the other major source being returns from investments abroad. However, it is still only a small proportion of the total income of the state, about 9% of the total income in 1962, while oil revenues accounted for about 76%. By 1972, this percentage had decreased to 2.7% of the total, whereas oil revenues had increased to 94.4%. In 1976 the percentage was 1.5% for pilgrimage income and 90.8% for oil [1:1967, pp.312, 339;1973, pp.362, 384;13:1977, p.14].

However, the pilgrimage has contributed to the prosperity of some parts of Arabia through which pilgrim caravans pass. Commerce and religion have gone hand in hand during much of the history of the Hajj. Financial donations were also given to settlements along the pilgrim routes and were of great value; for example, the annual march of pilgrims along the road from Iraq to the Holy Cities earned about £30,000 for the Emir of Hayel's exchequer in the early years of the present Century [408:p.109]. The pilgrimage cities have greatly benefitted from projects, gifts, charities, and endowments from Muslim rulers and wealthy people.

In relation to Medina, the pilgrimage benefitted the city physically, economically and socially. The enlargement of Al-Haram and the demolition of areas around it helped in the clearance of many shanty sities in the centre of Medina. New ones have emerged in other parts of the city, but on a much smaller scale, due to the improving standards of living of the area.

Money spent by pilgrims on goods and services generates income and employment for the local population. The author's survey of the economic benefits of the Hajj on Medina revealed that the total daily profit during the Hajj season from trade and other pilgrimage activities amazingly, reached SR 12,683,253 (£2,306,046). The pilgrimage alters the demand for goods and services and the area's high dependence on imported goods and workers (e.g. for inter-city transportation and guides) significantly reduces the income generated from the pilgrims. On the other hand, other sectors are dependent on locally produced goods or services (e.g. accommodation and restaurants) and this increases the benefits to the local economy. Therefore the total income remaining in the city after leakage to outside areas has been calculated to be around SR 12,250,000 (£2.2 million).

Many writers have stressed the great social benefit of the pilgrimage such as the wearing of a unified dress "Al-Ihram" [358:p.13] which is a visible indication of equality particularly where the pilgrimage rites are performed around Mecca. However, the greatest benefit to Medina is the various customs and skills brought by pilgrims remaining in Medina; these have been listed in Chapter 9 to stress the importance of these migrants to Medinese life. Also with the presence of many important leaders from different nations, Medina has become a meeting place for the exchange of political ideas.

10.3 Conclusion and Recommendation.

Comparing the figures in the first two sections of this chapter, it becomes possible to determine quantitively whether the income from the pilgrimage revenue is sufficient to cover the costs incurred by the government on Hajj related projects. It is also possible to assess the extent to which Medina's economy still depends on Hajj revenue as a source of income.

The SR 60 (£11) obtained by the central government from each pilgrim yielded SR 53,674,380 (£9,758,978) and SR 43,142,400 (£7,844,073) in 1975 and 1976 respectively. The estimate of the Central Planning Organization of government expenditure on pilgrimage-related projects in each of these years was about SR 1,000 millions. This outweighed income from pilgrims by more than 17 times in 1975 and 22 times in 1976. Government expenditure on pilgrimage-related projects(see p.262) in the Medina area alone is more than four times government receipts from all pilgrims. Some writers have estimated the yearly government expenditure on services for pilgrims to be about £30 millions [358:p.44] - about double its revenue. This shows the vast expenditure by government compared with private sector in the area, which may contribute to inflationary prices.

The author's investigation on income of people engaged in activities unconnected with the pilgrimage showed a total daily income of some SR 1,023,400 (£186,000). Adding this figure to the daily income of those engaged in pilgrimage oriented activities (Table 10.1) gives a total revenue for the city of some SR 16,659,500 (£3,029,000), which means that the pilgrimage provides the city with about 94% of its gross daily income during the Hajj season. But taking into account the local element of spending during the pilgrimage season, derived from the off-season income of these activities, means that the

TABLE 10.1 COSTS AND BENEFITS OF PILGRIMS' SERVICES, 1976.

Type	Units total daily cost in SR	Units total daily profits in SR	Units total daily profits boosted to the local economy in SR*
Accommodation	211,576	1,143,838	1,286,504
Cafes	39,013	44,747	63,902
Drivers	1,829,935	6,057,449	5,587,167
Guides	144,725	188,189	159,451
Pedlars	140,569	82,149	60,224
Petrol-filling stations	43,980	-	-
Trading Units	2,530,980	3,178,990	3,197,583
Totals	4,940,778	10,695,362	10,354,831
	(£898,323)	(£1,944,611)	(£1,882,696)

* taking into account leakages to outside Medina or costs remaining in the area.

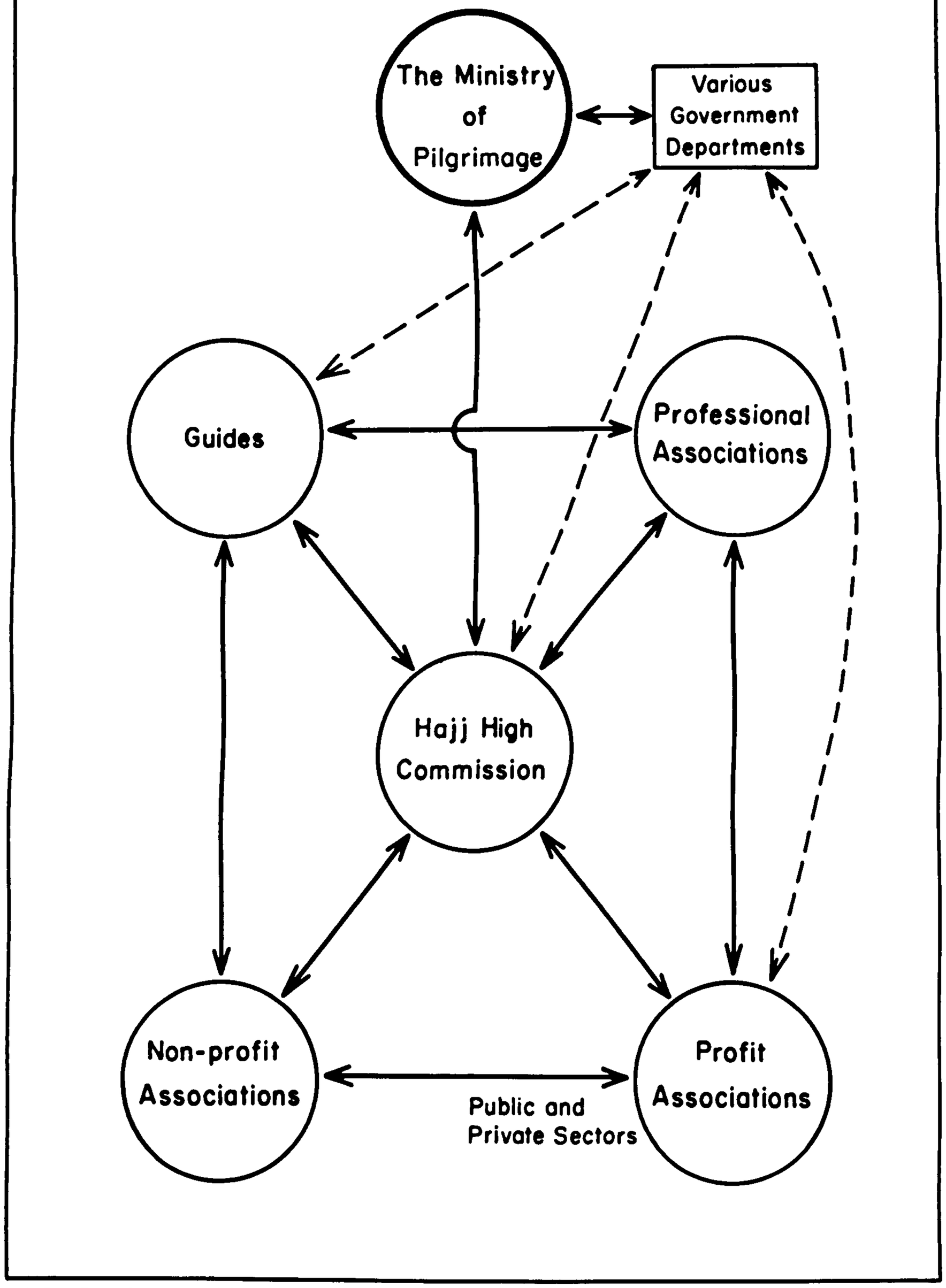
Source: Field work in November to December, 1976 and May to August, 1977.

pilgrimage provides the city with about 86% of its gross daily income during the season. Taking the total yearly income of those not engaged in serving pilgrims, SR 373,547,500 (£67,917,700) and the seasonal income of those engaged in serving pilgrims, SR 999,573,480 (£181,740,632)* minus the expenditure of locals, SR 83,285,037 (£15,142,734) during the pilgrimage season means that the total expenditure by pilgrims represents about 66% of the gross income of the city. This may indicate the effect of the pilgrimage on boosting the purchasing power of the city. Without the income from the Hajj the city's economy would depend almost entirely on small scale farming, local trading activities and government employment. These statistics support the hypothesis discussed in Chapter one, that the cultural environment has been much more significant than the natural environment in Medina's growth and development.

The total profit of the different services during the 1976 pilgrimage season was SR 641,721,720 (£116,676,660)*. Expenditure on some city

*Compiled from Table 10.1

Fig.10·1 PROPOSAL FOR PILGRIMAGE ORGANISATION



N.B. The broken lines indicate some, though clearly not all, of the connections between the various sectors concerned.

services imported from other areas such as pedlars, taxis and losses of petrol filling stations from Medina, reduces the total profit remaining within Medina to SR 621,289,860 (£112,961,790). There is thus a discrepancy of £27,477,340 between the first figure above and that quoted for the author's 1976 survey on pilgrims' expenditure (see p.198). This may substantiate the belief that people engaged in serving pilgrims reported lower revenues, when interviewed by about 19%.

In 1976 a total of 13,505 people, of which 11.3% were non-Saudis, were engaged in activities serving pilgrims; on the other hand a total of 15,732 people were engaged in non-pilgrimage activities, non-Saudis comprising 30.7% of the total. This indicates that the pilgrimage still provides employment opportunities for local people. All these facts demonstrate that the pilgrimage is a critical element in the economy of Medina requiring proper planning policies.

The notion of maximum profit should be borne in mind with regard to the pilgrimage, but without undermining the religious motivation of the pilgrims. This can be achieved by shared responsibilities, delegation of authority, and decentralisation of control. It may be correct to say that prompt decision-making is essential for some aspects because of the sensitivity of the pilgrimage and its short duration. Examples of these aspects are the increased number of pilgrims allocated to each guide, and the work done by pilgrims during the season. Bureaucracy is currently too large and in consequence lethargic, so that decisions of benefit to the character of the pilgrimage, local people, foreign pilgrims and the city are not forthcoming. Nevertheless certain functions must remain centralised, such as the heavy government investment in Hajj-related projects, to ensure that a balanced view of all aspects of the pilgrimage is taken into consideration.

Figure 10.1 suggests the two-way relationship which should exist between various agencies concerned with organization of the pilgrimage. It is clear from the figure that the Ministry of Pilgrimage is the main body responsible for organising the pilgrimage in co-operation with other government departments, although such responsibility is now shared mainly between the Ministries of Pilgrimage and Interior. The Hajj High Commission, although part of the Ministry of Interior, now works independently, but should have a close relationship with professional associations, such as researchers,

universities and other experts who provide a continuous feedback system to evaluate the problems of former years. In consequence, where necessary, future conditions could be improved and possible conflicts avoided through reference to a higher authority (as discussed later in this section).

Profit making organizations include trading units and other fluctuating activities, which should be linked to official organizations such as the Ministry of Commerce, to provide advice and encourage better profits, while the Hajj High Commission could advise the individual authority concerned of any excessive profiteering by traders, thus preserving the interests of the pilgrims. Non-profit making organization include those which provide services for pilgrims without direct profit, such as road building and the provision of electricity and water. These organizations should maintain good relations with the Hajj High Commission and other private sectors in keeping with the needs of pilgrims.

The pilgrimage is a sensitive phenomenon, and people engaged in associated activities, should be responsible to the relevant authorities. Kindness and a high standard of services are essential to pilgrims, so that their stay in the area becomes memorable and spiritually rewarding. In this respect the most critical responsibility falls on the guides, who should have a direct relationship with the Hajj High Commission. This Commission should be empowered to make minor decisions such as the number of pilgrims allocated to each guide, instead of the present complex procedure through the Minister of the Interior. It could also compare guides services and implement a proper training course for them. In fact, the whole guide system should be reviewed. The past few years have witnessed considerable changes in policy concerning pilgrim guides. What is needed is the formation of an association, supervised by the Hajj High Commission to incorporate all guides and bring them a fair reward, and wipe out brokers who are a major cause of poor relations between the government, pilgrims and local people on one side and the guides on the other.

Guides can play a greater role in accommodating pilgrims. Accommodation charges should be graded by the relevant authority (e.g. the Prices Department in the Ministry of Commerce) according to the condition of the

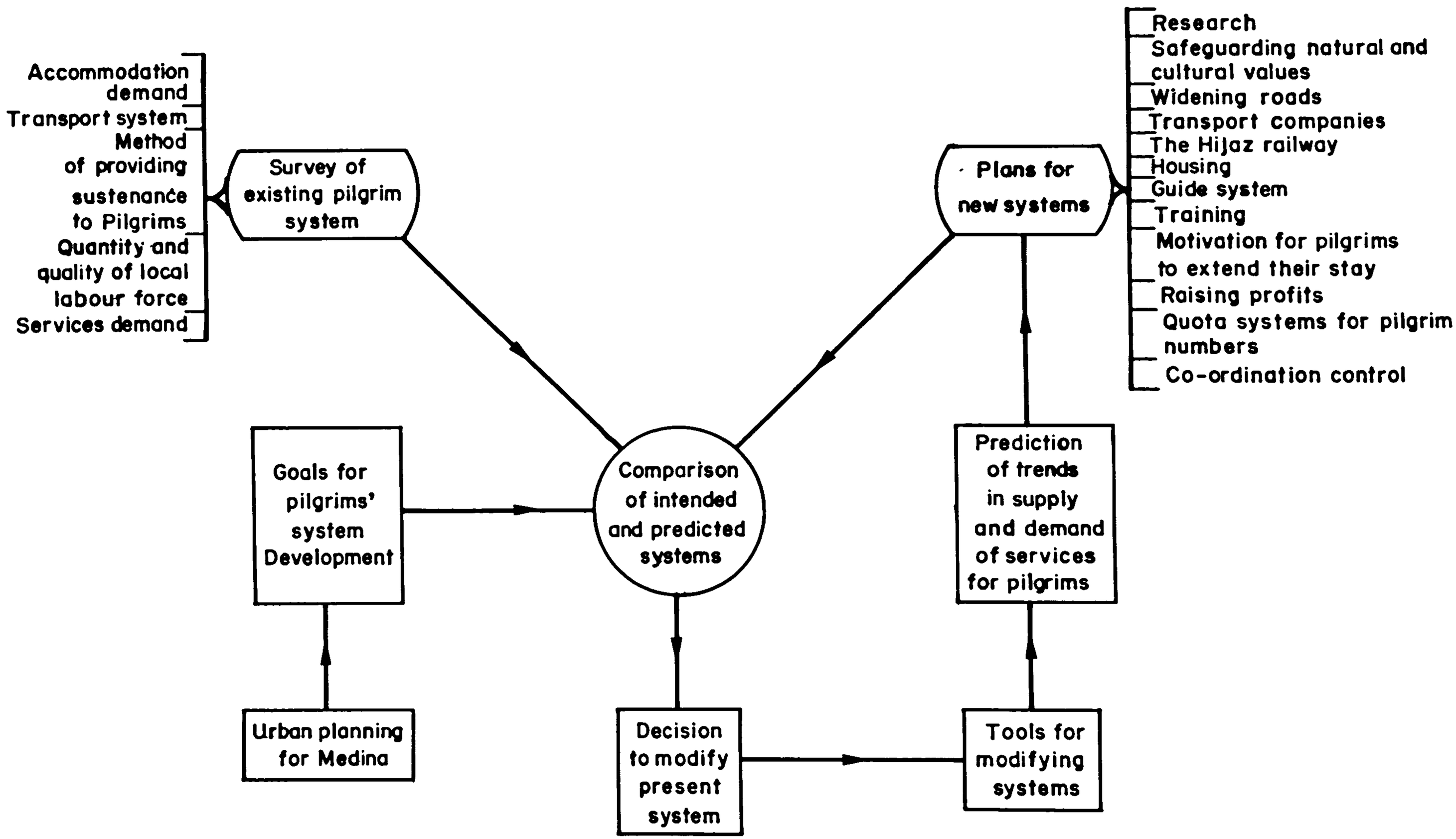
property and registered along with the names of those willing to rent their properties during the pilgrimage season, with the Hajj High Commission. Thus all pilgrims received by the Hajj High Commission officers at the city's entry points could be allocated to a guide, who in turn would either accommodate pilgrims in his own property or send them to private owners or hotels according to the wish of the individual pilgrim and in accordance with his means, which could also be determined before leaving the entry point. Thus, every party, be they pilgrims, guides, private house owners or hoteliers would be considered, and the brokers would not be allowed to interrupt the process of accommodating pilgrims in the city. Inflated costs might be avoided by government approved rates.

While the organization of the pilgrimage is only one side of the coin, it can no longer be considered in isolation. It must be seen in the context of an overall national strategy, not merely in terms of the responsibility of the Ministry of Pilgrimage for housing and transporting pilgrims, but also in relation to the responsibilities of other government agencies of industry and employment.

Specific planning proposals are included at the end of most chapters in this thesis, thus reducing the task of providing details for formulating an overall strategy for the development of Medina. However, a systems approach to planning might be adopted, encouraging the co-ordination and integration of Medina's urban system with the specific economic and social systems brought into operation at the time of the Hajj. Linking planning for the Hajj with the broader policies for urban and regional planning could stimulate policies for fair development of the different regions of the country and would have a "spread effect" on city components such as management, physical structure and general economy. However, the systems approach concentrates on examining the existing system and comparing it with a newly suggested one [188:p.23]. The new system could be based on rudimentary practices already in operation.

Conducting a proper systems analysis is a complex process, and requires a completely separate study. As stated in Chapter one, the main aim of this study is not to provide solutions, but to provide correct understanding for the problems and forces hindering Medina's urban process,

Fig.10·2 PLANNING FOR PILGRIMS IN MEDINA



as such understanding forms the basis for sound planning. However, the initial framework for such an analysis will be emphasised here, which after putting the appropriate values and elements in the cells, could work as a basis for development for Medina Region. Figure 10.2 shows a general systems model for planning the Hajj within the context of Medina's general planning. The essential task is to gather all data necessary to enable the systems analysts to understand the quality and quantity of the problems involved. This thesis might be helpful in this context as it has indicated the shortage of many services and inadequate management (section 10.1).

After reviewing the constraints on the existing urban system a clear goal must be assigned to ameliorate the existing problem or innovate systems which operate satisfactorily. One of the main general aims must be to keep a balance between growth of development projects and employment. Moreover, the purpose of any development programme should be to stimulate the general economic and social welfare of the local population, but without harm to any other parts. The proper presentation of amenities of a religious nature is needed throughout the pilgrimage region to improve pilgrim routes and city services, to increase the length of stay in the area and maintain a well balanced pilgrimage income between the various parts of the region. Correct organization of distribution of pilgrimage revenue would reduce the country's present dependence on the export of one primary product, i.e. oil, and speed up the process of diversifying sources of national income. Such an improvement would help to maintain living standards, that have been achieved through oil revenues, and encourage further investment for long-term economic development, thus raising productivity in the non-oil sectors.

The tools for achieving these goals should be concerned not only with political power, but should be of a multi-disciplinary orientation. Professional people, both generalists and specialists should share in examining and assessing the predominant problems. Enforceable legislation should bring co-operation from all sections of pilgrimage services and the various government departments directly or indirectly related to the city development. All this requires effective organization of both private and public sectors at national, regional and local levels to prevent contradiction in various Ministry policies and to develop a homogeneous work output by all parts as co-operating and

integrated wholes. The use of local, and to some extent expatriate technical and managerial skills to achieve the established objectives would be beneficial in preventing the present unsympathetic development of the area. Local skilled workers may be more responsive to local pressures than non-locals, whose main attraction is high salaries, and who are not interested in the area's development. At the present time such local experts are rare and those in charge of town planning, especially in Medina, are architects and officials with no qualifications in city planning, engineering, and management. This may be one reason behind the destruction of the traditional structure of the city.

The provision of the above tools would enable the initiation of the next stage in systems approach study, which is to predict the supply and demand of services for pilgrims and locals. Several methods can be applied to project aspects of the systems approach. As demonstrated in this study, and due to lack of data, simple analysis was sufficient to explain current shortages in several services. Yet for medium or long-term measures to improve present facilities in the area, other methods may be applied. The multiple regression is a reliable tool for predicting future demands for certain kinds of phenomena. The simulation method may also prove beneficial in examining the location, the input and output of different activities of the urban system.Thus re-testing is necessary to reach a satisfactory outcome which can be used for future changes. All these require detailed information, common sense and professional know-how regarding the problems of location, re-location, communication and development in general.

One of these methods (the multiple regression) has been applied for predicting the number of pilgrims visiting Saudi Arabia (Chapter 9). The figure was approximately two million in 1993; such an increase would create bottlenecks in certain places, e.g. points of entry, places of worship and accommodation, all of which can barely cope with present numbers, and in the case of points of entry such as Jeddah's sea port, facilities are strained even during the off-season time. Increasing use of air and overland travel (Chapter 5) gives rise to a need for more parking areas and better traffic management. In the next decade the pilgrimage will occur during summer; this means greater pressure on international air travel. Improve

living standards now mean that many Saudis avoid the extreme heat by going abroad for summer holiday, and there is the added problem of expatriate contractors going home for the summer vacation.

The certainty of rising pilgrim numbers indicates the need to adopt new attitudes to develop services. If pilgrimage projects are to be financially self-sufficient, then government income from pilgrims must be raised from its present level. This may occur with increased revenues from entry visas and use of services such as camps and pilgrim cities during the off-season times. Reducing the cost of pilgrimage to pilgrims should be encouraged but this could perhaps be achieved by better utilization of already existing facilities and not by merely constructing new, expensive projects.

Increasing the number of entry points to the pilgrimage region would relieve pressure on existing points and would also enlarge the area deriving benefit from the pilgrimage. This could be done by improving Medina's airport to receive international flights, and improving facilities at Yanbu, Al-Leith, and Al-Wajh to receive sea travellers. This would relieve pressure on Jeddah as the receiving point for both pilgrims and goods. The transport network in the region should be improved. With regard to Medina, and based on the volume of traffic discussed in Chapter five, it is reasonable to suggest improving the road between Jeddah - Mecca and Medina from a two-lane single carriageway to a four-lane dual carriageway.

Pilgrim journeys on these roads can be organized more efficiently by co-ordinated programming of air and land travel between the Saudi Arabian Airline (SAUDIA) and the Pilgrim Transport Companies; the companies vehicles should be run according to a timetable which coincides with the time-table of pilgrim flight arrivals. This could be improved even further by car seat booking, through authorised agents, from pilgrims' countries, with perhaps variation in fares according to the peak demand; this could also be applied to air travel. This would increase the length of a pilgrim's stay in the area, as low fares early in the first half of the season (i.e. before the pilgrimage) would encourage more people to come at this time, while high fares in the middle of the season would discourage travel in the peak period. In contrast high fares early in the second half of the season (i.e. after the pilgrimage) would encourage pilgrims to stay longer in the area until the

cheaper air fares are available - possibly by the end of Dhu Al-Hijja (the month of the Hajj). The introduction of computer as used by SAUDIA for calculating passenger traffic could be employed in such schemes. This would reduce congestion at entry points, allow an organized flow of traffic, and increase economic benefits to the area from long-stay pilgrims. The timetabling of company vehicles, or at least some of them, should be extended to the off-season in order to utilise them more fully.

Easing the path of pilgrims should not be achieved only by constructing new roads or widening old ones, but also by improving of driving standards and fixing clear and adequate road signs. This should result in a reduction in road accidents and afford greater safety to pilgrims and locals. It could also reduce the financial cost of the pilgrimage to drivers, by removing the need to pay redemption money, and could possibly minimise the social costs surrounding fatal accidents.

The Hijaz railway was a major factor in transporting pilgrims in the early years of the 20th Century. An important part of the geography of the pilgrimage is linked to this line, and it would be sad if the rebuilding plans were cancelled. However, on economic grounds, the rebuilding of the line may yet be necessary (Chapter 5). Furthermore, the low cost of the rail trip compared to air-fares, may encourage many Muslims to make the pilgrimage who, without the line, could not afford such a journey. However, to counter this, there is a strong argument against its rebuilding by those who are in favour of restricting the number of pilgrims.

Places of worship are also affected by the increasing number of pilgrims. As explained in Chapter three, the last enlargement of Al-Haram in Medina is adequate for the current numbers of pilgrims. Thus plans for further enlargement of Al-Haram should be deferred and attention concentrated on improving existing facilities; any further extension would deprive the city of its few remaining historical buildings. Alternatively, the present sanctuary area could be developed into a multi-storey building to accommodate the increasing number of pilgrims. Improving the existing facilities may remove the necessity of increasing pilgrim fees to pay for further expansion. A policy of controlling pilgrim numbers is absolutely necessary if the effective and safe operation of the pilgrimage is to be maintained. Pilgrims

should also be discouraged from repeating the pilgrimage, and this will, in addition to reducing government expenditure, reduce the problem of overcrowding inside the places of worship.

The demand for extra accommodation can be met by easing the conditions of the newly established government-owned Real Estate Lending Bank (Chaper 4). This would speed up the construction of new buildings and improvements to old ones. Improving intra-city transport would reduce the present concentration of pilgrim accommodation in the centre and spread it more evenly throughout the city with consequent benefit to a larger sector of its population.

Other plans of a broader nature should be considered; for example, plans for the decentralization of administrative functions and economic activities, for the development of agriculture, marketing and the control of pilgrim numbers can only be settled at regional and national levels. Sound policy is needed to guarantee reasonable profits to producers and traders and to protect peasants' interests in the face of the more organized economical interest of city businessmen. As suggested in Chapter seven co-operatives might be developed. The market activities should be supervised; this implies not only control over prices, but also over materials sold. For example, the fire wood market is a phenomenon found in almost every urban centre in Saudi Arabia. Activity in such markets is inflicted on the surrounding environment by the land being stripped of its shrubs and woodland. Occasions such as the pilgrimage and other feasts increase the demand for fire wood and consequently aggravate the destruction of the environment. This activity must be stopped either by directly prohibiting the sale of fire wood in the city or by encouraging alternative sources of energy for obtaining heat. This could be achieved by making cheap paraffin available for use in stoves in Medina, as well as in the rural and desert areas, or in the longer term, by developing solar energy.

It has been suggested in this thesis that the structure of Medina is not the inevitable outcome of physical and economic forces, but also reflects the social values which people attach to certain parts of it. This necessitates social planning, i.e. planning for people in space, rather than just physical planning for the motor car or for satisfying the authorities with

no regard for public demand. It is necessary to relate the spatial goals and targets of development with the socio-economic environment in the area. This can be done by adopting the modern way of life without much damage to the historical environment by preparing sites for new comers and by laying down the infrastructure. In this way a shanty district would attain the status of a reasonably hygenic environment in a more orderly way. The surplus inhabitants who migrate from rural and desert areas, if orientated with the needs of other sectors of the economy, can provide a badly needed labour force in the city. Thus some marginal areas may be spared from over grazing. Social services should also be extended to the rural areas, together with subsidies and integrated programmes to help develop their resources, to discourage the drain of manpower and the resultant problems for the urban sector due to mounting requirements in housing, health and education. Rural sector resources can contribute greatly in narrowing the differences between rural and urban economy in the Medina Region. With the pilgrimage sector, they could help to narrow the gap between the economy of Medina Region and those of other regions in the country dependent on other resources such as oil or agriculture.

Therefore, bottlenecks in human mobility and poor environment will be avoided in urban as well as rural and nomadic areas. In the light of this, the author argues that the Hajj can provide a vital contribution to national development by providing the pilgrimage region with a broad-based economy that will preserve the regional resources, accumulate investment and stimulate other industrial and commercial activities. This would ensure not only income for people serving pilgrims, but employment for young rural dwellers who prefer not to work on the land. They can be employed in agro-industrial projects such as packing dates and manufacturing souveniers from local materials, which will enable parts of the region to utilize their human resources, rather than exporting them to other regions.

Furthermore, comprehensive efforts are needed to educate people to the need for hard work for the area's development. Courses of training in hotel services and cooking are needed and people must discard traditional prejudices in the type of work, and realise that there is no shame in working as waiters or cleaners as long as they are earning an honest living. Initiative should be encouraged, both financially and morally. These procedures would help prevent the leakage of local money now being paid to non-Saudis employed in these services.

The import of foreign labour should be controlled, and kept to a bare minimum. This can be done through controlling the number of development projects, and also controlling the problems which these projects are designed to solve, such as the increasing number of pilgrims. Intensive efforts should be made to train local personnel to work in these projects. Such an approach would prevent the lack of local understanding on how to implement new ideas for development, avoiding the inability of foreign advisors to understand local problems; consequently, a constructive dialogue could emerge between the local and official viewpoints.

It is important to encourage more co-ordination between Saudi Arabia's Ministry of Planning and Engineering Colleges; more practical courses in town planning and socio-economic planning should be introduced in these colleges, and the Ministry should acquaint students with its present needs, orienting courses towards the rural and urban problems prevalent in the country.

Systems analysis must be monitored by a responsible body; some of its members must be in government management and should actively contribute to the systems study team. They can be invaluable in providing information and reflecting decision-making views. Without such understanding the goals will be meaningless and the constraints will become unrealistic, leading to the failure of the system to achieve useful results regardless of technical qualifies. At present this body is represented in the Regional and Town Planning Office in Jeddah, which is still dependent on foreign experties, who, if non-Muslims, are not even allowed to enter Medina. It also lacks the power to follow plans from conception to completion. The Regional and Town Planning Office could continue as a monitoring body, but must be encouraged to supervise the execution and timing of plans to prevent any overloading or shortages in the system. It should be in close contact with the Hajj High Commission in order to understand specific Hajj problems and supervise the Hajj in the light of a whole regional plan. Alternatively, a development corporation could be phased out to take into account not only the physical planning, but also the economic and social aspects. This corporation could be directly connected with the Ministry of Planning. Thus the Regional and Town Planning Office will be left to deal with details of regional interest

while the policy formulation and planning framework will be given greater emphasis in this Ministry through the corporation.

The complex interplay of various factors discussed in this thesis suggest that Medina's overall development cannot be planned independent of national trends or of any individual aspect of Medina's urban structure. Structural improvement should only be attempted following an integrated study of the morphology and functions of the urban community. Of course, every element in the fabric of the city can be studied separately, but to indicate the relationship between elements, a study of the total structure is necessary as demonstrated in this work. The further development of such an integrated approach will not be easy, as it requires a considerable degree of organization and technological skill which the area lacks at present. But this kind of strategy demands patience and a sincere search for fundamental solutions, as it could fundamentally influence the lives and welfare of the people.

However, the need for further study is still open. Since little information can be derived from census materials and reports, there is a need for specific studies of the effect of pilgrimage on individual settlements, especially where these are relevant to socio-economic trends and patterns. Two major points emphasised in this work have been the wide scope of studies in urban geography, and the relation of academic study to the real world; these possibilities should be more realized in the Arab World. The evolution of an applied approach to geography is essential to Saudi Arabia. In addition public awareness of the applications of geographical skills and techniques to the rebuilding and planning of the city form, should be encouraged and developed.

APPENDICES

1 - HIJRA DATES CORRESPONDING TO THE GREGORIANS:

The official calendar in Saudi Arabia is the Hijra calendar (A.H); originating with the flight of the Prophet Mohammad from Mecca to Medina in 622 A.D; it is dependent on lunar movements. The Hijra year has twelve months which fluctuate between 29 and 30 days. Thus, in relation to the Christian solar year it decreases 11 days each year. A new moon marks the start and end of each month, especially Ramadan and the Hajj month. The retrogression of 11 days makes the months and the feasts which fall in them occur only once in the summer throughout a cycle of 32.5 Christian years.

In relation to available data given in Chapter six on water supply, the following table shows the relationship between the Hijra year and the Gregorian year for the period from 1388 to 1395.

Hijra year	From Muharram until Dhu Al-Hijjah months and the Christian date of first of each month.											
	1	2	3	4	5	6	7	8	9	10	11	12
1388	31 Mar. 1968	30 Apr. 1968	29 May 1968	29 June 1968	27 July 1968	28 Aug. 1968	26 Sept. 1968	26 Oct. 1968	24 Nov. 1968	24 Dec. 1968	23 Jan. 1969	21 Feb 1969
1389	20 Mar. 1969	19 Apr. 1969	20 May 1969	18 June 1969	18 July 1969	16 Aug. 1969	15 Sept. 1969	14 Oct. 1969	12 Nov. 1969	10 Dec. 1969	9 Jan. 1970	8 Feb. 1970
1390	9 Mar. 1970	8 Apr. 1970	7 May 1970	6 June 1970	5 July 1970	4 Aug. 1970	2 Sept. 1970	2 Oct. 1970	1 Nov. 1970	30 Nov. 1970	30 Dec. 1970	28 Jan 1971
1391	27 Feb. 1971	29 Mar. 1971	27 Apr. 1971	26 May 1971	25 June 1971	24 July 1971	23 Aug. 1971	22 Sept. 1971	21 Oct. 1971	19 Nov. 1971	17 Dec. 1972	17 Jan. 1972
1392	16 Feb. 1972	17 Mar. 1972	15 Apr. 1972	15 May 1972	13 June 1972	13 July 1972	11 Aug. 1972	10 Sept. 1972	9 Oct. 1972	7 Nov. 1972	6 Dec. 1972	5 Jan. 1973
1393	4 Feb. 1973	6 Mar. 1973	4 Apr. 1973	4 May 1973	2 June 1973	2 July 1973	1 Aug. 1973	31 Aug. 1973	29 Sept. 1973	28 Oct. 1973	27 Nov. 1973	26 Dec. 1974
1394	25 Jan. 1974	24 Feb. 1974	25 Mar. 1974	24 Apr. 1974	23 May 1974	22 June 1974	26 July 1974	20 Aug. 1974	18 Sept. 1974	18 Oct. 1974	17 Nov. 1974	16 Dec. 1974
1395	14 Jan. 1975	13 Feb. 1975	14 Mar. 1975	13 Apr. 1975	12 May 1975	11 June 1975	10 July 1975	9 Aug. 1975	7 Sept. 1975	7 Oct. 1975	6 Nov. 1975	6 Dec. 1975

* Jan. = January, Feb. = February, Mar. = March, Apr. = April, Aug. = August, Sept. = September, Oct. = October, Nov. = November, Dec. = December.

Source: Freeman-Grenville, 1963, The Muslim and Christian Calendars, The Univ. of Oxford Press, London, New York and Toronto, pp. 58, 60-63, 68-69.

2 - English Translation Of The Main Questionnaires:

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

Geographical Sample Survey
Dept. of Geography
Universities of Riyadh & Durham

A - Survey of Cafes and Restaurants:

This sample survey aims at obtaining a greater understanding of the real effects of the pilgrimage on the structure and economy of Medina, in the hope of determining the right methods to develop this Holy City to meet the increased demands placed on it during Hajj. Hopefully, the results of the survey will be used to bring maximum benefit to the people of Medina. The co-operation of the people of this Holy City is vital, as accurate replies will guarantee the best possible results. All information will be strictly confidential, and no person will be referred to by name.*

1 - Owner's place of residence.

2 - Number of seats: During Hajj..... During off-season.....

3 - Number of employees during Hajj: Saudis..... Non-Saudis.....

4 - Number of employees during off-season: Saudis..... Non-Saudis.....

5 - Daily income during the Hajj season. SR.....

6 - Daily income during off-season. SR.....

7 - Employees' wages during Hajj. SR.....

8 - Employees' wages during off-season. SR.....

9 - Share of partner (if any) from the profit in other cities (specify other cities). SR.....

10 - Rent. SR.....

11 - Maintenance Costs. SR.....

12 - Taxes or "Zakah!"**

13 - Type and cost of purchases: During Hajj season.....
During off-season.....

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* This introduction is made on every questionnaire paper and it will not be necessary to repeat it each time.

** religious taxes paid to the Department of Zakah and Income to be paid to the poor on money or certain items remaining in the owner possessing for a year; usually SR 2.5 per SR 100.

B - Survey of Hotels:

1 - Owner's place of residence. .....

2 - Number of rooms. .....

3 - Number of rooms used. During Hajj..... During off-season.....

4 - Number of beds per room. During Hajj..... During off-season .....

5 - Number of employees during Hajj. Saudis..... non-Saudis.....

6 - Number of employees during off-season. Saudis..... non-Saudis.....

7 - Daily income during Hajj. SR.....

8 - Daily income during off-season. SR.....

9 - Employees' wages during Hajj. SR.....

10 - Employees' wages during off-season. SR.....

11 - Taxes . SR.....

12 - Share of partner (if any) from the profit in other cities (specify other cities). SR.....

13 - Rent. SR.....

14 - Maintenance costs. SR.....

15 - Type and cost of purchases: During Hajj.....

During off-season.....

16 - Average length of an individual pilgrim's stay.

C - Survey of pedlars:

Area of origin	Period of stay in Medina	Items Sold	Daily income in Medina SR	Daily cost of purchases SR	Notes

D - Survey of Petrol Filling Stations:

1 - Owner's place of residence.

2 - Number of employees during Hajj. Saudis..... non-Saudis.....

3 - Number of employees during off-season. Saudis..... non-Saudis.....

4 - Daily income during Hajj. SR.....

5 - Daily income during off-season. SR.....

6 - Employees' wages during Hajj. SR.....

7 - Employees' wages during off-season. SR.....

8 - Daily outlay on purchase of petrol. SR.....

9 - Profit from daily sales. SR.....

10 - Rent. SR.....

11 - Maintenance Costs. SR.....

12 - Taxes. SR.....

13 - Volume of petrol sales in litres. During Hajj.....During off-season.....

E - Survey of Pilgrim Guides:

1 - Nationality of pilgrims served.

2 - Motive for specialisation (if any):

Language..... origin of guide..... others.....

3 - Number of rooms owned to accommodate pilgrims.....

4 - Number of rooms rented to accommodate pilgrims.....

5 - Number of employees during Hajj. Saudis..... non-Saudis.....

6 - Number of employees during off-season. Saudis..... non-Saudis.....

7 - Daily income during Hajj. SR.....

8 - Daily income during off-season. SR.....

9 - Employees' wages during Hajj. SR.....

10 - Employees' wages during off-season. SR.....

11 - Date of the arrival of your first pilgrim.

12 - Date of the departure of your last pilgrim.

13 - Number of pilgrims you served.

14 - Number of pilgrims shared with other guides.

15 - Maintenance costs.

16 - Taxes.

17 - Type and cost of purchases: During Hajj SR..... During off-season SR.....

18 - Method of Advertising before the innovation of the 1975 distribution system (tick where appropriate):

a - Cards.
b - Advertisement in the local paper in the countries of pilgrims origin.
c - Visit to the countries of origin of your pilgrims.
d - Recommendation of previous pilgrims.
e - Others (specify).

F- Sample Survey of Pilgrims' Income:

Country of origin.	Occupation	Mode of travel to Saudi Arabia	Modes of travel to Medina	Did you come first to Medina or Mecca?	Average daily expenses in Medina in SR.	Income (SR or foreign currency).

G - Population:

Occupation	Original Nationality	Occupation before coming to Medina	Date of migration to Medina	Reason for coming to Medina	Maritial status at time of immigration

H - Taxi Driver:

Where do you come from ?	Length of stay in Medina	Type of Accommodation in Medina	Daily income in Medina SR	Daily expenses on food & Accommodation in SR	Daily expenses on spare parts in SR	Daily expenses on petrol in SR	Type of Vehicle.

I- Traders:-

Nationality	Nature of trade	Daily income during Hajj, SR	Daily income during off-season, SR	Place of import of goods	Cost of imported goods, SR		Cost of local goods, SR		Wages, SR		No. of daily customers during Hajj	No. of daily customers during off-season
					Hajj	non-Hajj	Hajj	non-Hajj	Hajj	non-Hajj		

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