Cultural Conflicts in Urban Patterns: The Case of the Muslim City

Khalid Zakaria El Adli Imam

CULTURAL CONFLICTS IN URBAN PATTERNS:

THE CASE OF THE MUSLIM CITY

A Dissertation

by

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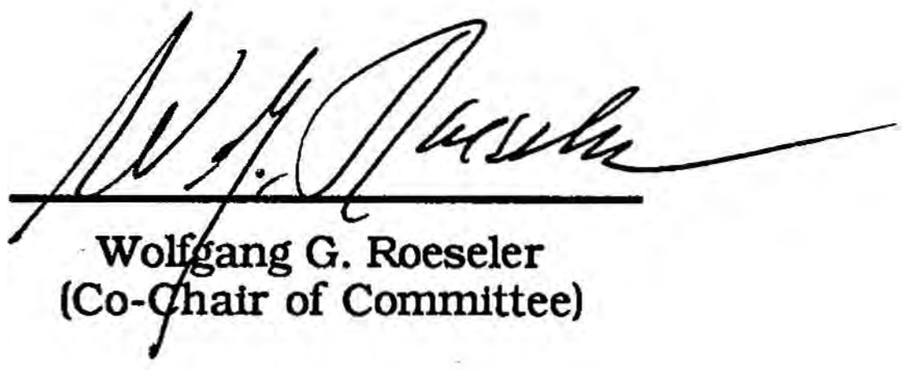

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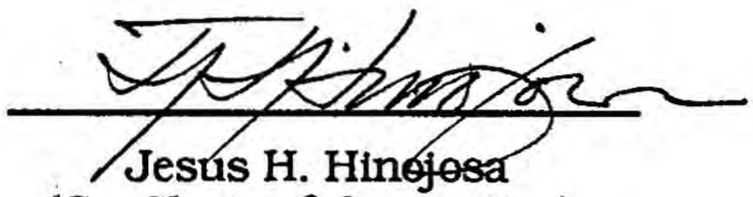

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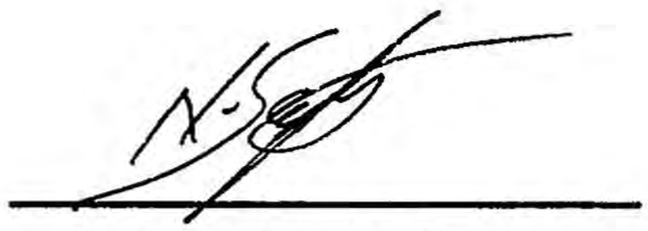

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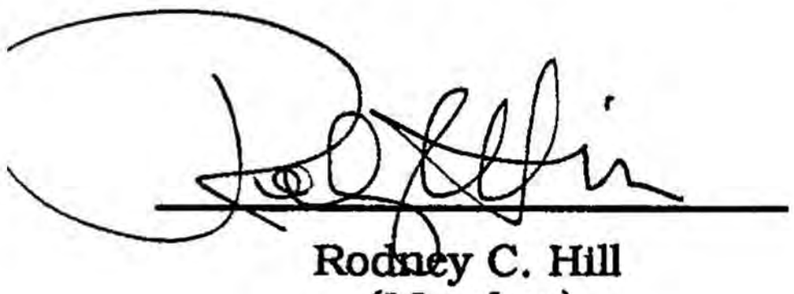

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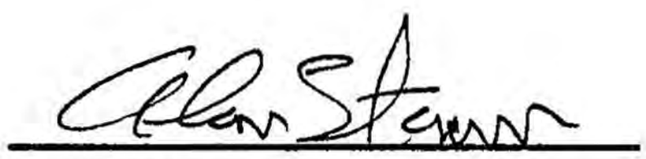

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ABSTRACT

Cultural Conflicts in Urban Patterns:

The Case of the Muslim City. (May 1992)

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This study attempts to identify the religious norms that governed and continue to govern the development of spatial form in Muslim cities, as a precept to formulating, anew, Islamic urban principles and determining their relevance in a changing society. The objective is to develop conceptually the framework for an urban design language in harmony with time honored religious traditions while utilizing the best of modern technology.

A discussion pertaining to the underlying principles of Islamic jurisprudence (usul al-fiqh) and the objectives of Islamic law (maqasid al-Sharia) is followed by an in depth investigation of the basic Islamic value systems. The impact of Islamic values on shaping the built environment of Muslim cities is examined. Moreover, the study analyzes the environmental qualities of the city of Cairo during the Ottoman empire in terms of religious precepts, Abraham Maslow's model of human needs and Kevin Lynch's theory of "a good city form." It concludes with an overview of the city's relative position in terms of this evaluation and critical observations of initiating new approaches to contemporary and future architecture and urban planning.

DEDICATION

Dedicated to:

the soul of my beloved father	for his uncompromising principles that guided his life; for his sincere and unmeasurable devotion and contribution to my being; for his profound, honest and endless support and encouragement throughout my education; and for having paved the path for my career.
my mother	for her authentic devotion to her family; and for her faithful and patient role throughout my education.
my brother*	for his continuous support and inspiration.
my sincere wife and my beloved daughter	for their explicit enthusiasm, love, support and encouragement over the course of my education, without whose patience and understanding this dissertation would not have been possible.

ACKNOWLEDGEMENTS

I deeply thank God for His guidance and for granting me the the strength needed to accomplish this work.

I also wish to acknowledge the assistance, support, and inspiration offered to me by the faculty and staff of the College of Architecture at Texas A&M University who contributed to this dissertation over the course of its development in various ways. Special tributes, however, are due here to Dr. Wolfgang G. Roeseler, Professor Jesus H. Hinojosa, Dr. Nabil A. Safwat and Professor Rodney C. Hill who consented to serve on my Advisory Committee and took utmost proprietary interest in my research and to whom I would especially like to express my deepest gratitude for their unfailing courtesy, guidance, and support.

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The inspiration and moral support of my family, particularly my wife Laila Arar, through a long journey of dedication and self-denial on her part, and the understanding of my beloved daughter Nada, are deeply appreciated and acknowledged.

My thanks are also due to the many, knowing and unknowing, who participated in crystallizing my ideas; to those who share in the appreciation of Islamic heritage; and to those who strive to make the world a better place to live, whose convictions gave me the impetus to accomplish this work.

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INTRODUCTION

I. THEORETICAL FRAMEWORK

Problem Definition

The impact of religion on the natural and man-made landscape has been experienced and documented since the beginning of civilization. Sacred spaces; sacred groves; sacred structures; temples; tombs; animal and plant domestication; food taboos and religious calendars are but a few examples of man's efforts in transforming elements of his immediate environment into religious symbols and representations. "The assimilation of temples to cosmic mountains and their function as links between earth and heaven can be clearly seen."[1] The ziggurats of Summer were literally cosmic mountains; the seven stories represented the seven planetary heavens; by ascending them, priests believed to have reached the summit of the universe.

Moreover, for centuries social life in Muslim society owed most of its customs to the predominant Islamic religion as it defined and ordained the spiritual, legal and organizational relationships between the individual and the community. Shared values, religious consensus and social interdependence among members of a community were strong enough to co-ordinate individual decisions in a natural and flexible way, thus bringing into existence an organic and articulated whole out of a sum of individual acts of building. Urban forms emerged as a result of certain principles pertaining to the religious and spiritual values of life. The acute concern

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for privacy and proper communal behavior was reflected in the development of specific building regulations and property rights and in the development of urban form the cosmology of which reflected the overriding Islamic value system.

Inspite of the rich and refined urban heritage which resulted, western planning principles have invaded Egypt, ignoring the needs of total communities, resources and the culture. These imported ideologies, under the guise of modernization, distort the innate and authentic architectural heritage and promote a cultural conflict between the traditional and the modern. As a result of newly developed social attitudes espoused by those with the power to make decisions, traditional introverted houses and narrow winding streets are being replaced by extrovert villas, high rise apartment buildings, glass boxes, and wide open streets on a grid pattern, ignoring the intricate articulation of traditional streets and their unfolding vistas. This change in the attitude of decision-makers and the educated upper class, may be viewed as a response to the many dramatic political, economic and social changes experienced over the last century that are, at times, confused with "modernization."

The question arises, how can architects and planners accommodate the dominant dynamic changes occurring in society's economic, political and cultural spheres? How can designers embody the spirit of Islamic heritage and culture in a contemporary city? And finally, how can an architectural balance be achieved between tradition and innovation while incorporating modern technology? Imitation is certainly not the answer. Instead, a plausible equilibrium might be attained, first through a fundamental understanding of the factors, forces, and processes that have shaped and guided traditional city form; and, second, through an evaluation of the traditional model for its validity in a changing society, in an

attempt to explore the possibility of maintaining continuity within change in consideration of identifiable constants and reinterpreting them within the contemporary context.

Problem Statement

This research proposes to identify, record and investigate the social norms and Islamic value systems that have traditionally governed the development of spatial form in Muslim cities as a precept to formulating, anew, Islamic urban principles and determining their significance and relevance in a changing society. The objective here is to develop the framework for an urban design language in harmony with time honored religious traditions while utilizing modern technology, ideally, compromising neither.

Purpose and Objectives

To summarize, it is the aim of this study:

1. To identify the socio-cultural determinants of spatial form in Muslim cities in order to examine and evaluate the implications of Islamic jurisprudence over the built environment of the city of Cairo (Al-Qahirah), during the Ottoman era.

2. To analyze the environmental qualities of the built form of Ottoman Cairo in order to identify, record, judge and document Islamic urban form principles - for their validity, pertinence and usefulness in a contemporary setting.

3. To develop conceptually the framework for an urban design language, the elements of which are patterns derived from Islamic urban principles, capable of creating urban entities in harmony with the local tradition while utilizing the best of modern technology.

Hypotheses

Two hypotheses concerning the primary aspects that govern urban form in a representative local situation are examined. The hypotheses are:

1. The morphology of the city of Cairo during the Ottoman era followed certain prevailing concepts responsive to the social norms of the time and reflective of the overriding Islamic value system.

2. The Islamic urban principles inherent in the traditional model are viable and pertinent in a contemporary setting and constitute the performance criteria necessary for the development of appropriate urban design guidelines applicable in the modern urban environment.

Delimitations

Since it is impossible, within the framework of this study, to address all aspects of city life during the Ottoman era, this research is confined to the following delimitations:

- The study is limited to those Islamic values that constitute a prime guide to behavior and conduct, governing the relationship between the individual and the community.
- The study is confined to those aspects of the city which were considered to be most significant, focussing mainly on questions of urban structure and key aspects of building design.
- The study does not attempt to investigate the impact of Islamic values on land use configurations and the fine arts.

Definitions

The following are definitions of key terms used in this research:

Cosmology: "A field of study that brings together the natural sciences in an effort to understand the physical universe as a unified whole."[2] For the purpose of this study, cosmology is defined as a branch of philosophy pertaining to the study of the physical form of built environments.

Ottoman Cairo: For the purpose of this study, Ottoman Cairo is defined as the city of Cairo during the reign of the Ottoman empire in Egypt.

Ottoman Era: The empire established by the Turkish tribes that existed from the 14th Century to the 20th Century. For the purpose of this study, Ottoman era is defined as the period of Turkish rule in Egypt during the 16-18th Century.

Social Norms: Standards concerned with acceptable social conduct. For the purpose of this study social norms are defined as those ideal standards of conduct which govern rules of behavior, and moral and ethical values.

Islamic Value System: For the purpose of this study, the Islamic value system is defined as those set of standards and beliefs of intrinsic worth extracted from the basic sources of Islamic jurisprudence and constituting the prime guide to societal behavior.

Islamic Urban Principles: Islamic urban principles are defined in this context as those fundamental laws upon which secondary laws or rules are based or are derived. Islamic urban principles constitute the performance criteria derived from the main sources of Islamic philosophy implemented to resolve urban conflicts. These urban principles thus represent an extension of the otherwise established laws of Islam as applied to solving urban problems.

Traditional Model: For the purpose of this study, the traditional model is defined as the theoretical projection of the conventional traditional Islamic city of Cairo during the Ottoman era.

Contemporary Setting: Contemporary setting is defined as the temporal and spatial environment of the present period, which for the purpose of this study, constitutes the second half of the twentieth century.

II. RESEARCH METHODOLOGY

To achieve the research objectives and validate the hypotheses, this study involves a critical review of the previous literature pertaining to the role of Islamic values in shaping the built environments of Muslim cities in general, and to that of Egypt in particular.

The review includes historical records and works, travel accounts, religious studies pertaining to both the Islamic legal system and its heritage, cultural studies, and art and architectural studies. The approach is directly influenced by the availability and type of data. The data of this research utilizes sources from two language groups: Arabic and English, and may be grouped into: primary data and secondary data. The primary data sources constitute the Holy Quran, the sayings and traditions of the Prophet (Sunna), Islamic jurisprudence (Fiqh), and other historic sources. Published studies, texts, unpublished dissertations and theses comprise the source of the secondary data.

The study utilizes the historical research method as outlined in ***Practical Research, Planning and Design*** by Paul D. Leedy, focussing on the techniques of indirect observation as the principle means of data-gathering. These techniques are also suggested by Kevin Lynch in ***Site Planning***.

The Ottoman city of Cairo is evaluated in terms of its compliance with the traditional societal values of accepted behavior derived from the universal principles of Islamic Divine Law. In addition, the environmental qualities of the urban form of Cairo are analyzed and evaluated utilizing Lynch's performance dimensions in an effort to uncover the basic problems and potentials of the city, in order to judge its form and function in terms of the contemporary theory of a "good city form." The methods and procedures used in this context are those developed by Kevin Lynch and outlined in his book ***A Theory of Good City Form.*** Lynch identified five performance dimensions through which the form of the city may be analyzed. The performance dimensions are derived from the general objectives of comfort, identity, structure, relatedness, meaning and diversity and contrast. The environmental qualities of the urban form of the city of Cairo are, thus, investigated and evaluated in terms of:

Vitality: An evaluation of the degree the city form supports the essential functions of the settlement and the survival of its inhabitants through:

1. Sustenance (adequacy of supply)
2. Safety (security)
3. Consonance (degree of fit between the environment and human needs through avoidance of extremes which cause stress)

Sense: An analysis of the city as perceived in time and space:

1. Identity (uniqueness)
2. Structure (orientation in time and space)
3. Congruence (match of the physical structure and function)
4. Transparency (degree of clarity of functions)
5. Legibility (degree of communication through signs and symbols)
6. Symbolic significance (symbolic value)

Fit: An evaluation of the degree the city's spatial and temporal pattern supports purposeful behavior of its inhabitants.

Access: An evaluation of accessibility through variant modes to people; cultural activities; material resources and services; places and to information. This will involve an analysis of the diversity, equity and control of accessibility, as well as distances travelled from the residential units to the basic services.

Control: A discussion of spatial rights, congruence and responsibility through the discipline of physical forms by which control was secured. This includes an evaluation of the degree to which the use and access to spaces and activities, and their modification and management is controlled by those who use, work or reside in them.

Justice and Efficiency: A balancing criterion evaluating the distribution of costs and benefits. A discussion of the costs and benefits of creating and maintaining the built environment in terms of the given values.

III. SIGNIFICANCE OF THE STUDY

Current architectural and planning strategies in many Muslim societies are largely irrelevant and unadaptable to the needs and values of the culture and socio-economic identity of the Muslim society. Planning codes and conventions are being influenced by, if not adopted from, Western principles, ignoring the needs and resources of the predominant Islamic culture. In the past few decades much dissatisfaction and strong criticism has been expressed toward many recently built environments in the Muslim world, the failure of which is generally attributed to their inability to satisfy the physiological, sociological and psychological needs, values and expectations of their users. The images associated with these recent

progressive developments often tend to exhibit strong anti-social tendencies and have created false ideas of forms alien to the social-cultural needs of Muslim societies. Such an experience not only raises questions about the validity and adaptability of the codes and conventions applied in the Muslim world, but also suggests the necessity of formulating and establishing a series of relevant new guidelines. But as culture finds expression in social structure, customs and religion, which in turn are reflected in the built environment, a thorough knowledge of Islamic principles and value systems is primary to understanding how the inhabitants of Muslim cities have solved their problems, and how solutions in terms of spatial organization and layout were and still are suited to their particular living habits.

Consequently, the study aims at identifying and analyzing those factors that guide society in shaping the built environment. Although aspects of Islamic heritage and culture have been thoroughly investigated by scholars, in many parts of the Arab world, little has been done to trace and evaluate its impact and validity in the development of contemporary built environments in a changing society. Hence, the study may constitute an essential dimension in the planning and design of built environments in general, and in identifying the primary aspects that govern local urban forms specifically. Further such a study may incite others to prepare an inventory of Islamic cityscapes pertaining to the social, religious and geographical organization, followed by the development of design guidelines for implementation, thus fostering contemporary works promoting an architecture of explicit character, responsive to the religious and social systems, that hold a promise of being as beautiful, exotic and efficient as were their predecessors. The results of this study, it is hoped, will significantly contribute to the essential body of knowledge for city planning and design in Egypt in particular, and in the Islamic world in general.

IV. RESEARCH ORGANIZATION

To achieve these goals, this research is organized in six chapters. The first chapter introduces the research problem, objectives, research questions and hypotheses, delimitations, definitions of terms, methodology and significance of the study. Chapter Two establishes a theoretical base for this study by critically reviewing the existing literature and investigating the three predominant views pertaining to the role of Islamic values in shaping the built environments of Muslim cities.

The third chapter sets the context for this research, and tests and validates the first hypotheses. A brief history pertaining to the creation, growth and development of the city of Cairo is followed by a discussion of the environmental and socio-cultural determinants of spatial form and an investigation of the implications of Islamic jurisprudence over the built environment of Ottoman Cairo.

In an attempt to test the second hypotheses, Chapter Four analyzes the environmental qualities of Ottoman Cairo in terms of Kevin Lynch's theory of "a good city form," and concludes with an overview of where the city stands in light of this evaluation. Consequently, and based on the analysis of the Ottoman city of Cairo, Chapter Five illustrates the viability of the traditional model in a contemporary setting thereby validating the second hypotheses, and concludes by identifying a set of urban principles constituting the performance criteria necessary for the development of a meaningful built form in any Muslim society.

The final chapter summarizes the findings, draws conclusions, suggests some general policy recommendations and identifies areas for further related research.

Notes

1. Mircea Eliade, *The Sacred and the Profane* (Harcourt Brace Jovanovich, New York, 1959), p. 40.
2. Merriam Webster, *Webster's Third International Dictionary* (Encyclopaedia Britannica, Inc., 1986), p.514.

CHAPTER II

A REVIEW OF THE LITERATURE

The purpose of this literature review is to explore existing research in the field and establish a theoretical base for this study. In approaching this goal, the review briefly explores the main concept of the Islamic city; provides an analysis of the three outstanding views namely: the Classical View, the Revisionist View, and the Contemporary View; and examines various attempts to provide guidelines for development of future Muslim cities within the context of prevailing societal values and environmental conditions. The review concludes by evaluating the related literature noting the strength and weakness of the research and its relevance to the proposed study.

I. THE CLASSICAL VIEW

The Islamic city first became a serious subject of research during the earlier part of this century. Since then, various studies have been undertaken and articles written. The general traditional approach of western scholars was, during the early years of this century, to accept Islam as a basis for the interpretation of the morphological pattern of Muslim cities. This is witnessed in the writings of William Marcais, in "L' Islamisme et la Vie Urbaine," (1961); George Marcais, in "L' Urbanisme Musulmane," (1957); and Roger Le Tourneau in "Les Villes Musulmane de L' Afrique du Nord," (1957). The Marcais brothers suggested that the shape and urban pattern of the Islamic city was determined only in part by the pressing need for defense and power, but also in part by the need to sustain the moral and ethical values of Islam.[1] This

basis however, was limited and dependent largely on a descriptive analysis of the urban form, organization and architectural design.

To these primarily morphological studies was added the view of Gustaf Von Grunebaum, in his article entitled "The Structure of the Muslim Towns in Islam: Essays in the Nature and Growth of a Cultural Tradition," (1955). Von Grunebaum presented the typical physical form of a Muslim city in terms of institutional structures. Other scholars with similar views include Louis Massignon, who believed that socioreligious institutions/guilds dominated, above all, the life of the Islamic city; and Leopold Torres Balbas, who acknowledged that the right of the family to live enclosed in its house, lead to clear separations between public and private life. Balbas also recognized the hierarchical street network of the Islamic city as a characteristic feature of Muslim civilization.[2]

In addition, Brunschvig (1947), and Scanlon (1970), have shown that the Islamic city received indirect recognition by the Sharia regulating roads, drainage, and the burial of the dead. Furthermore, they noted that the responsibility of the individual toward his neighbor was manifested in the urban pattern and was responsible for transforming the pre-Islamic city into the medieval Islamic city.[3]

These views however, were challenged and some scholars tended to play down the importance of Islam in the interpretation of the city.

II. THE REVISIONIST VIEW

The most vocal exponents of this view have been Claude Cahen since the late 1950s and Ira Lapidus since the mid-1960s. Cahen argues that many of the characteristics of the so-called "Islamic city" are in fact those of the "medieval city," and are not due to Islam as a religion. Lapidus's ***Muslim Cities in the Later Middle***

Ages (1967), asserts this view. Taking the cases of Aleppo, Damascus and Cairo, Lapidus investigates the forces that established Muslim cities. He concludes that "Muslim urban society divided essential powers and functions among its different component groups and that urban form was the outcome of the relations among these groups and not defined by a single political or socioeconomic body."[4] In his article entitled "Muslim Cities and Islamic Societies" (1969), Lapidus goes on to deny the existence of any uniqueness in Islamic cities.

> ...we can no longer think of Muslim cities as unique .... None of the characteristic social bodies of Muslim society - the quarter, the fraternity, the religious community, and the state - were specifically urban forms of organization. Cities were physical entities but not unified social bodies defined by characteristically Muslim qualities.[5]

This line of reasoning is followed by several scholars in ***The Islamic City*** (1970), edited by Albert Hourani and S. M. Stern, who explore the characteristics shared by Islamic cities with those of Medieval Italian, Byzantine and Chinese cities. Furthermore, Wirth's article (1975), disqualifies the attribute to Islam based on the evidence that the urban form and organizational system prevalent in most traditional Arab-Muslim cities, originated in the pre-Islamic models.

III. THE CONTEMPORARY VIEW

The recent revival of interest in reestablishing a local character coupled with the on-going debate over the concept of the Islamic city, has inspired scholars from both the east and the west to explore the Muslim city, and resulted in many conferences and symposiums. The Aga Khan Award for Architecture, the Arab Towns

Organization, and the Franco-British Program on Middle Eastern Cities were among the first to start such an exploration.

The Arab Towns Organization and the Arab Institute of Development sponsored three international conferences but published two volumes: ***The Arab City*** (1982), edited by I. Serageldin and S. El-Sadek, and a companion volume in Arabic. Both volumes deal with the identity and evolution of the Muslim city, emphasizing the past, though present day and future cities were discussed. Ecshard's and Khan's articles outline the evolution of Damascus and Jeddah respectively, but provide no specific attribute to Islam. Strategies for conserving and planning Muslim cities with some interesting thoughts for the future are provided by M.I.T.'s William Porter, France's Roland Simounet and London's based architect Basil Al-Bayati.

Bayati's presentation seems to have been inspired by his book ***Process and Pattern*** (1981), in which he attempts to present, in a concise form, an approach to architectural design which the author claims to have found useful in the design process for the Islamic world. The approach is based on "the understanding of the cultural elements of the region embodying the rules handed down by the Divine Law." [6] The proposed mechanism utilizes what Bayati has termed the excitor apparatus (wasitah) - "an organism that needs elements in order to survive"[7] - to fulfill an architectural function of material order, and then another function of spiritual order. Yet, the process is ill-defined and complex, and utilizes traditional elements and symbols that eventually result in superficial appearances, shape and geometry rather than the principles behind the physical expression. Abdulla Bokhari addresses this problem in his presentation making a good point well stated, by pointing out the problem of design in the Muslim world.

> In art and architecture, tradition is known to us as form and spirit. We recognize it by looking at its form but understand it only by

> comprehending its spirit. Now, if we have lost track of the spirit of the Islamic city, can we vindicate our action by merely recreating its form? I must warn against nostalgia and romanticism. Those who are talking about the Islamic city in the physical sense, are talking about that which used to be ....I venture to suggest that the Arab Islamic city will always exist, not necessarily in its simple, yet celebrated physical form, but at least in its socio-cultural context ....regardless of whatever shape or from it may acquire.

As a result Bayati's book ***Community and Unity*** (1983), presents a different approach to the design of a residential and commercial complex in Abu-Dhabi following a philosophical concept, that of unity in planning, in accordance with the rule of Divine Law. Here, Bayati returns to the original sources of the Quran and Sunna for inspiration, and utilizes modified traditional forms to manifest his understanding of ayat and hadith. This approach, though deficient in its organization and form of presentation, and not inclusive of all the basic values responsible for an ethical and moral code of conduct in Islam; constitutes a step forward towards a new concept for design in the Islamic world.

Furthermore, ***The Islamic City*** (1980), edited by R. B. Serjeant is the result of a Colloquium sponsored by Unesco and organized by the World of Islam Festival Trust. The essays in this collection give detailed description of the different and unique institutions of the Islamic city and discuss the urgent and complex question of preserving a priceless heritage without transforming it into a living museum. The volume examines the religious, legal, governmental, economical, and educational institutions of the traditional Islamic city as manifest in its physical features. Case studies of Sana, Fez, Aleppo and the vision of Ali Mubarak for the re-planning of Cairo, along with the recommendations of the colloquium represent a significant development in the approach to renovation and conservation of the Islamic city but affords no specific guidelines for implementation.

In a similar approach Antoniou's ***Islamic Cities and Conservation*** (1981), is the result of a study commissioned by Unesco for the Symposium on Conservation and Restoration of the Islamic Architectural Heritage, held in Lahore in 1980. The volume addresses the urgent need for conservation of Islamic cities in the broadest sense, in view of the current physical developments and their impact on the disappearance of many of the traditional qualities of Muslim cities. As a result the investigation is not only limited to North Africa, and the Asian Middle East, but extends as far out as to include Mauritania to the west and China to the east. Antoniou attempts through a "broad brush-stroak" to revive interest in the Islamic architectural and urban heritage via a swift and brief reference to the influence of religion, power and natural resources on urban form. He attributes certain architectural elements and characteristics to Islam.

> Certain architectural features are unique to the Islamic world and contain a developed sense of proportion. ....The tenets of Islam which forbid representational art have had a beneficial effect upon the quality of decoration. [8]

Antoniou maintains that "the strength of Islam since the time of the Prophet has been rooted in cities." [9] Nevertheless, the author acknowledges some Hellenistic and Persian influence on the pattern of Islamic settlements. He concludes that the conservation of historical environments in Islamic cities is a mean of avoiding cultural disruptions, preserving cultural identity and establishing an organic link between the past, the present and the future; and goes on to offer, in a discussive way as opposed to specific guidelines, a policy of conservation; and identifies those cities in need of urgent attention. However, and although the recommendations made here are valid and useful, it is essential, as a basis for a statement of a policy, to link recommendations with the immediate values of the society. Hence, and due to the all

to brief presentation, Antoniou's contribution constitutes a good introduction to those interested yet unfamiliar with the problems facing the Muslim city.

Furthermore, and in a continuing effort to explore the basis upon which evolved the Muslim city many research investigations were undertaken. ***Architecture of the Islamic World*** (1978), edited by G. Michell is the result of such an investigation. The contributing authors examine the entire field of Islamic architecture providing a unique survey, from mosques to markets, from citadels to cemeteries, with the emphasis upon function and meaning, rather than on chronology and style. Here for the first time, the architecture of the Islamic world is placed in its cultural context, revealing its relationship to the Islamic society. Essays in this volume document the influence of the interplay of theological, socio-cultural, economical, political, and technological factors in the Islamic culture upon architecture. On the one hand, Grube's opening article surveys the whole field and identifies those characteristic features he believes constitute the architecture of the Islamic world. He concludes by stating:

> If Islamic architecture is distinctively different from non-Islamic architecture, and must be interpreted as one of the many emanations of the spirit of Islam, the adjective "Islamic" is fully justified. The interpretation of it as a whole as well as the understanding of its specific parts can only be successful and meaningful if seen against the background of Islam as a cultural, religious and political phenomenon, and only in the precise relation to the specific circumstances that led to its creation.[10]

On the other hand, Dickie classifies religious buildings according to liturgical criteria. Grabar, however, examines the intimate relation between politics, the power structure and architecture. In addition, Sim's article explores the impact on commerce on the development of a unique series of buildings, and Jones analyzes the aesthetics of Islamic decoration in terms of light, surface and space. Furthermore,

Petherbridge's article entitled "Vernacular Architecture: The House and Society," examines the relation between domestic architecture and society, and concludes that even vernacular architecture "embodied the same unifying principles."

Following this line of reasoning, ***Islamic Architecture and Urbanism*** (1983), edited by A. Germen utilizes the proceedings of the first large scale symposium of its kind sponsored by King Faisal University, and held in 1980. Essays in this collection are organized around four broad, untitled sections lacking internal cohesion, yet contain significant wealth of information, some of which is the works of distinguished authors and respected authorities. On the one hand, Kuban's article challenges the notion of things Islamic - including city form, based on the demonstrated diversity of architectural styles and urban traditions. On the other hand, Grabar, De-Montequin, Llewellyn and Abu-Lughod in their articles attempt to identify the Islamic essence of architecture and urban existence in the Muslim world in terms of principles and concepts.

Llewellyn's article (1980), examines the impact of the Sharia law on administrative planning. Abu-Lughod's "Contemporary Relevance of Islamic Urban Principles" (1980), attributes the grammar of the Islamic city to four basic principles that the author identifies as Islamic. Abu-Lughod argues for the contemporary relevance of these principles based on a limited comparative analysis with western models of development. Her arguments are well-founded, and convincing, yet it is questionable whether these principles alone could produce an appropriate environment conductive to the needs, beliefs and aspirations of its Muslim population.

In a like manner, A. Raymond's book ***The Great Arab Cities in the 16th-18th Century*** (1984), represents an introduction to an unexplored subject examining the

urban conditions of Arab cities (mainly Algiers, Tunis, Cairo, Damascus, Mosul and Baghdad) under Ottoman rule. The book constitutes the first serious attempt to investigate Arab cities, during the last centuries, before being overrun by Western civilization. Raymond deals successively with the historical context, the cities populations, urban functions, spatial organization, economical activities, residential areas and housing. With convincing arguments he acknowledges economical prosperity and urban progress during the Ottoman era, contrary to the long held views, by many Western and Arab scholars, who conceived of the era to be a period of decline and backwardness. In addition, Raymond warns against nostalgia indicating that the introvert organization of the traditional Muslim house is not a total manifestation of a religious notion, instead he points out that the courtyard house is more Mediterranean than Islamic. The author's methodical approach is credited for closely studying succession archives in Cairo, and interpreting existing data to provide numerical evidence of patterns of evolution.

Additionally, The Franco-British Program on Middle Eastern Cities held several conferences in the past few years. ***Middle Eastern Cities in a comparative Perspective*** (1986), edited by Brown, Jole, Sluglett and Zubaida, resulted from one of those gatherings. It investigates the impact of urban analysis, urban policies and social practices, social space and political ideology on city form in several Middle Eastern cities. Brown's article, "The Muslim City" reviews recent western writings on the subject and suggests that "the current focus on space and urban process represents a positive change as it no longer isolates the Islamic dimension. He predicts that interpretation of the form of the Muslim city based on cultural and religious aspects will continue to dominate the field." [11] Brown summarizes this problem in the following extract from his book From Medina to Metropolis (1973).

> Cities are, in one sense, becoming increasingly alike or at least faced with similar problems and prospects. Yet, anyone who has had the opportunity to experience, say, Fez, Istanbul, or Isfahan would argue that such cities possess a cultural core, however elusive to describe, that is and will ever be distinctive. And even if experts and laymen might dispute what generic label to apply - whether Islamic, Near Eastern, Western Asian, or some hyphenated sub-category such as Arabo-Islamic or Turko-Islamic - there could be a consensus that these cities are properly distinguishable from New York, Paris, Calcutta, Nairobi, or Shanghai.[12]

The Middle Eastern City (1987), edited by A. Saqqaf asserts this view and comprises the proceedings of the Second Annual Conference sponsored by the Middle Eastern Chapter of the Professors of World Peace Academy. The book at hand contains interdisciplinary essays that cover historic and contemporary issues in Middle Eastern urbanism questioning, how far has the Middle East come in its urbanization process? What happens to ancient city cores? How could these be saved? What will the Middle Eastern city look like by the turn of the century, and what should it look like? Scholars from the Middle East and many other nations attempt to answer these and many other questions.

Mechkat and Galanty, tackle the issue of "Continuity and Change." Galanty's "Islamic Identity and the Metropolis," explores three factors he believes influenced the built form of Muslim cities: climate, material constraints, and culture specific determinants. The author attempts - successfully - to identify many of the critical determinants which constitute the religious practices and legal traditions of Islam. He concludes that "...there is nothing outdated in the Islamic principles or the spatial organization derived from it." [13] Galanty goes on to present critical policy recommendations but no specific guidelines. Mechkat's article entitled "The Islamic City and The Western City: A Comparative Analysis," sketches some elements related to traditional urban form and the history of cities in the "Arabo-Iranian" region reexamined with contemporary urban and architectural design in prospect. The

author demonstrates that "the city invested by Islam reflects religious purpose to permanently maintain and safeguard its value." [14]

Furthermore, most scholars tend to take issue with Lapidus, basing their judgement on the fact that Muslim cities do have certain distinctive features, and a unique layout and physical design. Saqqaf asserts this in his introductory note.

> They have a unique layout and physical design .... There is a definite zoning pattern of the three major activities .... In addition the Islamic city has it's social, administrative, religious, political and economic institutions.[15]

He goes on to state:

> There is no doubt, therefore, ...that the urban structure expressed in concrete material terms the abstract and spiritual conviction which is embodied in the social, political, cultural and economic system of the Islamic religion.[16]

Saqqaf concludes that the present urban structure creates many socio-cultural complications to Muslim urban dwellers especially since the Islamic city requires social cohesion among its populations, collective responsibility of all its inhabitants in the well being of the city, and a minimum demand for privacy.

Yet, Hakim's ***Arab Islamic Cities*** (1986), is the most ambitious of all new books. It is an important addition to the literature on Muslim urbanism as it is the only serious book that attempts - successfully - to revive the old Islamic arguments by identifying the building and planning principles utilized in Tunis. Hakim raises a key issue neglected by many scholars, namely the importance of Islamic law through building guidelines as a prime factor in shaping the traditional Muslim city, and concludes by suggesting that shared Islamic identity of Muslim cities is due to the application of value systems of the Sharia in the process of city building. In addition,

he evaluates the urban form of Tunis and suggests that Islamic law is particularly responsible for the cellular pattern of the Muslim city.

> All cities in the Arab and Islamic world inhabited by Muslims share an Islamic identity which is directly due to the application of Sharia values in the process of city building. ..... To summarize, the study demonstrates the importance of law through building guidelines as a prime factor which shaped the traditional Arab-Islamic city and it de-emphasizes climate as a major determining factor.[17]

Achieved methodically, Hakim's study thus became the spring board for many more recent research investigations. On the one hand, Al-Hathloul's ***The Arab Muslim City: Tradition, Continuity and Change***, (originally a Ph.D dissertation at M.I.T, and published by UMI in 1981) is influenced by Hakim's presentations at M.I.T. in 1979, and makes exactly the same argument using similar examples from Tunis and Medina.

On the other hand, Akbar's ***Crisis in the Built Environment*** (1988), follows the same line of reasoning, investigating the societal process that produced the traditional Muslim environments . Yet, unlike most other investigations this is not a historical study in the traditional sense, but history is used to illuminate the present. The author argues that patterns of responsibility derived from the Islamic legal system (Sharia), in traditional Muslim cities, affected all aspects of the built environment, and are different from those of today. He concludes by emphasizing the crucial need for understanding responsibility and its consequences, and asserts that improving the quality of a built environment is largely dependent on altering the patterns of responsibility operating within the society

Moreover, in another ambitious attempt, Brookes ***Garden of Paradise*** (1987), explores a long neglected field of Muslim culture. The author traces the Persian garden as it developed, modified and disseminated under Muslim rule in the gardens

of Spain, North Africa, India, Egypt, Sicily, Turkey and Persia. He attributes the concept of the garden as a symbol of a mystical paradise in Islam to the Muslim faith. Brookes concludes by advocating the return to the authentic Islamic garden design tradition in contemporary Middle Eastern cities, and provides notes for designing a garden in the Middle East. Yet, his proposed scheme would have benefited from a conceptual approach exploring the design of contemporary Islamic gardens within the context of prevailing societal values and environmental conditions.

IV. CONCLUSION

Much has been written about the Islamic city, its genesis, history, heritage, society, art and architecture; yet many loose ends remain unchallenged, let alone the ongoing debates over the concept of the Islamic city. But this comes without surprise, for this is the nature of research, for re-search (to search again) is an ongoing investigation.

Studies examining the concept of the Islamic city, since the turn of the century, have generally followed one of three approaches: that which postulated the prevalence of an Islamic city pattern; precisely studied local conditions, organizations or institutions; or that which examined specific building types.[18]

Yet, in light of recent research as revealed in the papers reviewed here, it is clear that earlier attempts to relate the Islamic culture and heritage to the art and architecture of the Muslim world remain challenged, limited and largely dependent on a descriptive analysis of the physical manifestations, rather than the basic principles behind the physical expression. Most such studies, attribute the physical form of the Muslim city to Islam basing their judgements on very general religious

notions, rather the intrinsic values inherent in the Sharia and explicitly stated within.

Moreover, and inspite of the abundant literature pertaining to Islamic law and legal system, and their implications on such issues as property and water management, international relations, judical administration and economy; only a handful of serious attempts have been made, in the past two decades, to interpret those intrinsic values inherent in the Sharia and explicitly stated within, in terms of the traditional process of building and urban development in the Muslim world. These studies however, rarely identify the fundamental and intrinsic values necessary for the development of a vocabulary of architectural forms and patterns appropriate to the Muslim culture, and stop short from translating the traditional building and planning principles into a series of workable guidelines, validating their relevance for contemporary applications.

Consequently, attempts to provide guidelines for development of the Islamic city have generally followed, once again, a global approach utilizing criteria that are non culture specific, based on individual expertise and a limited understanding of the culture, thereby resulting in subjective judgements and a generic policy of recommendations applicable to most societies.

Furthermore, the existing literature pertaining to the direct impact of Islamic values on the built environments of Muslim cities is limited to those studies indicated above, investigating Tunis and Medina. But, the contemporary Arab-Islamic world is made up largely of independent political entities. In addition, no attempts have yet been made to investigate the implications of Islamic jurisprudence on the built environment of Ottoman Cairo.

Hence, and in light of the above discussion a need exists for an in-depth study identifying the relationship between the built form of Ottoman Cairo and Islamic jurisprudence in addition to investigating how to apply the gained knowledge to contemporary cities in the Muslim world.

Building on previous research,[19] the proposed study will therefore be an extension of Hakim's (1986) and Al-Hathloul's (1981) investigations of the implications of Islamic jurisprudence over the built environment of Muslim cities. The proposed study will attempt to identify the socio-cultural determinants of spatial form in Muslim cities in order to examine the implications of Islamic jurisprudence over the built environment of Ottoman Cairo, and demonstrate that the earlier reliance on Islam as a basis for analysis was essentially sound. Yet, due to the limitations of previous investigations, Islamic values governing the relation between the individual and the community will be extracted from the basic sources of Islamic jurisprudence.

In addition, and in an effort to examine the validity and pertinence of Islamic urban form principles in a contemporary context, the environmental qualities of the built form of Ottoman Cairo will be analyzed in terms of Kevin Lynch's contemporary theory of "a good city form," by so doing, this approach overcomes the limitations of previous investigations in which the urban principles were arbitrarily compared to western models of development. Furthermore, in recognition of the limitations of previous research in providing appropriate guidelines for development, a framework for an urban design language will be derived from the Islamic urban principles while utilizing modern technology, thus portraying an extension to the established laws of Islamic jurisprudence as applied to the solution of contemporary urban problems.

In view of the above, the proposed study will therefore attempt to overcome much of the problems encountered in previous investigations while building on previous research.

Notes

1. Albert H. Hourani, "The Islamic City in the Light of Recent Research," in *The Islamic City*, ed. A. H. Hourani and S. M. Stern (University of Pennsylvania Press, 1970), p. 12.
2. Ibid., p. 24.
3. Ibid.
4. Nezar Al Sayyad, "Arab Muslim Cities," *Design Book Review* 14 (1988): 63
5. Ira M. Lapidus, "Muslim Cities and Islamic Societies," in *Middle Eastern Cities*, ed. Ira M. Lapidus (University of California Press, Berkeley, 1969), p. 75.
6. Basil Al-Bayati, *Process and Pattern* (aarp, London, 1981), p. 3.
7. Ibid., p. 6.
8. Jim Antoniou, *Islamic Cities and Conservation* (The Unesco Press, Geneva, 1981), p. 21.
9. Ibid., p. 23.
10. Ernest J. Grube, "What is Islamic Architecture," in *Architecture of the Islamic World*, ed. George Michell (Thames and Hudson, London, 1978), p. 14.
11. Al Sayyad, op. cit.
12. L. Carl Brown, *From Madina To Metropolis* (The Darwin Press, Inc., Princeton, New Jersey, 1973), pp. 19-20.
13. Ervin Y. Galanty, "Islamic Identity and the Metropolis: Continuity and Conflict," in *The Middle Eastern City*, ed. Abdulaziz Y. Saqqaf (Paragon House Publishers, New York, New York, 1987), p. 21.
14. Cyrus Mechkat, "The Islamic City and The Western City: A Comparative Analysis," in *The Middle Eastern City*, ed. Abdulaziz Y. Saqqaf (Paragon House Publishers, New York, New York, 1987), p. 27.
15. Abdulaziz Y. Saqqaf, *The Middle Eastern City*, ed. Abdulaziz Y. Saqqaf (Paragon House Publishers, New York, New York, 1987), pp. 3,4.
16. Ibid., p. 43.
17. Besim S. Ha'kim, *Arab-Islamic Cities* (KPI Limited, London, 1986), p. 138.
18. Oleg Grabar, " The Architecture of the Middle Eastern City," in *Middle Eastern Cities*, ed. Ira M. Lapidus (University of California Press, Berkeley, 1969), pp. 26,27.
19. In addition to previous research pertaining to the Islamic city, as revealed in the works reviewed here, this investigation has benefited greatly from such studies as:
    - Rudolf Otto, *The Idea of The Holy* (Oxford University Press, London, 1923).
    - Arnold J. Toynbee, *A Study of History* (Oxford University Press, New York & London, 1920) pp 48-139.
    - Max Weber, *The City* (The Free Press, Glencoe, Illinois,1958).
    - Lewis Mumford, *The City in History* (Harcourt, Brace & World, Inc., New York, NY, 1961), pp 57-60;79-89.
    - Gallion and Eisner, *The Urban Pattern*, (D.Van Nostrand Company, New York, NY, 3rd edition, 1963), pp. 1-138; 151; 309-319; 433-472.
    - Oswald Spengler, *The Decline of the West* (The Modern Library, New York, NY, 1962), pp. 245 -353.
    - W. G. Roeseler, *General Policies and Principles for Prototype Zoning Ordinances and Related Measures* (EMR Publications, Bryan, Texas, 1976), pp. 1-33.
    - W. G. Roeseler, *Urban Development Commentary* (Texas A&M Lectures, 1983-89).

    The works of these authors and their specific view points have guided the interpretation of historic facts as it relates to the analysis of Ottoman Cairo.

CHAPTER III

CAIRO DURING THE XVI-XVIII CENTURIES

I. SETTING

Stages of Physical Development and Growth

To understand the intricacies of Cairo and appreciate the spirit of this living entity, one must travel back in time to relive the origin of this radiant city, examining the diversity of its urban patterns.

Cairo has been Egypt's capital since 969 A.D., yet Egypt's oldest capital, "Memphis", was founded 5000 years ago by King Menes on the west bank of the River Nile. Memphis was replaced as Egypt's capital by cities further south, one of which gained prominence. That city was located on the eastern bank of the Nile at the site of what is now known to be Ein Shams, or Matariya. It is mentioned in the Bible as "On" and was named "Heliopolis", or the "City of the Sun" by the ancient Greeks and Romans. The history of "On" dates back to 3000 B.C. It was one of the most sacred of Egypt's cities - embodying the "Tree of the Virgin" under which the Virgin Mary found shelter - and a great center of learning.

Further south, on the east bank of the Nile, the Persian Emperor Cambyses established the city of "Babylon" in Egypt to guard the approach to "On". Following the adoption of Christianity as the official religion of the Roman Empire, the city became the religious center as well as an important defense fortification. But successive struggles by the Persians and Romans over Egypt drove most of the population out into the surrounding villages, leaving the city deserted.

Yet, the seed from which Ottoman Cairo evolved dates from the time of the Arab conquest during the first half of the 7th century. This occurred after the birth of

the Prophet Muhammad, Preacher of Islam, in 570 A.D. "The Arab conquest, while it did not interrupt the geographic continuity, created a marked break in the cultural continuity." [1] Since then, "Cairo [has stood] preeminently as a Muslim city, bearing neither the physical nor the cultural imprints of its pharaonic and Greco-Roman precursors." [2]

The city of "Fustat", Egypt's first Islamic capital and the first Muslim city in the region, emerged from the military camp of the Muslim leader Amr Ibn el Aas as a result of the Arab conquest. It was established near the remains of "Babylon" due to its strategic location on the eastern bank of the Nile, which assured access to Arabia by land (see Fig. 3.1). "Fustat grew to be an important commercial emporium for the expanding Islamic empire and became a center of culture and religious innovations." [3]

In 750 A.D., after the Abbasids' victory over the Umayyads, the princely town of "Al-Askar" was founded north of "Fustat" to mark the birth of the dynasty, following which Ahmed Ibn Tulun founded the town of "Al-Qatayeh" north of "Al-Askar". But as princely cities and towns were symbols of status and display and centers of conspicuous consumption rather than of trade and production, the city of "Fustat" maintained its importance as Egypt's economical center.[4]

All these Islamic capitals formed the prelude to the establishment of Cairo itself. In 969 A.D., the Shiite Fatimids came to Egypt, under the rule of Jawhar Al-Saqally, and erected a rectangular, walled military-palace city, "Al-Qahira" (meaning "the victorious"), northeast of "Fustat" (see Fig. 3.2A). The city eventually proved to be worthy of the name, developing into one of the greatest cities of Islam. This continuity, however, was abruptly shattered in 1168 by the waves of European crusades.[5]

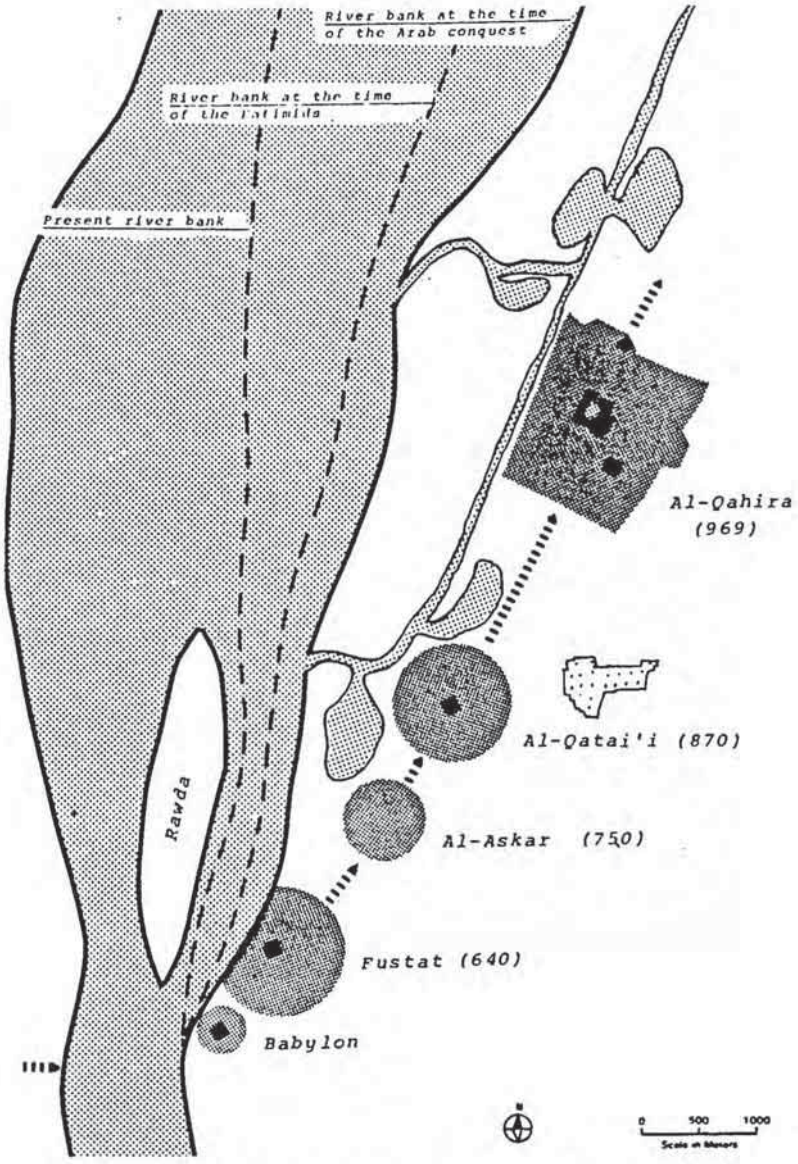

Fig. 3.1. Early Muslim Settlements in Egypt
(Source: N. AlSayyad, p. 11)

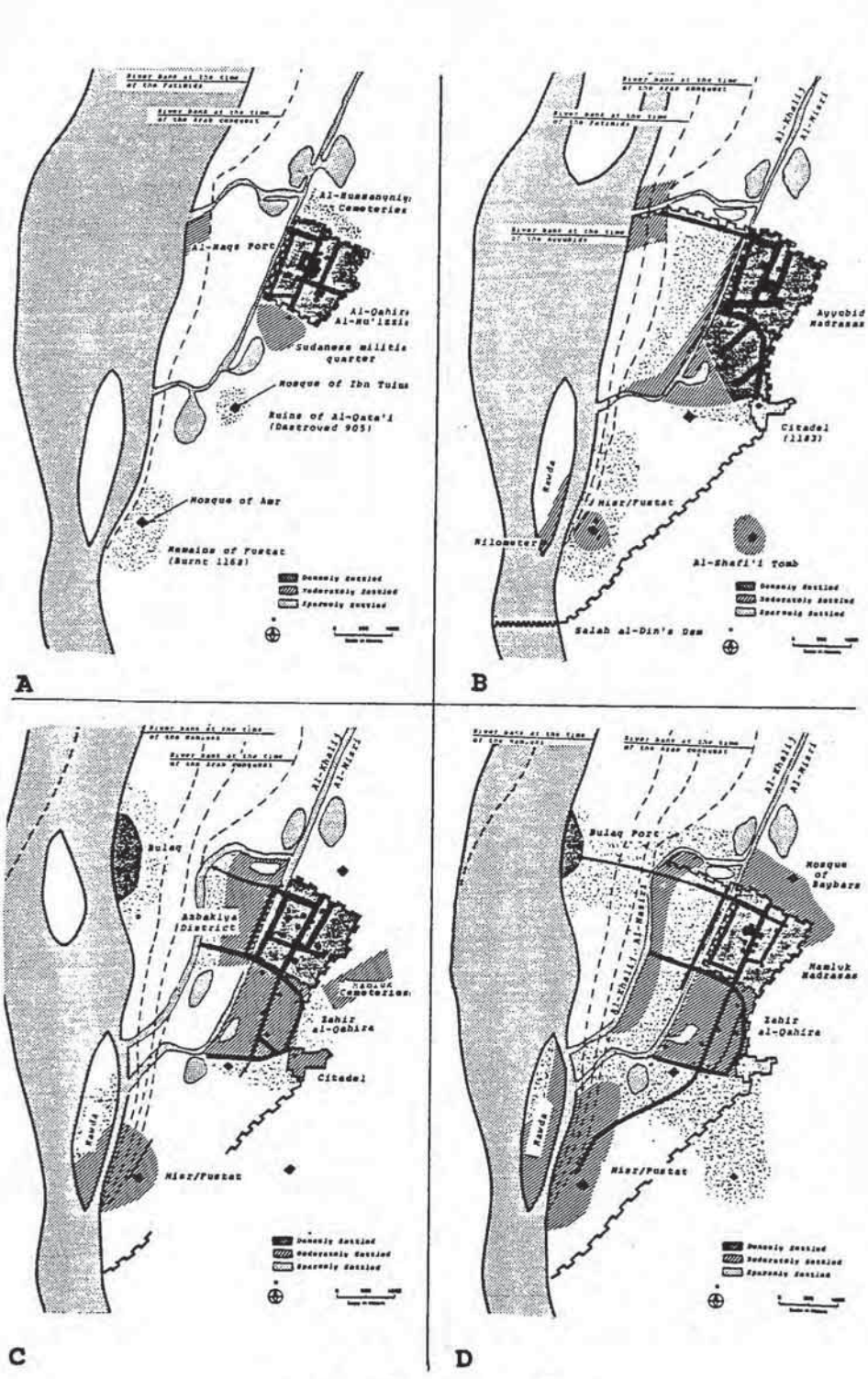

Fig. 3.2. Cairo During the:
A - Fatimid Rule
B - Ayyubid Rule
C - Bahri Mamluks
D - Burji Mamluks
(Source: N. AlSayyad, pp. 14, 25, 35, 49)

But Salah Al-Din, the first governor of Egypt during the Ayyubid Dynasty, defeated a European vanguard which came close to occupying Cairo. He then initiated the construction of a gigantic wall encircling the cities of "Fustat", "Al-Askar", and "Al-Qahira" or "Al-Qatayeh," (see Fig. 3.2B). Nevertheless, the Ayyubid dynasty began to weaken in 1238 as the last Ayyubid ruler made the great mistake of shifting his military dependence to the Turkish Mamluks, thus giving rise to the Bahri Mamluks, or "Turkish slaves of the Nile," in 1250. During this ruling dynasty (1250-1382) Cairo's architecture flourished and its beauty was complemented by the building of palaces and mosques. The mosques built during these times were so numerous that Cairo became known as "the City of a Thousand Minarets." During this era the city underwent the greatest changes, developing rapidly, and was an object of awe and wonder to the few travelers from Europe who came to see her.[6] But this glorious period was short-lived for the successive rulers were all weak, thus bringing forward the Burji Mamluk dynasty that ruled until the Ottoman conquest in 1517 (see Fig. 3.2C&D).

Urban Expansion

The city of Cairo did not change much during the Ottoman era, which lasted from 1517 to 1798.[7] The expansion that had started under the Mamluks continued, thus increasing the surface area of Mamluk Cairo from 450 hectares to 622 hectares, and the population grew from 150,000 inhabitants in 1517 to 263,000 inhabitants in 1800.[8]

The city spread to the west beyond the canal (Khalij) towards the Nile, along the main axis leading to Bulaq, where a large number of big residential houses were built in the new district of Al-Azbakiya, which later became a leisure resort for the

rich traders and emirs to escape the busy and growing center of the city. The southern districts of the city that had also expanded in the 14th century during the Ayyubid era, spread along the two urban axes, the first extending from Bab Zuwaila to the citadel bypassing Al-Darb Al-Ahmar and Tabbana, and the second continuing from the qasaba, principal axis of the town, from Bab-Zuwaila to the citadel mosque of Ibn-Tulun and ending up in "Fustat" [9] (see Fig. 3.3). This expansion resulted in the decentering of the formerly central cell of the city.

II. ENVIRONMENTAL AND SOCIO-CULTURAL DETERMINANTS OF SPATIAL FORM

Natural Features of the Physical Environment

Topography

Cairo's terrain could be considered fairly flat. The city is contained by the River Nile to the west and the Muqattam mountain to the east, both of which played a significant role in the location and urban expansion of the city.

The city of Cairo is built on land that once was submerged under the Nile in the 7th century. As early as the 10th century, natural silting began to build up the land below water level. Later, the diversion of flood water through a system of canals and ponds allowed for the emergence of much of the land on which Ottoman Cairo lies[10] (see Fig. 3.4). This permitted the expansion on the west towards the Nile. The growth of the city toward the east was limited by the natural obstacle formed by the cliff of the Muqattam mountain.[11]

Vegetation and Land Cover

The city of Cairo, due to the aridity of the climate, lacks any contiguous vegetative cover. While plants are virtually absent or scarce, palm trees, being deep

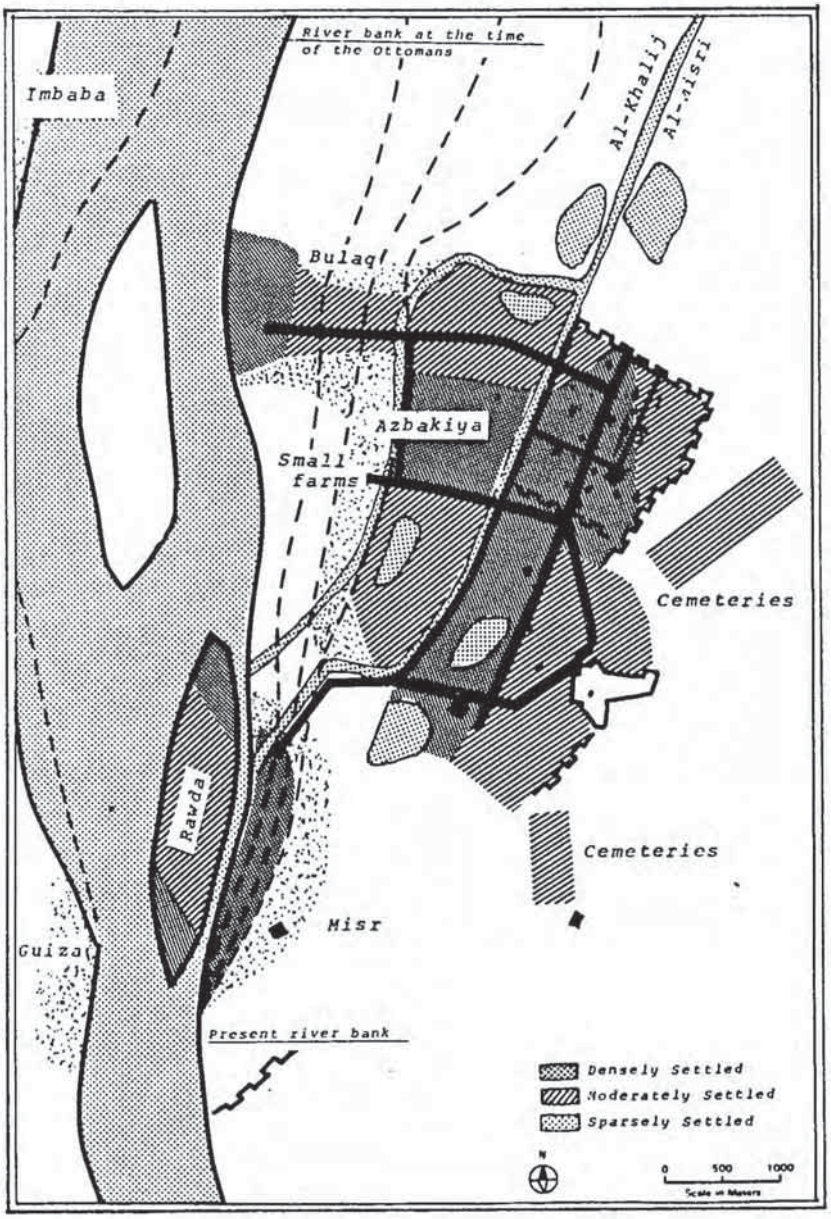

Fig. 3.3. Cairo During the Ottoman Era
(Source: N. AlSayyad, p. 63)

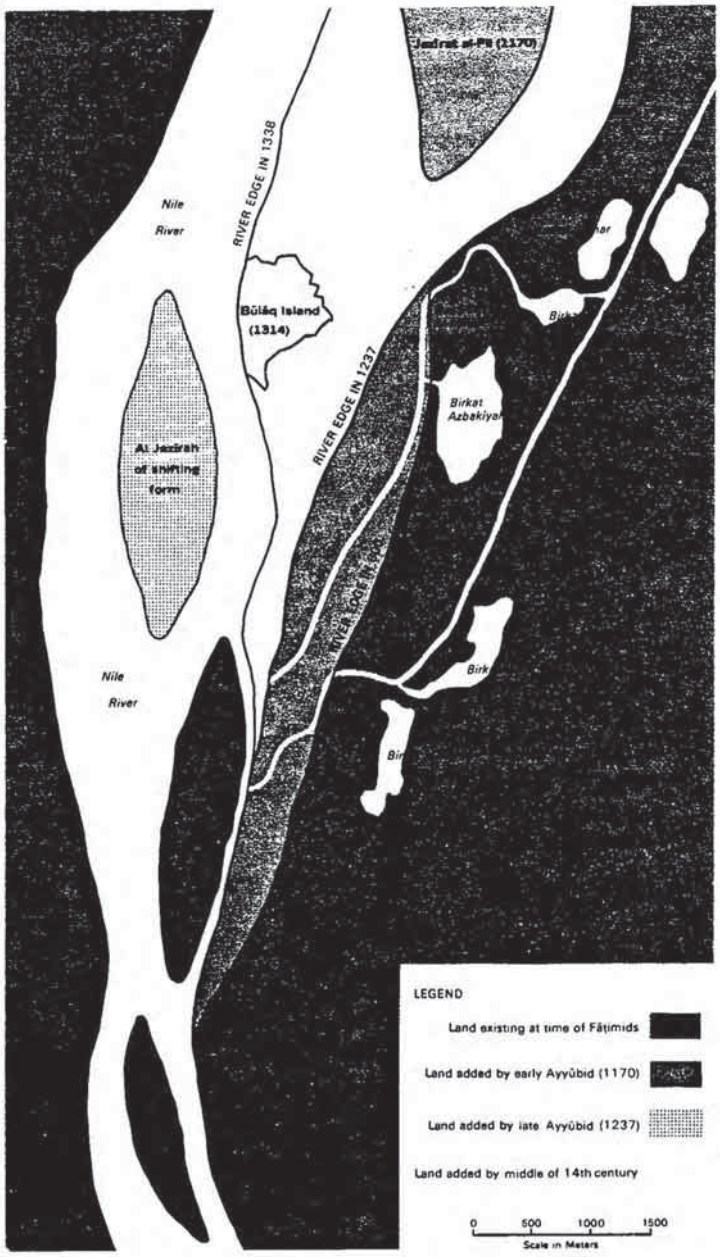

Fig. 3.4. Changes in the River's Course During the 12th, 13th, and Early 14th Centuries. (Source: J. Abu-Lughod, *Cairo, 1001 Years of the CityVictorious*, p. 29.)

rooted plants, occur in low depressions where the ground water may occur close to the surface. Riverine vegetation, however, occurs along the valleys of the Nile, consisting of aquatic grasses, dense vegetation and scattered trees. This pattern of land cover contributed to the city's spread toward the west, attracted by the abundant green spaces and water along the Khalij , the Nile and around Birkat Al-Azbakiya (see Fig. 3.3).

Natural Resources

Water, being an extremely important factor shaping the future of human settlements, has contributed to the localization of human habitations in Cairo. The city's generally low mean annual rainfall resulted in reliance mainly on the River Nile, the Khalij, and on water drawn from wells - which inevitably became catalysts of residential districts.

Climate

Cairo is located in the subtropical desert zone of the world. It bears the features of a hot dry and arid climate, characterized by its large seasonal and diurnal range in temperatures, clear cloudless sky, intense solar radiation, low mean annual precipitation and relatively cold nights, especially in the winter (see Table 3.1). Humidity is relatively low, often ranging from below 20% in the afternoon to over 40% at night. Winds are usually scarce in the daytime, yet dust storms known as "khamasin", a heat wave which originates in depressions over the desert, occur on hot summer afternoons when conventional winds blowing at 15 to 20 mph. stir up the dry surface of the ground. It generally blows for three successive days and is common from March to mid-June. The "Khamasin" is characterized by its hot, extremely dry winds and heavy dust storms, which almost completely obscures the sun.

Table 3.1. Annual Meteorological Design Criteria
(Source: S. M. Ettouney, p. 64)

Location	CAIRO, EGYPT
Longitude	31° 34'
Latitude	30° 08'
Altitude	74.5 m

Air temperature °C

	J	F	M	A	M	J	J	A	S	O	N	D	High	AMT
Monthly mean max	19.1	20.7	23.7	28.2	32.8	34.4	34.8	35.4	34.8	32.3	29.8	25.5	35.4	22
Monthly mean min	8.6	9.1	11.3	13.9	17.4	18.9	21.5	21.6	19.9	17.8	13.9	10.4	8.8	26.8
Monthly mean range	10.5	11.6	12.4	14.3	15	14.8	13.9	13.2	12.4	12	11.2	10.3	Low	AMR

Relative humidity %

Monthly mean max. 3 h												
Monthly mean min. p.m.												
Average	58	56	52	48	44	48	52	56	58	58	61	64
Humidity group	3	3	3	2	2	2	3	3	3	3	3	3

Humidity group	1	If average RH below 30%
	2	30–50%
	3	50–70%
	4	above 70%

Rain and wind

Rainfall, mm	3.7	4.2	2.3	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.1	3.5	8.8	23.6 Total

Wind, prevailing	SSW	NEE	WNW	NEE	NEE	NNE	NNW	NNW	NNE	NEE	NEE	NEE
Wind, secondary	S	E	NEE	NNE	NNE	N	N	N	N	NNE	NNE	SSW
	J	F	M	A	M	J	J	A	S	O	N	D

Such an arid climate has had an inverse impact on the urban form of the city of Cairo. Compact planning, narrow winding streets but directed toward the north/south, courtyard houses, and small openings equipped with wooden lattice, "mashrabiyyas", became the outstanding characteristic features of the city.

Regional Hazards

The periodic flooding of the Nile constituted the principal hazard to the human habitations of Cairo. The diversion of flood waters through a system of canals and ponds allowed for the emergence of much of the land on which Ottoman Cairo lies[12] (see Fig. 3.4).

Political Structure

Due to the enormous dimensions of the Ottoman Empire, covering almost all of the Arab world, extending from the frontiers of Morocco to those of Iran, a homogeneous political structure was established, performing as a commonwealth rather than a centralized political entity. The Arab domain of the empire consisted of twelve provinces, or wilayas, each ruled by a local government, headed by a governor (wali).[13] The role of the central government was limited to controlling the interrelations among the local governments, leaving the real authority to the local government.[14] This contributed to the creation and development of a huge market for individuals and products to travel freely. In addition, the large unified empire facilitated the pilgrimage (hagg) of the Muslims from various parts of the Arab world. It is estimated that 30,000 - 40,000 caravans of pilgrims travelled through the city of Cairo alone,[15] which brought about the exchange of goods and the increase in commercial activity; and as a result more commercial buildings were built.

Prevailing Economic Conditions

Due to its strategic location and the political structure of the Ottoman Empire, the city of Cairo became a large commercial center and the focus of economic activities. In addition, the port of Bulaq became more important during the Ottoman era due to the ongoing trade with Europe, and as a result, a shipyard emerged causing a number of related businesses to flourish, inciting and speeding up the urbanization of the western region of the city.[16]

Socio-Cultural Imperatives and Value Systems

As culture finds expression in social structure, customs, and religion, which in turn are reflected in the built environment, a knowledge of Islamic principles and value system is primary to understanding how the inhabitants of Muslim cities and those of Cairo have solved their urban problems, and how solutions in terms of spatial organization and layout were suited to their particular living aspirations.

The Islamic Legal System "Sharia"

Islam is considered the religion of Divine Unity (Tawhid). Islam is an extremely powerful social force which interacts with local, regional, geographic and ethnic imperatives and traditions to share the character and identity of a community, and thus has developed through the integration of different aspects of cultures into a coherent whole.[17] Social life in Muslim cities owe their rational and intricate richness to the predominance of the Islamic religion as it defined the relationship between the individual and the community. Universal principles found in both the Holy Quran and in the Traditions of the Prophet (Hadith), are intended to promote a code of social conduct and a notion of privacy, security and divine unity.

The Islamic legal system (Sharia) differs from the Western system of law since it implies a social order and a code of conduct encompassing all aspects of daily life. The Sharia regulates man's relationship not only with his neighbors and with the state, which is the limit of most legal systems, but also with his God and his own conscience.

> The Sharia is also concerned as much with ethical standards as with legal rules, indicating not only what man is entitled or bound to do in law, but also what he ought, in conscience, to do or refrain from doing. It is not merely a system of law, but a comprehensive code of behavior that embraces both the private and public activities.[18]

The Sharia was thus defined by Ibn Al-Kayam as "a system based on the welfare of the individual in the community both in his every day life and in anticipation of the life thereafter." [19]

The science of ascertaining the precise terms of the Sharia known as "fiqh" is based upon three fundamental principles constituting the foundation of Islamic jurisprudence (usul al-fiqh): [see also references 20 and 21]

- The Holy Quran, constituting the fundamental source of Islamic teaching.
- The Sunna, comprising the Traditions of the Prophet Muhammad - be peace upon Him - as recorded in compilation known as Hadith including his sayings, actions and approvals.
- Ijmaa, or consensus of the community as a source for the elaboration of law.

These however, are supplemented by Ijtihad or investigation, a counterpart of Ijmaa (consensus). Ijtihad implies "the use of human reason in the elaboration of the law." [22] Literally it means "to exert effort", to strive to discover the true application of the Quran and Sunna to a particular situation. Qiyas, or reasoning by analogy, is a particular form of Ijtihad which may be defined as the method by which the

principles established by the Quran and Sunna are to be applied to the solution of problems not expressly regulated therein.[23]

In addition, the Islamic legal system is "value centered; laws exist to realize certain value goals." [24] These constitute the ultimate objectives of Islamic Law (maqasid al-sharia), the goals of which are to provide for and maintain the welfare of the individual in the community by satisfying his basic needs - physiological, sociological and psychological according to their level of spiritual and intrinsic value - both in the life herein and the life thereafter.

Accordingly, any Islamic verdict is charged with the obligation and responsibility to attain and maintain five basic values, namely: the preservation of religion, soul, mind, siblings and wealth. These basic values are classified, in light of their spiritual and intrinsic worth, into three distinct levels of preference.[25]

1. **Absolute Necessities (al-Daruriyat):** Absolute necessities include those conditions, substances and elements vital for the provision of the basic minimum level of attainment and maintenance of the five basic values, without which both the individual and the community would cease to exist.

2. **Needs (al-Hagiyat):** Needs include those conditions and substances required to alleviate hardship in the process of attaining and maintaining the above five basic values. Among them are allowances for breaking fast, combining prayers and divorce.

3. **Improvements (al-Tahsiniyat):** Improvements include those conditions, substances and elements required for the provision of the highest level of attainment and maintenance of the five basic values.

These however, are supplemented by other "complementary requirements" (mukamilat al-masaleh) their purpose being to facilitate the provision and maintenance of the first. The hierarchical value of these needs determines their priorities. For example, an absolute necessity would have a higher priority over an improvement.

In view of the above, identifying the intricate yet ordered articulation of needs, a confined list of universal principles derived from the foundations of Islamic jurisprudence (usul al-fiqh) to satisfy the goals and objectives of Islamic law (maqasid al-Sharia) has been compiled by Muslim scholars (fuqafa). These rules are identified below.

Universal Principles of Islamic Law:

1. The alleviation of harm and injury
2. The welfare of the community takes precedence over that of the individual
3. The commitment of the lesser of the two evils
4. The repelling of evil takes precedence over the acquisition of benefits
5. Absolute necessities allow for the provision of the prohibited
6. The appreciation of absolute necessities takes precedence
7. Hardships render the need to facilitate
8. The alleviation of embarrassment
9. The prohibition of actions causing harm and hardship to one self.

Universal principles of Islamic law thus, constitute the underlying precept, guide and substance of all Islamic values; societal practices; and economic and administrative systems.

Islamic Value Systems

The substance of the Sharia law is broadly divided into those that an individual owes to Almighty God (Allah) and those that he owes to his fellow men.[26] The following Islamic values were seen to constitute the prime guide to behavior and conduct, governing the relation between the individual and the community. These

were extracted from the basic sources of Islamic jurisprudence and for the purpose of utility are classified under the major headings of "social and ethical practices" and "economic and administrative systems." Each value is cross referenced with the relevant Quranic verse (V) and/or saying of the Prophet (S) in Appendix A.

A. Social and Ethical Practices

The maintenance of moral values and the encouragement of goodness is fundamental in Islam. Certain cultural and Islamic values find their expression both in the behavior of the individual and the community. The discussion herein will be limited to identifying societal values of accepted behavior.

1. Harm v: 6,17,18,19; s: 34,35

Universal principles found in the Hadith and the Quran prohibit actions resulting in injury or harm to others in society. This is attributed to the principle of alleviating harm and injury.[27] The essence being "one should exercise full rights in what is rightfully his providing the decision/action will not generate harm to others. Likewise others should exercise their full rights in what is rightfully theirs providing their decision/action will not harm others." [28]

2. Community (Umma) s: 55,61,62

A fundamental concept in understanding Islamic tradition is the notion of community, "umma", which based on faith rather than kinship was responsible for creating and sustaining the traditional Muslim city.[29] The idea of community is expressed in almost all facets of life. The concept of collective practice in Islam is an attribute of the communal process. Many devotional rituals have a collective essence and value.[30] The idea of

community caters to both the right of the individual in society and the responsibility of the community toward the individual. Devotion and dedication to the well-being of community instead of the individual is fundamental in Islam, and a by-product of the gratitude to the Almighty God.

3. Social Solidarity (Takaful) s: 33,63,77,79

The concept of social solidarity, an essential element in Islamic code of conduct, helps provide the absolute necessities for the needy. Moreover, it urges people to participate in some municipal duties for the common good.[31] The individual is charged with the responsibility of community welfare and protection. A duty is imposed upon and owed by the individual toward the community,[32] to satisfy its needs and ensure the success and betterment of the whole community. The obligation thus imposed on the individual is to be considered both as a "collective obligation and as an individual obligation." [33] Takaful is therefore, responsible for the unique identity of residential quarters, community cohesion and the recognition of special rights of neighbors toward each other, particularly in policing one another's privacy and security.

4. Equity in Social Life s: 26,78

Equity is predominant in Islamic Law. L. Gardet has described the Muslim community as an "egalitarian theocracy" advocating full political and social equity of all members of the community and ruling with divine authority. Laws protect and provide individuals with the same legal and social capacity.[34] The Islamic community has from the start, acknowledged the existence of a hierarchy of spiritual qualifications in its members, based not

on any social or external criteria, but on the degree of a man's absorption, and adherence to his religion. This corresponds to the Islamic objective of closely-knit, integrated communities based on faith, rather than distinction of rank, race or class.

5. Individual Freedom

The freedom of speech, expression, belief and education are fundamental in Islam.[35] The Prophet proclaimed the freedom of each individual and encouraged his companions to seek knowledge (ilm) even if it were in the distant lands of China. "This freedom however is not a complete licence to rampage on earth where the strong destroy the weak. It is a freedom that is circumscribed by the bounds of law ....that does not allow the humiliation of any minority or any individual, male or female." [36]

6. Consultation (Shura) s: 80

It is the process of reaching decisions and agreement pertaining to all aspects of life, including the proper use of land and of behavior in space.[37] Yet, issues which are clearly resolved in Quran and Sunna are not subject to consultation. The concept has been proclaimed by the Prophet and has offered provision for different forms of open meetings (Shura) held in mosques or madrassas.

7. Modesty and Humility v: 7,10,11,17 ; s: 23,64,65,66

Islam preaches austerity, simplicity and humility.[38] In terms of building, Islam resents conspicuous consumption and advocates economical and cost effective solutions.

8. Privacy v : 13,14,15,16; s: 29,30,31,32,58,67,68

Islamic law enforces a life style based on separate, yet complementary, roles of men and women in society, and goes to great lengths to safeguard privacy and female modesty. According to Islam women are to be segregated from men to whom they are not closely related to by blood or matrimony. The acute concern for privacy led to the recognition of special rights and responsibilities of neighbors toward each other.

9. Pity (Rahma) v: 5,6,7

Islam being a religion of mercy and forgiveness - a fundamental quality attributed to Almighty God and the Prophet Muhammad - preaches pity and provision of comfort through brotherly love and affection. Pity, sympathy and compassion constitute a fundamental and wholistic notion catering not only to the betterment and well being of fellow men but also to that of all living creatures. Special attention however, is given to the needy, orphans, handicapped, sick and elderly.[39] The notion led to the introduction of the first form of welfare and social security in the economic and administrative systems of Islam.

10. Responsibility toward neighbors v: 7,14,15; s: 21,37,38,39,40,41,42,43,44, 45,46,47

The responsibility toward the neighbor is part of Islam's long manifestation of the primary concepts of community, social solidarity and privacy. "The special relation between proximate neighbors restricted each other's property usage in such a way that urban development would not infringe upon the privacy or property rights of each other." [40]

11. Maintenance of Health, Cleanliness, Beauty and Sanitation v: 10; s: 1,2,3, 8,9,69

Our souls belong not to us but to their creator Almighty God. Man has been entrusted with the care, development and well being of his soul. But man's health as a species is dependent on his physiological, sociological and psychological development. Maintaining our health is thus primary to our being as Muslims. Preventive measures ensuring sanitation, cleanliness and health have long been pronounced by the Prophet and proclaimed by Muslim jurists.[41]

12. Prohibition against acquiring dogs s: 81,82

The Prophet has prohibited acquiring dogs other than those used as guard-dogs, sheep-dogs or for hunting.

B. Economic and Administrative Systems

The Islamic attitude toward economic and administrative planning is reflected in urban policy and tax system particularly with respect to ownership of land and property, and welfare of society. The following represents a few Islamic values pertaining to the economic and administrative systems that are of a particular relevance to the context of this research.

1. Right of Ownership s: 14,16,17,33,35

The Prophet established the rule that one acquires land through ones own effort, and to the extent of one's own labour.[42] He encouraged land reclamation declaring that whoever revives dead land acquired title to it.[43] In addition, "Islamic law does not condone the degree of collectivization by the

state as found in socialist regimes, but it does include the right of expropriation for public needs after the payment of just compensation." [44]

Islam accepts both public and private ownership rights, but establishes a balance between them. If the two rights conflict, public rights and benefits get priority.[45] This is due to the predominant belief, under Islamic law, that all land belongs to Almighty God, through the state, while the individual has beneficial rights of title.[46]

> The exercise of property rights is, however, circumscribed by the greater needs of the community, and the individual is emphatically forbidden to use his property in ways, resulting in net harm to society or the creation as a whole, according to the Islamic principles of social solidarity and abuse of rights. The rights of ownership are thus limited by the similar rights of others and by the public interest, and ownership ceases if the welfare of the community demands or if the need of another individual reaches extreme necessity.[47]

However, the rights of title may not be abused to deny access to land owned by others or to virtually invade the privacy of other families.

> The exercise of right is permitted only for the achievement of the purpose for which the right was created that the exercise of a right is illegal when it results in excessive harm and that the exercise of right is illegal if used to bring injury to others rather than for benefit.[48]

The concept of "Trust" is thus, created where the beneficiary can exploit the fruits of the property provided he does not violate the conditions laid out by the holder of the legal title Almighty God. Right of ownership in Islam is thus a "Social Function." [49]

But not all property in Islam is private. The Prophet prohibited monopolization of water by declaring it public property and by forbidding its sale except in containers.[50] Property that is by nature intended for public use

such as places of worship, roads, rivers, wells, forests and public gardens is excluded from the scope of private ownership.

2. Right of Earlier Usage s: 17,18,19,20

The concept of right of earlier usage grants the original owner of property certain rights based on older established facts,[51] thus resolving disputes in cases concerning neighborly relations, placement of windows, division of tenancy in common property, and ownership of uncultivated land.[52]

3. Pre-emption (Shafaa) s: 46,47,48,49,50,51,75,76

Pre-emption is the "right of a neighbor or partner to purchase an adjacent property or structure where offered for sale by another neighbor or partner." [53]

The notion of pre-emption is derived from the principle of harm. The intent being to protect the neighbor or partner from the potential inconvenience of a stranger becoming a joint-owner of an "indivisible property." The Prophet pronounced implementing pre-emption primarily on indivisible items, these included party walls, open spaces, rooms and shops.

4. Respect for the property of others[54] v: 17; s: 10,11,16

This concept of respecting the property of others is proclaimed in the Quran. Islamic ethics prohibit actions leading to the devaluation of the property of others.

5. Announcement of defects on selling property v: 6,8 s: 52,53,54,55

According to Islamic law defects should be announced and not hidden when a property is being sold.[55] The principle has been proclaimed by the Prophet and affirmed in the Quran.

6. Prohibition against barring excess water from others s: 12,13,14,15,70,71, 72

As an extension to the laws governing the right of ownership of public property and water, the Prophet prohibited banning excess water from others for the purpose of drinking or irrigation.[56]

7. Interdependence v: 1,2,4,5; s: 7,8,12,13,14,15,33,39,40,42,44,45

A concept based on mutual dependency between neighbors and among members of the community. The concept is responsible for governing the development of building guidelines concerning the construction of air-right structures (sabats) over streets.[57]

8. Social Security

The concept of social security was established during the life of the Prophet,[58] to ensure prosperity among the Muslim societies. The concept is an extension to both the notion of community and that of social solidarity. Social security strives to alleviate and remove various forms of burden to which members of the community are confronted with. This is illustrated in Caliph Ali's letter to his viceroy in Egypt.

> Fear God, as regards the (protection of the) lowest class in society who are helpless, poor, needy, miserable, and bedridden, for among them are the meek and the penniless. You are responsible to God, because He entrusted them to your care. Give them part of the treasury and a portion of

> the summer tribute in every country, for the distant should receive as much as the close. You should give each his due, and, even if they are beneath your dignity*, this should not be your excuse. You will not be absolved if you ignore minor matters, just to concentrate on the substantial. Therefore, you should not turn your attention from them and act haughty towards them. Look into the affairs of those who are so despised that they cannot reach through to you. Appoint God-fearing and humble persons to take up their affairs to you. Give good attention to the helpless orphans and those of tender age, who would never allow themselves to beg. This is a heavy burden on a viceroy; verily it is a heavy burden.[59]
>
> * This translation may not be quite accurate.

The charitable institutions (Waqf) that prevailed in the Muslim city are a direct manifestation of the concept of social security on the urban process.

9. Obligatory and Voluntary Alms-Giving (Zakat and Sadaka) v: 4; s: 20,73,74

Zakat is an essential working part of communal life. As the only "tax" demanded of Muslims by Islamic law, its amount is fixed according to the nature of goods. It is administered by the Public Treasury (Bayt al-Mal) and is distributed to the unable and needy Muslims, to ensure the redistribution of resources and well-being of the community.[60] Zakat is, however, different in several aspects from taxes including its avenues for distribution.

Over and beyond Zakat is Sadaka, a voluntary donation which is intended to help satisfy the needs of the poor and assist numerous religious and public institutions. It is a supplementary source of financing social security and thus contributed to the welfare of the community.[61]

Yet , it is hypothesized that these basic cultural, economic and administrative systems found their expression - as a symbol of the Islamic culture, in both the behavior of the individual within the community and in the forms and structures

which sheltered them. The following section will therefore attempt to identify the impact of these values on the development of a meaningful built form in the traditional Muslim city of Ottoman Cairo.

III. IMPLICATIONS OF ISLAMIC JURISPRUDENCE OVER THE BUILT ENVIRONMENT

Though I am not describing the Ottoman city of Cairo in its unique quality, and have left aside the special qualitative features which make cities appealing, (since these are investigated in-depth in Chapter IV), I shall focus on aspects of urban form which seem essential to the purpose of this discussion.

Urban and Architectural Forms

The cosmology of the Muslim city of Ottoman Cairo has traditionally followed certain dominant and unanimous ideas responsive to the social norms and Islamic value systems. These values found their expression in the forms and structures of the city and became the precepts of architecture, built form, and the unique architectural expression we know today.

The urban structure of the city reflected the economic, political, social and spiritual value systems. The mosque being the temple of God on earth, determined the general structure of the city. The Friday (Jumma) mosque located at the intersection of the major thoroughfares leading to the city gates, commanded an important and dominant place in the city, and played a decisive role in structuring the urban center. Its function in this regard is not unlike that of the Gothic Cathedral in the medieval European city. The integration of the mosque as an architectural element with the rest of the city and the streets surrounding it determined its shape and form. The mosque, in accord to the Islamic notion of modesty and humility, had no eloquent

facades, but utilized other identifying signs: the minaret and the dome. The minaret, from which the call for prayers was announced, was the tallest structure in the city, dominated the skyline, was a focal point of reference and a visual landmark. The minaret stressed the importance of the daily call to prayer as the overriding law for the believer. "It was the need for height from which to broadcast the call that led to the development of the minaret." [62]

In addition, the mosque being hub of the city influenced the location of various commercial activities. The market (suq) developed spontaneously following strict specialization, in the central part of the city, the open square (maydan), and around the mosque creating visual varieties within a single unified design. A hierarchical framework of location based on the perceived standing of a trade or product, in terms of its purity and its affiliation with the mosque , governed its acceptable proximity to the mosque. Consequently, the city's activities developed by radiating out from the zone of the Jumma mosque and suq. This movement from the center toward the city's perimeter created a hierarchical order ranging from pure to impure, as spaces and professions that were considered impure, such as burial sites and metal works were located in outlying sections, avoiding visual pollution. Such an arrangement fostered a healthy, clean, peaceful and quiet environment underscoring the sanctity of the mosque, reflecting Islamic concerns for the maintenance of health and conforming to the principle stating that "the repelling of evil takes precedence over the acquisition of benefit."

Attached to the mosque was the learning center (madrassa). Government buildings, palaces and other institutions were located at or near the city center and along the major thoroughfares. The Ottoman city thus evolved gradually, unified by fortified walls, with the Jumma mosque, and government institutions forming the

religious, political and administrative center - the mosque and the palace being the most prominent structures. As a result, the maydan served as the religious and civic center of the city. Apart from its busy commercial activities, the maydan was the scene for processions, religious festivals and other public events.

Further, and due to the predominant Islamic value systems and the pronounced concern for privacy and proper communal behavior, the city of Cairo experienced an apparent differentiation between the large scale economic activity and residential districts through the division of space into public, semi-public, semi-private and private, ranging from the main routes in the city to the patio in the house (see Figs. 3.5, 3.6). A fundamental characteristic of the traditional Muslim city of Ottoman Cairo is therefore, its closed residential quarters and the differentiated business center. These features emphasize the ever present overriding concern for privacy and the strict distinction of personal life from public activities.

This marked yet spontaneous division of the city into small, identifiable neighborhoods/quarters constituting groups of streets and buildings, provided an intimate human scale and created social neighborhoods responsible for community cohesion, and the recognition of special rights and responsibilities of neighbors toward each other, particularly in self-policing each other's privacy and security. "The development of the quarter as a social, political and physical phenomenon was consummated under the Muslim domination." [63]

Quarters included communities of both rich and poor without any radical separation of economic classes, testifying to the prevalence of social equity. There existed, however, an economic and ethnic basis for the homogeneity of particular quarters, as some were named after a market, craft or common occupation. Many of the quarters maintained a solidarity based on closely-knit and homogeneous

Fig. 3.5. Closed Quarters in the Gamaliyyah
(Source : A. Raymond, p.16)

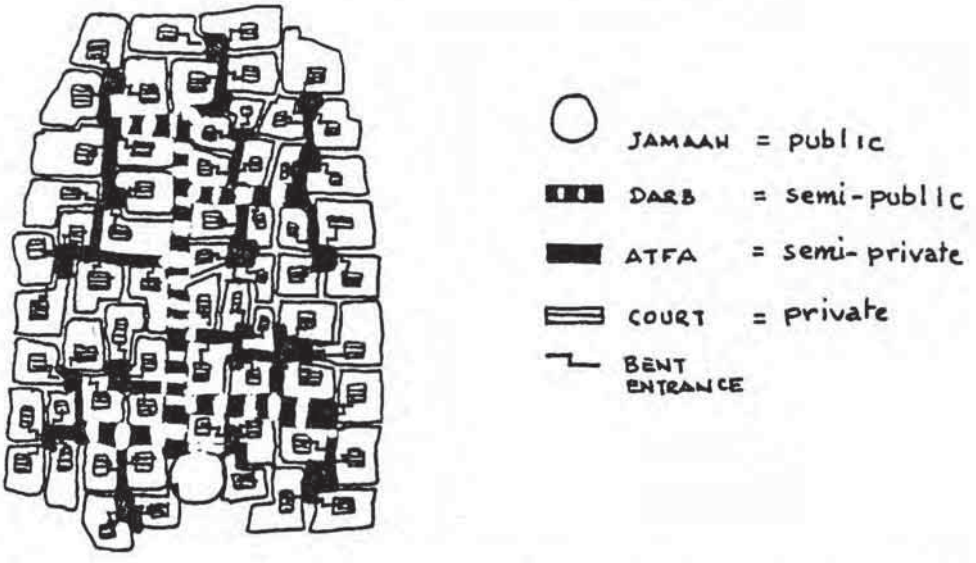

Fig. 3.6. Hierarchical Organization of Spaces in the Urban Form
(Adapted From : J. Abu-Lughod, p.8)

communities retaining a unique character. The solidarity of some neighborhoods was based on commonality of economic or political interests, on religious identity or ethnicity; and was reinforced by the responsibilities of neighbors toward each other, and the administrative responsibilities which developed upon it.[64]

> The prevalence of cases revolving around building heights and their threatened invasion of the visual privacy of a neighbor's court, or the number of cases of litigation over the obstruction of access to an individual dwelling by occupation of a common easement testify to the manner in which neighbors exercised control over the development of their immediate vicinity. [65]

Social solidarity was extended to include communal defense. In times of war, quarters "barricaded themselves behind great doors, closed off the thoroughfares to the rest of the city, and hid themselves from attack." [66] Nevertheless, the quarters were never isolated cells , but "adjacent streets and districts within the cities."

Moreover, the development of a rich vocabulary of architectural patterns such as bent entrances, corridors, courtyards and split levels has enabled the traditional Islamic architecture to follow religious precepts. These architectural characteristics had a symbolic meaning and role in the relationship between society and the environment. The acute concern for privacy accounted for the placement of external doors, the architectural treatment of windows, the bent entrances, the limit on building heights throughout the city, and the introvert arrangement of houses overlooking a central courtyard.

The symbolic significance of the external doors of houses was emphasized by restricting their location. The location and height of windows overlooking neighboring property were restricted so as not to visually infringe upon their privacy and thus inflict harm upon them. Similarly, building heights were controlled, but no general restrictions prevailed. Furthermore, and as a manifestation of the Islamic

notion of modesty and humility, a deep contrast existed between the unassuming exteriors of structures and their richly decorated interiors. This coupled with Islam's puritan prohibition of figurization and representation of living creatures, led to a complex decorative vocabulary utilizing calligraphy, geometrical patterns, and floral motifs.

In addition, gardens, viewed as the domestic extensions of God's paradise on earth, prevailed within palaces and dwellings, whereas rows of trees were planted to circumscribe mosques and the city.

Moreover and despite the fact that fresh water was supplied by aqueducts to city centers, public drinking fountains (sabils) were built in various parts of the city, furnishing readily accessible potable water for the public in accord with the principle of pity, and the prohibition against the monopolization of water resources. Water wells were incorporated in the courtyards of palaces, public institutions and individual houses. But, due to the Islamic principle requiring excess water to be accessible to others, various methods of conserving water were utilized. Public baths (hammams) thus became a prominent urban component of the city, allowing for the performance of the cleansing ritual of ablution and offering a social center for relaxation and hygiene. Baths for both men and women were segregated due to the predominant concern for privacy.

In addition, and in accord with the underlying principle of harm and the prime need for sanitation, a system of water drainage and disposal incorporating covered canals running to cesspools existed. Hospitals (martisans) were built - based on the principal of social equality - to serve both the poor and the rich, and to reduce the potential of epidemics.

Finally, and as an attribute to maintaining health and comfort, streets were planned narrow and winding, their serpentine and twisting pattern reduced the area of exposed surface of roads to direct solar radiation, while retaining the cool night air. Furthermore, the employment of courtyards along with architectural refinements such as projected windows equipped with wooden lattice (mashrabiyya), wind scoops, fountains and running water constituted an effective attempt at adapting to climatic extremes by creating pleasing conditions conductive to the maintenance of health and comfort.

Hence, it is evident that the apparent differentiation of the city of Cairo into public and private domains; into numerous closed residential quarters; along with the radial movement from the center towards the limits; the narrow and winding streets; the introvert and self-effacing nature of residential buildings, reflected the fundamental religious concepts of society, responding to concepts of harm, community, social solidarity, equity, modesty, humility, pity, privacy, responsibility toward neighbors, health, water rights, right of ownership, and property management.

Moreover, and due to the specific nature of the urban process, (see Fig. 3.7), neighborhood and building guidelines derived from the basic sources of Islamic jurisprudence; and supported by the opinions expressed by muftis (fatawi) toward the solution of newly arising urban conflicts; were formulated to accommodate the changing role of life and conditions in society (see Appendix B).

To summarize, the impact of Islamic value systems on the Muslim city of Ottoman Cairo could be characterized by the following key elements:

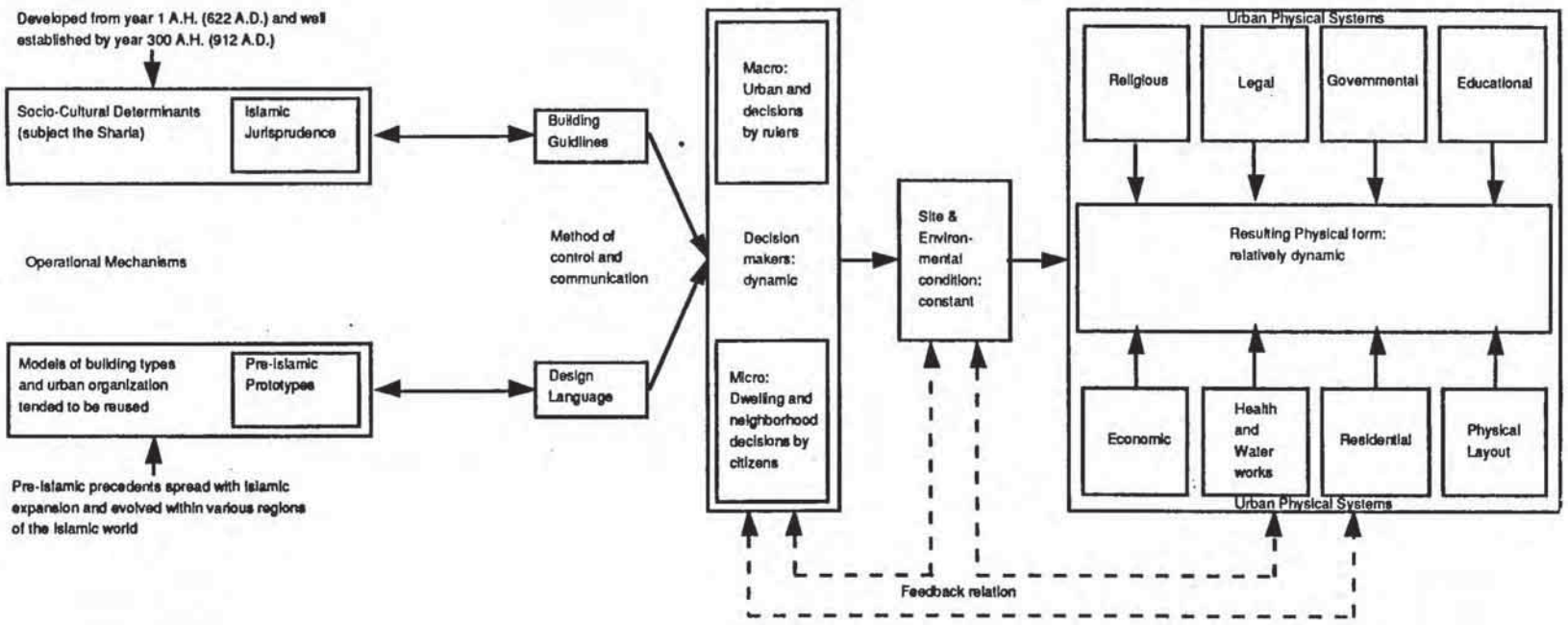

Fig. 3.7. A Conceptual Model of Selected Environmental and Socio-Cultural Determinants in the Architecture of Ottoman Cairo
(Adapted From: B. Hakim, p. 19)

1. **The city center, focussing on the Jumma mosque and the suq** - a religious concept pertaining to the sanctity of the mosque and the transcendent manifestations attached to it.

2. **The division of the city into public and private domains** - a socio-cultural feature as well as a religious concept reflecting the ever present concern for privacy.

3. **The radio-concentric nature of activities** - a religious concept subscribing to the sanctity of the mosque and the maintenance of health, cleanliness and sanitation.

4. **The closed residential quarters (haras)** - a religious concept emphasizing the acute concern for privacy, for proper communal behavior, responsibility toward neighbors, mutual interdependency and social solidarity.

5. **The prevalence of community organizations: professional, religious and geographic** - a religious concept based on the notion of community, social solidarity and equity in social life.

6. **The introvert organization of dwellings** - a religious concept pertaining to privacy, humility and comfort.

7. **The self-effacing nature of private buildings** - a religious concept pertaining to privacy, humility and modesty.

8. **The absence of figurative decorations** - a religious notion pertaining to the prohibition against the representation of living beings.

9. **The prevalence of public sabils** - a religious concept pertaining to the principle of pity and the prohibition against the monopolization of water.

10. **The development of a rich vocabulary of architectural patterns** - to enable the architecture to follow and implement religious precepts.

11. The development of neighborhood and building guidelines - to accommodate newly arising urban problems.

12. The Waqf - a religious idea based on endowment for religious or charitable purposes.

It is evident then, that Religion being the accepted rule of life, ultimately determined the allocation, orientation and design of spaces and fenestrations. The urban form of the Ottoman city of Cairo largely influenced by prevailing Islamic ideology, followed unanimous ideas responsive to the norms of the society, reflecting both its aspirations and social organization. The art, architecture and urban pattern of the city emerged, as an expression of religious symbolism, a manifestation of Islam and a reflection of the spiritual and civic life of the city. Hence, it is discernible and safe to conclude that the discussion herein substantiates the first hypotheses, which relates physical form to religious concepts, and demonstrates the validity of reliance on Islamic tradition as an appropriate basis for analysis.

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5. Abu-Lughod, "Cairo: Perspective and Prospectus," op. cit., p.97
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9. See *Mimar* 14 (1984). Supplement No. 89, November 1984.
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11. Raymond, op. cit., p. 32.
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49. Yamani, op. cit., p. 65.
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59. Ibid.
60. Jean-Louis Michon, "Religious Institutions," in *The Islamic City*, ed. R. B. Serjeant (Unesco, Paris, 1980), p.28.
61. al-Ghazali, op. cit.
62. James Dickie, "Allah and Eternity: Mosques, Madrasas and Tombs," in *Architecture of the Islamic World*, ed. George Michell (Thames and Hudson Ltd, London, 1978), p. 34.
63. Adel A. Ismail, "Origin, ideology, and physical patterns of Arab Urbanization," in *Ekistics* (195) (February 1972): .116.
64. Ibid.
65. Abu-Lughod, "Contemporary Relevance of Islamic Urban Principles," op. cit., p. 9.
66. Ibid.

CHAPTER IV

HISTORICAL PRECEDENTS OF URBAN SPACE

A person's strong emotional attachment to a particular physical location is ascribed to a positive, satisfactory experience. Yet, in the past few decades, a strong criticism and dissatisfaction has been expressed by clients, building users, social scientists, urbanists, architects and others toward many recently built environments. The failure of these environments is often attributed to their inability to satisfy the user's fundamental physiological, sociological and psychological needs, values, and expectations. Images associated with so-called progressive developments exhibit strong anti-social tendencies and have created false ideas of forms alien to the social and cultural needs of societies. Left-over no-man's land between high-rise buildings leave us bewildered as to their significance and function. Our excessive involvement in the complex problems and variations that we encounter on a day-to-day basis and our increasing inability in getting together with ourselves, in associating with others and with the rest of life, is a consequence of disappearing "good life." We have become what Chermayeff and Alexander described as the "look and listen" culture.

But man's health and psychological development as a species depend on his organic, physiological, neurological and emotional response to the environment.[1] It is, therefore, in man's best interest to develop an entirely new anatomy of urbanism providing for rich and livable environments. Yet, many of us today find pleasure in ancient and traditional cities.

> An urban environment of this kind is deeply felt; the inhabitants subconsciously respond to specific visual experiences with a sense of belonging, identification, and affection. Civic beauty, as a whole, is consciously shared and does much to induce feelings of loyalty, pride and patriotism.[2]

Such cities evolved through a process that often lasted centuries, permitting continual growth and adjustment, and producing physical environments refined and adjusted through trial and error. The city was not a goal in itself, but a product. Yet, by virtue of their evolution, these cities offered urban spaces and streets of exquisite qualities, which rarely are present in the modern city. It is, therefore, necessary to understand the full range of opportunities and experiences that ancient traditional cities can offer the individual. This probing discourse is essential if meaningful design criteria are to be formulated to accomplish contemporary works rising to the aesthetic, emotional and environmental heights of their predecessors and promoting environments of explicit character that evoke universal emotional experiences. Consequently, the following section will examine the environmental qualities of the city of Cairo during the Ottoman era.

I. AN ANALYSIS OF THE URBAN FORM

Kevin Lynch has identified five basic performance dimensions by which to analyze urban entities within the context of his recent theory of "good city form." These are based on the conception that a normative theory should be: purposeful; directly dealing with settlement form; linking very general values of long range importance to the form of the settlement; capable of dealing with plural and conflicting interests; appropriate to diverse cultures; simple; flexible and divisible; capable of evaluating the quality of state and process as it varies over time and of suggesting new possibilities of form.[3] The basic performance dimensions include: vitality, sense, access, fit, and control. These are supplemented by two meta-criteria: efficiency and justice, which are repetitive sub-categories involved in the discussion of each of the basic five performance criteria.

The performance dimensions are derived from the general objectives of comfort, identity, relatedness, meaning, and diversity. Accordingly, the evaluation will be based on clearly defined criteria that can be shown to have widespread effects, and are likely to be acceptable to a substantial number of people.[4] The criteria sought as a basis for evaluation are:[5]

1. Comfort

Though human comfort cannot be measured in terms of psychological factors but is partially the result of thermal behavior between the human body and the surrounding environment, places designed for human habitation should adapt to certain environmental factors affecting the well-being of their users. Solar radiation, temperature, humidity, wind, and precipitation are climatic fragments effecting the physical environment and human comfort. Nevertheless, climatic elements are not the only cause of human discomfort. Glare, dust, flies, noise and pollution are other aspects of the physical environment causing nuisance to human beings. The built environment should, thus, be conducive to maintaining health and comfort; it should create conditions falling within an acceptable comfort range. The environment should not be too cold, too hot, too noisy, too silent, too bright, too dark, too empty, too dense, too dirty, too clean, too ordered or too ambiguous. The comfort range will vary for different people reflecting both physiological characteristics and learned behavior. The assumption is that for any given cultural group there will be large areas of agreement as to what features are acceptable, most desirable or intolerable and unpleasant.

2. Identity

Identity is the quality of a place that provides its unique character. Identity is important, cities should be differentiated from one another, recognizable, memorable, and vivid. A city should not look or feel like many others. This quality of identity or so called "sense of place" is the cornerstone of livable environments. Without it, a person cannot make sense of the world. But with it, the person can begin to establish relationships; he has the visible, sensual basis and memory for a sense of belonging and can appreciate the uniqueness of the place.

3. Structure

Structure relates to orientation in space and time. The identifiable parts of a city should be so arranged that a normal person can relate them to each other, and understand their overall pattern in space. The linkage of one place to another must be recognizable as one goes about one's daily routine; it must also be legible in memory. This, however, is not always a universally applicable rule as there will be times when it is desirable that parts of the environment be hidden, anonymous, mysterious, even ambiguous.

The structure of a city has to be rather simple and uncomplicated. Legible structures have a great obvious value in orientation or way finding, and contribute to such fundamental values as emotional security. Legible cities provide people with the aesthetic pleasure of sensing the relatedness of its parts. However, Lynch concedes that it is impossible to identify with precision the essence of minimal structure.

4. Symbolic Significance and Meaning

Significance is the symbolic meaning or social value of a place; it is implicit. The visual environment should be meaningful, that is, its visible character should relate to other aspects of life, the function and activities of places, their history, their future, the structure of society, human values, and aspirations.

5. Diversity and Contrast

A reasonable variety of sensations and environments are essential. Environmental types such as calm or stimulating, peopled or empty, enclosed or open, controlled or free, peaceful or disturbing, should all be accessible. This diversity is essential in providing the users a choice of surroundings, and in offering a very widely felt need for variety and change. But what may constitute reasonable variety is difficult to define; yet certain contrasting types of visual and sensual environments are required.

With these observations in mind, the environmental qualities of urban form of the Ottoman city of Cairo will be investigated and evaluated in terms of vitality, sense, access, fit, control, and efficiency and justice in an effort to uncover the problems that may have existed and the potentialities of the city.

Vitality

An environment is considered good if it supports the health and the biological well-functioning of the individual and thereby assures survival of the species.[6] Hence, given the prevalence of an arid desert environment, it seems only obvious to start the analysis of city form in terms of vitality. Lynch has identified three major features of

the environment conducive to health, good biological function, and survival. These will be discussed here.

Sustenance

Sustenance concerns the adequate supply of water, air, food, energy and other essentials and the proper disposal of wastes.[7] Water, being an extremely important factor and a prerequisite of human survival, determined the size and location of residential and business districts in the city of Cairo, which thus evolved close to the supply of water (see Fig. 4.1). The city, due to its arid climate and generally low total annual precipitation (23.8 mm), relied mainly on the River Nile, the canal (Khalij), ponds, and on water drawn from wells as the prime source of water supply. But the rapid growth in population and urban form led the local government to construct a system of water supply, drainage and disposal, thus subscribing to the Islamic principles pertaining to pity, cleanliness and sanitation. Fresh water was supplied from across the southern district by an aqueduct which carried it from the intake tower to the city center (see Fig. 4.2). Public drinking fountains (sabils) composed of a small room with a grille on the street to which cups were attached,[8] were built in various parts of the city, furnishing readily accessible potable water for the public (see figs. 4.3, 4.4). Water wells, from which water was raised, were incorporated within the courtyards of palaces and houses (see Fig. 4.5). Further, and due to Islamic religious systems requiring excess water to be accessible to others, various methods for conserving water were utilized. Public baths (hammams) thus became a prominent urban component of the city, providing an alternate source to the use of the prevailing private baths which all houses contained, allowing for the performance of the cleansing ritual of ablution and offering a social center for relaxation and hygiene.

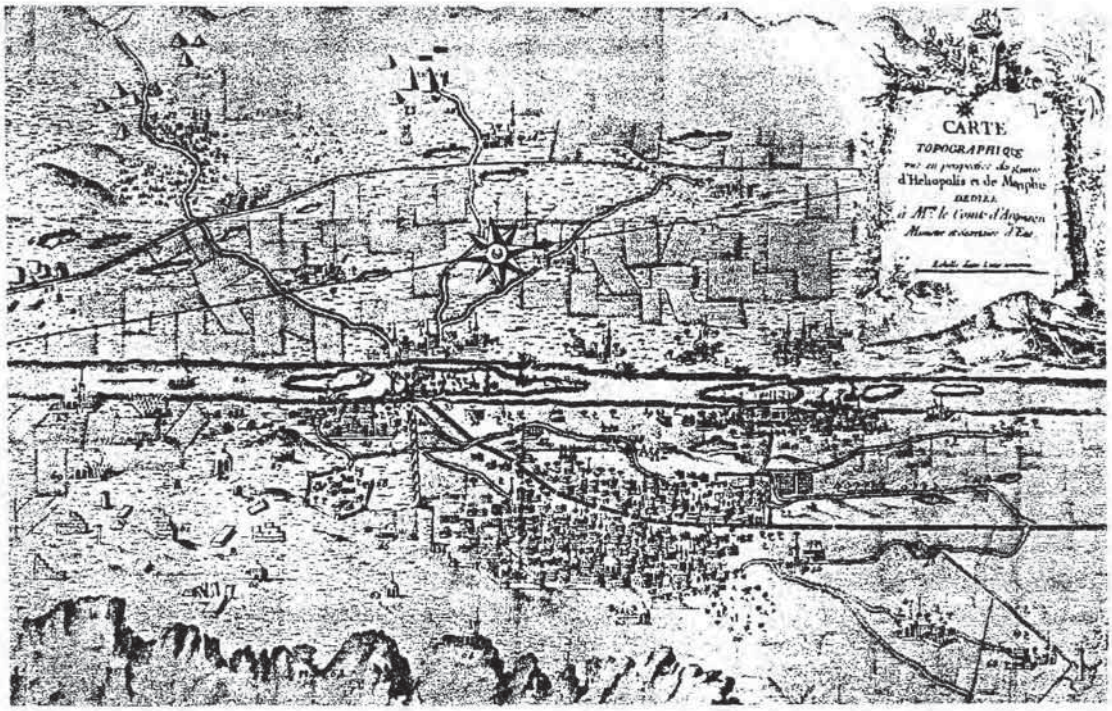


Fig. 4.1. Plain View of Cairo and Environs in the Middle of the 18th Century (Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, p. 42)

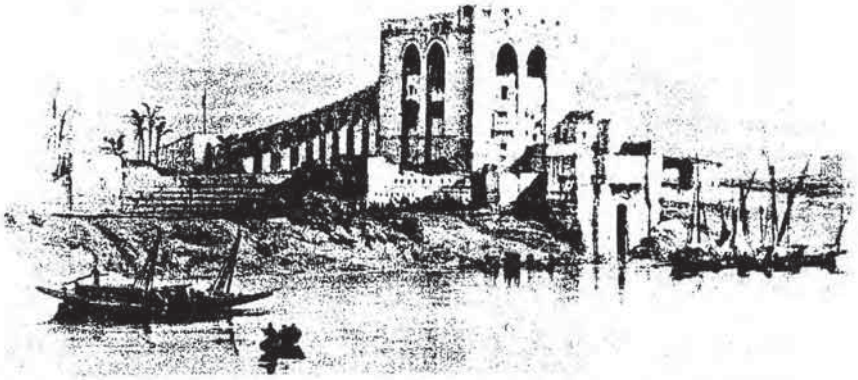


Fig. 4.2. Al-Ghuri Aqueduct Near Fum Al-Khalij
(Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, p. 63)

Fig. 4.3. Sabil of Sultan Mahmoud
(Source: A. Raymond, p. 130)

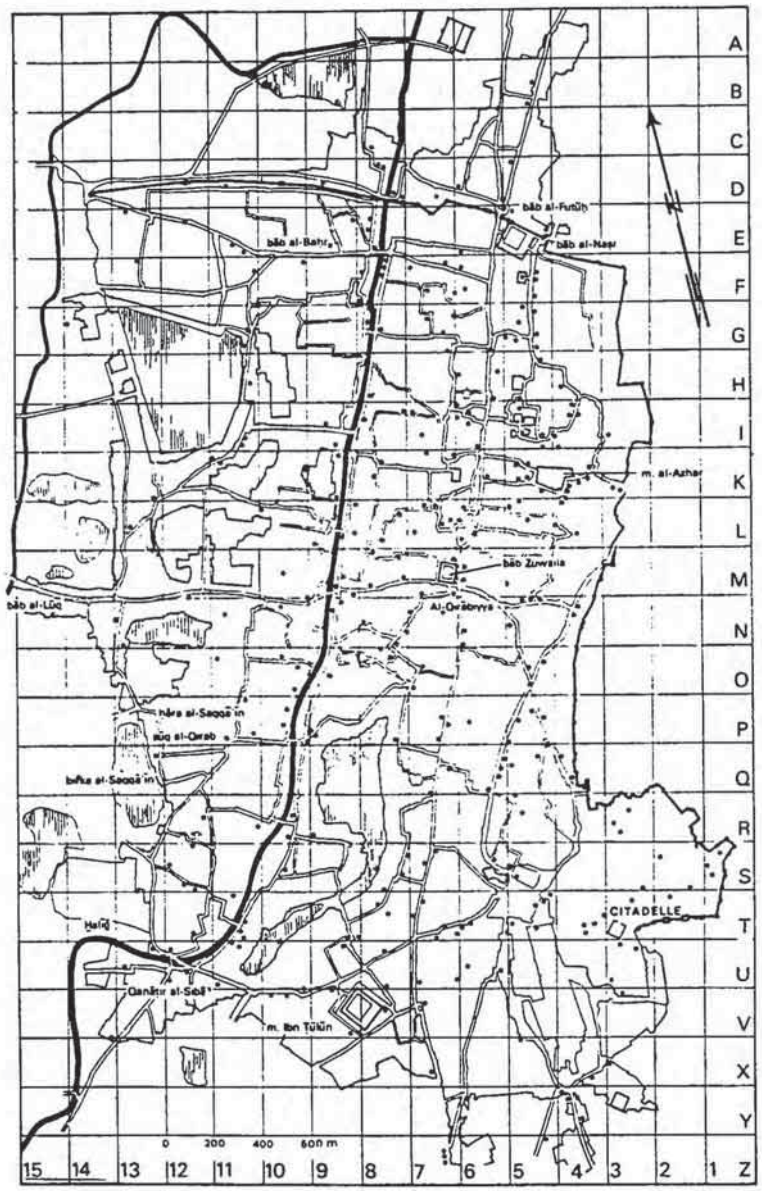


Fig. 4.4. Location of Sabils in Cairo
(Source: B. Maury & A. Raymond, p. 54)

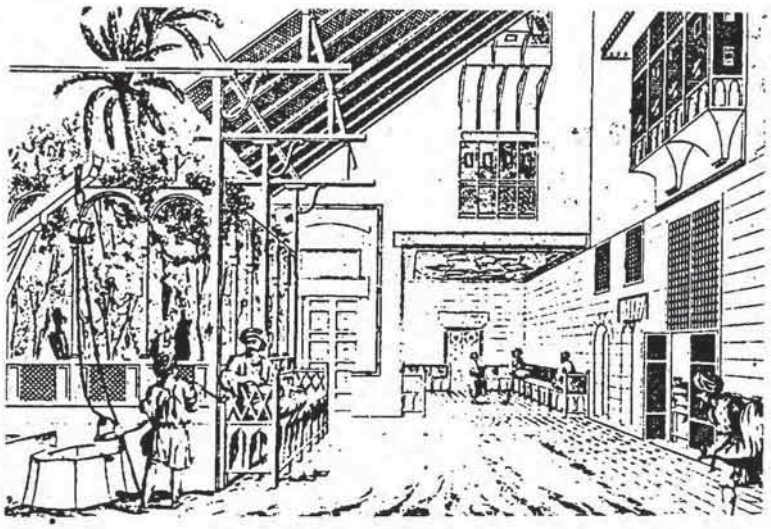


Fig. 4.5. A Water Well in the Courtyard of a Country House
(Source: B. Maury & A. Raymond, p. 110)

In addition, and in accord with the underlying principle of harm and the prime need for sanitation, a system of water drainage and disposal incorporating covered canals running to cesspools prevailed. The canals were watered from within and the cesspools covered daily with sand.[9] Streets fronting shops were also well-watered daily by the owners of those shops, thus cooling the hot and dry air and reducing wind borne dust. Further, and to assure the sustenance of the city to its inhabitants and in accord with the Islamic principles of pity and the prohibition of barring excess water, the muhtasib's role as a supervisor warranted the availability of water in those parts of the city where shortage of water was experienced, checked and secured the operation of sabils and tested the potable water for its hygienity. The muhtasib inspected all hammams, drainage systems, and insured the execution of the ordinance of burial within 24 hours of death, avoiding the spread of disease and safeguarding the health of the city's inhabitants.[10] Hospitals (martisans) which included wards and a medical school, were also built to serve both the poor and the rich, hence reducing the potential for the spread of disease and testifying to the prevalence of equity in social life.

Moreover, food being an essential element of survival, was scrutinized and inspected by the muhtasib to ensure and maintain adequate availability in quantity, quality, price, and hygiene.

Safety

Safety represents a physically secure environment. In that respect, the Ottoman city of Cairo ranks high on the safety element of the vitality of performance dimension. The problem of severe overflooding of the River Nile was overcome by the diversion of flood waters through a system of canals and ponds (see Fig. 3.4). Yet, due to the rapid expansion and growth of the city, vast unprotected suburbs developed

outside the old town walls of Ayyubid Cairo to the south and to the west of the Fatimid town, while leaving the old town walls unpreserved and unrestored.

Further, due to the predominant Islamic value systems, and the pronounced concern for privacy and proper communal behavior within the residential quarters (haras), the city of Cairo experienced an apparent differentiation between large scale economic activity and residential districts through the division of space into public, semi-public, semi-private, and private (see Figs. 3.5, 3.6). Compartments of secluded private space, haras; composed of cellular structures, clusters; were contained within a larger unit, the city; while the whole was held together by a sophisticated system of passages.[11] With this system it was possible to create various grades of seclusion safeguarding the privacy within an otherwise continuous urban structure (see Figs. 4.6, 4.7).

These quarters were connected with the principal network of city streets by a semi-public main artery (darb) which often gave its name to the quarter itself (hence the very numerous names beginning with "Darb-al"); and was served by a hierarchical organization of minor semi-private streets (atfas) usually ending in cul-de-sacs. These quarters formed units that were often completely closed (see Fig. 3.6).[12]

Each hara had its own gate (bab), guarded by a bawab, or door keeper; and non-residents needed permission to enter. A sheik acted as an administrator of the hara. Considering the limited size of the hara - generally a maximum of 4 or 5 hectares, or less, with a population of 1,000 to 2,000 inhabitants, or 200 to 400 families[13] - the sheik exercised control over the entire development.

This spontaneous division of the city into small, identifiable entities constituting groups of streets and buildings provided an intimate human scale and created social neighborhoods responsive to concerns for privacy, community

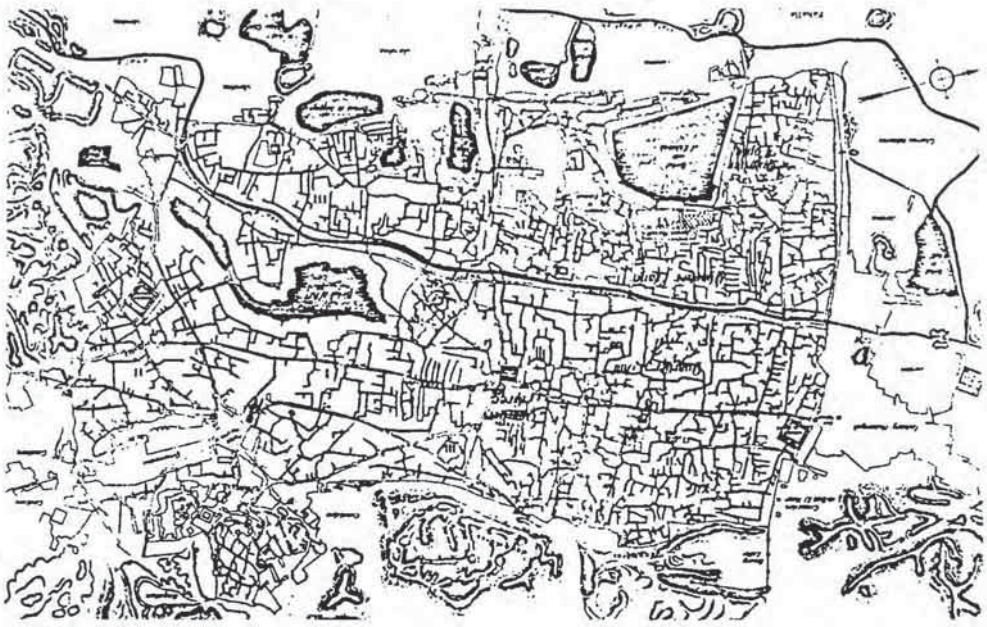


Fig. 4.6. The Built Up Area of Cairo Showing the Hierarchical Order of Streets
(Source: M. Banning, p. 62)

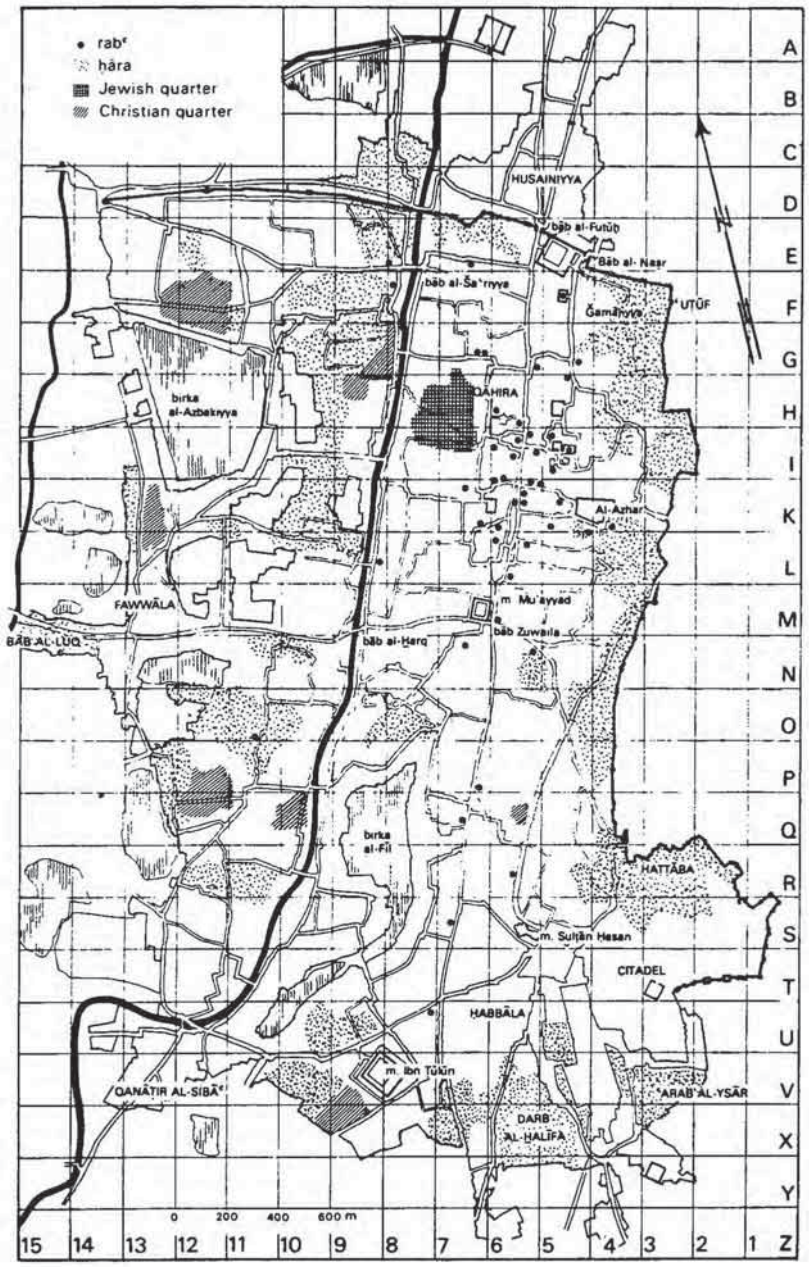


Fig. 4.7. Location of Haras in Cairo
(Source: A. Raymond, p. 65)

cohesion, and the recognition of special rights and responsibilities of neighbors toward each other - which, in times of war, extended to include communal defense. This arrangement became particularly significant in policing one another's privacy and security .

Within this context, and due to prevalent charitable institutions (waqfs); the concept of social solidarity (takaful) was effectively implemented providing the "absolute necessities" for the needy. The Islamic tax system (zakat), administered by the Public Treasury, provided the resources to be distributed to the unable and needy, ensuring reallocation of resources and well being of the community. Voluntary charitable contributions (sadaka), augmented the public funds for the same purpose and served to help the needs of the poor. Consequently, civil order was maintained and crime, if existed, probably occurred infrequently, a fact that may be directly attributed to the effective tight internal social controls prevailing in the hara.

Consonance

Consonance is the third element of vitality and relates to the avoidance of extremes which cause stress and make biological and psychological adaptation harder. Therefore, it is considered to be conducive to the maintenance of comfort.[14]

On one hand, and as an attribute to maintaining health and comfort, the compact planning of the city of Cairo allowed for the provision of a livable environment. Streets were planned narrow and winding but well directed toward the north/south, thus acting as a temperature regulator. Their pattern reduced the area of exposed roadway surface to direct solar radiation (see Fig. 4.8, 4.9), while retaining the cool night air. In addition, their serpentine twisting layout acted as a filter to the wind borne dust.

Fig. 4.8. Street Pattern
(Source: M. Nour, p. 27)

Fig. 4.9. Areas of Exposed Surface of a Traditional Street in Cairo. (Source: M. Nour, p. 30)

On the other hand, the employment of courtyards along with refinements such as projected windows equipped with wooden lattice screens (mashrabiyya), wind scoops, fountains, and running water provided for the adaptation to the arid climate and helped create cool and pleasant living conditions conductive to the maintenance of health and comfort. Wind scoops were utilized to cool, humidify, and ventilate spaces by catching the unobstructed higher level breezes (see Fig. 4.10), while damp trees stretched out on mashrabiyyas, as well as large porous earthenware pots filled with water and placed in front of windows and in the path of natural air flow humidified, cooled the air, and filtered the dust (see Fig. 4.11). Similarly water pools and fountains within courtyards humidified, cooled the air, and washed out the dust particles (see Fig. 4.12, 4.13). Mashrabiyyas were also utilized in front of windows to soften the glare resulting from the reflection of sun rays off the ground and the surrounding light-colored surfaces of other buildings without dazzling the eye (see Fig. 4.14).

At the same time, and as a refuge from the bustle of the city, gardens prevailed within palaces, castles and introvert dwellings, assuming a spiritual significance as the domestic version of paradise - toward which Islam directs its disciples to strive as their ultimate reward. To the Muslim, the garden and the whole of creation is a reflection of God. The garden is constantly cited in the Holy Quran as a symbol of paradise with shade and water as its ideal elements, "gardens underneath which rivers flow." Not surprisingly, water in all its forms, static and dynamic, was incorporated in the design, and developed to become the central theme of Muslim gardens. In addition, the garden was divided into quadrants by means of four water channels symbolizing the four rivers of paradise: water, milk, wine and honey. Such luscious, aesthetically pleasing gardens afforded a lasting spiritual experience.

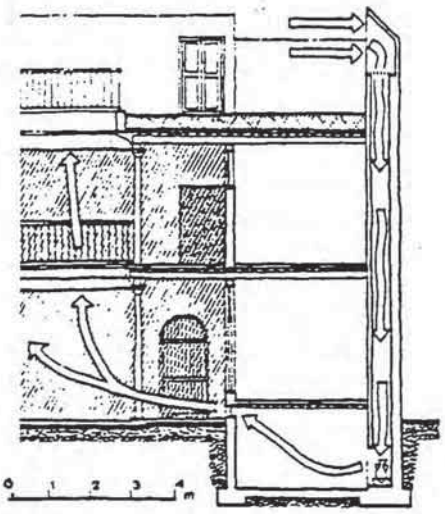


Fig. 4.10. Wind Scoops in Oriental Courtyard Houses.
(Source: A. Konya, p. 56)

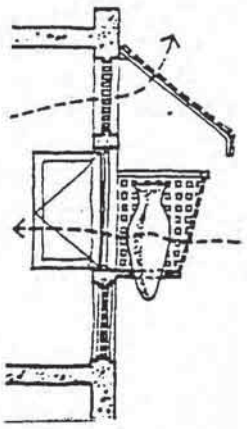


Fig. 4.11. Evaporative Cooling by Porous Pots.
(Source: A. Konya, p. 57)

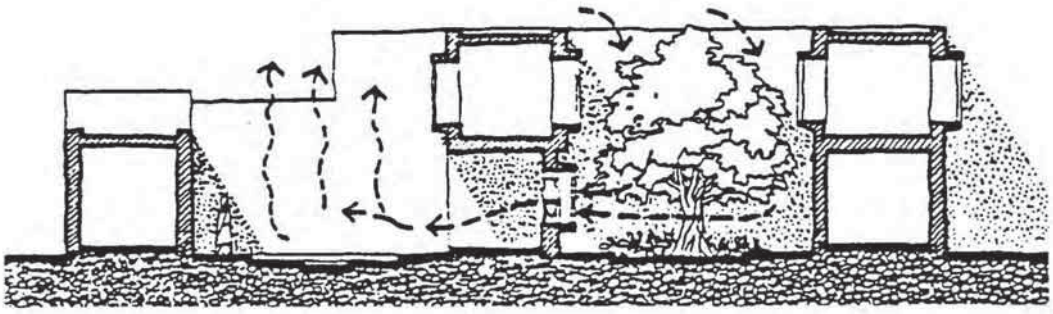


Fig. 4.12. The flow of Air in a Courtyard House.
(Source: A. Konya, p. 57)

Fig. 4.13. Courtyard of Manzil Al Suhaymi:
A Representation of Gods Paradise on Earth
(Source: B. Maury and A. Raymond, p. 5)

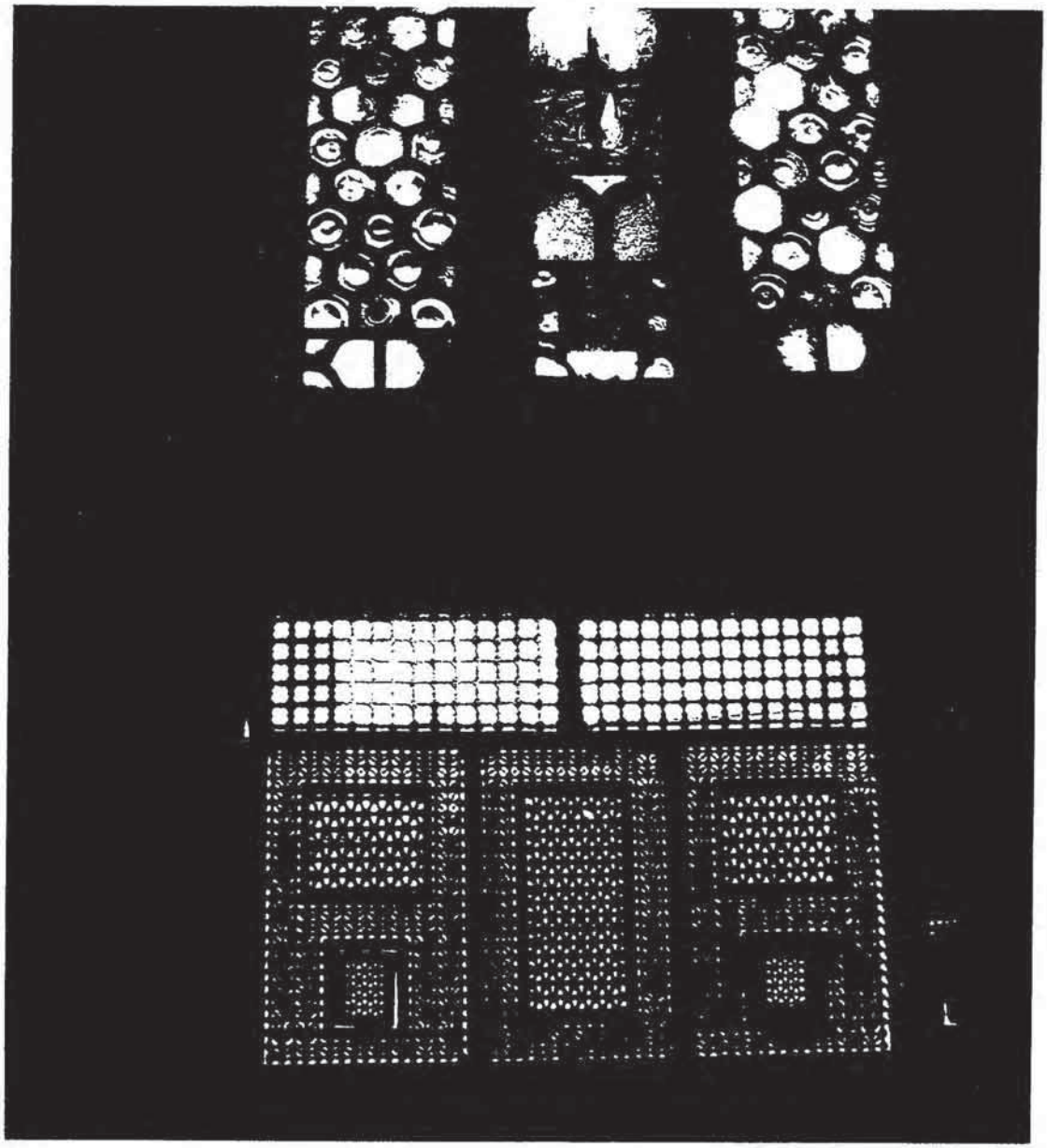


Fig. 4.14. Mashrabiyya of Manzil Al Suhaymi
(Source: B. Maury and A. Raymond, p. 355)

Moreover, and as a manifestation of the Islamic concept of harm, the city's activities radiated from the central node of the market area and the Jumma Mosque. The most sacred and politically significant sections of town were protected from various forms of pollution, visual and physical, fostering thereby a healthier, more docile environment. This arrangement contributed substantially to more effective and serene conduct of public affairs and private commerce than might otherwise have been the case. The Islamic unison of religion and government come into sharp focus in this context. Booksellers, bookbinders, suppliers of stationary and perfume and similar trades located closest to the mosque, followed by those neutral products not generating any physical offense, such as dealers in textiles, fabrics and precious stones. Processes generating noise and other offensive pollutants, such as metal and wood working shops, or stone masons were located toward the outer perimeter of the city (see Fig. 4.15, 4.16).

> The localization of activities, from the center, had a radio-concentric character - the economic activities being arranged in successive rings according to their importance, but also, in a negative way, according to the inconvenience they brought about, or to their need of space.[15]

Sense

Lynch has defined "sense" as "the clarity with which a settlement can be perceived and identified, and the ease with which its elements can be linked with other events and places in a coherent mental representation of time and space," [16] and as "...the join between the form of the environment and the human process of perception and cognition." [17] Lynch has also identified six primary elements of sense: identity and structure are both aspects of form which allow the observer to recognize

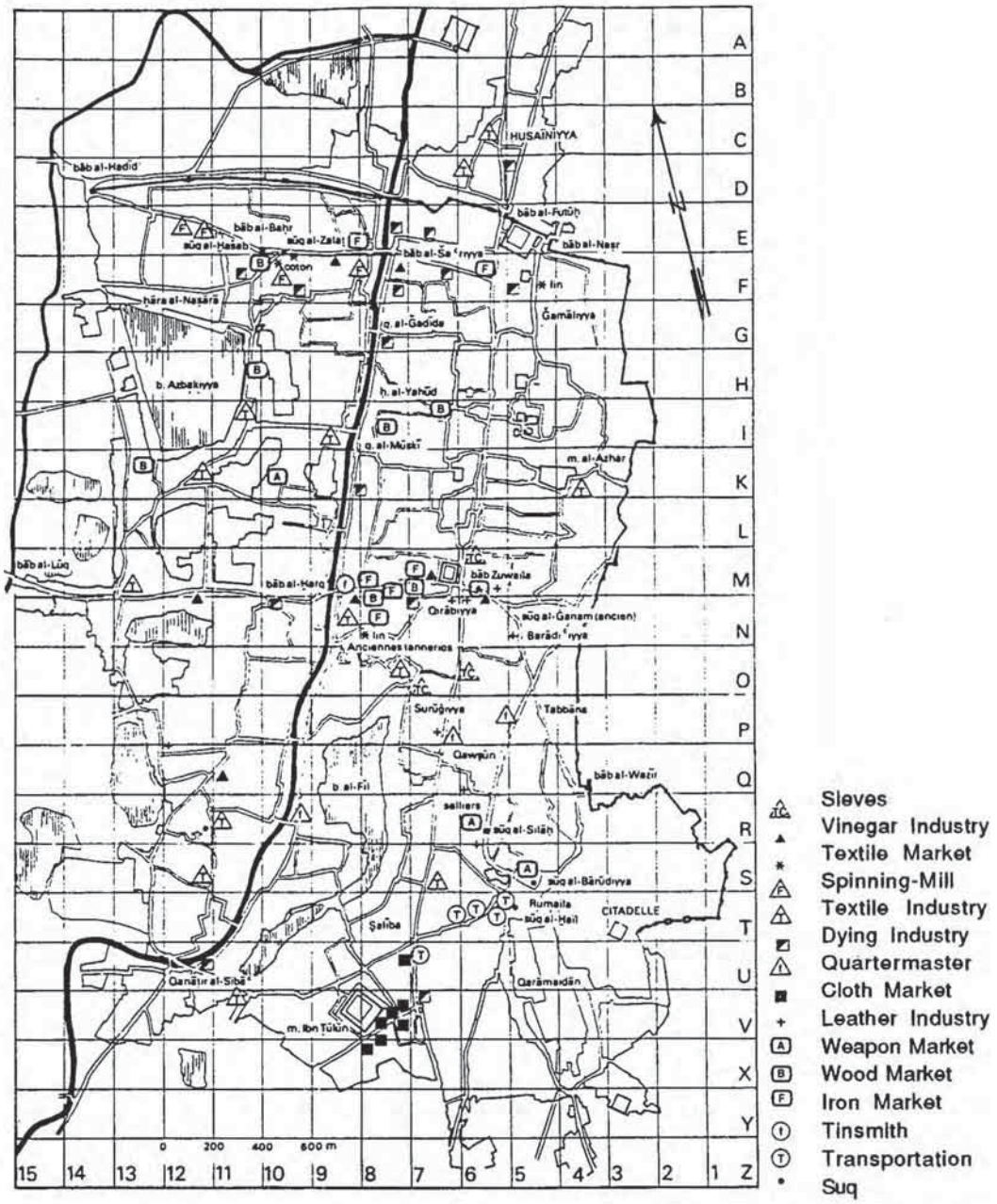


Fig. 4.15. Economic Activities Within the Economic Center of the City of Cairo
(Source: B. Maury and A. Raymond, p. 69)

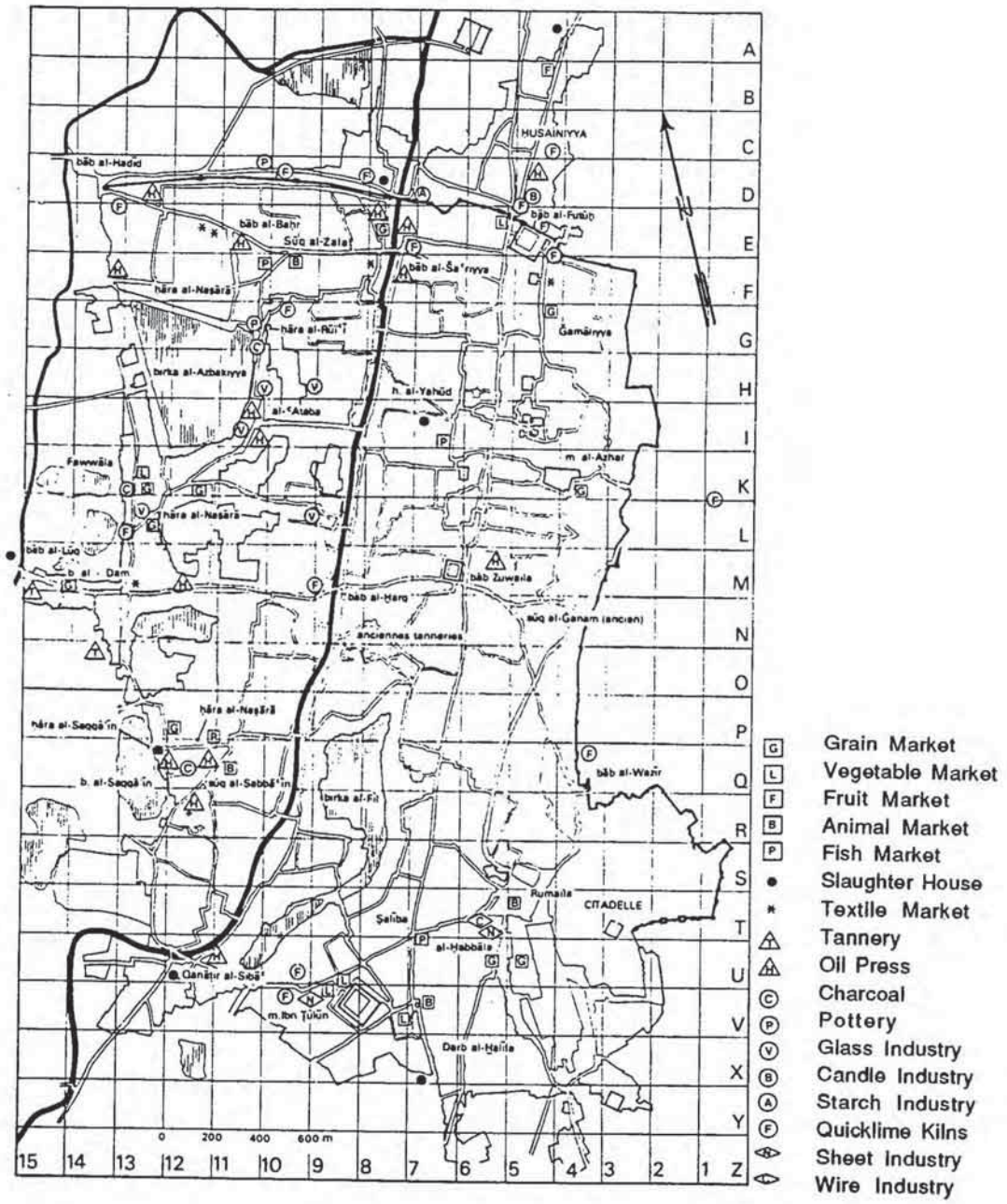


Fig. 4.16. Activities on the Periphery of the City of Cairo
(Source: B. Maury and A. Raymond, p. 74)

space and time; congruence, transparency, legibility and symbolic significance are qualities which help connect settlement form with other features of our lives.[18]

Identity

Identity is the unique quality of a place that gives its particular character.[19] It is "the extent to which a person can recognize or recall a place as being distinct from other places." [20] In that respect the Islamic city of Cairo ranks high on the identity element of the sense performance dimension.

Natural features of the physical environment exemplified in the city's arid climate, clear cloudless skies, palm trees, the River Nile, the Khalij, ponds and the Muqattam mountain constitute the major symbols of the city of Cairo (see Fig. 4.17). Both the city and the River Nile complement each other; one could not discuss the first without having to remark on the latter.

In addition, and due to the city's numerous mosques, Cairo has come to be known as "the city of a 1000 minarets." Symbolic qualities and elements of the urban form such as gateways leading to the city proper (see Fig. 4.18), the compact planning of the city, the narrow winding streets with their unfolding vistas, the intricate grammar of the city dividing spaces into a hierarchical order ranging from the public routes in the city to the private patio in the house, the introvert character of houses overlooking a central courtyard around which the rooms were oriented, and the radial movement from the center towards the limits creating an order ranging from pure to impure were all fundamental to the development of the city image. The closed residential quarters (haras), and the differentiated business center emphasizing the predominant role of privacy and the strict distinction from public archives has further rendered a distinct character particular to the Islamic city of Cairo.

Fig. 4.17. The Khalij During the Flood Season
(Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, p. 134)

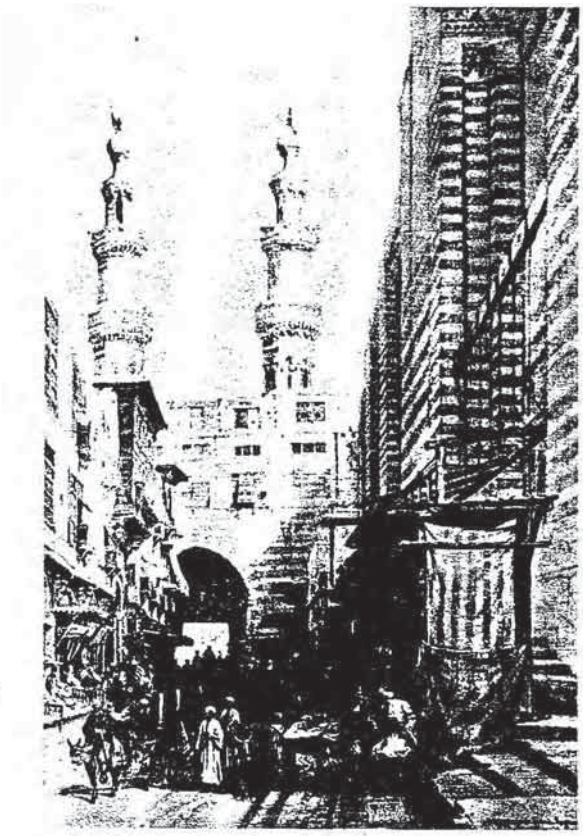


Fig. 4.18. The Minarets of Bab Zuwaila
(Source: D. Russell, fig. 29)

The citadel; palaces; rabs; caravansaries; central business district (qasaba); market (suq); aqueducts; sabils; projected windows; mashrabiyyas; wind scoops; fountains; fenestrations; highly ornamented public buildings and the humble self-effacing exteriors of private dwellings do little to distinguish the city from other Arab Islamic cities, yet were all basic clues contributing their share in the image of the city.

Structure

Structure is the sense of orientation in space and time.[21] The recognition of a characteristic form or activity in an area, sequential linkages, directional relations, landmarks, path or edge continuities, gradients, panoramas and many others are varying clues establishing structure.[22]

The River Nile, the Khalij, the ponds, and the Muqattam mountain, combined with the apparent differentiation between the large economic activity dominated by international trade in the city center, and the distinct haras, clarify the orientation in space.

In the central public area of the city relatively wide, regular open streets form a network extending to the limits. In contrast, the streets in the private residential areas appear like a maze - bent, curved, and very confusing with no provision for long range vistas, forming an irregular network and constituting part of the street fabric. This hierarchical street system provided a distinctive source for orientation in space (see Fig. 4.19).

Yet, streets being "the most potent means by which the whole can be ordered" [23] played an important role in structuring the Ottoman city of Cairo, contributed to the urban visual skeleton, and structured the experience by which the city was discovered. The clarity of the urban structure was enhanced by the north/south orientation of the main thoroughfare, al-Muiz Street, extending between Bab-Al Futuh to the North and

Bab-Zuwaila to the South, and by the concentration of religious, economic, educational, commercial and recreational activities along that artery (see Figs. 4.20, 4.21).

Al-Muiz Street followed a common pattern, as all major structures were positioned in direct relation to the path. Each section was well-composed around a focal point, usually a mosque, offering a harmonious yet ordered series of experiences including major and minor transitions.[24] The sequence and distribution of activities and landmarks was such that an introduction at both ends, towards both gateways, was followed by a climax in the central zone of the thoroughfare where the intensity of activities and landmarks culminated.[25] This arrangement gave continuity to the thoroughfare and provided for a hierarchical visual experience.

A journey from the city gates to the city center afforded an experience of unfolding mystery, more being revealed as one proceeded. Occasional glimpses of the Jumma mosque and its minaret, at certain intervals, was followed by a sudden view of the whole, affording a focal attraction, magnificence and a sense of awe and wonder. The minaret dominated the skyline with a strong vertical effect, symbolizing a connection with the skies above and acting as a focal point of reference, a strong visual landmark. This experience flows from a sequence of revelations, a consequence of bends and curves affording blocked vistas and allowing for a chain of elements of mystery and surprise. Yet, despite the curvelinear alignment, the thoroughfare was most functional and well delineated in terms of climate and social requirements with some facades being fully in view while others are hidden. The whole aesthetic sense being one of order, as the emphasis was on the complete street perspective rather than on the individual buildings.

Fig. 4.19. Cairo City Center
(Source: A. Raymond, p. 12)

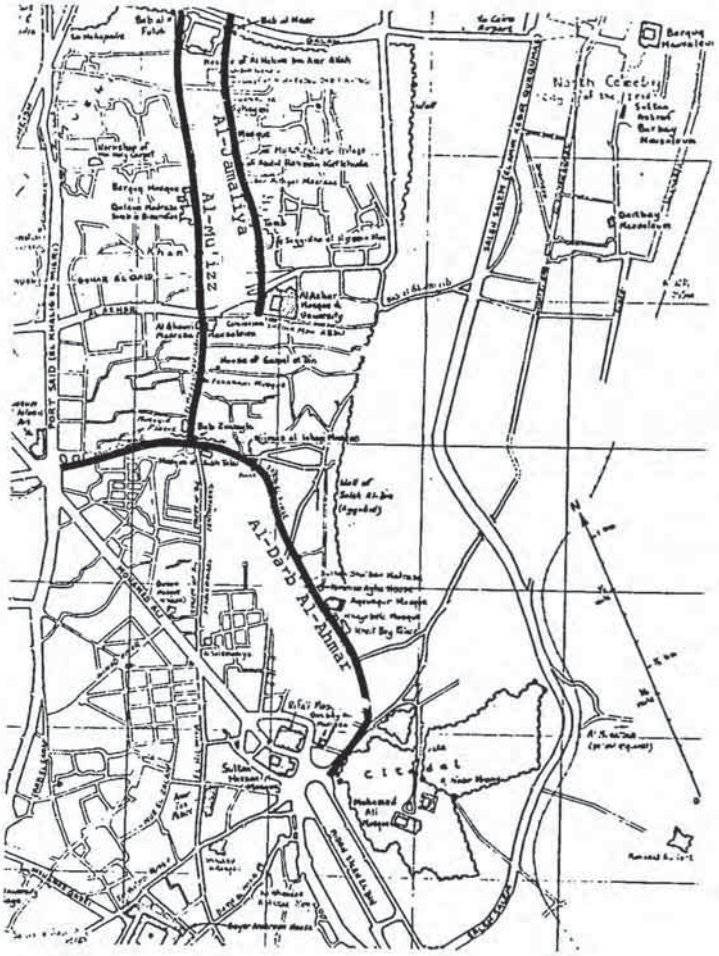
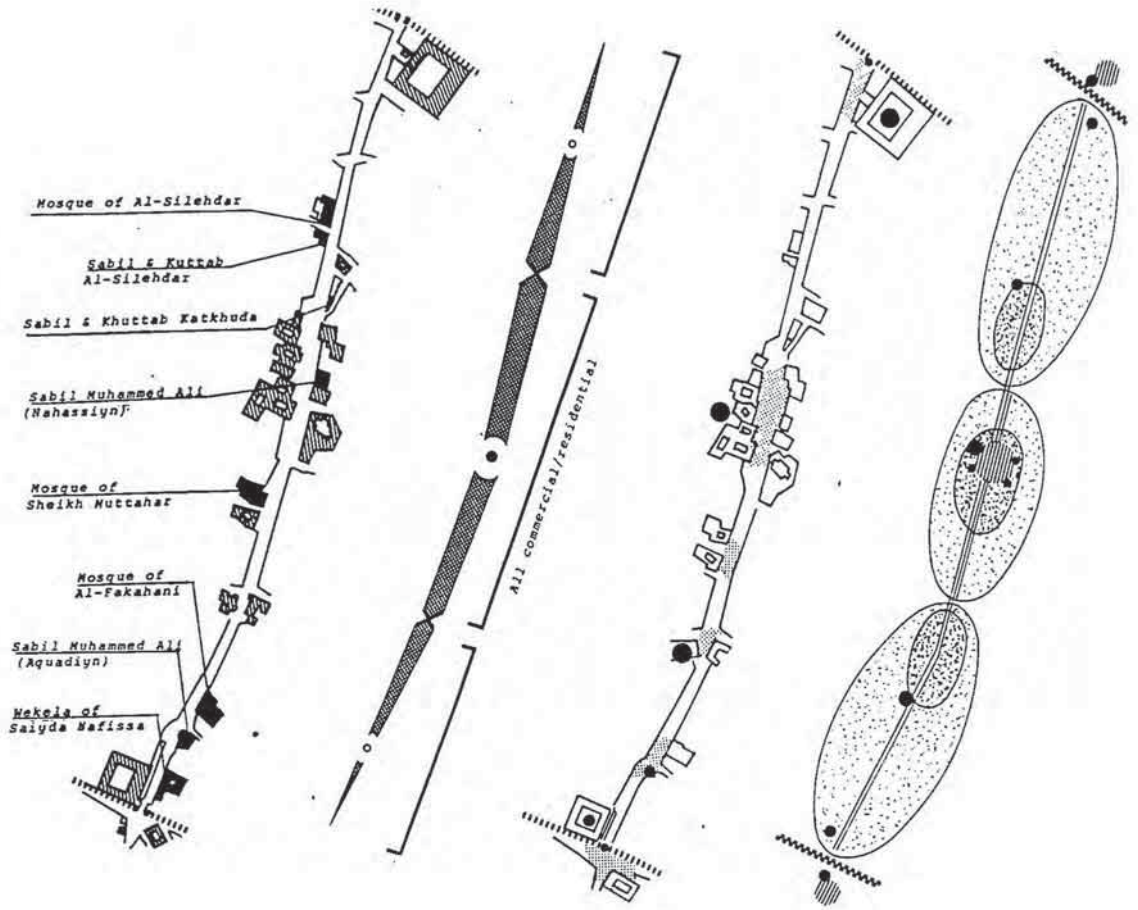


Fig. 4.20. Map of Cairo Showing the Three Main Thoroughfares
(Source: N. Al Sayyad, p. 8)



1. SEQUENTIAL STRUCTURE

- Major Segment
- Internal Segment
- Minor Segment
- Major Transition Point
- Internal Transition Point
- Minor Transition Point

2. OPEN/BUILT STRUCTURE

- Major Space
- Important Building

3. VISUAL IMAGE

- Major/Minor Districts
- Major/Minor Node
- Major/Minor Landmark
- Major/Minor Path
- Major/Minor Edge

Fig. 4.21. Al-Muizz Street and Its Patterns
(Source: N. Al Sayyad, pp. 64, 65)

Moreover, directional differentiation was an apparent characteristic of most streets in the city of Cairo, as prominent buildings and landmarks on adjacent sides of the streets acquired different uses and characteristics. Mosques, for example, had occasionally different style minarets, domes and entrances, each carefully placed to provide a sensitive silhouette.[26] Their architectural composition differed mostly because many mosques, built on the same street, were constructed during different periods, and thus the variation in their visual characteristics and treatment of exterior elements (see Fig. 4.22).[27]

Orientation in space is further enhanced by the sharpness and continuity of the boundaries exemplified in the River Nile to the west, and the city wall and the Muqattam mountain to the east.

The city of Cairo has many clear connections in time. Mosques along with other monumental buildings and the remains of previous Islamic and non-Islamic civilizations are scattered all over the city. The remains of the cities of Babylon, Fustat, Al-Askar, and Al-Qatai are all within the walled city of Ottoman Cairo. Further, annual celebrations which helped mark the Islamic calendar include: Eid el-Fetr (following the holy month of Ramadan); Eid el-Adha; Eid Raas el-Sana el Hegria (the Islamic New Year); and The Prophet Muhammad's Birthday Festival.

Congruence

Congruence is the match between physical structure and function.[28] The city of Cairo provides a good example of congruence.

The compact planning of the city; the narrow winding streets; the introvert organization of the dwelling; the size and location of fenestrations; along with the common use of courtyards and architectural refinements such as: projected windows; mashrabiyyas; windscoops and fountains; and the prevalence of sabils; and

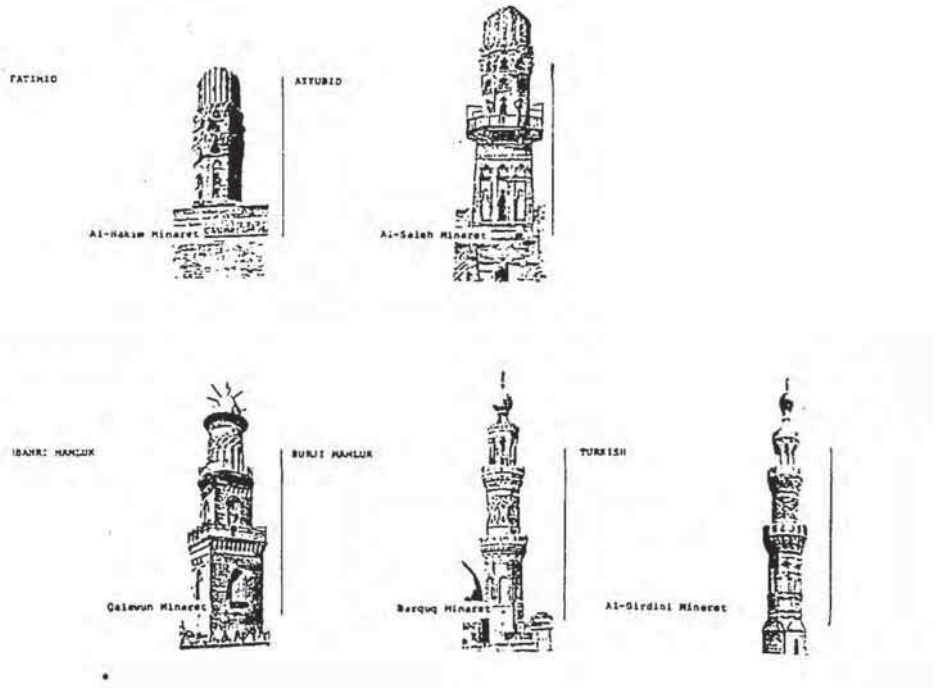


Fig. 4.22. The Architecture of the Minarets Helped Shape the Image of the City
(Source: N. Al Sayyad, pp. 82, 83)

hammams; provided for adaptation to the arid climate, and created a liveable city conductive to the maintenance of health and comfort.

In addition, the shape and form of the houses and palaces of Cairo reflect the Islamic value system, the family, social life, the climate, as well as available resources and building materials. Most individual houses were particular to the wealthiest class, while collective housing accommodated most of the general population. Collective housing was of three types: the caravansaries (transitory habitat); the rab (permanent habitat) composed of rental flats; and the haws (poor habitat) composed of single story shacks organized around courtyards.[29]

The relative scarcity of land in the city center, plus the concentration of economic activities, hindered development of dwellings for the poorer classes in the vicinity of the markets (suqs). The underprivileged part of the population were thus forced out to the outskirts of the city. The interaction of these factors resulted in a layout of successive rings, with the wealthiest part of the population residing near the center and the poorer part residing some distance away.

Yet, the tendency of the poor to settle in peripheral sections was offset by the development of "suburban" type residential neighborhoods at choice locations well away from the center.[30] This modified system of localization, on the outskirts of the city, is testimonial to the Islamic notion of equity in social life (see Fig. 4.23).

Transparency

Transparency, another component of sensibility, is the degree of clarity of functions, activities, and social and natural processes that are occurring within a settlement.[31] Cairo's natural setting touches the senses and provides a connection with natural processes. The flow of the water in the River Nile, the Khalij, and the

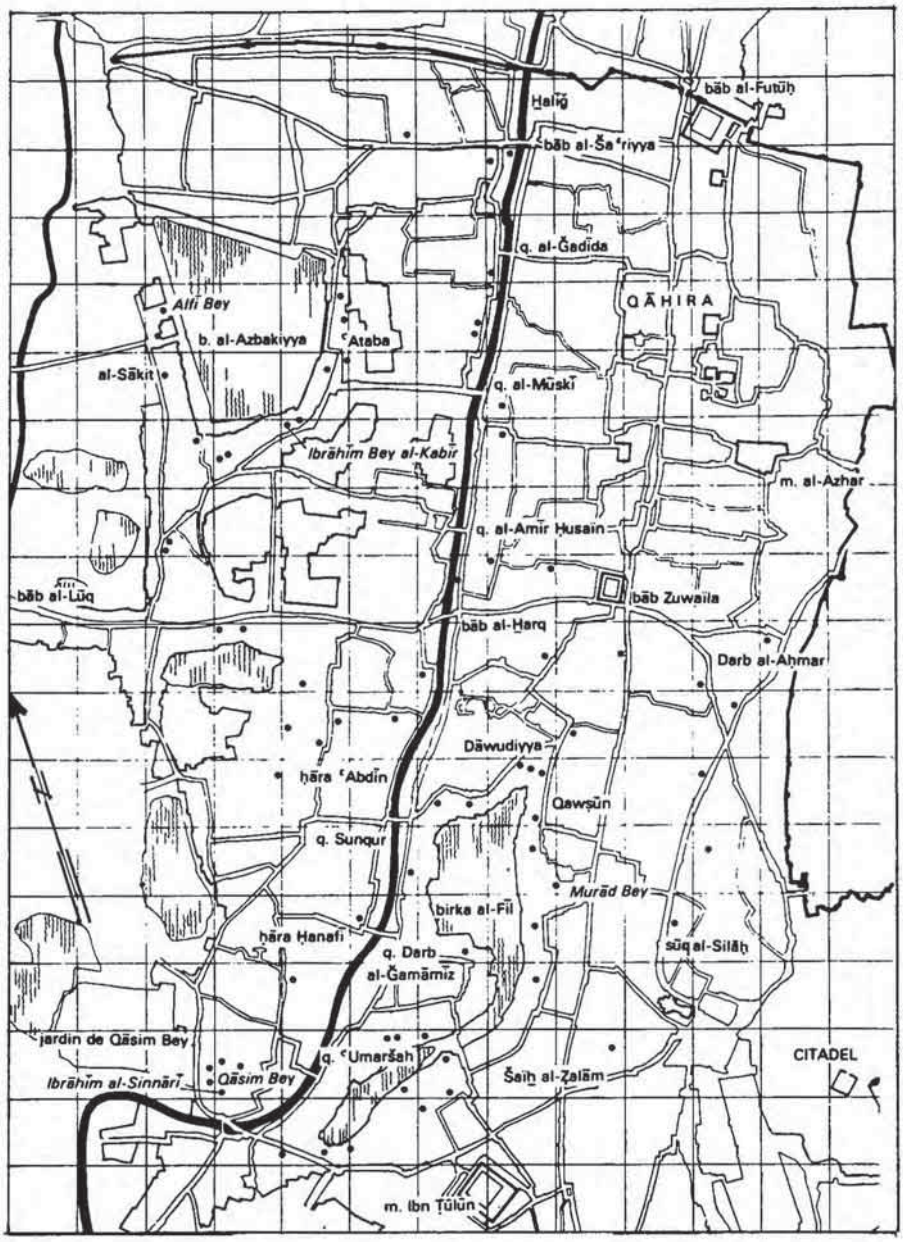


Fig. 4.23. Residence of the Emirs of Cairo
(Source: A. Raymond, p. 67)

ponds could be heard, seen, smelled, even touched. The rise of the sun highlights the nearby rocky Muqattam mountain, while its setting throws a golden calm on the River Nile, the Khalij, and the ponds.

The transport of water on camel backs and the employment of aqueducts carrying water across the city conveyed a sense of life and a visible functional connection.

The slow movement of people along the narrow, crowded streets, encouraged by shops laid on both sides of it, represented the main stream of public life, while the conglomeration of the faithful masses of prayers in the mosques provided multiple opportunities for social interaction (see Fig. 4.24).

The specialized and spontaneous markets (suqs); the shops (dukan); with their bench-like mastabas extending into the street (see Fig. 4.25); the coffee shops serving the passers-by (see Fig. 4.26); and the sabils; all revealed specific functions and permitted the traveller to observe, touch and smell.

The city of the dead, with its tombs, conveyed a sense of remembrance, affection, wisdom, and a visible connection to the natural process of life and death (see Fig. 4.27).

Legibility

Legibility is the degree to which physical form communicates meaning through signs, symbols, and form.[32] To a large extent the structure of Cairo's society was reflected in the city plan. Societal and community organization was clearly expressed through geographical localization. Geographical regroupings into residential districts (haras), developed to meet the requirements of religious and national minorities (see Fig. 4.28). Consequently, as spatial organization developed under the influence of various societal factors and socio-economic conditions, the

Fig. 4.24. The Market:
A--Suq Khan Al-Khalili
B--Dukan in a Street of Cairo
C--Street Life Along the Qasaba
D--Silk Bazaar
(Source: A. Raymond, pp. 35, 38; J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, pp. 61, 62)

Fig. 4.25. A Mastaba
(Source: J. Abu-Lughod,
Cairo, 1001 Years of the City Victorious, p. 86)

Fig. 4.26. The Coffee Shop
(Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, p. 65)

Fig. 4.27. Tomb City
(Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, p. 35)

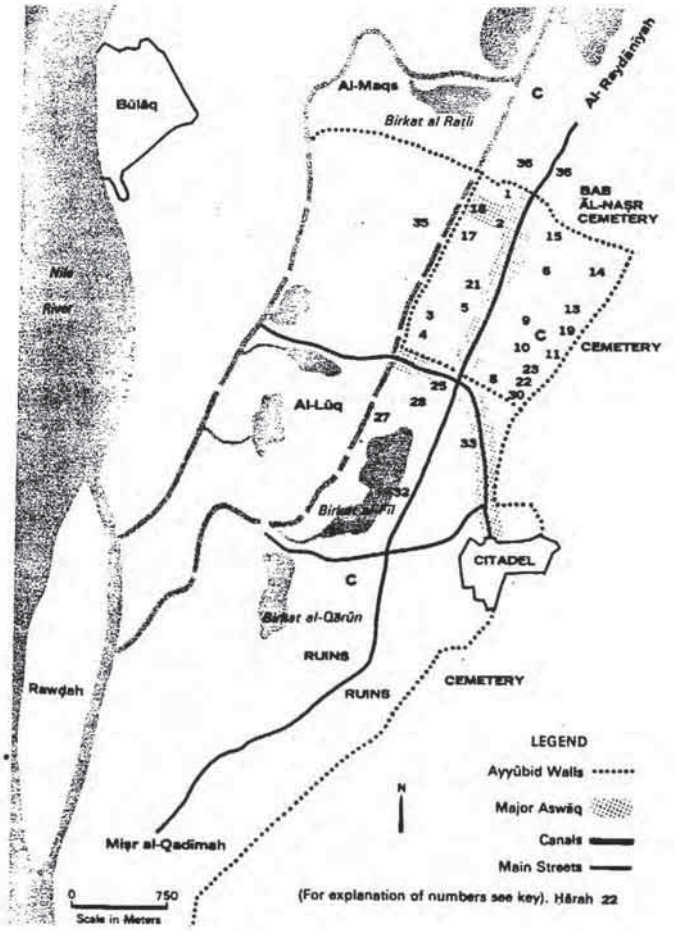


Fig. 4.28. The Haras of Cairo
(Source: J. Abu-Lughod, *Cairo, 1001 Years of the City Victorious*, pp. 42, 43)

distribution of residential districts provided the frontiers that segregated social classes. The most underprivileged being pushed toward the outskirts of the city, whereas the middle class bourgeois lived in the vicinity of the center. Yet, there existed certain exceptions where the residence of the middle class merchants, tugars, were adjacent to the palaces of members of the ruling class.

In addition, the intricate grammar of the city, dividing spaces into public, semi-public, semi-private, and private ranging from the city center to the patio in the house, reflected climatic and social requirements. The closed residential quarters (haras), coupled with the introvert organization of residential dwellings conveyed a message of security, privacy and divine unity. In a like manner, the humane scale of narrow winding streets leading to residential districts encouraged social interactions among their residents and a communal behavior. The well composed facades and interaction of buildings on both sides of the street, coupled with the intricate richness of the streets, created a pleasant atmosphere of unity and community. Streets were a link between buildings, but not an area onto which facades project an image of the building's occupants and their activities, instead represented religious conceptions of community spirit and personal privacy. As a result, the intricate articulation of streets with their unfolding vistas, offered a humble, but orderly environment to the human eye while emphasizing the spiritual role of the city. The intricate richness of the city with its picturesque and lively streets created a pleasant atmosphere encouraging social interaction and conveying a message of unity and community.

Modesty and humility was reflected in the simplistic design of common dwellings. Private dwellings were self-effacing, and the exterior gave no indication of the importance of the building. In contrast the Muslim dwelling (sakan) revealed its richness in the interior signifying the dweller's appreciation for comfort and sakinah

(meaning peace and tranquillity) in preference to external appreciation. Ostentatious facades serving to advertise the social standing of the owner were thus absent.

Last but not least, the attempted and often successful integration of the built environment with the natural landscape in Ottoman Cairo reflects a deeply rooted respect and admiration of Almighty God (Allah) as the master builder of the universe.

Symbolic Significance

Congruence, transparency, and legibility describe explicit connections of urban form to values. Significance is implicit, representing the symbolic meaning or social value of a place.[33]

The cosmology of the Ottoman city of Cairo followed certain unanimous ideas responsive to the social norms and Islamic value systems. These basic cultural and Islamic values found their expression in the forms and structure of the city. The Ottoman city of Cairo is thus, an expression of the fundamental religious concepts of society.

The Jumma mosque, located in the central square surrounded by the market, afforded prominence and established the primary center and focal point of the city. As a result, the central city square became the first organizing form of urban space in Ottoman Cairo, around which developed a clearly organized network of inter-connected streets and sub-centers. The underlying design theme being the establishment of a clear and powerful expression of religious symbolism and civic unity. The symbolic image of the city as a whole being the domes and minarets of the mosques dispersed throughout the city, affording a sense of supremacy and spiritual connection between heaven and earth. The domes signifying a cosmic symbol, the vault of heaven while the minarets are the anchors, the symbol of eternal life - the axis-mundi.

In addition, the symbolic role of the mosque in integrating man with God, and the whole community within itself, coupled with the intrinsic values of Islam embracing religion, law, education and politics, provided the setting for involving the total population of the city. The mosque functioned not only as a religious entity and place of worship, but also as a court of justice, an education center, and a gathering place for secular activity, recreation, and for people to congregate, hence its focal and accessible location within the city.

The city square thus functioned as a focal point for communal gathering, a visual landmark for orientation, as well as a psychological extension of the sacred space of the mosque. A considerable share of public life took place in the square (see Fig. 4.29). Here public celebrations, festivals, religious processions and theatrical performances took place. The square was the heart of life of the city. Identification with the mosque was thus, as expression of the spiritual and civic life of the city.

The apparent division of the city into public and private domains, into numerous residential districts; along with the radial movement from the center towards the periphery; the closed residential quarters; the narrow and winding streets; the inward orientation and self-effacing nature of residential buildings, symbolized the predominant religious concepts of society.

In view of these achievements, the city eventually proved to be worthy of the accolade "Al-Qahira" the "victorious," as it developed into a world city and one of the greatest cities of Islam.

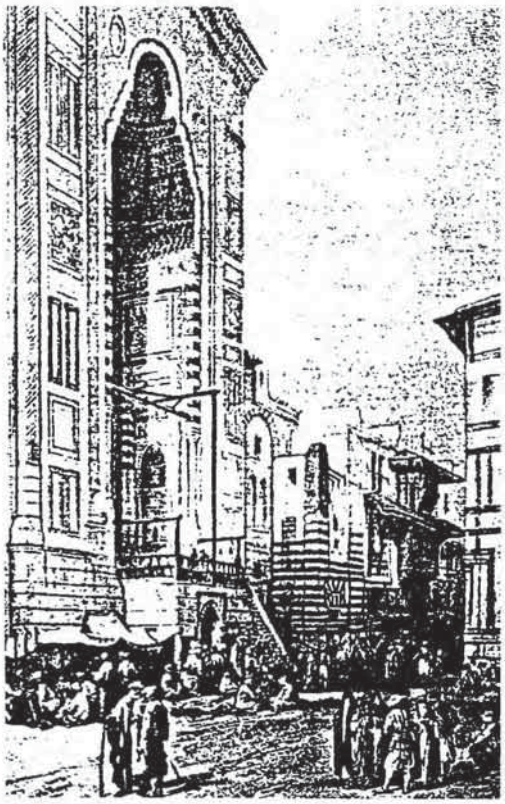


Fig. 4.29. Grand Entrance to the Mosque of Sultan Hassan
(Source: D. Russell, Fig. 32)

Access

Access is the connection to people, human activities, material resources, places, and information.[34] Access to the first four areas relates to the mobility of the person involved.

The traditional city of Cairo catered primarily to pedestrians, though occasional transport of goods by horse and camel on public thoroughfares, was authorized. The minimum width of public thoroughfares, seven cubits (each cubit is equivalent to 46-50 cms), was designed to allow two laden camels to pass.[35]

The intricate richness of the street pattern, incorporating a hierarchical order, ranging from the relatively wide public thoroughfares to the narrow dead end streets (atfas), rendered an efficient fabric for the flow of pedestrians across the city. The concentration of medical, recreational, commercial, educational and religious activities within the urban center of the city, along the public thoroughfares connecting the main gateways with the central core, was served by a hierarchical progression of streets leading to residential districts. whose widths reduced as they approached a housing cluster, thereby supporting and securing privacy through a lower volume of pedestrian traffic. This coupled with the exclusion of heavy traffic from the clustered dwelling areas allowed the use of shaded space for neighborhood interaction where children may have safely played close to their homes.

The spatial configuration and structure of the Ottoman city of Cairo thus offered a degree of variety and choice, encouraging on the one hand, social encounters and communal life, and on the other hand privacy and divine unity.

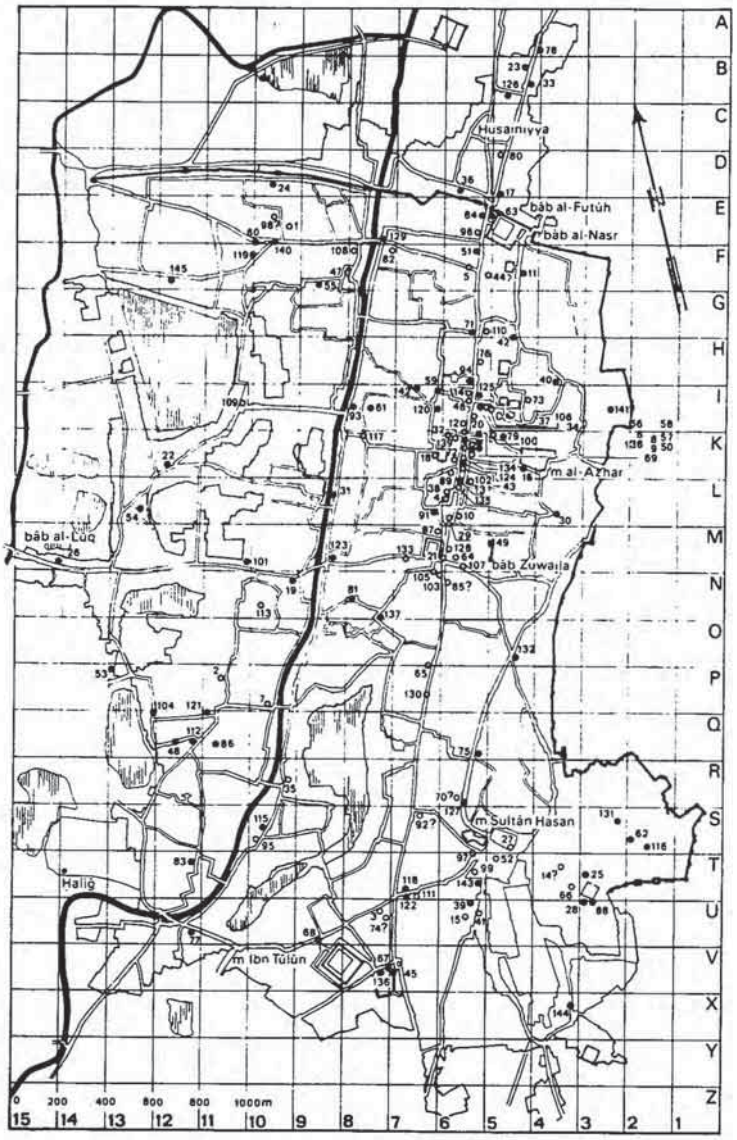
Yet, the diversity of location of mosques; spontaneous markets (suqs); coffee shop and sabils, spread over the city and on the periphery, proved accessible to those residents inhabiting the more distant suburbs (see Fig. 4.30). Mosques for example,

were built at approximately fixed distances from each other to allow for the call for prayers.

Further, and on the one hand, craftsmen and shopkeepers did not have direct access to their place of work as they did not usually live in their workshops or stores. But, due to the scarcity of land in the urban center, they inhabited flats in rabs and caravansaries at a close distance from the market where they worked. The average distance between their place of residence and place of work was generally little more than 500 meters, a few minutes walk (see Fig. 4.31).[36]

On the other hand, the residences of the middle class, of the general bourgeoisie of merchants, artisans and sheiks, were located in the zone that stretched out from the central area of the market, less than 200 meters away from the Al-Azhar Mosque and University where they worked.[37] The affluent and mobile inhabitants, mostly emirs and rich merchants, settled in more distant but spacious districts around Birkat Al-Azbakiya, and along the Khalij, which was a natural artery for transporting people and goods.

Moreover, Cairo has been home of Al-Azhar University, Islams intellectual center since its foundation in 970 and the oldest institutions of its kind in the world, thereby permitting a fairly good access to information. The university was located within walking distance of other schools, mosques, learning centers, and the urban center of the city, fostering optimum communication. Fees were nominal and were occasionally waived for the poor - in accord with the Islamic principles of pity and equity in social life.



● mentioned in the *Description de l'Egypte*
○ not mentioned in the *Description*

Fig. 4.30. Location of Markets in Cairo
(Source: B. Maury and A. Raymond, p. 62)

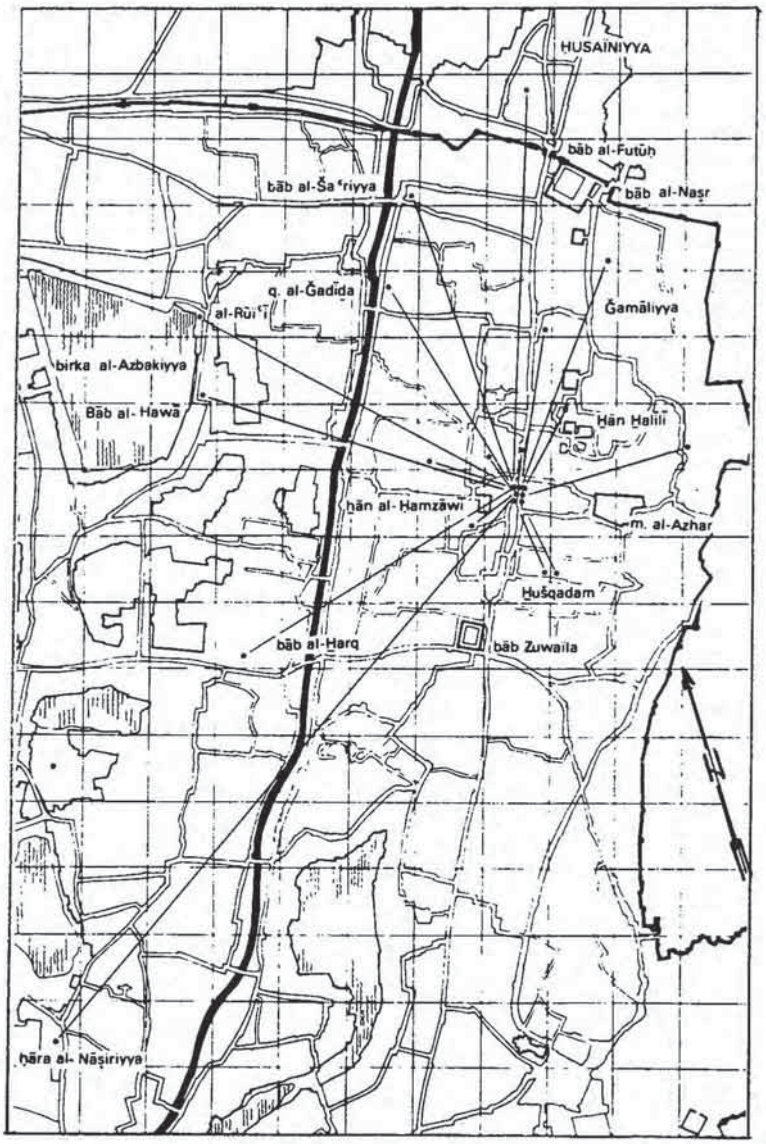


Fig. 4.31. Location of the Residences of the Gurriya People
(Source: A. Raymond, p. 64)

Fit

Fit is "the match between place and whole patterns of behavior, so it is intimately dependent on culture: on expectations, norms, and customary ways of doing things." [38] It is the match between place and the intended behavior.[39]

Like many other Muslim cities the art and architecture of Ottoman Cairo emerged as a manifestation of Islam. In recognition of a transcendent dimension signifying the symbolic role of integrating man with God and the whole community within itself, the Jumma mosque evolved as the most prominent element of the urban environment. As a highly impressive structure, the Jumma mosque was strategically placed at the intersection of major thoroughfares. The structure was planned around a courtyard (sahn), surrounded by a cloister (riwak), affording a overwhelming spiritual experience of unity and a sense of space and tranquility. This impact is further broadened by the dispersement of other mosques throughout the urban area, all intended to underscore the objective of spreading the word of Allah.

In addition, the cleansing ritual of ablution, coupled with the Islamic notion of pity and the prohibition against barring excess water, prompted the availability and dispersement of hammams, and sabils throughout the city.

The concern for privacy and proper communal behavior led to the recognition of special rights and responsibilities of neighbors toward each other and was reflected in the development of building regulations and property rights (see Appendix B), and is evident in the intricate grammar of the city dividing spaces into: public, semi-public, semi-private, and private. This spontaneous and marked division of the city into small identifiable quarters created social neighborhoods and community organizations (professional, religious and geographic) responsible for the overriding concerns for privacy, social solidarity, interdependence, and community cohesion.

Moreover, the concern for privacy accounted for the placement of external doors, the architectural treatment of windows, the bent entrances, the limit on building heights throughout the city, and the introvert organization of houses overlooking a central courtyard.

The symbolic significance of external doors of houses was emphasized by restricting their location. Entrances were not placed opposite one another, yet were occasionally placed near to each other on the same wall. External doors of houses were located at the head of dead end street, but not at an intersection of streets. Frequently, they were located at the furthest point of a lot, the house's corner, thus providing for maximum privacy (see Fig. 4.32).[40] The concern for privacy was such that entrances occasionally opened onto a blank wall or a vestibule obstructing all view of the interior (see Fig. 4.33).

The location and height of windows overlooking neighboring property were restricted so as not to visually infringe upon their privacy. Windows were also equipped with mashrabiyyas, allowing members of the household to view the exterior while remaining unobserved. Similarly, building heights were controlled, but no general restrictions prevailed. The heights of buildings were only restricted, in those cases, where its increase would lead to visual infringement and intrusion upon the privacy of neighboring rooftops, as these were commonly used for living and sleeping during the night.

The introvert organization of the Muslim dwelling is another reflection of the acute concern for privacy. The division of the house into male quarters (salamlik) and female quarters (haramlik) allowed male visitors to be separated from the private family sanctuary. To achieve this, a split level arrangement was employed accommodating the haramlik on the upper level while sharing the same courtyard

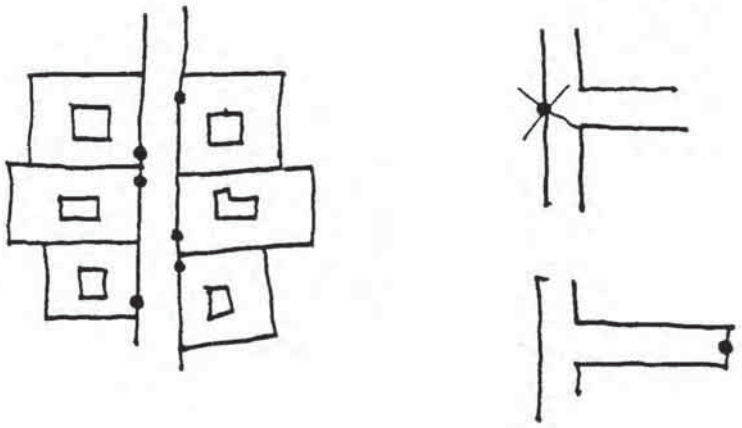


Fig. 4.32. Placement of the Entrance Is Intended to Ensure Privacy (Source: S. Al-Hathloul, p. 15)

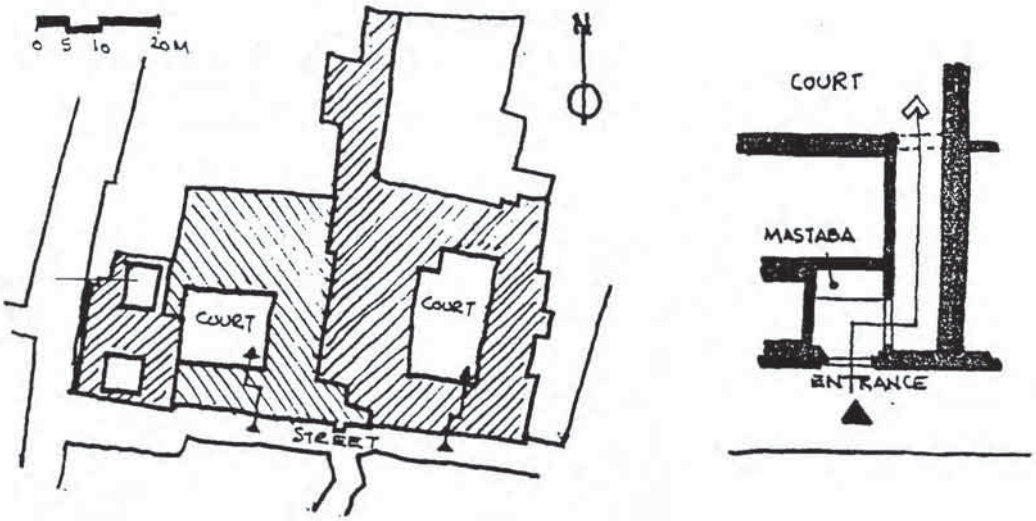


Fig. 4.33. The Entrance Is of a Considerable Symbolic Importance

with the salamlik. Where this proved not feasible, two courts were used, one serving the male quarters, the other the female. A passage with one or two turnings, to ensure for the provision of privacy, led to the central courtyard, which often embodied most of the missing idealized elements of the desert environment, notably water, palm trees, plants, shade and a sense of enclosure. The courtyard assumed the function of an urban oasis offering a tranquil and cool environment in sharp contrast with the busy streets of the city. The courtyard was thus viewed as the domestic version of God's paradise on earth (see Fig. 4.13).[41]

Furthermore, and in accord with the Islamic principle of equity in social life, the bare facades so characteristic of Islamic traditional quarters made it possible for families of different classes and income levels to co-habitate house by house without the stigma of discrimination.

Control

Control is "the degree which the use and access to spaces and activities are controlled by those who use, work or reside in them" [42] Levels of spatial control include the right of presence in space, and of regulating behavior, ownership, modification and disposition of spaces.[43]

The Ottoman city of Cairo proclaimed glory in the physical and symbolic control of its urban organization. Control was secured and attained through: the marking of boundaries, maximizing one-way visibility, manipulating access, size and distance, and various forms of symbolism.[44]

As an expression of power and control, and the demarcation of boundaries, fortified walls marked the boundaries of the city limit while elaborate gateways, leading to the city proper, served to admit and exclude. Yet, due to the extent of the

Ottoman empire and the great ethnic and religious variety within provinces, a fair amount of autonomy was left to the national, religious and professional organizations (tawaif), within the city. As previously indicated, each organization was administered by a sheik who played a considerable role in city life. This ensured inner cohesion of the urban society and enabled the authorities to exercise firm control in an indirect way.

In consequence of this practice, residential quarters (haras), were often gated forming clearly defined entities and were connected with the principal, hierarchical network of city streets by semi-public ways serving as a neutral turf between neighborhoods, the internal paths of which served only to secure access, as semi-private streets, to individual dwellings. These streets usually terminated in jointly owned private cul-de-sacs (dead end streets). In addition, each hara was guarded by a door keeper (bawab), whose duty was to regulate the entrance of non-residents. This arrangement, coupled by the hierarchical progression of streets, secured a lower volume of pedestrian traffic granting limited access only to those who have a business of being in the vicinity.

In a like manner, bent entrances gave no immediate access to the domestic part of dwellings, while the introvert organization of dwellings restricted visible intrusion into the private sanctuary of the house. Moreover, building and neighborhood guidelines expressed by muftis (fatawi) toward the solution of newly arising urban problems, restricted the placement of external doors; the location and height of windows overlooking neighboring property; the limit on building height; the use of space immediately adjacent to the external walls of a building (fina); and the obstruction of access to an individual property, thereby testifying to the manner in which neighbors exercised control over the development of their immediate vicinity.

In addition, and as a result of the transcendent dimension of mosques, another form of physical control was manifested in a low barrier separating the spiritually pure grounds of the mosque from the ritually impure spaces, emphasizing and obliging those entering the mosque to remove their shoes. Yet, the mosques transcendent dimension was not only limited to its physical structure. The psychological extension of the sacred space of the mosque into the city square and the surrounding areas, also governed the location of commercial activities and their acceptable proximity to mosques.

The muhtasib's role as a supervisor inspecting public baths; drainage systems; sabils; and the availability, quality, price and hygiene of food stuffs; and the execution of burial within 24-hours of death, was another form of control against the potential spread of disease. On the on hand, control is visible in the restriction of use of hammams. Their recreational potential was restricted and controlled by the muhtasib. Many were closed to public use, and those that were open allowed only limited use. The limited access was probably to safeguard against the spread of disease. On the other hand, most open lands on the ponds and the Khalij were accessible to the public, though some exceptions may have existed.

Moreover, and in addition to the "social and ethical practices" and the "economic and administrative systems" discussed in Chapter III, courts of law enforcing the Sharia, Islamic Divine Law, regulated and controlled man's relationship with his neighbor and with the state. This promoted a social order and a code of conduct embracing both the public and private activities, hence the Islamic values pertaining to the right of ownership, right of earlier usage, preemption, respect for the property of others, inter-dependence, and individual freedom - to mention but a few.

II. CONCLUSION

In light of the above discussion, it is apparent that the Ottoman city of Cairo, like most traditional Arab Islamic cities, rates high on the vitality, sense, access, fit and control elements of Lynch's performance dimensions.

The city rates high in securing the basic physical needs of its inhabitants, and sets a good example of control, diversity, and equity of access to people, activity, places, and information. The city's unique qualities and character; the clarity of the urban structure and orientation in space and time - though only to its inhabitants, as narrow winding streets intended to alienate outsiders appeared like a maze, bent, curved and very confusing; the match of physical structure to the economic, political, social and spiritual values; the transparency, legibility and the symbolic significance, all gave the city a positive image and a definite sense of place.

"The Islamic city, in its sense of privacy, neutrality, and religious devotion, represented a suprême symbol of equality of all Muslims in the eyes of God."[45] The urban structure of the city of Cairo reflected the economic, political, social, and spiritual value systems The idea of the built environment as a product of social structure and political ideology is hence by no means new.

Notes

1. Serge Chermayeff and Christopher Alexander, *Community and Privacy* (Anchor Books, New York, 1965), p. 13.
2. Ibid., p.51.
3. Kevin Lynch, *Good City Form* (The MIT Press, Cambridge, 1984), p. 48.
4. See Kevin Lynch, *What Time Is That Place?* (The MIT Press, Cambridge, 1972)
5. Ibid.
6. Lynch, *Good City Form*, op. cit., p. 121.
7. Ibid., p. 48.
8. See *Mimar* 14 (1984). Supplement No. 89, November 1984.
9. G. T. Scanlon, "Housing and Sanitation," in *The Islamic City*, ed. A. H. Hourani and S. M. Stern, (Bruno Cassirer Oxford and the University of Pennsylvania Press, Glasgow, 1970), p. 188.
10. Ibid., p. 182.
11. Janet Abu-Lughod, "Contemporary Relevance of Islamic Urban Principles," in *Ekistics* 47 (280) (January/February 1980): 8.
12. Andre Raymond, *The Great Arab Cities in the 16th - 18th Centuries* (New York University Press, New York, 1984), pp. 5, 7.
13. Ibid.
14. Lynch, *Good City Form*, op. cit., p. 56.
15. Raymond, op. cit., p. 13.
16. Lynch, *Good City Form*, op. cit., p. 131.
17. Ibid.
18. Ibid., p. 138.
19. Ibid., p. 131.
20. Ibid., p. 131.
21. Ibid., p. 134.
22.. Ibid., p. 135.
23. Kevin Lynch, *The Image of the City* (MIT Press, Cambridge, 1960), p. 96.
24. See Nizar Al Sayyad, *Streets of Islamic Cairo* (The Aga Khan Program of Islamic Architecture, at Harvard University and M.I.T. Studies in Islamic Architecture, No. 2, 1981); Nizar Al Sayyad, *The Visual Structure of Islamic Paths* (The Aga Khan Program of Islamic Architecture, Working Paper Series No. 1, Cambridge, 1980).
25. Ibid.
26. Ibid.
27. Ibid.
28. Lynch, *Good City Form*, op. cit., p. 138.
29. Raymond, op. cit., p. 81.
30. Raymond, op. cit., pp. 59-62.
31. Lynch, *Good City Form*, op. cit., p. 138.
32. Ibid.
33. Lynch, *Good City Form*, op. cit., p. 142.
34. Ibid., p. 187.
35. Besim S. Hakim, *Arab-Islamic Cities* (KPI Limited, London, 1986), p. 19.
36. Raymond, op. cit., pp. 59-62.
37. Raymond, op. cit., p. 62.
38. Lynch, *Good City Form*, op. cit., p. 151.
39. Lynch, *Good City Form*, op. cit., p. 158.
40. Saleh Al-Hathloul, "Urban Forms in Arab-Muslim Cities," in *Ekistics* 47 (280) (January/February 1980): 15.
41. John Brookes, *Gardens of Paradise* (New Amsterdam Books, New York, 1987), p. 19.

42. Lynch, *Good City Form*, op. cit., p. 118.
43. Ibid., pp. 205-207.
44. Ibid., p.212.
45. Francois-Auguste de Montequin, "The Islamic City: Its Traditional Environment and Physiognomy," in *Ekistics* 47 (280) (January/February 1980): 37.

CHAPTER V

HISTORICAL PRECEDENTS: GOOD OR BAD

I. OTTOMAN CAIRO: A LIVING LEGACY

"Out of necessity, man has developed various forms of shelter to satisfy his needs for protection from extremes of climates and other sources of danger and discomfort."[1] Historic buildings in widely divergent climatic regions have frequently incorporated highly sophisticated environmental solutions to achieve sustainable environmental comfort. These solutions were well adapted for specific areas and people (see Fig. 5.1).

Yet, the objective of city design is not only to provide shelter, security and comfort, but to produce built environments that play an important role in social development. Man's health and psychological development as a species depend on his organic, physiological, neurological and emotional response to the environment.[2] In this sense, Abraham Maslow's hierarchical model of human needs may prove to be useful. This is particularly true since behavior is directed toward satisfying needs, and architects, urban designers and physical planners are concerned with human behavior.

Maslow, one of the founders of what has become known as humanistic psychology, conceived a "positive theory of human motivations" organized hierarchically into a sequence of five stages, each dominated by a set of salient needs (see Fig. 5.2).[3] Expressed in ascending order these are: Physiological needs, such as those of hunger, thirst and shelter; Safety needs, such as security, and protection; Social/Belonging needs, such as the need for love and sociability; Esteem

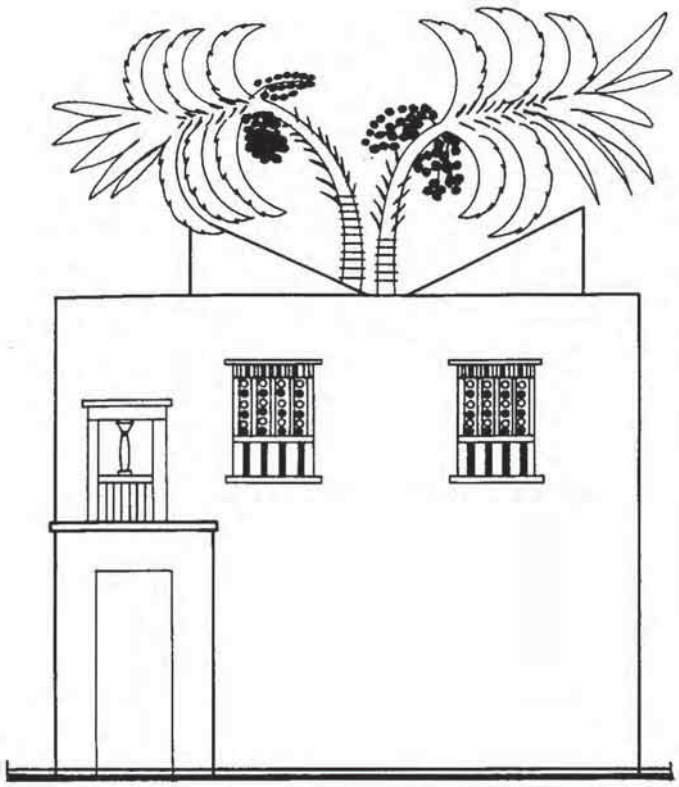


Fig. 5.1. Malqaf of the Pharaonic Houses of Neb-Amun,
From a Painting on His Tomb,
19th Dynasty (1300 B.C.)
(Source: H. Fathy, p. 118)

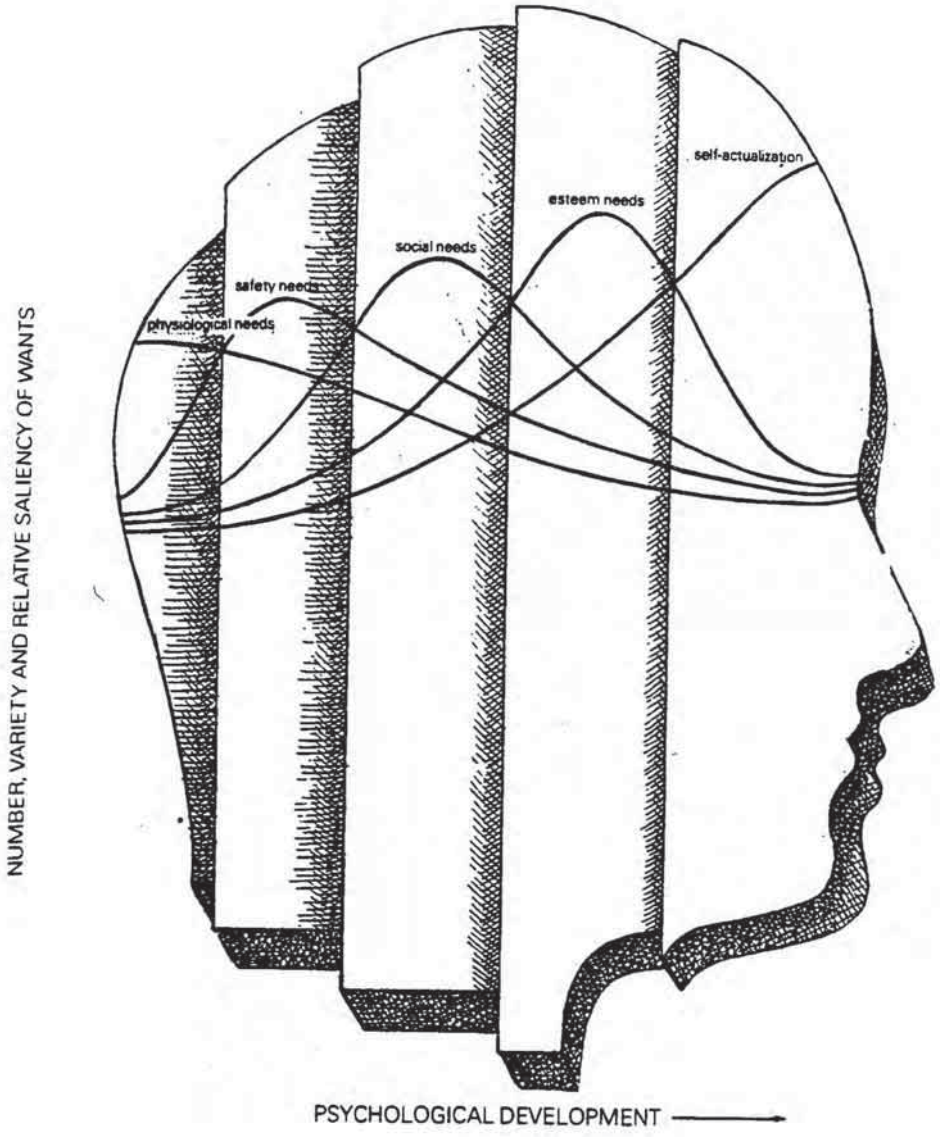


Fig. 5.2. Abraham Maslow's Model of Human Needs
(Source: C. H. Turner, p.119)

needs, such as status, prestige and acknowledgement; and Self-actualization needs, such as those pertaining to fulfillment and growth.[4]

A built environment's measure of success is, therefore, partially dependent on its level of fulfillment of Maslow's goals, and hence could probably answer to :

- **Physiological Needs:** by providing shelter.
- **Security Needs:** by providing protection from physical and psychological harm (from vandalism, crime, weather, natural disasters, regional hazards, vehicular traffic, pollution, and by supporting hazard-free play areas).
- **Social Needs:** by providing for privacy and territoriality (through a hierarchical order of spaces, and the provision of communal facilities, public services, child play areas, and outdoor/indoor spaces supporting social encounters).
- **Esteem Needs:** by supporting personalization in building form, image and orientation hence, leading to uniqueness.
- **Self-actualization Needs:** by supporting and facilitating those conditions fostering creative acts such as spontaneity, manipulability, transparency and openness to experience.

But, Maslow's model of human needs is reflected in those criteria identified by Kevin Lynch for evaluating city form, and is adequately integrated within Islam's five basic values of life constituting the ultimate objectives of any Islamic verdict. On the one hand, the criteria sought as a basis for evaluating the Ottoman city of Cairo, in terms of Kevin Lynch's contemporary theory of "a good city form," are derived from the general objectives of comfort, identity, relatedness, meaning, and diversity. On the other hand, the Islamic Legal System places an essential obligation on any

Islamic verdict of attaining and maintaining the five basic values of life: religion, soul, mind, siblings, and wealth. Consequently, the ultimate objective of Islamic Divine Law, upon which is based the Islamic value systems, is to realize, provide and maintain the welfare of the individual by preserving his religion, soul, mind, siblings, and wealth, thus satisfying his basic physiological, sociological and psychological needs.

Hence, and in light of Islamic jurisprudence, Kevin Lynch's theory of "a good city form," and the practice of urban design, which by definition is a complex interdisciplinary field dealing with the quality of the environment, good settlement form should provide for the physiological, sociological and psychological needs and expectations of its users and maintain the continuity of the ecology .

In this sense, the Ottoman city of Cairo ranks high on all counts. The urban form of the city followed religious precepts, provided for all levels of man's psychological development and motivations, and rated high in terms of Kevin Lynch's theory of "a good city form" (see Table 5.1). The city is the result of centuries of optimization of available material and human resources, responding to the activities carried out in and around the dwelling, the social organization, the household, and the prevailing climatic conditions. The urban pattern of Cairo reflected the economic, political, social and spiritual value systems and was a manifestation of the family, social life, the climate and building materials. In general terms, the Ottoman city of Cairo was conductive to the needs and aspirations of its people, through a legacy of built forms. The city followed certain well established and commonly accepted ideas responsive to the social norms and Islamic value systems of the society. Religion being the rule of life, ultimately restricted the allocation and orientation of spaces and building design. The development of a rich vocabulary of

CHARATERISTIC FEATURES OF THE BUILT ENVIRONMENT	RELIGIOUS VALUES					LYNCH'S PERFORMANCE DIMENSIONS					MASLOW'S MODEL OF HUMAN NEEDS				
	Religion	Soul	Wealth	Siblings	Mind	Vitality	Sense	Access	Fit	Control	Physiological	Saftey Needs	Social Needs	Esteem Needs	S.Actualiztion
Gateways to the City Proper	•	•	•	•	-	*	•	*	•	*	-	*	-	-	-
Fortified Walls	•	•	•	•	-	*	•	•	•	*	-	*	•	-	-
City Center Focusing on the Mosque	*	-	-	-	•	-	*	-	*	•	-	•	•	*	-
Division of Space	*	-	-	•	-	•	*	•	*	*	-	*	*	•	-
Radio-Concentric Nature of Activities	*	*	-	•	-	*	•	-	*	*	*	•	-	-	-
Compact Planning	-	*	-	*	•	*	•	-	*	•	*	•	•	-	-
Hierarchical Order of Streets	*	-	-	•	-	-	*	*	*	*	-	*	*	•	-
Narrow Winding Streets Directed N/S	-	*	-	*	-	*	•	•	*	•	*	•	•	-	-
Community Organizations	*	•	•	•	•	•	•	-	•	•	-	•	*	*	•
Gated/Closed Residential Quarters	*	•	•	•	-	•	•	•	*	*	-	*	*	•	•
Communal Defense	*	•	•	•	-	*	-	-	•	-	-	*	-	-	-
Cohabitation of the Rich and Poor	•	-	-	-	-	-	-	•	•	-	-	-	•	•	-
Introvert Organization of Dwellings	*	•	-	•	•	*	•	•	*	*	*	*	*	•	•
Self-effacing Nature of Common Buildings	*	-	•	-	-	-	•	-	*	-	-	-	*	-	-
Absence of Figurative Decoration	*	-	*	-	•	-	-	-	*	-	-	-	-	*	•
Rich Vocabulary of Architectural Patterns	*	•	-	•	•	*	*	•	*	*	*	*	*	•	•
Neighborhood and Building Guidelines	*	•	-	•	-	-	-	•	*	*	-	•	•	-	-
Institutions:															
Health & Recreational (martisans, hammams, coffee shops, gardens)	*	*	-	*	•	*	•	•	*	-	*	-	*	•	•
Religicus (mosques)	*	•	-	•	•	-	*	•	*	-	-	•	*	*	•
Commercial (markets, carvanseries)	•	•	•	-	-	•	•	•	•	-	•	-	-	•	-
Educational (madrassas, universities)	*	•	-	•	*	-	•	•	*	-	-	-	•	*	•
Governmental (waqf, muhtasib)	*	*	•	*	-	*	-	-	*	*	*	*	-	-	-
Legal (courts of law)	*	•	•	•	•	-	-	-	•	*	-	-	•	-	-
Water Supply Systems (sabils, aqueducts)	•	*	-	*	-	*	*	*	*	-	*	-	-	-	-
Water Drainage Systems	•	*	-	*	-	*	-	-	•	-	*	*	-	-	-

* - Highly Representative • - Representative - - Not Representative

Table 5.1. Ottoman Cairo a Viable Model in Terms of Religious Values, Kevin Lynch's Theory of "A Good City Form" and Man's Psychological Development and Motivations.

urban elements and architectural patterns enabled the traditional architecture to follow religious precepts reflecting and responding to the user's psychological space schemata, thus foreshadowing the later introduced Western concept of "form follows function." The city was vital (sustenant, safe, and consonant); sensible (identifiable , structured, congruent, transparent, legible, and unfolding); well fitted; accessible (diverse, equitable, and locally manageable); and well controlled; and has achieved all with justice and internal efficiency.

Nevertheless, and on the one hand, the conditions under which the city developed have changed. The activities within the city have changed, the materials available have changed, and the availability of cheap labor may no longer exist. In addition, the composition of Cairo's population continues to develop more and more toward a pluralistic society, yet dominated by Muslims. On the other hand, while bringing about technological changes, the extensive use of new building materials, construction techniques, and equipment as an alternative to traditional building methods has not appeared to provide successful answers to climatic, environmental and cultural problems. Instead, the absurdity of imposing Western architecture has often reached significant counter productive levels, ignoring the needs of total communities, resources, and culture. These imported ideologies, under the guise of modernization, distort the authentic architectural heritage which reveals the nature of the society and its cultural makeup.

The architectural vocabulary that has long been manifested as an element of Islamic significance is now being threatened by a conglomeration of Western intervention, promoting a cultural conflict between the traditional and the modern. Recently constructed buildings have lost their traditional identity, becoming hybrids of exotic character in their architectural form, concept, spatial organization, and

building techniques. As a result, the characteristic features which have come to symbolize the architecture and urban pattern of Ottoman Cairo have all but disappeared, except in the design of mosques where the desire to maintain traditional symbols still dominates.

The close integration of buildings with landscape, the use of both flowing and static water, and the adoption of exquisite, but strictly functional forms have all been replaced by irrelevant concrete towers and glass boxes which have been built solely from a consideration of economy, structural stability and outward appearance; adopting high-level technology that the economy can ill afford; and ignoring the geographical characteristics of the region, the resources, social norms, and the architectural heritage. Furthermore, and unlike the grammar of Ottoman Cairo, streets are planned wide and open adopting the Western evolved grid system and hence are not reflective of any environmental or socio-cultural values (see Figs. 5.3, 5.4).

Hence, and inspite of technological achievements, current architectural and planning strategies are inappropriate and foreign to the physical environment, culture, and socioeconomic identity of the Egyptian society. In contrast, the Ottoman city of Cairo, constituting a rich and refined heritage conducive to the physiological, sociological, and psychological needs and aspirations of its society, affords the traditional concepts of planning a greater advantage.

The Ottoman city of Cairo, is in this sense an excellent source of inspiration, and a precedent for urban centers of the future. Learning from the past is one approach to reconcile and rehabilitate the city's heritage through a process of adaptive assimilations.[5]

> Trying to understand the space-form languages characteristic of a locality and build on them is one way to respond with sensitivity to the existing world and one way of providing reassuring continuities in a world of frequently irrational, accelerating changes.[6]

Fig. 5.3. Modern Townscape in Cairo, Egypt.
(Source: P.Beaumont. G.H. Blake, and J.M. Wagstaff, p. 212)

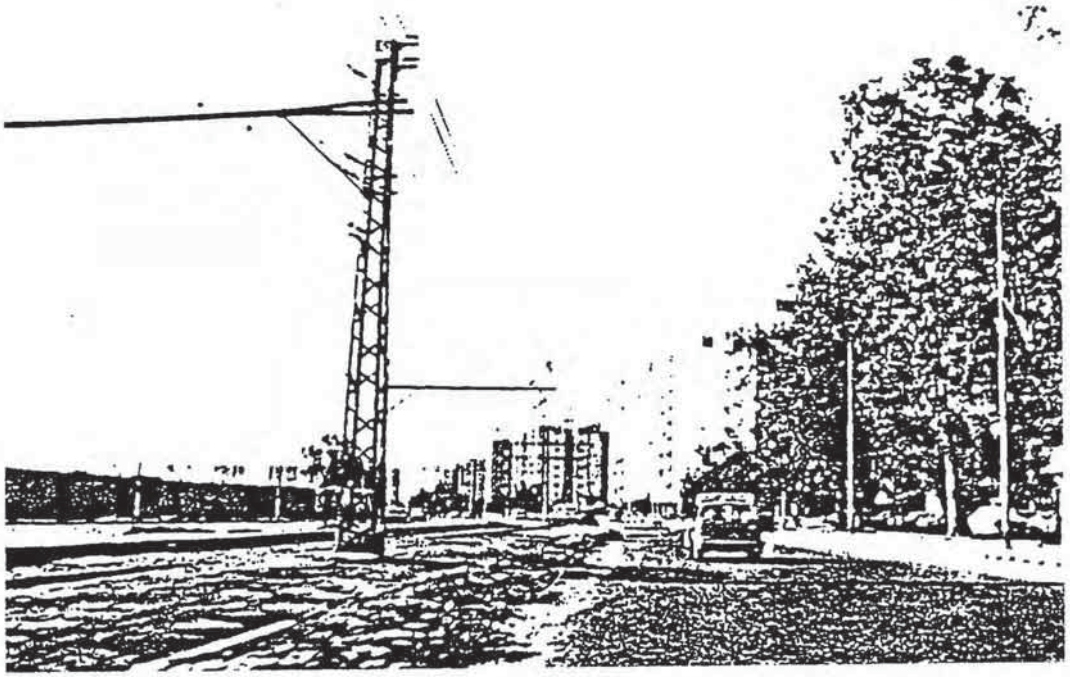


Fig. 5.4 Cairo's Modern Fast and Open Streets.
(Source: M. Nour, p. 34)

The finest structures have been based upon precedent and fundamentals derived from the past. Frank Lloyd Wright's South-western houses of the 1920s drew their principles from the adobe, Meso-American, and geological forms. In Japan, several decades later, the task was to link modernism to national tradition, and such architects as Kenzo Tange explored parallelisms between the concrete frame and timber construction. These structures combine a sense of ancient values with rigorous modernity.[7]

In a like manner, Ottoman Cairo could eventually form the basic foundations for contemporary cities and buildings, eliminating the imitation of Western codes of practice.

> In developing this appropriate response to contemporary problem, the past experience of Muslim societies must also be taken into account. Not only is it the basic determinant of the "heritage" which provides Muslims with exemplars of the achievement of past generations, but also it serves as the basis for defining the elements of a cultural continuity which are essential in any search for authenticity and assertion of self-identity.[8]

Characteristic features of the city (discussed in Chapter III) could serve as the basis for applying precedents, and have recently been integrated in the design and planning of many Western cities. On the one hand, business districts in Europe are being redesigned to accommodate pedestrian malls that are as reminiscent of the medieval market squares around Gothic cathedrals, as are they highly mindful of the markets (suqs) of medieval Cairo. Pedestrian zones are being introduced particularly in the historic centers of cities, and shopping centers are being designed free from internal vehicular traffic. On the other hand, housing is being planned in collective clusters to allow for the creation of semi-public spaces in the interior court-like parks; and cul-de-sacs, like the darb in Ottoman Cairo, are being utilized as transit zones providing for both public and private civic needs.

Nevertheless, worldwide technological achievements can not be ignored, as they are essential to the socio-economic and cultural evolution of cities. But then, architects and urban designers do not create consumer goods which may be replaced as fashion changes.[9] Architecture is the single, most permanent physical product which must serve many generations; it should express the spirit of its era, and ought to become part of the continuum of human life.[10] An understanding of the relationship between physical environment and social interaction is therefore important to environmental designers concerned with the creation of a meaningful and coherent built environment for the promotion of human growth and development. To them, architecture and urban design are inseparable from the aspects of society: political regimes, economic systems, education and dominant ideologies.[11]

Yet, all aspects of life at every level - ontological, social, and political - are addressed by Islamic jurisprudence. Hence, and to lead to prosperity in the present life and thereafter, planning and design must strive to conform to the values identified in the ways of Almighty God (Allah), the revelations (ayat) of which are found in the Quran, and to the Sunna of the Prophet. Design must never violate the ultimate objectives of Islamic Divine Law (maqasid al-sharia). This constitutes a return to the original sources of Islamic doctrine relating the very general Islamic values to the historical context of past experience, and present realities.[12]

> It seeks to derive an appropriate approach to dealing with the built environment of Muslim societies at the beginning of their fifteenth century (A.H.) and the end of the twentieth century A.D. regardless of how this derived approach is similar to, or different from, western experiences.[13]

However, the return to the sources is not meant to provide specific models for application, but a system of general urban principles appropriate to the technology dominated, highly automated contemporary way of life.

> I do not believe that any reading of the Quran, at any level, or a study of the Sunna, will provide detailed instructions on how to design a house in Morocco or Indonesia, or how to design the thoroughfares of Cairo and Istanbul. Those that have tried to derive specific examples from these sources are doing both themselves and the sources a disfavor. Themselves by ignoring the wider context in which we live and which must provide the major "givens" of the problems to be addressed, and the sources by demeaning them to the level of a "handbook" or "textbook" rather than treating the Quran as the eternal message of inspiration and guidance for all times and the Sunna of the Prophet as the embodiment of exemplary behavior.[14]

Precedents are thus tied to the "essential and the changeable." The essential here, is the ethical force of Islamic tradition developed throughout history - an Islamic ethos which is linked to the environment, and which symbolizes the existence of man with his built environment.[15] The changeable, however, is not the legacy of Islamic thought (turath), but the vocabulary by which Islamic thought under pressure from economic, political, technological, and social realities is expressed and manifested in physical form. Hence, precedents are not "ready solutions" for development of modern neighborhoods, or models for patterns of organization of large building complexes,[16] but

> ....can serve as a source of inspiration and innovation. For the architect and urban designer precedent has other dimensions besides the practical one of improving design by learning about specific approaches from past developments. By thoughtful analysis, it can also help us find various methods for making new environments less alienating and therefore more satisfactory to use. [17]

Consequently, and in light of the pressing need to establish an authentic architectural vocabulary linked to tradition through adaptive assimilation, a list of

general yet, basic urban principles derived from the main sources of Islamic jurisprudence, and extracted from the Islamic value system, the neighborhood and building guidelines, and the characteristic features of the Ottoman city of Cairo is essential. Exploring the possibility of adapting the refined architectural heritage of Ottoman Cairo to the current needs of society is thus, dependent on the Islamic value system, and is primary to establishing an architectural language linked to tradition.

With modern aims in mind, it is thus possible to create contemporary, functionally efficient cities or elements thereof, based on Islamic design principles, that hold a promise of being as beautiful as was the great Islamic city of Cairo. This quest for identity, inspired by historical precedents, could generate a cohesive environment incorporating modern technology and contemporary needs, reflecting continuity within tradition.

It is evident then, that Islamic urban form principles could eventually constitute a valid foundation for contemporary buildings and cities, and may become a viable tool for achieving functionally efficient and coherent built environments. This conclusion thus, substantiates the second hypothesis relating the appropriateness of Islamic urban principles in contemporary settings.

II. CONCEPTS OF ISLAMIC URBAN PRINCIPLES

Over and above the social, economical and administrative norms and value systems discussed above in Chapter III, Islamic urban principles inspired by historical precedents of the past, derived from the main sources of Islamic jurisprudence and extracted from neighborhood and building guidelines implemented by local jurists (Kadis) in Muslim societies to resolve urban conflicts among neighbors, constitute the performance criteria necessary for the development of a

meaningful built form in many Muslim cities.[18] Urban principles thus, portray an extension to the established laws of Islamic jurisprudence as applied to the solution of contemporary urban problems.

The following identifies specific urban principles - which complement the socio-cultural, economical and administrative value systems illustrated in Chapter III - and outlines their appropriateness to contemporary applications.[19]

1. Provision of an efficient fabric for the flow of traffic

The traditional Muslim city was primarily pedestrian oriented, though occasional transport of goods by horse and camel, on public thoroughfares, was authorized. The minimum width of public thoroughfares was proclaimed by the Prophet and was great enough to allow two laden camels to pass. The exclusion of heavy traffic from the clustered dwelling areas allowed the use of shaded space for neighborhood interaction. In addition, the intricate richness of the street pattern, incorporated a hierarchical order ranging from the relatively wide public thoroughfares to the relatively narrow dead end streets thus rendering an efficient fabric for the flow of pedestrians across the city.

Correspondingly, and in light of the advent of the automobile, two separate yet, integrated circulation networks catering to a safe mix of pedestrian and vehicular traffic are essential in a contemporary city. On the on hand, a hierarchical progression of streets catering to the automobile should provide an efficient fabric for the flow of vehicular traffic. In addition, and to safeguard its inhabitants, through traffic should be discouraged in residential neighborhoods, while streets should be designed to discourage high speeds. Furthermore, the volume of traffic should be limited to that of the inhabitants of a specific residential neighborhood.

On the other hand, streets should render an efficient fabric for the flow pedestrians across the city, while integrating commercial and recreational facilities on its edges to promote and encourage social interactions. In addition, street widths should be reduced as they approach residential neighborhoods, securing a lower density of pedestrian traffic thereby safeguarding the privacy of its inhabitants.

Minimum width of streets including that of the right of way and minimum allowable vertical clearance should be based on the type and volume of traffic. Yet, street widths should allow for light and air access, and fire protection conforming to the respective design standards.

2. Provision of various grades of seclusion

The traditional Muslim city emphasized the predominant role of privacy and strict separation from public activities. Correspondingly, and to maximize privacy in a contemporary Muslim city within an otherwise continuous urban structure, a clear division of space into public, semi-public, semi-private, and private, coupled by a hierarchical progression of streets defining the public and private domain, is essential. Closed residential neighborhoods and differentiated business centers should also be incorporated in the planning and design of contemporary Muslim cities. In addition, dwellings should be introvert in their organization, overlooking a central courtyard where possible. Moreover, design standards should regulate and restrict, if necessary, the location, height and treatment of external fenestrations so as to ensure the privacy of neighboring properties.

Such design principles are generally applicable world wide, and could be transformed into a series of design concepts and options. In principle,

turning away, as it were, from the noise and turbulence of the modern city and providing a private retreat is likely to find agreement among many. Yet, these principles are not only applicable to individual dwellings, but also to garden apartments. The intricate articulation of the superblock with its interior court-like gardens could provide an appropriate response to the housing needs of all age groups. Architects Henry Wright and Clarence Stein pioneered this concept in the 1920s with considerable success in Sunnyside and Radburn, New Jersey. Their superblock and interior garden concept has since been widely applied throughout the world.[20]

In addition, due to the pluralistic composition of many contemporary societies, cities must reflect the dominant character of urban dwellers in our era, ethnically and ideologically. This applies particularly to the Muslim city, in light of the Islamic principles of freedom, tolerance and respect for the individual. Consequently, design standards should accommodate a wide spectrum of preferences while conforming to the Islamic values identified in the ways of Allah. Such a policy corresponds to the varied pattern of quarters within the Ottoman city of Cairo.

3. Provision for closely-knit homogeneous communities

The division of the traditional Muslim city into residential quarters was a manifestation of the prevalent community organizations, and an attribute of the concepts of community, privacy, social solidarity, responsibility toward neighbors, equity and interdependence. Quarters were social neighborhoods based on religious identity or ethnicity, afforded an intimate scale, and were responsible for the overriding concern for privacy, proper communal behavior and community cohesion.

To provide for community cohesion, contemporary cities should therefore be sub-divided into small identifiable residential neighborhoods, based on closely-knit and homogeneous communities. Each focused on a central promenade incorporating basic religious, social, commercial, educational and recreational services for the community. Though, it is unlikely that such an objective is universally attainable, it is quite feasible, however, and borne out by actual practice, that subdivision design and community unit project planning can, indeed, attain objectives very similar to that of Islamic tradition. Consequently, whether people accept such concepts for religious motivations, or simply because of their practicability, is less significant than to persuade developers and public planning bureaucracies to experiment with these ideas toward a more satisfying urban environment.

4. Integration of the whole community within itself

As a manifestation of the spirit of community, the traditional Jumma mosque provided the scene for involving the entire population of the city, thereby justifying its central location. The city square functioned as the psychological extension of the sacred space of the mosque and thus, experienced a considerable share of public life.

Yet, much of the activities that once took place within the mosque have developed into institutions in their own right. Nevertheless, the mosque continues to assert its spiritual prominence. Contemporary Muslim cities, districts, or neighborhoods should therefore evolve with the mosque and government institutions in the central area, surrounded by the market, forming the religious, political, administrative, educational and commercial

center, and establishing a clear and powerful expression of religious symbolism and civic unity.

In many Western societies however, where a general secular social order prevails, the mosque may well be replaced by secular focal points, such as government institutions or the shopping mall, serving similar purposes as that of the Greek Agora. Here, the components and elements that once characterized the design and placement of the mosque, or cathedral: symbolism; orientation; spiritual commonality; psychological security; cultural advancement; and prestige of the city, translate into modern equivalents, except for the spiritual religious element, the Holy, the 'totaliter aliter', as Rudolf Otto defined it.[21]

5. Maintenance of health and comfort

As an attribute to the concern for health and sanitation, the Ottoman city of Cairo experienced a high level of control safeguarding the well-being of its inhabitants. This concern was also addressed in the design and planning of the city. Narrow winding streets oriented toward the north/south; introvert dwellings circumscribing courtyards; along with projected windows, mashrabiyyas, wind scoops, fountains and the prevalence of gardens, provided for adaptation to the arid climate and afforded a liveable environment.

Correspondingly, contemporary cities should be planned and designed to promote, facilitate and safeguard the well-being of the individual in the community.

6. Sources of pollution are not to be located adjacent to or near sacred structures, historical districts and heavily inhabited areas[22]

The principle is an attribute of the notion of health and sanitation and was manifested in the radio-concentric organization of activities in many Muslim cities.

Hence, and according to the principle that "the repelling of evil takes precedence over the acquisition of benefits," codes should restrict the zoning of industries causing excessive harm by pollution, according to the inconvenience they bring about, even if economic losses were to be encountered. A clear differentiation, and a sharp and coarse grain of mix is thus essential among residential and heavy industrial districts of contemporary cities.

However, this is a complex age. Technological products were, first, treated as a series of conveniences; that would be absorbed within the the city or house; but, that has proved to be difficult and unsatisfactory.[23] The introduction of technology into nature coupled by our limited understanding of the negative side effects of instruments of technology, of the very features of the environment that were designed and developed to bestow the greatest illusion of comfort and convenience, accounts for the destruction of the equilibrium of our habitat.[24] Nuclear energy and its waste material, high power transmission lines, rocketry, aircrafts, gasoline and other oil products, as well as microwave ovens are but a few of a seemingly endless list of complex high-tech products that may prove hazardous to the health and well-being of living creatures, disrupting the ecosystem of the environment. Particular attention should thus be given to the introduction of high-tech products in

contemporary cities based on the principle stating that "the repelling of evil takes precedence over the acquisition of benefits."

7. Provision of sport facilities

Islam places great value on the maintenance of health and on the well being of the individual. The Prophet encouraged the education of three kinds of sports: running, swimming and archery. Competitions were arranged by the Prophet in Medina and sport fields were established in and around the city.[25]

Hence, contemporary Muslim cities should provide for such sport facilities permitting intellectual and physiological growth and development. Facilities both indoors and outdoor should thus prevail and should cater to both men and women, while ensuring strict segregation and privacy where that is important to the respective community.

8. Responsibility and sense of public awareness v: 5,12; s: 5, 6,7,8

Removal of obstacles from public rights-of-way, and planting of trees in and around the city is a primary attribute of this principle.[26] The concept, however, could be expanded to include solid waste collection and disposal by modern means. Cities should therefore, involve the information media and community organizations in a coordinated effort to educate the public and earn its support.

9. Preservation of open space and public lands by the state s: 14

This principle was declared in Article 5 of the code of Land of the Ottoman Empire. The article states:

> If there is unoccupied land among the houses or inhabited places, it can never be regarded as dead land. On the contrary, it must be kept as it is for the public benefit, and no one may own it as private property ...[27]

Likewise, the contemporary Muslim city must preserve open public lands and green areas in and around the city for public benefit. This is in accord with the notions of health, equity, pity, freedom and right of ownership. Measures should be taken to restrict all individuals from occupying limited public open spaces such as riversides, sea coasts and the like. If however, "there is no public need for such spaces, a hypothetical public need must be thought up for the benefit of the community." [28] Communal projects, where ownership is not entrusted to a single individual but a group of people or a community, should thus be encouraged. A tested alternative to public ownership of permanent open spaces and greenbelts is the legal restriction of the use of the land for specified agricultural purposes. This method was initiated by officials in German cities in the 19th Century. Berlin, Hamburg, Hannover and Frankfurt benefitted from this system known as Lex Adickes, after a noted municipal manager.

10. Planting trees and the provision of gardens

Islam prohibits trespassing upon green fields and encourages the planting and maintenance of trees in and around the city. This is documented in the Prophet's treaty with the people of Taif "to protect trees around the Taif and not to hunt any wild animals. Whoever does not obey these orders ought to be punished by beating and confiscation of his clothes." [29]

In addition, gardens have a spiritual significance as the earthly version of heavenly paradise. The garden is frequently cited in the Quran as a symbol of paradise, with shade and water as its ideal elements. Also

mentioned are the abundant fruit trees and pavilions. Thus, within this concept of paradise is a clear indication as to what the garden should contain: fruit trees, water and rich pavilions intended as places for pleasure and cool enjoyment.[30]

Modern secular adaptations of these sound fundamental principles are all too obvious. Parks and gardens should be incorporated in the process of planning and design together with competently drawn specifications for the kind of plant material most appropriate in a given situation. Both ability to survive and economies of maintenance are key considerations here. Cities, districts, neighborhoods, clusters of houses and individual dwellings should provide for tranquility and comfort found in the Quranic conception of paradisiacal enclosure. Much like the dwelling itself, each should be a retreat from the hostility inherent in the modern urban surroundings representing an earthly approximation of the description of paradise, "maximizing beauty for all the sense: fragrant smells, sublime views, sounds of running water, birds and rustling foliage, delicious fruits, refreshing shade; and water cooled breezes - the greatest possible intensification of lushness and abundance." [31]

11. Prohibition against obstructing public thoroughfares s: 5,6

It is strictly prohibited to impede pedestrians on public streets by temporary or permanent obstructions.[32] It is narrated that Usbu b. Nabtah said:

> Ali and I went out together. We walked along the street and saw that shop keepers had illegally occupied the street. Caliph Ali asked them: 'What is this?' People answered: 'Shopkeepers have built their shops on the street.' Ali said: 'Roads and streets are not their private estate. They are for all Muslims.' [33]

Modern applications are all to obvious and self-evident. Be it with respect to parking vehicles, temporarily or habitually, in certain locations resulting in the obstruction of access, or by inconsiderate driving habits at the peril of others, an all too common feature in Cairo today.[34] Policies should thus be clear with respect to unauthorized obstruction of public thoroughfares. Yet, it is important to realize that regulations come into being largely as a result of poor design or obsolescence of facilities in need of upgrading. Designs should therefore promote a traffic appropriate environment replacing the "do nothing" habits of run-of-the-mill engineering. Such a principle is in accord with the time honored Islamic concept of holding others harmless and accepting full responsibility for the well-being of others; protecting the right of ownership, upholding equity, and recognizing interdependence of all creatures under God.

12. Cleanliness of external and internal Finas

This principle is an attribute of health and sanitation, and was self regulating by inducing feelings of guilt and shame in the person who did not practice it.[35] Preventive measures to ensure health and sanitation included keeping wells, rivers and lakes clean; and prohibited disposing of unclean substance and water onto streets.[36]

Correspondingly, and as a by-product of public awareness, necessary measures and rules should be enforced to ensure the cleanliness of the city and its environments. A good incentive would be for the people to share these expenses.

13. Aniconism as a governing principle of art s: 24,27

Islam's prohibition of figurization and representation of living creatures is the most important principle governing the visual arts. Representation of living beings is prohibited and is secured by Hadith. This attitude toward images led to a tendency and passion for abstraction, limiting the primary mediums of aesthetic expression to: calligraphy, geometrical patterns and floral motifs.[37] Considering the above a passion for symmetry developed and was displayed in the so-called decorative arts - wood work (arabesque), glass, ceramics, metal works and textiles, and in the layout and design of some plans and ceilings of buildings.[38]

Contemporary works of art, and sculpture should therefore be abstract recognizing Islam's prohibition of figurization. Similarly, decorations should thus be limited to abstract forms of expression including those previously admitted. A neighborhood subdivision should regulate art, even architectural style, through private deed restrictions. This ancient Germanic concept has demonstrated much practical value the world over having been preserved for centuries by Common Law. The concept fits well into Islamic jurisprudence and the restriction of property rights for public good.

14. Prohibition against advertising the social standing

The principle is an attribute of the virtues of modesty and humility. The traditional Muslim dwelling was self effacing, allowing families of varying income levels to co-habitate without discrimination.

In a contemporary setting, codes should thus prevail limiting ostentatious facades to public institutions and buildings. In addition, and in

accord with the notion of pity, design standards should regulate the external finishes of residential buildings within the same neighborhood.

However, as status symbols are generally important elements of self-esteem, and provide for man's psychological development and growth, this principle may often be circumvented by substituting other means of conspicuous consumption. Cars, airplanes, jewelry, clothing, horses and ranches are but a few symbolic statements of one's status in the world. Yet, while Islam places no limit on wealth and ownership of propery it preaches austerity, simplicity and humility advocating functional solutions and urging Muslims to share their wealth with those in need. Cities should therefore involve the information media and community organizations in a coordinated effort to incite the public to follow religious precepts and lead a modest life. Codes however, should be designed to regulate and obscure, whenever possible, the sight of conspicuous consumption. Affluent villas, public and private garages, extravagant ranches, rich pavilions, and lavish private gardens should all be screened from passers by.

15. Provision of an intimate scale

The narrow winding streets of traditional Muslim cities encouraged social interaction among their users and reinforced social cohesion. Street widths allowed shopkeepers on both sides of the street to converse across it, while passers by exchanged greetings. Furthermore, the practice of building up to the street line and to the side boundaries, such that each building abuts its neighbors on both sides, assured urbanity and provided an intimate human scale. Streets were thus, outdoor rooms flanked by continuous walls.

In a like manner, and to provide for an intimate and human scale reinforcing the notions of harm, maintenance of health, community and privacy; narrow pedestrian streets, built to the street's right of way, should prevail in residential neighborhoods, and in contemporary city centers. Residential streets should afford cool shaded spaces (within the range of the comfort zone) during hot summer afternoons, allowing for neighborhood interaction and for children to play safely.

16. Right of building higher within one's air space v: 17; s: 26,44

Restriction on building heights did not prevail in Arab-Muslim cities. The Prophet told Khalid b. al-Walid: "build higher in the sky and ask God for spaciousness," [39] and the Maliki School permitted the owner of a property to maximize its utilization for personal use.[40]

The extension of buildings within the property's airspace is allowed in Islam even if it results in obstruction of air movement and sunlight from an existing neighbors window.[41] The exclusion of air and sun is considered a lesser harm than that of preventing extension within one's own airspace, provided that the harm caused by excluding air movement and sunlight is not intentional and that no other harms are caused. This concept is affirmed by Ibn al-Rami quoting from his contemporary Kadi Ibn Abdul-Rafi:

> That all conditions creating harm should be removed, except the obstruction of air movement and sunlight due to the increase in height of an adjacent wall or building. However, if such an obstruction was created to inflict harm then it too should be removed.[42]

In a contemporary setting, codes should thus prevail allowing for maximizing the benefit of an individual's air space without inflicting harm

onto others. In addition and contrary to the allowance stated above, permitting individuals of obscuring air movement and sunlight from an existing neighbor, and according to the principle that "the repelling of evil takes precedence over the acquisition of benefit," design standards should be set to regulate, on equitable basis, the utilization of one's air space ensuring that views, light and air movement are not obstructed.

17. Rights of usage of external "fina" belongs to the owner of the building which abuts on it

The use of the space immediately adjacent to the exterior wall of a building (fina) was proclaimed by Caliph Omar b. al-Khattab to belong to the owners or users of the building to which it abuts.[43]

Subject to other prior rights, codes should thus confer the right of usage of external finas to the building which abuts on it, provided that no harm is caused to others and the fina is well maintained. This is in accord with the notion of harm, community, privacy, right of ownership and respect of property of others.

In modern cities, the concept could be applied to parking spaces adjacent to houses. External finas could similarly be used to provide shaded seating allowing for neighborhood interaction, to create a green strip, to be maintained by the owner for public benefit, or it could be utilized as a set-back to be maintained by its owner.

Notes

1. Daniel Elbo, "Traditional and Modern Domestic Architecture, A Study of Japanese and Arab Cultures," Term Paper, (University of Illinois, May, 1984), p. 3.
2. Serge Chermayeff and Christopher Alexander, *Community and Privacy* (Anchor Books, New York, 1965), p. 13.
3. Charles H. Turner, *Maps of the Mind* (Macmillan Publishing Company, New York, 1981), p. 119.
4. Ibid., p.119.
5. Ismail Serageldin, "Faith and Environment," in *Space For Freedom*, ed. I. Serageldin, (Butterworth Architecture, London, 1989), p. 213.
6. Ronald Lewcock, "Working With the Past," in *Theories and Principles of Design in the Architecture of Islamic Societies* (The Aga Khan Program for Islamic Architecture,1988), p. 95.
7. William J. R. Curtis, "Towards an Authentic Regionalism," in *Mimar* 19 (January/March 1986): 26.
8. Serageldin, op. cit., p.214.
9. Friedrich R. Ragette, "The Congruence of Recent Western Design Concepts with Islamic Principles," in *Ekistics* 47 (280) (January/February 1980): 39.
10. Ibid.
11. Mohammed Arkoun, "Building and Meaning in the Islamic World," in *Mimar* 8 (1983): 53.
12. Serageldin, op. cit., p. 213.
13. Ibid.
14. Ibid.
15. Ibid., pp. 211-212.
16. Lewcock, op. cit., pp. 87-88.
17. Ibid.
18. According to Basim el Hakim, manuscripts by the Andalusian Isa ben Mousa (386/996) and Ibn al-Rami's Kitab al-I'lan bi-Ahkam al-Bunyan (The Book of Communicating Building Solutions) have indicated the similarity of solutions to urban problems across North Africa and Al-Andalus, resulting in a consistent urban design approach modified only in response to variations in environmental conditions.
19. W. G. Roeseler, *Urban Development Commentary* (Texas A&M Lectures, 1983-89).
20. Clarence S. Stein, *Toward New Towns in America* (M.I.T. Press, Cambridge, Massachusetts and London, England, 1966).
21. Rudolf Otto, *The Idea of the Holy* (Oxford University Press, London, 1923).
22. Besim S. Hakim, *Arab-Islamic Cities* (KPI Limited, London, 1986), p. 22.
23. Chermayeff and Alexander, op. cit., p. 36.
24. Ibid., p.117.
25. Ali Safak, "Urbanism and Family Residence in Islamic Law," in *Ekistics* 47 (280) (January/February 1980): 23-24.
26. Hakim, op. cit., p. 22.
27. Safak, op. cit., p. 22.
28. Ibid.
29. Ibid., pp. 23-24.
30. John Brookes, *Gardens of Paradise* (New Amsterdam Books, New York, 1987), p. 19.
31. Othman B. Llewellyn, "The Objectives of Islamic Law and Administrative Planning", in *Ekistics* 47 (280) (January/February 1980): 12.
32. Hakim, op. cit., p. 19.
33. Safak, op. cit., pp. 23-24.

34. Hakim, op. cit., pp. 19, 22.
35. Hakim, op. cit., p. 22.
36. Safak, op. cit., pp. 23-24.
37. Robert Gwinn, *The New Encyclopaedia Britannica*, 15th Edition, vol. 22 (Encyclopaedia Britannica Inc., Chicago, 1989), p. 44.
38. Ibid.
39. Saleh al-Hathloul, "Urban Forms in Arab-Muslim Cities", in *Ekistics* 47 (280) (January/February 1980): 15.
40 Hakim, op. cit., p. 19.
41. Ibid., p. 37.
42. Ibid., p. 73.
43. Ibid., p. 27.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Chapter V presented a correlation between continuity and change. This chapter however, provides a summary of the research, highlights the main findings, presents major policy implications of these findings, and suggests, in general terms, related areas for future research.

I. RESEARCH FINDINGS AND CONTRIBUTIONS

From a critical review of the literature, it may be noted that studies examining the concept of the Islamic city, since the turn of the century, have generally followed one of three approaches (see Chapter II). In addition, attempts to relate Islamic culture and heritage to the art, architecture and urban pattern of the Muslim world remain challenged and largely dependent on a descriptive analysis of the physical manifestations, rather than the basic principles behind the physical expression. Accordingly, this research has set out to test two hypotheses. The hypotheses are:

1. The morphology of the city of Cairo during the Ottoman era followed certain prevailing concepts responsive to the social norms of the time and reflective of the overriding Islamic value system.
2. The Islamic urban principles inherent in the traditional model are viable and pertinent in a contemporary setting and constitute the performance criteria necessary for the development of appropriate urban design guidelines applicable in the modern urban environment.

Consequently, to test the validity of the first research question, an attempt has been made to identify the socio-cultural determinants of spatial form in Muslim cities in order to examine and evaluate the implications of Islamic jurisprudence over the built environment of the Ottoman city of Cairo (see Chapter III). The findings of which clearly indicate that the characteristic features that have come to symbolize the Muslim city were largely influenced by the prevailing Islamic ideology. The morphology of the Ottoman city of Cairo reflected both the social norms of the society, its aspirations and social organization. Hence, and contrary to the views held by scholars relating to the "Revisionist" school of thought, the physical form of the city emerged as an expression of religious symbolism, a manifestation of Islam and a reflection of the spiritual and civic life of the city - though pre-Islamic attributes prevailed. Yet, religious values were never "ready solutions" providing specific models for application, but served to indicate criteria for performance.[1] This arrangement permitted variety and diversity within an otherwise unified urban environment.[2] It is thus reasonably safe to state that

> the roots of the structure and the unity prevalent in the numerous cities within the vast Islamic world are primarily attributable to the relationship of parts and the resultant structuring system which is generated and sustained by a set of building principles and guidelines. These are the product of the Fiqh: the mechanism interpreting and applying the value system of the Sharia within the processes of building and urban development. Hence all cities in the Arab and Islamic world, inhabited predominantly by Muslims, share an Islamic identity which is directly due to the application of Sharia values in the process of city building.[3]

These findings follow the same line of reasoning held by many contemporary Muslim scholars. But, while most such views attribute their judgements to general religious notions, this investigation is based on intrinsic values inherent in the Sharia. In addition, this conclusion reaffirms the reliance on Islamic values as an

appropriate basis for analysis. However, the occultation of regional, geographic, historical, and cultural factors to the advantage of exclusively religious values is absurd,[4] unless Islam is so truthfully viewed as a wholistic notion encompassing all aspects of life at every level.

Furthermore, and to test the validity of the second hypothesis, the environmental qualities of the built form of Ottoman Cairo were analyzed utilizing Kevin Lynch's performance dimensions (see Chapters IV). Consequently, and in an effort to identify Islamic urban form principles and judge their validity and pertinence in a contemporary setting, a comparative analysis of the traditional model in terms of religious precepts, Maslow's model of human needs and Lynch's contemporary theory of "a good city form" was undertaken (see Table 5.1). The objective being to develop conceptually the framework for an urban design language, the elements of which are patterns derived from Islamic urban principles, capable of creating urban entities in harmony with the local tradition while utilizing modern technology. The findings of this investigation thus offer a new perspective, reinforcing those views relating physical form and religious beliefs and validating the appropriateness of Islamic urban form principles for contemporary applications.

The Ottoman city of Cairo was conducive to the needs and aspirations of its inhabitants through a legacy of built forms. The morphology of the city followed religious precepts, provided for all levels of man's psychological development and motivations, and ranked high in terms of Kevin Lynch's theory of a "good city form." The interaction between regional, geographic, historical, and cultural factors and urban from created a distinct urban pattern specific only to Muslim cities. In this sense, Islamic urban from principles constitute a valid foundation for contemporary buildings and cities, and are a viable tool for achieving functionally efficient and

coherent built environments. With modern aims in mind, it is thus possible to create contemporary, functionally efficient cities or elements thereof, based on Islamic design principles inspired by historical precedents while incorporating modern technology and contemporary needs. Hence, and in light of the pressing need to establish an authentic urban vocabulary linked to tradition, this resolution eliminates the imitation of Western codes of practice and as a result reflects continuity within tradition.

It is evident then, that this research has succeeded in meeting the objectives set in Chapter I and has substantiated both hypotheses. In this sense, this study represents the author's original contribution to Urban and Regional Science and, in all modesty, is considered both significant and unique.

II. POLICY RECOMMENDATIONS

In light of recent research, it is clear that attempts to provide guidelines for development in the Muslim world have generally followed, once again, a global approach utilizing criteria that are non culture specific, based on individual expertise and a limited understanding of the culture, thereby resulting in subjective judgements and generic policies for development. This section is, therefore, concerned with the major policy implications of the research findings. The primary object is preserving, and where possible, enhancing the long lived heritage of the Muslim world while maintaining its buoyant civic life. The challenge here is to define those characteristics that afford lasting identity and to assess the extent to which new developments can be absorbed sympathetically among the old.[5] This involves establishing an authentic architectural and urban design vocabulary conforming to the values of Islam and linked to tradition through adaptive assimilation, thereby

promoting environments of explicit character that evoke universal emotional experiences. Islamic urban principles identified in Chapter V constitute a step forward in this regard. Yet, this probing discourse requires a separate investigation which, within the framework of this study, is impossible to address. However, while recognizing the importance of social and economic factors, emphasis should be given to the physical aspects, namely the physical form and setting of buildings, as well as the spaces that separate them.

III. SUGGESTIONS FOR FUTURE RESEARCH

At a time when Western values applied to Muslim societies and their built environments are undergoing a radical reappraisal and evaluation, to achieve the goals and values inherent in the Sharia, further research in related areas is needed. Such investigations may be divided between those that are historical in nature and those that deal with contemporary issues, including the utilization of modern technology in solving urban problems.

Historical Research

Research in this area may include, but is not limited to:[6]

1. General survey of historical monuments and sites in the Muslim world.
2. Documentation of existing articles, books and manuscripts dealing with Islamic cities.
3. Preparation of atlas for the Islamic cities including monographs on individual cities and major building types.
4. Preparation of monographs on the aspects of Islamic economic life and its impact on the built environment.
5. Investigation of the Hisba institution, areas of its jurisdiction, and responsibilities.
6. Investigation of waqf, and its impact on the built environment.
7. Documentation of land allocation and its impact on the built environment.
8. Documentation of traditional building and construction techniques.
9. Documentation of traditional energy saving practices.

10. Documentation of traditional landscaping techniques.
11. Documentation of symbolic manifestations exercised in the building process.
12. Documentation of design languages used within major regions in the Muslim world.

Research Dealing With Contemporary Issues

Research in this area may include, but is not limited to:[7]

1. General survey of living handicrafts - recording techniques, professional organizations and aesthetic principles.
2. General survey of the technical and material aspects of Islamic culture.
3. General survey of the impact of change on Islamic cities.
4. General survey of the needs and attitudes of Muslims in the present and the future.
5. General survey of prevailing construction methods and their appropriateness in the Muslim world.
6. General survey and comparative analysis of existing codes and building regulations in the Muslim and Western world.
7. Development of appropriate codes and building regulations derived from the Fiqh.
8. Development of an appropriate academic curriculum in architecture, urban design, landscape architecture and urban planning.
9. Development of an appropriate architectural and urban design language for contemporary applications.
10. Development of appropriate construction methods in the Muslim world while integrating modern technology.
11. Development of appropriate guidelines based on Islam's position toward environmental protection and the introduction of modern technology in the environment.

Notes

1. Ronald Lewcock, "Working With the Past," in *Theories and Principles of Design in the Architecture of Islamic Societies* (The Aga Khan Program for Islamic Architecture,1988), p. 95.
2. Besim S. Hakim, *Arab-Islamic Cities* (KPI Limited, London, 1986), p. 138.
3. Ibid., p. 137.
4. Andre Raymond, *The Great Arab Cities in the 16th - 18th Centuries* (New York University Press, New York, 1984), p. 87.
5. Jim Antoniou, *Islamic Cities and Conservation* (The Unesco Press, Geneva, 1981), p. 87.
6. This section draws on ideas taken from: Hakim, op. cit., pp. 140-141; and R. B. Serjeant, "Recommendations," in *The Islamic City*, ed. R. B. Serjeant (Unesco, Paris, 1980), pp.204-205.
7. Ibid.

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APPENDICES

APPENDIX A

SELECTED QURANIC VERSES AND SAYINGS OF THE PROPHET

Selected Quranic Verses
English translation from:

(a) *The Holy Quran: Text, Translation and Commentary*, by Abdullah Yusuf Ali. Published in the U.S.A. by Khalil Al-Rawaf, 1946;
(b) *The Meaning of the Glorious Koran*, an explanatory translation by Mohammad Marmaduke Pickthall. New York: New American Library, Inc.;
(c) *The Koran Interpreted*, a translation by A. J. Arberry. London: George Allen and Unwin Ltd., 1955.

(The translator's name appears after the 'Sura' and verse numbers)

1. 'O mankind! Eat of that which is lawful and wholesome in the earth, and follow not the footsteps of the devil. Lo! he is an open enemy for you.' 2:168 (Pickthall)

2. 'O ye who believe, eat of the good things that We have provided for you, and be grateful to God if it is Him ye worship." 2:172 (Ali)

3. 'They will question thee concerning what they should expend . Say: "The abundance".' 2:219 (Arberry)

4. 'O ye who believe! Spend of the good things which ye have earned, and of that which we bring forth from the earth for you, and seek not the bad [with intent] to send thereof [in charity] when ye would not take it for yourselves save with disdain; and know that Allah is Absolute, Owner of Praise.' 2:267 (Pickthall)

5. 'You are the best nation ever brought forth to men, bidding to honor, and forbidding dishonor, and believing in God. Had the people of the Book believed, it were better for them; some of them are believers, but the most of them are ungodly.' 3:110 (Arberry)

6. 'O ye who believe, eat not up your property among yourselves in vanities, but let there be amongst you traffic and trade by mutual goodwill. Nor kill [or destroy] yourselves: for verily God hath been to you most Merciful.' 4:29 (Ali)

7. 'And serve Allah. Ascribe no thing as partner unto Him. [Show] kindness unto parents and unto near kindred, and orphans, and the needy, and unto the neighbor who is of kin [unto you] and the neighbor who is not of kin, and the fellow-traveler and the wayfarer and [the slaves] whom your right hands possess. Lo! Allah loveth not such as are proud and boastful.' 4:36 (Pickthall)
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8. 'O ye who believe, fulfill [all] obligations. Lawful unto you [for food] are all four-footed animals, with the exceptions named, but animals of the chase are forbidden while ye are in the Sacred Precincts or in pilgrim garb, for God doth command according to His Will and Plan.' 5:1 (Ali)

9. 'There is not an animal [that lives] on the earth, nor a being that flies on its wings, but [forms part of] communities like you. Nothing have we omitted from the Book, and they, [all] shall be gathered to their Lord in the end.' 6:38 (Ali)

10. 'O children of Adam, wear your beautiful apparel at every time and place of prayer, eat and drink, but

waste not by excess, for God loveth not the wasters.' 7:31 (Ali)

11. 'Say: "Who has forbidden the ornament of God which He brought forth for His servants, and the good things of His providing?" Say: "These, on the Day of Resurrection, shall be exclusively for those who were believers during the life of this world. So We distinguish the signs for a people who know".' 7:32 (Arberry)

12. ' Take the abundance, and bid to what is honorable, and turn away from the ignorant.' 7:199 (Arberry)

13. 'And it is God who has appointed a place of rest for you of your houses, and He has appointed for you of the skins of the cattle houses you find light on the day that you journey, and on the day you abide, and of their wool, and of their fur, and of their hair furnishing and an enjoyment for a while .' 16:80 (Arberry)

14. 'O ye who believe, enter not houses other than your own, until ye have asked permission and saluted those in them: that is the best for you, in order that ye may heed.' 24:27 (Ali)

15. 'If ye find no one in the house, enter not until permission is given to you, if ye are asked to go back: that makes for greater purity for yourselves, and God knows well all that ye do.' 24:28 (Ali)

16. 'Say to the believers that they should lower their gaze and guard their modesty, that will make for greater purity for them, and God is well acquainted with all that they do.' 24:30 (Ali)

17. 'And diminish not the goods of the people, and do not mischief in the earth working corruption.' 26:183 (Arberry)

18. 'Then watch thou for the day that the sky will bring forth a kind of smoke plainly visible.' 44:10 (Ali)

19. 'Enveloping the people: this will be a penalty grievous.' 44:11 (Ali)

Selected Sayings of the Prophet
(Sayings no. 1-60 are cross referenced to Note 15)

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

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

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

4. 'If you disagree about the width of a street, make it seven cubits.' Muslim via Abu-Hurairah (Ref. 8 Vol. II, p.238)

5. 'Avoid sitting on thoroughfares,' they said it is difficult to avoid as it is our gathering places where we spend time talking, 'but if you insist then you should respect the rights of thoroughfares.' What are these rights they asked, 'Avoid staring, do not create harm, salute back to those who salute you, bid to honor and forbid dishonor.' Abu Said al-Khadari (Ref. 6, p. 248)

6. 'If a man is walking in the street and finds a branch of thorns and removes it, then God will thank him and forgive him.' Abu-Hurairah (Ref. 6, p. 285)

7. 'If somebody cuts a tree, God will place his head in fire.' Abu Dawood via Abdullah Ben-Hubaish (Ref. 8 Vol. II, p. 238). This interpretation is provided by the same reference: a tree which provides shade to the traveller and to animals should not be cut for no reason or by a person with no rights to it.

8. 'Avoid the three accursed: excreting in streams, in thoroughfares and in the shade.' Abu Dawood via Ma'adh (Ref. 5, p. 45)

9. 'Those who have eaten it should not come close to our mesjid. If you have to it, then cook it first.' Abu Dawood via Qarrah (Ref. 5, p. 87). This interpretation is provided by the same reference: the Prophet is here referring to onions and garlic.

10. 'He who takes from the land without rights will, on the Day of Resurrection, be submerged to the seventh layer of the earth.' al-Bukhari via Ibn-Omar (Ref. 5, p. 307)

11. 'If the people see a tyrant and do not stop him, they will soon be punished by God.' Mentioned in the Hadith al-Sahih (Ref. 10, p. 106)

12. 'On the Day of Resurrection God will not consider [or support], and will make a man face severe torment who had excess water in a thoroughfare and denied it to the passer-by...' Abu Hurairah (Ref. 6, p. 265)

13. 'If you deny excess water, you will deny the benefits of pasture.' Abu Hurairah (Ref. 8 Vol. II, p. 310)

14. 'Muslims are partners in three things: water, pasture, and fire.' Abu Dawood and Ibn Majah via Ibn Abbas (Ref. 8 Vol. II, p. 311)

15. 'The Prophet decreed that the flow of scarce water be measured to the ankles by the user of the higher ground, then sent to the lower ground.' Ibn Majah and Abu Dawood via Omar and Ben-Shu'aib via his father via his grandfather (Ref. Vol. II, p. 312)

16. 'If somebody plants in someone else's land without their consent, then he has no claim to it or to its initial cost.' Rafi' Ban-Khadij (Ref. 3 Vol. III, p. 250)

17. 'Somebody who gives life to a dead land can claim it, and no tyrant has rights to it.' Abu Dawood and al-Darqetni via Ban-Zubair (Ref. 3 Vol. III, p. 251)

18. 'If you wish, retain its origin and provide it as a charity.' al-Bukhari (Ref. 5, p. 331)

19. 'When a person dies, his work terminates except for three things: On-going charity, useful knowledge, or a good son who prays for him.' Muslim, Abu Dawood, al-Termedhi and al-Nisai (Ref. 3 Vol. III, p. 516)

20. 'The works and good deeds of a believer that continue after his death are: disseminated knowledge, leaving a good son or a Quran for inheritance, a mesjid which he built or a house for travellers, opening a stream, or a charity created from his wealth and which continues after death.' Ibn Majah (Ref. 3 Vol. III, p. 516)

21. 'Of happiness: a good wife, a spacious home, a good neighbor, and a good mount.' Ibn Habban (Ref. 7, p. 94)

22. 'God forgive my sins and make my house more spacious and bless my sustenance.' al-Nisai and Ibn al-Sunair (Ref. 7, p. 94)

23. 'No person with an atom of arrogance in his heart will enter Paradise.' A man said: ''A person likes to wear good clothes and shoes.' The Prophet answered: ' God is beautiful and he likes beauty.' Muslim (Ref. 7, p. 95)

24. 'The angels do not enter a house in which there are statues.' Muslim (Ref. 7. p. 97)

25. 'God did not order us to cover stone or clay.' Muslim via Zaid Ben Khalid al-Juhaini via Abu Talha al-Ansari (Ref. 7, p. 107)

26. 'God does not look at your appearances or wealth but looks at your hearts and deeds.' Muslim (Ref. 7, p. 304)

27. Via Aisha [the Prophet's wife] said: 'We had a curtain illustrated with a bird design and visible to whomever enters;' the Prophet said; 'Relocate this, as everytime I enter and see it I remember this world.' (Ref. 3 Vol. III, p. 503)

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

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

30. 'To those who have accepted Islam orally but are not yet believers at heart: do not hurt Muslims, and do not pursue their faults, because who pursues the fault of his Muslim brother, then his faults will be exposed by God, and if God wants to pursue somebody's faults, He will do so even if the person is in his house.' al-Termedhi and Ibn Majah (Ref. 7, p. 307)

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

32. 'If a man pushes aside a curtain and looks inside without permission, he has then reached a point which he is not allowed to reach.' Ahmad and al-Termedhi (Ref. 7, p. 308)

33. 'The analogy of a person who undertakes to execute God's disciplinary laws and a person who is subjected to them is similar to that of a group of people in a ship distributed between an upper and lower decks. Those below have to go up for their water supply and they say: If we could make a whole in our deck without causing harm to the group in the upper deck; they will all perish if they were allowed, and will all be saved if they are prevented.' Sahih al-Bukhari (ref. 9, p. 73)

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

35. 'A man had a tree in someone else's land, and the owner of the land was being harmed when the tree owner entered his property, so he complained to the Prophet. The Prophet ordered the owner of the tree to accept an exchange for it or to donate the tree to the property owner. He refused, so the prophet allowed the property owner to remove the tree and told the tree owner: 'You are a doer of harm.' Ibn Taimeyah (Ref. 9, p. 78)

36. 'He whose neighbor is not safe from his harm and dishonesty, will not enter Paradise." Muslim via Anas (Ref. 8 Vol. I, p. 249)

37. 'The Angel Gabriel kept exhorting me about the neighbor to the point that I thought he would grant him the right of inheritance.' al-Bukhari via Aisha)Ref. 5, p. 383)

38. 'He who believes in God and the Day of Judgement should not hurt his neighbor, and he who believes in God and the Day of Judgement should be hospitable to his guest, and he who believes in God and the Day of Judgement should speak goodness or else not say anything.' Abu Hurairah (Ref. 6, p. 465)

39. 'God will not provide security to the person who sleeps with a full stomach while his adjacent neighbor is hungry.' Abu Hurairah (Ref. 9, p. 132)

40. 'To God, the best friends are those who are good to each other and the best neighbors are those who are good to each other.' al-Termedhi via Abdullah Ibn Omar (Ref. 8 Vol. I, p. 249)

41. Via Ibn Mas'ud spoke of a man who said to the Prophet: "How do I know that I have done good or bad?,' and the Prophet said: 'If you hear your neighbors saying that you have done good, then you have done good, and if you hear them saying that you have done bad, then you have done bad.' Ibn Majah (Ref. 8 Vol. I, p. 250)

42. Via Aisha who asked the Prophet: 'O Messenger of God, I have two neighbors, to which should I give this present?' The Prophet said: 'To the one whose door is nearest to yours.' al-Bukhari (Ref. 8 Vol. I, p. 251)

43. 'In the day of Resurrection, the first adversaries are two neighbors.' Ahmad via Aqaba Ben Amir (Ref. 8 Vol. I, p. 252)

44. 'Do you know the rights of the neighbor....you must not build to exclude the breeze from him, unless you have his permission...' Ibn Adi and al-Kharati (Ref. 8 Vol. I, p. 254)

45. 'A neighbor should not forbid his neighbor to insert wooden beams in his walls.' Abu Hurairah (Ref. 8 Vol. II, p. 254)

46. 'A neighbor has pre-emption rights over his neighbor's property. If they share common access and the neighbor is absent, then the other should wait for his return.' Narrated from a number of sources via Jabir (Ref. 3 Vol. III, p. 221)

47. 'The neighbor has rights of priority.' al-Bukhari via Abu Rafi (Ref. 8 Vol. II, p. 237)

48. Al-Bukhari narrated via Jabir Ben Abdullah that the Prophet decreed that anything that is indivisible is subject to the principle of pre-emption, but if boundaries can be set and access delineated, then pre-emption does not apply.' (Ref. 3 Vol. III, p. 216)

49. Muslim narrated via Jabir: the Prophet decreed pre-emption for any indivisible joint property such as a house or a garden. Either partner can not sell without permission of the other, and if one of them sells without permission, then priority is given to the rights of the other partner. (Ref. 3 Vol. III, p. 217)

50. 'He who is a joint owner in palm tree [s] or a house can not sell before receiving permission of his partner, if the partner agrees then he can sell; if not, he should not sell.' Via Jabir (Ref. 3 Vol. III, p. 217)

51. 'A partner has pre-emption rights in everything in which he is a partner.' al-Termedhi via Ibn Abbas (Ref. 8 Vol. II, p. 238)

52. 'He who cheats us is not one of us.' Narrated by a group of the Prophet's companions (Ref. 7, p.89)

53. 'Buying and selling should be by mutual consent while in the presence of both parties. The transaction will be blessed if they were truthful and open, and withdrawn if they were dishonest and misinformed each other.' al-Bukhari (Ref. 7, p. 521)

54. 'Nobody is allowed to sell something unless he clarifies its contents [or condition], and anybody who knows its contents [or condition] is obligated to disclose it.' al-Hakim and al-Baheeqi (Ref. 7, p. 251)

55. 'The Muslim is the brother of the Muslim, and a Muslim is not allowed to sell his brother something that has a defect without disclosing it first.' Via Aqaba Ben Amir (Ref. 3 Vol. III, p. 112)

56. 'Injury caused by an animal is an act of God.' (Ref. 3 Vol. II, p. 572)

57. 'If one of you is in the shade and soon was partly in the sun and partly in the shade, then he should rise.' Abu Dawood via Abu Hurairah (Ref. 8 Vol. I, p. 584)

58. Via Jabir said that the Prophet prohibited a person from sleeping on an unscreened roof or terrace. al-Termedhi (Ref. 8 Vol. I, p. 589)

59. 'A judge who has done his best and hands down a correct decree receives two rewards [from God], and if he does his best and hands down an incorrect decree then he receives one reward.' Via Ibn Hurairah (Ref. 4, p. 204)

60. Ma'adh narrated that when the Prophet sent him to Yemen, he asked him: 'What would you do if you were asked to judge?' Ma'adh replied: 'I judge by what is in God's Book.' The Prophet said: 'What if it is not in God's Book?' He said: 'By referring to the Sunna of the Messenger of God.' The Prophet said: 'What if it is not in the Sunna of the Messenger of God?' He said: 'I will use my reasoning without hesitation.' Ma'adh said: The Prophet patted me on the chest and said: " 'Thank God for providing a messenger to the Messenger of God.' Abu Dawood and al-Termedhi (Ref. 4, p. 205)

61. Yahya related to me from Lamik from Nafi^{c} from ^{c}Abdullah ibn ^{c}Umar that the Messenger of Allah, may Allah bless him and grant him peace, said, "Prayer in congregation is better than the prayer of a man by himself by twenty seven degrees." (Ref. 11, p. 57)

62. Yahya related to me from Malik from ibn Shihab from Sa^{c}id ibn al-Musayyab from Abu Huraira that the Messenger of Allah, may Allah bless him and grant him peace, said, "Prayer in congregation is better than the prayer of one of you on his own by twenty five parts." (Ref. 11, p. 57)

63. Yahya related to me from Malik from Abu'z-Zinad from al-A^{c}raj from Abu Huraira that the Messenger of Allah, may Allah bless him and grant him peace, said, "The food of two is enough for three, and the food of three is enough for four." (Ref. 11, p. 452)

64. Yahya related to me from Malik from Nafi^{c} from Zayd ibn ^{c}Abdullah ibn ^{c}Umar ibn al-Khattab from ^{c}Abdullah ibn ^{c}Abd ar-Rahman ibn Abi Bakr as-Siddiq from Umm Salama, the wife of the Prophet, may Allah bless him and grant him peace, that the Messenger of Allah, may Allah bless him and grant him peace, said, "A person who drinks from a silver vessel

brings the fire of Jahannam into his belly." (Ref. 11, p.450)

65. Yahya related to me from Malik from Salama ibn Safwan ibn Salama az-Zuraqi that Zayd ibn Talha ibn Rukana, who attributed it to the Prophet, may Allah bless him and grant him peace, said, "The Messenger of Allah, may Allah bless him and grant him peace, said, 'Every deen has an innate character. The character of Islam is modesty.'" (Ref. 11, p. 438)

66. Yahya related to me from Malik from ibn Shihab from Salim ibn ᶜAbdullah from ᶜAbdullah ibn ᶜUmar that the Messenger of Allah, may Allah bless him and grant him peace, passed by a man who was chiding his brother about modesty. The Messenger of Allah, may Allah bless him and grant him peace, said,"Leave him. Modesty is part of iman." (Ref. 11, p. 438)

67. Malik related to me from Safwan ibn Sulaym from ᶜAta ibn Yasar that the Messenger of Allah, may Allah bless him and grant him peace, was questioned by a man who said, "Messenger of Allah, shall I ask permission of my mother to enter?" He said, "Yes." The man said, "I live with her in the house." The Messenger of Allah, may Allah bless him and grant him peace, said "Ask her permission." The man said, "I am her servant." The Messenger of Allah, may Allah bless him and grant him peace, said, "Ask her permission. Do you want to see her naked?" He said, "No." He said, "Then ask her permission." (Ref. 11, p. 477)

68. Malik related to me from a reliable source of his from Bukayr ibn ᶜAbdullah ibn al-Ashaji from Basr ibn Saᶜid from Abu Saᶜid al-Khudri that Abu Musa al-Ashaᶜri said, "The Messenger of Allah, may Allah bless him and grant him peace, said, 'One asks permission three times. If you are given permission, then enter. If not, go away.'" (Ref. 11. p. 477)

69. Yahya related to me from Malik from from Nafiᶜ that ᶜAbdullah ibn ᶜUmar would never go to jumuᶜa without wearing oil and perfume except when it was forbidden (i.e. when he was muhrim). (Ref. 11, p. 44)

70. Yahya related to me from Malik from ᶜAbdullah ibn Abi Bakr ibn Muhammad ibn ᶜAmr ibn Hazm that he heard that the Messenger of Allah, may Allah bless him and grant him peace, said about the flood-channels of Mahzur and Mudhaynib (in Madina), "Dam them systematically, so that the water is diverted into each property in turn up to ankle level, starting upstream." (Ref. 11, p. 346)

71. Malik related to me from Abu'z-Zinad from al-Aᶜraj from Abu Huraya that the messenger of Allah, may Allah bless him and grant him peace, said, "Excess water is not withheld in order to prevent herbage from growing." (Ref. 11, p. 346)

72. Malik related to me from Abu'r-Rijal Muhammad ibn ᶜAbd ar-Rahman from his mother ᶜAmra bint ᶜAbd ar-Rahman that she informed him that the Messenger of Allah, may Allah bless him and grant him peace, said, "Do not withhold the surplus water of a well from people." (Ref. 11, p. 356)

73. Yahya related to me from Malik from Zayd ibn Aslam from Ibn Bujayd (formerly al-Ansari) from his grandmother that the Messenger of Allah, may Allah bless him and grant him peace, said "Give to the very poor, if only a roasted hoof." (Ref. 11, p. 450)

74. Yahy related to me from Malik from Zayd ibn Aslam from ᶜAmr ibn Saᶜd ibn Muᶜadh from his grandmother that the Messenger of Allah, may Allah bless him and grant him peace, said, "O trusting women, none of you must consider even a roasted sheep's trotter too small to give to her neighbor." (Ref. 11, p. 452)

75. Malik said that he heard that Sa^{c}id ibn al-Musayyab, when asked about pre-emption and whether there was a sunna in it, said, "Yes. Pre-emption is in houses and land, and it is only between partners." (Ref. 11, p. 331)

76. Yahya said that Malik related from Muhammad ibn ^{c}Umara from Abu Bakr ibn Hazm that ^{c}Uthman ibn ^{c}Affan said, "When boundaries are fixed inland, there is no pre-emption in it. There is no pre-emption in a well or in male palm trees." (Ref. 11, p. 332)

77. "The Faithful are to one another like (parts of) a building-each part strengthening the others." Or when he said, "You will recognize the faithful by their mutual compassion, love and sympathy. They are like one body; if one of its parts is ill, the whole body suffers from sleeplessness and fever." (Ref. 12, p. 60)

78. A Jew once came to ask the Prophet for payment of a debt before it was due, and kept insisting that he be paid. The Prophet exclaimed: "You have listened enough, oh scion of Abd Al-Matlub." The Prophet's companions then advanced to beat up the Jew but, placing himself between them, the Prophet said: "Let him go. One who has a right, has the right to speak up." (Ref. 12, p. 60)

79. Ye will see the Muslims in their goodness, affection and fellow feeling form as it were a single body which, when one member is ailing, seeks to share out its sleeplessness and fever throughout that body. (Ref. 13, p. 5)

80. Prophet's saying, "My community will never agree in error." (Ref. 14, p. 5)

81. Malik related to me from yazid ibn Khusaya that as-Sa'ib ibn Yazid informed him that he heard Sufyan ibn Abi Zuhayr who was from the Azd Shanu^{c}a tribe and among the companions of the Messenger of Allah, may Allah bless him and grant him peace, speaking with some people who were with him at the door of the mosque. He said, "I heard the Messenger of Allah, may Allah bless him and grant him peace, say, 'If anyone acquires a dog which he does not use as a sheepdog or for hunting, a qirat will be deducted from the reward of his good deeds each day.' "He was asked, "Did you hear this from the Messenger of Allah, may Allah bless him and grant him peace?" He said, "Yes, by the Lord of this mosque." (Ref. 12, p. 479)

82. Malik related to me from Nafi^{c} from ^{c}Abdullah ibn ^{c}Umar that the messenger of Allah, may Allah bless him and grant him peace, said, "Whoever acquires a dog other than a sheepdog or hunting dog, will have two qirats deducted from the reward of his good actions every day." (Ref. 12, p. 479)

Notes

1. See Besim S. Hakim, *Arab-Islamic Cities* (KPI Limited, London, 1986), pp. 24-54.
2. Ibid, p.25.
3. Ibid, p.29.

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15. See Hakim, Basim S. *Arab Islamic Cities.* London : KPI Limited, 1986.

APPENDIX B

NEIGHBORHOOD AND BUILDING GUIDELINES

Due to the specific nature of the urban process involving decisions both at the macro-scale, by government officials, and at the micro-scale, by citizens, (see Fig. 3.7), neighborhood and building guidelines were formulated to accommodate the changing role of life and conditions in society. Their development paralleled that of Islamic law and became semi-legislative in nature. Neighborhood and building guidelines thus, portray an extension to the established laws of Islamic jurisprudence as applied to the solution of traditional urban problems, the development of which focussed primarily around housing and access.

The following identifies the opinions expressed by muftis (fatawi) toward the solution of urban problems as they relate to specific urban and architectural elements.[1]

1. Public Streets and Thoroughfares

Streets constitute the public right of way. The minimum width of which was established by the Prophet as seven cubits (3.23 - 3.50 m). This principle governed the three dimensional quality of the Muslim city. Decrees (ahkam) pertaining to street related elements and concepts include but are not limited to:

- Protrusions into public streets are prohibited if harm is caused to others. Jurists referred to the case narrated by Malik involving Caliph Omar b. al-Khattab

> Omar passed by Abu Sufian while he was building his house in Madina, and he noticed that the foundation of the exterior wall protruded into the street. Omar said, 'Abu Sufian you have exceeded your rights and protruded into the rights of others, so remove your wall'; Abu Sufian obeyed Omar and began to remove the foundation stones until completed, then asked Caliph Omar where

> he wanted him to place the wall. Omar replied, 'I want what is right.'[2]

- Protrusions into public streets could be demolished or retained if no harm is caused to others
- Protrusions into public streets are prohibited and should be demolished if the width of the street is less than seven cubits wide.
- Unprotested infringement of a public right of way for a lengthy period of time (such as 60 years), may be retained to protect the current occupants right.
- High-level protrusion and overhangs onto streets are allowed provided they do not obstruct or hinder passage of pedestrians and the highest mounted person.
- Air right structures (sabats) over streets are permitted if the adjacent houses across the street are owned by the same person attempting to build the sabat. If however this is not the case, an authorization is required from the opposite owner.
- Planting private plants or trees in a public right of way is prohibited.
- Building in a public right of way is prohibited.
- Temporary or permanent obstruction of a public right of way, except for unloading and service, is prohibited.
- Tying animals of burden and/or creating a nuisance to passers-by on a public right of way is prohibited.
- Slaying of animals and disposing of garbage or otherwise on a public right of way is prohibited.
- Downspouts and water outlets from walls are prohibited from emptying directly into narrow streets.
- Trees that cause harm to passers-by should be trimmed or cut.
- The use of the exterior space immediately adjacent to the exterior wall of a house (fina) belongs to the owner of the house. However, in the case of closely adjacent properties, the fina should be shared while respecting the principle stating that "one man's usage should not cause harm to others." [3]

2. Jointly Owned Streets or Cul-De-Sacs

Usually four cubits wide, the cul-de-sac allowed for one laden camel to pass at any one time. The cul-de-sac was jointly owned (mulk mushtarak). Agreement between all owners on matters pertaining to the nature and usage of

the cul-de-sac was thus essential. The following are general guidelines based on related Maliki cases:

- Opening a door in a cul-de-sac is prohibited if it results in harm to a neighbor. If however, such an opening does not inflict harm onto a neighbor and partial or full consent, of the residents of the cul-de-sac, is secured it may be permitted.

- Funding for the repair and maintenance of the cul-de-sac is to be allocated on a proportional scale - based on the richest to the poorest owner of each dwelling.

- Adding a door to the mouth of the cul-de-sac can only be done with the agreement of all co-owners.

3. Uses Causing Harm

Harm was viewed as either existing (qadim), or recent (hadith) as a result of newly established uses. Existing uses causing harm were generally allowed to remain, while recent uses were judged according to the nature and duration of the harm caused. Decrees pertaining to locational restrictions of uses causing harm include:

- Recently constructed ovens creating smoke and causing harm or nuisance to neighbors are prohibited. This principle was also applied to uses creating offensive odors such as the construction of uncovered sewers, toilets or tanneries adjacent to a neighbor's house.

- Uses generating offensive noise and causing harm or nuisance to neighbors are prohibited.

- Recently built windows and/or doors overlooking neighboring property are prohibited and should be permanently shut. If however, the opening is located such that it can not be used to intrude into the privacy of others, then it is allowed.

- Old or existing openings overlooking adjacent empty plots are permitted based on the right of earlier usage.

- Exits of stairways leading to the roof should not face neighboring property.

- Building within one's air rights is permitted even if such action would exclude air movement and sunlight from an existing neighbor's window.

- Minarets within a short distance from houses should provide an adequately high parapet to insure the privacy of neighboring houses.

> Opening a door on a street or thoroughfare is prohibited if harm is generated due to direct overlooking of the entry room.

Yet, neighborhood and building guidelines were not limited to those decrees identified above, but incorporated guidelines catering to the treatment of rain and waste water. A general framework for the distribution of rain water and the discharge of waste water was developed. Rain water was regarded as a gift from God to be utilized and shared, while waste water was viewed as a harmful, polluted substance to be dealt with accordingly.

Notes

1. See Besim S. Hakim, *Arab-Islamic Cities* (KPI Limited, London, 1986), pp. 24-54.
2. Ibid, p.25.
3. Ibid, p.29.

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