STREETS OF ISLAMIC CAIRO

A Configuration of Urban Themes and Patterns

BY

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ABSTRACT

This study presents a closer look at a Muslim-built environment. It examines streets as one of the major structuring elements in a city. It traces the history and the physical development of three major streets in Medieval Cairo within the overall structure of the city at the end of each ruling dynasty.

The hypothesis presented in this study is that streets in a Muslim city (Cairo) possessed some common themes and patterns that created for them a characteristic structure. The purpose of this study is to verify the existence of such a structure and to explore some of the implicit principles that may have governed its shaping

The lessons learnt from the analysis of the street structure and its development, provide a better understanding of the history of a built environment and of the physical factors that shaped its urban form. Ultimately, it may be possible to generate from the study a general set of criteria which could identify the extent of traditionality in a given project. These rules could also assist urban designers in the formulation of design criteria extracted from the history of the built environment.

Thesis Supervision: Professor William Porter
Dean of the School of Architecture and Planning

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PREFACE

Studying Cairo is truly a challenge. What may one discover? Can a pattern, a form, a rationale be extracted from what appears to the casual observer a capricious disorder? But order there must be. Perhaps no creation of man is capable of retaining its underlying organization so obdurately as the urban fabric he has built over history. It was that challenge that interested me in my study of Cairene physical patterns.

The initial idea of the study was generated some years ago during a discussion with some of my colleagues at Cairo University. The intellectual atmosphere at M.I.T. focused my interests more and more on the subject of this thesis. The idea of studying the history and physical development of particular streets mainly originated from the availability of resources on the subject. The various travellers' accounts and historic documentations of Cairo at different time periods provided the basic information upon which the study was developed. I have relied to a great extent on the descriptions provided by a number of scholars and on their perceptions of the environment at different time periods. These scholars were Nasiri Khusraw, 1047 *(for the Fatimid period)*; Al-Baghdadi, 1194 and Ibn Said 1243 *(for the Ayyubid period)*; and Al-Maqrizi, 1364 *(for the Mamluk period)*; and Monsieur de Thevenot, 1686 and Ali Pasha Mubarak, 1880 *(for the Turkish period)*. Recent work on the history of the urban development of Cairo by A. Zaki, 1966 (*Cairo-Al-Qahira)* and J. Abu-Lughod, 1971 (*Cairo: 1001 Years of the City Victorious)* was of great assistance.

The study examines the streets of Islamic Cairo in light of these documents. It attempts to verify the existance of a characteristic structure created by some common themes and principles. The study believes that the analysis of street patterns and their development will provide a better understanding of the history of a built environment and of the physical factors that shaped its urban form. The study attempts to develop a methodology by which one would be able to extract from the history of a built environment some measurements to assist urban designers in the formulation of design criteria.

In this endeavor I have benefited from the Aga Khan Program for Islamic Architecture at Harvard University and M.I.T. and from the Technology Adaptation Program at Cairo University and M.I.T. Both programs have supplied me with a great deal of the necessary references.

I gratefully acknowledge the guidance, support, and friendship of Dean William L. Porter, who allowed me some of his very valuable time and gladly supervised this work. I sincerely appreciated the critique and remarks of Professor Kevin Lynch and Mr. Reinhard Goethert during the initial stages of the study. I wish to express my gratitude to Richard Dewey and Leigh Cochran for their personal assistance and valuable remarks. I also wish to extend my gratitude to my father Dr. M. Al-Sayyad, and my closest friend Ahmed Refaat, who supplied me with all the material I needed from Cairo during the preparation of this study. Finally to my wife Nadia, for her moral support, continuous assistance, love and patience.

1. INTRODUCTION

Why and How? (Hypothesis and Method)

The task of the architect is to create a physical environment readily identifiable by a society as its own. Designing within contemporary societies sets before the professional the challenge of identifying, understanding and creating forms and spaces which are at once new and familiar, which convey a sense of specific identity and which are non-alienating. To create such architecture, an architecture that one can call Islamic, is a very difficult task indeed. Doing so means accepting the assumption that there is a different, distinctive Islamic pattern, i.e., that there are some common characteristics found in all Muslim cities that could be called the physical characteristics of a certain Muslim built environment. Scholars like Lapidius *(Middle Eastern Cities)* and Hourani *(The Islamic City)* attempted to examine similarities of Muslim cities. Although a number of interesting relations occurred in these studies, it seems that no one has gone very deeply into the analysis of the physical fabric of such environments.

To prove that there is a certain Islamic urbanism on the city level means that one must compare different physical patterns of different Muslim cities, and find their common features. Accordingly, one can extract from such a study the common physical characteristics of the Muslim city. Doing so means accepting implicitly that there is already a pattern for each individual Muslim city.

This study takes the position that such individual patterns have not been explored thoroughly. Accordingly, the results achieved by comparing different cities were very general and did not provide planners and architects with a framework for future practices based upon an understanding of the history of their built environments. To avoid going into the argument of what is and is not Islamic in the Muslim built environment, this study has chosen to concentrate on only one Muslim environment *(Cairo)*. It examines the features and traces the development of one of its major elements *(streets)*. Finally, it attempts to explore some of the constant common themes and principles that were extracted from the physical history of that specific Muslim built environment. It is suggested that these themes could be considered the closest configuration of the notion of an Islamic urban form/pattern, if such a thing exists.

The choice of streets as an element of analysis was not random, for no physical features of a city so reflect its essence at its streets. Streets are the basic structuring element in the creation of a physical fabric; they are the vital arteries without which urban life would wither and die. Most important, however, they create as well as solve problems and thereby stimulate social intercourse and cultural creativity. The study has concentrated on the highest level of city streets i.e., the major thoroughfares, because these were precisely documented by different people at different time periods.

The hypothesis presented in this study is that the street structure in a Muslim city has always followed some common themes and patterns, wherein all major elements were positioned in relation to each other and to the path. Results from the study suggest that the structure should probably be considered a result of conscious awareness of the concept of urban design, rather than an unintended accumulation of buildings.

The streets chosen for the analysis were the three streets presently named: AL-MU'IZZ, AL-JAMALIYA, and AL-DARB AL-AHMAR *(fig. 1)*. The first two were among the major thoroughfares inside the walled city and the

third was one of the major thoroughfares outside it. Al-Mu'izz Street, starting from Bab al-Futuh and ending at Bab Zuwayla constituted the major spine of the walled city. Al-Jamaliya Street starts from Bab-al-Nasr and ends in front of Al-Azhar Mosque, constituting a major commercial, administrative and residential spine. Al-Darb Al-Ahmar Street runs adjacent to the southern wall of the city from Bab Zuwayla to the Citadel. It constituted a major thoroughfare in the area outside the walled city *(Zahir al-Qahira)*. The process of choosing the three streets was somewhat complicated, but the major criteria considered were: (1) The 3 streets should have approximately similar ages. (2) The 3 streets should have had similar functions in the different time periods. (3) The 3 streets should have had a rich history, without undergoing severe changes that could have altered them drastically. (4) The 3 streets should have a history of having always been considered and perceived as one entity (usually a walking domain), bounded at both ends by some sort of physical, visual or functional edges.

The method depended upon constructing the general physical map of Cairo at the end of each ruling dynasty, and identifying the role the three streets played with regard to the other elements of the city. Since streets are not isolated elements, it was necessary to examine briefly the political, social and cultural forces that affected the streets urban life. The first step was to construct the streets' layouts and their diagrammatic patterns, and to formulate from these some specific physical themes. The next step was to compare the three streets and their specific themes cross-sectionally, i.e., at the end of each ruling dynasty. Performing some simple statistical analyses of the common and dominant features of the streets would then identify the typical street-scape, the street image,

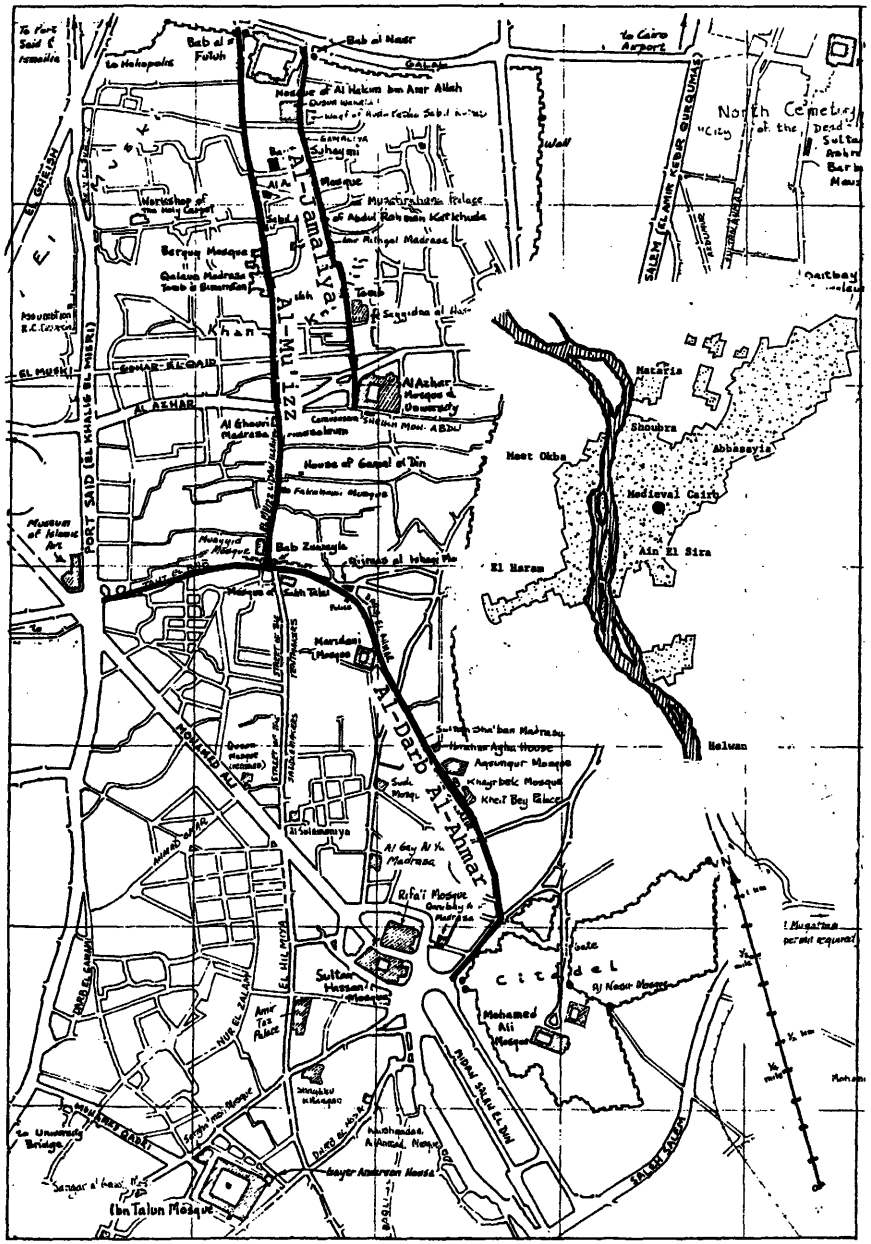


Fig. 1 Map of Islamic Cairo Showing the Three Streets

the open/built structure, the visual elements and symbols, the exterior shaping of elements, the visual similarities, and other specific relations on the urban level for each time period or ruling dynasty. The last step was to analyze the development of the different patterns and themes so as to identify the constant physical characteristics of streets in Islamic Cairo.

There were several problems associated with the adopted approach. First, the study had to concentrate more on the exterior architecture of the monuments than that of the residential buildings or informal activities. The justification for this is that the monuments were thoroughly documented while the indigenous or informal activity was not. Another justification is that the street life was very much associated with religion, to the extent that the mosques, madrasas, kuttabs and zawyas and the activities generated by them, constituted the major elements of the streets, and that all other elements appear as infill beside them. Second, the elements composing the streets were constantly changing over time. The study attempted to solve this by tracing these developments and identifying the changing roles of the different elements.

The study closes the analysis at the period where no further major changes were observed, and this was by the end of the Ottoman rule and the establishment of the new rule of Muhammed Ali in the early years of the nineteenth century. It is believed that the streets, with the exception of the few changes introduced by modernization, presently, maintaine the same structure they had at the end of the Ottoman rule.

The study contains six chapters, excluding the introduction and the conclusion. Each of the five major ruling dynasties in Egypt *(Fatimids, Ayyubids, Bahri & Burji Mamluks and Ottomans)* is covered in a separate chapter. Each of these chapters provides a brief background of the history of the rule, the extent of urban expansion, the social life, the commercial activity and the building codes and regulations and how all these factors affected the streetscape. The careful examination of the three streets and their patterns is then presented and specific physical themes for each rule are then extracted from the comparison of such patterns. The last chapter includes an analysis of the development of the different specific patterns in an attempt to identify the constant physical characteristics of Islamic Cairene streets. The ultimate objective of the chapter is to generate a set of physical measurements with some historic roots which could perhaps assist urban designers in understanding their built environments and enabling them to design more effectively for the future.

2. AL-QAHIRA AL-FATIMIA
The First Streets

THE FIRST MUSLIM SETTLEMENTS

The Arabs were not the first to realize the importance of the plain stretching between the Moqattam Hills and the Nile River. Archeological discoveries reveal the area around Cairo to be the site of several cities constructed by the ancient Egyptians and the Persian Babylonians.[1]

The city of Fustat (a generic term meaning an army encampment[2] or settlers' tents[3]) was the first Muslim settlement. It was established near the remains of the Babylonian fortress with the early Islamic conquest of Egypt by Amr Ibn al-Ass in 640 A.D. The mosque of Amr (the first mosque in Africa) constructed the core from which the city was to expand. It housed several army troops coming from diverse and incompatible tribes and ethnic groups.[4]

The city survived for more than a hundred years during the rule of the Ummayyads. But with the first major dynastic shift and the Abbassids' victory over the Ummayyads a new city was founded in 750 to take its place. This city was the princely town of Al-Askar, planned north of Fustat to be a permanent settlement for the new Abbassid rulers. Nevertheless, Fustat remained as an important commercial and administrative center.[5]

When Ahmed ibn Tulun (a Turkish soldier raised in Abbassid Samarra) was appointed deputy for the Governor of Egypt, he assumed authority and announced Egypt as independent from the Abbassid caliphate. Ibn Tulun founded Al-Qata'i as his own princely city in 870. While scholars have sought different explanations for the selection of the site of Al-Qata'i, the most reasonable one seems to be that the location was probably the only logical expansion of the pre-existing settlements.[6] Again while Al-Qata'i attracted some of the markets, the bulk of economic activity remained in Fustat. In 905 the Abbassids regained control and their troops destroyed the city completely.

But the time of the Abbassids was over. The Shi'ite Fatimid Caliphate established in the beginning of the 10th century in Tunisia, was determined to overthrow them in that region of the Mulim world.[7] Their final attempt in 969 gathered enough momentum to permit the conquest of Egypt, opening the way for the new Caliphate and for the establishment of Al-Qahira (meaning the victorious in Arabic--distorted by the Italian merchants to become Cairo) not only one of the largest cities of Egypt but as one of the greatest cities of Islam. *(Fig. 2)*

A HISTORICAL ACCOUNT OF AL-QAHIRA AND ITS PHYSICAL EXPANSION (969-1169)

By 969 the Fatimids occupied all Egypt. Jawhar, the general leading the Fatimid forces, was assigned by the Caliph Al-Muizz to select a site for the new city and to begin its construction immediately. The city was completed in 974 and the Fatimid Caliph chose it to be his imperial capital. In its early years, the Fatimid city remained simply a royal refuge within which the alien Caliph and his entourage could live thier lives.

Fustat, already known by the alternative name of Misr, remained a dominant transportation, productive, and commercial metropolis.[8] By the middle of the 11th century, Al-Qahira had expanded outside its walls and a new wall was buit by the Wazir Badr al-Jamali in 1087. Based on the Persian traveler, Nasiri Khusraw's description of Cairo at that time,[9] the reconstructed physical shape of the city appears to have been two separate settlements. The first was the old Misr/Fustat which was occupied by the majority of the people and was performing most of the major industrial and commercial activity. The

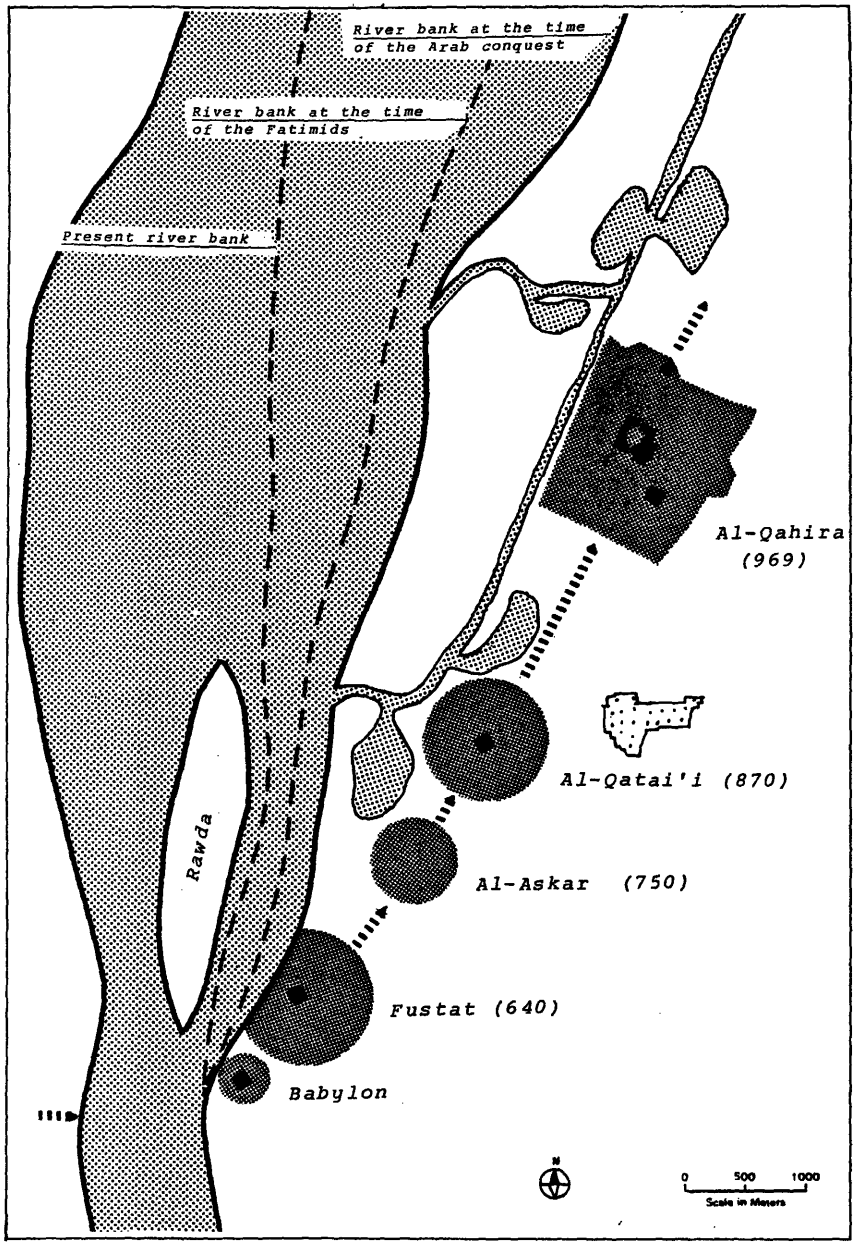


Fig. 2 The Site of Cairo and the Early Muslim Settlements

second was the well-planned princely city of Al-Qahira, divided into separate quarters and populated by the elite who exersed all major administrative power.

Political instability characterized the end of the Fatimid rule in Egypt. Both the Christian Crusaders and the Syrian Seljuks were attempting the final overthrow of the Fatimids in Cairo. In an attempt to save the country, Shawar, an opportunistic wazir, sided with the Syrians against the Crusaders and attempted a fatal plan to save Al-Qahira by burning the city of Fustat (1168). When Salah al-Din, a participant in the campaign led by the Seljuks, assumed the office of the Wazir in Cairo, much of Fustat lay in ashes. Its population was crowded within the former princely city or living in camps outside its walls. It was a ruined city that Salah-al-Din and the Ayyubids had to restore.

THE INTERNAL STRUCTURE OF AL-QAHIRA AND ITS PHYSICAL ELEMENTS

The original design of Al-Qahira has been subject to continuing controversy. Clerget suggested that the Caliph al-Mu'izz designed the city himself and provided Jawhar with precise plans for its construction.[10] Haswell suggested that the city's original structure shows that it must have been of Hellenistic or Roman Bastide origin.[11] Le Tourneau suggested to Janet Abu-Lughod that the city must have been a duplicate of the Fatimid town of Al-Mahdiya in North Africa.[12] The original plan of Al-Quhira was a regular rectangle with its walls slightly inclined a few degrees east of north. The city had originally an area of 340 acres, 60% of which were residential quarters (Harat), 30% were royal palaces and their gardens.[13] When the city expanded, little of its structure was changed. Even the new gates had the same names as the old ones.

Descriptions of Al-Qahira given by Nasiri Khusraw[14] show that the city was composed of a large number of detached palaces or houses having an average height of four floors, and having dividing walls between. The city had a few mosques, some administrative buildings, and a number of major commercial spines. While all the built elements could usually be classified according to their functions into public and private uses, this was not the case of the Fatimid elements. This was because the city as a whole was considered a private territory. The only public elements were the mosques and some other administrative facilities since most of the houses and shops were owned by the Caliph himself. This holds true for spaces too, where we find that the only public spaces were the major thoroughfares (where some commercial activity developed). Smaller streets were considered private property since they comprised the internal circulation network inside the quarters. Private spaces like courtyards and gardens were very popular, too. *(Fig. 3)*

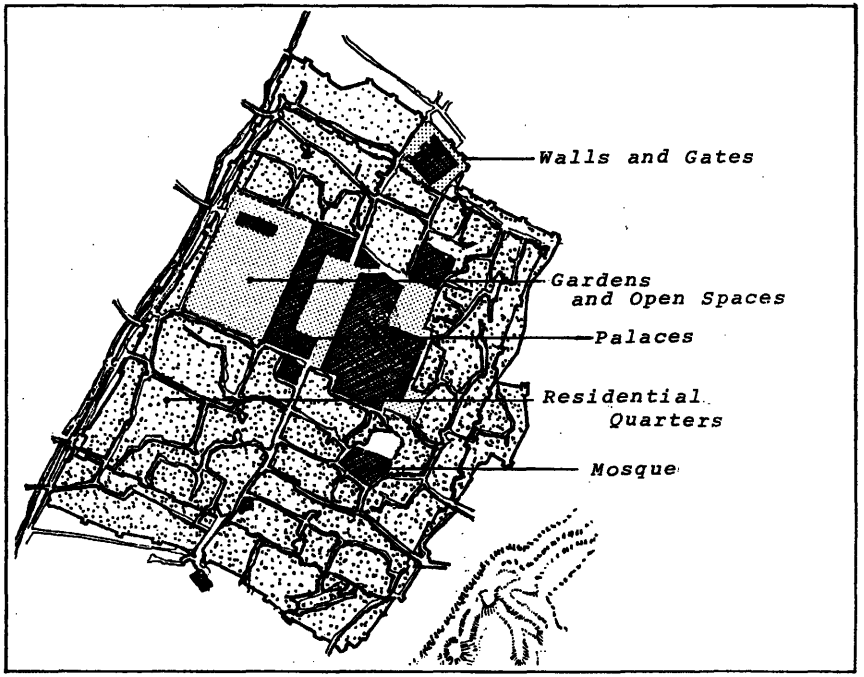


Fig. 3 The Internal Structure of Fatimid Al-Qahira

SOCIAL STRUCTURE OF THE CITY

One of the major elements of the Fatimids' social system was the internal organization of the city according to occupational affiliations. Inherited from the Roman and Byzantine occupation of Egypt, the Arab conquerers left some of the social structure intact.

In Al-Qahira, the new princely city, the occupational grouping became more dominant during the ensuing years. The earliest quarters showed a preoccupation with strong tribal affiliations.[15] This was clearly illustrated by the names of the quarters and their harat (the space that constituted the street network inside a quarter).

Another element of Fatimid Al-Qahira could be understood through examining its plan, which was the reflection of its social hierarchy and its physical order. The Caliph's palace occupied the central core of the city, surrounded by a number of other palaces, and then came the residential quarters on the outer circle. People living in Fustat were allowed to enter the city only with special permission. Spaces might have had some social significance. The most important space in the city was that space between the east and west palaces of the Caliph--it was opened to the public in all major ceremonies and occasions. Other spaces, like the spaces inside Bab Al-Nasr or in front of Al-Hakim mosque had some social and commercial significance too. It is evident the Al-Qahira inherited from the Fatimids that intimate connection between its social structure and its physical organization; that relation remained unaltered for a very long time.

COMMERCE AND TRADE IN AL-QAHIRA

As mentioned earlier, the Fatimid city was a private princely town around the middle of the Fatimid rule. The city was not to contain any major markets apart from the ones necessary to serve the small elite population. Nasiri Khusraw who visited and resided in Al-Qahira from 1047 to 1050 gives a brief description of the commercial activities there.[16] He estimated the number of shops inside Al-Qahira to be 20,000, all of which were owned by the Caliph and rented . Most of the shop renters resided in Fustat and had to commute daily to their shops.

The commercial activity was closely regulated by the state. The various crafts and trades were organized into guilds where membership was compulsory; this organization had roots that ran to the Roman and Byzantine occupations of Egypt.[17] Control of urban markets was exercised through the office of the Muhtasib (a government agent acting as the market inspector and ranking third among the men of the pen). [18] Although the role of the Muhtasib did not ensue until the end of the Ayyubid rule, it is suggested that it is part of Cairo's pre-Ayyubid heritage.[19] In any case, the role of the Muhtasibs in the Fatimid rule was limited to controlling prices, checking quality and collecting taxes.

The social organization that was translated into physical order, affected the structure of the commercial activity. Specialized markets were distributed within the city and on its streets. Each market was associated with a certain quarter where the production and distribution of a certain commodity took place. The pattern of commercial organization dictated by a social order had a great influence on the form the city was to take.

BUILDING CODES AND THE WAQF SYSTEM

Although the waqf system had been already introduced to Egypt before the Fatimids arrived, its role during their rule was very limited. Only one type of waqf (endowments) was practiced. This was the endowment of personal property to sponsor religious institutions, mainly mosques.[20]

Little is known of the building codes and regulations of the Fatimids. The possible reason is that the city was owned by the Caliph and very little of its land was owned by the elite related one way or another to the Caliphat.

It appears that the effects of building codes and waqf rules on the built form were not recognizable till the Mamluke rule of Egypt.

STREETS IN FATIMID CAIRO

At the end of the Fatimid rule, one can construct an image of two separate cities, Misr/Fustat and Al-Qahira. *(Fig. 4)* While the first was occupied by the crowded population and devoted to the major productive activities, the second was a princely city divided into ethnically segregated quarters. One can argue that it could be more useful to analyze the streets of Fustat at that time than to analyze the streets of Al-Qahira. But there are two problems with that approach. The first is that archeologists were unable to reconstruct a comprehensive image of the streets of Fustat. And the second is that Fustat never really recovered from its destruction at the end of the Fatimid rule. In spite of several attempts to restore it, the sparsely populated city remained a suburb to the new rapidly growing city of Al-Qahira. Accordingly, there was now real development for the streets of Fustat. The internal structure of Al-Qahira suggests that the hierarchy of street patterns had probably been developed during the Fatimid period. The pattern itself might have been influenced by pre-existing patterns of other North African cities. Similarities of street patterns in Cairo, Fez and Marrakech indicate some common characteristics. [21] This study has chosen not to go deeply into exploring such similarities until the pattern of Cairine streets and their developments has been thoroughly investigated. The Fatimids had the tendency to build wide streets. Recent archeological discoveries suggest that the Fatimids even widened the narrow streets of Fustat.[22] It is possible to assume that the streets of Al-Qahira had their widest width in the time of the Fatimids, although it is difficult to generalize this on all street levels. Nasiri Khusraw, and later Maqrizi,[24] emphasized the space of Bein al-Qasriyn (between the two palaces) and the wide streets connecting the palaces to the gates of the city *(Fig. 5)*.

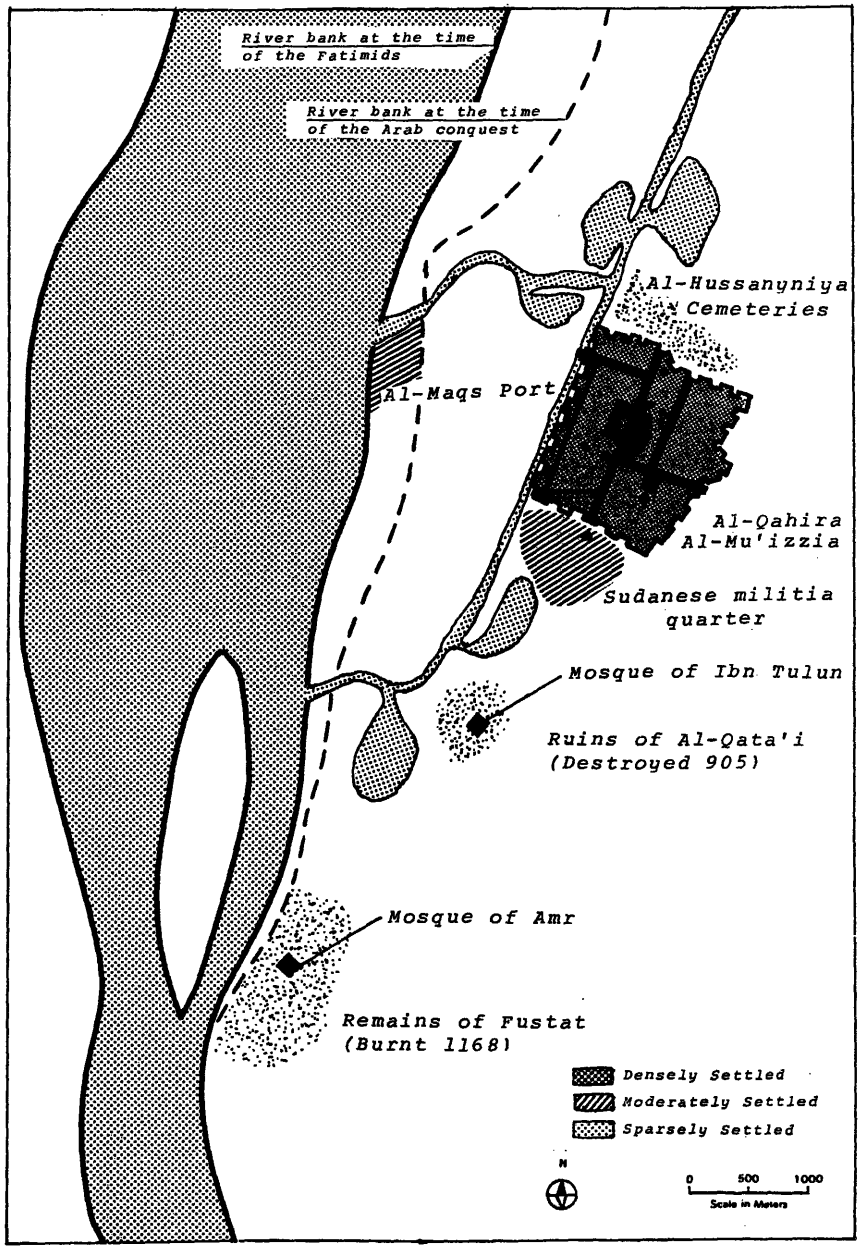


Fig. 4 Cairo at the End of the Fatimid Rule (969-1169)

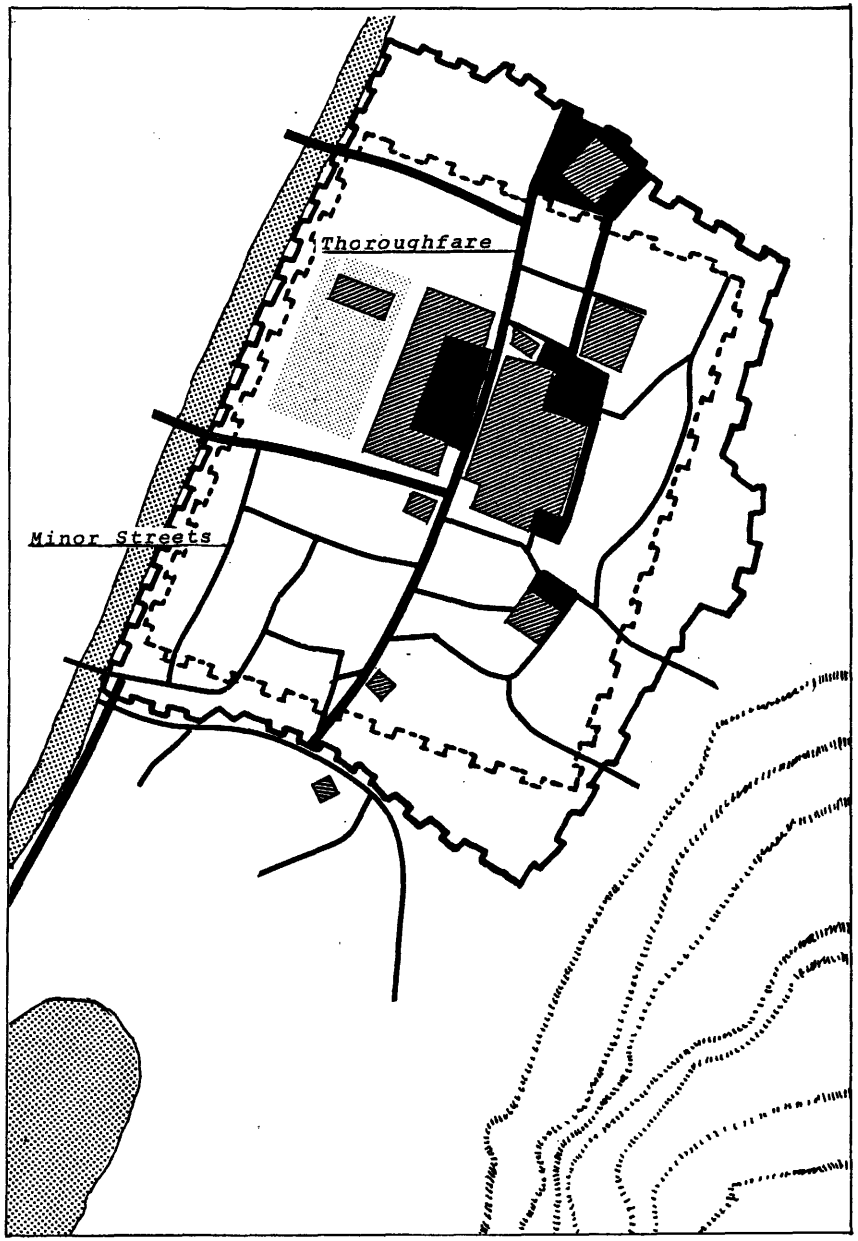


Fig. 5 Streets of Fatimid Cairo and its Major Elements

The following is a reconstruction of the three streets based upon these descriptions and other relevant sources for the history of the existing Fatimid monuments:

A Typical Scene of Fatimid Life

AL-MU'IZZ STREET

Al-Mu'izz Street is probably the oldest and most stable street of Fatimid Al-Qahira. Starting from Bab al-Futuh and ending at Bab Zuwayla, it comprised the main spine of the city. Although the street expanded outside the original walls of Al-Qahira, the new walls built in 1087 enclosed all of it. Two other new gates named after the previous Bab al-Futah and Bab Zuwayla constructed its new edges. The street was composed of three segments at the time of the Fatimids. The major segment in the central core was the royal space between the two palaces used for ceremonies and public occasions. The other two segments acted as an introduction to the major segment in the middle. They were composed of palaces, mosques and shops and performed different functions ranging from residential to commercial. Apart from the space between the two palaces, there were no major nodes along the street except those near the gates. The space in front of Bab Zuwayla has been reported to be a node of commercial activity while the space inside Bab al-Futuh was used as a meeting place.[25] (*fig. 6*)

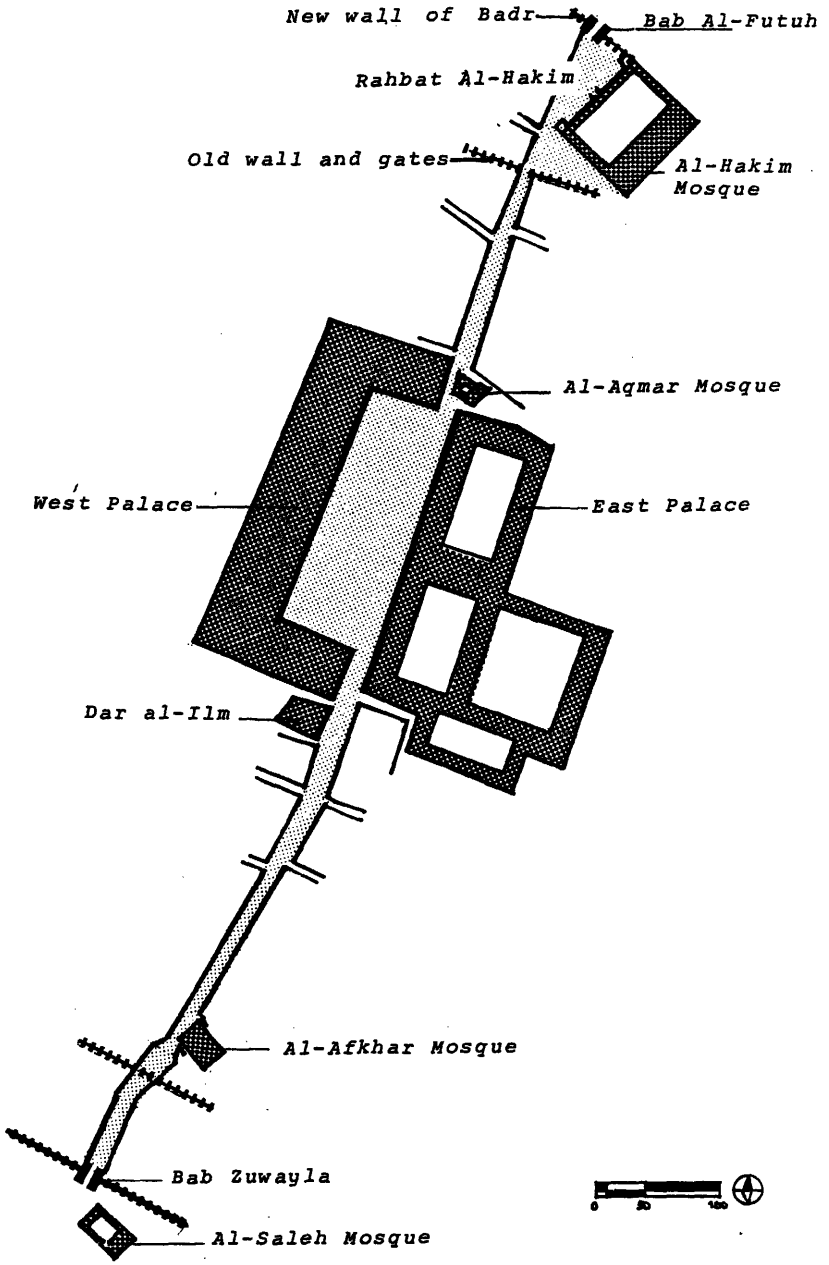
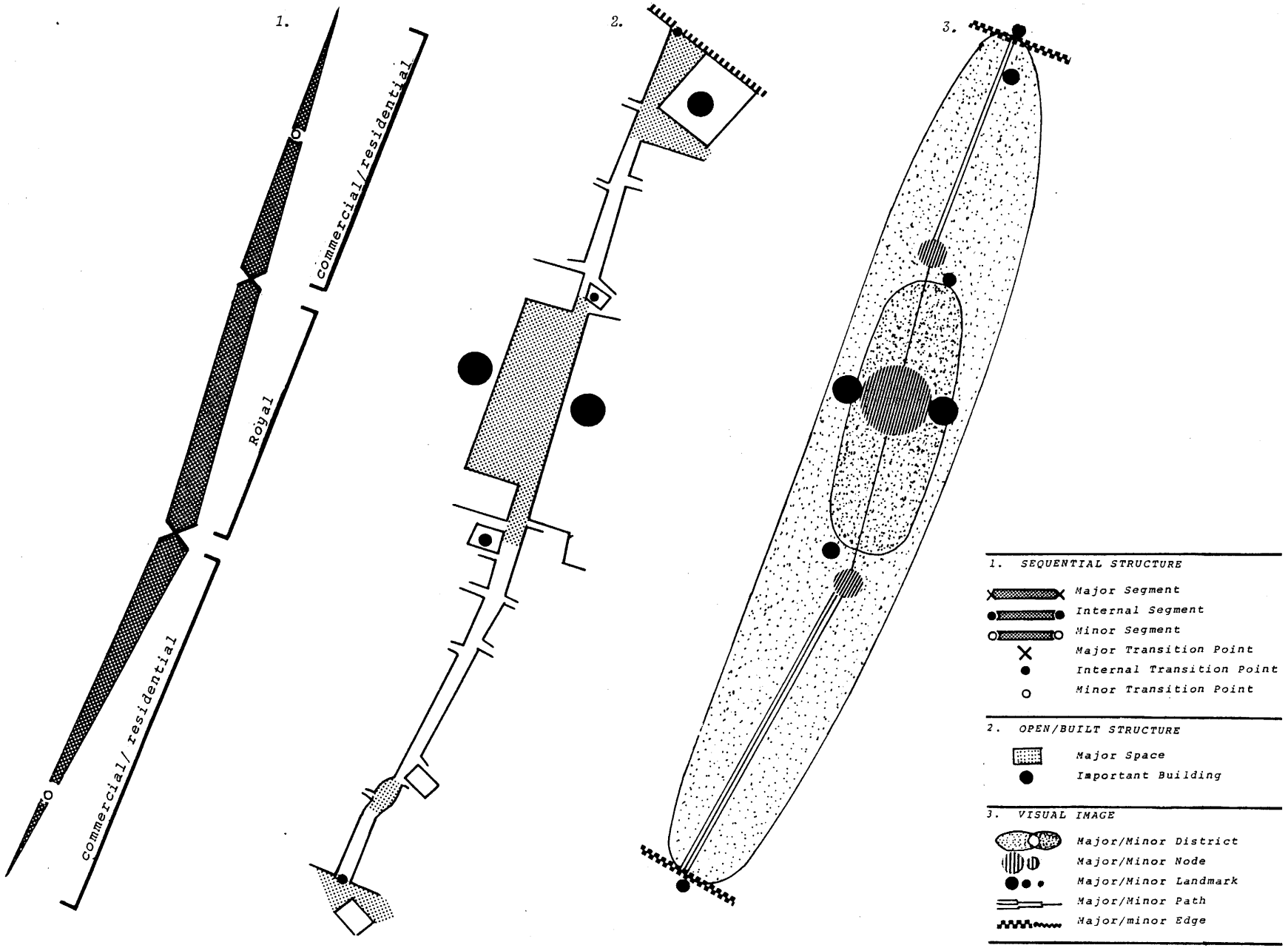
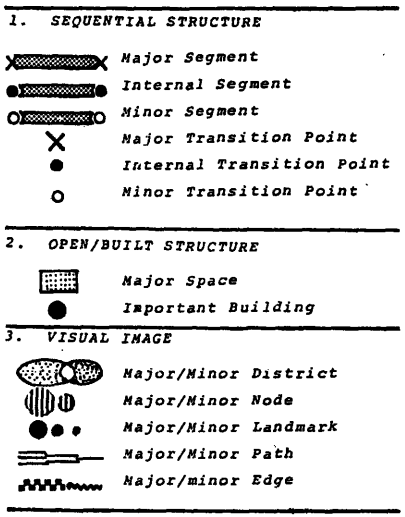


Fig. 6 Al-Mu'izz Street and its Patterns


1.
commercial/residential
Royal
commercial/residential
2.
3.
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 District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-JAMALIYA STREET

Little is known about Al-Jamaliya Street in the time of the Fatimids; it perhaps was not even a single street. There is no mention of a one Khatt Al-Jamaliya in Maqrizi. But we know from his description and the descriptions of others that along a path joining Bab al-Nasr to one of the gates of the great palaces lay Dar Al-Wazin, the official residence of most of the Wazirs of the Fatimid dynasty. [27] The rest of the elements composing the street were probably residential palaces. The existence of Dar Al-Wazir with its public services added an administrative character to the street. It has been suggested that the street might have been linked to Al-Azhar mosque due south, but from the available sources, evidence verifying this suggestion was non-existent. (*fig. 8*)



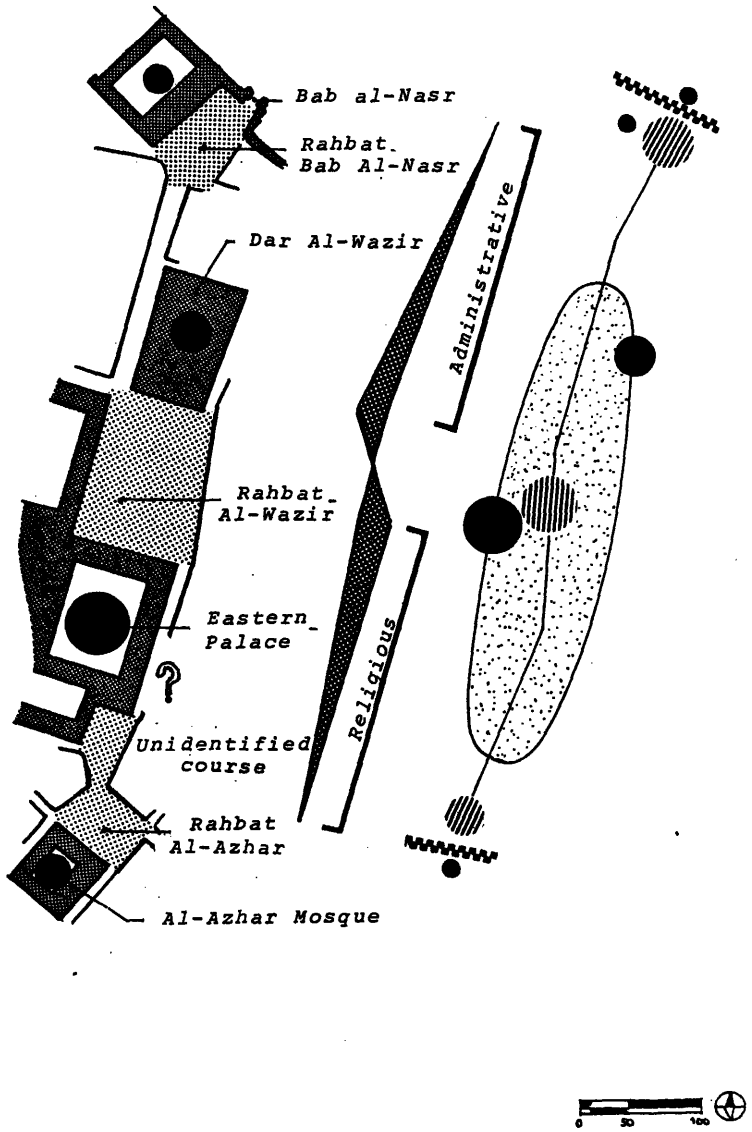
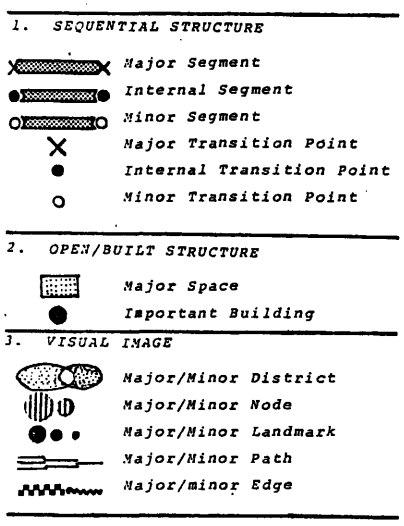


Fig. 8 Al-Jamaliya Street and its Patterns

AL-DARB AL-AHMAR STREET

Nothing is really known about Al-Darb Al-Ahmar Street during the time of the Fatimids. The street was probably shortened and ran only adjacent to the southern wall of Al-Qahira. The expansion of the street to the south was mainly due to two factors. The first was that it was the only direction the street course could take. From the north it was blocked by the wall and from the east by the Muqattam hills. The second was due to a regulating law issued at the time of the Caliph Al-Amer (1101-1130). The law, issued by the Wazir Ibn Fatek, forced those who owned disused land (Kharab) in the area between Bab Zuwayla and the tomb of Sayyida Naffisa to the south to either build on this land or to sell it to someone who would; otherwise the Government would expropriate it.[26] It appears that these two factors led to the orientation of the street and from the little description that we have of this area we can conclude that the street functioned during the time of the Fatimids as a residential district for a number of different ethnic groups, among them the Sudanese militia of the Fatimids. (*fig. 7*)



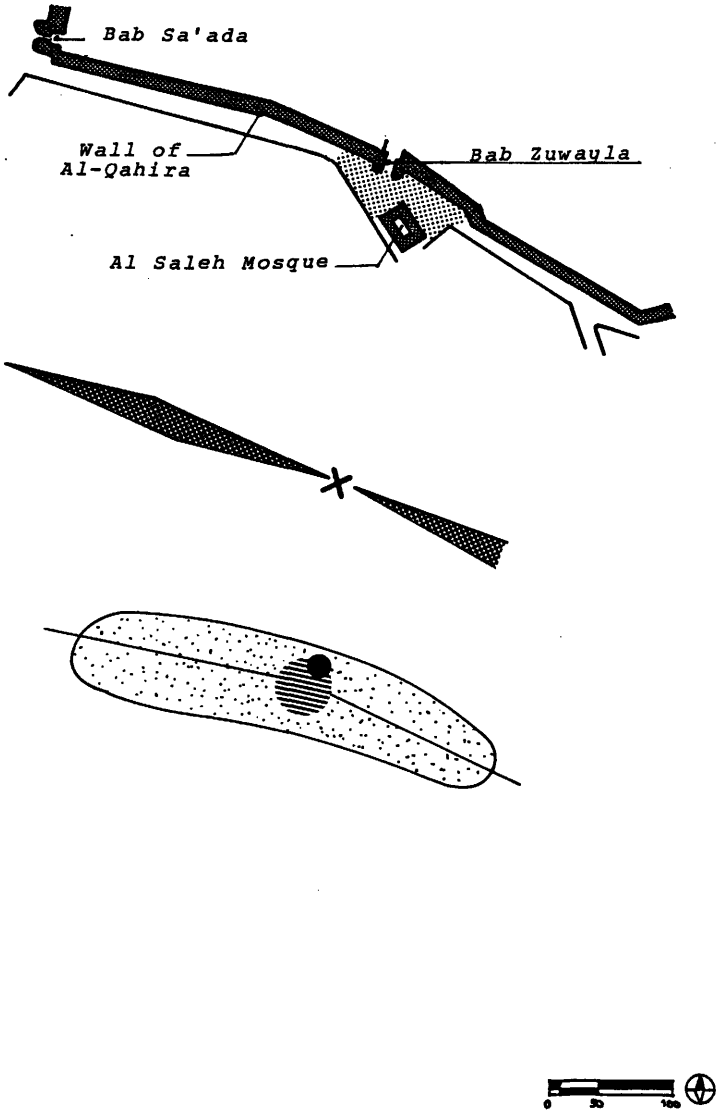


Fig. 7 Al-Darb Al-Ahmar Street and its Patterns

SOME THEMES OF FATIMID URBAN PATTERN

1. STREET-SCAPE

Because of the tentativeness of the available information, the attempted reconstruction of the three streets and their patterns did not allow the extraction of any conclusions concerning the Fatimid street-scape. From the little information that is available one can reconstruct the image of the Fatimid street as a one-segment path composing a district of a single function *(fig. 9)*.

2. LOCATION OF ELEMENTS

Since the city was a well-fortified town, the Fatimids built most of their private and public buildings inside the walls. The elements constituting the Fatimid city were Palaces, Mosques, Hammams, Wekalas, shops, and a number of four and five story houses. Most of these elements except the residential ones were located on the main spine. In the early Muslim settlements, as in Fustat or Al-Qata'i, the city grew around a core which was usually a mosque (Mosque of Amr or Mosque of Ibn Tulun), but in Al-Qahira this was not the case. It is evident that the palaces were designed to occupy its core, while the major mosque Al-Azhar was in a peripheral location. It is suggested that the central location of the palaces influenced the internal structure of the city, and accordingly, its streets. (The major streets were a simple network that tied the palaces to the gates of the city.)

3. VISUAL ELEMENTS AND SYMBOLS

It is difficult to reconstruct the visual image of most streets at the Fatimid time, but from the little we know, we can imagine at the core of the city the two great palaces with their tall walls as the major landmarks. Gates, especially Bab Zuwayla and Bab Al-Futuh, might have had some visual significance too. Even the gates of the palaces were always included in the descriptions given by travellers.

3.1 Exterior Shaping of the Elements and Their Treatment

Little has been preserved of the Fatimid monuments; only a few mosques. Mosque plans were usually regular and symmetrical. They had plain exterior walls of a fixed dimension and some decoration on their walls. The exterior and interior walls of the mosques were usually parallel and perpendicular to the Qibla direction. Since most of the streets were not Qibla oriented, a certain fixed angle was usually created between the center line of the street and the exterior wall of the mosques *(fig. 9)*. The only mosque that did not follow this rule was the mosque of Al-Aqmar which was considered by some scholars[28] an important development of Islamic urban architecture in Cairo, being the earliest building whose facade was adjusted to the line of the street. This dominant feature of exterior shaping of mosques has caused the appearance of wide triangular recessed spaces along the Fatimid street network.

3.2 Spaces

The structure of spaces inside Fatimid Al-Qahira is not very clear. But as mentioned earlier, the largest space and most important node was that of Bein al-Qasriyn. The spaces in front of Al-Hakim and Al-Azhar Mosques were next in size and importance; they acted as nodes of public activity. Other smaller spaces in front of the gates and other mosques were in existence. This might give an indication of the hierarchy of spaces in Fatimid Cairo, except that it is not possible to reconstruct the pattern of that hierarchy from the available resources. It is suggested that that hierarchy was a major element in the creation of Fatimid street patterns. *(Refer to fig. 5)*

3.3 Minarets and Domes

Fatimid minarets were very short and simple. It is suggested that they did not play the role of landmarks in identifying orientation in the city and accordingly they had no visual significance on the urban level.

Domes were small and few. They were usually located deep inside the mosque and accordingly they had no direct relation to the facade and couldn't be seen by the pedestrians moving outside. It is suggested, too, that the dome (at the time of the Fatimids) was an element of single architectural composition, rather than an element of urban composition *(fig. 9)*.

4. OTHER SPECIFIC FORMS USED ON THE URBAN LEVEL

The Fatimid emphasis was more on entrances and exterior walls, with a good deal of decoration on both. There was also a variety of urban proportions. Exterior walls or mosques were not too high, and did not have monumental dimensions. Too little is known about the size of spaces in front of them to allow a judgment on their overall scale except that the height of the walls indicates a tendency towards a human scale. This might have been different in the residential quarters where streets were a little narrower and buildings were up to five stories high. The irregular skyline that Cairo is known for was not developed in the time of the Fatimids since it had very few minarets and tall buildings. The only tall features that were described in travellers' accounts, as mentioned earlier, were the walls of the two palaces. As seen from outside, these constructed the silhouette of the city.

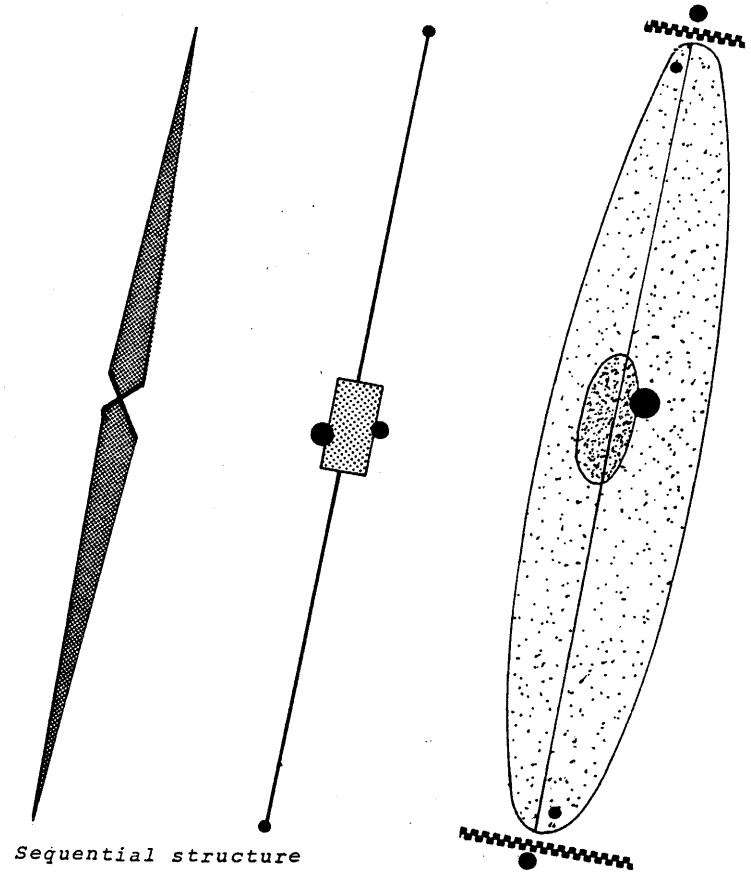
The following table is an attempt to sort out the exterior elements of the major buildings and to classify their visual characteristics.

Table 1 Generic Forms of the Major Fatimid Visual Elements

Visual Elements / Major Structure	Dome		Minaret			Entrance		Exterior Facade			Space	
	Large	Small	Tall	Medium	Short	Recessed or Lined with Facade	Protruding	// to street Centerline	⊥ to Qibla Direction	Staggered	Large	Small
Al-Azhar		◒			●		●		●		●	
Al-Hakim		◒			●		●		●		●	
Al-Giushi		◒			●		◒		●			
Al-Aqmar					●	◒			●		●	
Al-Zafer		◒			●	◒		●				●

● *Strong emphasis* | ◒ *Medium emphasis* | ○ *Little emphasis*

From *Table 1* one may conclude that the dominant exterior features of a typical Fatimid Mosque were a medium-sized, emphasized small dome, a short minaret and an entrance (sometimes protruding). The mosque usually had its exterior facade perpendicular to the Qibla direction, creating a wide space in front of it. For the sake of comparison it is suggested that the Mosque of Al-Hakim represents a typical example of Fatimid urban form *(fig. 9)*.



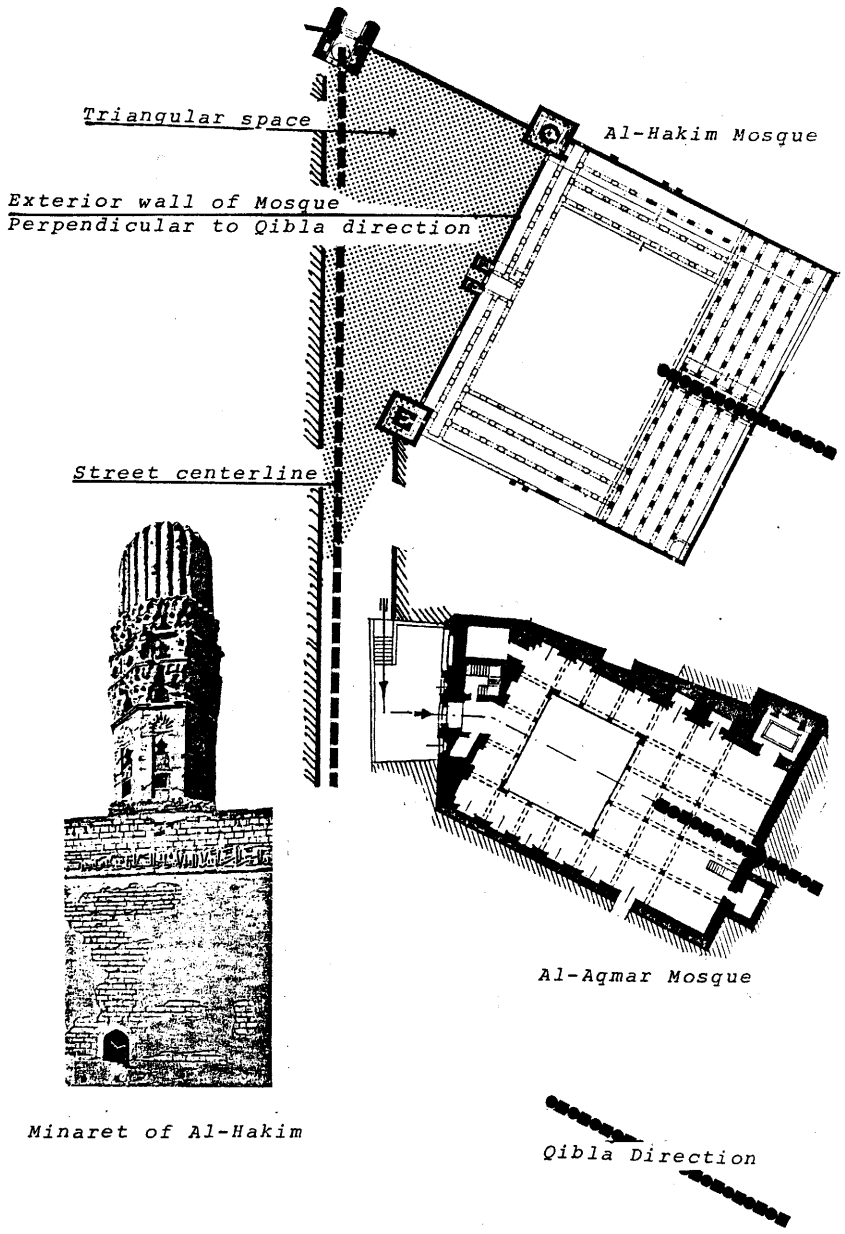


Fig. 9 Some Themes of Fatimid Urban Form and its Street Patterns

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3. CAIRO OF SALAH AL-DIN

The Evolution of Street Patterns

CAIRO OF THE AYYUBIDS AND THE FAMILY OF SALAH AL-DIN (1169-1250)

When Salah al-Din came to power as governor of Egypt in 1169 there was nothing to indicate that he planned a total transformation of its capital.[1] When Salah al-Din showed the independence of his hand in 1174 and conquered Syria, he started building the gigantic wall that encircled the two cities of Misr/Fustat and Al-Qahira. The extension of the northern wall of Al-Qahira to the Nile at Al-Maqs forced the expanding city to go west, especially as the changes in the Nile's coastline had added some land to the area.

Although Salah al-Din had started reconstructing the city of Fustat by building a number of major schools there, little of its population returned to it. He opened the former princely city of Al-Qahira to the masses who began building in its spaces and gardens, changing the old functions of the city. The citadel that was built a little later on the nearby Moqattam hills became the true seat of government during the reign of the Ayyubids.[2] It was the location of that citadel that pulled some of the urban development due south, especially after Salah al-Din burnt the barracks of the Fatimid Sudanese militia (located in the area between Al-Qahira and the citadel) and opened it to public use.[3]

The decline of the Ayyubid dynasty started in 1238 with the death of Al-Kamil. Al-Salih, the last Ayyubid rules, committed his greatest mistake by shifting his military dependence to the Turkish Mamlukes.[4] When Al-Salih died in 1249 his widow married the chief Mamluk minister, Aybak, who displaced her and finally consolidated the new dynasty of the Mamluks, who assumed lordship over Egypt for the ensuing centuries.

THE SOCIAL SYSTEM OF THE AYYUBID RULE

The greatest transformation in Al-Qahira's social structure took place in the time of the Ayyubids. Although Salah al-Din set up residence in Dar al-Wazir, a palace adjacent to the great Fatimid palace, he opened the city to the masses who constructed buildings everywhere. The major palaces were torn down and replaced by schools and mosques and the former Fatimid villas were converted into commercial structures.[5] Although the Ayyubids were not indigenous elements of the Egyptian people, they were absorbed into the population they ruled. They managed to decrease the huge gap between the classes which they had inherited from the Fatimids and, as well, reunited Egypt with the larger Sunni community of the Muslim world.

COMMERCIAL ACTIVITY AND THE WAQFS

As mentioned earlier, most of the Fatimid villas inside Al-Qahira were converted into commercial structures. The economic life was revived again, but this time in Al-Qahira instead of Fustat. Descriptions given by the Arab travellers who visited Cairo at that time emphasized the proliferating commercial activity inside Al-Qahira. The office of the Muhtasib started to grow; he was broadly empowered to observe the fairness and honesty of the merchants. He was also responsible for seeing to the punishment of the faulty.

The structure of the Waqf system changed during the Ayyubid rule. The endowment of property for social services proliferated in their time, causing many legal problems later. Long sections of one street would be endowed to furnish the necessary funds to support a school or a mosque. Examples of that were the endowment of the jewelers' district in Al-Qahira for the Madrasa Al-Nasiriya and the endowment of 32 shops in the area of Bab al-Nasr for the Madrasa Al-Siyufiya.[6] Other public buildings like the Bimaristan al-Attiq (a public

hospital in one of the Fatimids' great palaces) and most of the Khanqa's (monasteries which proliferated at the time of the Ayyubids) were completely dependent on several endowments.

ELEMENTS OF AYYUBID CAIRO AND ITS STREETS

If one were to reconstruct the map of Cairo at the end of the Ayyubid rule, one would find a growing city with a number of suburbs surrounding it. The growing city was Al-Qahira and its suburbs were the reconstructed area of Fustat around the mosque of Amr to the south; the area of Al-Imam Al-Shafi'i Tomb and the new madrasa built by Salah al-Din also to the south, and to the west the port of Al-Maqs on the Nile. Al-Qahira was densely populated by the masses and was expanding due south and west outside its previous walls. The citadel and the new wall with its numerous gates acted as new identifying landmarks for the city. The new madrasas, khanqas, and hammam's built during the Ayyubid rule contributed to shaping the form the city and its streets were to have. (*fig. 10*)

It is suggested that the pattern of narrow streets evolved during the Ayyubid rule of Egypt. Abdel Lattif al-Baghdadi, an Iraqi traveller and scientist visited Cairo in 1193 during the reign of Salah al-Din. He provided a description of Al-Qahira and its streets and he remarked that the city was composed of tall buildings and *wide streets*.[7]

Another Moroccan traveller by the name of Ibn Said visited Cairo in 1243 by that time the Ayyubid dynasty had started its decline. Ibn Said remarked that the streets of Al-Qahira were very narrow and that they had mixed functions. He noticed that the traffic was not regulated and that traffic jams and bottle-necks along the streets were frequent. He attributed these problems to the narrow structure of the streets and to their

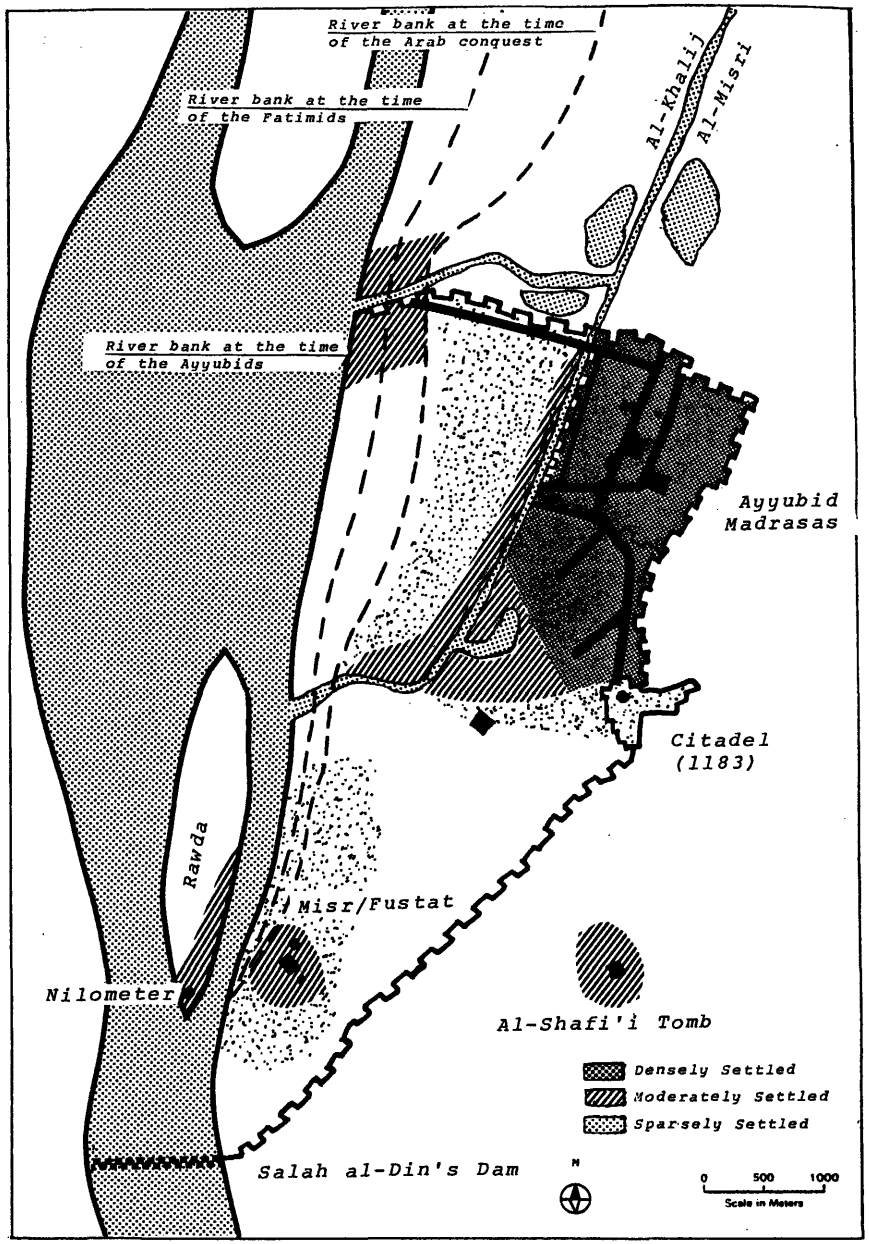


Fig. 10 Cairo at the End of the Ayyubid Rule (1196-1250

mixed functions. He remarks that the only place in Al-Qahira that did not have such problems, where pedestrians could feel comfortable, was the space between the two former Fatimid palaces (known as Bein al Qasriyn).[8]

That striking difference in the description of two travellers who visited Cairo during the rule of the Ayyubids only 50 years apart could be explained in several ways. It might indicate that the city could have been perceived differently by both travellers, since they came from two different origins, but descriptions of other cities given by both travellers indicate that this was not the case. Another possible explanation is that Al-Qahira had undergone an enormous amount of development during these 50 years, and that the masses that moved in started construction everywhere--within the wide streets, maydans and gardens of the former princely city. It is possible to conclude that the narrow streets of Al-Qahira could be attributed to the spontaneous development that took place in the time of the Ayyubids. (*fig. 10*)

AL-MU'IZZ STREET

This street underwent its most severe change during the time of the Ayyubids. The whole function and accordingly the image of the street changed completely in their time. As mentioned earlier, Salah al-Din opened the city to the masses who built everwhere. And since Al-Mu'izz Street was one of the widest streets inside the former princely city, it had its share of that development. People started to build in the spaces between the former detached palaces and their gardens. Most of the villas were converted into commercial structures.[9] Sections of the old Fatimid palaces were reused as a bimaristan and a number of madrasas (Al-Siyufiya, Al-Kameliya and Al-Salehiya) were built in the space between the two palaces (Bein al-Qasriyn). The Ayyubids had changed the street completely. It retained its previous three segments but this time the functions (commercial, educational and cultural) were mixed and the continuity of the street from Bab Zuwayla to Bab Al-Futuh was achieved. Although the function of the space of Bein Al-Qasriyn was changed, the space which was still the largest in Al-Qahira remained to function as a major node. At the end of the Ayyubid rule the street's image and role within the overall city structure had changed completely from what it had been during the Fatimids'. (*fig. 11*)

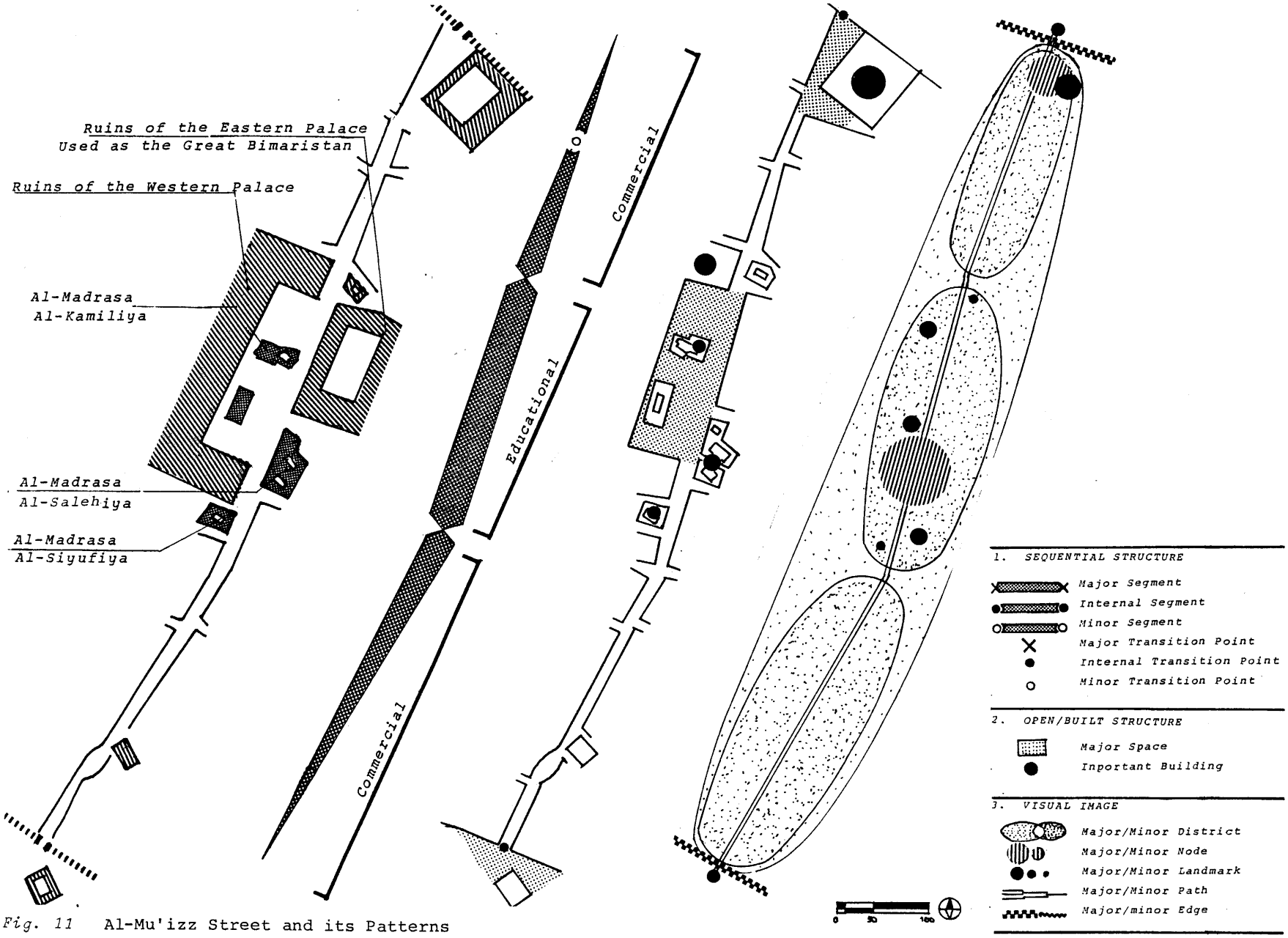


Fig. 11 Al-Mu'izz Street and its Patterns

AL-DARB AL-AHMAR STREET

Al-Darb Al-Ahmar Street was enormously developed by the Ayyubids. The basis of that development was laid when the citadel at the other end of the street was constructed, and as more activities concentrated in the citadel, the impetus of development increased.[10] The street now started from the space in front of Bab Sa'ada due west on Al-Khalij al-Masri to the space in front of the new Bab al-Wazir and the entrances of the Citadel due south. The street was considered a major throughfare linking the Citadel to Al-Qahira. People coming from Fustat to Al-Qahira used it too. The street was divided into two segments, the first running from Bab Sa'ada to Bab Zuwayla and the second running from Bab Zuwayla to Bab Al-Wazir. Both segments had mixed functions, mainly residential with a few mosques, khanqas, and some commercial activity. There were two major nodes along the path. The first was the space in front of Bab Zuwayla which acted at that time as the major entrance to the city of Al-Qahira. The second was the space of Al-Rumaiyla in front of the Citadel which had a certain significance in the time of the Ayyubids similar to the significance of the space of Bein al-Qasriyn at the time of the Fatimids. (*fig. 12*)

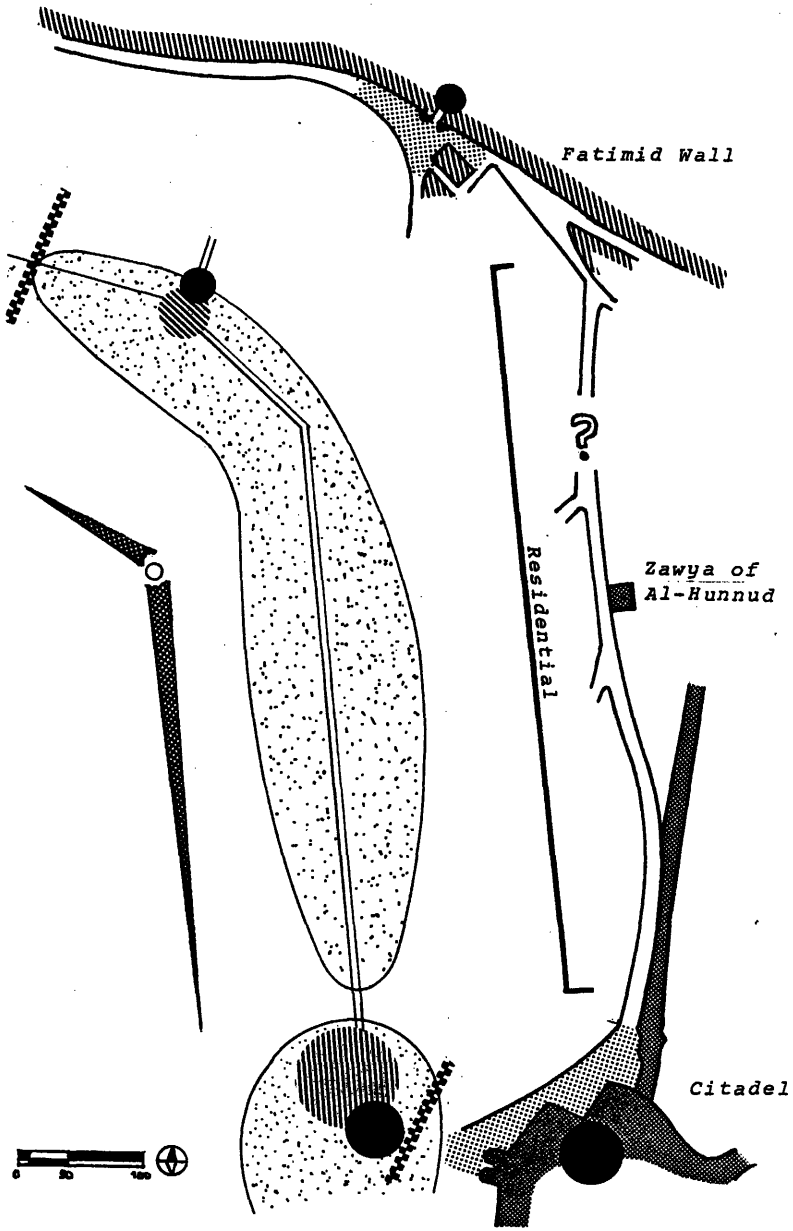


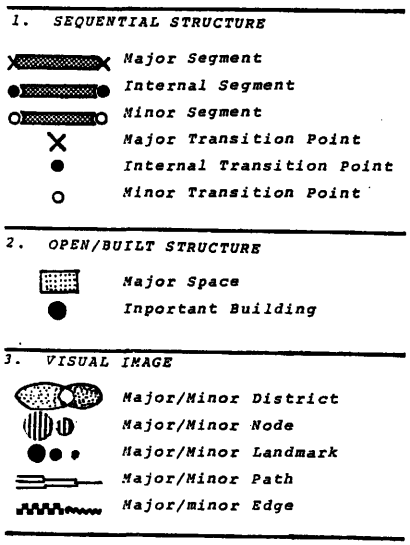
Fig. 12 Al-Darb Al-Ahmar Street and its Patterns

AL-JAMALIYA STREET

Al-Jamaliya Street experienced much development during the Ayyubid rule. Salah al-Din resided in Dar Wazir which was located along the path near Bab al-Nasr.[11]

A number of madrasas and khanqas were built near the middle of the street--among them, Dar Said al-So'ada, probably the first khanga in Cairo. On the other end of the street was the Madrasa Al-Salahiya built by Salah al-Din near the Tomb of Al-Hussiyn.

The street could be perceived at the time of the Ayyubids as one segment with a great number of curvatures in it. The street was mainly functioning as an administrative spine with some religious activity accompanying it. (*fig. 13*)



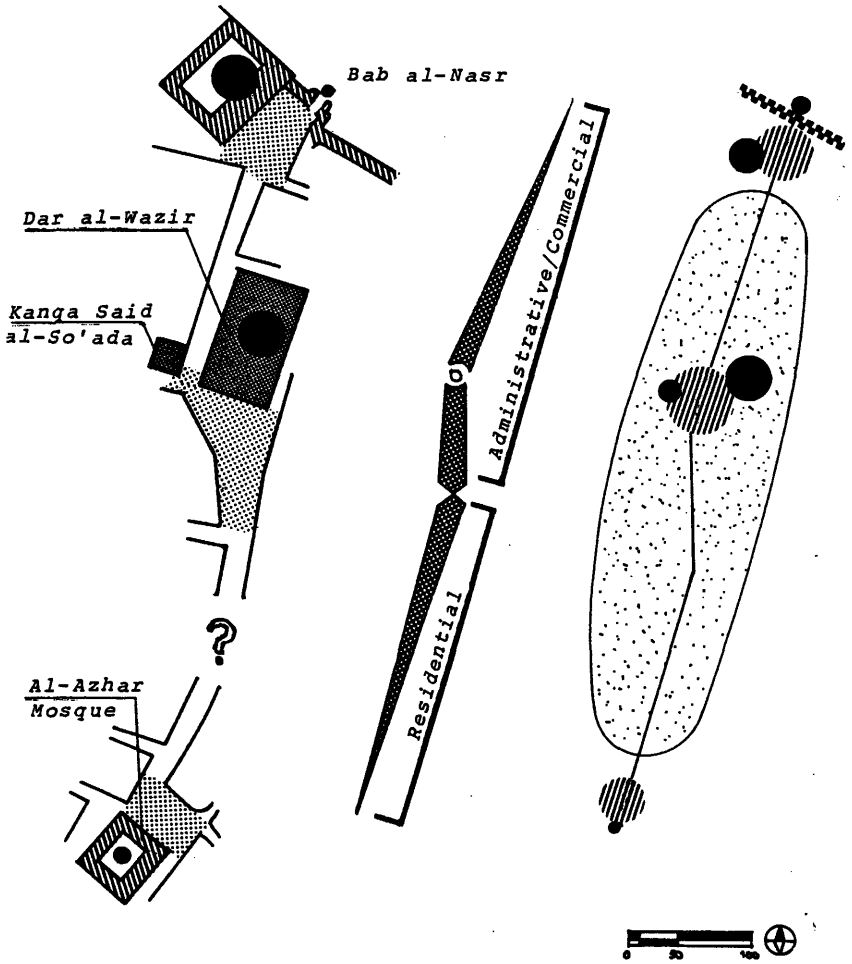


Fig. 13 Al-Jamaliya Street and Its Patterns

SOME THEMES OF THE AYYUBID URBAN PATTERN

1. STREET-SCAPE

Although Ayyubid streets had mixed functions and were divided into different segments, each street constituted in itself a separate district. Even Al-Mu'izz Street, which retained its previous three segments was considered as one entity with different, mixed functions inside. Important buildings were located around the major spaces and these spaces were scattered along the path *(fig. 14)*.

2. LOCATION OF ELEMENTS

The Ayyubids built 13 madrasas during their eighty years of rule, most of which were located inside Cairo proper, with the exception of two madrasas in Fustat and a madrasa near the tomb of Al-Shaf'i to the south of Cairo proper.[12] Most of the Ayyubid elements were located close to each other and created scattered groups along the major paths. The Ayyubid dynasty witnessed the evolution of two kinds of structures: the madrasa which acted as a school and a mosque, and the khanqa which was a monastery. Also for the first time, tombs were attached to mosques and madrasas as in the case of the Madrasa Al-Salehiya and the grouping of such functions in one structure was very common later during the Mamluks' reign.

3. VISUAL ELEMENTS AND SYMBOLS

By the end of the Ayyubid rule, Cairo was expanding again. A number of major nodes inside the walled city started to appear but the area of Bein al-Qasriyn remained the major node in Cairo. The Citadel built on the edge of the Muqattam Hills appeared on the scene as the major landmark. With the development of commercial activity along its different segments Al-Mu'izz Street became the major path.

3.1 Exterior Shaping of Elements and Their Treatment

The few Ayyubid elements that are still extant are mainly madrasas, with an irregular plan and a plain exterior wall usually parallel to the center line of the street, while the interior walls were perpendicular to the Qibla direction.

3.2 Spaces

Although the exterior facades of madrasas were parallel to the center line of the street, the recess of that facade from the centerline created spaces in front of these elements *(fig. 15)*. The attack on spaces during the rule of the Ayyubids was severe, because of the sprawling construction that took place when the city was opened to the public. But some space survived, among them the famous space of Bein al-Qasriyn, regarded by all travellers who visited Cairo during the Ayyubid rule as a great area.

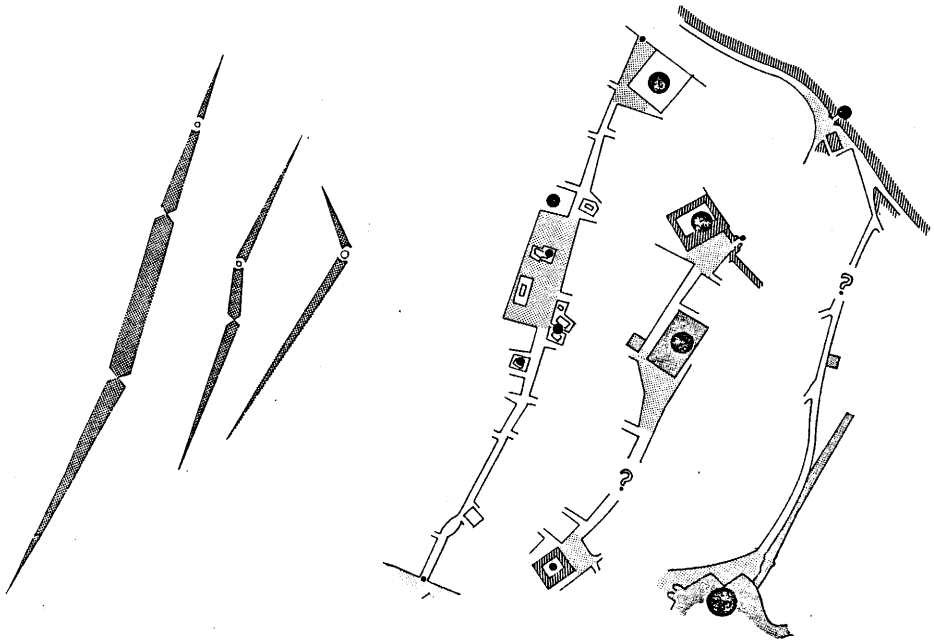
3.3 Minarets and Domes

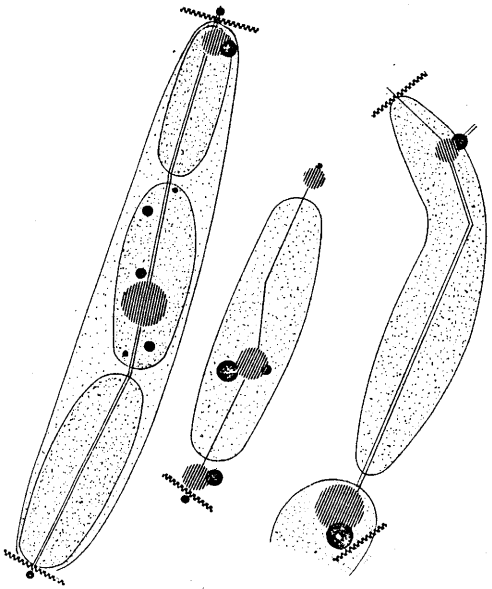
Ayyubid minarets were short, but not as short as the Fatimid ones. Although they were not probably identifying landmarks, their architecture and physical shape show a great deal of harmony between them and the older Fatimid minarets. *(Refer to fig. 9 and fig. 15)*

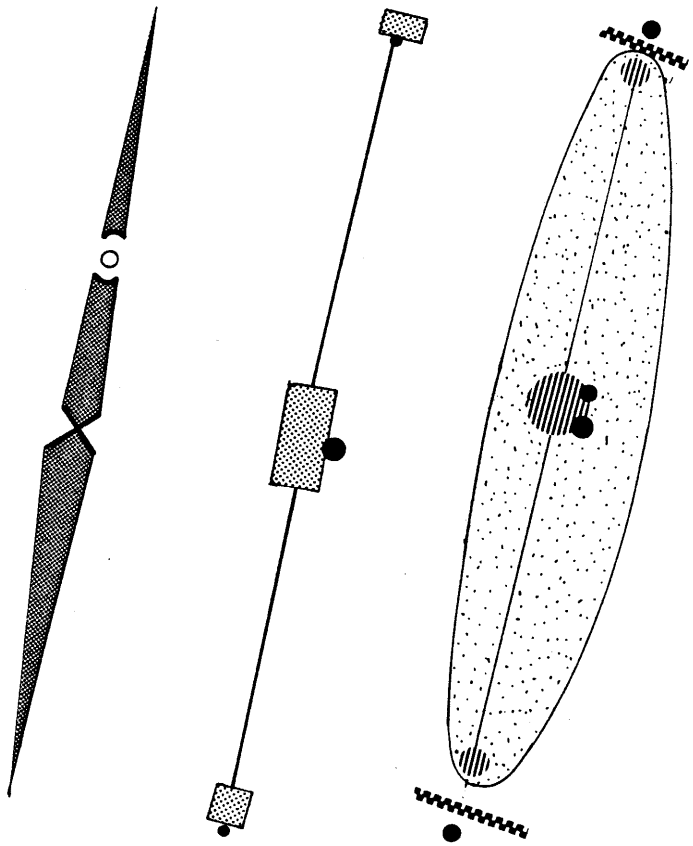
Domes were somewhat bigger, but the few still extant do not allow a thorough investigation of their role in the overall city image.

4. OTHER SPECIFIC FORMS USED ON THE URBAN LEVEL

Ayyubid entrances were recessed, usually under the minarets; exterior walls of mosques and madrasas were usually short and of human proportions. Streets became very narrow in the time of the Ayyubids, especially since construction was booming inside the walled city, and residential building up to five and six stories was very common, causing the feeling of narrowness along the streets to increase. Due to these major changes inside the city it is suggested that the skyline of the city must have changed, and that the bulk of the six story buildings inside now constituted its new silhouette.







Diagrammatic representation of
Typical Ayyubid street pattern

1. SEQUENTIAL STRUCTURE

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

2. OPEN/BUILT STRUCTURE

- Major Space
- Inportant Building

3. VISUAL IMAGE

- Major/Minor District
- Major/Minor Node
- Major/Minor Landmark
- Major/Minor Path
- Major/minor Edge

Fig. 14 The Ayyubid Street Scape

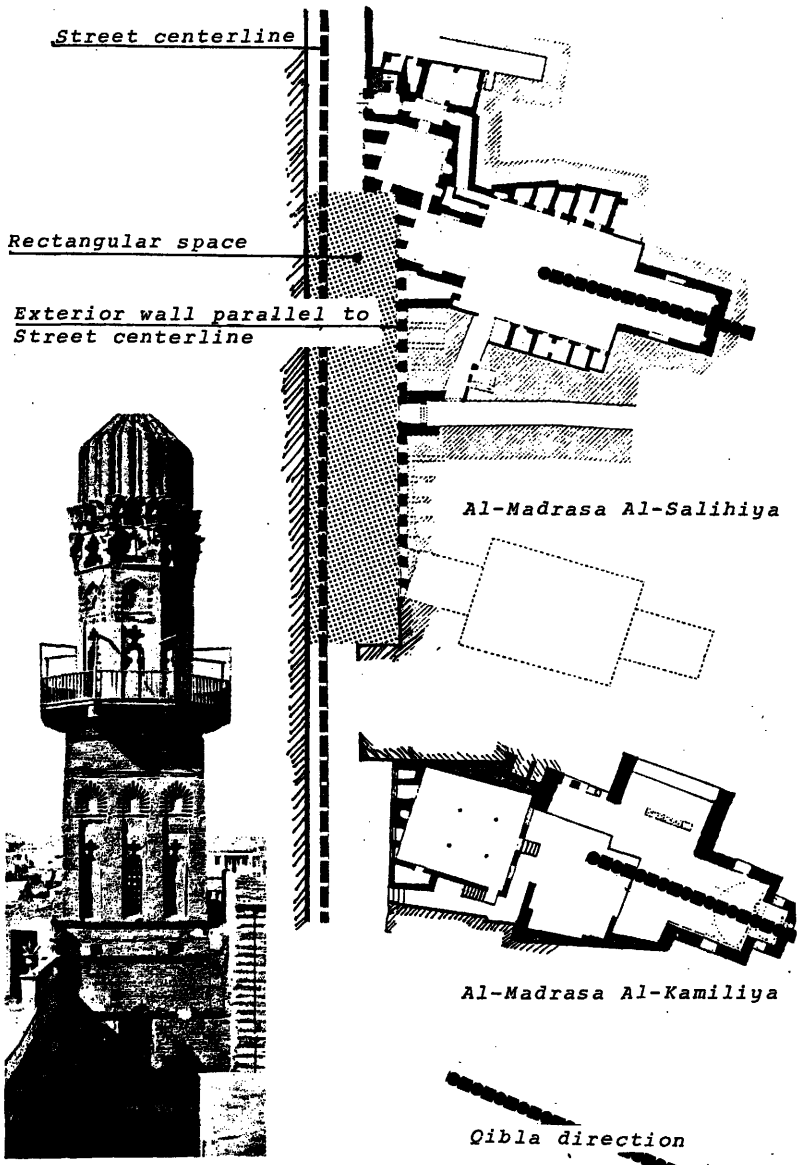


Fig. 15 Some Themes of Typical Ayyubid Urban Form

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4. Named later as the *Bahri Mamluks* meaning water/ Nilotic slaves because their troops were always located on the island of Rawda in the Nile River.

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4. CAIRO: BAHRI MAMLUKS AND URBAN DEVELOPMENT

Variety and Change in Street Composition

CAIRO AND THE BAHRI MAMLUKS (1250-1382)

It was during the period roughly corresponding to the rule of the Bahri Mamluks or the Turkish Slaves of the Nile, that Cairo experienced her greatest growth and development during the medieval era.[1] Although the Mamluks took over following the bloody events that surrounded the death of the last Ayyubid ruler, they were not completely in power. It was not until General Baybars' victory over the Mongols who had succeeded in destroying the Abbasid Caliphate in Baghdad, that he assumed the throne in 1260 as the first Bahri Mamluk Sultan. To legitimatize his act he transferred the Abbasid Caliphate to Cairo as a non-ruling religious power.[2] During Baybars' reign, most of Cairo's development was mainly in the northern section. The construction of Al-Zahir mosque in that section was considered by some scholars[3] as an attempt to create a new core for a new Mamluk capital. The attempt was only successful in converting some of the agricultural land in the areas into elite residences.

It was during Al-Nasir's reign (1298-1340) that Cairo experienced the greatest change. Both Al-Qahira proper (the walled city) and Zahir al-Qahira (the section outside the wall) developed rapidly. Development in the north was overshadowed by that occurring in the west and south. By the end of Al-Nasir's reign the area of Zahir al-Qahira stretching between Bab Zuwayla, the Citadel and the mosque of Ibn Tulun became the most populous district of Cairo. Development of the western suburbs was encouraged by the construction of the Khalij al-Nasiri (water canal), and the area between the Al-Qahira proper and the canal was rapidly developed.[4] Even on the western side the area stretching between Bab al-Nasr cemetery and the Muqattam Hills was opened for development. The Nile edge was moving westward, too, exposing new land. While the old Al-Maqs port was covered over, a new port by the name of Bulaq emerged and took its place.

During Al-Nasir's reign Cairo was considered the greatest city in the world. The love of its ruler for building created a unique character for it. But the great times of the city, probably more than twice the size of the London or Paris of the time, were about to end, for after Al-Nasir's death, political instability was to characterize the reign of his successors. When the disaster of the Black Death struck, the country was in no position to resist.[5] The city of Cairo alone lost at least half its population.[6] But the plague was not the only crisis, for the Mongols under Tamerlaine were launching their attack on Egypt. It was for that reason that the desperate Bahri Mamluks turned to the talented general Barquq who in 1382 became the first Circassian Sultan and the founder of the Burji Mamluk[7] dynasty that was to rule Egypt until the Ottoman conquest.

THE MAMLUKS' SOCIAL SYSTEM

The shift to Mamluke rule was much more than a simple change in dynasty; it represented rather a social revolution of deep significance which, while facilitating a flowering of medieval Cairo, contained within it the seeds of its own eventual decline.[8] The Mamluks were the only rulers who were not absorbed into the population they ruled.

Although the island of Rowda symbolized the power of the elite, as a class they were divided residentally, their palaces were scattered throughout the capital. Co-residence was virtually a necessity for the organization of units within the lower social orders. Craftsmen continued to live in the specialized quarters their

families had occupied.And as new areas were settled, these came to be called by the names of the ethnic, religious or occupational groups that resided in them.[9] The division of the city into quarters was very much strengthened during the Mamluk's rule. Streets during this period represented a manifestation of the social structure of the society.

COMMERCIAL ACTIVITY

Commerce reached its height during the rule of Al-Nasir. The major commercial zone--the Qasaba running from Bab Zuwayla to Bab al-Futuh--bustled with 12,000 shops in addition to numberless itinerant vendors.[10] Inside Al-Qahira proper, most of the 35 major suqs dating from the Fatimid times were very active. In addition a large number of markets were developed outside the walled city by the end of the Bahri Mamluks' rule. Guilds for commerce and trade still existed, now much more heavily regulated.[11] The Muhtasib no longer acted as a market supervisor; he now was seen as having moral as well as legal functions, assisted by Arifs who served as mediators of the state policy. The wekalas tended to be located in a single quarter at the city's edge (like the wekalas around Al-Hakim Mosque) for there was no need to disturb the tranquility of the inner city by introducing wholesale activity there. The same dual reasoning dictated that the farmers' markets be outside the city walls.[12] Other industrial activities like the tanners, dyers and blacksmiths were located in conformity with their industrial needs. As a result of this organization, the student in a madrasa, the worshipper in a mosque, or the shopper in a bazaar could go about his affairs undisturbed by any of these activities.[13]

THE WAQF SYSTEM AND THE BUILDING CODES

The waqf experienced its greatest development during the time of the Mamluks. The Mamluk amirs and sultans paid great attention to preserving the waqfs and, accordingly, to preserving most of the buildings inside the walled city.[14] The waqfs had a great impact on the provision of social services and cultural institutions in the time of the Mamluks. It was due to the waqf system that certain activities inside buildings were preserved and were guaranteed continuing support. Schools, hospitals and monasteries were among these buildings. The documents of the Mamluks show a number of technical occupations associated with the architecture of the Waqfs.[15] Among these were a) the Mo'alem: the man responsible for the erection of a building and for the supervision of construction; b) Shaheda al-imara; a person trusted to observe that the construction respected building codes and specifications; c) Al-Mur'khem: responsible for the maintenance and the beautification of the buildings. The Muhtasib was also responsible for seeing that the building occupants respected the right of way and did not intrude on the street area, which was considered public property. He was also responsible for removing any structures protruding into the street. Building materials and shop commodities were only allowed in the public street area for limited periods of time until they could be circulated. Roaming vendors were not allowed to use the street area and were only allowed to sell certain commodities needed by the women and the housewives.[16] In general, building construction was carefully building construction was carefully watched and regulated during the rule of the Mamluks.

CAIRO AND THE STREETS OF THE MAMLUKS

Cairo experienced its greatest growth and development during the rule of the Bahri Mamluks. A reconstruction of the city before it was attacked by the Black Death in 1348 shows a great city developing in all directions reflecting an enormous economic growth.[17] As new areas were developed, new buildings were to be erected and new streets were to be formed *(fig. 16)*. A great number of streets outside the walled city were developed during the rule of the Bahri Mamluks. Among these were the streets of Zahir Al-Qahira , and the streets connecting Al-Qahira with its southern suburb, Misr-Fustat and its western suburb, Bulaq. The hierarchy of street pattern was probably developed during the Mamluks' rule due to their strict laws regulating the different kinds of activities that were to take place in each of them,[18] and even the kind of traffic that was permitted to pass through .[19] A reconstruction of a number or streets of Cairo during this period shows some implicit principles that were developed regarding building along the narrow disorganized streets that were inherited from the Ayyubid city.

Before going into detailed analysis of the three streets, one must remember that these streets were among dozens of streets in a great city that was described thus by the famous traveler Ibn Battutah[20] as:
"Mother of cities, mistress of broad provinces and fruitful lands, boundless in multitudes of buildings, peerless in beauty and splendour."

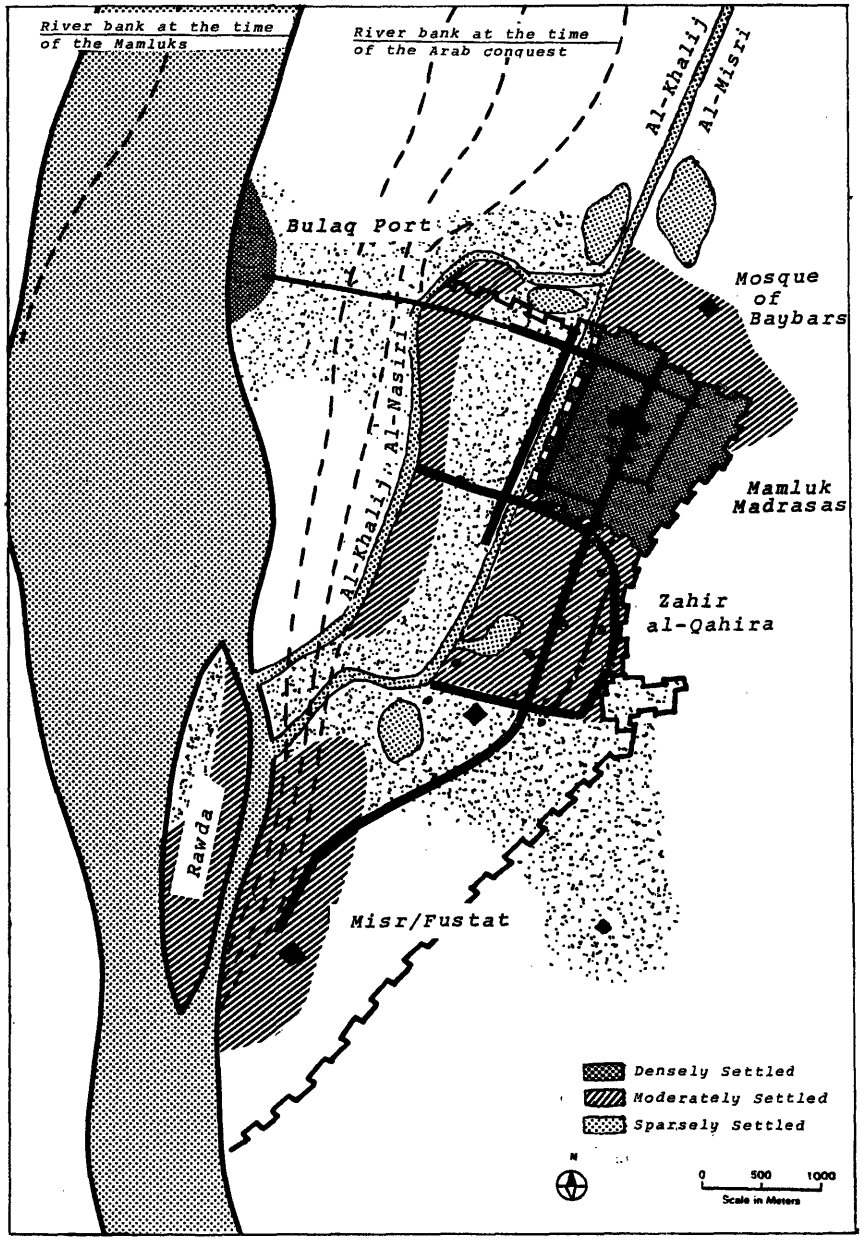


Fig. 16 Cairo of the Bahri Mamluks and its Major Streets

AL-MU'IZZ STREET

The trend that was generated in the time of the Ayyubids of building in Bein al-Qasriyn space continued in the time of the Bahri Mamluks too. Three madrasas (al-Nasiriya, al-Zahiriya and al-Munsouriya) were built in it and between the previous Ayyubid madrasas. The very famous Bimaristan of Qalawun was also built at this time. The Bahri Mamluks maintained the sequential structure of the path unchanged. They also did not change the visual image, except that new functions were added to the node of Bein Al-Qasriyn, forming a separate internal district with a number of new landmarks. The Bahri Mamluks thus created in Al-Mu'izz Street the character the street was to maintain for the ensuing centuries. *(fig. 17)*

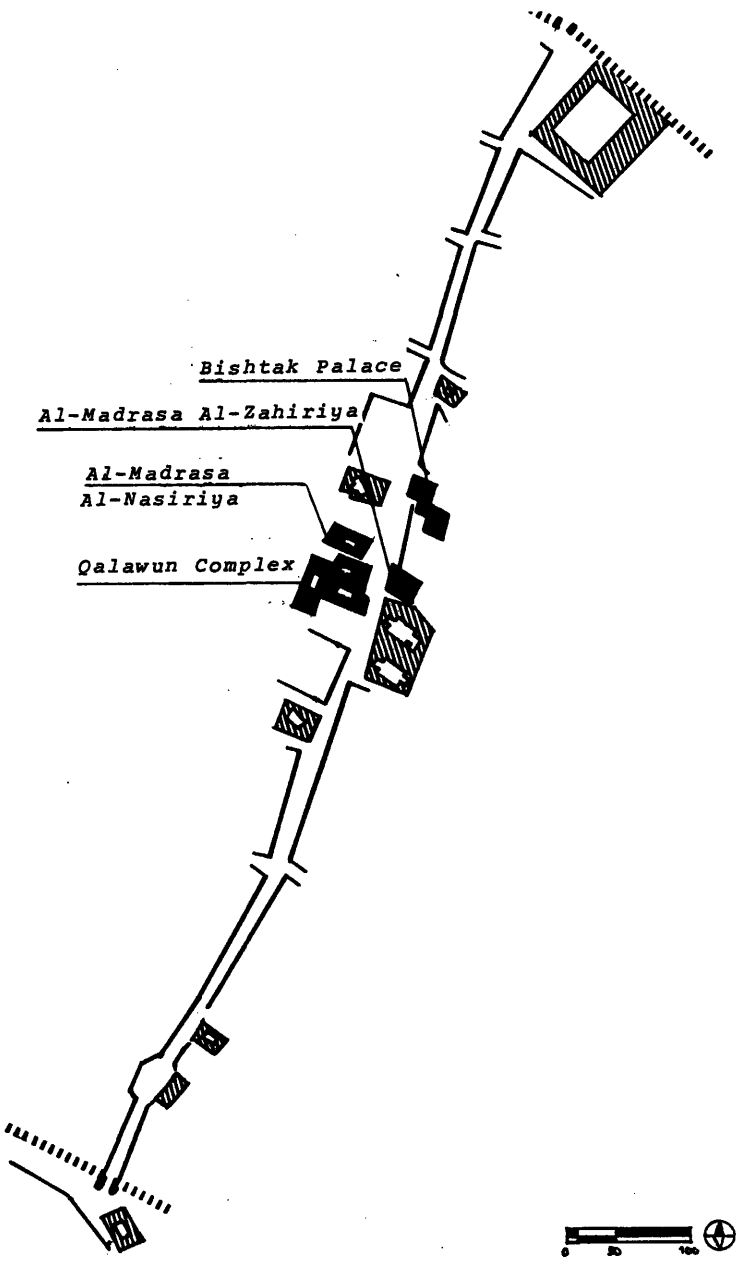
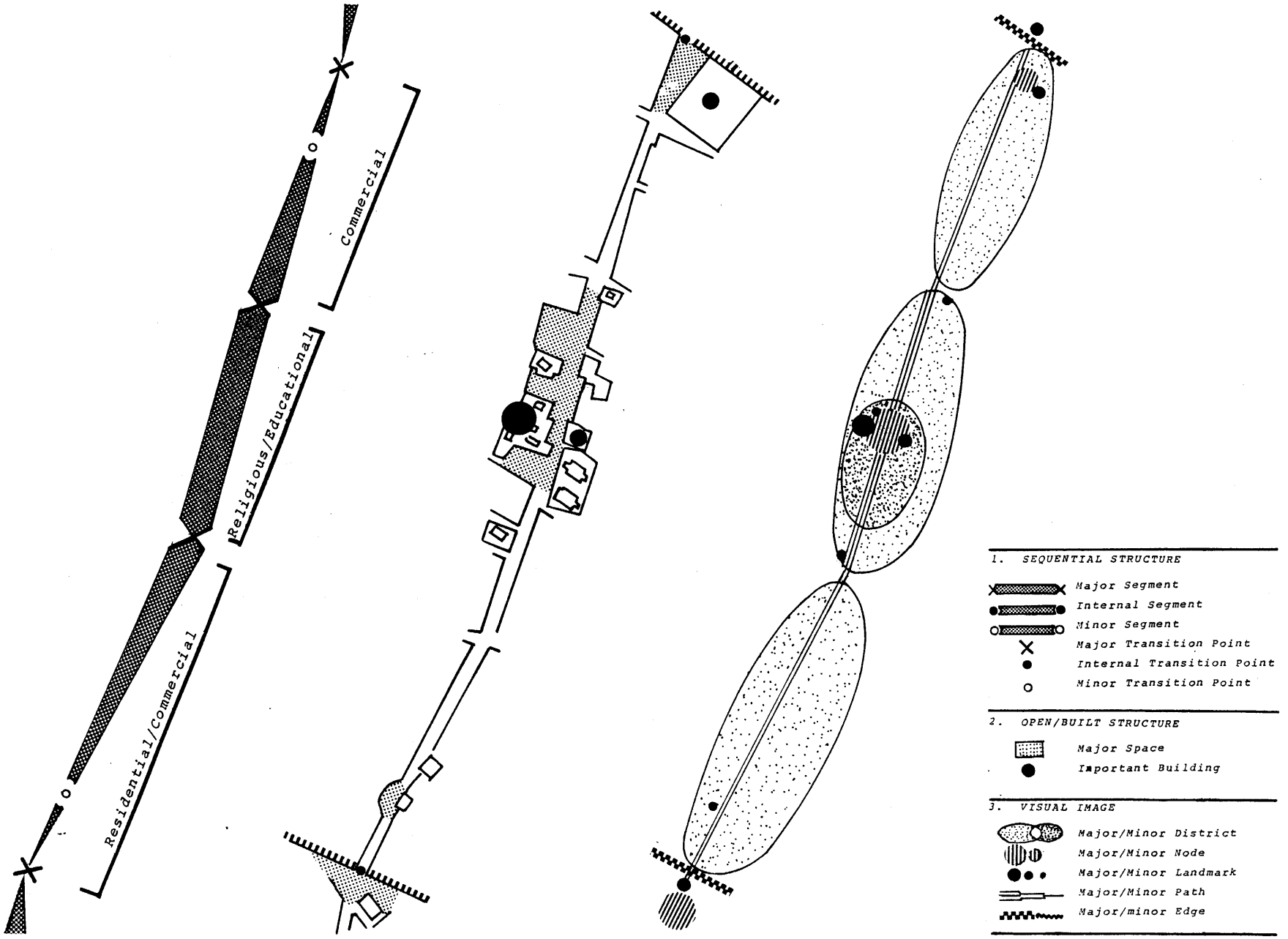


Fig. 17 Al-Mu'izz Street and its Patterns


Residential/Commercial
Religious/Educational
Commercial
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 District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-DARB AL-AHMAR STREET

Although the street had been developed by the Ayyubids, its structure had been created in the time of the Bahri Mamluks, who added several buildings to the street. Among these buildings were the Madrasa of Umm al Sultan, the Mosques of al-Mihniendar, al-Mardini and Aqusunqur. The added buildings were all concentrated in the section of the street between Bab Zuwayla and the Citadel, creating a new internal district of religious and educational functions. The area in front of Bab Zuwayla became a major node, with the gate serving as a major landmark. The image of the street is now composed of three different districts with three major spaces in between; this structure is very similar to that of Al-Mu'izz Street. *(fig. 18)*

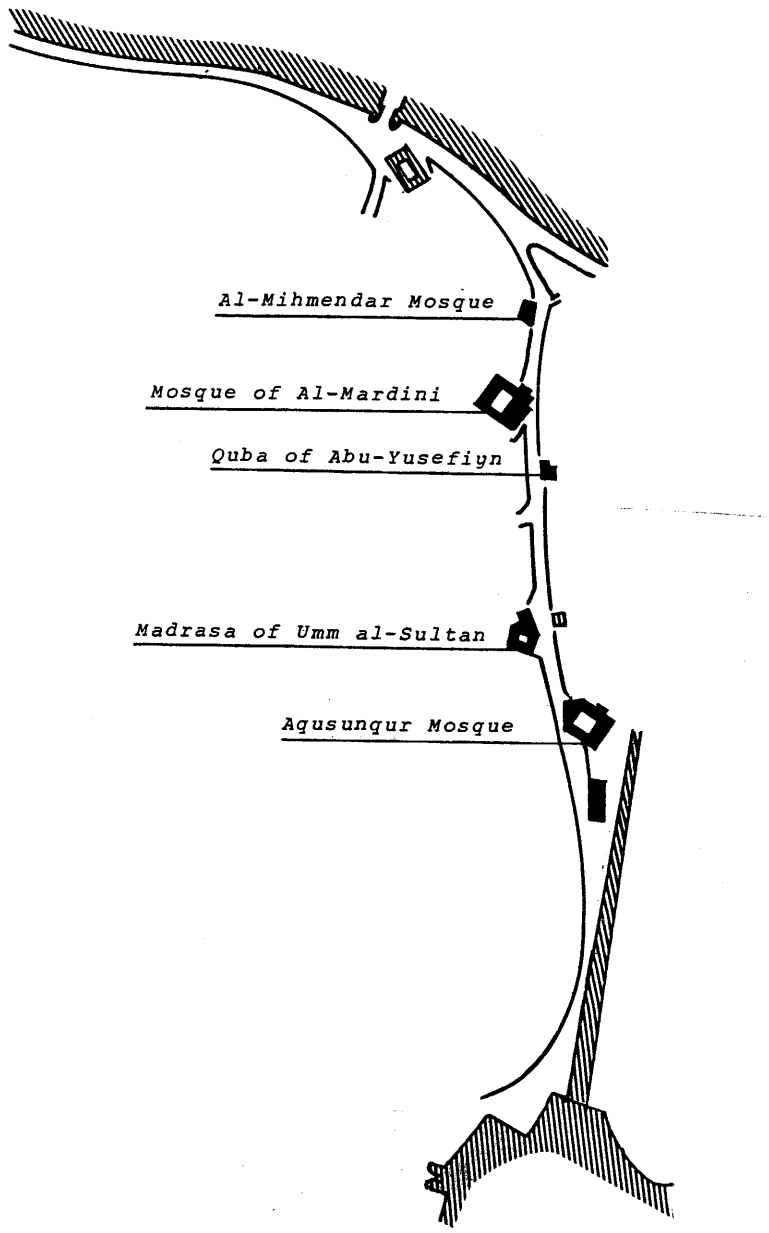
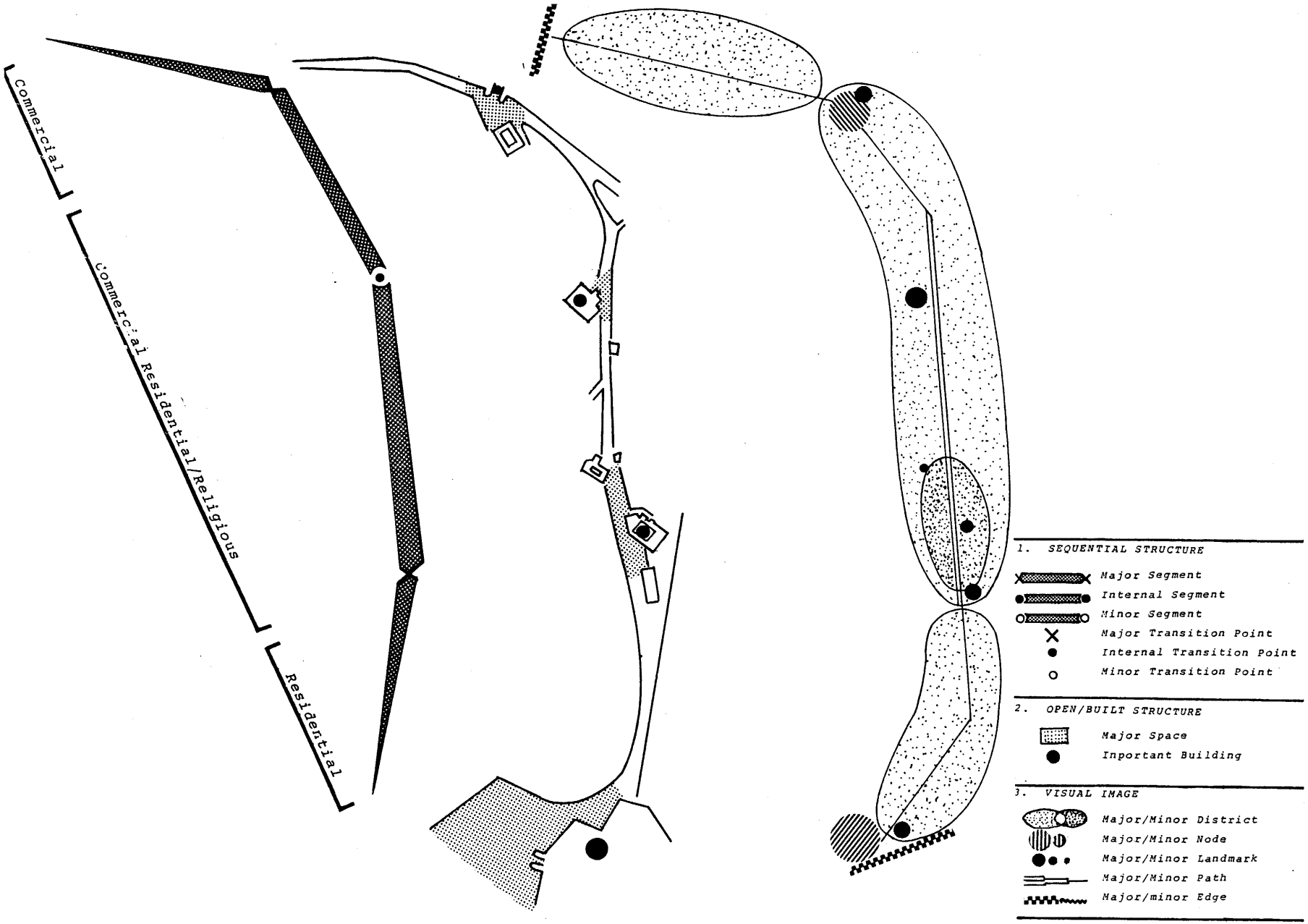


Fig. 18 Al-Darb Al-Ahmar Street and its Patterns


Commercial
Commercial Residential/Religious
Residential
1. SEQUENTIAL STRUCTURE
Major Segment
Internal Segment
Minor Segment
Major Transition Point
Internal Transition Point
Minor Transition Point
2. OPEN/BUILT STRUCTURE
Major Space
Inportant Building
3. VISUAL IMAGE
Major/Minor District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-JAMALIYA STREET

Al-Jamaliya Street was little developed during this time. The Bahri Mamluks, who seemed so intent on building everywhere, added only two or three buildings to it. Two explanations have been suggested for this. The first is that the street was already overcrowded with buildings and activities during the time of the Fatimids and the Ayyubids, such that there was no place to add any new structure. This does not seem to be a valid reason since the Bahri Mamluks added several buildings to Al-Mu'izz Street, which was far more crowded than Al-Jamaliya Street. A second explanation that we find more reasonable was that the Bahri Mamluks were concerned with developing Zahir al-Qahira. They might not have had the willingness to develop the walled city (except in major spines) since they considered Zahir al-Qahira as their capital[21] and constructed most of their buildings in it. The street, by the end of the Bahri Mamluks' rule had retained a three district structure, with each district having its internal landmarks. The two major landmarks were Bab al-Nasr and Al-Azhar Mosque at both ends of the path. The previous spaces along the path, inherited from the Fatimids and Ayyubids, had disappeared. The two remaining spaces were Rahbat al-Azhar and Rahbat Bab al-Nasr and both of them had become major nodes. The space in front of Al-Azhar had become a religious and educational node after the Bahri Mamluks returned the Khutba (the major Friday sermon) to it. The space inside Bab al-Nasr became a major wholesale commercial node after the construction of several wekalas in the area around it. *(fig. 19)*

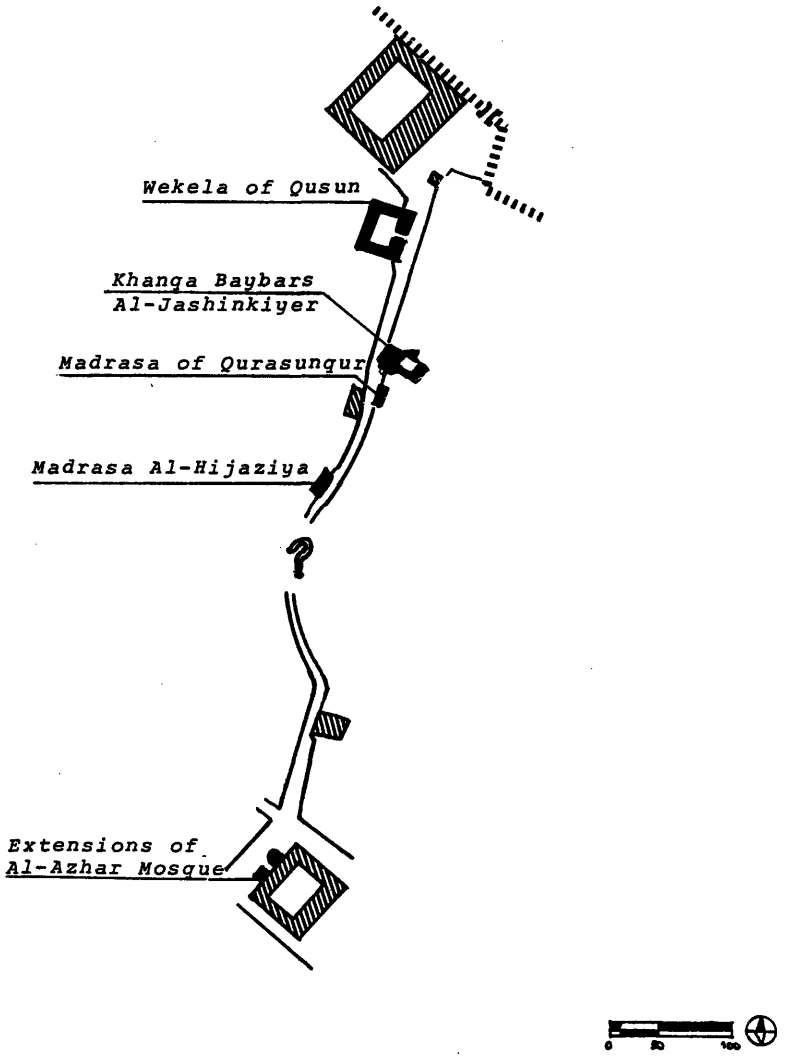
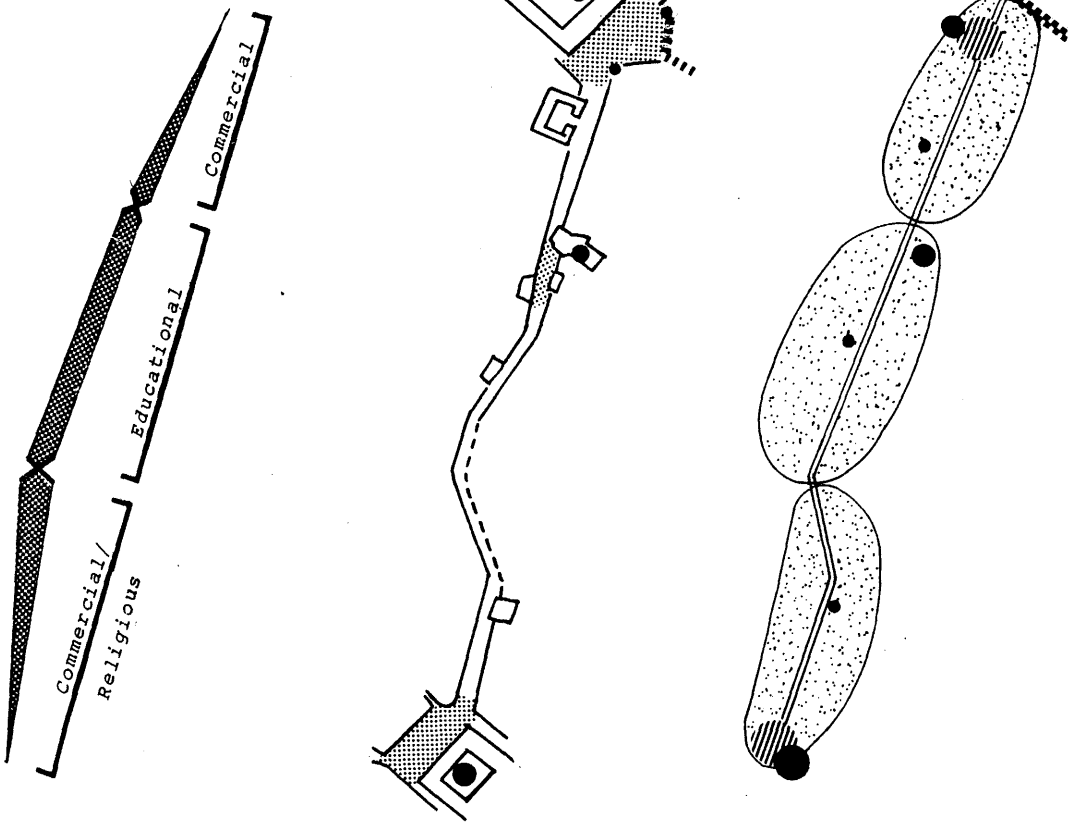


Fig. 19 Al-Jamaliya Street and its Patterns



1. SEQUENTIAL STRUCTURE

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

2. OPEN/BUILT STRUCTURE

- Major Space
- Inportant Building

3. VISUAL IMAGE

- Major/Minor District
- Major/Minor Node
- Major/Minor Landmark
- Major/Minor Path
- Major/minor Edge

SOME THEMES OF THE BAHRI MAMLUKS URBAN PATTERN

1. STREET-SCAPE

Because of the accuracy of the descriptions of the three streets at the time of the Mamluks, a reconstruction of their patterns and a comparison with each other seems reliable. The three streets possessed very similar characteristics.

1.1 Segmental Structure

All three streets were composed of three segments and although the internal structure of each equivalent segment was different, the overall path sequence was very similar *(fig. 20)*.

1.2 Spaces and Buildings

All three streets seem to have had three major spaces along them, one in the middle segment and one at each end. Major buildings were located in the middle segment and surrounding these major spaces *(fig. 20)*.

1.3 Visual Image

Two of the three streets had walls on both ends constituting their visual edges. The same two streets had an internal segment in the middle where most of the major buildings were concentrated.

The three streets were similar in some aspects; they were all composed of three segments;they all had some kind of landmark between their different districts; and they all had a major node and a major landmark on each end *(fig. 20)*.

2. LOCATION OF ELEMENTS

It was during the rule of the Bahri Mamluks that Zahir al-Qahira experienced its greatest development. An analysis of the location of 31 major Bahri Mamluk structures showed that only 10 important buildings were constructed inside the walled city while the majority (67%) were located in Zahir al-Qahira.

On the street level, the grouping of buildings continued and in the early years of the Bahri Mamluks, new madrasas and mosques were usually located very near to previously existing agglomerations of buildings. The case of the Qalawun complex and the madrasa Al-Nasiriya along Al-Mu'izz Street demonstrated an attempt to maintain and strengthen the existing climax. Although this trend continued till the end of the Bahri Mamluks' rule, the situation was different in Zahir al-Qahira where there were no pre-existing elements. The building trend in this area was to centralize all major buildings along the major segment of the path, creating a climax for these streets.

3. VISUAL ELEMENTS AND SYMBOLS

The Bahri Mamluk rule witnessed the evolution of a new architectural unit that had some visual significance on the city level. This was the sabil (a water fountain) on the ground floor, with a kuttab (an elementary Quranic school) on the floor, constituting one homogenous architectural unit. Another significant factor that affected the architecture of the major buildings was that most of these buildings were built by the elite class during the height of the Mamluke empire and these were different in style from the older buildings built by the rulers. The following is an examination of these elements:

3.1 Exterior Shaping of Elements and their Treatment

Of the 14 major madrasas and mosques built in the time of the Bahri Mamluks, 12 had staggered exterior facades, with at least one of its sides parallel to the street center-line. This characteristic had its influence on the evolution of irregular spaces of variable widths in front of such elements *(fig. 21)*. Mosques located outside the urban area had very regular plans and shaping of exterior facades, while the elements located inside Cairo had colored brick courses and large openings in their exterior walls.[22]

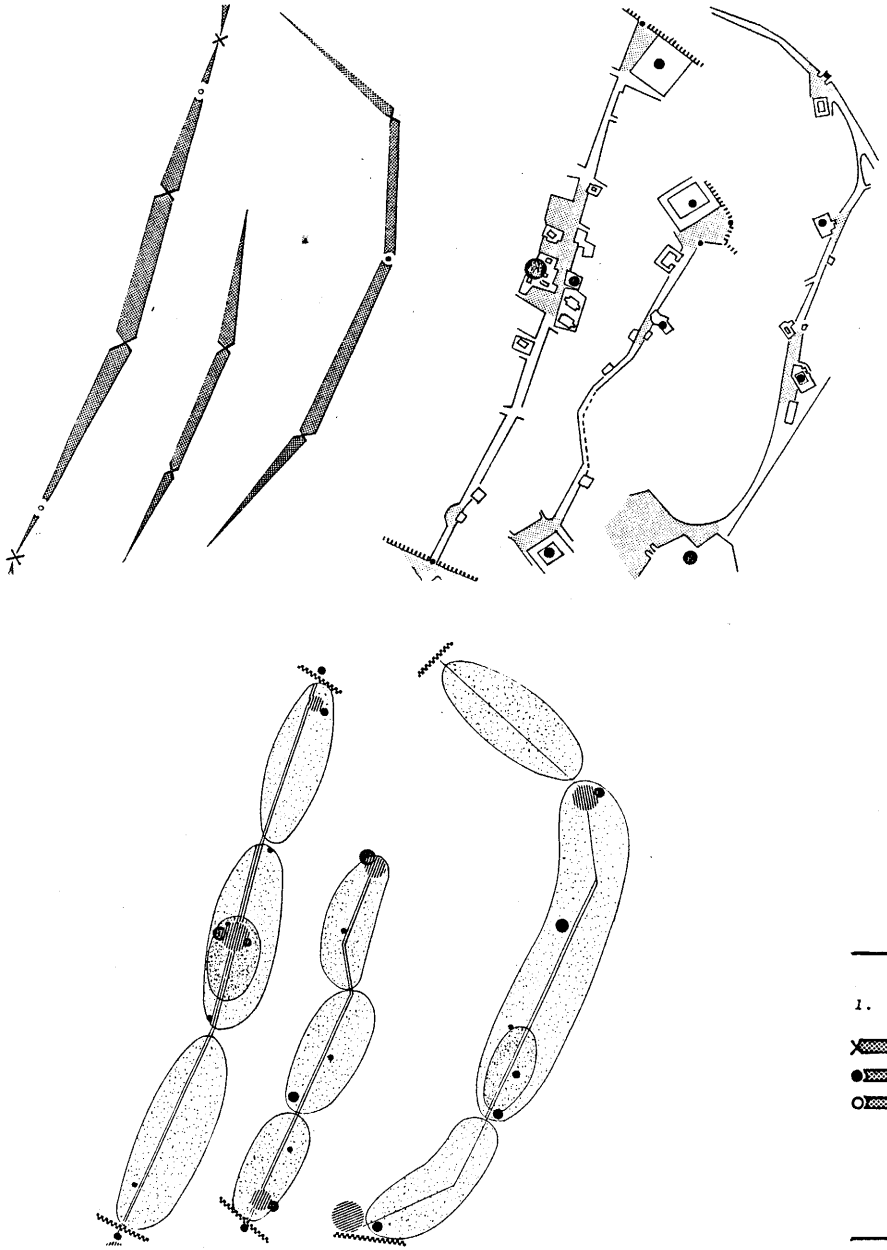
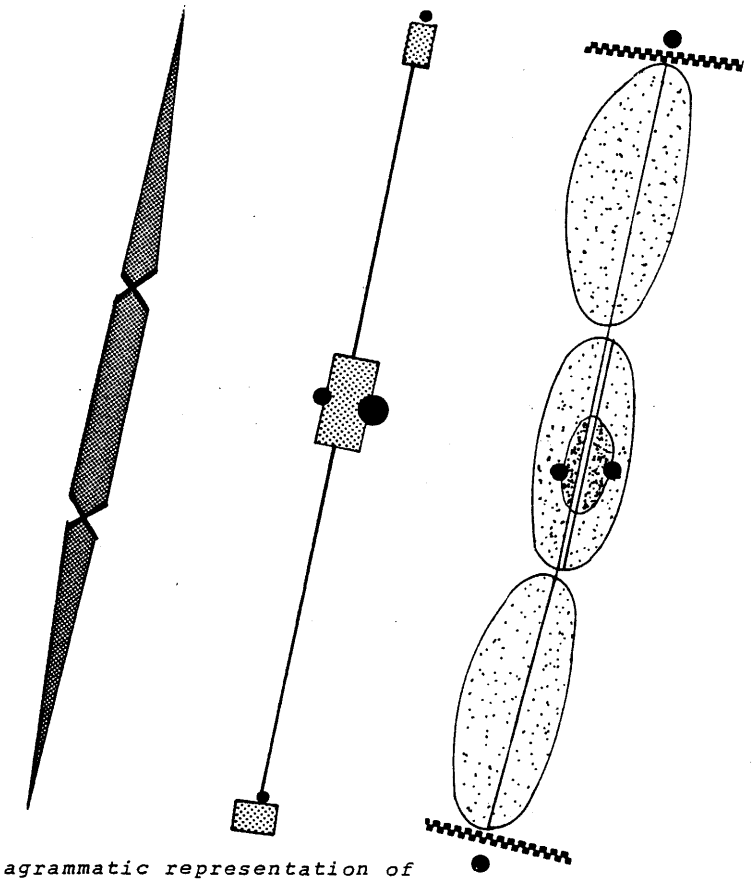


Fig. 20 The Bahri Mamluk Street Scape



Diagrammatic representation of Typical Bahri Mamluk street pattern

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 District*
   - *Major/Minor Node*
   - *Major/Minor Landmark*
   - *Major/Minor Path*
   - *Major/minor Edge*

3.2 Spaces

One of the major contributions of the Bahri Mamluks to the visual image of Islamic Cairo was their creation of a variety of different kinds of spaces in front and between their elements. It was due to this variety of spaces that the hierarchy of spaces inside Cairo started to have a common character *(fig. 21)*. The different components of this character are narrow entrances to the space, variable dimensions of a space, tall walls surrounding the space and a great number of sides for the space.

3.3 Minarets and Domes

Most of the Bahri Mamluk minarets had medium heights (below 60 meters) and were usually composed of three segments. The first segment was of a square plan, the second, which was the tallest, was octagonal in plan; the third segment was the cylindrical cap.[23]

Bahri Mamluk domes had large diameters and relatively short heights. Their location was usually deep inside the mosque and were usually unseen by the pedestrian moving along the street, except when they were located in a closed scene vista. Domes were often used in the time of the Bahri Mamluks as the roofs for tomb or mausoleum structures *(fig. 21)*.

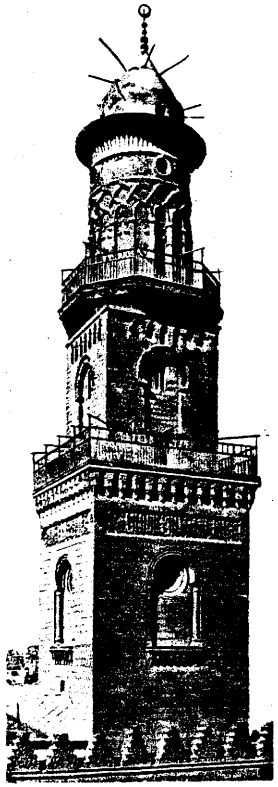
3.4 Entrances

The evolution of the entrance as a separate architectural unit of some significance on the urban level started in the time of the Bahri Mamluks. Most of the entrances were either recessed or lined up with the facades, and were usually parallel to it. For the first time, too, few steps were used in front of the entrances as those in front of the mosques of Qusun, Al-Mardini and Aqusunqur.

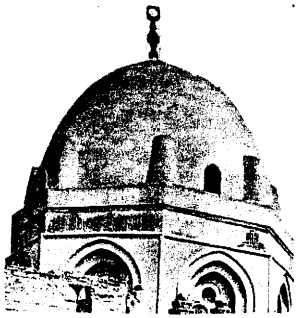
4. OTHER SPECIFIC FORMS USED ON THE URBAN LEVEL

Streets of the Bahri Mamluks were very narrow (2 to 3 meters for minor streets and 6 to 7 meters for major ones). The streets were irregular and crooked and this created sudden vistas and intermittant appearance of minarets, thus stimulating the curiosity of the pedestrians. The square base of the minarets usually followed the Qibla orientation, i.e., had its sides parallel and perpendicular to the Qibla directions. Minarets were usually positioned on the corner of the building adjacent to the street, or above the entrances. Minarets were not very close to the domes and were usually positioned in the maximum protruding section of the building as in the case of the Qalawan complex or the mosque of Al-Mardini. The Bahri Mamluks paid great attention to the positioning of elements near pre-existing ones, and from the homogenous urban complexes they created, one can safely say that the implicit rule was to create a fine individual architectural achievement without disturbing the identity and the character of what existed before. Some visual similarities between their minarets and domes created a characteristic visual character, enriching the city's architectural image. And finally, the contribution that these domes and minarets added to the skyline of Cairo was invaluable.

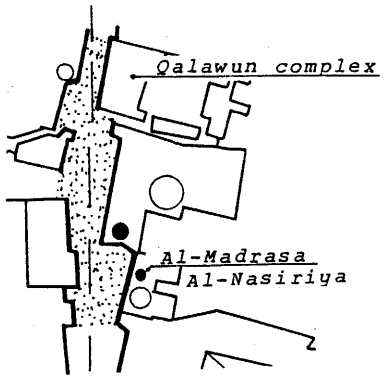
The following table summarizes the visual characteristics of all the major Bahri Mamluk elements investigated:

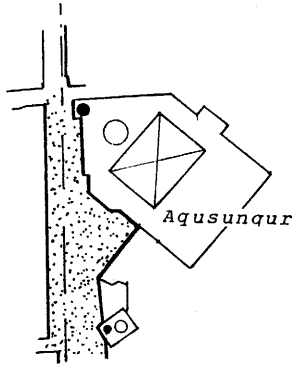


Qalawun minaret
(A Bahri Mamluk dome)



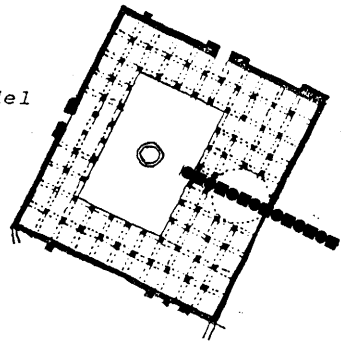
A Bahri Mamluk dome

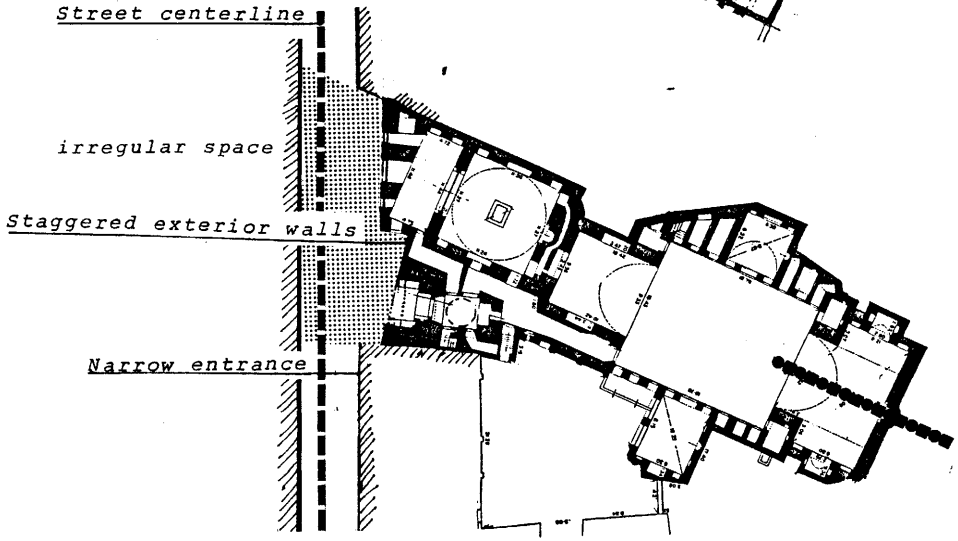




Spaces

Mosque of Al-Nasir in the citadel
(Case of a regular plan)





Khanqa Baybars
(Example of exterior shaping

Fig. 21 Some Themes of Typical Bahri Mamluk Urban Form

Table 2 Generic Forms of the Major Bahri Mamluk Visual Elements

Visual Elements / Major Structure	Dome		Minaret			Entrance		Exterior Facade				Space	
	Large	Medium	Tall	Medium	Short	Recessed or Lined with Facade	Protruding	// to street Centerline	⊥ to Qibla Direction		Staggered	Large	Small
Qalawun Complex	●			●		●		●			●	●	
Madrasa Al-Nasiria		◒		●		●		●			●	●	
Khanqa Baybars	●				●		●	●			●		●
Madrasa of Qurasungur		◒		●		●					●		●
Madrasa of Sultan Hassan	●		●				●				●	●	
Al-Mardini	●			●			●				●	●	
Al-Mihmindar		○		●		●		●					●
Aqusungur	●			●		●		●			●		●
Qusun	●			●		●		●					●
Madrasa of Umm al-Sultan		○		●		●					●	●	
Sunqur al-Gauli		●		●		●		●			●		●
Saraghatmash	●			●		●		●			●		●
Amir Shikhn	●			●			●	●			●	●	
Algi Al-Yousifi	●			●		●		●			●		●
Total	9	5	1	12	1	10	4	10	--		12	6	8
TOTAL	14		14			14		14				14	

● *Strong emphasis* | ◒ *Medium emphasis* | ○ *Little emphasis*

From *Table 2* one can conclude that the dominant exterior features of a typical Bahri Mamluk madrasa were: a weakly emphasized large dome and a strongly emphasized medium-height minaret and dome of the Qalawun complex. Other typical features were: staggered exterior facades having their sides parallel to the center line of the street, moderate spaces in front of the mosques with narrow entrances and finally a slightly recessed entrance from the facade. The Qalawan complex, the Madrasa Al-Nasiriya and the Khanqa of Baybars seem to be good representatives of these typical elements *(fig. 21)*.

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5. THE URBAN FABRIC OF BURJI MAMLUK CAIRO

The Complexity of Street Structure

CAIRO AT THE TIME OF THE BURJI MAMLUKS (1382-1517)

During the reign of Barquq, the first Burji Mamluk ruler, Cairo began a remarkable recovery from the plagues.[1] Most of the rebuilding, however was concentrated in the central portion of the walled city with the areas outside still abandoned or depopulated.[2] The recovery was incomplete; famine struck Egypt in 1403 and more than half of Cairo and its environs were ruined.[3] Heavily populated districts like the northern suburb of Al-Husayniya and Al-Maqs port were in ruins. Ruins also bordered the Citadel and Al-Qahira and Fustat were once again separated by dusty plains and rubble.[4] The revival was sluggish and slow until Sultan Barsbay came to power in 1422. He renewed trading opportunities and established Egypt's monopoly of the east/west spice trade. It was that trade that maintained Cairo's prosperity until the end of the Mamluk rule. Although Maqrizi's description of Al-Qahira during the Burji Mamluks' reign shows it to be in a dire state, to the European travellers who visited Cairo at that time, it was a wondrous achievement exceeding anything which Europe had yet produced.[5]

At the end of the Burji Mamluk rule the city regained most of its structure. The western section between the walled city and the Khalij Al-Nasiri was filled with palaces and gardens. The eastern section became the official royal cemetery of the Burji Mamluks, with some scattered madrasa and khanqas. But the northern suburb of Al-Husayniya never fully recovered from its earlier desolation. And Al-Qahira was never again contiguous with Misr-Fustat which was headed for a steady deterioration.[6] The development of Bulaq as the major port and later as a heavily populated district could be attributed to the Burji Mamluks.

By 1517 the Ottomans defeated the Burji Mamluks, who on the other hand, were losing most of their power due to the shifts in the international trade routes. For more than three centuries Cairo was reduced to a provincial capital in the new Ottoman empire.

SOCIAL SYSTEM AND COMMERCIAL ACTIVITY

In 1382 the Circassian Mamluks took over the rule of Egypt. That change in government was not reflected in the social structure of Cairo, where few changes took place. The Citadel returned to symbolize the power of the elite and certain areas were favored by the wealthy because of their salubrity or proximity to the citadel, but no one class came to dominate a district.[7]

It is a common mistake to imagine the residential quarters at the time of the Mamluks as armed fortresses. Permanent defenses represented by heavy doors and gates built into the Haras (the main spine inside residential quarters) were only built times of national crisis. And it was not until the Ottoman times that these gates became a characteristic of Hara streets. The structure of the commercial activity at the time of the Burji Mamluks was not unlike that of the Bahri Mamluks except that all the new wekalas, khanqas and qaysariyas were built inside Al-Qahira proper. Most of the major suqs were reconcentrated inside the walled city. Perhaps it is important to note that Cairo owed its commercial prosperity in the time of the Burji Mamluks to the karimis, or the major handlers of the Indian trade who used Cairo as a major intermediary between the east and west.

BUILDING REGULATIONS AND THE WAQFS

Most of the building regulations developed in the time of the Bahri Mamluks were still in operation at the time of the Burji Mamluks with some minor additions. In 1498

Sultan Qaytbay issued a law ordering the merchants who owned shops on the main street to renew the facades of their shops and in 1503 Sultan Al-Ghuri issued a law to lower the level of all the major streets in Cairo, which had risen significantly due to several attempts to level them.[8]

CAIRO AND THE STREETS OF THE CIRCASSIANS

The Burji Mamluks inherited a declining city surrounded by disasters ranging from famine to the Black Death. The great city was shrinking and most of the great buildings left by the Bahri Mamluks were either monuments or ruins *(fig. 22)*. When construction started again most of it was concentrated inside the walled city, which was filled with buildings from the Fatimid, the Ayyubid and the Bahri Mamluk times.

The Burji Mamluks had to find their own way of building around these numerous monuments and they did. The location of their buildings and their exterior treatment had a major effect on the pattern that the streets of Cairo were to take. They were the first to realize that it is difficult to build around a broad range of existing architectures, and their buildings show their consciousness of this factor, and of ways to manipulate it. The only way to prove that is to examine how they built within Al-Qahira proper and along its major streets *(fig. 22)*. The following is an attempt to scan the development of the three streets under analysis during the Burji Mamluk rule.

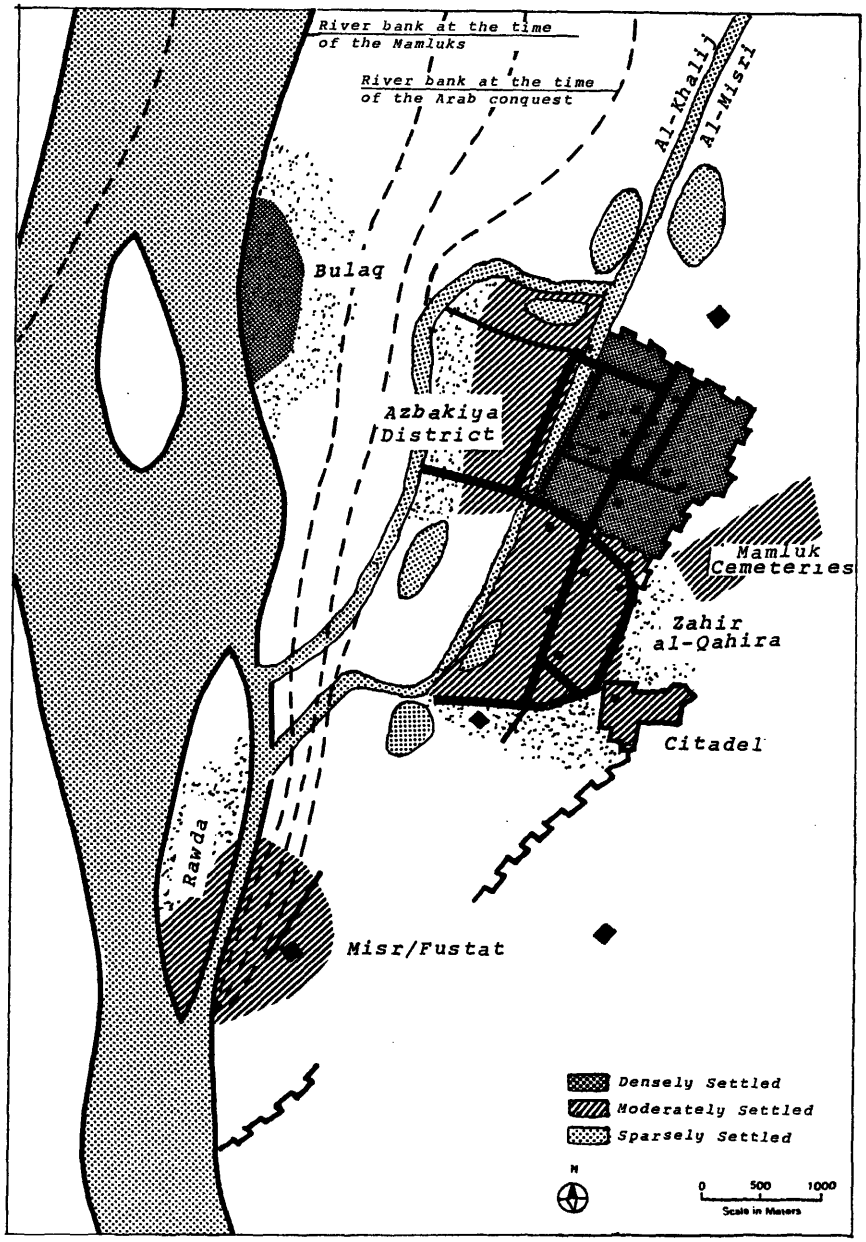


Fig. 22 Cairo of the Burji Mamluks and its Major Streets

AL-MU'IZZ STREET

The Burji Mamluks were a very artistic people. In spite of the political instability that characterized their rule, they added some of Cairo's greatest architectural monuments. Al-Mui'zz Street had its share of these monuments, represented in the Madrasa Al-Ashrafia, the Madrasa Al-Barquqiya, the Mosque of Al-Muaiyed and the complex of Al-Ghuri.

The Burji Mamluks attempted to shift the existing visual climax of the street, which was the Bein al-Qasriyn area, by their construction of the Al-Ghuri complex. Their addition of other monuments along the path has enriched its event structure. Most of the spaces created along the path were either in front of Burji Mamluk structures or in front of older structures renewed by the Mamluks. It is therefore suggested that the hierarchy of spaces along the street was probably generated during the rule of the Burji Mamluks. *(fig. 23)*

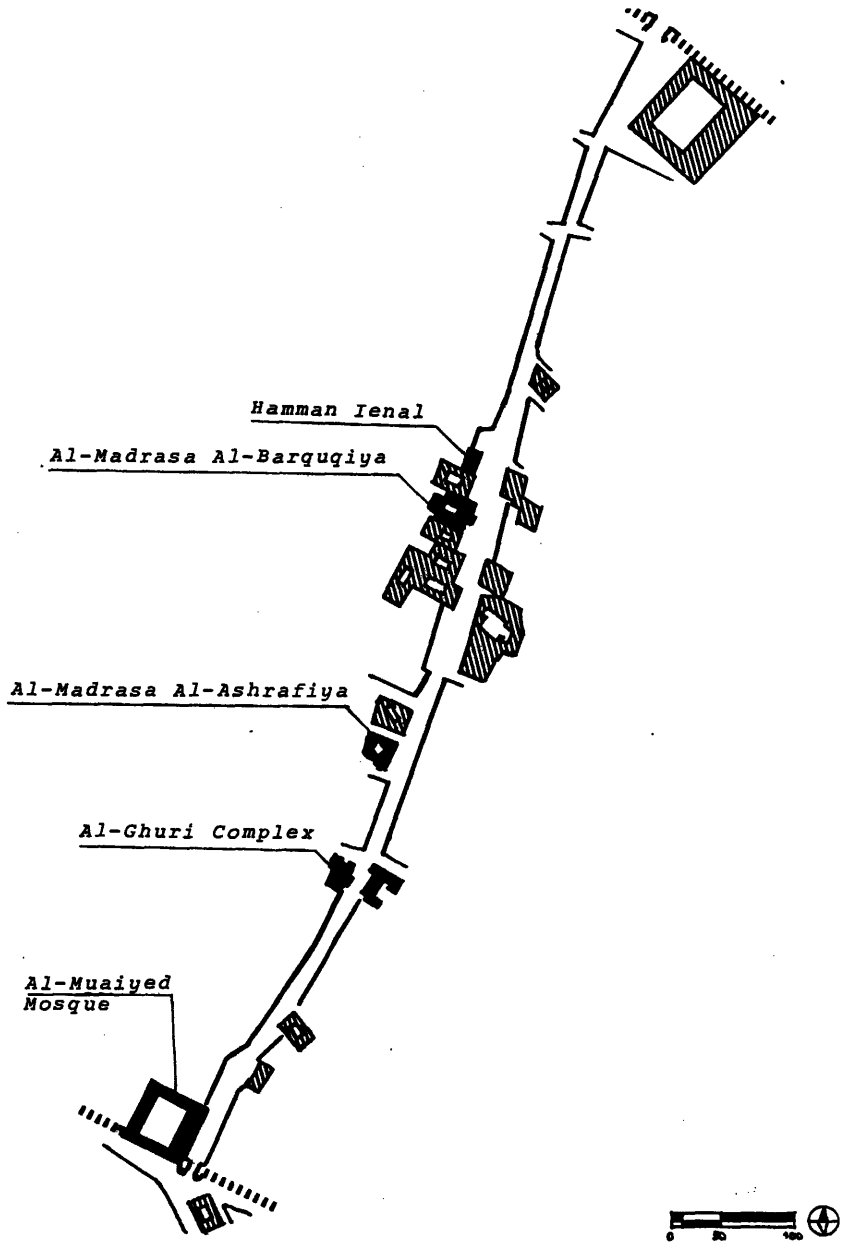
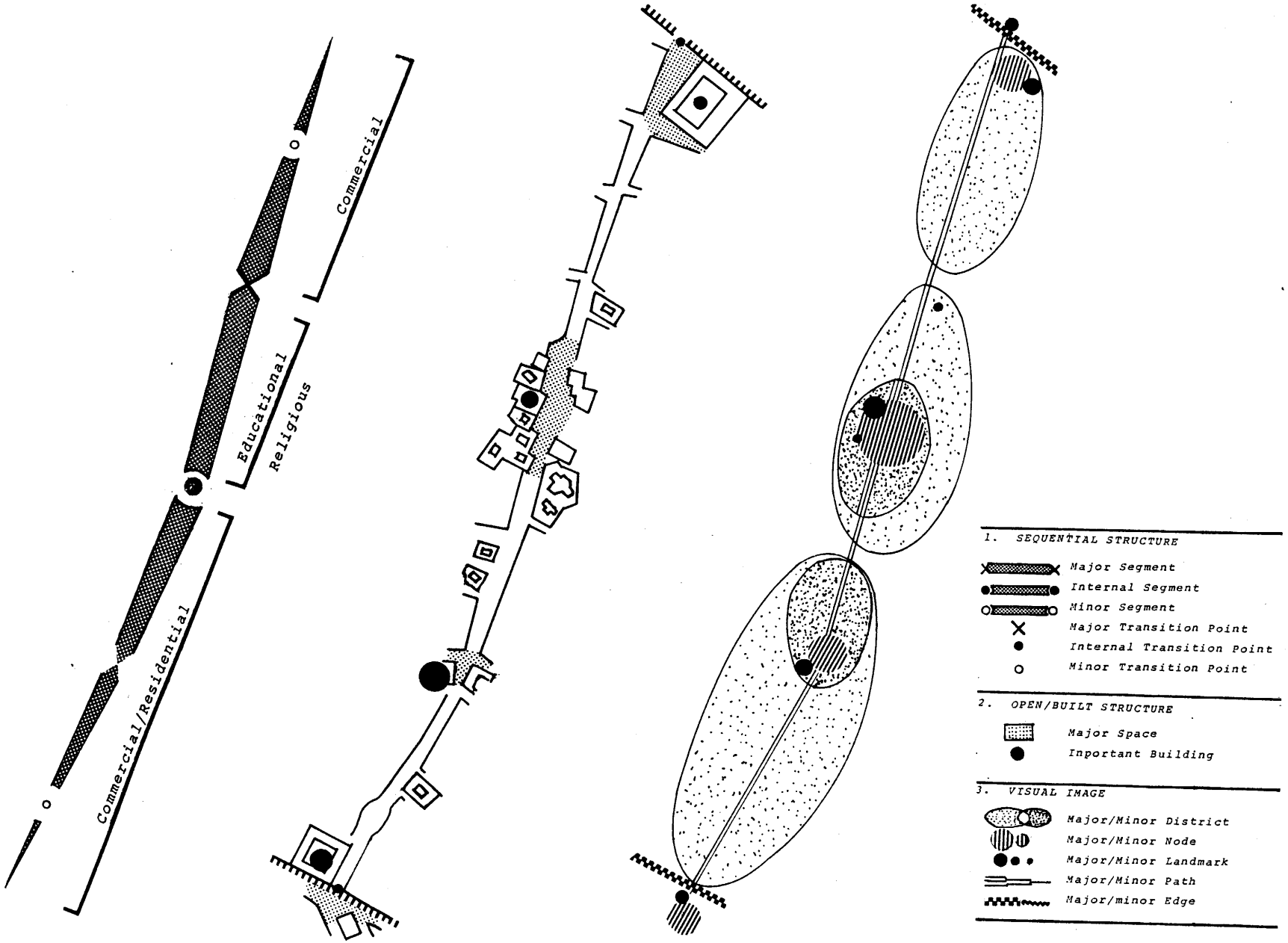


Fig. 23 Al-Mu'izz Street and its Patterns


Commercial
Educational
Religious
Commercial/Residential
1. SEQUENTIAL STRUCTURE
Major Segment
Internal Segment
Minor Segment
Major Transition Point
Internal Transition Point
Minor Transition Point
2. OPEN/BUILT STRUCTURE
Major Space
Inportant Building
3. VISUAL IMAGE
Major/Minor District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-DARB AL-AHMAR STREET

The Burji Mamluks did to Al Darb al-Ahmar Street what they did to Al-Mu'izz Street, i.e., adding a number of great buildings along the street in very critical locations, with the construction of a number of buildings near Bab Zuwayla they shifted the climax from the district in the middle to the district surrounding the gate. Although the Citadel (at the other end of the street) had regained its image as a symbol of power, descriptions given by Maqrizi[9] classified it as an isolated district of major visual significance on the city level. The overall structure of the street remained unchanged except for the shift in some internal districts. The structure of spaces was not changed either, except for the space between the old Bahri Mamluks' madrasas which was emphasized by adding new buildings around it. *(fig. 24)*

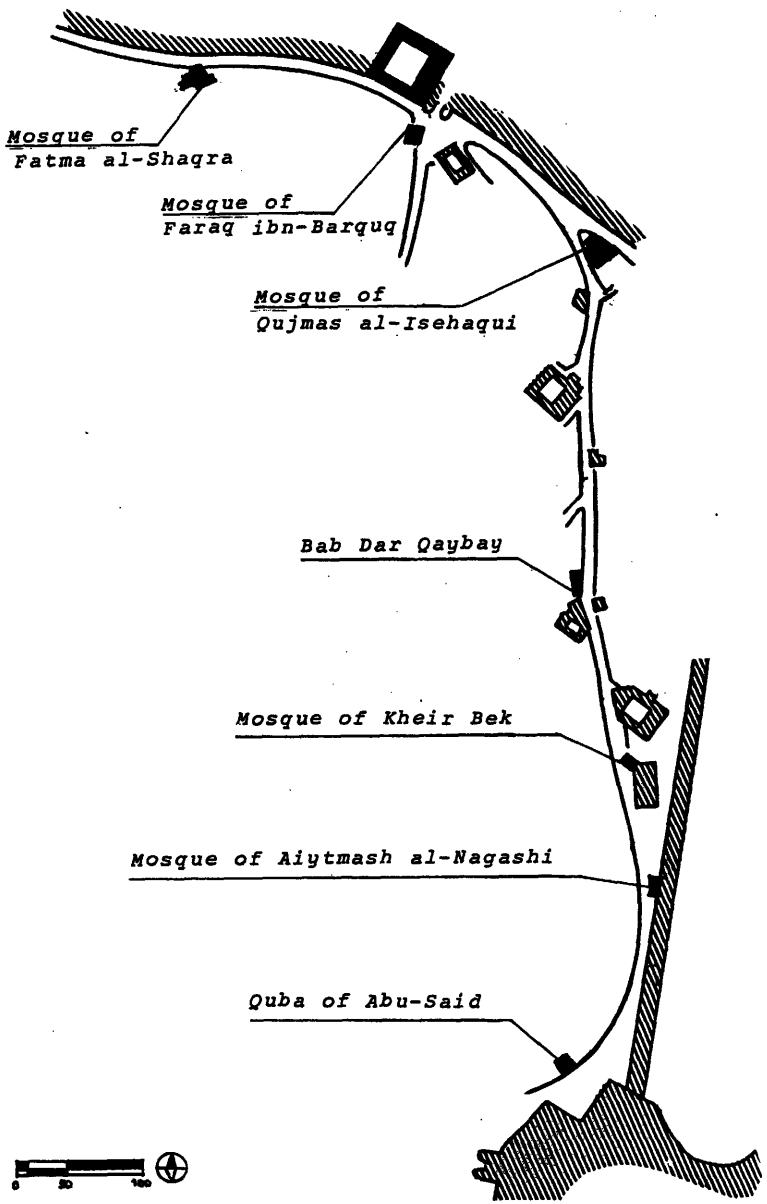
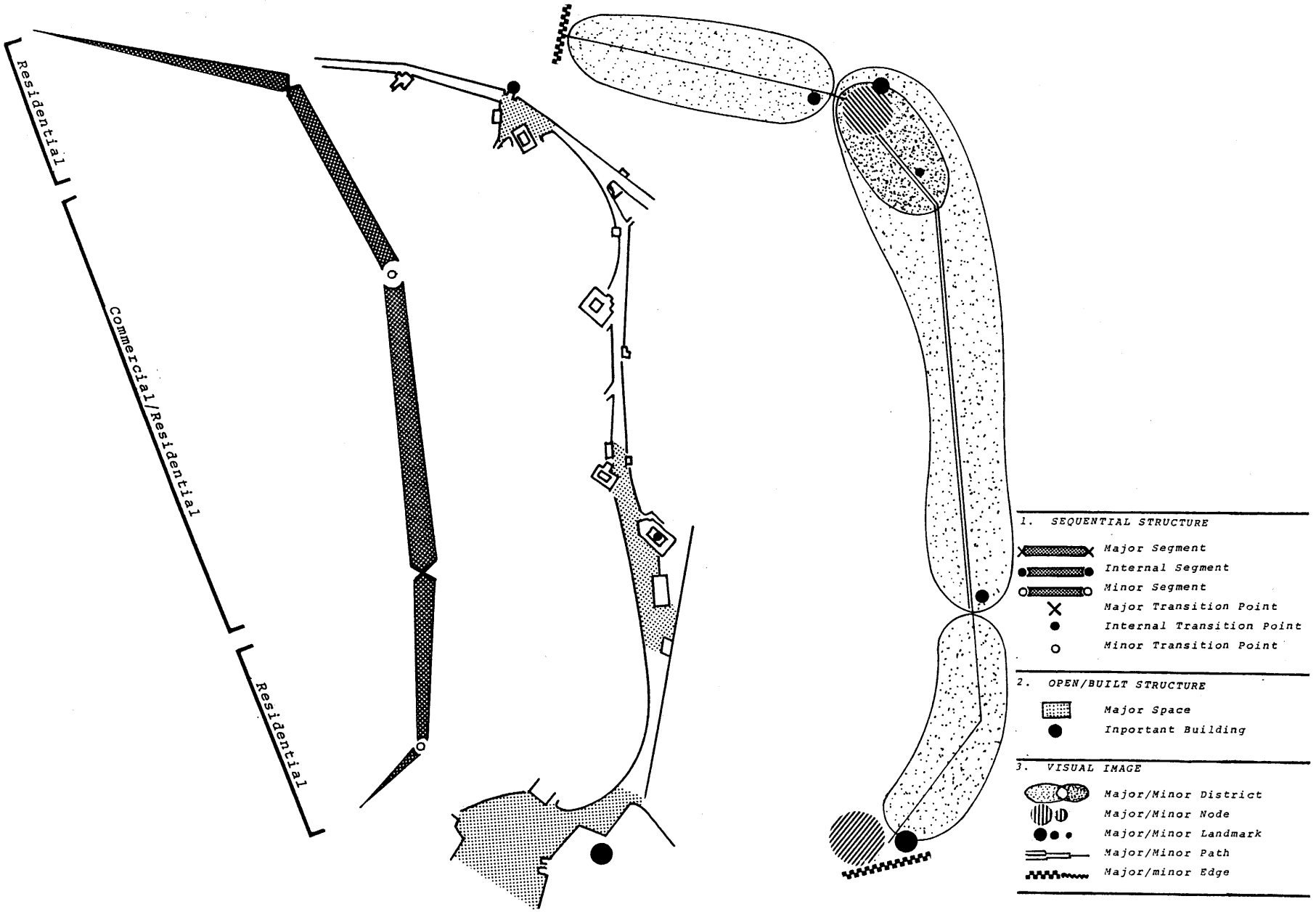


Fig. 24 Al-Darb Al-Ahmar Street and its Patterns


Residential
Commercial/Residential
Residential
1. SEQUENTIAL STRUCTURE
Major Segment
Internal Segment
Minor Segment
Major Transition Point
Internal Transition Point
Minor Transition Point
2. OPEN/BUILT STRUCTURE
Major Space
Inportant Building
3. VISUAL IMAGE
Major/Minor District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-JAMALIYA STREET

Al-Jamaliya Street had a fair share of construction during the rule of the Burji Mamluks most of which was for commercial or administrative uses. Among the commercial buildings were the Wekela of Al-Ashraf Qaytbay around the inner court of Bab al-Nasr and the Wekala of Bazara'a near the old khanqas and madrasas of the previous rulers. The major administrative building was the Maq'ad of Mamay which acted during this time as the Residence of the Judge (Qadi). The street was most importantly a commercial spine at the time of the Burji Mamluks. Except for the shift in climax that took place with the construction of Beit Al-Qadi, the street maintained its structure unchanged. The space in front of Beit al-Qadi acted as a major node in the new internal administrative district and the spaces of Al-Azhar and Bab al-Nasr maintained their functions and importance. *(fig. 25)*

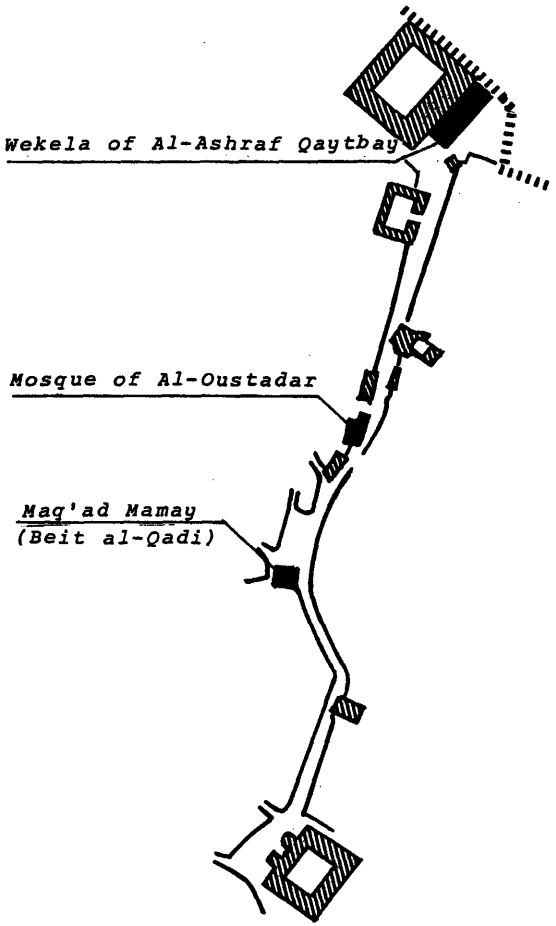
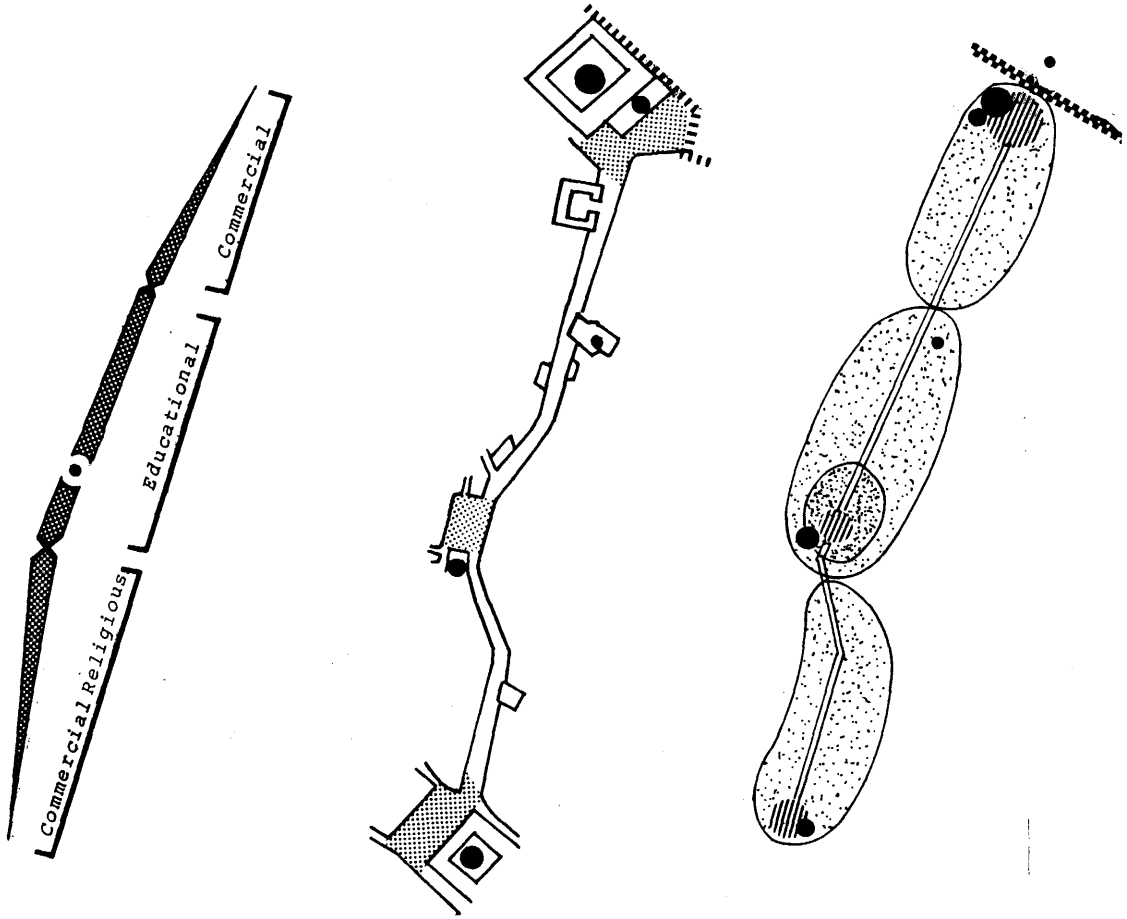


Fig. 25 Al-Jamaliya Street and its Patterns



1. SEQUENTIAL STRUCTURE

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

2. OPEN/BUILT STRUCTURE

- Major Space
- Inportant Building

3. VISUAL IMAGE

- Major/Minor District
- Major/Minor Node
- Major/Minor Landmark
- Major/Minor Path
- Major/minor Edge

SOME THEMES OF THE BURJI MAMLUKS' URBAN PATTERN

1. STREET-SCAPE

1.1 Segmental Structure

Each of the three streets was still composed of the three major segments, and in all three, the middle segment was the longest and most important, and due to its length each middle segment was internally divided by a minor transition point *(fig. 26)*.

2.2 Spaces and Buildings

The structure of spaces along the three streets did not change from what it had been during the rule of the Bahri Mamluks except for the evolution of new minor spaces in front of and between the new Burji Mamluk elements *(fig. 26)*.

3.3 Visual Image

The visual image of the three streets did not undergo any major changes either. These changes were mainly reflected in the evolution of new internal districts and in some shifts in the positioning of nodes and landmarks *(fig. 26)*.

2. LOCATION OF ELEMENTS

As mentioned earlier, most of the construction during the rule of the Burji Mamluks was inside the walled city. Of their 26 major structures 14 (i.e. more than 50%) were located within the walled city. The earliest buildings of the Burji Mamluks were positioned very near the existing climaxes, such as the Madrasa Al-Barquqiya on Al-Mu'izz Street and the Mosque of Al-Oustadar on Al-Jamaliya Street. The trend changed afterwards, and a policy of decentralizing Burji Mamluks was put into effect. Buildings were constructed in huge complexes in well chosen empty spaces along the path in an attempt to shift or change the existing physical climaxes. (examples of this were Al-Ghuri complex along Al-Mu'izz and Al-Muaiyed mosque along Al-Darb Al-Ahmar Street.) *(Refer to figs. 23 & 24)* Minor elements like tombs were scattered along the path and were located in critical positions in an attempt to add some visual events to its structure.

3. VISUAL ELEMENTS AND SYMBOLS

On the overall city level, the Burji Mamluks did not add any major landmarks except for their attempts to renew the Citadel to its former visual significance. On the street level the following were investigated:

3.1 Exterior Shaping of Elements and Their Treatment

Nine out of ten major madrasas and mosques built by the Burji Mamluks had their exterior facades neither parallel to the street center line nor perpendicular to the Qibla direction *(Refer to Table 3)*. Mosques located outside the urban area as well as inside it had irregular plans of very balanced architectural composition *(fig. 27)*. Exterior walls had a considerable amount of openings, textured facades, and each brick row had a different color.[10]

3.2 Spaces

The same kind of spaces created by the Bahri Mamluks were also created by the Burji Mamluks. The only difference may have been in size and proportion, smaller but more embraced by buildings *(fig. 27)*.

3.3 Minarets and Domes

The minarets of the Burji Mamluks were usually very high (80 meters and taller). Eight out of ten major minarets were above 80 meters high. *(Refer to Table 3)* The structure of the Burji Mamluk minaret was not different from that of the Bahri Mamluk one. It was composed of 3 segments but now each segment was taller, with more elegant proportions. The plan of each segment of the minaret was no longer rigid and that was due to the evolution of a great variety of minaret treatments during the Burji Mamluk rule. The great variety of visual composition introduced by the Burji Mamluks to the architecture of the minaret had a great influence in the creation of a rich and homogenous image for Cairo.

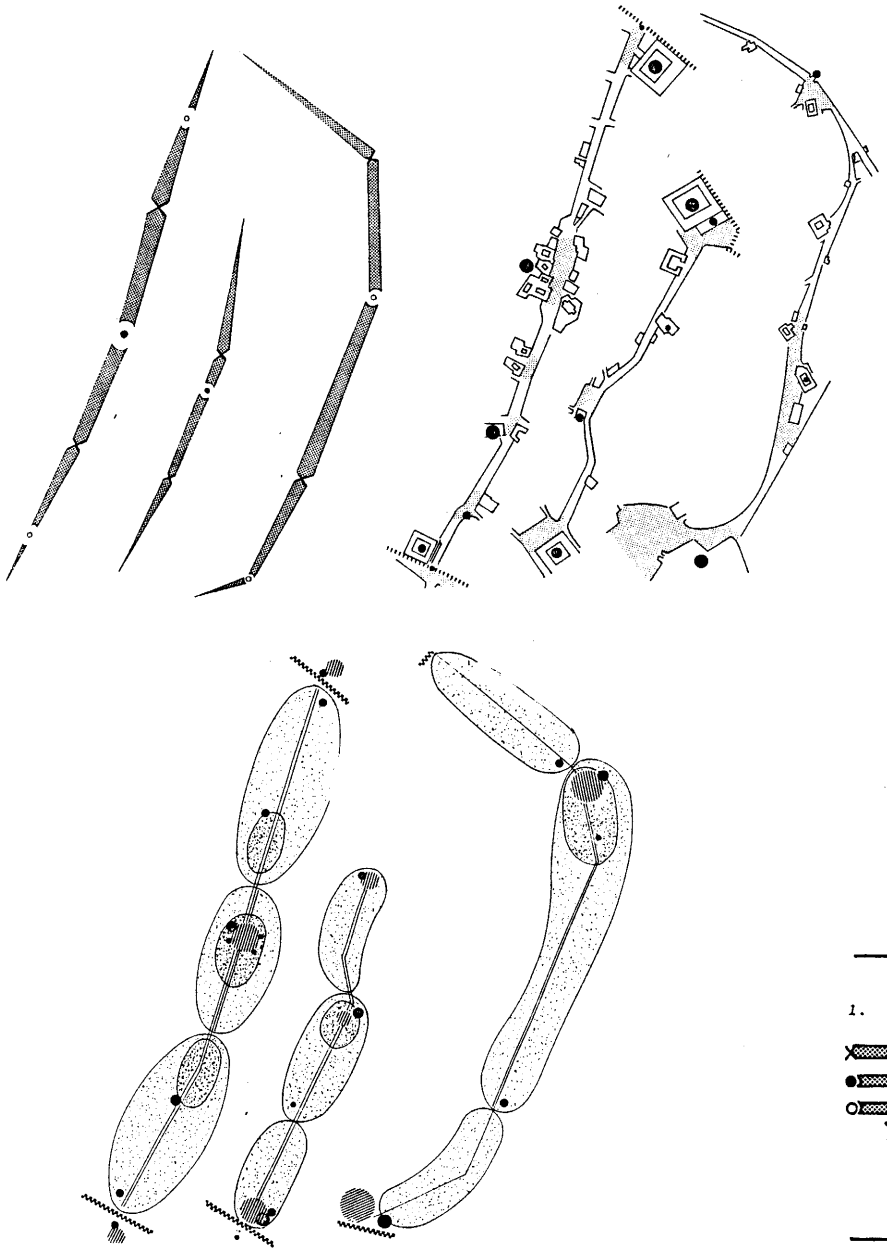
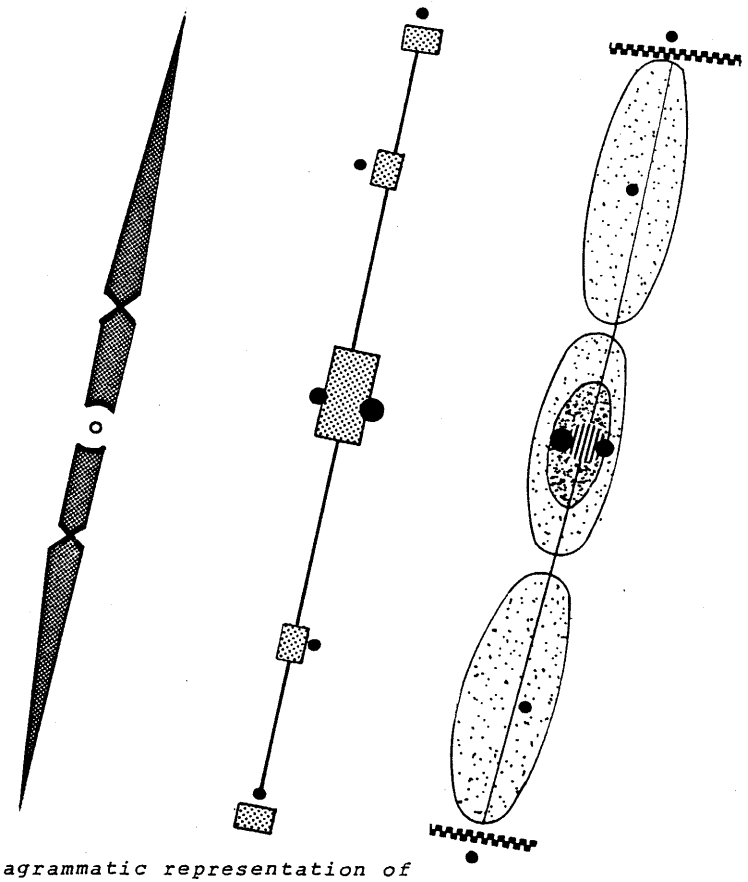


Fig. 26 The Burji Mamluk Street Scape



Diagrammatic representation of Typical Burji Mamluk street pattern

1. *SEQUENTIAL STRUCTURE*
   - *Major Segment*
   - *Internal Segment*
   - *Minor Segment*
   - *Major Transition Point*
   - *Internal Transition Point*
   - *Minor Transition Point*

2. *OPEN/BUILT STRUCTURE*
   - *Major Space*
   - *Inportant Building*

3. *VISUAL IMAGE*
   - *Major/Minor District*
   - *Major/Minor Node*
   - *Major/Minor Landmark*
   - *Major/Minor Path*
   - *Major/minor Edge*

One of the intriguing varieties was the consistent manner of positioning the minarets. For example, minarets with square bases usually followed the Qibla orientation although the exterior wall of the mosque might not follow the same orientation, accordingly creating a variety of angular relations.

Domes became much smaller in diameter but taller. *(Refer to Table 3)* They had a great deal of decoration and some had cylindrical drum bases. It is suggested that domes, as used by the Burji Mamluks, played a significant visual role in the overall city image and along its major paths due to their height and style *(fig. 27)*

3.4 Entrances

The protruding entrance introduced by the Bahri Mamluks as an architectural unit was used extensively by the Burji's, too. Nine out of ten major Burji Mamluk elements had that unit. *(Refer to Table 3)* Protruding stairs in front of the entrances were also a component. These stairs usually followed the direction of movement, i.e., were parallel to the street center line *(fig. 27)*.

4. OTHER SPECIFIC FORMS USED ON THE URBAN LEVEL

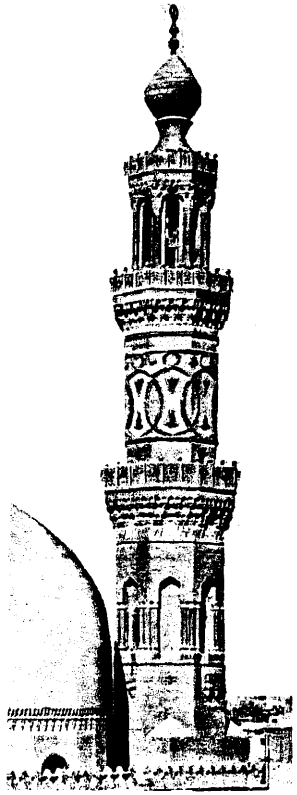
One of the very interesting relations created by the Burji Mamluks was their method of positioning elements between previously existing elements. While producing very well balanced buildings of their own, they creatively respected the architecture and composition of previous elements *(fig. 27)*.

In order to do so, they introduced new techniques for the exterior treatment of facades and new positions for minarets and domes that followed no particular rules. An architect building a Burji Mamluk mosque would not position his minaret above the entrance or in the corner of the building as the trend had been before, instead he would carefully examine the different possible locations for a prospective minaret and then choose the one that would attract the greatest attention without disturbing the other surrounding minarets, while adding a new harmonious element to the overall composition of the complex.[11]

The proportional relation between the size of the minaret and the height of the dome was also created by the Burji Mamluks. Most Burji minarets were accompanied by domes of certain proportions. A careful examination shows that as the minaret got taller, the dome that accompanied it got higher and larger too *(fig. 27)*. The distance between the minaret and the dome in the Burji Mamluk mosques became smaller, too, and it was very common to find domes and minarets so close that no space appears in between *(fig. 27)*.

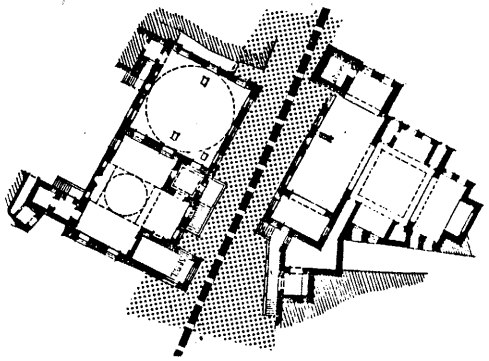
The variety of architectural relations and visual similarities introduced by the Burji Mamluks were their major contribution to the visual image of Cairo. The skyline of Cairo was enriched with a great number of new relations that had a great influence on distinguishing Cairo from any other Islamic city.

The following table summarizes the visual characteristics of all the major Burji Mamluk elements investigated:



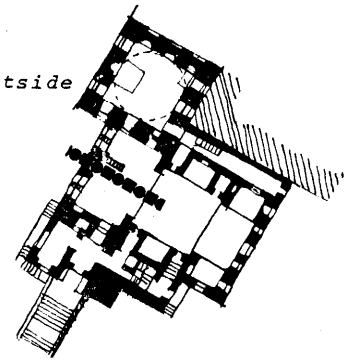
Minaret of Barquq
(A Burji Mamluk minaret)

Very close Minaret and Dome
With proportional sizes

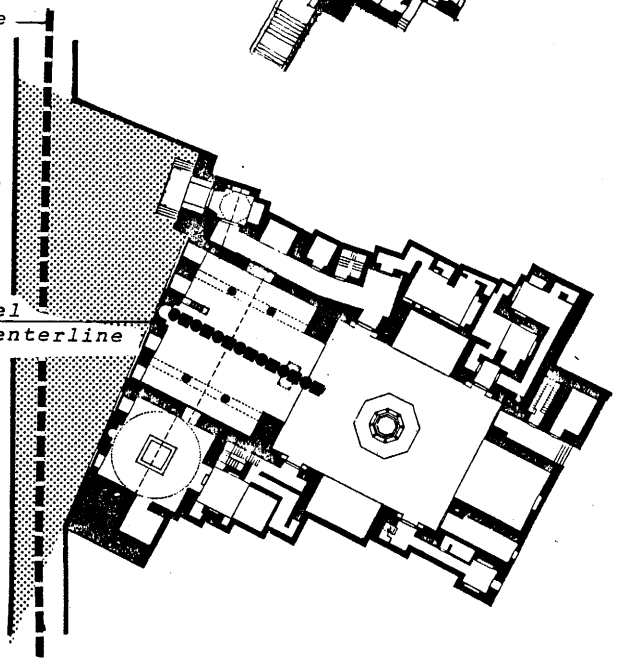


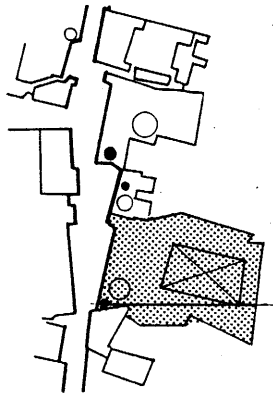
Al-Ghuri complex

Stairs following the
Direction of movement



Qaytbay Mosque and Tomb
(Example of a mosque outside
the urban area)





Position of Dome and Minaret
With regard to other existing
Minarets and Domes

Positioning of Al-Madrasa
Al-Barquqiya with regard to
Previously existing elements

Qibla direction

Fig. 27 Some Themes of Typical Burji Mamluk Urban Form

Table 3 Generic Forms of the Major Burji Mamluk Visual Elements

Visual Elements / Major Structure	Dome		Minaret			Entrance		Exterior Facade			Space	
	Medium	Small	Tall	Medium	Short	Recessed or Lined with Facade	Protruding	// to street Centerline	⊥ to Qibla Direction	No relation	Large	Small
Aiytmash		●	●				○			●		○
Madrasa Al-Barquqiya		●	●				●			●		○
Al-oustadar		○		●			○			●		○
Faraq Barquq		⊙		○			○			●		○
Al-Muaiyed		●	●				●			●	●	
Madrasa Al-Ashrafiya		●	●				●			●		●
Madrasa of Qaytbay		●	●				○			●		●
Qujmas		●	●				○			●		●
Qansua		●	●				○			●		●
Al-Ghuri Complex		●	●			●		●			●	
Total		10	8	2	--	1	9	1	--	9	2	8
TOTAL	10		10			10		10			10	

● *Strong emphasis* | ⊖ *Medium emphasis* | ○ *Little emphasis*

From *Table 3* one can conclude that the dominant features of a typical Burji Mamluk madrasa or mosque were a very strongly emphasized tall minaret accompanied by a very close, proportionate dome. Both elements were usually positioned very near to the street centerline and the line of pedestrian circulation. The dome, which was relatively high, had a cylindrical drum base underneath and an exterior facade neither parallel to the street center line nor perpendicular to the Qibla direction. The Madrasa Al-Barquqiya seems to be a typical representative of the Burji Mamluk exterior architecture *(fig. 27)*.

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2. Al-Maqrizi, A., *Al-Mawa'ez wa al-I'tibar bi-Dhikr al-Khitat wa al-Athar* (Cairo: Bulaq Press, 1853), Vol. 2, p. 95.
3. Abu-Lughod, J., *op. cit.*, p. 39.
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11. *Ibid.*, p. 92.

6. CAIRO: A REDUCED ROLE IN THE OTTOMAN IMPIRE

Stabilization of Street Forms

THE PROVINCIAL CAPITAL (1517-1805)

With the Ottomans came stagnation, and Cairo was reduced for the first time to a provincial capital of declining importance in the Ottoman empire.[1] Whether the deterioration of Cairo during the Ottoman rule could be blamed on the Turks is not of concern to this study. But the fact remains that Cairo experienced its greatest decline during the three centuries of Turkish rule. There was a shift in the internal organization of the urban community. This shift made the Qasabah (the former major spine) somewhat less important as the center of the city started moving westward and as specialized markets started to appear on the western side of the Khalij al-Masri.[2]

Much of the decline in Cairo can be traced by the increasingly unenthusiastic accounts of travellers who visited the city during the Turkish regime. The earliest descriptions note that the city that was very famous in the 16th century was not able to prevent the changes and deterioration wrought by time.[3] Other descriptions done in the late 17th century show the city to be an unpleasant one.[4] By the time the Napoleonic expedition arrived, Cairo was a city divided into separate suburbs with its core as the elite district of al-Azbakiya to the west of the old walled city.[5]

SOCIAL ORGANIZATION AND COMMERCIAL ACTIVITY

The writings of different scholars concerned with the social structure of Cairo have shown the city to have a population divided into different social classes. The elite which had always favored residing near the Citadel and its environs in the past, had moved to the new district of al-Azbakiya to the west. The area of Cairo proper was then abandoned by the middle class and experienced rapid deterioration.[6] Although this deterioration affected the architecture of the area, the social unity among the different heterogenous groups of the lower class was established. Each residential quarter had its own social structure. The typical quarter had its own street (Hara) and out of this branched a number of smaller dead end streets (Zuqaq, A'tfa). This hierarchy of internal streets often carried the hara's name. In the time of the Turkish rule, each hara had its own door that was guarded by a Bawab (door keeper), and non-residents were allowed in only with permission. The hara also had a shaiykh who was chosen by the people, and was then appointed by the government to act as an administrator.[7]

Large mosques functioned as meeting places, not only for persons with religious or educational purposes, but also for those who merely wished to lounge, chat, eat or engage in a simple craft.[8] The great plazas (Maydans) of Cairo near the major mosques and at intersections of the main streets acted as the major market places.[9] Although the country experienced its severest economic decline during the days of the Turkish rule, the remaining local activity was able to stimulate the economy sufficiently.

BUILDING CODES AND THE WAQF SYSTEM

During three hundred years of Turkish rule the structure of the Waqf system did not change. Building regulations were also unaltered. There being little or no sense of the public domain, most inhabitants did not hesitate to intrude upon public thoroughfares with their personal property, shops and buildings. It was because of this that all travellers remarked that most of the streets of Cairo were very narrow.

It was not until the rule of Muhammed Ali (starting 1805) that building regulations were reviewed. It is said that when Muhammed Ali consulted the ulama (religious judges and scholars) about constructing a new street in the old city, they replied that it should be able to accommodate two camels with their burdens.[10] During the rule of Muhammed Ali's successors, a replanning of the city's streets started and a new zoning plan was put to work.

STREETS OF OTTOMAN CAIRO

Although the attempted invasion of Egypt by the French expedition in 1798 failed, its outcome was great. One of its important results was the *Description de l'Egypte*, a work of enviable precision. In it the French documented all aspects of life in Egypt with special concentration on Cairo. They produced the first reliable map of the urban fabric of Cairo. This map shows Cairo as a development of three major sections, central Cairo, suburban Bulaq and old Cairo, by then more or less in ruins. The French estimated the narrow streets within the old section of the city to be 20,000.[11] From this map one can also notice that most of the spaces (Rahbat) that existed in the time of the Mamluks, and were documented by Maqrizi in the early years of the fifteenth century, no longer existed. The spaces inside Bab al-Futah, Bab al-Nasr and in front of Al-Azhar are seen on the map as masses of buildings. Monsieur de Thevenot, who had visited Cairo two centuries earlier (1686), gave a wonderful description of its streets. He wrote: "There is no handsome street in Cairo, but a great many little ones that are round about; it is well known that all the houses of Cairo have been built without any plan for the town; each one takes all the space that he wants to build without considering whether he blocks the street or not."[12]

But there were some major streets; usually these were longer and were known by many names. Thoroughfares connecting different regions were few, and as a result were typically the scene of heavy traffic.[13] It is suggested that the minor changes in streets' composition that took place during the Turkish rule indicate that the structure of the streets had finally stabilized.

It was because of that reason, that this study chose not to go further in the analysis of modern changes that happened in the twentieth century. Ali Mubarak's description of the streets of Cairo in his book *Al-Khitat al-Tawfiqiya al-Jadida*, written in the nineteenth century differs very little from both the map in the *Description de l'Egypte* and the present street map. The following reconstruction of the three streets was based on the map of the French expedition and the description written later by Ali Mubarak. *(fig. 28)*

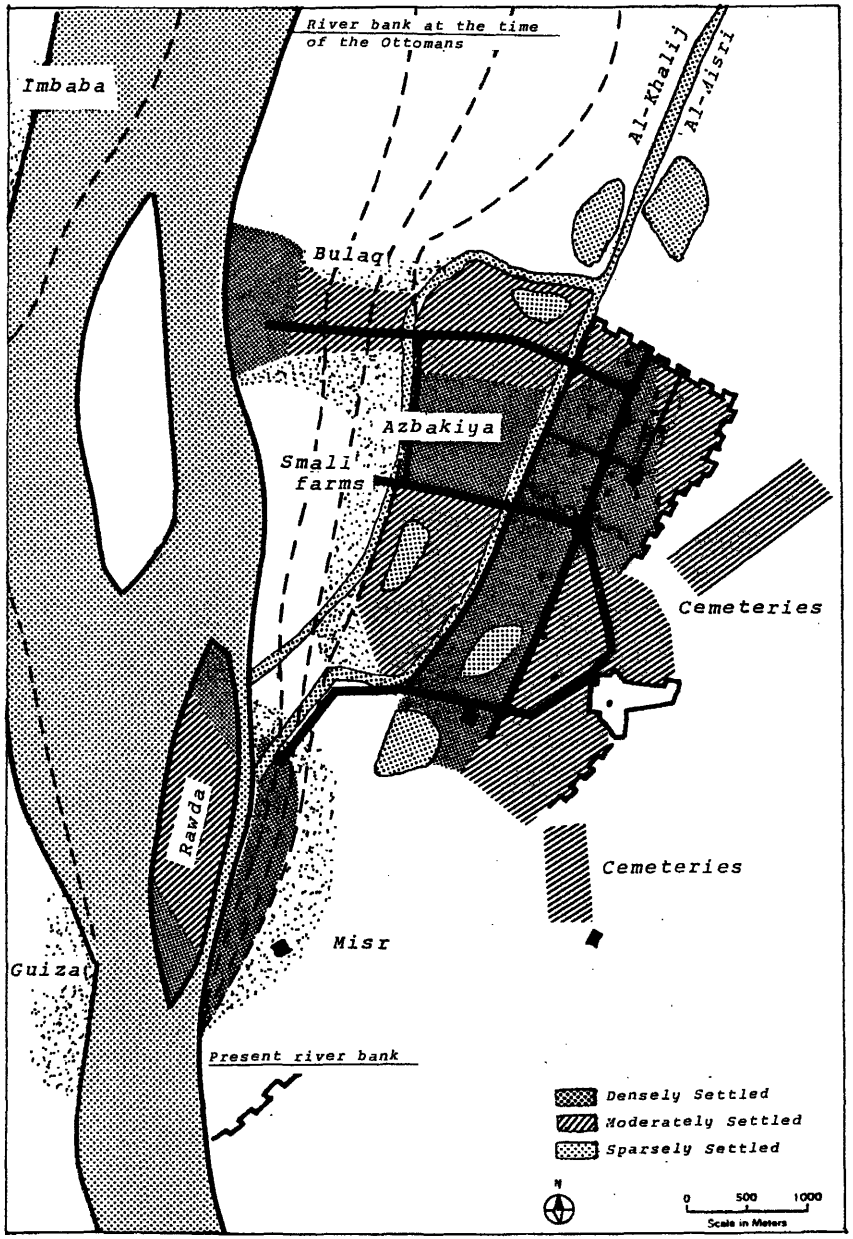


Fig. 28 Cairo and its Major Street at the End of the Turkish Rule

A typical scene of Turkish life

AL-MU'IZZ STREET

Most of the elements added to Al-Mu'izz Street through the three hundred years of Ottoman rule were minor buildings. Some of them were mosques like the Mosques of Al-Silehdar, Al-Fakahani and Al-Sheikh Muttahar; most of these had Sabils and kuttabs attached to them. If one were to examine the location of such elements, one would find that they were located either along the empty segments of the path or in areas of previous architectural agglomerations.

Although the sequential structure did not change, the overall image experienced some minor changes. Among these was the evolution of a new internal district between the new Al-Silehdar Mosque and Al-Aqmar Mosque named Al-Nahassein which specialized in the production of metal crafts, especially copper. Regarding the structure of space along the path, one can notice that although the number of known spaces (as documented in the *Description de l'Egypte* map) had increased from what it was before, the sizes of these spaces decreased greatly because of the informal construction that took place inside these spaces. Most of the Rahbat mentioned by Maqrizi along Al-Mu'izz Street seems not to appear at all on the map made by the French three centuries later. Ali Mubarak's description of the street in the nineteenth century shows very little difference from the map of the French expedition. He divided the street into twenty segments, each of which had a name and a characteristic activity, but he was describing the street that started from Al-Husayni'ya and ended at the tomb of Saiyda Naffissa (still called at his time the Qasab'a).[14] It must also be noted here that the street as it exists now, with the exception of specific changes, is very similar to what existed at the time of Ali Mubarak. *(fig. 29)*

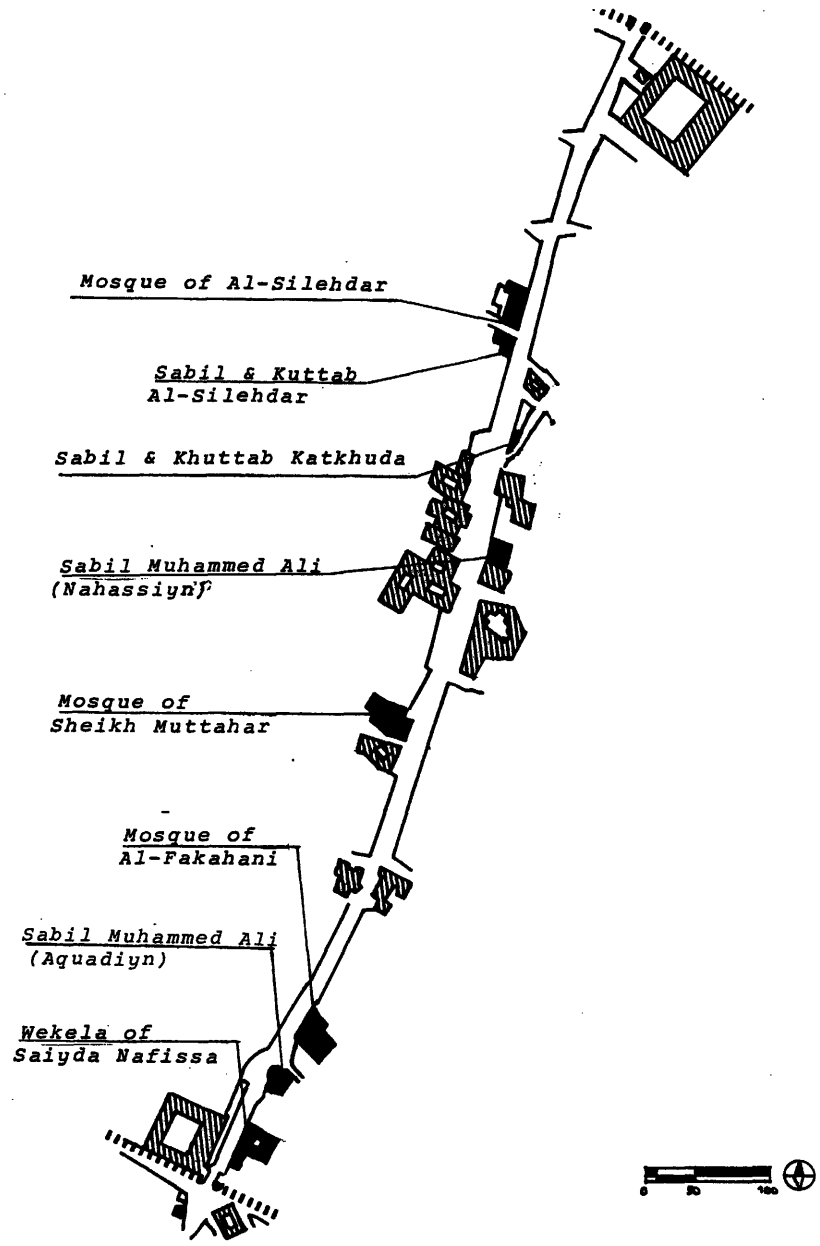
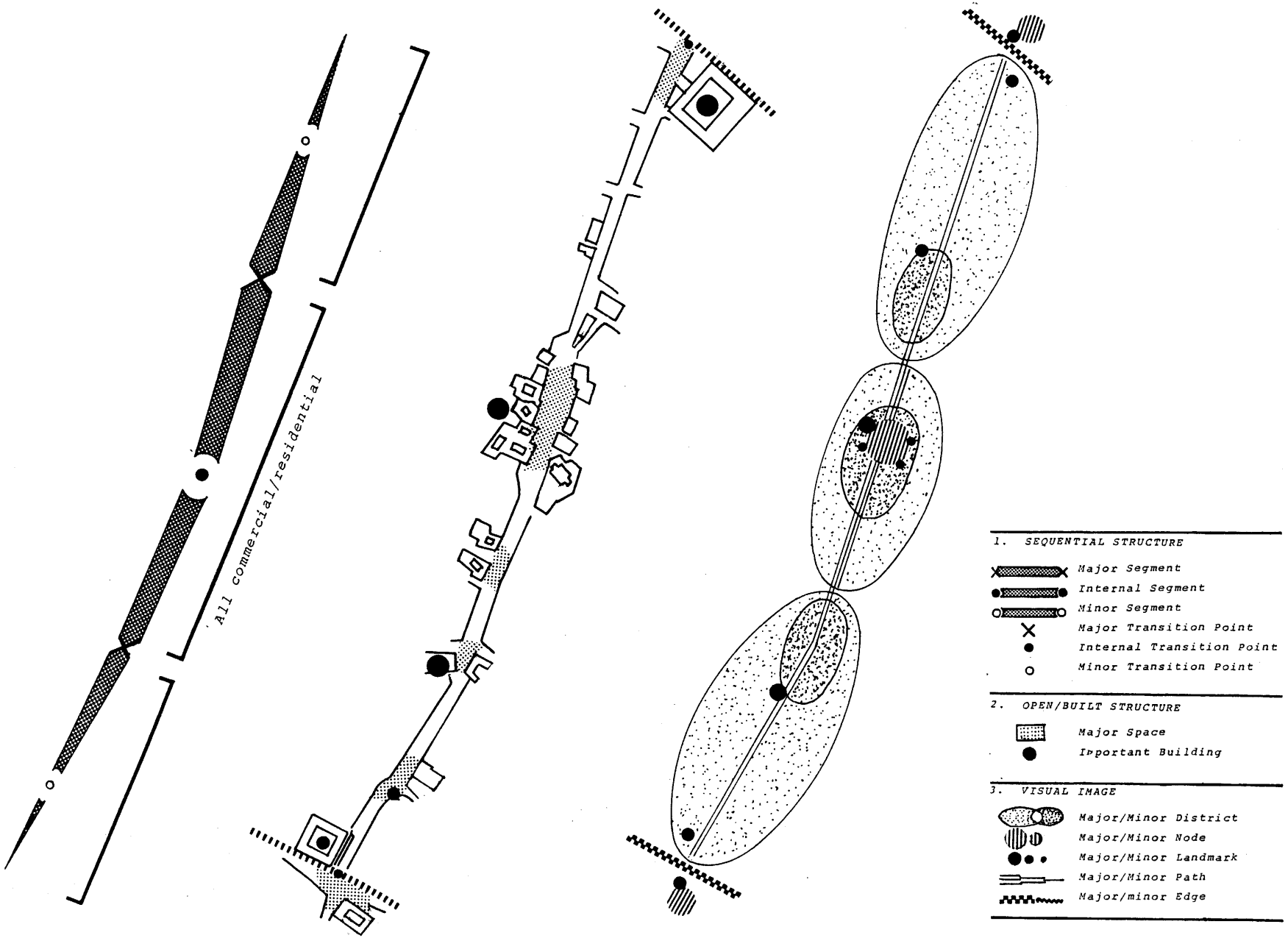


Fig. 29 Al-Mu'izz Street and its Patterns


All commercial/residential
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 District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL- DARB AL-AHMAR STREET

Like Al-Jamaliya Street and unlike Al-Mu'izz Street, most of the Ottoman elements were constructed in areas of dense building. Most of the buildings added by the Ottomans were of the residential type like Beit Radwan Bey, Beit Ibrahim Agha and the complex of Ibrahim and Omar Agha. This might indicate that the street was losing some of its previous commercial activity (which probably moved west to the new development of Central Cairo) and was regaining its residential character.

The sequential structure of the street became very similar to that of Al-Mu'izz Street and Al-Jamaliya Street. The overall image experienced some changes of minor significance; the district which contained the residence of the Ottoman elite became the major climax. During the Turkish rule , the spaces along Al-Darb Al-Ahmar Street seem to have disappeared too. The map in the *Description de l'Egypte* shows only one large space at the southern end of the street near the Citadel. Ali Mubarak described the street as having five major segments, all of which had a residential character with some commercial activity in between.[15] *(fig. 30)*

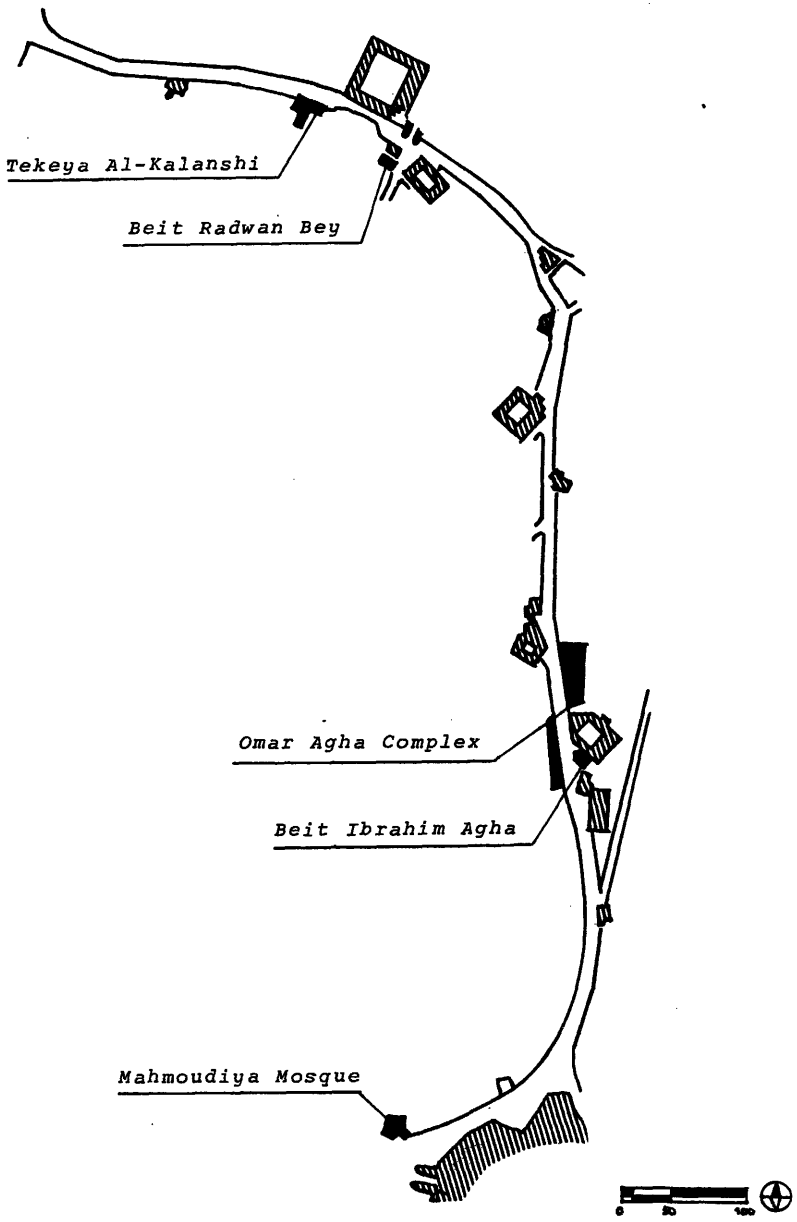
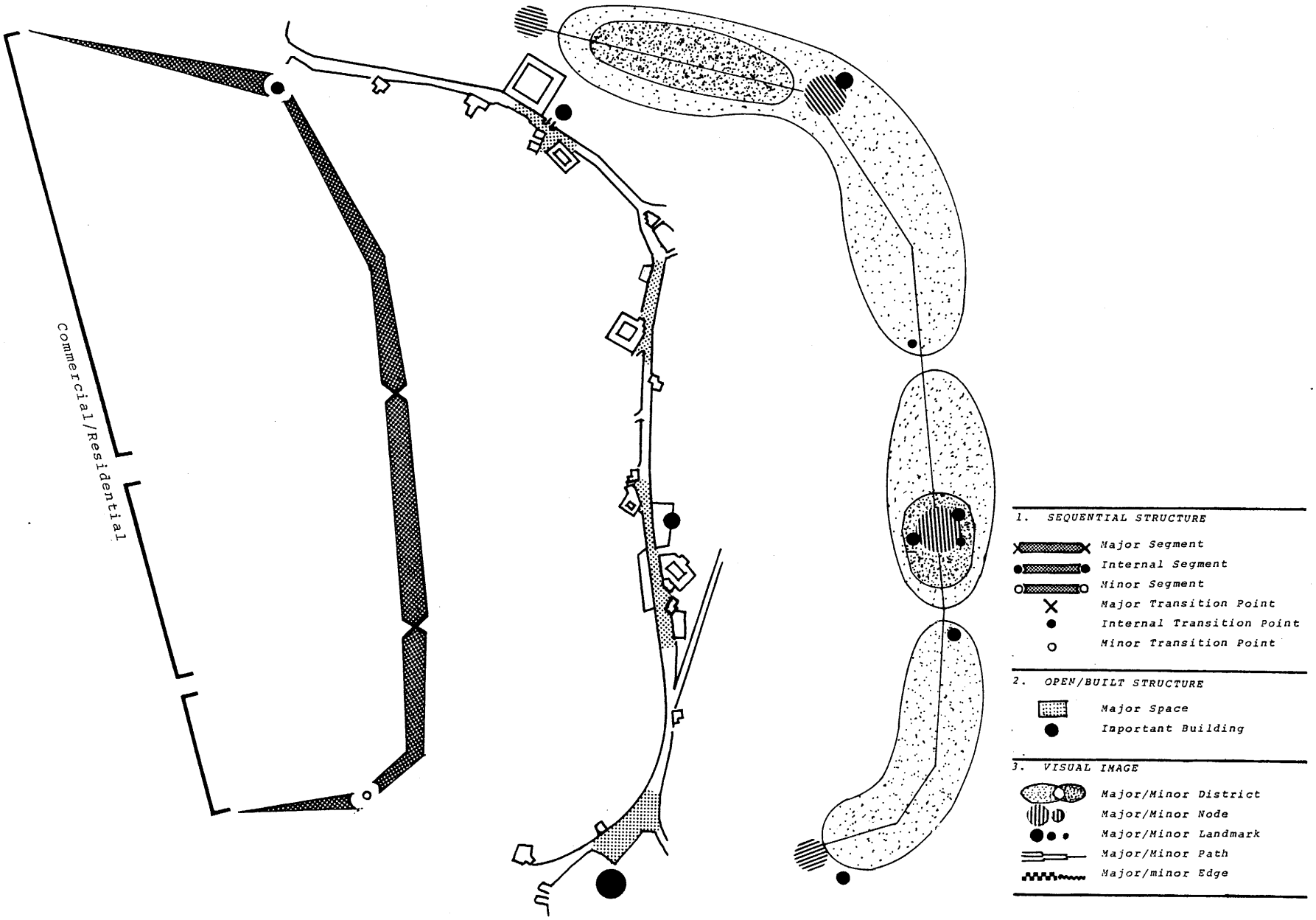


Fig. 30 Al-Darb Al-Ahmar Street and its Patterns


Commercial/Residential
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 District
Major/Minor Node
Major/Minor Landmark
Major/Minor Path
Major/minor Edge

AL-JAMALIYA STREET

Al-Jamaliya Street was one of the few streets that experienced some significant change during the Turkish rule. The street changed course and one of its branches was in use as a major segment instead of the old one that connected the street to Beit al-Qadi space. The Maiydan of Beit al Qadi was separated by buildings from the street. The spaces along the street became smaller as the commercial activity dominated the street's character. Most of the Turkish buildings were concentrated in the middle district and the overall visual image and sequential structure seem to be very similar to those of Al-Mu'izz Street. Ali Mubarak divided the street into three segments, specifying that the first segment running from Bab al-Nasr to Wekelat al-Tufah was one of the major wholesale districts in Cairo at the time.[16] The other two segments were mainly commercial districts, dotted with residences. At the time of the Turkish rule in Egypt, it was very common to find residences of the Turkish elite concentrated in certain areas of Cairo. Al-Jamaliya Street had its share of these residences and certain sections of the street were known by the name of the Turkish Pasha residing there. *(fig. 31)*

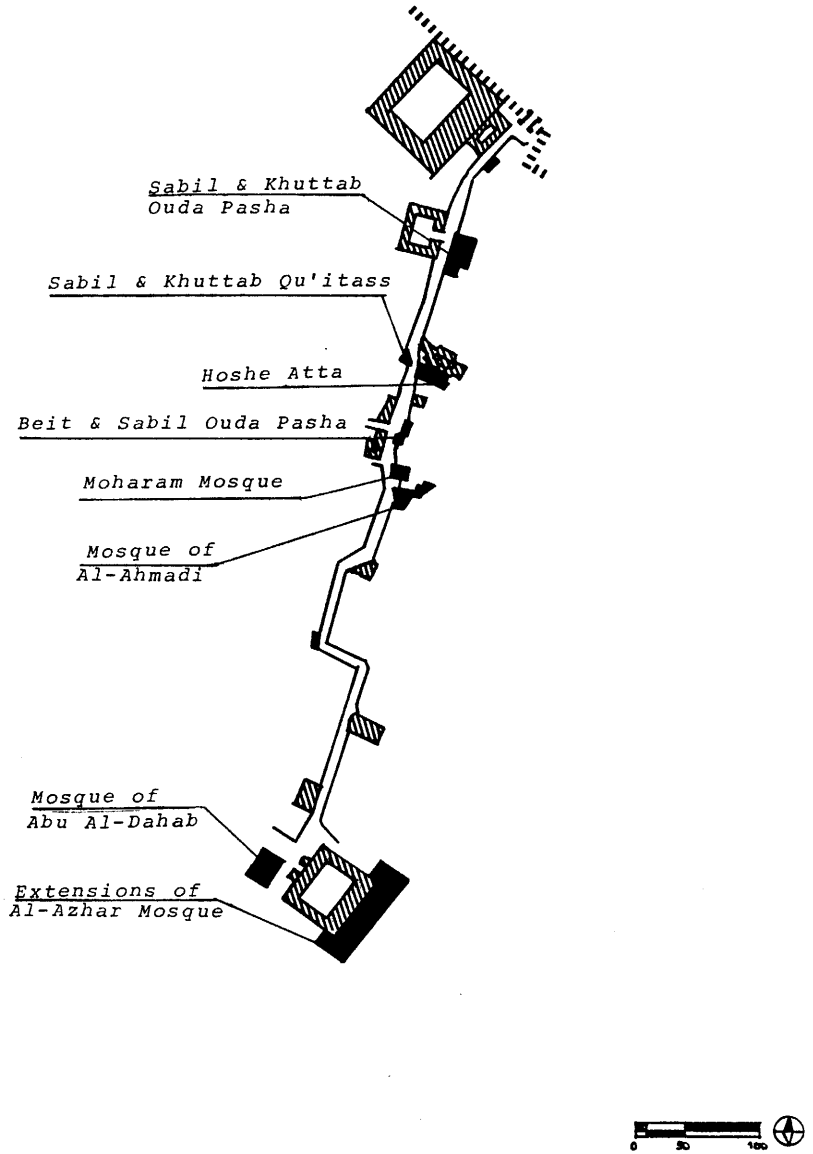
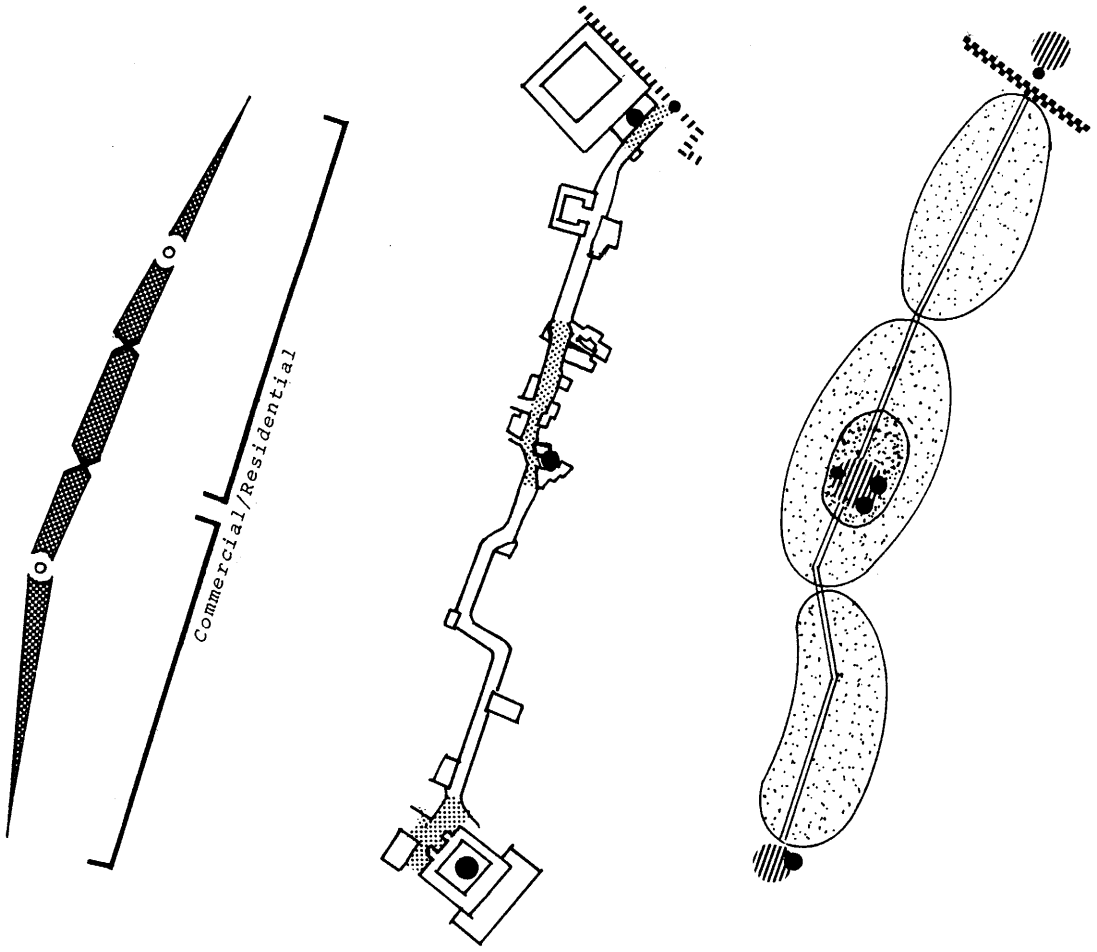


Fig. 31 Al-Jamaliya Street and its Patterns



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 District
- Major/Minor Node
- Major/Minor Landmark
- Major/Minor Path
- Major/minor Edge

SOME THEMES OF THE TURKISH URBAN PATTERN

1. STREET-SCAPE

Streets have finally stabilized during the Turkish rule. An examination of their patterns showed very little difference or development from those of the Mamluk rule. The patterns of the three streets now seem identical and possess very similar characteristics.

1.1 Segmental Structure

All three streets now have very similar path sequence. The segments on both ends of the streets now have two internal segments with an internal transition point in between *(fig. 32)*.

1.2 Spaces and Buildings

Spaces underwent several changes during the Turkish rule, most of the large spaces that existed in the times of the Fatimids, Ayyubids and Mamluks having disappeared and been replaced by informal structures. One such case is the space in front of Al-Hakim Mosque along Al-Mu'izz Street or the space inside Bab al-Nasr along Al-Jamaliya Street *(fig. 32)*.

1.3 Visual Image

The images of the three streets had some identical characteristics too. The district in the middle dominated the visual scene, possessing the path's major node surrounded by an agglomeration of major landmarks belonging to different periods of Islamic rule in Egypt. Minor landmarks were also located near the transition points *(fig. 32)*.

2. LOCATION OF ELEMENTS

Most of the Turkish Mosques and madrasas were constructed within the walled city (17 out of 24, i.e. more than 70%). The only reasonable explanation for this is that the site remained stable for the three hundred years of Turkish rule, and although the Turks built some of their residences to the west of the walled city, most of their religious and administrative buildings were located in the old section of Cairo.

The location of the Turkish elements along the streets indicate a new trend. The Turks built most of their elements on the sites of old ruined monuments, e.g., the Mosque of Sheikh Muttahar built over the ruins of the Ayyubid Madrasa Al-Siyufiya on Al-Mu'izz Street. Other monuments that were in a reasonably good condition but abandoned, were renewed and reused by the Turks, e.g. the Mosque of Al-Fakahani; the Turkish renewal of the Fatimid mosque of Al-Zafir.

3. VISUAL ELEMENTS AND SYMBOLS

The Turks did not add to or change the image of the city they inherited from the Mamluks. Their attempt to renew the Citadel and construct new mosques and gates for it served to emphasize its previous visual significance. On the street level the Turks added a great number of Sabils along the major paths. The unique and different architecture of these Sabils created a new visual element that had a role in creating the image of Ottoman Cairo. The Zawya (a small prayer place) was also introduced by the Ottomans and played a similar role to that of the Sabil on the street level.

3.1 Exterior Shaping of Elements and their Treatment

Seven out of ten major Turkish mosques had exterior facades that had no relation to the center line of the streets or to the Qibla direction. *(Refer to Table 4)* Turkish mosques had large openings and very elegant exterior walls.

3.2 Space

Most Turkish mosques had very small spaces in front of them. The only spaces that did not follow this rule were the ones located outside the urban area. These were usually huge with an axial wide space in front of them *(fig. 33)*.

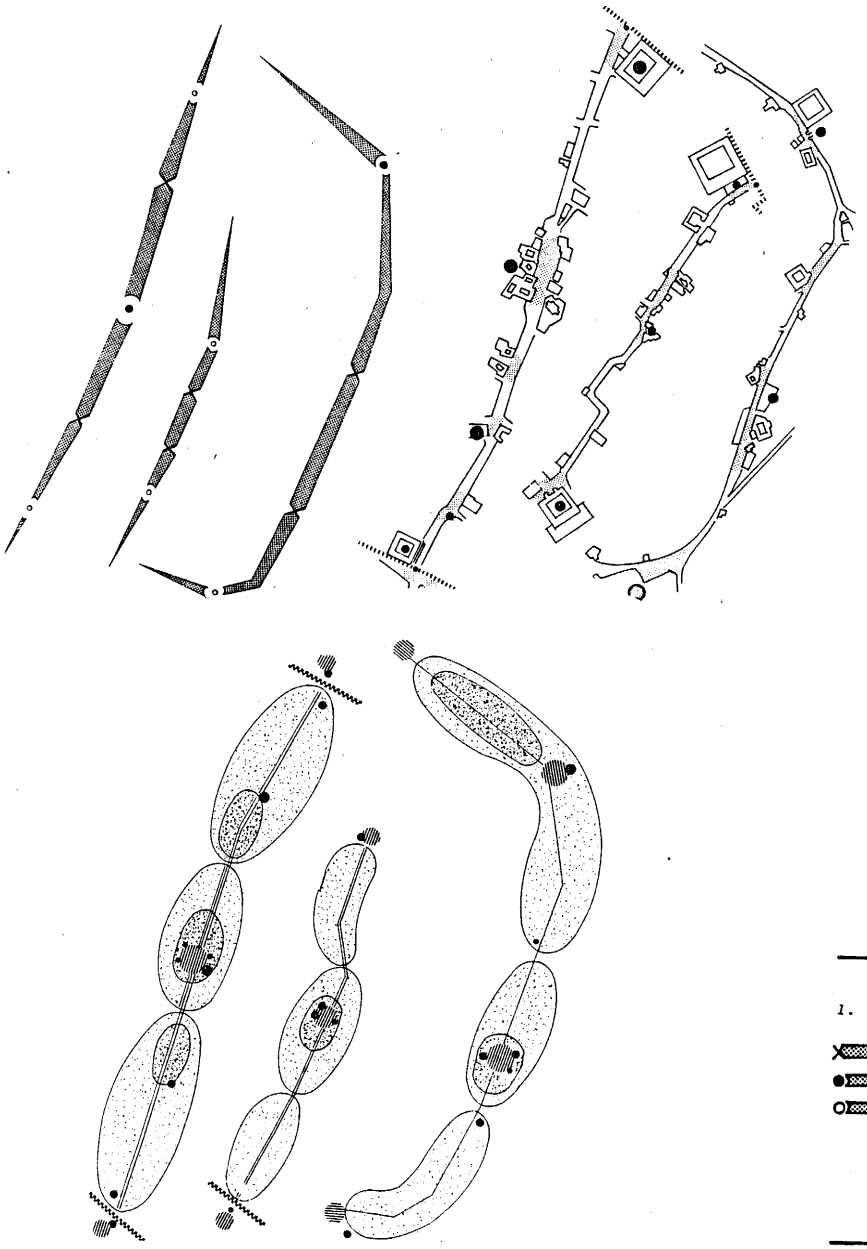
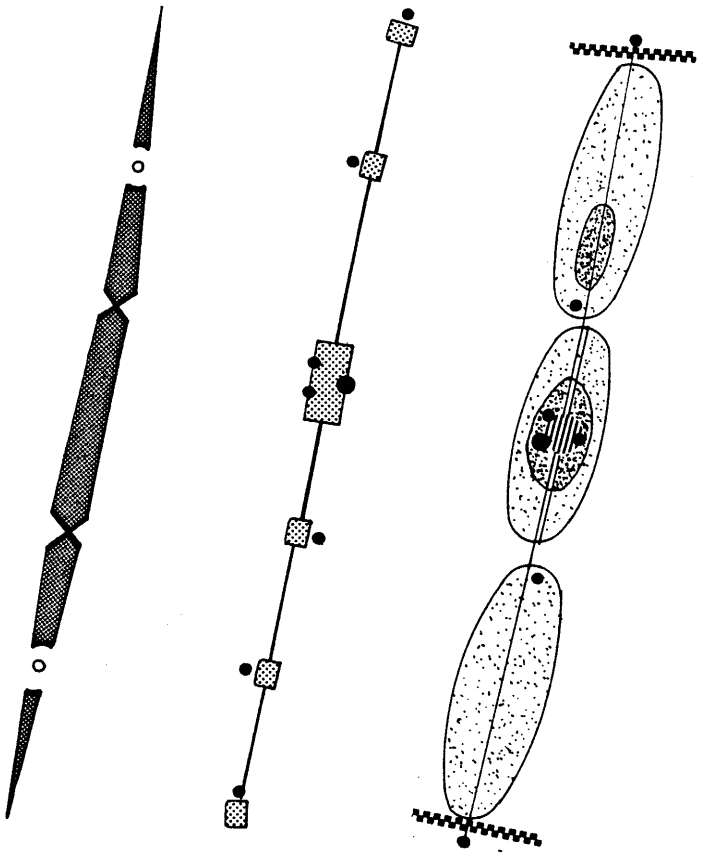


Fig. 32 The Turkish Street-Scape



Diagrammatic representation of Typical Turkish street pattern

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 District*
   - *Major/Minor Node*
   - *Major/Minor Landmark*
   - *Major/Minor Path*
   - *Major/minor Edge*

3.3 Minarets, Domes and Entrances

The minarets of the Turks were very tall, with a small diameter that had the shape of a needle pointing skyward. *(Refer to Table 4)* The minaret was usually composed of one or two segments of elegant proportions.

Turkish domes were very large, but also short. *(Refer to Table 4)* . They had a number of openings and had some exterior architectural elements such as piers attached *(fig. 33)*.

Entrances of Turkish Mosques were usually recessed or lined up with the facade with a minaret above. Because most of the Turkish mosques had a platform, they had various staircases with different orientations.

4. OTHER SPECIFIC FORMS USED ON THE URBAN LEVEL

Turkish minarets were very similar and were located in different positions along the streets. This similarity played a role in the streets' image, one can easily know from the minaret that he is in the presence of a Turkish mosque. The domes were usually far from the minarets and had a rich architectural composition, making them a significant visual element. The overall skyline of the city did not change with the addition of the Turkish domes and minarets but the needle type tall minarets had a major influence in orienting and directing the pedestrian inside the city.

The following table summarizes the visual characteristics of all major Turkish elements investigated:

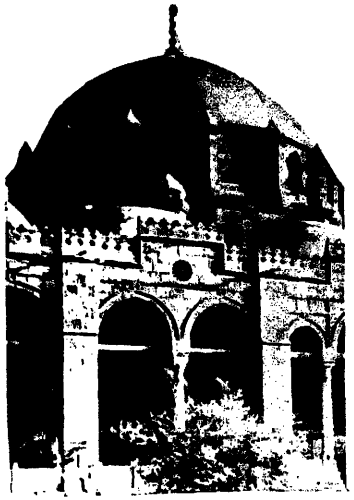
Table 4 Generic Forms of the Major Ottoman Visual Elements

Visual Elements / Major Structure	Dome		Minaret			Entrance		Exterior Facade			Space	
	Medium	Small	Tall	Medium	Short	Recessed or Lined with Facade	Protruding	// to street Centerline	⊥ to Qibla Direction	No relation	Medium	Small
Sinan Pasha	●		●			○				●	●	
Al-Mahmudiya	○		○			○				●	●	
Al-Birdini	●		○			○				●		●
Al-Fakahani		○	○			○				●		●
Sheikh Muttahar		○	○			○				●		●
Abu-al-Dahb	●		●			○		●			●	
Moharam			○			○		●				●
Al-Silihdar	●		●			○		●				●
Katkhiuda	○			●		○				●		●
Tekeya al-Sulimaniya	○			●		○				●		●
Total	6	4	8	2	--	10	--	3	--	7	3	7
TOTAL	10		10			10		10			10	

● *Strong emphasis* | ⊖ *Medium emphasis* | ○ *Little emphasis*

From *Table 4* one can conclude that the dominant features of a typical Turkish mosque were a very strongly emphasized, tall minaret, like the minaret of Al-Silihdar mosque *(fig. 33)* accompanied by a large short dome like the dome of Mosque Abu al-Dahb *(fig. 33)*. These elements will be used as a representative of Turkish architecture only for the sake of comparison.

Minaret of Al-Silihdar
(Typical Turkish Minaret)



Dome of Abu al-Dahb
(Example of a Turkish Dome)

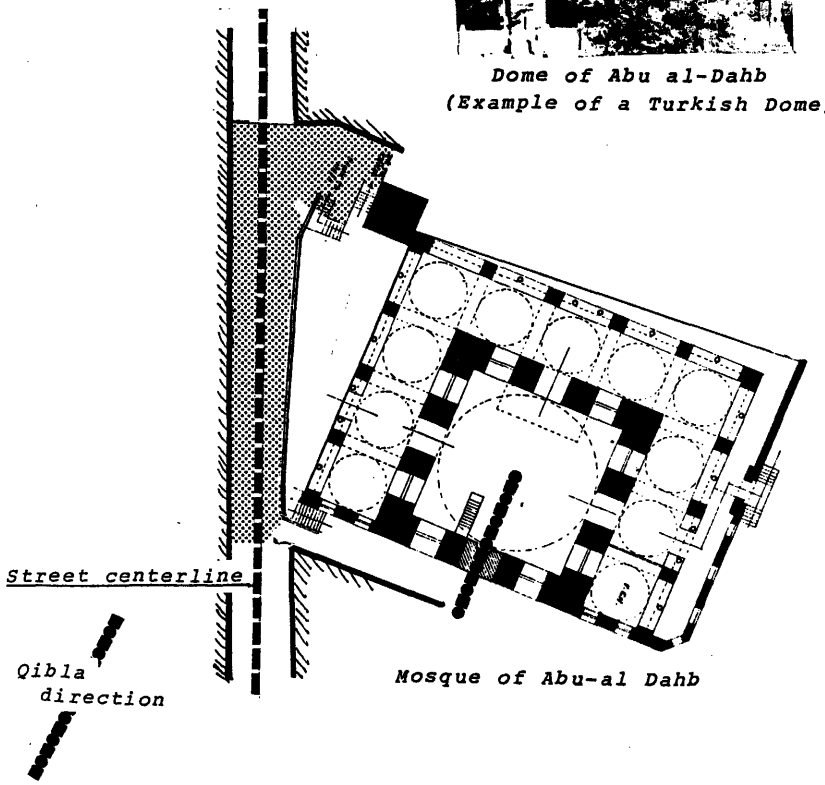


Fig. 33 Some Themes of Turkish Urban Form

REFERENCE NOTES

1. Abu-Lughod, J., *Cairo: 1001 Years of the City Victorious* (Princeton: Princeton University Press, 1971), p. 48.

2. *Ibid.*, p. 51.

3. *Ibid.*, p. 53.

4. De Thevenot, J., *The Travels of Monsieur de Thevenot into the Levant*, A. Lovell, trans. (London: H. Clark, 1686), Part I, Vol. 2, p. 128.

5. See *Descriptoin de l'Egypt* (Paris, Imprimerie Royale, 1818-1828) Tome II, Part II, p. 579.

6. Staff, S.J., *Conquest and Fusion: The Social Evolution of Cairo, A.D. 642-1850* (Leiden; E.J. Brill, 1972), p. 260.

7. *Ibid.*, p. 268.

8. *Ibid.*, p. 273.

9. *Ibid.*, p. 273.

10. *Ibid.*, p. 264.

11. See *Description de l'Egypte*, p. 583.

12. Staff, S. J. *op. cit.*, p. 264.

13. *Ibid.*, p. 265.

14. Mubarak, A., *Al-Khitat al-Tawfiqiya al-Jadida* (Cairo: Bulaq Press, 1889), Vol. 2, p. 68.

15. *Ibid.*, Vol. 2, p. 279.

16. *Ibid.*, Vol. 2, p. 199.

7. A SUMMARY OF THEMES

The Development of Forms and Physical Patterns

1. THE DEVELOPMENT OF STREET-SCAPE

1.1 Structure of the Path Sequence

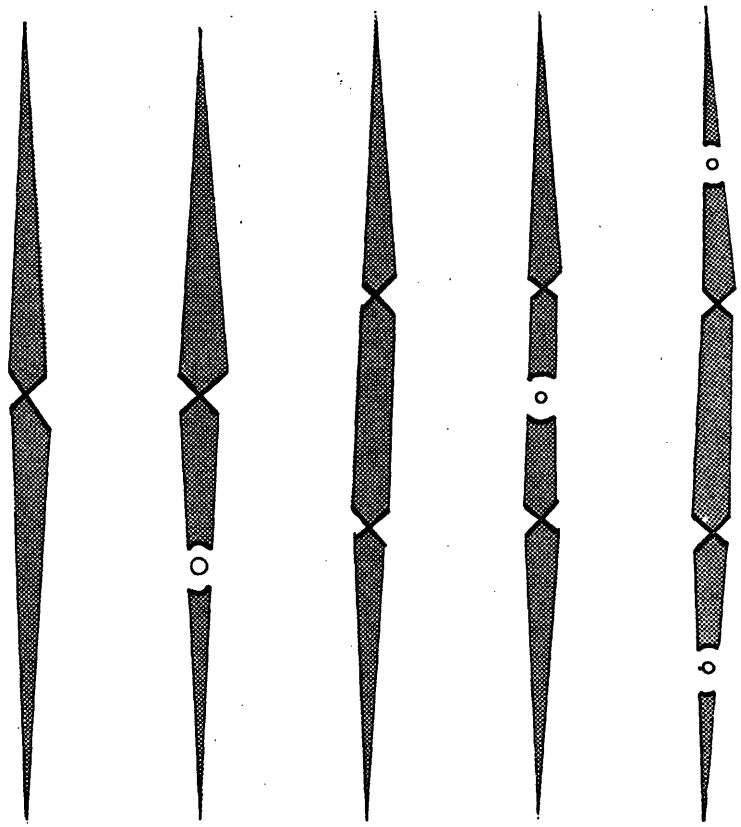
Early Fatimid streets were composed mainly of two segments, a structure which remained relatively unchanged during the Ayyubid rule. The structure changed during the rule of the Bahri Mamluks; a major segment in the middle evolved and became the most important one. The Burji Mamluks added to this segment and internal transition point, and by the end of the Turkish rule, minor transition points were added to the end segments. The structure of the sequence of Islamic Cairene streets finally stabilized on a three segment pattern (an introduction and conclusion on both ends, and a climax in the middle).

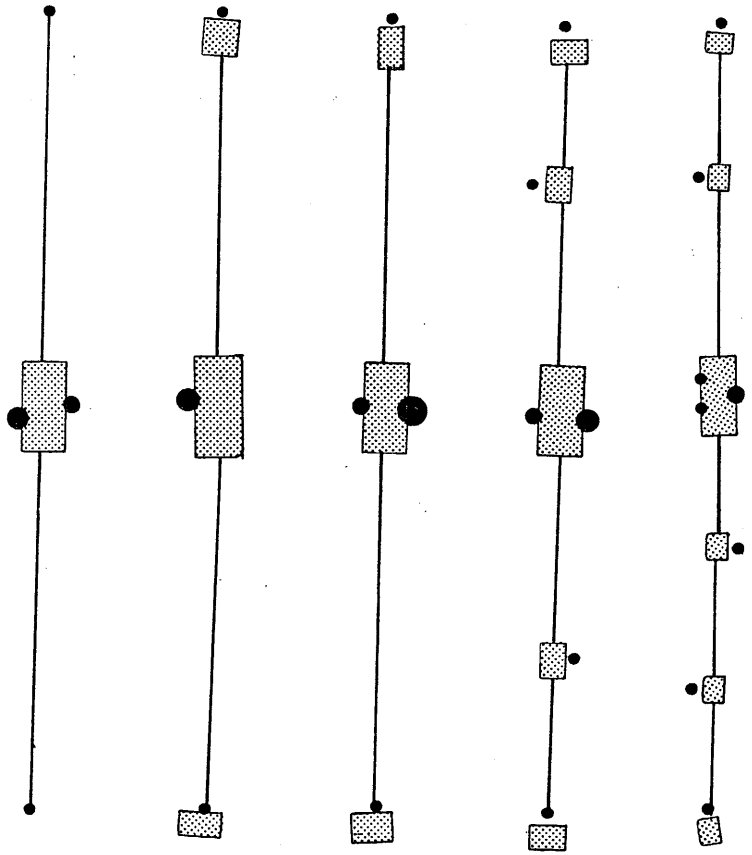
1.2 Open/Built Structure

During the Fatimid and the Ayyubid rule major spaces and buildings were usually located in the middle segment. Other spaces then extant were emphasized by Bahri Mamluk structures around them. The Barji Mamluks added some minor buildings and small spaces along the path at the transition points. The structure remained unchanged during the Turkish rule, with the exception of the decrease in the size of spaces. The general space/building structure of Islamic Cairene streets appears as a number of scattered spaces with an apparent hierarchy along the path and with the major space in the middle, with the major buildings nearby.

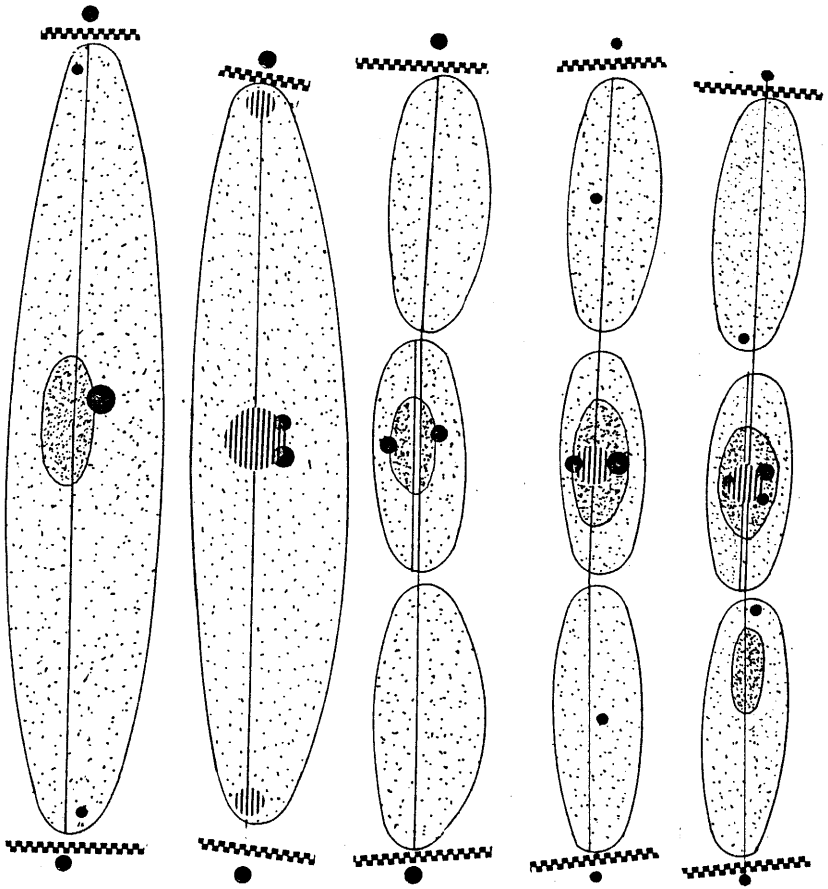
1.3 Visual Image

The visual image of Fatimid and Ayyubid streets was a one-district street having the major node and landmark in the middle. The Bahri Mamluks created a three-district image, maintaining the same location for nodes and landmarks. The Burji Mamluks added some landmarks in the end districts. The image remained unchanged during the Turkish rule, except for the appearance of some internal districts, and the agglomeration of landmarks in the middle district. The general image of the major thoroughfares of Islamic Cairo appears to be a three-district image, a major node and landmark in the middle, accompanied by a number of minor landmarks around the transition points.



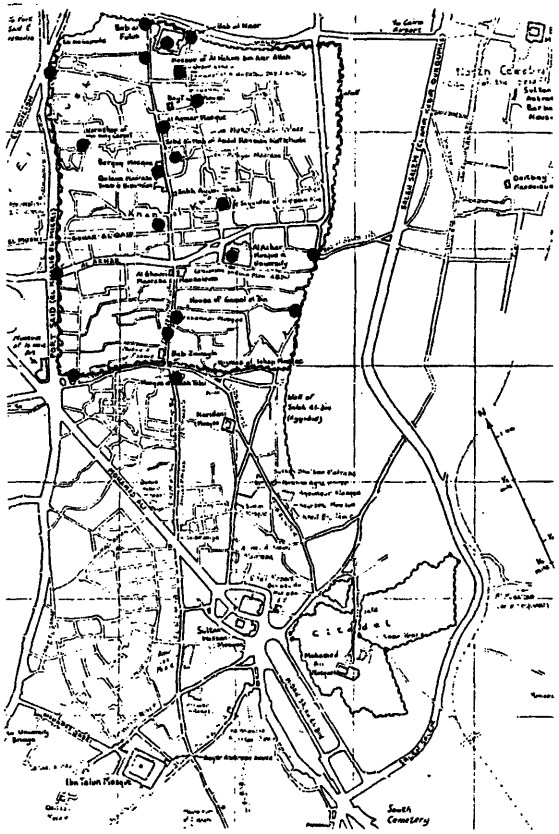


1. SEQUENTIAL STRUCTURE
   - Major Segment
   - Internal Segment
   - Minor Segment
   - Major Transition Point
   - Internal Transition Point
   - Minor Transition Point
2. OPEN/BUILT STRUCTURE
   - Major Space
   - Important Building
3. VISUAL IMAGE
   - Major/Minor District
   - Major/Minor Node
   - Major/Minor Landmark
   - Major/Minor Path
   - Major/minor Edge



2. LOCATION AND POSITIONING OF ELEMENTS

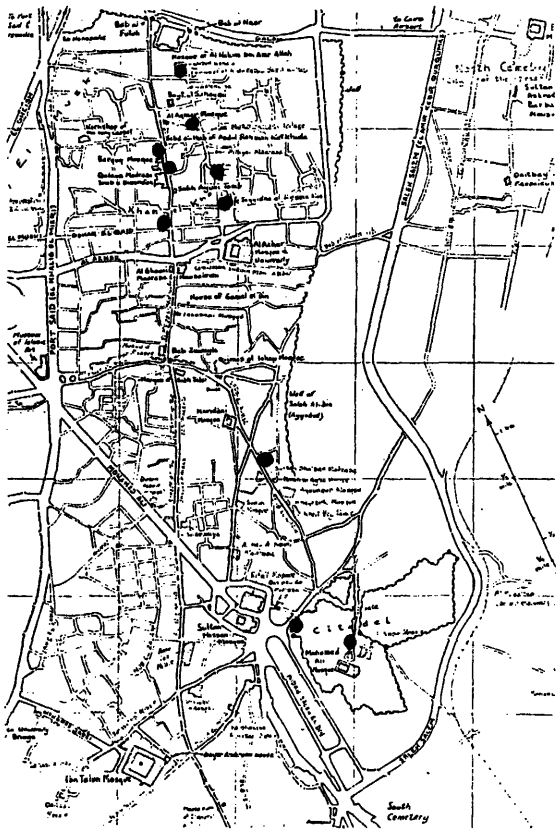
The Fatimids concentrated most of their buildings inside the walled city. The same trend continued during the Ayyubid rule, accompanied by some buildings in the suburbs. The Bahri Mamluks built most of their structures in Zahir al-Qahira and built others inside the walled city around the existing climaxes. The Burji Mamluks paid great attention to positioning their buildings with regard to previous existing elements. They also added minor elements along the streets in critical locations, enriching the streets' event structure. The Turks later reconstructed the ruined buildings and maintained the streets' previous structures. The urban surrounding of a certain building seems to have been as important a factor in the design of these buildings as the architectural composition.



FATIMID

-100% inside the walled city

-all elements located scattered around the major spines

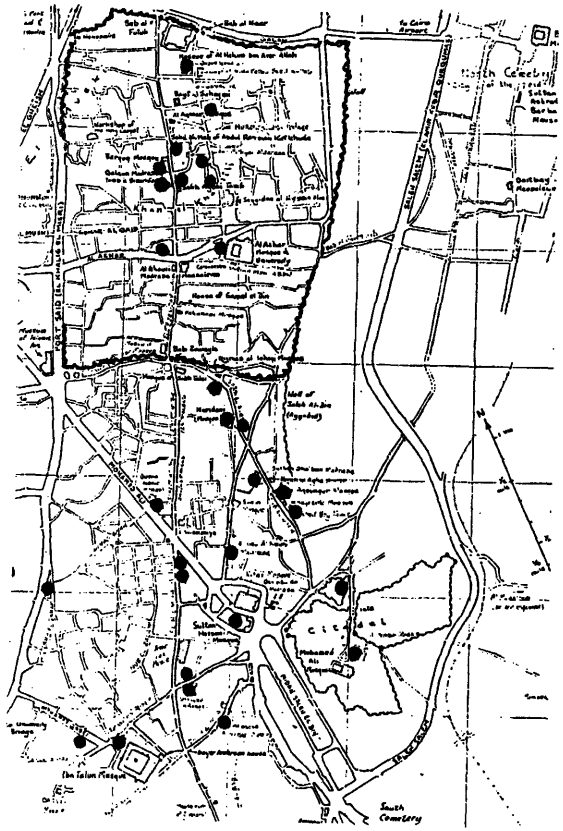


AYYUBID

-100% inside the walled city, except for Fustat structure

-evolution of two new structures: khanqa and madrasa

-grouping of structures appears (tomb + madrasa)



BAHRI MAMLUK

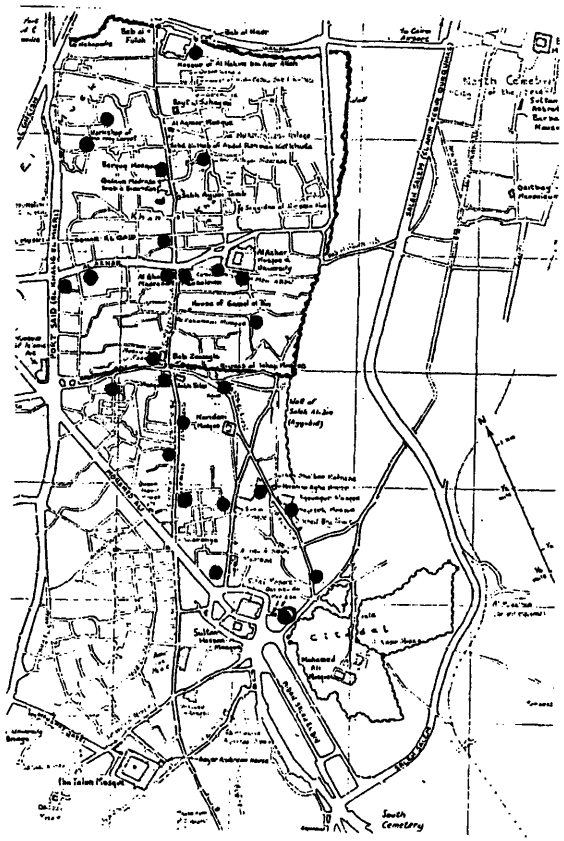
-33% inside the walled city

-67% outside the walled city

-on street level, grouping of buildings continued

-new elements located near the existing agglomeration of buildings; policy of decentralization attempts to strengthen the existing climax

-evolution of a new combined architectural unit (Sabil & Kuttab)

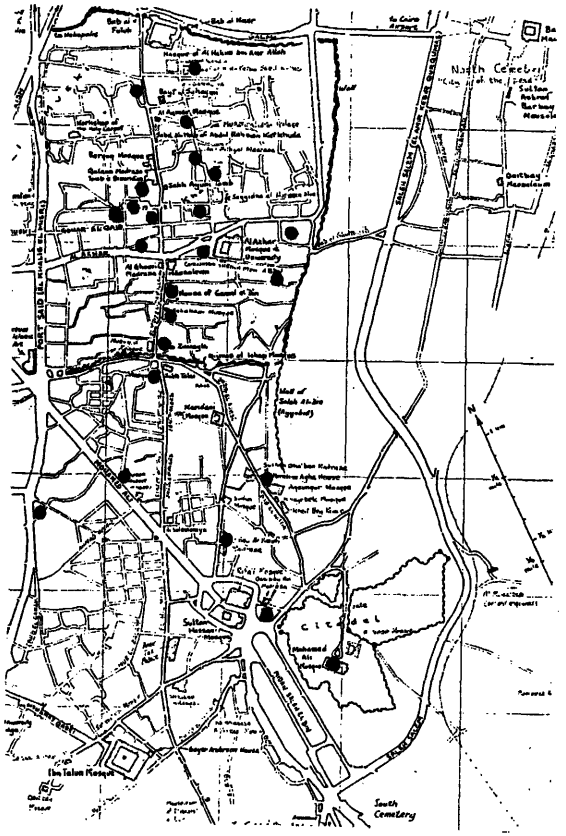


BURJI MAMLUK

-54% inside the walled city

-46% outside the walled city

-on street level buildings constructed in complexes at well-chosen empty spaces along the path. Policy of decentralization created scattered elements along the path in an attempt to shift the existing climax and add visual elements to path structure



TURKISH

-70% inside the walled city

-30% outside the walled city

-on the street level, buildings constructed on the sites of ruined monuments

-other monuments renewed and reused

-evolution of new architectural unit (tekeya and zawya)

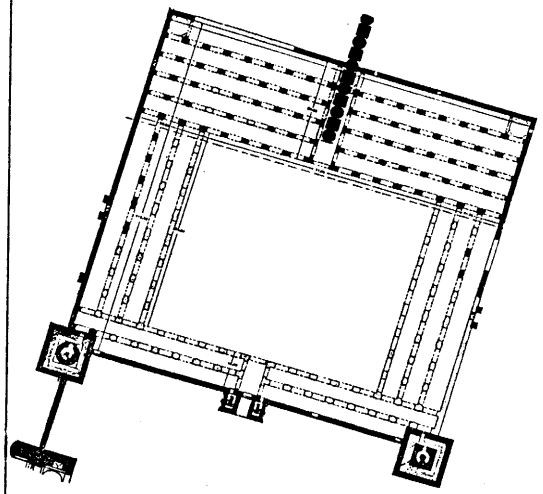
3. VISUAL ELEMENTS AND SYMBOLS

3.1. Exterior Shaping of Elements And Their Treatment

Most Fatimid mosques, with the exception of Al-Aqmar had regular exterior facades perpendicular to the Qibla direction, the reason being that most Fatimid mosques were located inside the city before its streets were fully developed; accordingly there was no restriction on their form. Facades of Ayyubid madrasas followed the streets' center lines (streets were vastly developed during their rule). Bahri Mamluk facades were staggered and irregular; their orientation was determined by both the street center line and the Qibla direction and the irregularities in their exterior facades were skillfully adjusted to the street. Burji Mamluk exterior facades were neither parallel to the street center line, nor perpendicular to the Qibla direction. The inclination of the exterior facades show that the urban surroundings implied a certain differentiation for each building. The Turkish mosque followed no regular pattern.

This variety of exterior shaping was a result of different factors, among them was the location of elements, their positioning and their size. It was that variety of exterior architecture fitted into its urban surroundings that created the characteristic style of Islamic Cairene streets.

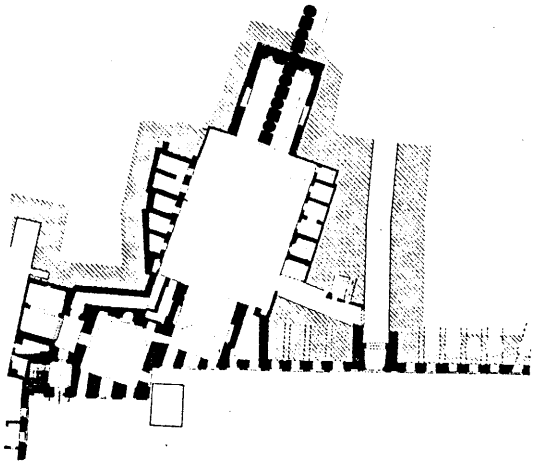
FATIMID



Al-Hakim

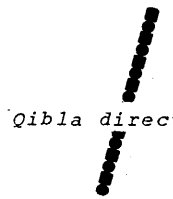
-regular plan
-exterior wall ⊥ to Qibla direction
-interior wall // to Qibla direction
-some wall decoration
-small openings

AYYUBID

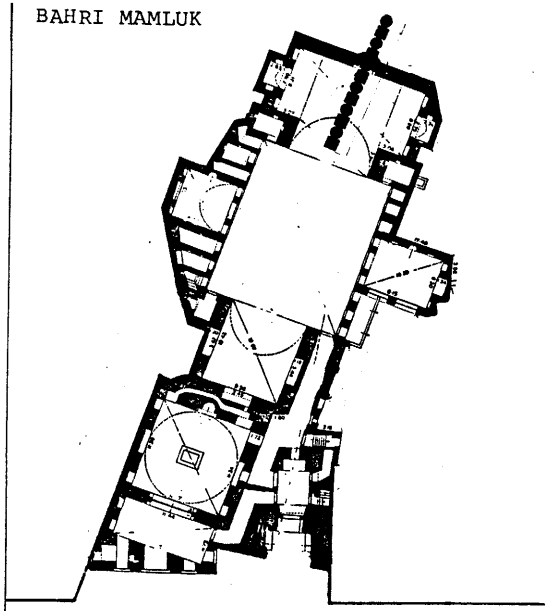


Al-Saleh

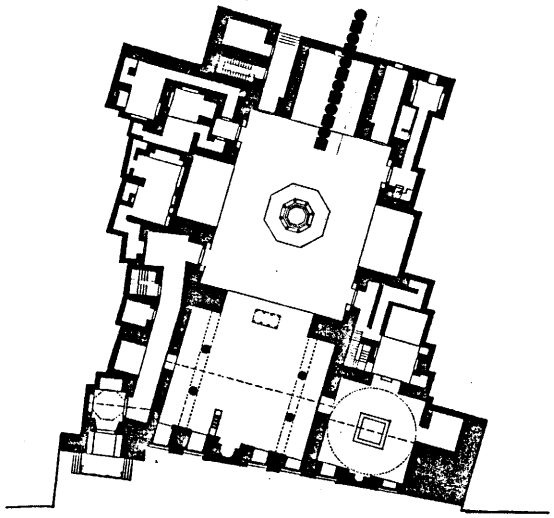
-irregular plan
-exterior wall // to street centerline
-internal wall ⊥ to Qibla direction
-small openings, decorations



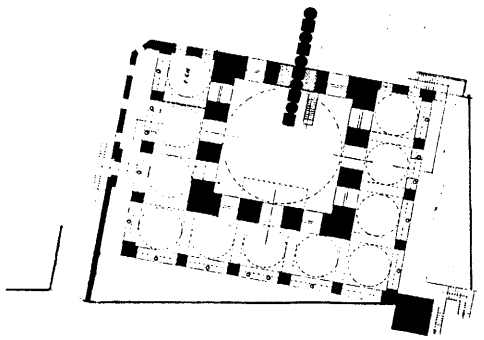
BAHRI MAMLUK



BURJI MAMLUK



TURKISH



Khanqa of Baybars

-irregular plan
-staggered facade with one side usually // to street centerline
-varying wall thickness
-large openings

Al-Barquqiya

-irregular plan
-one-line facade neither // to street centerline nor ⊥ to Qibla direction
-colored brick courses
-large openings

Abu Al-Dahb

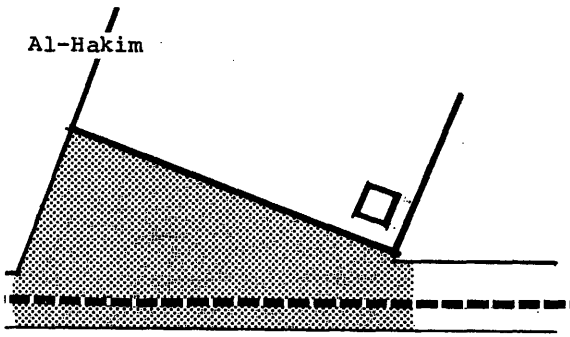
-regular plan
-plateau above ground level, adjusted to street centerline while exterior wall of mosque ⊥ to Qibla direction

3.2 Spaces

The exterior shaping of Fatimid elements had a great influence on the spaces created in front of them. These spaces were usually wide triangular spaces with their sides following the Qibla direction and the street alignment. The size, proportion and scale of these spaces gave them a specific character that reminds the pedestrian he is in the presence of a Fatimid monument. Because of the rapid development that took place during the Ayyubid rule, buildings were constructed everywhere and spaces became smaller in size. The sides of these spaces usually were dictated by the streets' alignment. Minarets were usually located in the middle of the spaces, and domes sometimes protruded. Bahri Mamluk buildings had irregular shapes with variable dimensions and narrow entrances. Minarets were located in various positions, usually where two sides of the space met. The scale of the spaces usually tended to the monumental. Burji Mamluk spaces were irregular also. Their minarets were located carefully with respect to the space and to the other surrounding buildings. Domes were located at the corners of the spaces, and although the scale of most Burji Mamluk elements was monumental, the overall proportions of their spaces tended to be human. Turkish spaces had various sizes depending on their location in the city. Elements located outside the walled city had large spaces in front of them. The development of the shapes of these spaces and their relation to the buildings surrounding them shows that the variety of shapes followed a somewhat consistent pattern, depending on the surrounding elements.

FATIMID

Al-Hakim



-wide triangular spaces with sides // to street centerline and ⊥ to Qibla direction.

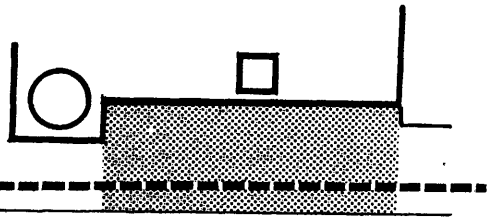
-human proportions

-insufficient information available on the relation between space and minarets

-recessed domes

AYYUBID

Al-Saleh

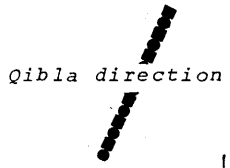


-small rectangular spaces with recessed sides, aligned with centerline of street

-human scale

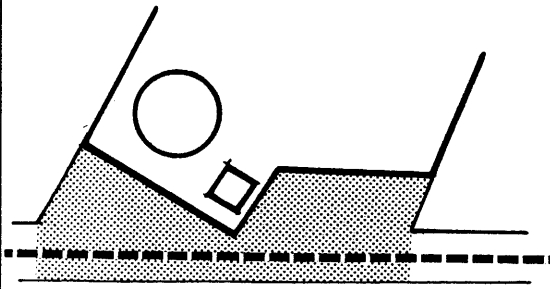
-minaret usually in the middle

-dome sometimes protruding on the street



BAHRI MAMLUK

Khanqa of Baybars



-irregular space with variable dimensions and many sides, entrances usually narrow

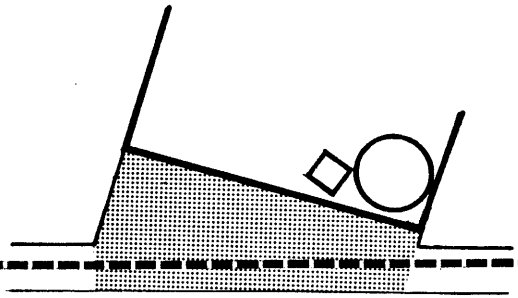
-monumental scale

-minaret has various locations but usually positioned near the staggering or at meeting of two sides

-domes recessed

BURJI MAMLUK

Al-Barquqiya



-trapezium space with regular sides composing various shapes

-human/monumental scale and deep proportions

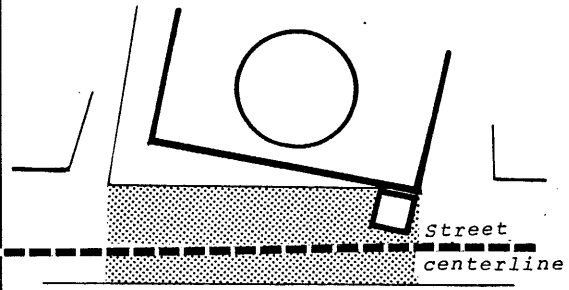
-minarets are usually located at the end of the space or where the space meets the street

-location of minaret decided according to its position within the urban setting

-domes on corners, very close to spaces

TURKISH

Abu Al-Dahb



-very small spaces on the street, except if in a vista position

-monumental scale

-minarets are in variable positions

-domes do not usually appear except from the axial view

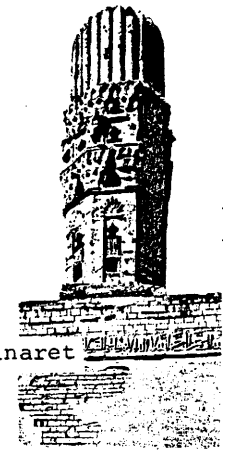
3.3 Minarets, Domes and Entrances

The development of the architecture of the minaret had a major effect on shaping the image of Islamic Cairo. Minarets were short in the beginning, eventually becoming taller and taller, indicating an increase in their significance. The competition between minarets of different shapes and heights enriched the skyline of Cairene streets and created its characteristic silhouette.

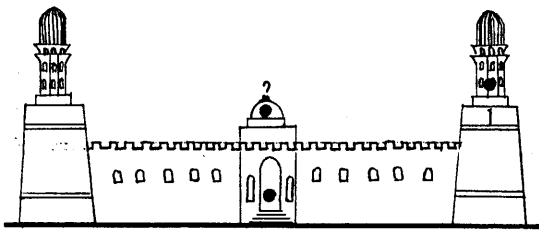
Domes were also small in the beginning and became larger. They developed from an insignificant element to an element of major visual significance. The variety of domes used by different peoples (the Bahri Mamluks' large domes, the Burji Mamluks' small tall domes, and the Ottoman large short domes) contributed to the creation of the characteristic skyline of Islamic Cairene streets.

The relation between the entrance, the dome and the minaret in each individual building had a direct effect on its overall balance and composition. The repetition of similar compositions along a street occurred frequently. One would even find a certain compostion that did not follow the usual rules of the times; it had been built presumably for the reason of maintaining the harmony and balance of the overall architectural composition.

FATIMID



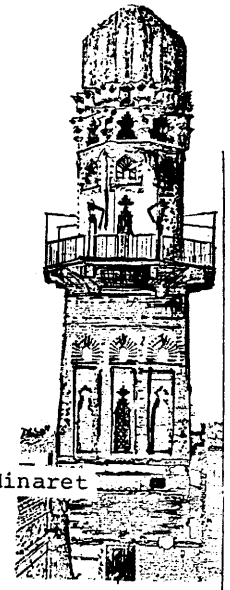
Al-Hakim Minaret



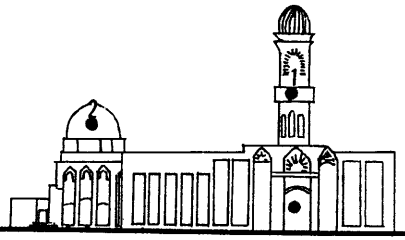
Al-Hakim Mosque

- -sone segment small short minaret
- -small dome
- -symmetrical entrance, usually protruding

AYYUBID



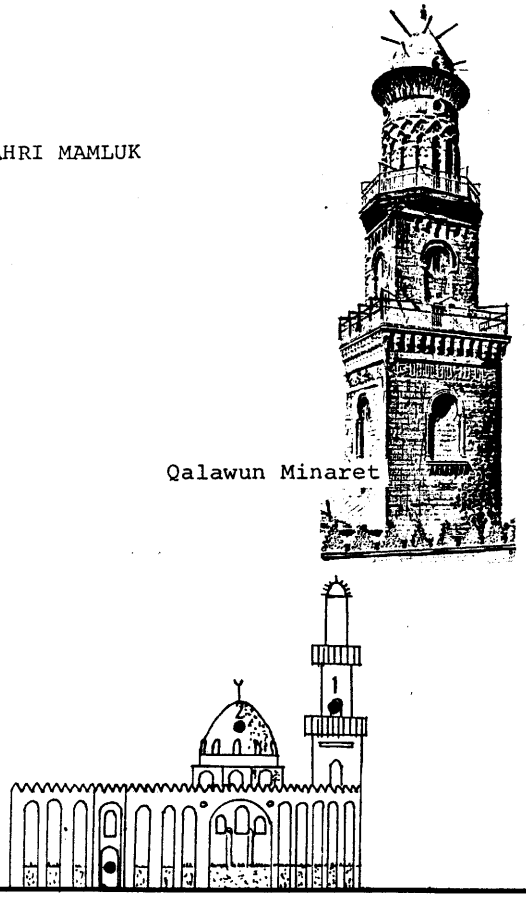
Al-Saleh Minaret



Al-Madrasa Al-Salihia

- -2-segment short minaret
- -medium size simple domes
- -entrance under minaret and aligned with facade
- -dome located on building corner

BAHRI MAMLUK



Qalawun Complex

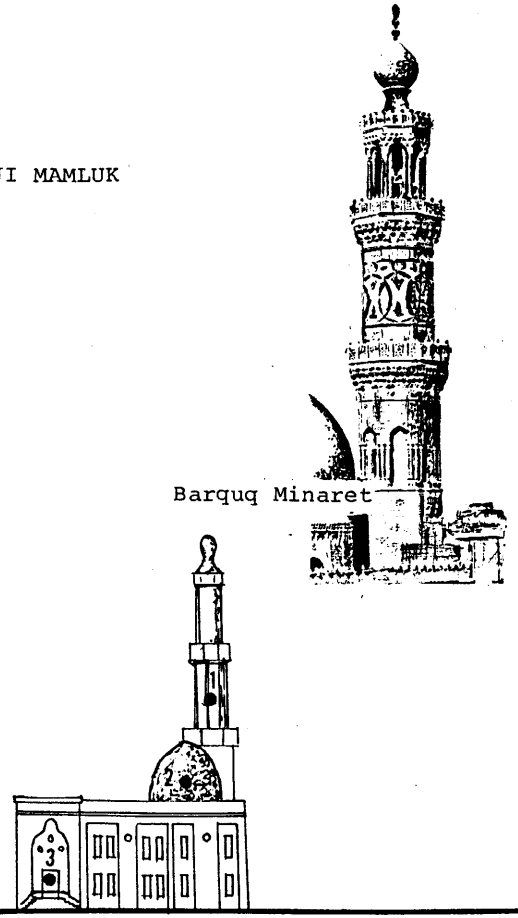
-3-segment medium/tall minaret

-large dome

-entrance usually in middle of facade sometimes under minaret

-domes usually recessed from the street centerline and located far from the minarets

BURJI MAMLUK



Al-Madrasa Al-Barquqiya

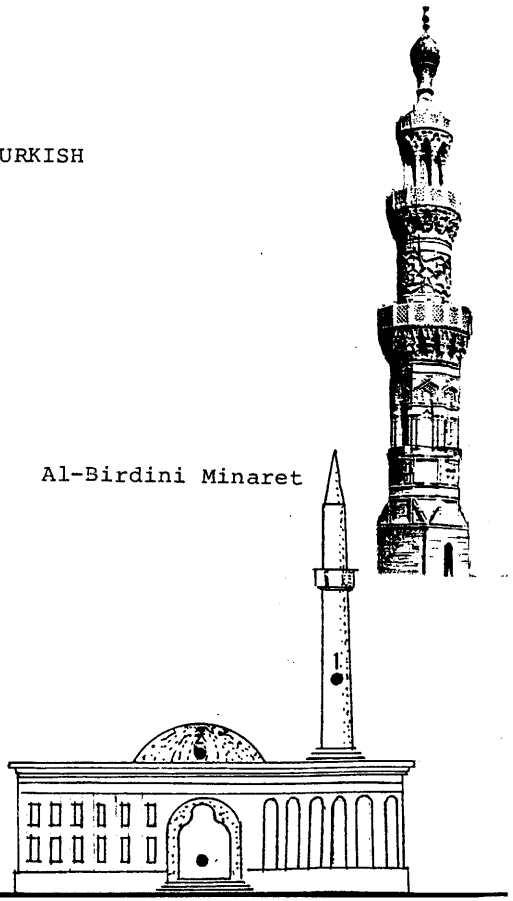
-3 or 4-segment tall elegant minaret

-tall domes with small diameters, and a great deal of decoration

-entrance a separate architectural unit with no specific location, but usually protruding

-minarets and domes are very close, forming one visual composition located on the pedestrian path

TURKISH



Al-Silihdar Mosque

-2-segment very tall minaret (needle shaped)

-very large domes

-entrances located in various positions

4. SPECIFIC RELATIONS ON THE URBAN LEVEL

4.1 Relation of the Minaret Shape to the Exterior Facade

Minarets had different shapes and relations to the exterior facades of mosques. The shapes of the exterior facades and the spaces they overlooked dictated different minaret positioning and treatment as indicated in *fig.34*. Although it is difficult to identify the reason behind these shapes, the consistent pattern followed indicates a conscious will to create intended differentiations.

4.2 Relation of Elements to Previous Elements

The urban surroundings were an important component in the design of any building, and accordingly the relations between different buildings was a very important factor. The relation of new buildings to pre-existing ones shows that common architectural conventions in a certain time period were often broken for the sake of balancing the overall architectural composition. A good example of this is the Burji Mamluk Madrasa Al-Barqugiya, built in the space of Bein al-Qasriyn *(fig.35)*. For, although the trend during the rule of the Burji Mamluks was to build in new empty locations along the streets, this madrasa was built between a number of older existing elements. Accordingly the usual conventions of Burji Mamluk architecture were not followed. First, the exterior wall of the madrasa was inclined on the street centerline, duplicating the same relation that the older elements had and not following the usual pattern of Burji Mamluk exterior treatment. (The exterior wall is neither parallel to the street centerline nor perpendicular to the Qibla direction.) Second, the entrance of the madrasa was not located under the minaret (the usual case of Burji Mamluk architecture), but was located in one end while the minaret was located in the other end. It appears that this differentiation might have been intentional, because any other alternative positionings or solutions for the minaret, entrance and exterior wall would probably have disturbed the overall harmony of the complex. (The entrance was located at the corner of the building adjacent to all other entrance, so as not to disturb the direction of movement in the street nor the circulation inside the space. The minaret was located at one end of the madrasa, far enough from the two very close minarets of Al-Nasir's Mosque and the Qalawun complex, so as to maintain the visual balance of the overall composition. The exterior wall of the madrasa followed the inclination of the previous elements, and not that of the usual Burji Mamluk architecture because the space

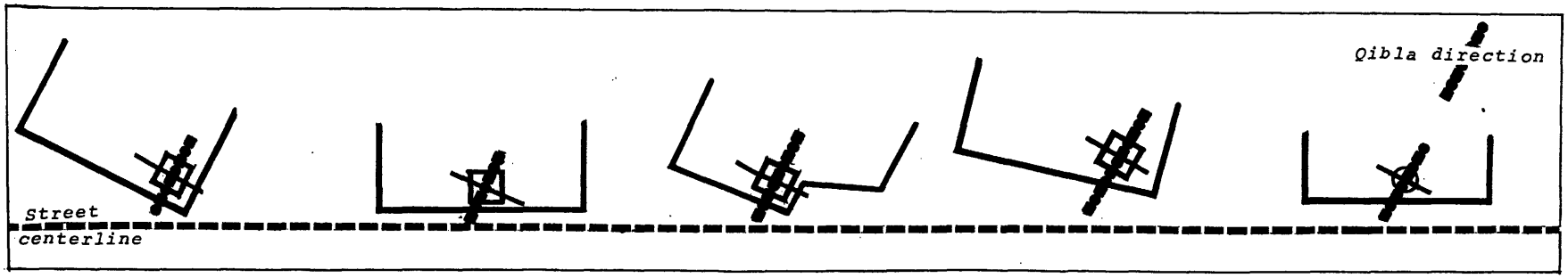


Fig. 34 Minaret Orientation and Relation to Exterior Facade

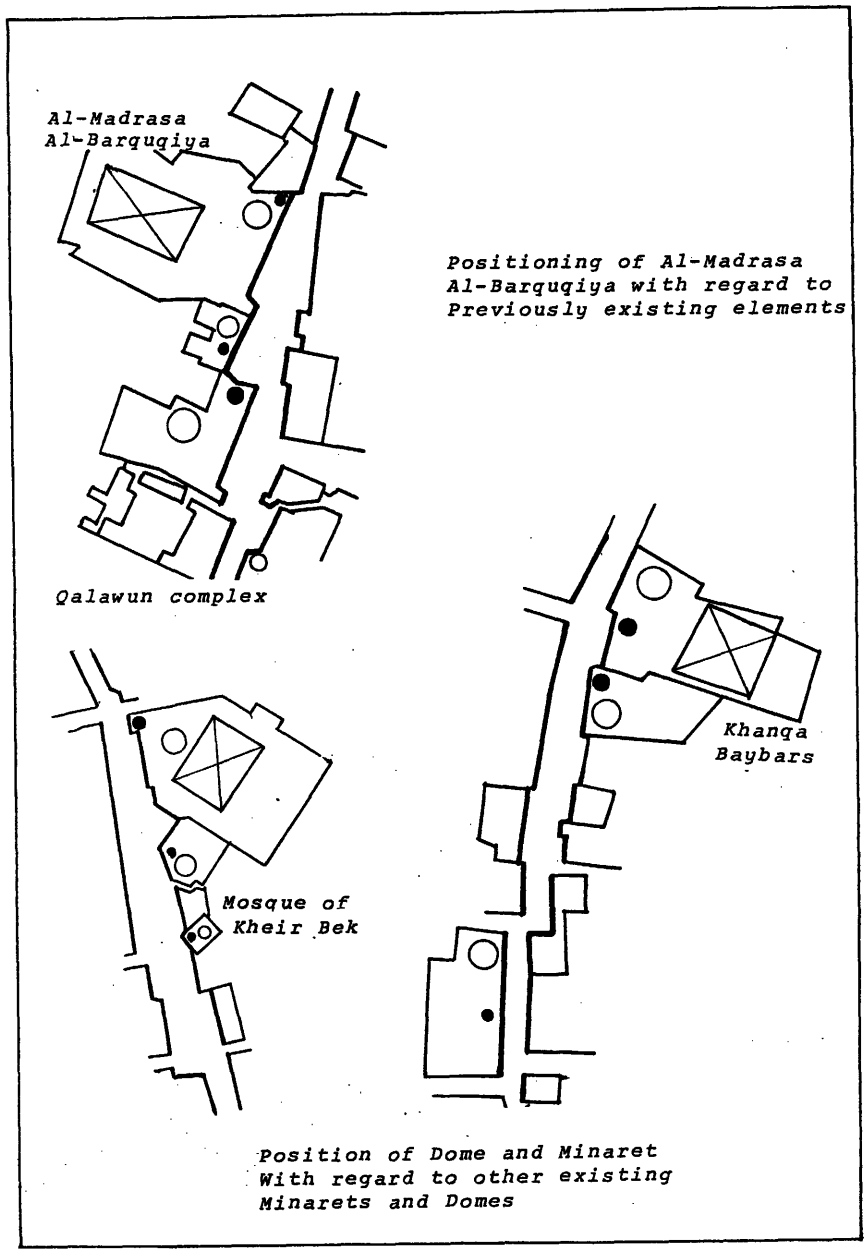


Fig. 35 Relation of Elements to Previous Elements

already had a great number of irregular sides and any other irregularity would have disturbed the overall composition.)

The idea of breaking certain conventions for the sake of balancing the overall architectural composition was often practiced. Examples of that may be observed in the complexes along Al-Darb Al-Ahmar and Al-Jamaliya Streets *(fig. 35)*.

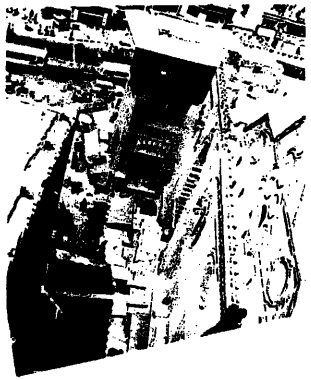
4.3 Visual Similarities

A considerable number of visual similarities occured along the streets. Of course, it is to be expected that very similar elements belonging to the same time period will be found. (A good example is the numberous Burji Mamluk sabils and kuttabs. *Fig.36* indicates the similarity in form, shape, size and proportion of the Sabil of Khusraw Pasha and the Sabil of Al-Ghuri.) But these were not the only similarities, for similarities between elements belonging to different periods of Islamic rule in Egypt existed too.
Two major illustrations of this are: (a) the great resemblence between the Fatimid minaret of Al-Hakim Mosque and the Ayyubid Minaret of Al-Madrasa Al-Salehiya; and (b) the similarity between the Turkish minaret of Sheikh Muttahar and the Fatimid minaret (renewed by the Ottomans) of Al-Fakahani. Here it should be mentioned too that the only two mosques (along Al-Mu'izz Street for example) that had two minarets instead of one were the Mosque of Al-Hakim and the Mosque of Al-Muaiyed, located one at each end of the street.

These similar elements were usually positioned in similar locations with regard to each other and to other pre-existing elements. Although such similarities might not have been purposefully intended, their sensitive positioning indicated that they were the result of conscious awareness of building within the built environment as a whole. The constant use of similar

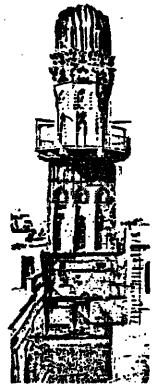
elements several times in different locations constituted a visual characteristic style of Islamic Cairene streets.

Sabil of Khusraw Pasha



Sabil of Al-Ghuri

Al-Hakim



Al-Madrasa Al-Salehiya

Al-Fakahani

Sheikh Muttahar

Fig. 36 Visual Similarities

8. CONCLUSIONS

The Islamic Cairene Street

The study presented an attempt to analyze the streets of Islamic Cairo and their development for the purpose of providing a better understanding of the history of the built environment and of the factors that shaped its urban form. The analysis of the streets at the end of each ruling dynasty clarified the common characteristics as the environment was changing and designated the constant themes that developed over time to constitute the pattern of Islamic Cairene streets.

The detailed findings of the themes that structured the Islamic Cairene streetscape, image and open/built composition and the physical factors that influence the location and positioning of elements and their exterior shaping and treatment were discussed in the summary. Before describing the general outlook of Islamic Cairene streets one has to stop for a glance to review the method used in the analysis. The study developed a methodology by which one can look at the history of a built environment and extract from that history a set of rules that could assist urban designers in formulating their design criteria. The formulation of the methodology was not an intended result of the study but was one of its outcome. Accordingly, the methodology had its strengths and limitations.

The strength of the methodology lies in its careful analysis of some specific themes and patterns and its accurate examination of the factors that governed the development of these themes and patterns over time. The method was also strong in identifying those patterns that were not intentionally designed but were implicitly and unconsciously used, and that became a component in the streets' characteristic structure. The major limits of the method is that it looks at the environment from one specific point of view. Because it relied to a great extent on the description of the environment provided by other people with different perceptions at different periods of time, it's accuracy is not guaranteed. Another weakness was that the method had to concentrate on the monumental buildings that had been thoroughly documented, as an element of analysis. It is believed that these monuments were not the only elements that constituted the physical pattern. The analysis of indigenous buildings and informal activities could have strengthened the method, but unavailability of information on them did not permit their integration into the study.

THE ISLAMIC CAIRENE STREET

The pattern of narrow labyrinthine street arrangements might be considered cumbersome and confusing to the modern mind seeking to move objects readily through all parts of the city, because the streets of Islamic Cairo were not designed to ease mobility and exchange, but rather to control and compartmentalize it. The narrow streets were accordingly a sort of built-in system of traffic control which consequently created an effective zoning plan.

This pattern arrangement dictated the creation of a street where the intensity of interaction was maximized; a street within which the individual would be moved along by the overwhelming feeling of belonging to the whole; a street within which the individual was the focal point and not an incidental, casual participant.

The Islamic Cairene street possessed a number of specific characteristics. Among these were its sequential structure which followed a hierarchical series where the path segments were arranged in a sort of melodic sequence similar to that of the movements in a piece of music. The reversability of that sequence gave the pedestrian a balanced set of observations in both directions

of movement. The structure had a number of major, minor and internal transition points along the path. The elements constituting the transition points were sometimes landmarks, spaces, changes in activity or alteration of architectural treatment. This variety eliminated any boredom.

The general space/building structure of Islamic Cairene streets appears as a number of scattered spaces following an apparent hierarchy on the street level with a major space (not necessarily the largest) in the middle, with the major buildings nearby. Although the scale of most of the major buildings was monumental, the overall proportions of most spaces gave them a human s cale, and this generated the intimate relationship between the pedestrians and the street. Sites of buildings and their exterior shaping along the streets were not chosen haphazardly. The analysis of the positioning of buildings with regard to their urban setting indicates that the urban surroundings were as important a factor in the design of these buildings as its architectural composition.

The overall visual image presented the viewer with a rich, coherent and satisfying experience, thus clairfying and strengthening his grasp of the environment.

The progression of visual events (introduction, development, climax and conclusion) and the appropriateness of sensations created along each segment of the street strengthened the identity and expression of each district. Most districts were quite homogenous internally and were differentiated by well-structured nodes and landmarks externally. The climax of nodes and landmarks were parallel and not congruent and this added to the richness of the image. The architecture of the landmarks and its positioning emphasized different concepts of design; their major characteristics were good exposure, historic significance and clarity of form.

The considerable number of visual similarities(between elements belonging to different periods of Islamic rule in Egypt, and between elements belonging to the same period) that occured along the streets, and the sensitive positioning of such similar elements and their relationship to pre-existing ones suggest that they were a result of conscious positioning of the buildings.

Finally, one can conclude that streets of Islamic Cairo had a certain physical pattern that was generated by a number of principles that seem to follow a very consistent logic. That logic had developed along with the society, and has changed with changes in power. Although it was difficult to prove that that physical pattern was a result of intended design, it seems obvious from the great number of constant themes shown in this study that that pattern was a result of subconscious accumulation of buildings and that that pattern, intended or unintended,has been excellently respected and has developed over time to constitute the characteristic structure of Islamic Cairene streets.

NEW DIRECTIONS

Several lessons could be learnt from studying the pattern and the development of streets in Islamic Cairo. Without studying the social, economic and ecological factors involved, it is not possible to generate from such a study alone principles for contemporary urban design. This study has provided only a framework for guiding thoughts and ideas to assist urban designers in the creation of new environments.

Whether to call the new patterns constructed upon these thoughts and ideas Islamic or not is a difficult question. But, one can say at least that these patterns have been constructed upon physical criteria

extracted from the history of a certain Muslim-built environment and accordingly could be considered as the closest configuration of the notion of an Islamic pattern.

The themes and patterns presented here generated the set of criteria mentioned in the Conclusion. These criteria provide some measurements by which one can identify, approximately, the extent of traditionality in a given project; accordingly these criteria could be used for examining the traditional roots in the process of judging projects. They could also provide urban designers with some insights to assist them in formulating their design criteria.

Finally, it is suggested that similar studies can ultimately generate similar criteria for other Muslim environments. The constant careful monitoring of such criteria and the examination of their feasibility within the socio-economic structure of a society at a given time is very important.

It is the only guarantee that such principles will be able to assist architects to understand and create forms and spaces which are at once new and familiar, which convey a sense of specific identity and which are non-alienating, and accordingly assist in the creation of a physical environment readily identifiable by a society as its own.

APPENDIX

GLOSSARY

Al-Qahira: the Arabic name of Cairo meaning 'the victorious'

Al-Qahira proper: the portion of Cairo contained within the original walls

Amir: the title given to great military commanders

Arif: leader of guild and assistant to the Muhtasib

Bab: gate

Beit: dwelling

Chaliph: the supreme head of the Muslim community

Darb: path, way

Hammam : bath

Hara: street network inside a residential quarter

Khan: caravanserai

Khanqa: monastery

Khatt: thoroughfare

Khutba: the major Friday sermon

Khuttab: elementary Qaranic school

Madrasa: College for the teaching of Islamic law

Maiydan: open space or square

Mamluk: slave

Maristan/Bimaristan: hospital, infirmary

Misr: initially applied to the City of Fustat, later to both Al-Qahira and Fustat when they were joined; now applied to Egypt

Muhtasib: administrative official with several duties including inspection of markets and policing

Qadi: judge

Qaiysariya: specialized market

Qasaba: main spine

Qasr: castle

Qibla: the direction of prayer, i.e., towards Mecca

Quba: dome

Rahbat: space in front of major buildings

Sabil: public street fountain

Sultan: king, ruler

Suq: marketplace

Tekeya: small Turkish monastery

Ulama: religious scholars

Waqf: religious endowment

Wekala: inn, enclosure for commercial purposes

Zahir Al-Qahira: the unfortified portion of Cairo outside the walled city

Zawya: small Mosque

LIST OF RULERS OF EGYPT (969 - 1517)

Fatimids	
Al-Mu'izz	969
Al-Aziz	975
Al-Hazim	996
Al-Zahir	1021
Al-Mustanser	1036
Al-Musta'Li	1094
Al-Amer	1101
Al-Hafez	1131
Al-Zafir	1149
Al-Fa'izz	1154
Al-A'ded	116Q
Ayyubids	
Salah al-Din	1169
Al-Aziz II	1193
Al-Munsur	1198
Al-Adel	1200
Al-Kamel	1218
Al-Adel II	1238
Al-Saleh	1240
Al-Mu'azam	1249
Bahri Mamluks	
Aybak/Shagarat Al-Dur	1250
Al-Munsour Aybak	1257
Saife Quttez	1259
Al-Zahir Baybars	1260
Barka Ibn Baybars	1277
Al-Munsour Qalawun	1279
Khalil Ibn Qalawun	1290
Al-Nasir Muhammed	1293
Zein Katbugha	1294
Al Munsour Lajeen	1296
Al Nasir Muhammed (2nd reign)	1298
Aladin/Abu Bakr Ibn Al-Nasir	1341
Shihab/Ismail Ibn Al-Nasir	1342
Sha'aban Ibn Al-Nasir	1345
Haji Ibn Al-Nasir	1346
Saleh Ibn Al-Nasir	1347
Hassan Ibn Al-Nasir	1354
Muhammed Ibn Haji	1361
Sha'ban Ibn Hussiyn	1363
Ali Ibn Sha'ban	1376
Haji Ibn Sha'ban	1381
Burji Mamluks	
Saife Burquq	1382
Al-Munsour Haji	1390
Farag Ibn Barquq	1399
Al Muaiyed Sheikh	1412
Saife al-Din Tattar	1421
Al-Ashraf Barsbay	1422
Saife Quqmaq	1438
Saife Ienal	1453
Khoush Qadm	1461
Taiymour Bagha	1467
Saife al-Din Qaytbay	1468
Muhammed Ibn Gaytbay	1496
Al-Zahir Qunsua	1498
Al-Ashraf Junbulatt	1500
Touman Baiy	1501
Qunsua Al-Ghuri	1501
Al-Ashraf Touman Baiy	1516

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