GENESIS AND LEGACY :

A study of traditional, contemporary and proposed systems of control
over residential developments in Cairo, Egypt.
by

Mohamed A. El-Husseiny

B.Sc. in Architecture
Cairo University, Egypt,1976

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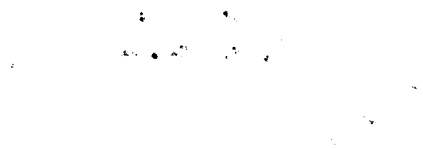
Mohamed A. El-Husseiny
Department of Architecture
May 6, 1987

Certified by

Ronald B. Lewcock
Aga Khan Professor of Architecture
and Design for Islamic Societies
Thesis Supervisor

Accepted by

Julian Beinart
Chairman
Department Committee for Graduate Students

Rotch

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ABSTRACT

This thesis deals with contemporary residential developments presently being carried out by the formal private sector in Cairo. These developments are typical of many other cities in Egypt, and indeed throughout the Middle-East and other Arab and Muslim countries.

The thesis stems from my dissatisfaction with the present morphology generated by the use of certain physical models, as well as the limitations imposed on architectural and urban designs by building laws and regulations that I believe to be inadequate in many ways.

In searching for solutions, guidelines, and appropriate concepts, I shall refer to traditional Arab-Islamic environments, which I feel offer a number of interesting principles and concepts from which we may benefit.

The study will be carried out based on the premise that"Tradition per se should have no authority, but it does have value" (Al-Hathloul, 1981, p.11). Therefore I shall also attempt to clarify the reasons and circumstances that have led to - or influenced - the development of traditional built form., as well as determining how valid and applicable the traditional concepts remain under contemporary conditions. The study will not be limited to historical precedent alone since many of the present conditions of modern life do not have any precedent in traditional environments. Therefore the search will go beyond the boundaries of regional heritage to include other valid references without geographical or historical limitations.

The object is to reach a set of guidelines offering an alternative approach to the issues of forming and controlling residential developments in this part of the world. It is hoped that such an approach will prove to be more responsive to local physical conditions, as well as to the socio-cultural values of the communities, and that the proposals therein may contribute to the development of a built environment that is physically and spiritually more fullfilling.

ACKNOWLEDGEMENTS

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* OVERVIEW:

The First Chapter is an introduction to existing conditions, giving background information on Egypt in both national and urban contexts, and referring to urbanization policies and the "Greater Cairo" expansion plans for satellite cities and new towns. This will be followed by a brief classification of the major forms of ongoing residential development and their organizational structures. A specific area of study will then be defined within the formal private sector, and the reasons for this choice given. An existing site of new development will also be selected as a representative sample, and will be analyzed to question the validity of the design criteria and building regulations used.

The conclusions derived from the analysis will generate a search for a new and more appropriate approach to the issues of shaping and controlling the environments of new residential developments in Egypt.

The Second Chapter consists of historical analysis explaining how the present system of control came into being, tracing its origins back to 19th century Europe. However, the main emphasis will be given to the study and analysis of the principles and concepts of the traditional Islamic system of control, its implementation strategies and the resulting effects on the built environment. The study will also clarify the reasons that led to, and the general conditions that accompanied, the transition from one system to another. The material thus presented will be used to evaluate the validity, or otherwise, of the different components and principles used in the traditional system, relative to present conditions, and in comparison to the system currently in use.

The Third Chapter deals with the issues of implementing the traditional concepts that have been deemed valid and applicable to contemporary, local conditions, and touches upon some of the problems that may be encountered in doing so. The study will be concluded by proposing guidelines that may be helpfull in generating better environments, controlled by a flexible and responsive system that is conducive to continuous innovation and improvement.

CHAPTER ONE

1.1.Egypt :National and urban contexts.

1.2.Residential developments.

1.3.Site selection and analysis.

1.4.Conclusions.

1.1 EGYPT : NATIONAL AND URBAN CONTEXTS

1.1.1 Geography and climate:

Egypt occupies approximately one million square kilometres in the north-east corner of Africa, in addition to the Sinai peninsula in Asia.

The river Nile, flowing from the south to the north, divides the country into three major areas:

- The Western desert, a broad plain punctuated by a chain of oases and connected to the great Sahara desert of North Africa. It forms about two thirds of the total land area.
- The Eastern desert, rising from the Nile and forming a sandy plateau and then a chain of rocky hills and rugged mountains along the coast of the Red Sea.
- The valley of the Nile, a narrow strip of extremely fertile land along the banks of the river in the south and the Delta in the north.

The flood plain bordering the river averages about 18 kilometers in width in upper Egypt, then widens and

(1) Map of Egypt.

15

WIND

NORTH

TEMPERATURE

CELSIUS	SUMMER	WINTER
45		
37		
21		
0		

HUMIDITY

PERCENT		
100		
75		
50		
25		
0		

RAIN

MILLIMETERS		
400		
300		
200		
100		
0		

SUN

SUMMER FALL-SPRING WINTER

NORTH SUMMER FALL-SPRING WINTER

(2) Climatic data.
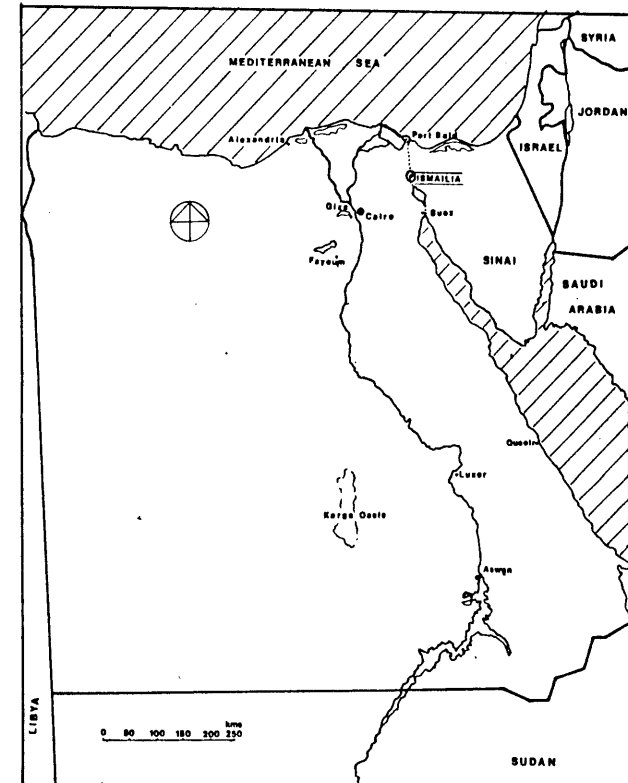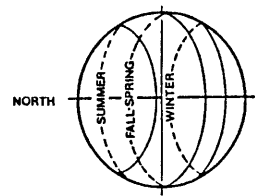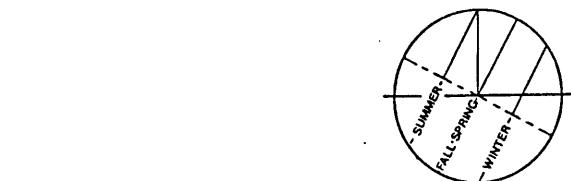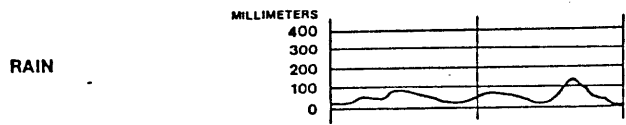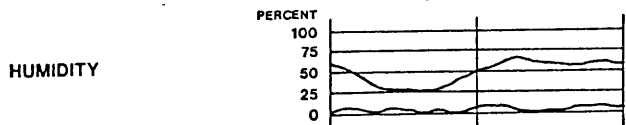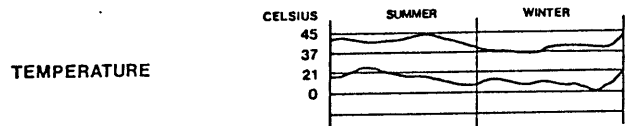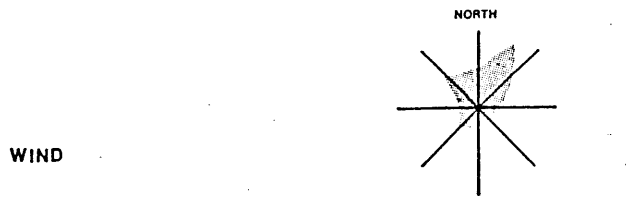
spreads into the Delta, a triangular fertile area of about 250 km along the Mediteranean coast, and extending 160 kms inland. Egypt is said to be " the gift of the Nile". The valley of the Nile and its delta constitute less than 4% of Egypt's land; yet this small area supports more than 90% of the population.

The climate is mainly hot and dry. The coastal regions are the coolest , with mean annual minimum and maximum temperatures of 14°C and 30°C respectively. Inland and desert areas are subject to wide diurnal and seasonal temperature variations, ranging from highs of 45°C during the summer, to lows below freezing during the early morning hours in mid winter.

Rainfall is highest along the coast, with an average annual precipitation of 20 cms, decreasing sharply as we move inland and reaching just over 1 to 2 cms in Cairo and even less further south and west. In the late spring, during the months of March and April, "Khamsin" winds blow intermittently from the southwest across the Sahara desert and over the Nile valley and delta. These hot, sand laden winds raise the temperature, reduce visibility, and cause air pollution.

1.1.2 Demography:

The most recent official census (1976) estimated Egypt's population at 38.2 million .

The United Nations estimates for 1982 set the total population at 44.6 million, with a growth rate of about 2.9 % per year.(Aga Khan Program Team, 1984) Other estimates put the figure at 43 million with a 2.3 % growth rate per year (Vigier / Serageldin, 1986), and the present unofficial figure (1987) stands at 50 million. The total population is expected to reach 60 million by the year 2000; it is also estimated that 43% of the population is presently below the age of 15.

1.1.3 Urbanization:

The population in the urban areas is growing more rapidly than in the country as a whole. In 1978, the urban population growth rate stood at 3.7% (Vigier / Serageldin, 1986). In 1907 the urban population represented 19% of the total population, in 1947 it became 33%, and reached 44% in 1976. The projection for the year 2000 is 55% of the total population. The two factors accounting for this growth are:

– Natural increase, responsible for two thirds of the

Population by Age and Sex, 1976)

| Male | Total 18,647,388 | | Age Group | | Female | Total 17,978,915 |
| Not Stated 2,578 | | | | | | Not Stated 3,176 |

Male (thousands)	Age Group	Female (thousands)
167,962	75 and over	194,769
202,422	70-74	234,906
268,777	65-69	242,404
479,943	60-64	490,379
481,997	55-59	412,093
719,185	50-54	412,379
935,787	40-44	946,904
1,0254,782	35-39	1,030,090
1,036,480	30-34	1,092,173
1,321,665	25-29	1,362,916
1,522,279	20-24	1,561,698
2,141,854	15-19	1,349,962
2,581,979	10-14	2,333,544
2,421,813	5-9	2,258,889
2,196,436	1-4	2,147,790
351,829	under	346,109

2,500 2,000 1,500 1,000 500 0   0 500 1,000 1,500 2,000 1,500
(In thousands)   (In thousands)

(3)   Demographic data.

17

1945 1968

1977 1980

(4) *The urban expansion of Cairo.*

growth, and

- Rural to urban migration, accounting for the remaining third of urban growth.

The spread of cities is estimated to be consuming fertile land at a rate of 1000 to 1200 hectares per year. This rapid growth of urban areas has also created housing problems on all levels, as well as placing great pressure on associated infrastructure and services. The 1979 National housing plan reported the need for 3.6 million urban dwelling units to be built over the next 20 years. The plan also estimated a 1976-79 backlog of 550 000 units, and a replacement demand of about 83,100 units in deteriorated buildings (Vigier / Serageldin, 1986).

Urbanization in Egypt is dominated by the growth of Cairo, which as the capital city, is seen to be rich in ameneties and job opportunities. Greater Cairo is also the prime industrial area, as well as the seat of the central government. The Greater Cairo Urban Region is estimated to account for 22% of Egypt's total population.

Urban population densities are also increasing dramatically. In 1927 the Cairo Governorate had an average density of 7000 pers/Km^2. In 1980, the average density had increased to 26,000 pers/Km^2. During the 1966-1976 period the increase was estimated at over 400 pers/Km^2 / year.

1.1.4 Administration:

For planning and administrative purposes, Egypt is divided into 26 governorates, each headed by a governor appointed by the president. The central Ministry of Local Government (MLG) sets general policies and guidelines consistent with the national development plans, and coordinates the actions of local government units with the central ministries.

Cairo is an urban governorate consisting entirely of the capital city. It's 26 *Kisms* (i.e.districts corresponding to police precincts) each have a population ranging between 100 to 600 thousand persons, and are grouped into seven major districts: Central, North, South, East, West, Heleopolis, and Helwan.

1.1.5 Greater Cairo and the New Towns :

The Greater Cairo Urban Region consists of the Cairo Governorate proper, in addition to parts of two other adjoining governorates, Guiza to the south, and Kalyubeya

(5) New developments around Greater Cairo.

- ➤ Development corridor
- ■ New towns
- ○ Satellite cities
- • New settlements
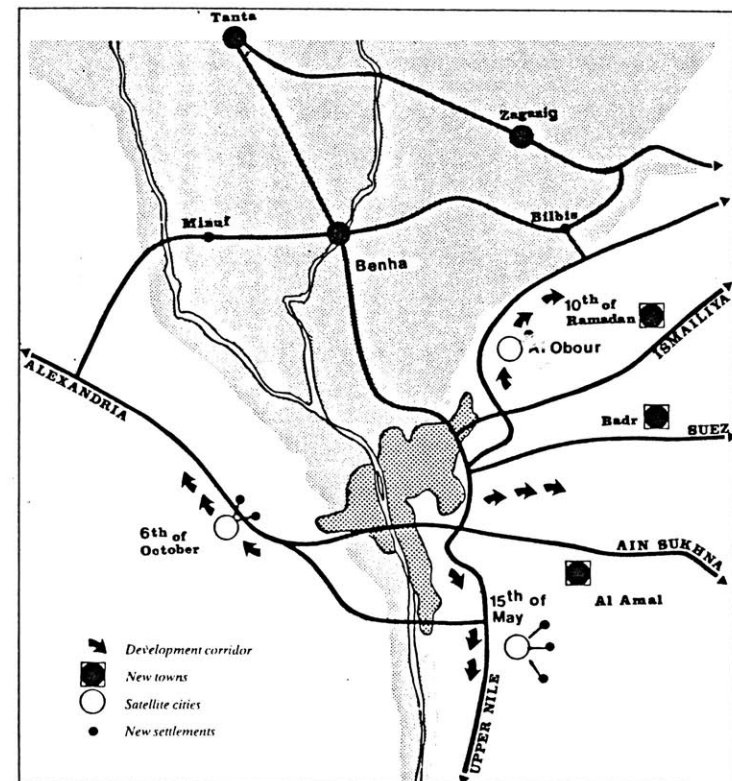
to the north. This urban region is currently estimated to have a population of 10 million, with a projected population of 16 to 18 million by the year 2000.

The urban expansion is occurring mainly in the Guiza and Kalyubeya governorates, rather than Cairo proper, and mostly in the form of what has come to be termed " Informal Settlements " (i.e building without official land registration or city permit procedures.) . This expansion is occuring on prime agricultural land, causing an annual loss of approximately 600 hectares of valuable farm land.

In trying to redirect further urbanization away from both existing urban areas, and agricultural land, the main objective of the 1982 Greater Cairo plan was to divert the migratory flows, and relocate some of the present population in new settlements to be built in the desert, some distance away from the city. This same principle was first called for under a 1968 regional plan.

New communities, or satellite cities, in the desert near Cairo had actually been started round the beginning of the century by the Belgian transportation magnate, Baron Edouard Empain, who founded " Heleopolis " in 1908. This formerly detached suburb has now become absorbed into the ever expanding fabric of the city. (AKP team, 1984) .

A more recent example is Nasr City , started in the early 60's and based on the recommendations of the 1956 Master Plan for Cairo, which proposed to shift the government offices away from the central business district in an effort to solve the problem of Cairo's growing congestion.

Under the 1968 Regional Plan, the Greater Cairo Commission called for the establishment of four new satellite towns, accommodating 250,000 people each, by the year 2000. These towns are 15th of May, Al-Obour, El-Amal, and the 6th of October, located at distances of 25 to 35 kms from Cairo.

After the 1973 war, the government renewed its interest in developing and expanding thé capacities of not only the satellite cities,but also an additional set of new free-standing towns further away from Cairo: Sadat City on the Cairo-Alexandria desert road, 10th of Ramadan on the Cairo- Ismaileya desert road, and New Amreya to the west of Alexandria. The first two are 95 and 45 kms away from Cairo respectively, the third at 40 kms south-west of Alexandria.

The new free standing towns are designed to be independent cities, at a sufficient distance from Cairo such that their residents will not commute to work. These new towns will require a strong employment base and necessary support services. On the other hand, the satellite cities, by virtue of their proximity to Cairo (25-30 Kms), are

designed to be areas of predominantly residential development which take advantage of existing employment bases . In the long run, they are expected to develop autonomy in employment and services and become nuclei, generating their own momentum around which other settlements will cluster.

1.2. RESIDENTIAL DEVELOPMENTS

Cairo provides a vast array of residential building types, from traditional courtyard houses to modern international style villas,and from humble mud brick dwellings to high rise concrete towers.

Building types do not always correspond to a given social class or income level, and residential development may be undertaken by a number of different organizations. I shall therefore categorise only the major types of residential development and organizational frameworks.

Residential developments are either "formal", i.e recognized by the relevant authorities to have proper legal status, or "informal" (also refered to as "spontaneous" or "illegal").

1.2.1. Informal settlements are built on land that was not originally designated by the planning authorities for building purposes, and/or without legal land registration. It follows that these buildings are erected without city permits, and do not adhere to building codes or zoning regulations.

Informal settlements are now estimated to constitute between 60 and 80 % of all new residential development in the Greater Cairo Region.They are inhabited mainly by three types of social classes:

- Urban families from the congested central neighborhoods, usually middle-income blue-collar workers, many of whom have returned from oil-rich countries with enough savings to buy a small plot of land and start building a home.
- Young urban couples or small families of public or private sector mid-level employees, or skilled workers and craftsmen. They rent the apartments let out by the first group (the proceeds of which go into the further expansion of the apartment building.)
- Rural migrants who settle either in small rooms on the rooftops of unfinished buildings or in temporary small shacks or mudbrick houses.

Informal settlements therefore house both low - and middle - income groups,from backgrounds ranging from rural, to urban blue - and white - collar workers.

(6)   Street in informal settlement.

Formal residential development may be divided into the three following categories:

1.2.2. The public sector was concerned mainly with low income housing during the 1950's and 60's, and public housing projects for the workers and employees of major industrial plants and complexes such as those in Helwan and Shubra El-Kheima. Two main models have been used:

- The international style, 4-5 storey walk-up blocks, housing workers and lower echelon employees.

- Two-storey detached, or semi-detached " Villas " housing upper echelon employees .

1.2.3. Cooperative Societies may be considered as semi-private or semi-public in that they are basically formed by private individuals, but in order to enjoy certain privileges and subsidies, they must conform to inspection and regulation by public authorities. These organizations are usually formed by members of a certain community of shared interest or background (e.g. the employees of the Ministry of Agriculture in Cairo). These developments usually tend to be in the form of individual medium - and high - rise buildings, each housing a fairly homogeneous group of residents. Cooperatives nay also have access to large plots of land which are then subdivided and sold to the members to be developed individually.

1.2.4. The Private Sector may in turn be subdivided

into two categories:

- Development companies catering to the higher income segments of the population. Buildings are usually in the form of condominiums ranging from 4-6 stories up to high rise apartment buildings ,or housing estates that resemble to a large degree the public housing estates; however, the private sector offers a higher standard of finishes, larger areas, and the provision of more services and facilities, in addition to a wider choice of apartment sizes and arrangements.

- The private individual, who, having bought a plot of land,proceeds to build a small apartment building of which he and his family will occupy a part, while renting or selling the remaining units. Such developments are usually in the form of four to five storey apartment buildings,which may be financed in much the same way as in the informal sector.
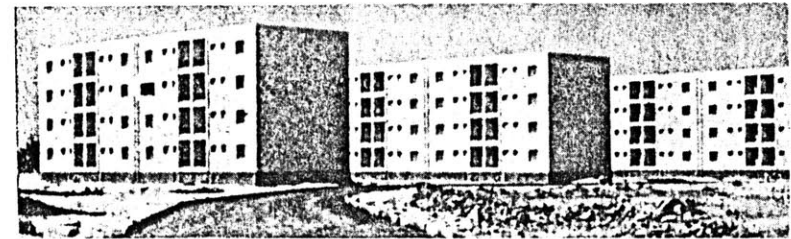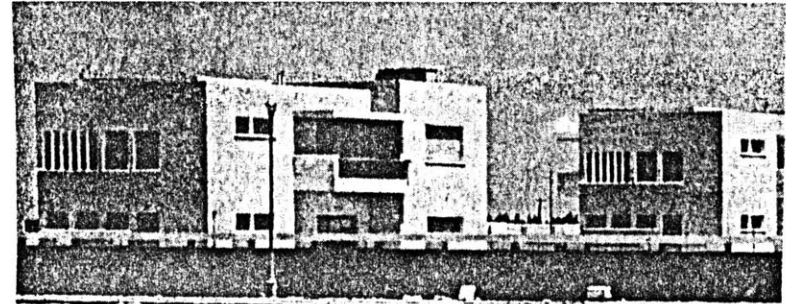
1.3. SITE SELECTION AND ANALYSIS : THE CASE OF NASR CITY

The thesis will focus mainly on middle-income residential development within the formal private sector and cooperative societies, since the latter seem to have a great

(7) *Public housing.*

Top, villas for upper echelon employees.

Above, apartment buildings for workers.

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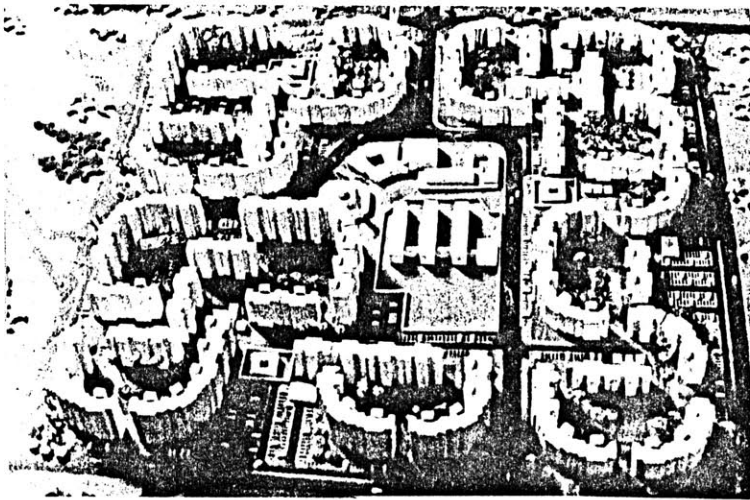
(8) Top, housing project by private sector developers.

Above, Typical private housing by individucls.

deal in common with the former insofar as the physical, social, and economic aspects and characteristics of their built environments and residents are concerned.

The reasons for choosing to intervene at this level in particular are as follows:

a. It is an attempt to look at the housing problem from a different point of view than that of low income housing about which many studies and proposals have already been made.

b. For the purpose of this exercise, the disassociation with the rigid restriction of "low-cost" seems beneficial in allowing a greater measure of freedom in design proposals. These concepts may later be applied after modification to lower budget projects; costs may eventually be reduced through the natural process of refinement and by increasing the efficiency of the initial proposals which prove to be valid and successful. It should also be noted that low budget housing has historically and generally referred to and imitated higher budget models.

c. I believe that an efficient private sector, acting as a client, will be more responsive to local conditions, and therefore be able to provide a better service to the public than either large-scale impersonal public

housing projects or uncontrolled spontaneous informal housing.

d. By approaching the " middle-income " market through the private sector, we come into more realistic contact with the needs, aspirations, and capabilities of the people for whom we are designing, because, in order to survive, the private sector must provide solutions that are both agreeable and affordable to the targeted groups.

e. Most residential development for new towns and satellite cities is effectively aimed toward the level of housing I am considering. The sheer scale of this type of development over the forthcoming years is bound to have a substantial impact on the architecture and character of the region as a whole. This also presents a great opportunity to formulate local solutions addressing specific local conditions, and to attempt to cultivate (or rejuvenate) a regional character that relates to the regional heritage as well as the public's aspirations to progress and modernity.

It should be noted at this point that, while focusing on what is referred to as "middle-income" housing, it is not my intention to restrict the scope of the thesis to a given level

LEGEND

Eastern
Western
Northern
New cities
(Planned)
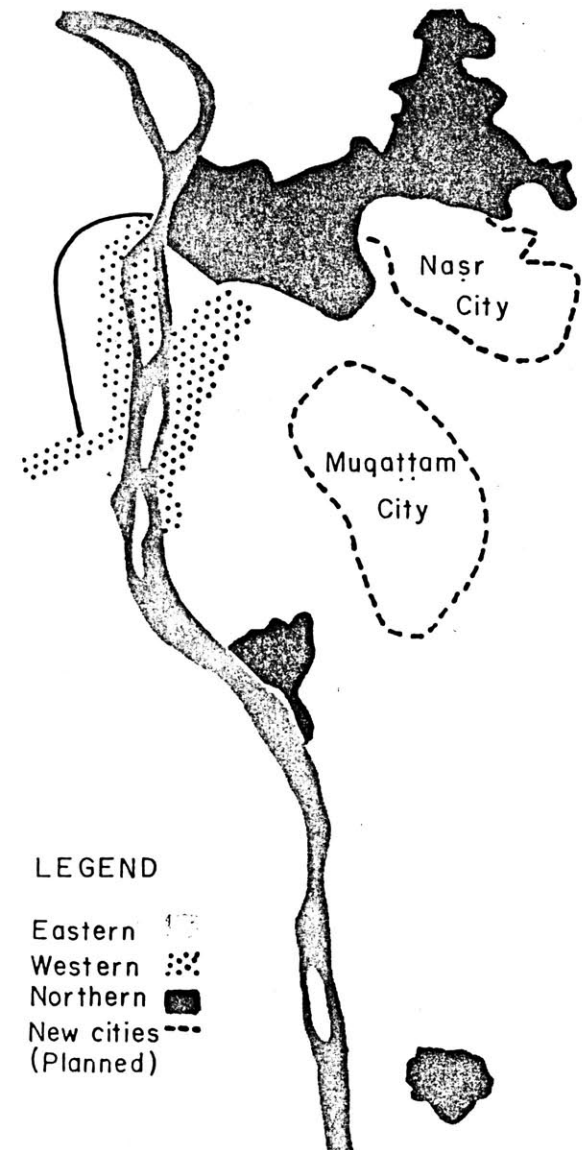
(9) *Nasr City, site location.*

of income. It was pointed out earlier that, in Egypt, building types do not always relate to specific social classes or income levels . In turn, income levels do not necessarily relate directly to any given social groups, and the validity of segregating the population by income levels is highly questionable.(The population structure of the neighborhoods will be discussed in forthcoming parts of the study.)

In analyzing the characteristics of current private sector developments in Egypt, I shall refer to Nasr City as a case in point for reasons of availability of material on this area, and because I believe that it is a typical example of most other new developments. Furthermore, Nasr City has the added advantage of providing an environment for analysis that is actually built and in use, and has already gone through a number of stages in the development process, as opposed to the few and very recent developments in the new towns and satellite cities.

Nasr City was conceived during the early sixties as a semi-independent sector within the urban agglomeration. The settlement was designed to cover 6,300 acres of vacant desert land along the airport road between Abbassiya and Heleopolis, with an extension of the *Metro* (Tramway) line to facilitate commuting to and from the central business district in downtown Cairo. New ministries and other government institutions were relocated in Nasr City along the main road, with easy accsess to the *Metro* line and other public transport facilities.

Nasr City was originally financed by government funds, in addition to loans and revenues from the sale of land for private development. The plots of land initially offered for sale at attractive prices were purchased very quickly, and in 1971 the boundary of the city was extended to the east, incorporating an additional 1,400 acres. Part of this land is still held by the government, pending the completion of new infrastructure projects.(Aga Khan Program team,1984)

The master plan divided the city into a number of zones to be constructed in phases. Every zone is divided into several neighborhoods, complete with basic services such as schools, markets, business centers, and public open spaces, making it a potentially ideal residential area especially for government and other service employees, in addition to a high proportion of white - and blue - collar workers.

Residential densities were designed to range from 175 to 500 persons/hectare, housed primarily in five to six storey walk-ups and ten to twelve storey elevator buildings. The initial housing was constructed by the public sector, leaving the remainder of the areas to be gradually developed by the private sector and cooperatives.

Water and sewer networks were originally designed to connect to the main Cairo system. Due to Cairo's

Future Commercial

Not Yet Cleared

Not Yet Cleared

Government
Offices

Government
Expansion

Offices

Housing
for Officials

Future Site of
'Ain Shams
University Extension

Stadium (New)

Open Space

Mental
Hospital
(Existing)

Future
International
Fair Grounds

Commerce

Community Area No. 2

Coop.
Apts.

Garden

To the Qayt Bay
Cemetery Zone

and Parade Grounds

Coop.
Apts.

Community

Community Area No. 2

Future
Olympics
City

Hilly Terrain
Slated for
Secluded
Villas

Open
Space

Commerce

Area No. 1

(gross density 100/acre;
750 acres, 75,000 pop.)

(gross density 100/acre;
400 acres, 40,000 pop.)

Future Branch
of Al-Azhar
University Campus

Industrial Zone

Community Area

Commerce

Jabal Aḥmar (The Red Mountain)

Coop
Workers
Housing

Public
Housing

Combined
Worker
and
White
Collar
Housing

No. 3

(gross density 100/acre; 400 acres, 40,000 pop.)

Begun Here

Commerce and Apts

Expansion
for
Future
Light
Industrial
Use

Recreation Area
Hilly Terrain

N

Low and
Middle Income
Housing

Public
Housing

(10)   Nasr City, site plan.

8th zone located further to the north-west (not shown here).

27
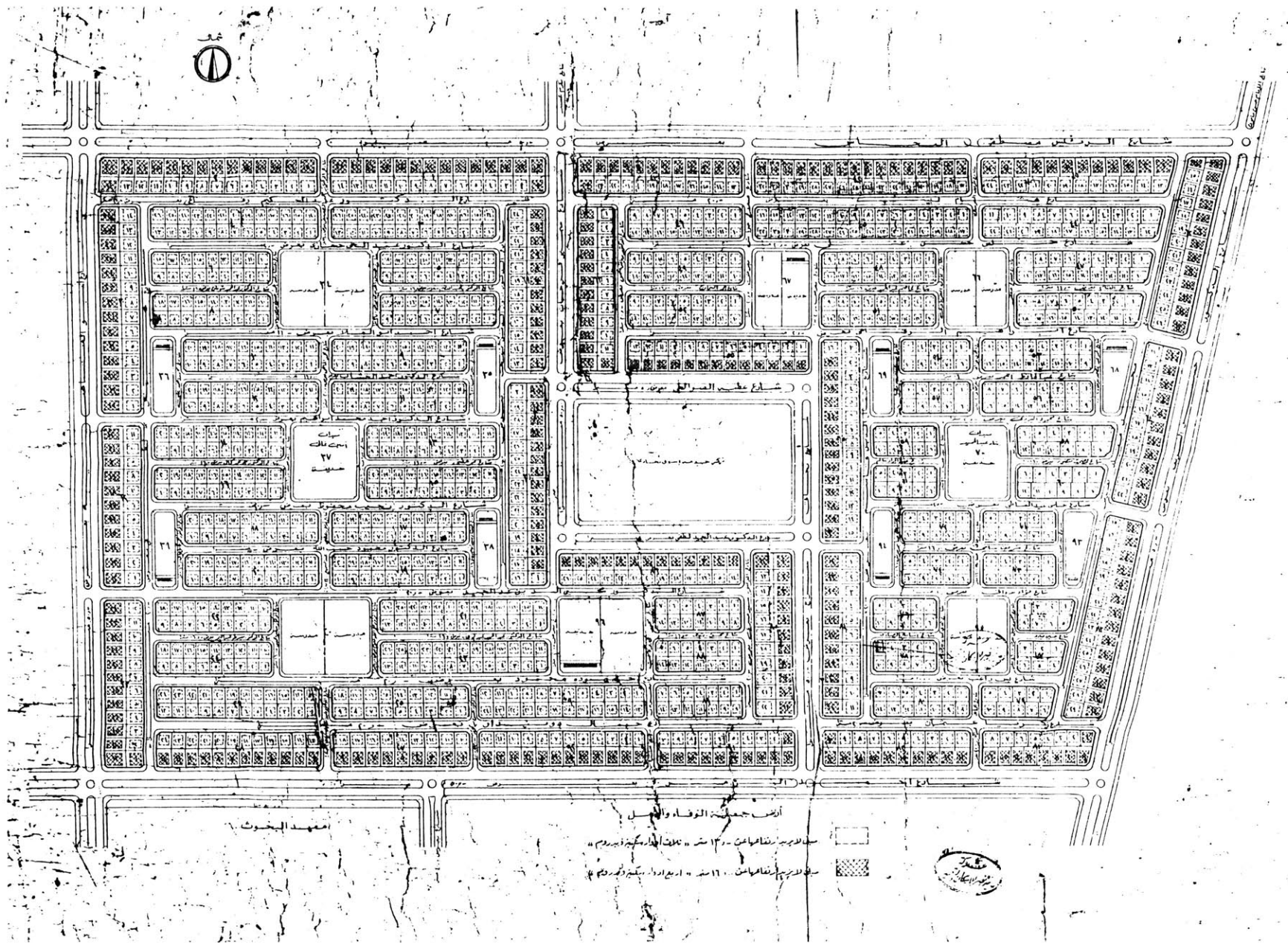
overloaded water and sewer system, Nasr City's development was slowed down during the 1970's, but is now expected to pick up again as service projects expand the capacity of these networks to cope adequately with the development.

The area under study is Nasr City's Eighth Zone (see figure). It is traversed by a network of straight and wide roads (16, 20, and 50 meters wide), dividing the area into a number of blocks designated for residential buildings, commercial centers, schools, and public open spaces. The residential blocks are in turn subdivided into regular plots - usually square shaped - of more or less equal size (approximatly 500 M.sq.).

The zone has been sold off in portions of several blocks each, purchased by cooperative societies, such as " The Ain Shams University Teaching Staff Club" , which in turn has sold individual plots to its members. Members may then choose to build their plots according to pre-designed models furnished by the cooperative, or opt for a custom design by an architect or builder of their choice. In both cases the results seem to be very similar due to the constraints of building regulations and Nasr City by-laws. In other areas, individual plots or whole blocks may be sold directly to the general public or development companies.
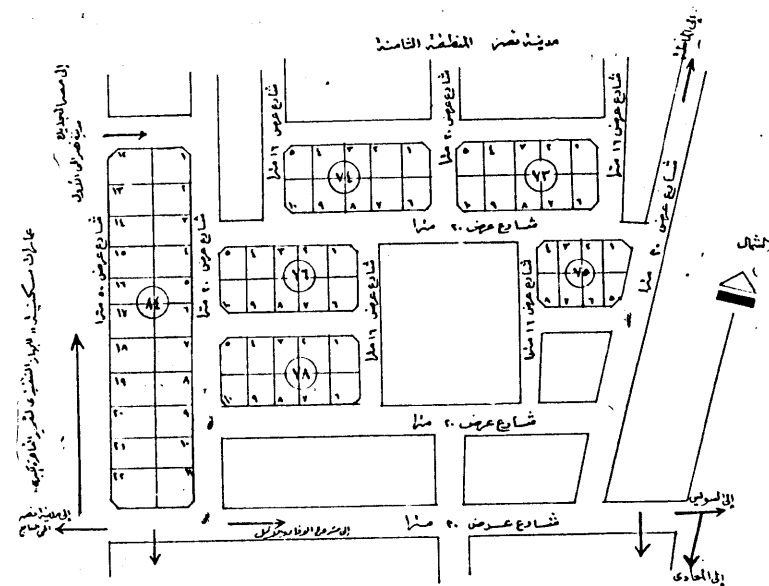
(11)   Nasr City, 8th zone.

Opposite, site plan.

Above, detail of south-east corner.

(12)   Nasr City, streetscape.

1.3.1. Street patterns and dimensions :

The street layout of geometrical patterns in plan - such as the *swastika* shaped area around the central commercial area - seems to be related to a subjective notion and the designer's wish to create a certain pattern "on paper", rather than from a clear functional reason relative to site conditions, climatic consideration, orientation, or traffic control, etc..

The main (and perhaps the only) objective of the designer seems to be the provision of easy access, with an anticipation of extremely large future increases in motorized traffic, manifested in the extremely wide streets (50 metres wide in a predominantly residential area!) ; in addition to being substantially more expensive to build, these streets are very difficult to shade. It follows that the stored and reflected heat will have considerable influence on the micro-climate, especially affecting the pedestrians in mid-summer days. Pedestrians are also denied the experience of walking along streets with shops that may offer stimulating and refreshing attractions along the way from one point to another in addition to their economic value in the development of the neighborhood.

The non-directional and undifferentiated roads deny pedestrians and motorists alike any sense of place or

direction, since they are devoid of any particular characteristic, landmark, or orientation. There also seems to be a contradiction between the designed population densities and the street widths. Assuming a population density of 500 persons/hectare, and assuming that one of every four residents operates a car, how wide should the roads then be in order to accomodate 125 cars per hectar in addition to public transportation and service vehicles ? According to the American Association of State Highway and Transportation Officials (AASHTO), 16 meter wide urban collector streets are considered to be quite adequate for American suburban residential communities, providing two moving traffic lanes plus additional widths for shoulders and parking.

In order to appreciate the magnitude of the scale involved, it may be indicative to point out that according to the same Association, the 50 meter wide streets of Nasr City would accommodate a twelve lane U.S Interstate Highway through the neighborhood! (AASHTO, 1984).

1.3.2. Land use allocation :

Rigid zoning breaks the continuity of the urban tissue. Locating all commercial activities in a central location leads to the segregation of land use facilities. The commercial center therefore loses its organic links with the

(13)   Top, "temporary" shacks selling bread and essential groceries, near housing estate with no shops. Above, shops incorporated in other, more recent project.

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(14)   Open space designated as "garden".

streets and the community in which it exists, and becomes a place to be visited only if there is a real need to do so; moreover, many of the activities inside the center are hidden from the passer-by. Judging by past experience, it seems inevitable that the long distances between homes and shops will lead to the unplanned development of commercial activities along residential streets. It seems therefore that the planners do not agree with the concept of mixing the neighborhood's " special functions " - i.e. schools, shops, services, etc..- with the " basic functions " - i.e. that of dwelling.- in order to give life to the neighborhood center.(Reijenga , 1984, p.12)

1.3.3. Public open space :

The allocation of a large central area of approximately 100 x120 meters, in a desert environment, labelled: "Garden", is clearly questionable. Planting and maintaining this area in anything near an acceptable condition would be prohibitively costly and unacceptable to the municipality or P.W.D, let alone the residents of the community who do not feel any sense of belonging or responsibility towards such an expanse of raw desert. It seems more likely that the area will inevitably be encroached upon and used for some other unplanned use, such as a

rubbish collection facility, or a building materials depot at best.

The present planning does not seem to encourage any realistic development of, or local interest in, planting and maintaining vegetation. Even the semi-private, set-back spaces between the buildings do not seem to be conducive to planting since they are seen more as leftover spaces than intentional green areas, in addition to unclear notions of responsibility regarding planting, use and maintenance.

1.3.4. Plot size and arrangement :

Two major characteristics mark the individual plots : they are mostly equal in size (approx. 500 M.sq.), and square in shape (the exceptions being the plots directly overlooking the widest streets, which are usually in the order of 30x32 meters.).
Standardizing plot sizes leads to the process of segregation by income (Habraken,1979, pp.23-29). This situation may not allow members of the same social background to enjoy the company of their peers because they cannot afford a plot of 500 M.sq., on the other hand, it may encourage "finding ways around" such "inconvenient" situations. It is therefore not uncommon to find two persons buying one plot, then dividing it between themselves. Such a procedure, although

(15)   Building on half the plot. The unfinished side elevation clearly indicates the intention to build up the remaining area. Note the total disregard of the required set-back at the right hand side of the building.

*(16)   Violating height restrictions. Note that the building is still
under construction. Exposed re-bars in top columns indicate the
intention to build even higher.*

considered "illegal", is not effectively stopped for fear of socio-political repercussions, as will be discussed later.

It is obvious that square plots, in comparison to narrow frontage rectangular plots, increase the lengths, and therefore the cost, of installing and maintaining all infrastructure services (roads, sewerage, water, electricity, and telephone lines). Finally, plots seem to be arranged repetitively, without any given orientation relative to climatic or other considerations.

1.3.5. Height and Set-Back Regulations :

- Buildings along the widest streets are not allowed to exceed a height ot 16 meters (five storeys including ground level). All other buildings are not allowed to exceed a height of 13 meters (four storeys including ground level).
- Each building is required to set-back 3.00 meters from each boundary on a neighbour's side, and 4.00 meters from the street side. In most cases buildings are allowed to occupy no more than 33 to 50 % of the total plot area.
- The preceding restrictions are the basis of the " special regulations " imposed by the Nasr City Authority, similar regulations are used throughout

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most other new developments. The regular building law however, states that a building's height should not exceed 1.5 times the width of the street it overlooks, which in our case would allow for buildings to rise up to 24, 30, and 75 meters in height. The disparities between the different building heights allowed, in addition to the differences in the " street width / building height " proportions, raise serious questions regarding the validity of at least one, if not both, of the sets of regulations.

- It is also questionable whether the mandatory set-backs,originally intended to provide ventilation and natural lighting (which can be achieved in a number of other ways as well), are justified in view of their disadvantages and the problems they tend to create. Set-backs have created non-descript passageways between houses, which have no defined land use. They are used as open-air car ports at best, or untidy, cluttered storage area at worst. They have also come to be recognized as a good places to build small shops or boutiques. These structures, in addition to being a nuissance to a number of residents, may also prove to be fire and safety hazards in many ways.

(17)   *Left-over space created by mandatory set-backs.*
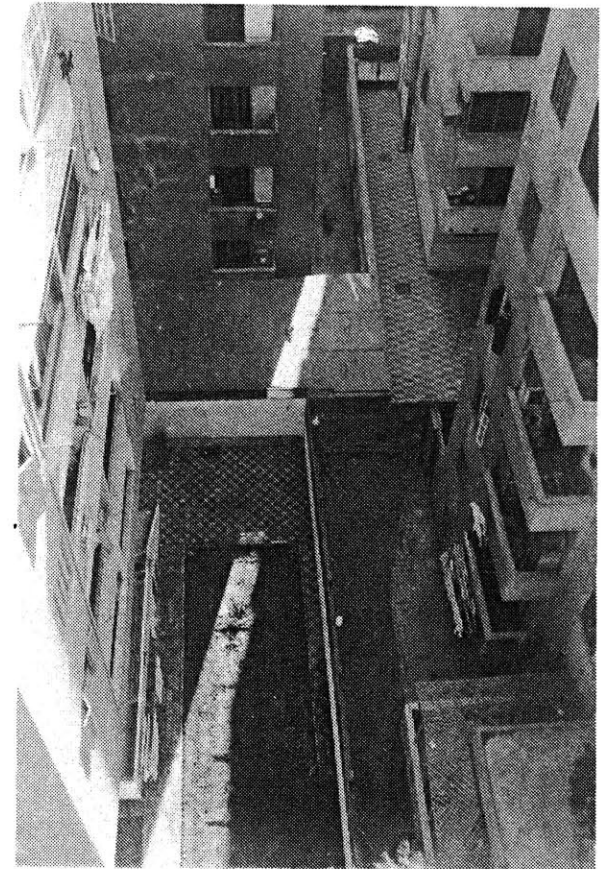
(18)   View into set-back area.

- The areas lost to the set-back zones become very difficult places to plant shade giving trees, since they do not provide a usable space for the residents ,such as a front or back yard, for example, and since there is not much pedestrian traffic occurring in these areas anyway.

- Setbacks also defy socio-cultural values of privacy by forcing neighbours to look directly into each other's homes through opposite windows separated by a mere 6 meters (3 meters set-back on each side). This situation in itself seems difficult to understand, especially when considering the excessive street widths called for in the plans. If set-backs between neighbours seem difficult to accept, street-front set-backs seem difficult to understand. Again considering the design densities, height restrictions, and already wide streets, it does not seem likely that the set-backs were called for to allow for future street widening .

- Finally, imposing set-back regulations implies that the building laws and regulations are based on the premise that buildings *must* be extrovert, and cannot, or should not, be inwardly orientated, thus ignoring established traditional, cultural, and climatic responses.

1.3.6. The Buildings :

In conforming with height restrictions, set-back regulations and the standard 500 M.sq. sites, buildings seem to be confined to a mold of near cube proportions, approximately 16x16x13 to 16 meters in width, depth, and height respectively.

Further regulations control the elements of the buildings themselves, such as open and closed projections, floor areas, window openings, etc. Thus they lead to a fairly uniform set of plans and sections, offering few variations and very little flexibility . On the other hand, the choice of finishing materials, colours and ornaments to the facades are left to the taste and discretion of individuals.

1.3.7. Character and Sense of Place :

The prevailing arrangement of rows of concrete cubes in a flat, arid landscape severely lacks any sense of place, character, or belonging, especially when the landscape itself does not offer any topographical variations or landmarks. The Eighth District therefore becomes no different from the Seventh, Ninth, or umpteenth, for that matter. The choice of arrangements, models, and limitations

(19)   Foreground, an attempt to establish individual character, or

pastiche ?

Background, another example of height violation.

(20)&(21) Height, set-back and land use violations.

imposed by the building regulations have led to the generation of structures that do not reflect any cultural identity or social character.

1.3.8. Building Code Violations :

An important and very significant phenomenon currently occurring in residential development throughout Egypt - and Nasr City is no exception - is the proliferation of building code violations. It has now become almost common-place in new residential buildings, to find various degrees of violations ranging from minor infringements to blatant disregard. The two most common violations are :

a- Exceeding the maximum permissible height restriction.

b- Reducing the minimum required set-back distance.

This phenomenon clearly indicates that there is something wrong, not only with the enforcement of the laws and regulations, but also with the laws and regulations themselves. It becomes apparent that these regulations, among other things, do not respond to the economic considerations and pressures of the high demand for housing.

In the case of Nasr City, by restricting buildings to only one half to one third of their plot area, the regulations

are in effect raising the price of the usable land by 100 to 200 %. Furthermore, the "Development Value " of the land is diminished by limiting heights to 13 and 16 meters, and not allowing commercial activity on the ground floor level street front. The developers therefore revert to some form of "un-authorized" structure to make their overall investment worthwhile.

The phenomenon of violating building regulations may be attributed to the fact that people will usually disregard regulations that appear to be too complicated, unfamiliar, difficult to comply with, or involving cunbersome procedures. Violations occur when these regulations are not perceived to be realistic or in the best interest of the individuals, as well as for the common good of the community as a whole.

Let us now review some examples of the regulations in question by referring to some articles of law # 106 of 1976 and its subsequent revisions in 1983.[1]

- **Article # 1** states : " Any new construction, modification or renovation exceeding 5000 Egyptian Pounds in cost, must acquire a building permit before undertaking the works".

Note that the fixed ammount of 5000 pounds chosen in 1976 (which itself may have been carried forward from earlier versions of the building laws) as an indication of a certain amount of work , no longer holds true for 1987, or other years, due to the continuous changes in costs caused by inflation and other market conditions. In fact, if we consider only the effect of inflation (which I will assume to be at 10% annually for the purpose of the exercise), it would be safe to say that, for the same 5,000 pounds specified in 1976, we can today build only 35% of the work that would have been possible eleven years earlier. Another interesting question concerns a person who builds a structure that costs less than the specified 5,000 pounds, yet, who by doing so would considerably affect his neighbours... Should he require any authorization ? It should also be noted that tworks undertaken are evaluated by the government authorities who rely on long obsolete costing tables that no longer reflect the true values of the works in question.

The above seems to be a clear example of a rigid regulation that does not relate to real life conditions. Although it may have originally been introduced to clarify and facilitate a certain procedure it has in effect become obsolete, and as such has opened the door to a variety of loopholes, naturally encouraging its disregard and violation. The following are two examples of unnecessary complexity in bureaucratic procedures :

- **Article # 4** states that " It is prohibited to construct, modify buildings, demolish buildings, or cover up facades with paint or by any other means, except after getting a permit from the administrative department of the organization in the local municipality after notifying it according to the regulations established under this law." Threfore according to the above, a person cannot repaint the facade of his house unless he goes through a lengthy and complicated procedure for obtaining permission to do so.

- **Article # 12** prohibits the execution or construction of any works exceeding 5000 pounds without entrusting those works to a certified architect or engineer. By the same calculation as explained in article #2 and in the light of present construction costs, this article may require a resident to commission an architect or engineer if he wanted to build a fence around his property !

- **Articles 16, 17, and 18** deal with the violations of regulations, stating that the administrative authorities " shall remove either partially or completely, buildings that were constructed without permits".

Obviously it becomes very difficult to enforce such a law on the residents of new and inner city developments when 60 to 80 % of all new housing construction in the Greater Cairo Region is, in fact, carried out with no permits. The administrative authorities are in charge of notifying violators of the works in violation that should be removed or modified. However, the same law provides in article 18, a convenient loophole for violators...It states : " Without infringing upon potential criminal punishement, it is permissible (for the committee) to allow some violations that do not affect public welfare, the security of the inhabitants, passers-by or neighbours (revised in 1983 to exclude violations of exceeding the maximum permissible height limits, and provision of car parking space). In such cases the committee shall decide the ammount of benefit received by the violator that he should pay to receive such permission". The issue therefore seems to become a question of how much to pay for certain violations! The legislature is thus creating regulations with ambiguous limits that are stretched

to various degrees of permissiveness, perhaps depending on economic and political considerations. It also seems questionable that the fines are paid to the local authorities but are not forwarded towards the compensation of the neighbours who may be affected by the issues in question. In fact these neighbours usually do not get a say in the matter since everything is decided by the building "committee" of the municipality. Also, since the works in question are deemed to have no negative effects on public welfare or the security of inhabitants etc. it would then seem logical to assume that they have a beneficial effect, or that at least their benefits outweigh their drawbacks, and as such, they should not be fined, but rather accepted and accommodated by the regulations. The monetary fine will only be passed on by the developer and finally borne by the users, thereby adding a further load to their already heavy burden of meeting the high costs of housing.

Regulations governing physical dimensions and proportions of living and service areas within the buildings have been set to ensure what are considered to be adequate sanitary conditions of ventilation, natural light, etc. which of course are very desirable conditions that should be maintained. However, the regulations do not allow for alternative methods of achieving the same standards of living. Authorities seem to be more interested in the regulations *per se* than the actual reason for which they were introduced, or otherwise maintain that theirs is the best and/or only way of achieving such conditions.

1.4. CONCLUSIONS

There is no doubt that the authorities, in formulating and implementing the current regulations, were honestly aiming to improve living standards offered in the new residential developments. Height restrictions were imposed to keep densities relatively low and avoid congestion, set-backs to ensure ample ventilation and extra wide streets to accommodate any unforseen (and uncalculated) increase in vehicular traffic. However it also seems that the planners of the 60's and early 70's might have been over-reacting to the conditions of congestion that existed in older neighborhoods and the city centers. By adopting very high and frequently unjustified standards based on western models, they seem to have determined the avoidance of any future conditions of

congestion as a major goal, and, in doing so, disregarded many of the qualities of the older neighborhoods. The preceding analysis has attempted to touch mainly upon the negative aspects of these new residential developments in order to highlight the areas requiring attention and review, and may be summarized in the following points :

- Lack of responsiveness to climatic conditions.
- Underestimating the importance of the pedestrian's experience , while giving extra and sometimes unnecessary importance to the accessibility of motor vehicles.
- Failure to generate a sense of belonging or local character.
- Failure to promote social interaction due to the lack of adequate public recreation facilities and casual meeting places.
- Lack of response to socio-cultural values of privacy.
- Failure to encourage planting or growth of vegetation.
- Uneconomic use of the available land and other resources.
- Lack of responsiveness to the developers' and individuals' economic considerations and pressures.
- Tendency to segregate the population by income.
- Failure to encourage internal economic activity and growth .
- Ironic as it may seem, this environment seems to encourage the violation of the very regulations that were imposed to control its own development.

The argument is therefore, that the prevailing system of control has failed to achieve its goals of "improving" residential environments as well as controlling the development of the physical forms. It therefore seems clear that this situation calls for a new approach regarding the manner in which to create and develop residential environments in this part of the world. The fact that similar developments are planned to be deployed throughout new towns and satellite cities over a considerable time span well into the future, can only emphasise the importance of the situation.

The search for, and study of, appropriate alternatives to the current situation will be the subject of the next chapters.

CHAPTER TWO

2.1. Systems of control.

2.2. Socio-cultural considerations.

2.3. Evaluation and conclusions.

At the outset of this chapter, I shall establish a frame of reference to which I may relate further analysis and proposals.

Having reached more or less the same conclusions presented at the end of the previous chapter, many architects and scholars started to question the validity of of the systems and forms that generated such environments. As a reaction to this situation, traditional Arab and Islamic concepts of architecture and urbanism have been presented as viable examples presenting alternatives and solutions that deserve to be seriously considered and implemented where applicable. This may have led some architects to revive the use of certain traditional forms and spatial organizations in an attempt to revive and reestablish the continuity and tradition of "Islamic Architecture". It should be recognized however, that such attempts, though quite understandable, even necessary, at a given stage in the process of breaking away from the dominance of Western models, can become equally questionable if they remain static and do not progress beyond the level of direct imitation to address the problems and conditions of the present. If we feel that the traditional built environment was more successful in dealing with the physical and social requirements of its inhabitants, perhaps

we should then concentrate more on the study and understanding of the concepts, driving forces, systems of control and implementation mechanisms that were used to generate such environments, rather than limiting ourselves to the mere repetition of physical forms.

With this notion in mind, the exercise of revising the current building codes and regulations goes beyond limited amendments to allow for, or encourage, the reintroduction of certain architectural elements, typologies or spatial configurations, it proceeds further to touch upon the main structure of the current system of control and its basic concepts. We should also understand how the present problems came to be, while clarifying and bearing in mind the existing differences between our present, and the past we may be referring to. The validity, or otherwise, of any of the components of the traditional system to be reviewed on the following pages will therefore be evaluated on the basis of their realistic potential to generate a pleasing and practical environment reponsive to individual and community needs and aspirations, while maintaining a reasonable degree of control by public authorities. It is hoped that maintaining this frame of referrence throughout the study will allow a greater degree of freedom and objectivity in synthesizing new alternatives.

The following study will consider residential developments from two major points of view relating to :

A) Systems of controlling the built environment.

B) Socio-cultural influences and considerations.

Each of the above will be considered with respect to traditional as well as contemporary environments. Conclusions will be drawn based on their relevance to present needs and conditions.

2.1. SYSTEMS OF CONTROLLING THE BUILT ENVIRONMENT

Various modes of controlling a built environment are invariably and ultimately based on a given ideology, such as confirming and securing the power and authority of the state or ruler, or, conversly, reflecting concepts of democracy . Wide Haussmannian boulevards in many a capital city were designed primarily to control and overcome any possible popular uprising, their great widths and openness were not only for grandeur, but also made it difficult for mobs to build or defend barricades, while allowing the rapid deployment of regular troops. On the other hand, Garden Cities and other Utopian communities were aimed towards realizing individual visions of a better way of life for the people, while traditional Arab-Islamic cities, as will be demonstrated, were designed to control social activities in accordance with a set of religious beliefs and cultural customs.
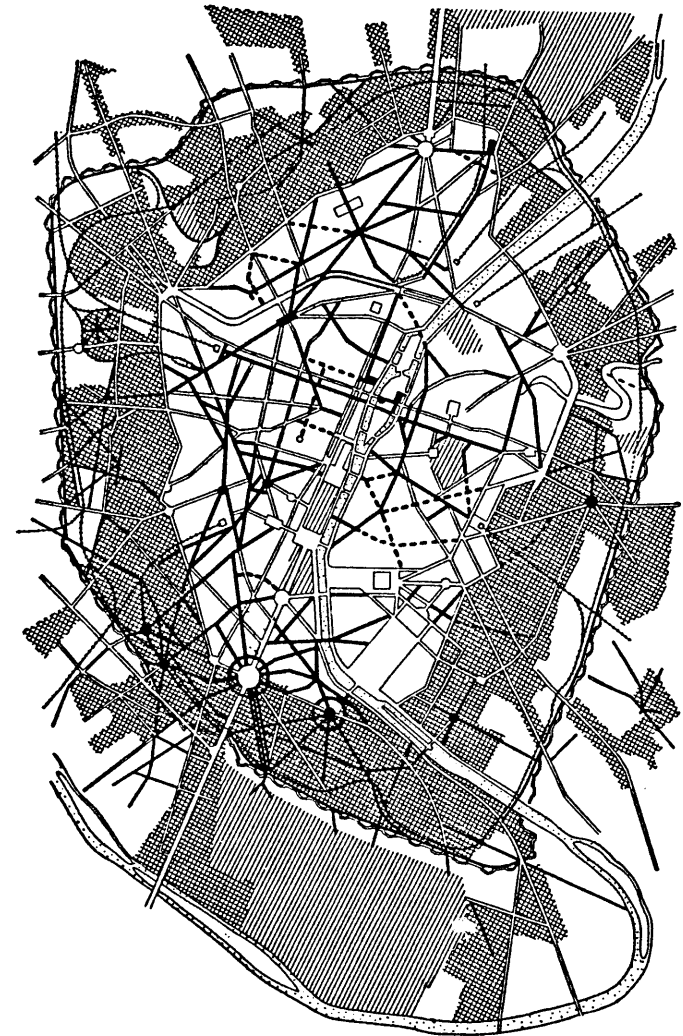
(22)   *Haussmann's "Grands traveaux" in Paris. Heavy black lines indicate new roads opened in old quarters.*

2.1.1. The origins of modern town planning concepts :

Historically, it seems that town planning, as it is known today, has always lagged behind the environment it is supposed to control. The miserable living and housing conditions generated during the Industrial Revolution in Europe led industrialists and government officials to introduce health and services regulations in what is now considered to be the foundation of modern town planning legislation. Utopians such as Owen, St. Simon, Fourier, and Cabet decided to " start from scratch " by designing and building industrial housing estates that would provide a better life for working class populations. It is argued that these ideas had their roots in the ideology of Modern and Marxist Socialism during the mid 19th century in Europe (Benevolo, 1985). In addition to ideological motivations, physical and technical realities had to be seriously considered, such as :

- Poor quality structures.
- Inadequate sanitation, and pollution from nearby industries.
- Overcrowding and lack of ventillation.
- A land lease system that gave developers no incentive to improve the quality of their buildings .

It could therefore be concluded that modern town planning emerged from a rebellion against the conditions of the working class in the cities and towns of Europe during the Industrial Revolution, and was based on both ideological and technical considerations.

It is argued that the origins of modern building and zoning regulations of the 19th century may be found in the writings of Charles Fourier (1772-1857), a French utopian who believed that attaining what he referred to as "Universal Harmony ", could only be achieved by " Eliminating the restrictions and conflicting interests which limit the satisfaction of human passions in the existing world, and by reforming society in such a way as to guarantee the untrammelled satisfaction of individual tendencies, while respecting the rights and privileges of others." (Benevolo, 1985, p.57). Fourier's visions of the city were set forth in his various writings from 1832 until 1850. [2]

Fourier's cities were to consist of three main enclosures (zones) , the first containing the "Cite'" or main town, the second containing the residential suburbs and factories, and the third for the 'Avenues" and extreme outskirts. Buildings in each zone would adopt a different set of regulations, and no building could be constructed without

the approval of a " Committee of Experts". Zones would be separated by fences and hedges that did not obstruct the view. Houses were to stand separately and have regular facades on all sides, and the minimum distance between two houses would be equal to half the height of the facade abutting it. Building heights were restricted to half the width of the street upon which they faced. Street widths were regulated according to the traffic load and type they were to carry (pedestrians,vehicles,etc..). Straight monotonous streets were to be avoided and replaced by slightly curved roads ending in vistas of open landscapes or public architectural monuments, and at least one eighth of the total area of streets would be public squares.

Although the principle of having rigid regulations that generate specific and preconceived forms has now become a familiar and accepted reality to most, it should be noted that then, it only represented the ideas of an individual.

Fourier's efforts to implement such communities failed in France, and were cut short in the colonies (Algeria, New Caledonia,etc.) but they seem to have had an effect on other reformists around the world. Similar efforts were attempted in America by George Ripley at Brook Farm,West Roxbury,Massachusetts. Based on Fourier's model, Jean
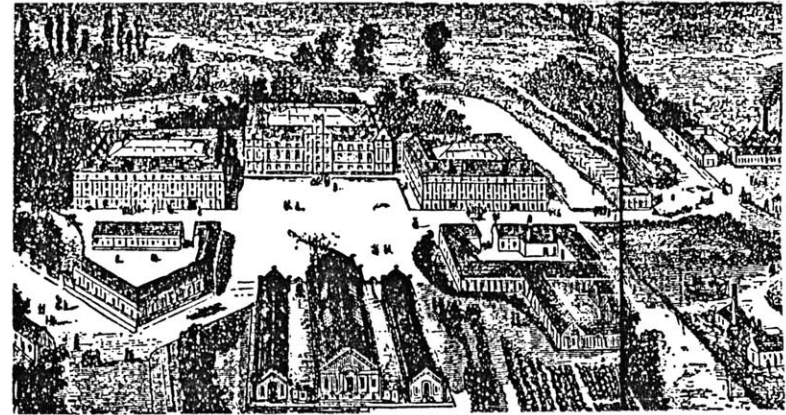
(23)   Godin's "Familistere".
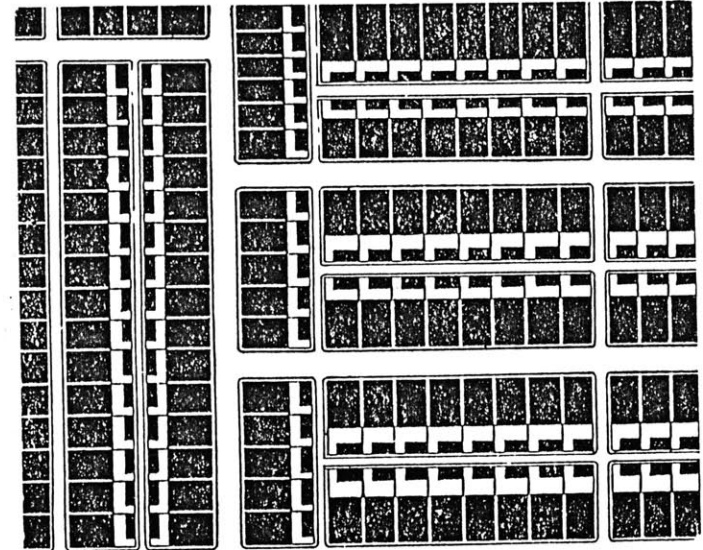
(24)   Workers' housing in England, in accordance with the "Public Health Act" of 1875.
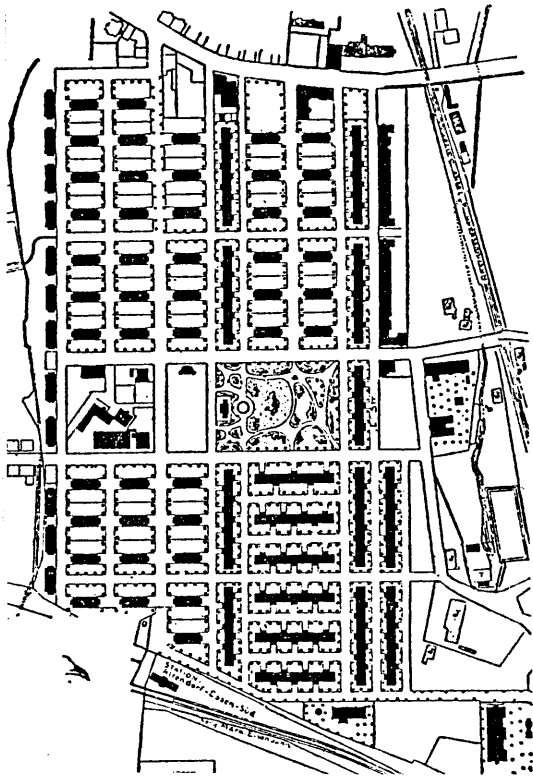
(25) . *Workers' settlement for Krupps Cº. near Essen, Germany, 1873.*

Baptist Godin (1817-1889) developed the *Familistere* building type or model (started in 1859 and completed in 1877) based on a cooperative system which provided a comprehensive set of services and amenities for working class families, and is said to be " A striking anticipation of the reasoning upon which Le Corbusier's *Unite' d'Habitation* was to be based." (Benevolo, 1985, pp 65).

In England, the cholera epidemics of the 1830's, and the reform bill of 1832 confirmed the link between the unsanitary conditions and the built environment. In 1846, control measures defining the minimum sanitary requirements in buildings were introduced, including minimum standards for ventilation, and fines for non-compliance. These measures were subsequently revised in 1868 and 1875, and culminated in " The Housing of the Working Class Act " of 1890 (Benevolo, 1985, p.100).

It is interesting to note that most, if not all, of the above systems of control and regulation have found their way to Egypt through international contact, where they replaced traditional local systems of control,although they were the direct result of specific conditions and ideologies that differed greatly and in many ways from the ideologies and cultural values that existed in Egypt at the time. It becomes even more interesting to consider that these same

regulations remain in force almost unchanged, up to the present day.

When issues of implementation are considered, we should recognize that control over a given environment is exercised both by government authorities - in the form of master plans, zoning regulations, building codes or direct decrees for specific works to be undertaken in designated parts of the city - and, by the community, either collectively or individually through the direct manipulation of the physical elements in their environment. These systems of control are directly linked, they are complementary and together will shape the environment. It is also true that the degree of control enjoyed by each of these systems may vary relative to the other depending on local conditions, time, or location. In each case a different environment will be generated.

A clear example of an extreme case in which the community is almost completely in control, with minimum interference from the authorities, is the phenomenon of Informal Settlements, while a good example of state control is that of public housing or industrial estates housing projects, as long as the authorities maintain their capacity to enforce the regulations they have imposed. It is also interesting to note the transformation that occurs to such an
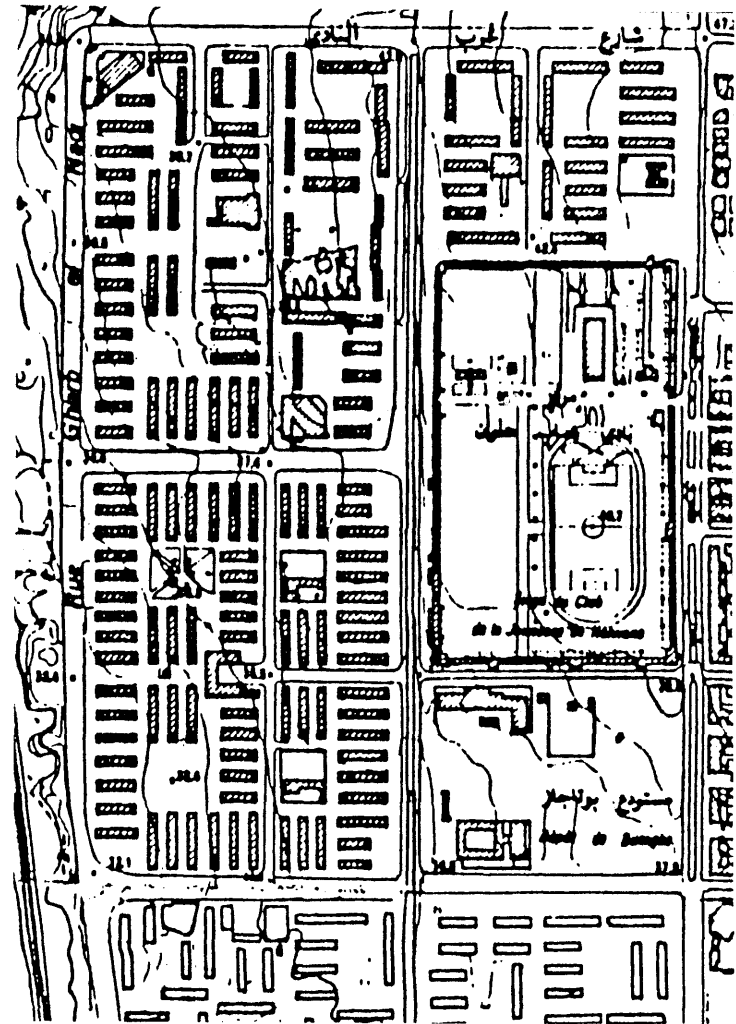
(26)   *Public housing for workers in Helwan, Egypt (1960's).*

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environment once the imposed regulations are lifted or become unenforced.(see Appendix : Helwan Public Housing Estates).

Obviously an ideal situation would be one in which both public and private systems of control blend in with each other in a complementary and harmonious way. Unfortunately this is rarely the case in contemporary residential developments in Egypt, or most other developing countries for that matter. A conflict of interrest between the two systems naturally creates a reaction on the part of the individuals (developers included,since they relate directly to the individuals who constitute their market.), leading to disrespect for regulations that are felt to be unjust, detrimental, or unrealistic. Home owners and developers then tend to build in the manner they feel to be most beneficial to them and their own priorities (here again either collectively or individually). The stronger the pressures and/or the less the authorities are able to enforce the regulations, the more violations occur at various degrees of disregard. Eventually this leads to ambiguous and undefined authority, which in turn is directly reflected in the physical environment .

How then did this conflict of interest or alienation occur ?   At first it may be directly attributed to the imposition of foreign models that do not respond to local conditions or socio-cultural values. While this response may be valid, I also feel that that there may be more to the issue than just that ; unlike other Arab-Muslim countries, Egypt has been exposed to foreign models gradually, peacefully, and for quite a long time. It is approximatly 150 years since the first expeditions were sent to Europe by Mohamed Ali in the 1840's, which I believe is ample time to generate a process of assimilation and adaptation of foreign models to suit local conditions. (This important issue will be discussed further in detail when studying the socio-cultural considerations.) In order to identify the negative aspects of a given system it may be beneficial to compare it with another, and by studying the traditional legal system of controlling the built environment in Arab-Islamic cities, I have become more aware of the causes of the breakdown of the modern system, as well as forming my own ideas about the issues involved.

2.1.2. The traditional system of control in Arab-Islamic cities :

Perhaps the most significant characteristic of the traditional Islamic system is that it was based on controlling the social behaviour of the population within accepted and prevailing rules of conduct. This system did not specify any one way of doing things, but rather allowed a great deal of flexibility in dealing with the physical forms as long as the products did not cause harm or dammage to others. As such it allowed for a "reciprocal and possibillist " relationship (Al-Hathloul, 1981,p. IV.) between the population and the authorities, as well as between individuals of the same community. In contrast, modern systems are concerned mainly with controlling the physical aspects of the environment and rely on prescribing rigid rules that generate preconceived forms.

With this notion in mind, it now becomes intriguing to find out more about such a flexible system , how it operated, who administered it and under what conditions, how efficient it was, why it was abandoned, and finally, what its advantages and disadvantages were compared to the system presently in use.

Islam, being not only a religion but also a way of

(27)   Medieval (Fatimid)Cairo.

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(28)   *The garrisson towns' site locations.*

life, has considerably influenced social and political conditions in Islamic societies Therefore, religious, social and political conditions may be regarded as constituent parts of the overall influence of Islam on the built environment.

Residential neighborhoods in the cities established under Islam were based on land allocation by the founder,or ruler,to various groups,each of which shared a common feature, such as kinship, allegiance, common descent, or profession . Each of these land allocations was called a *khitta* . Such was the case for the first Islamic garrison towns of Egypt : Al-Fustat (640 A.D), Al-Askar (750 A.D), and Al-Kataee (820 A.D). Cairo *Al-Quahera* was founded in 969 A.D on the same principles. Neighborhoods were originally separated from each other, and formed clusters of settlements relating to the central core or main artery,which contained the Friday mosque and the main commercial activities (Abu-Lughod, 1980).

As the neighborhoods grew,the "left over space" between them gradually diminished,but maintained its role as a neutral or buffer zone between different quarters that were not always on friendly terms (Abu Lughod, 1980), ultimately forming the streets connecting different quarters to each other as well as connecting the quarters to the main artery and the city gates. Market places and commercial

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activities also developed along these areas. The residential neighborhoods thus developed as separate entities, with a high degree of internal autonomy regarding the development and management of their environment, while conforming to a higher order of regulation common to all, that of religious belief in Islam and its social and political organization.

Thus, the urban street pattern developed within the neighborhoods, and indeed throughout the city, was not only due to climatic considerations, but more importantly, it was an elaborate system of control over behaviour and social contact as prescribed in the *Quran* and the *Hadith*.

It is argued that the main design principles were generated from the search for a complex balance between homogeneity and heterogeneity within the social system of a muslim's life (Bokhary, 1980). Family life called for complete privacy and segregation from the exterior, while public life called for a high degree of participation and integration with the community. These conflicting needs were satisfied by arranging spaces and access systems into a hierarchy of social contact, from the very private (inside the house) to the very public (the *souk*), with intermediate levels in between. It is this notion that led to the development of the characteristically Islamic system of "tri-fold division of space" (i.e. private, controlled semi-private, and public.). The
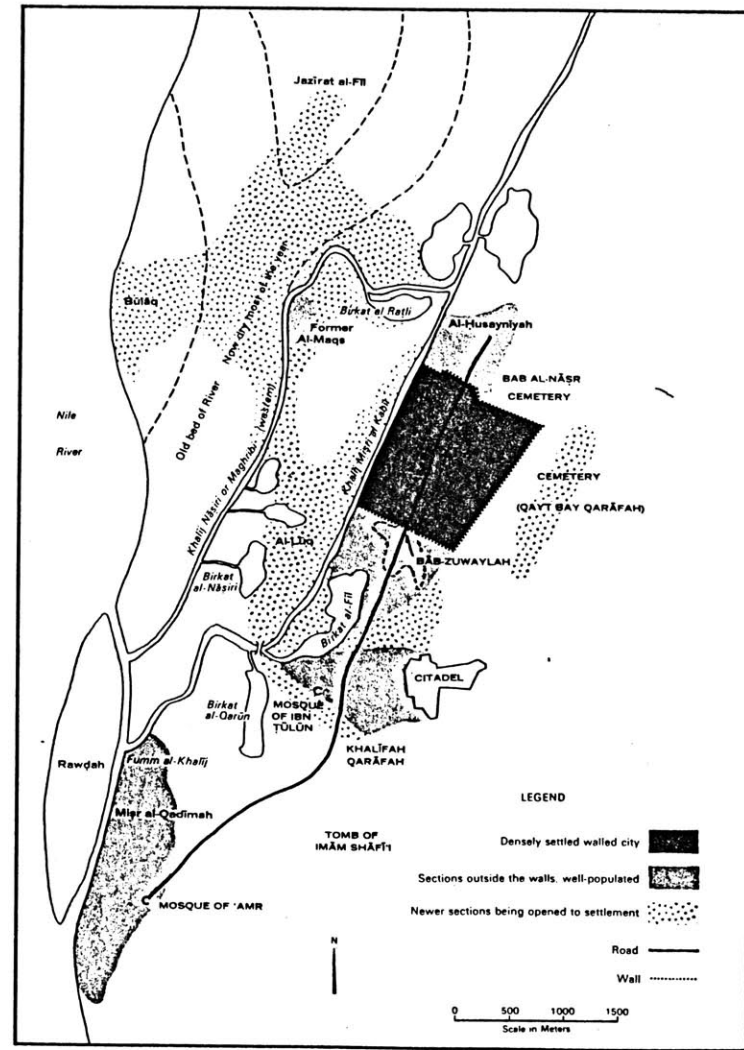
(29)   *Fatimid Cairo site location.*

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Quarter

Bazaar (Suq)

Friday Mosque

Market
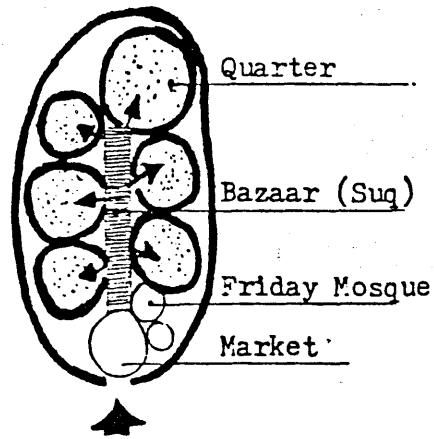
Traditional Moslem City: Limit
movement and control behaviour
by controlling mobility.
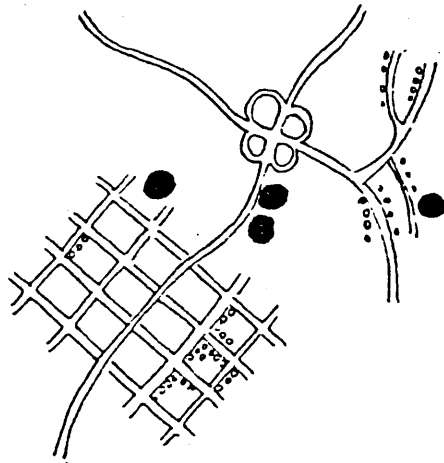
U.S City: Maximize movement
and accessibility.

(30)   Control vs. accessibility.

different systems of control within both the private residential
and public commercial areas will be clarified on the following
pages.

The transition from one level to another was made
clear and articulated by means of gates, archways, changing
street widths, blind alleys, and bent entrances. These
elements also served to control access and mobility thereby
regulating the level of privacy required in each area. The street
hierarchies were therefore determined as follows:

- Public: Main thoroughfare(s), connecting the major
  gates and regional roads to the city center.
- Semi-public/Semi-private: Secondary streets
  connecting residential quarters to main
  thoroughfares, and other quarters. Main street within
  the residential quarter (*Darb,Hara*)
- Private: service streets and cul de sacs serving a
  limited number of houses, deep within the residential
  quarters.

I) The Hara as a unit of control in the traditional system :

In addition to providing the necessary transition between public and private domains,the *darb* or *hara* system also served as an efficient system of social and political control. Each *hara* formed an independant social and political entity and was supervised by an elder who assumed the role of guardian : *Sheikh Al-Hara* was responsible for the security and well being of the residents,and was responsible to the *Kadi* (The Judge) of the area who in turn was responsible to the head *Kadi* , governor, or ruler of the city.

Regardless of income levels,residents of each hara formed strong social bonds due to the common features that brought them together in the first place.The *haras* therefore constituted economically heterogeneous units which were representative, to a large extent, of the population of the city as a whole. Each *hara* was entered through a gate (*Bab* ,or *Darb*)supervised by the *Bawab* who ensured that the gates were closed at night for security reasons.

(31)   Street pattern in Fatimid Cairo.

QASABAH
THOROUGHFARE

SHARI^{C}A
STREET

HARAH
ALLEY

^{C}ATFA
LANE

ZUQAQ
LANE
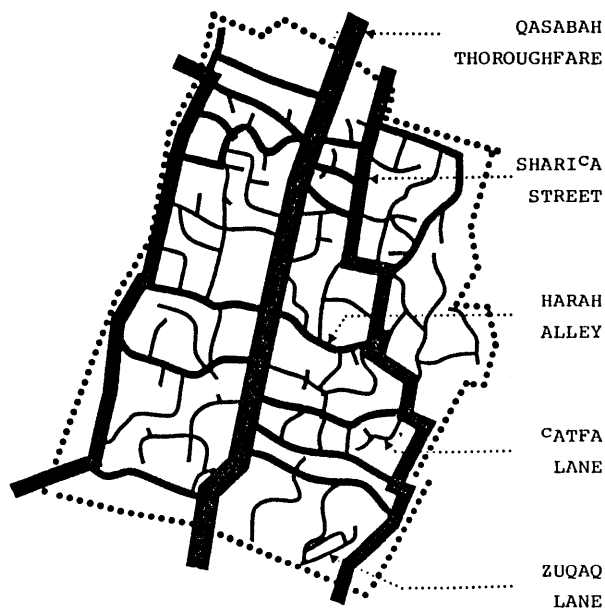
(32)   Street hierarchies.

II)   Building regulations in the traditional system of control :

Within their autonomous neighborhoods, residents needed to have a regulatory mechanism to control the environment they were creating,and resolve the conflicts of interest that might occur between different parties. As for all other aspects of a Muslim's life, guidance was sought from traditional Islamic law : The Sharee^{C}a.

Differences between neighbors were referred to the Kadi who ruled by the principles of the Sharee^{C}a and it's consequent rules of conduct which were concerned with both the ^{C}Ibadat (religious observances, or worship.) and the Mu^{C}amalat (worldly affairs), thereby covering all the aspects of a Muslim's life. The ^{C}ibadat explain to the people the rituals of worshipping : what to do and how it is to be done, while the Mu^{C}amalat point out what should be avoided in their relationships with each other, thereby implying that anything else is permissible. Most of the rules of conduct that we are refering to within the traditional environment may be considered under the category of Mu^{C}amalat (Al-Hathloul, 1981)

According to Al Imam Al-Shafei (who died 204 A.H/819 A.D), the four major sources or roots of Islamic

law are :

   a) The *Quran*, a direct revelation from God, that
   cannot be refuted.

   b) The *Sunna*, the practice and sayings of the
   prophet.

   c) *Al-Ijma^c*, meaning the unanimous agreement of
   the scholars,

   d) *Al-Quiyas wa Al-Ijtihad* , meaning reasoning by
   analogy and exercising   one's own best
   judgement .

   (Al-Hathloul, 1981, and Hakim, 1986).

Islamic Jurisprudence is the study and interpretation
of the Islamic Laws as conceived from the four previously
mentioned sources. Four schools of thought emmerged from
the interpretations of Islamic scholars (the *Imams*). The
Shafei, Malⁿky, Hanafy, and Hanbaly schools of thought
exhibit slight differences in their interpretations of the
sources of legislation and their conditions of application,
otherwise they are basically in agreement on most aspects of
the *Sharee^{c}a* , certainly on all the major issues. The
Sharee^{c}a as such was constantly subjected to evaluation,
criticism and change throughout the second and third
centuries of Islam. By 900 A.D , it was considered to have
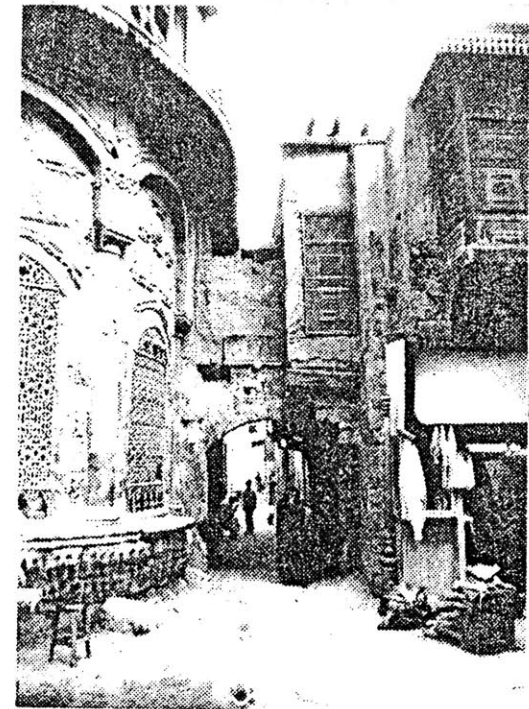
(33)   *Entrance to hara off the main street.*

reached maturity, and became accepted without question. Local practices, and codes of conduct (building regulations included) were thus always reviewed in the light of Islam's original aims and objectives, and because they always related to the same frame of reference , the judges' rulings came to set precedent, which were generally used by later judges for quick rulings (with some exeptions,due to the differences in schools of thought as pointed out earlier). These rulings also became known to the master builders, who used them in their own code of practice, and set out their designs accordingly (Hakim, 1986).

III) The basic principles of the traditional system :

The primary and most important principle used in regulating the built environment by the kadis,is the principle of *Harm* : "La darrar wa la dirrar " [3] whereby everyone may exercise his full rights freely,as long as they do not harm others in the process. Typical examples of the consequences of the application of this principle may be illustrated as follows:

- Entrance doors were not allowed to be located directly opposite each other in order to preserve the privacy of each dwelling.
- Windows overlooking neigbours' houses were not allowed since they were deemed to invade the privacy of the families.
- Structures obstructing light or air from a neighbour .
- Building a room across a street to connect two houses,or to extend one ,was allowed as long as the structure did not obstruct the flow of traffic in the street,and did not cause any harm or inconvenience to a facing neighbour or other the residents of the street or cul-de-sac.

In addition to the principle of harm, other principles were also determined, such as:

- Rights of original (earlier) usage:qualifying the rights of older neighbours to certain privileges (e.g: windows that existed before a new construction by a neighbour were to be considered by the new neighbour in his design since he could not demand to have them sealed.)
- Air rights: regulated the use and extent of cantelevers, overhangs and any structures above public streets or thoroughfares.
- Respect for other people's property : basically

defending the individual's and community's interrests from bearing the externalities of others.(e.g: a noisy,polluting,or offensive trade would not be permitted in or near residential areas, nor indeed near the mosque,but would be required to locate at the periphery and outside the city gates).

- Pre-emption : Giving neighbours, partners or members of the same family, priority over strangers to buy an adjacent plot of land at market value.

Other considerations that proved to have major roles in shaping the traditional built environment were :

- The system of inheritance giving all heirs a share in the property even if this leads to subdivisions that can no longer be used individually.

- The various systems of land tenure and easement rights as explained below.

IV)   Land tenure systems :

A number of land tenure systems were recognizedby the share^{c}a and adopted throughout Islamic cities. The four basic systems were : ownership (public and private), usufruct, waqf and leasehold. In addition to the previous

(34)   *Building across the street.*

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systems, a number of other systems and conventions followed and have had a substantial effect on the shaping of the traditional built environment, such as the concept of "reviving dead land ", easement rights and preemption.

a) Ownership

Joint or collective ownership (Musha^c) was recognized as a common and established tradition (^{c}Urf). Its origins can be found in the nomadic and rural traditions before the advent of Islam. It is also noted that the *khitta* s or parcels of land that formed the first garrison towns (*amsar*) in Islam, such as Al-Fustat, were based on the same concept of collective ownership as previously explained .

Joint ownership may also originate from consecutive inheritances that may lead to the subdivision of a piece of real estate (land, building, etc.) into numerous small parts that become individually unusable. Joint ownership in urban areas had almost disappeared in Egypt by the end of the 19th especially with the introduction of modern systems of land registration and individual titles (Serageldin/Doebele, 1979). However, urban joint ownerships have reappeared in recent years in the form of condominiums and cooperative building societies, which are widely accepted and continue to grow as a reaction to the discouraging rent control laws that are still in effect

b) Usufruct

Usufruct rights (*hacq al-intifa^c*) were granted by an owner who has full ownership rights. A usufruct agreement gives the right of use and exploitation of a property by a person other than the owner, who maintains full ownership rights. It is usually given for an extended but not indefinite period, and can be terminated upon paying the usufructuary a just compensation for structures built and any other improvements.

c) Long-term leaseholds

Such leaseholds called *hikr* were granted by a property owner under specific conditions and a fixed rental agreement, and could be terminated only upon expiration of the lease. Long term leasehood was used extensively by the Mameluks to direct urban expansion and develop new settlements, or to rejuvenate decayed and abandoned zones. The lessor may impose certain conditions or regulations which the lesse must observe or risk the termination

of the lease. This system continued to be used in Egypt until it was abolished during the 1950's and 60's.(Serageldin/Doebele 1979.)

d) **Waqf**

Waqf properties are a kind of trust, or charitable endowement. Waqf capital is given to God in perpetuity and cannot be repossessed or subdivided. The revenues from the trust went first towards the charitable activities for which it was established, then the remainder was distributed amongst beneficiaries, heirs and the administrator of the waqf.

The waqf system had a major impact on the urban development of major cities such as Cairo. At first it provided capital to build and maintain the urban and social infrastructure, in addition to preserving and protecting many monuments of significant historical importance. However, centuries of immobilization and missmanagement resulted in the deterioration of waqf properties, and, because they cannot , in principle , be sold or demolished they have come to be a great obstacle to redevelopment and upgrading projects to the parts of the city in which they are located.

e) **Easement rights**

These are based on custom and traditions asserted by the prophet and confirmed by the *Share^{c}a* . Easement rights or *haq al- irtifaq* , include the right of access to water sources, pasture lands and passage on roads and city streets. The most commom type of easement rights in the urban context other than the use of land for thoroughfares, deals with private easements for passageways and utilities, and can be altered or ended if the conditions that made such rights possible are changed or if the benefit arising from them becomes outweighed by the cost to the encumbered property.

f) **Preemption**

Preemption or *Shuf^{c}a* is a privilege, given to members of the same family, to partners, or to neighbours over strangers, giving the former priority over the latter in the sale of a given property, subject to their (the family, partners, neighbours) meeting the same price and conditions of sale that may have been agreed upon by the third party (the stranger). It is based on the desire to protect the interest of family members, partners and neighbours from damage that may be incurred as a result of such a transaction.
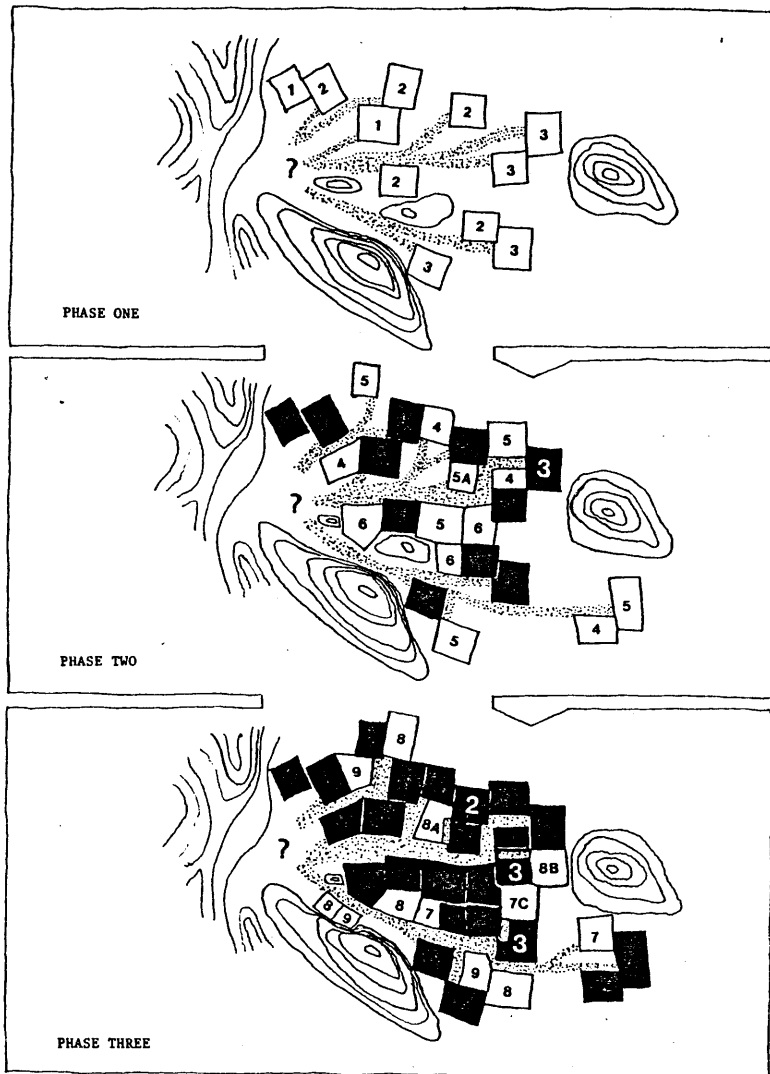
(35)   *Hypothetical illustration of growth of towns and the influence of*

easement rights in shaping the street pattern.

g) Reviving " Dead land"

Dead lands were those that had no trace of building or cultivation, or that were completely abandoned by previous users and were not used by any person or locality for a given function such as a burial grounds, pastures, etc.The custom was that if a person "revived" dead land, i.e. developed it so that it became useful in some way, then he was entitled to own it (Akbar, 1984).

This principle of revivification had the effect of encouraging people to invest time effort and expense in the development process, knowing that their efforts would be rewarded by actual ownership of the land in question and therefore the system encouraged private enterprise and individual initiative in developing both urban and rural areas. This system was pushed further and combined with the system of allotment, whereby individuals or groups would be given parcels of undeveloped land to "revive" within a limited time period. If successfull in developing the land within the agreed period the developer would then own it, but if unsuccessfull, would lose all claim to it ,whereopon the land would be allotted to someone else for

development under the same conditions.

V)   Organization and Implementation :

As shown earlier, individuals could build freely in whichever manner they saw best as long as they did not cause any harm to others. If, however, a neighbor felt that harm was inflicted upon him, he could then complain to the *Kadi* who is the representative of the authorities and invested with the power of jurisdiction. In order to conduct a fair investigation, the *Kadi* might call upon the opinions of experts *Ahl Al-Khibra* , such as master masons, or architects and engineers etc.The experts were commissioned to investigate the situations and report back to the *Kadi* with their findings and technical recomendations if the situation so required, they covered situations of investigating damage complaints, ownership disputes & transactions, rent, or the rebuilding of the *Waqf* properties. However, they had no jurisdiction , and no authority to decide matters under dispute.

The practice of refering to the experts is based on the precedent set by the prophet himself. By 1211 A.D a new member was added to this group of experts, the *Muhandis Al-Balda* or the city Engineer / Architect. One such expert "

Ibn Al-Rami" (died:734 A.H / 1334 A.D) - who held this position in Tunis - descibes in his records a multitude of cases in which he has participated along with the opinions and rulings of the jurists who were envolved. This has helped to clarify and confirm the mechanics of the system.

The *Kadi* could also always consult the *Mufty* for his opinion as a legal advisor, in order to base his rulings on surer grounds since the concept of *Shura* (consultation) is called for in the *Quran..* Here again the *Mufty* had no authority to issue rulings or impose sanctions, he only "elucidated the rules and the evidence on which his decision was based." (Akbar, 1984, p. 10).

It should be noted however that judges usually tried to solve disputes through a mutual agreement *Sulh* , it is only when this proved to be impossible that the judge imposed a ruling over one of the parties.

While the *Kadi* issued his rulings regarding conflicts of interest between individuals, the *Muhtassib* was the officer effectively entrusted with the application of the *Hisba* (i.e promoting good, and forbidding evil.) . The *Muhtassib* 's jurisdiction was greatest in the public areas of the city such as the souk, from which he designated a chief from each part or trade to represent and be responsible for his group. This person was known as the *Amin* or *cArrif* .

The differences between the authorities and jurisdictions of the *Kadi* and The *Muhtassib* should be clarified here. The *Muhtassib*, entrusted with the maintenance of law and order and the promotion of good, had the authority to impose direct and immediate sanctions upon any individual(s) within his jurisdiction who violated any of the clear and undisputable prohibited acts such as cheating in trading transactions, littering, or encroaching upon the public thoroughfare for example. Regarding the responsibility to keep the streets clean and free of hazardous conditions it is reported by " Ibn Al-Ukhuwwa " (died: 729 A.H / 1329 A.D) that : " It is the duty of the Muhtasib to compel people to take care of such matters." (Al-Hathloul, 1981, p.84)

The *Kadi* on the other hand dealt with matters of resolving disputes and dissagreements between parties due to differences of opinion or conflict of interrest, but where no obvious intentional evil had been committed. In other words his job was to clarify ambiguous situations, and indicate how they could be rectified.

Public spaces in the traditional Islamic city though governed by the same same concepts of control as discussed earlier, also conformed to a convention of physical arrangement.

Similar trades were usually grouped together and each group related to the central area and the mosque according to a set hierarchy of desireability; for example the perfume and book-selling trades were located nearest to the main Mosque since they were considered the most desireable in this locality. Other trades followed in accordance with their importance relative to the Mosque such as drapers, jewellers, tapestry merchants,etc. Offensive trades, such as tanners and blacksmiths were located farthest away from the center, usually near or beyond the city walls in order to reduce the possibility of them causing "Harm" to other trades and residential areas. The grouping of trades made it easier for the Muhtassib to control quality and collect taxes where applicable. It was also easier for the consumers who could find the greatest choice possible within the smallest area at competitive prices. Finally it was also considered to be better for the retailers since it gave them greater control over their trade organizations or guilds, in addition to providing better access and distribution of wholesale or arriving goods and materials.

The maintenance of clear unobstructed streets and thoroughfares was the responsibility of the *kadis* and *muhtassibs* . Minimum dimensions of public thoroughfares were controlled in order to ensure that an adequate flow of

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traffic would be maintained through the streets and main roads. The minimum dimensions were based on the requirements of the available means of transportation, namely the the camel . Accordingly, the minimum width of a public thoroughfares in North Africa (Bassim Hakim, 1986) and in Egypt (Al-Hathloul, 1981, originally from Marcel Clerget, 1934.) for example, were determined to be no less than seven cubits - i.e.between 3.50 and 5.25 meters [4] - in order to allow for the passage of two fully loaded camels to pass side by side (However it should be noted that the main thoroughfares were usually wider and reached eight to ten meters wide). This dimension becomes smaller as we move down the hierarchy of streets (down to 1.20 metres for residential cul-de-sacs), since it is assumed that commercial traffic and transportation will no longer be required in these streets.

Similarly, a minimum dimension of seven cubits (3.50 to 5.25 meters) was also determined for archways and overhead construction above streets in order to allow for the passage of a loaded camel or a fully equipped horseman carrying a spear,or banner.

Temporary obstructions of thoroughfares and the rights to "park" animals of burden opposite entrance doors,in order to load or unload,were also regulated.
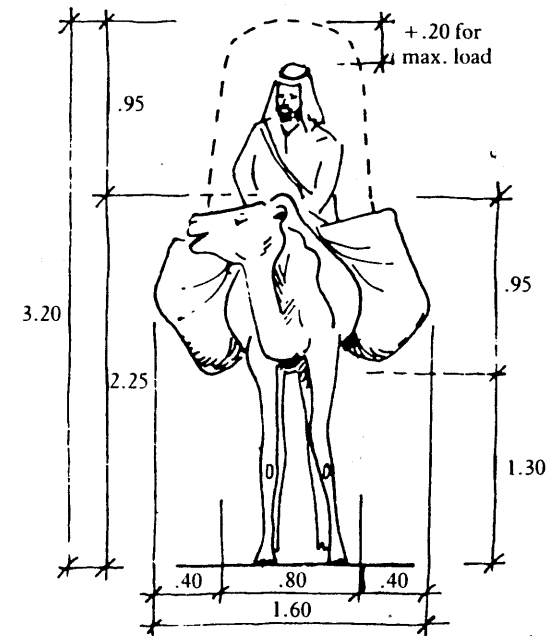
Maximum horizontal & vertical
dimensions of a fully loaded mature
Arabian Camel (Camelus Dromedarius)

(36)   Determining minimum street dimensions based on the prevailing

modes of transportation.

Cantelevering into abutting streets was acceptable as long as the height of the structure did not obstruct circulation, and the extent of the cantelever was unlimited (i.e. It could reach the other side of the street, subject to the approval of the neighbour on the opposite side; If not then air rights over the street were usually divided equally between the two.) . Supports and pillasters for the above structures could also be built as long as they did not reduce the street width to under the stated minimum dimension.

Open spaces along or arround a building were considered to be semi-private, collectively owned, spaces and were therefore sussceptible to collective use by the residents of adjoining properties as long as they did not obstruct the flow of movement in the street or thoroughfare.

Secondary lanes and cul-de-sacs were also used in the same way, but enjoyed even more freedom since the did not open on or connect to a thoroughfare.

At this point, it is important to consider an interessting phenomenon concerning the attitude towards public spaces and roadways. Due to the nature of the control system (based on the concept of "Harm " being inflicted by one patry upon another who subsequently complains to a judge to have the situation rectified), it appears that encroaching upon a public roadway was not considered to cause any harm as long as nobody complained to a judge. This may be even more true in times when the Muhtassib is weaker and his authority to intervene and stop the encroachement is diminished for whatever reason . In fact, historically, this seems to have been the case in many instances as will be seen later. (Abu Lughod, 1971) . Al-Hathloul argues that we would not have the distinctive physical characteritics that we now observe in these cities without such continuous and gradual practice." (Al-Hathloul, 1981, pp88). In addition, most jurists would not accept any statute of limitation regarding the number of years after which a complaint cannot be lodged, " Dammage cannot be justifyed by being old." (Al-Hathloul, 1981, p.21, quoted from Ibn Al-Rami.). It is therefore logical to assume that neighbours may not be encouraged to object to new encroachments for fear of retaliation against their own earlier actions. On the other hand, however, it is argued by J.Akbar that jurist considered dead-end lanes to be owned by the residents who lived on them, and therefore judged the actions therein not by considering the damage that may be inflicted but rather based on the permissiom and agreement of all the residents of the dead end lane. In other words, any additions or obstructions were considered legal and allowed, as long as the "owners" of the lane agreed to them. Akbar argues further that not

objecting to a given action within a reasonable time limit was considered to be a tacit agreement.(Akbar, 1984, pp.87, 264, & 272) [5]. In both cases, it becomes apparent that, as far as the rights of individuals were concerned, where "damage" was seen to be inflicted upon a specific party, the rules were always applied, while, in cases relating to the public interest, in which no specific individual was involved, enforcement of laws and regulations seems to have been very flexible and were not always equally enforced. It also becomes apparent that the proscriptive system used in the residential areas to regulate development and solve conflicts between individuals, was not applied as much to the main thoroughfares and public market places where explicit, prescriptive rules had to be imposed.

This attitude of the community towards public spaces has proved to have significant implications for the future, which may explain many aspects of current behavior as will be discussed later in this study.

Before concluding this review of the systems of control and their implementation in traditional Arab Islamic cities, it is necessary to consider the role of the state in this system. Although the system is based on controlling social behaviour and is mainly active on the level of a multitude of relatively small-scale decisions affecting individuals and their limited communities throughout the city, it has also been noted historically that the state , represented by the *Khalifa, Amir* , or *Sultan* , has also had a considerable influence not only in shaping, but also in modifying the physical environment, by way of direct intervention. Such was the case in Cairo in 882/1478 when the *Amir* Yashbuk undertook to widen the streets and lanes of Cairo, especially along the main thoroughfare , *Shari* [c] Al-Mucizz , from *Bab* Al-Fotouh to *Bab* Zuweyla. He is said to have asked the *kadi* of the city to rule for demolishing all encroachments whether they be buildings, wooden structures, or built up benches. (Al-Hathlool , 1981,pp.86-87. Originally from : Ibn-Ayas in *Badai Al-Zuhur*,1894.). It seems then that this large-scale intervention was made when public interest was seen to be at stake, at which point public interrest - as seen by the highest authority in the city - came to take precedence over the individual rights of the residents or merchants of a given area.

2.1.3. The transition to Western models :

The traditional system of control remained in force in Cairo more or less unchanged until the beginning of the 19th century, when forces of change gradually dismanteled the traditional system, to replace it with another, based essentially on a contemporary European model that was itself only in its early stages, but it was also motivated, as explained earlier, by strong ideologies of reform, progress and promisse for a better life .

Up to the 18th century, Cairo remained divided into 53 ditinct *haras* ,each inhabited by families with common social, religious, or occupational ties as previously explained.

Under the rule of Mohamed Ali around the 1830's the city's administration was reorganized and divided into departments,each given charge of various projects and services. Councils and commities undertook special assignments (Serageldin, 1972,).

In 1842 a police council was established, and in 1843 the "Cairo Council" or *Majlis Tanzim Al-Mahroussa* was established, to become mainly reponsible for "Urban Beautification"....(Serageldin, 1972). Street labelling and house numbering were also introduced , as were inspectors of public buildings.

In 1843, Cairo was divided into eight districts for administrative and policing purposes, each district or *kism* was refered to as the *thumn* (i.e the eighth.),This event marks a turning point towards a western oriented administrative system. Regular police stations became established in each of the *thumns*, and the role of the *Muhtassib* diminished considerably as many of his traditional functions started to dissapear. (Serageldin,1972) . Similarly the *Sheikh Al-Hara* became a subordinate of the head of the *thumn* (the area's chief of police). However the former remained responsible for the maintenance of law and order in his area, settling small disputes between neighbours, reporting births and deaths, and enforcing government decrees and regulations.

In 1817 engineers were instructed to carry out structural surveys of the houses in the city, they ordered owners to carry out any necessary repairs, or have their buildings condemned and demolished.(Serageldin,1972. Originally from: Al Jabarty). A smilar survey was carried out in 1837.

In 1829 rubbish mounds were levelled,and their sites developed as gardens and orchards, and in 1831 permanent locations for city dumps were designated. In the

1840's a number of ponds within the city were filled, including Azbakieh which became a public garden, and in 1845 the first fire brigade was instituted in Cairo.

With the introduction of wheeled vehicles (horse-drawn carriages) in the 1840's, the government took on the responsibility of maintaining the roads, a responsibility previously delegated to private individuals and residents, thereby introducing another shift from traditional distribution of responsibilities. The role of the *Muhtassib* was further diminished by the introduction in 1863 of a new cavalry force in charge of supervising carriage traffic and drivers along the main thoroughfares .

In 1871 new legislation allowed the expansion of the powers of " Eminent Domain" and in 1875 the old low class area of *Bab El Louk* was cleared to create a new modern and high class district : *Ismaileya* , between the quarters of Azbakeya and Abdeen and extending westwards to the Nile. Building lots were granted to persons who undertook to construct a house of " fixed Value ", which would conform to " certain architectural standards" (Serageldin , 1972, p.106. Originally DeLeon p32 ; McCoan, p.51.) . This was a direct application of the concept of designing the street facade before the buildings that were to be built upon it, a concept applied in 17th
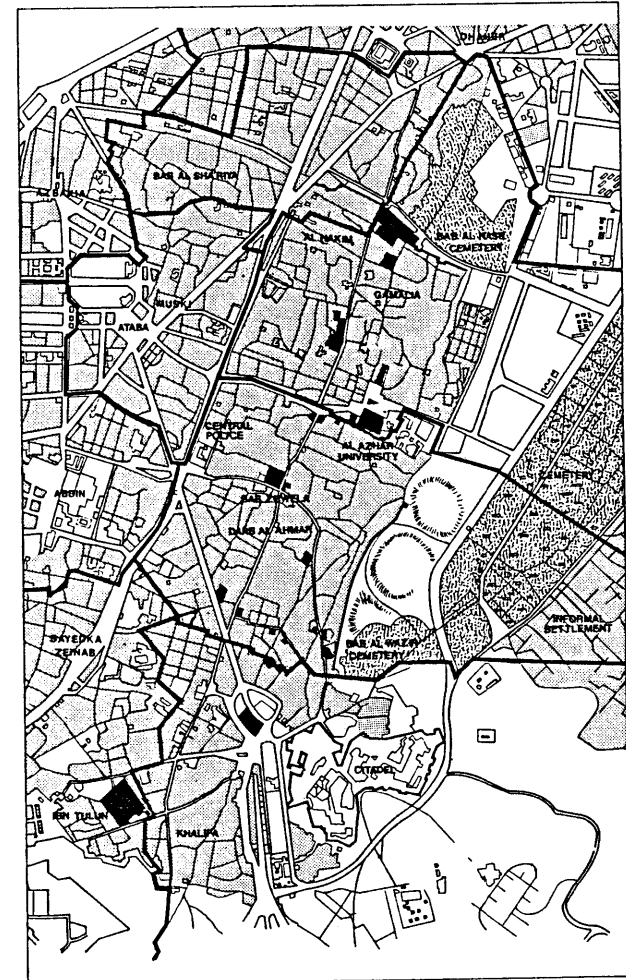
(37)   *Medieval Cairo and the 19th century new development to the west.*

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century Paris to achieve the architectural regularity of the royal squares,such as Place des Vosges, Place Vendome, Place des Victoires, and Place de la Concorde, also followed by other examples in 18th century England in the Royal Crescent in Bath, and in Nash's Regent Park Buildings of 1812.(Benevolo, 1985.).

Ali Pasha Mubarak describes this new neighborhood as follows : "...streets were laid out to straight alignements and intersected at right angles. Houses were detached from each other . Its thouroughfares were paved with sidewalks for pedestrians on both sides, while the middle was reserved for the passage of carriages and animals. Pipes were laid out to supply water for sprinkling its lands and its gardens. Gas and lights were set up to illuminate it. It became one of the most beautiful districts of Cairo, and it was inhabited by the princes and the notables among the Muslims and others" (Serageldin, 1972, p.107.) Most of the buildings referred to were large resider.⁺al houses built to "Swiss Chalet" or "English" styles.

Mubarak's description of the area and its buildings may be considered as a clear indication that this new type of urban planning was readily accepted and admired by the elite.

By 1871 Cairo still had its eight districts, in addition to Boulacq and Misr Al-Quadimah, although some changes did occur to the district boundaries, and the new suburban expansions of Al-Wayli and Shubra were also added. The new areas were divided into "quarters" (not *haras* any more), but these had no social meaning. The word *hara* which used to designate the quarters in the traditional areas became replaced by the word *shiyakha* (reffering to the area of jurisdiction given to a *Sheikh Al-Hara*) . This change reflects yet another transformation of the social residential entity of only twenty years earlier into a purely administrative unit, a subdivision over which a sheikh had some functional jurisdiction.

In 1883, when a British Under-Secretary, Scott-Moncrieff, took over the control of the Public Works Ministry, the *Tanzim* created in 1843 by Mohamed Ali became a department with a permanent staff, and a separate budget. Its functions were redefined, but continued to be mainly concerned with urban beautification. Laws were hastily drawn up to regulate its various activities, namely street layout and maintenance, traffic regulation, issuing of building permits, expropriation by eminent domain, demolition of unsafe structures, tree planting, maintenance of public gardens, and municipal project plans.....(Serageldin , 1972).

In 1884 , a building tax was imposed on urban

properties to help defray public expenditure. It was not until 1940 that any other municipal controls were added. The "Subdivision of Land for Construction Law" of 1940 set out rudimentary regulations concerning land subdivision.

In 1947 a Municipality on the European model was established in Cairo with new powers aiming towards controlling urban development, including widening streets and imposing set-back regulations, as well as the acquisition of land by eminent domain for the construction of public buildings and other projects.

After 1952, the new Republic set among its goals the achievement of "Modernization" and "Social Justice" through planned government intervention in all sectors of the economy. The National Planning Commision established in 1955 prepared Egypt's first " Five Year Plan " for social and economic development. Concurrently, city planners embarked upon producing a Master Plan for Cairo. The document, published in 1956 was clearly influenced by the concepts of English Town and Country Planning, calling for industrial sub-centers, green belts, and zoning. The Master Plan, however did not accurately estimate the the rate of growth and increase in the population also exacerbated by the increasing rural-urban migration, and the consequent pressures on the demand for housing and services. The plan

was based on an ideal size for Cairo at 4 million inhabitants. This number had, in fact, been reached even before the plan was completed. Unrealistic standards for the new urban developments called for 16 M^2 of public open space per capita when in fact only 1.6 M^2 were actually available.

The present building standards and regulations, the consequences of which were presented and discussed in the first chapter , originated fron the building standard Law imposed in 1962 (Decree # 45) in turn revised in 1976 to become known as : " Law # 106 of 1976 ", and finally revised by " Law # 30 0f 1983 ".

2.2. SOCIO-CULTURAL INFLUENCES AND CONSIDERATIONS

In order to better understand the effects and implications of the changes in the systems of control that occured in Egypt from the beginning of the 19th century to date, it is proposed to review the changes in the social structure in Egypt that ran parallel to, and interacted with them.

When considering the Socio-cultural transition from "traditional" to "modern" values, it may be appropriate to begin by clarifying the theoretical distinctions between "traditional" and "modern " societies :

Traditional societies are characterized by relatively stable groups, with limited spatial mobility, the predominance of ascriptive and particular social roles and relationships, and relatively simple, and stable occupational and economic organizations.

Modern societies, on the other hand, have a higher degree of social mobility, within an egalitarian class system based on generalized patterns of occupational achievement. They are characterized by the predominance of universalistic forms of relationship and judgement, and achievement oriented norms.(Serageldin, 1972,)

During the Mameluk and Ottoman periods, the only Egyptians of high social standing were the *Ulama*, who combined both wealth and prestige, and were responsible for the religious, judicial and intellectual life of the community (Serageldin , 1972. Originally from Lutfi Al-Sayed: *The Role Of The Ulama In Egypt....*). However, the infiltration of non-learned men into the ranks of the *Ulama* due to Mameluk patronage resulted in the rapid deterioration of standards in both education and justice, thus starting a vicious circle of corruption. During this period only the *Dervishes* were considered to remain relatively independent, and, by the end of the 18th century, they had become more powerful and influential than the *Ulama* . Significant changes in the traditional society and the administrative structure of the state did not come until the beginning of the 19th century, with the advent of a new and ambitious Ottoman ruler for Egypt, Mohamed Ali.

### 2.2.1. Mohamed Ali and the New Order *(Al-Nizam Al-Jadid)*

Mohamed Ali was appointed as ruler of Egypt by the Ottoman Emperor at the beginning of the 19th century. In pursuite of his separatist dreams, Mohamed Ali succeeded to a great extent in breaking away from the Ottoman Empire, and embarked upon modernizing the country and building a new, strong military machine to be supported by a modern industrial system to maintain and safeguard his reign over Egypt.

In the 1820's French and Italian technicians were brought in to help start up industries geared towards fullfilling the army's needs, and subsequently expanded to various other civilian applications. Introducing a series of administrative reforms in the 1830's Mohamed Ali realized that that the success of his efforts relied upon the development of the local Egyptian capabilities, he hence started to give great importance to building a new educational system, geared towards the needs of the Administration and the Military. Many schools of all levels were instituted in Cairo and Alexandria, and, by 1839, more than 300 students had been sent to Europe to acquire specialized technical expertise (Serageldin, 1972).

Although he greatly encouraged the transfer of Western technology to Egypt, Mohamed Ali himself seems to have been greatly opposed to the acompanying transfer of of Western culture and social norms, and attempted to conserve the traditional structure of society. However, the Turkish and Egyptian "elite" of later generations, many of whom were trained in Europe, became influenced and gradually shifted towards "non-Islamic ways". The returning students of the missions filled the official government posts and started replacing certain traditional institutions by others based on Western models. This new "cultured aristocracy " became a new stratum in society and enjoyed high salaries, gifts of land, and titles. The effects of these important changes were not felt by the general public at this time, for they only affected the elite, and, in spite of various administrative changes the traditional residential environments, the Haras, remained virtually unchanged. However, it was now only a matter of time before the " trickle down " effect would reach the the lower classes.

After Mohamed Ali the reigns of the *Khedevys* ^CAbbas and Sa^Ciid were marked by severe setbacks and stagnation.

The drive towards Western forms and models reappeared under the *Khedevy* Isma^Cil, whose obsession
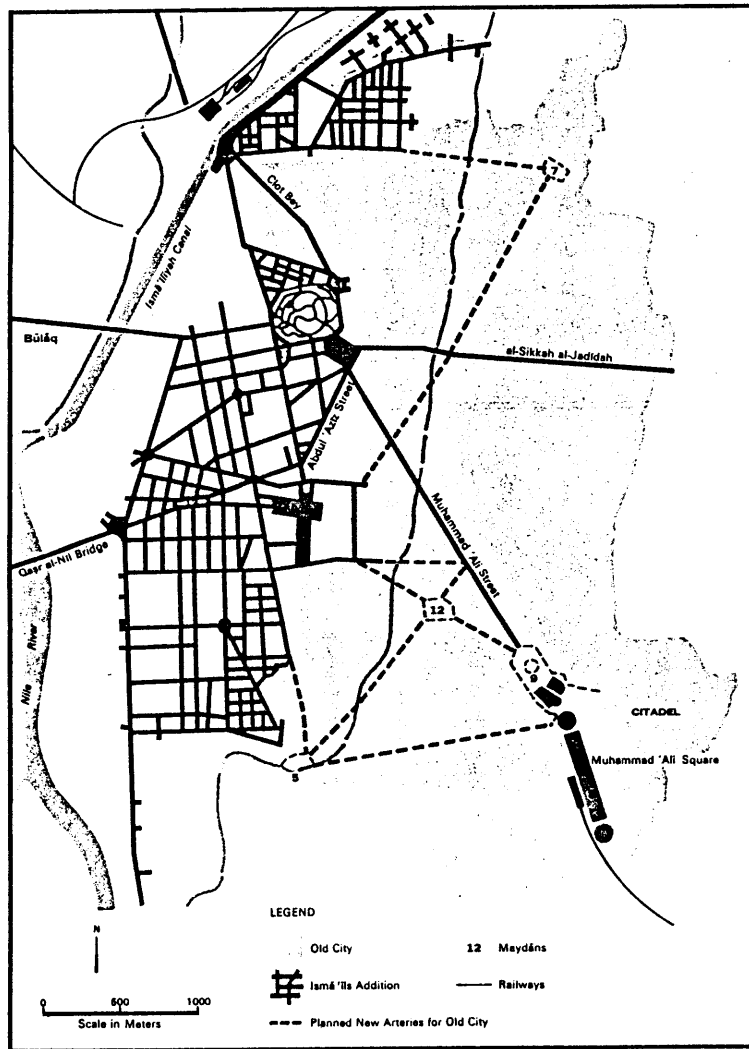
(38)   *Additions by Isma^cil, 1869-1870.*

with "Europeanization" found its most forcefull expression in his modernization projects in Cairo. On this subject, De Leon is reported to have said: " ...He spent time, money, and influence in building up, and as he thinks, beautifying Cairo". (Serageldin,1972, p.93). Upon his return from the International Exhibition in Paris in 1867, Isma^cil decided that Paris would be his model for modernizing Cairo. The first project was of obvious Haussmanian inspiration. It had two focal points, the Azbakieh Garden and the new "Khedevial Palace" in Abdin which in 1865 replaced the Citadel as the official seat of government. The large traditional style houses existing around the site of the Azbakieh garden were expropriated, demolished, and the land for the new development offered to "... anyone who promissed to erect a new building suited to the character of a Modern Cairo" (Serageldin, 1972, p.103. Originally from Abdel Rahman Zaki). This radical transformation drew a lot of criticism (both positive and negative) even at that time. De Leon writes : " Over three fourths of the space formerly occupied by that primitive garden wilderness, so dear to the memory of its old habitue's has vanished...replaced by square, formal, uniform, hideous looking imitations of the ugliest architecture in the world...a small portion of the open space has been converted into a French or German tea

garden...with even it's little artificial lake with swans in it and small mock steamers for sailing over three feet of water..." De Leon later adds : " ...But in a sanitary and progressive point of view no sensible man or woman, however sentimental, can deny the improvement and growth of Cairo under the demolishing tendencies of the Khedevi." In fact Isma^Cil's obsession with Europeanizing Cairo were so great that he is reported to have said, " My country is no longer in Africa, for we are now a part of Europe" (Serageldin, 1972, from Al-Rafeii).

Once again, modern education and increasing secularization and European contact combined to transfer the leadership of Egyptian society away from the Ulama and onto the more progressive elements of the upper class: the high ranking officials and civil servants, the Western educated young professionals, and to some degree, the reform minded Sheikhs. It is argued that, at this point in time, the social stratification system seems to have started to shift towards differentiation by economic classes, as opposed to the traditional allegiance to kinship, trade, or other common factors. Still, the old traditional quarters remained practically unchanged since the change affected only the new areas of development and not all of the social groups.

By the turn of the century, Egypt had come under the British colonial administration following British military intervention to crush the "Urabi" revolution of 1882.

During the 1910's a number of new institutions were introduced, such as clubs, horse racing, theatres, cinemas, restaurants and bars etc... affecting mainly the elite and wealthy middle class, who, in the meantime were also establishing a definite trend towards mixed residential areas by moving in with the Europeans in the new suburban developments, a clear departure from the traditional residential settlements directly related to defined ethnic/religious groups.

The lower echelons of civil servants formed a larger class than the wealthy middle class, and were just as proud of their status as educated *Effendis* and government employees, and tended to emphasize the diference between themselves and the rest of the masses still trapped within their traditional society. They moved out of the old quarters of the city as soon as they could afford it.

Another extremely important aspect of that time was the emancipation of women, occuring as the Turko-Egyptian Elite became more westernized and started to accept the concept of education for girls. It is argued that female education became acceptable around the 1910's. Women participated actively in the public political events of the 1919

(39)   Courtyard house in Fustat.

revolution and street riots, and during the 1920's "....ladies finally came out of the *Harim*, laid aside their veils and, for the first time, participated fully in the social life of the capital city" (Serageldin, 1972, p 284).

The period from 1917 to 1927 also marks a shift of Egyptian middle class residenses from traditional housing types to modern apartment buildings, making for a rapid growth in the density of dwelling units, and reflecting the higher demand for housing especially around the government offices area and the central business district.

The two previous factors combined seem to have had the most important impact on the transformation of the physical forms and spatial organization of the typical middle class dwelling unit. At this point it may be appropriate to review the main characteristics of traditional dwelling units as they existed before the transition .

The dwelling:

The social and religious influence of Islam is evident in the design of a traditonal Muslim house. Whether arranged around a courtyard or a *dorqua^{c}a* [6], certain general characteristics prevail :

a- The bent entrance to ensure privacy

b- The clear segregation within the dwelling between
the family living area, usually designated as the
"female domain", and the guest reception area,
usually designated as the "male domain".

c- The ever present relationship with nature, either
directly through the courtyard and the   roof,or
indirectly through the *dorqua^c a*..

d- Intelligent solutions to local and climatic conditions
without compromising the privacy and integrity of
the dwelling

e- Muslim residential architecture developed as a direct
response to its surrounding conditions.Without
formal inhibitions about "style",or "classical orders"
the Muslim architect adapted foreign elements and
developed them to suit local needs.These elements
soon became "traditional".

f- The relationship between different spaces was
determined by conventions governing social
relations while responding   to local climate
conditions. The system also allowed a high degree
of flexibility in the use of internal spaces as it did not
define spaces to corresponding specific functions
(such as dining room, bedroom, etc.) but rather
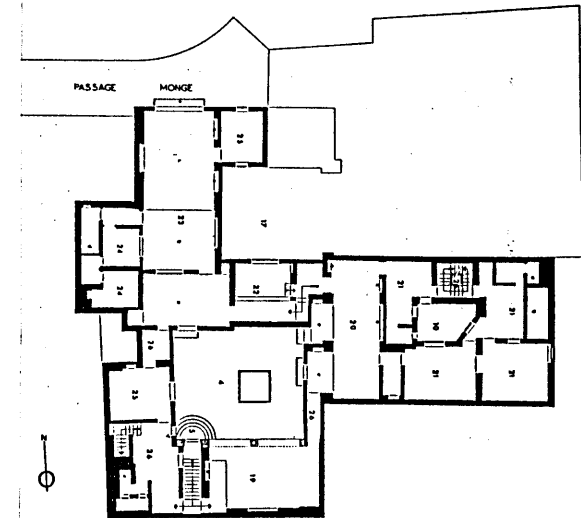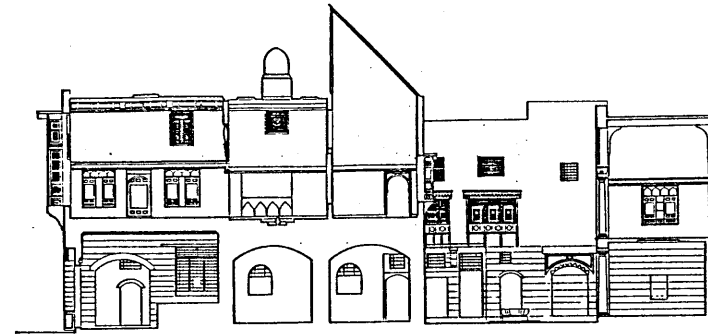
(40)   Al-Sinnari House, Cairo.

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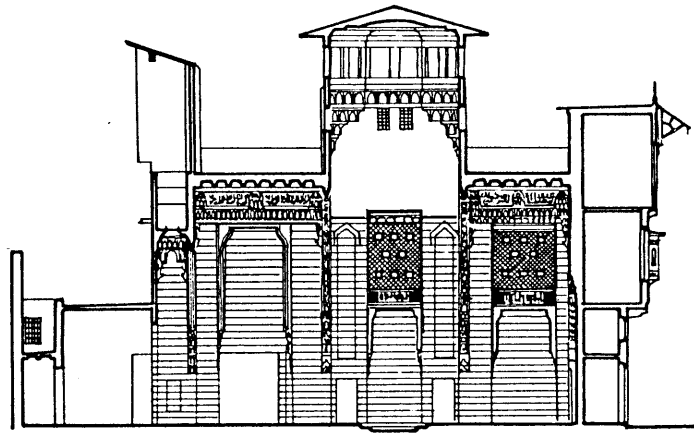
Section of Q'aa, Katkhouda Palace, Cairo
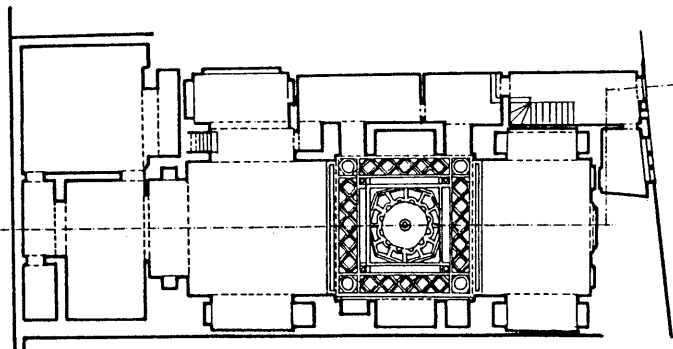
Plan of Q'aa, Katkhouda Palace, Cairo

(41)   A Cairene Qa^{c}a.

allowed each room or space to support a number of different activities depending on the time of day , or the season of the year in which they were required. Furniture items were easily transportable from room to room such as the small low dining table and cushions, or rolled away for easy storage such as carpets and bedding mats.

g- The successful reconciliation of equally important, yet strongly opposed factors, and the achievement of a delicate yet dynamic balance, in what may be considered as an architecture of contradictions, make it most interesting and suggestive to designers addressing contemporary housing issues.

h- Particularly noteworthy, is the notion of internality and externality (Hakim, 1986.) which has an important bearing on the issue of Islamic residential design. It emphasizes the importance of the interior over the external appearance. Interior spaces are designed to fulfil the required functions and activities,the form of the dwelling is then but a corollary. It follows to envelop the space. Space is therefore the generator of,and the logic behind,the form.(Bokhari, 1980)

It is however interesting to note the differences experienced in the manifestation of the above notion, due to various degrees of influence by local conditions.

Originally "neutral and nondescript" external forms may have been based on the precedence of the earlier mosques in Islam (Bosra, Kufa and Fustat) for it was not until 650-750 A.D that the mosques started to have "facades", and were transformed from "spaces" to "buildings" (Grabar, 1969.)

This notion has been maintained in the North African cities,where it becomes very difficult for a pedestrian walking down the street to differentiate between a rich man's house and a poor man's house(which of course,also conforms to the notions of modesty and equality in Islam).

In contrast, facades in Mameluk and Ottoman Cairo received great attention. External decorations and detailing were signs of wealth and status, and were used in a clear departure from the Islamic concepts previously discussed.

Another example of the influence of local conditions in Cairo where high land values, intense commercial activities, and large population seem to be characteristic throughout history, as demonstrated by Ibn Battouta's account of Cairo : "...Mother of cities...Mistress of broad provinces and fruitfull lands, boundless in multitudes of buildings, peerless in beauty and splendour...She surges as
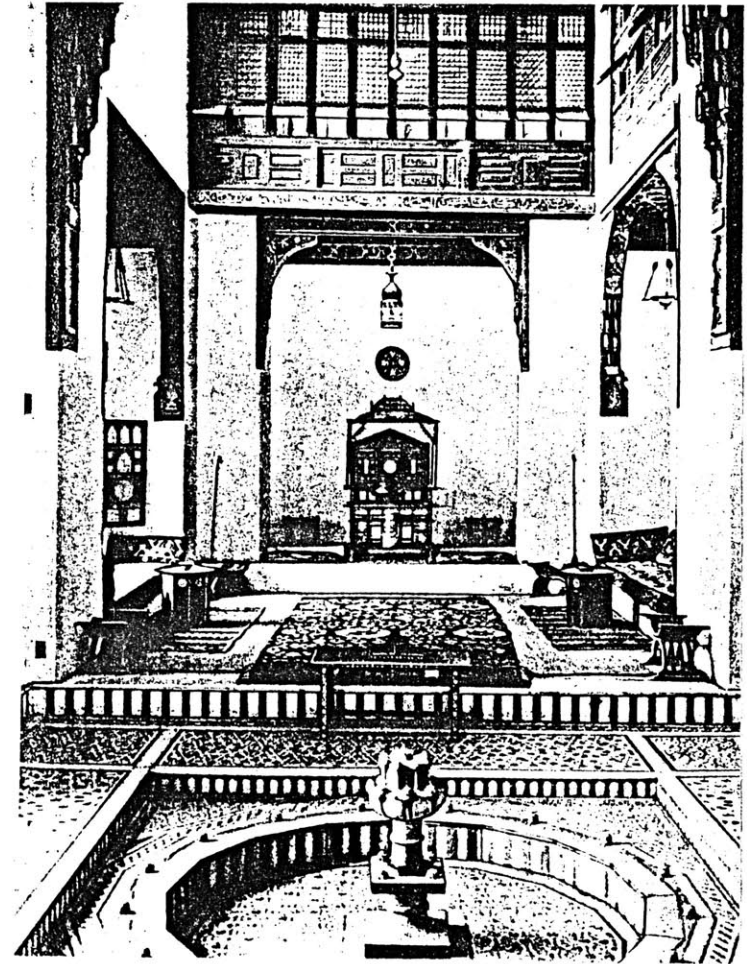
(42)   Interior.
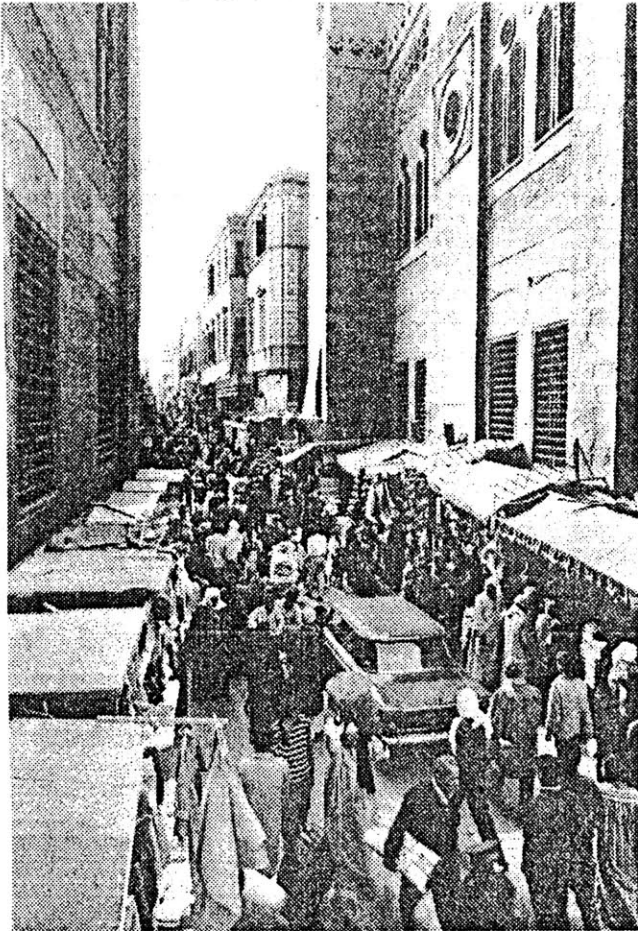
(43)   The crowded steets of medieval Cairo.

the sea with her throngs of folk, and can scarcely contain them for the capacity of her situation and sustaining power." (Abu-Lughod, 1971, p. 198.)

In order to capitalize on the proximity to the main commercial area and center of activity along the main spine, and reduce transportation cost and time, mixed land use became common. The development of the Rab^C system of housing presents an example of how the designer was able to establish a symbiotic relationship between commercial and residential activities without compromising the requirements of either of them. The Rab^C system could be seen as an evolution of another building type developed in Cairo as a response to small building sites: the Cairene Qua^Ca (See figure ...)which consisted mainly of a $Dorqua^Ca$ overlooked by two *Iwans*. The $Dorqua^Ca$ with its central fountain, cool ceramic tile flooring, double storey height and clerestory windows replaced the traditional courtyard. The use of wind catchers and ceiling vents provided the needed air movement and cooling effect instead of the open courtyard. The Qua^Ca concept was pushed further and successfully applied to the apartment type referred to as *Tibacq* , in the Rab^C housing system which is said to have housed the majority of the middle class population of Cairo during the Mameluk and Ottoman periods (Laila
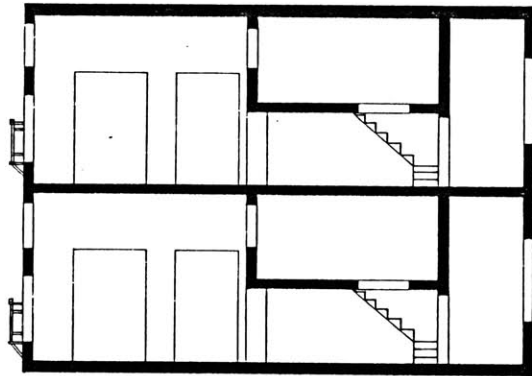
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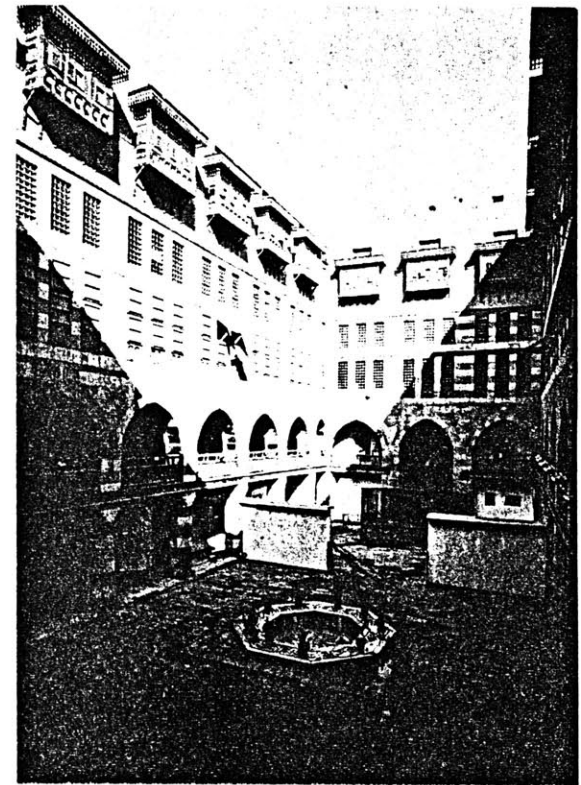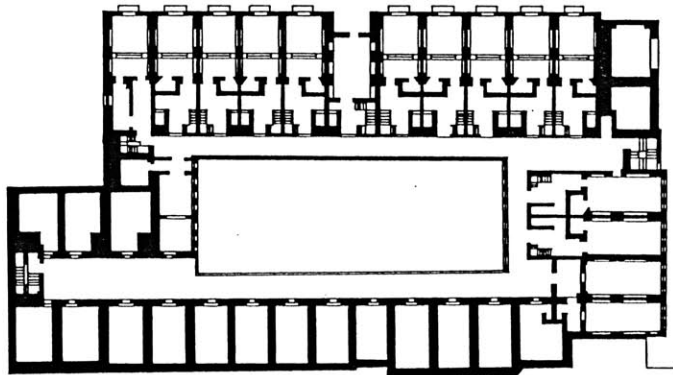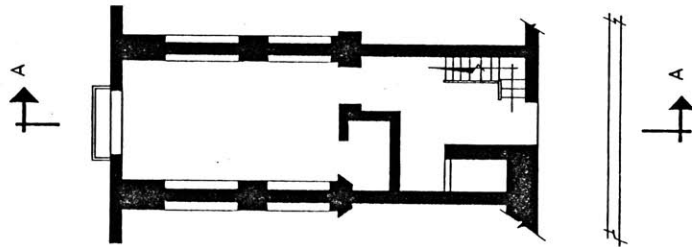
(44) Top, wekala's internal courtyard.

(45) Left, "tibacq" type housing in the Qaytbay wekala.

(46)   *The Bazar^ca wekala*
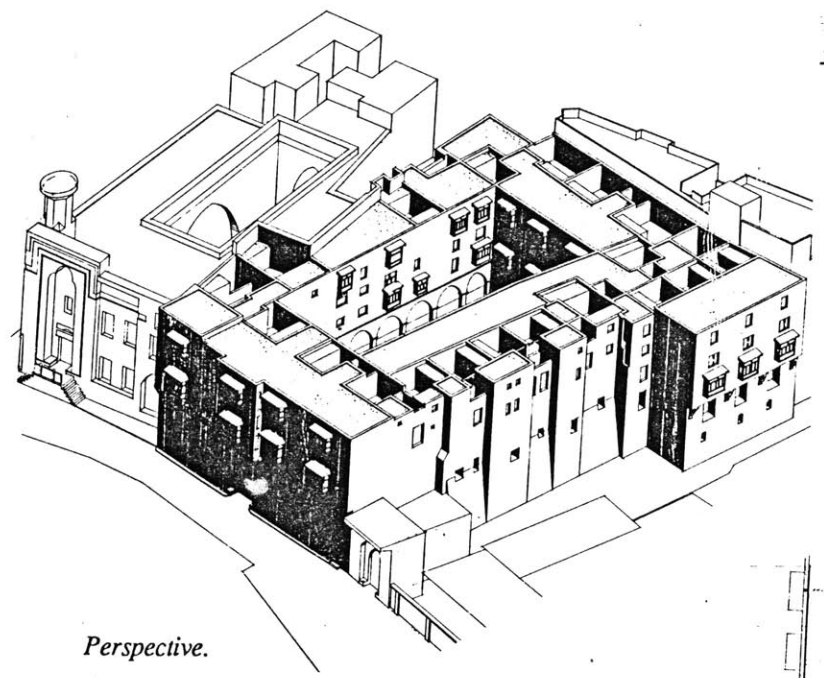
Section.

Perspective.
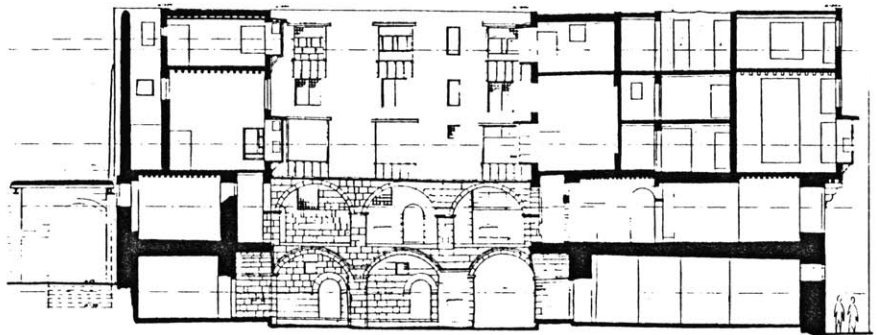
Plan of apartments at different levels.
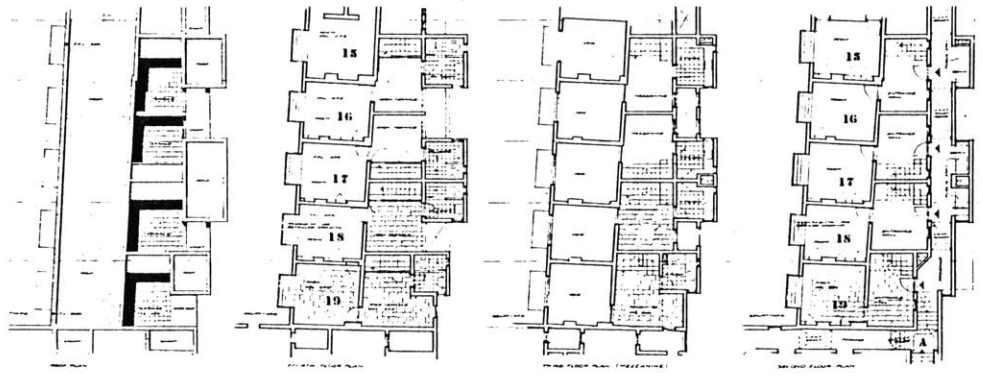
Roof   *4th floor*   *3rd floor*   *2nd floor*

Ibrahin,1978).These apartments were usually built over commercial constructions such as a *Wekala* , *Funduk* , or *Khan* . They were connected to the street by their own entrances and staircases.

The *tibacqs* consisted of an *iwan,* a *dorqua^{c}a* , a *Tabaqua* (a level, mezzanine or upper room), and a small room on the roof. The roof terrace surrounded by high parapet walls, substituted for the courtyard. The concept of the wind catcher was integrated by using the small room on the roof as the wind catcher's top section - with door and windows open - while the internal stair-well became the shaft.

2.2.3. The turn of the century

Not only did the above typology serve its functions in a most efficiant and reponsive way, it also appealed to, and accommodated a wide range of income levels, from modest craftsmen to wealthy merchants. It may then seem surprising to see such a successful model being abandoned around the turn of the century in favour of other typologies. This period of transition and movement out of traditional neighbourhoods and into new "modern" development - which was gathering the momentum that has not ceased to affect the perception of

housing standards up to this day - may be explained if we consider that the new neighborhoods outside the traditional city were perceived as better environments for a number of reasons. But perhaps the most important of all was the fact that they were provided with infrastrucure and services lacking in the traditional part of the city. Wide paved roads meant easier and quicker access to the public transportation systems that were now starting to operate throughout the city, in addition to the streets now being cleaned and maintained by the Municipality rather than the residents themselves as was rthe case in many parts of the old city. Piped water, sewerage, and electricity made life much easier and convenient, in addition to being an important status symbol indicating progress and success. It was only natural then, that people would wish to move as soon as possible to those areas offering new amenities and utiлities that were still not available in the old city, even if this entailed giving up some of the advantages of the traditional house. To the best of my knowledge there are no indications that these new neighborhoods did not meet the expectations of their residents . It is also significant to point out that while the new neighborhoods provided more space and " elbow room " for their residents due to the physical requirements of the services provided, they still maintained an acceptable human

scale, and continued to encourage social interaction and economic growth by allowing commercial and mixed use activities to take place within the residential areas.

The attractiveness of the new areas of development is of course increased with the transition from carriages to motor vehicles which occurs also around the turn of the century. The number of motor cars in Cairo increased from 100 in 1914 to 2000 in 1919, and by 1927 Cairo had 8765 motor cars and 2047 motorcycles. (Serageldin,1972, p.296, from the Annual Statistics of Vehicles 1927-28). Motor vehicle traffic was not limited to rich individuals. Trucks, buses, and taxis also increased in response to the growing economic activities of the city. It is interesting to note how Cairo seems to have always been crowded and bustling through the times. A 1926 quotation from an English traveller seems to still hold true today ; Commenting " with horror " on the traffic she says : " Now motors hoot along the narrow roadways and the noise, dust, and danger to life increase with every month that pases " (Serageldin, 1972, p.95. Originally from : Annie Abernethie Quibell.- *A Wayfarer in Egypt*. London- Methuen , 1926)

During the first part of the 20th century , two major schools of thought developed; the Islamic Reformists, and the Progressive Modernists (Serageldin, 1972.). Although the two movements may have had their differences regarding many of the nations problems and their solutions , they both rallied around their same national convictions to achieve self determination and independance. And while they both agreed - at least to some extent - that European institutions were efficiant and offered potential for progress and betterment, they differed essentially over the issue of their wholesale and unmodified transplantation into Egypt. It should also be noted that, while general public feelings against the British may have been strong, it did not seem to affect the way in which people regarded the European culture in general.

2.2.4. The present conditions

After the 1952 revolution and the application of "Social Justice" laws, significant changes occurred in the social structure of the population. Major benefits were given to farmers and the workers, and long deserved working and social security rights were given to the working and lower middle classes. From the mid fifties to the early sixties, Royalty, nobility, titles, and large fiefdoms of agricultural land were all abolished, and most of the large private agricultural industrial estates were nationalized. Many of the

richer families lost considerable ammounts of wealth while most of the poorer clases experienced increases in income and extra fringe benefits. Although most of the great differences in income levels that existed previously had been significantly reduced in a relatively short period of time, "cultural elitism" and social classification remained strong. As a result , there did not seem to be any significant changes in the social structures of existing neighborhoods. The limited mobility of social strata between neighborhoods was further exacerbated by new rent control laws that offered no incentives for developers to build for housing. A housing shortage thus started to appear especially since the public housing schemes undertaken by the government addressed only low income groups and workers' housing, and even then could not keep up with the demand. Nor could it bear the burden of heavy subsidization, and finally ceased alltogether. Therefore, people stayed where they were simply because there was almost nowhere else to go . Urban densities rose sharply and many residents had to (and still do) return to the extended family system in which married children continue to live with their parents simply because they cannot find any other reasonably affordable housing. This situation remains true to a large extent up to this moment in time.

When we now consider providing new housing developments in and around Cairo to alleviate part of the pressure, and providing that the dwelling units are affordable to the targeted income levels, we should also take into account that the influx of residents will be considerably heterogeneous, covering a wide spectrum of social religious and economic backgrounds and behaviour patterns. The new residents will invariably originate from almost all the older, over-populated neighborhoods since the economic ability to pay for the dwelling unit no longer corresponds to a specific social class, as it did twenty years earlier. In other words, while the formal housing market stood still for about fifteen years (from the early sixties to the late seventies), significant changes and shifts were occurring in the distribution of wealth and economic ability of different social and professional groups. These changes and shifts may be best illustrated by the considerable decline in the real income (relative to inflation) of government officials who previously were among the best paid sectors of the work force, contrasted by the sharp increase in income of skilled labour , technicians and other professionals, especially those who worked for some time in the oil-rich Arab countries and returned to invest their savings.

There is no doubt that modern social values and

behavior have been affected by the changes in political and economical conditions , but then so have the traditional societies . In fact it may be argued that peoples' responses to similar political or economic pressures in both cases were very much the same throughout history. But during the second half of the 20th century, another, previously non existent , yet most significant factor comes to play an increasingly important role affecting the socio-cultural values of the general public, the power of the "mass media" and the "communications revolution".

Wide and continuous exposure to Western culture, values, models, forms, and aesthetics has increased in all classes of the Egyptian society through various media, ranging from direct contact of increasing numbers of Egyptian travellers and expatriates working abroad, to cinema, radio, and most important of all : television. Western cultural and social values as well as their physical manifetations and models are no longer accessible only by the privileged few, then trickeled down to the masses. They are now directly accessed and absorbed by a general public of all social and economic classes. Present indicators point towards a situation in which many Western models are not only accepted but even strongly pursued by most.

It is therefore my conviction that the effects of this cross cultural exposure cannot be disregarded nor entirely reversed, and have to be dealt with objectively and realistically.

By and large, traditional architecture and urban forms are still not perceived by the majority of the population as valid components of a new residential environment. Rent control laws discouraging maintenance and repair,the continuous migration of residents out of the traditional part of the city to be replaced by lower income rural migrants who do not seem to preserve the cultural and historical value of the traditional neighborhoods and the monuments within them, the increasing congestion and pressures of commercial activities in and around the old city, and the public authorities neglect of much of the historic areas in Cairo, are all reasons that have combined to give the traditional neighborhoods of the city a stigma of poverty, decay, and lack of adequate services. The image of the traditional environment associated with undesirable living conditions may be the most powerfull psychological barrier that leads the majority of lay persons to reject traditional urban forms and concepts.

Alternatively, a new trend sems to be emerging during the past ten years or so. The negative image of traditional forms has changed dramatically within certain intellectual circles and sectors of the society. Members of the

cultured "elite" , the rich upper middle class, who remain in close contact with local and international cultural trends are showing increasing interest in traditional architecture and urban forms, perhaps as an extention to their interest in traditional Islamic and local vernacular arts and crafts,or as a response to the growing international interest in this field

Much of the credit for this new acceptance should go to the works of both Hassan Fathy [7] and Ramses Wissa Wasef [8]. Their lifetime dedication to promoting and developing Egyptian vernacular architecture and arts , each in his own way , triggered international interest and gained much deserved recognition and acclaim from highly reputable critics and organizations worldwide. This international acceptance and recognition (which, interestingly, coincides with the post-modern movement in the West) seems to have encouraged the rich upper middle class to commission works based on traditional Islamic and Egyptian vernacular design concepts and forms.

To date, these works are still limited to individual houses, usually second homes in the countryside or on the beach, yet they do constitute a significant turning point in the way traditional architecture is perceived. How much influence will this phenomenon have on future residential developments remains to be seen. Historical indicators would point towards the occurrance of a ripple effect (or multiplier effect) in which the acceptance and reintroduction of traditional concepts will gradually increase and reach more and more social groups.

Alternatively, it could also be argued that this influence is not strong enough to produce any significant change in the ongoing building trends in residential development, generated by much stronger economic influences and rigid building regulations. While the above argument may be valid, I would argue that it is also true that it is the individuals who give their environment its special character by adding to it from their own spirit. Consequently, a community that values its traditional and vernacular architecture will have a positive effect in reestablishing a sense of unity and regional character. Interest in traditional forms may lead to more profound considerations and evaluations of traditional concepts, which in turn may lead to a convinced acceptance of traditional values in the morphology of contemporary residential developments.

2.3. EVALUATION AND CONCLUSIONS

Having introduced the reader to the current systems of control and their implications through the case of Nasr City at the beginning of the thesis, and traced the origins of these regulations and the conditions that led to their conception in 19th century Europe, and also having reveiwed the general aspects of the traditional Islamic system of control and historical examples from Cairo and other Arab cities, and finally going through the transition period from 19th century Cairo to date, let us now stop for a moment to reflect upon, and analyse these interesting and often contradictory notions of control over the residential built environment and the socio-cultural implications that follow, in an attempt to evaluate the advantages and disadvantages of the traditional system in comparison to the present building laws, codes and regulations.

From the preceding study we may conclude that there are basic philosophical differences between the traditional Islamic system of control over the built environment and the modern system currently in use. These philosophical differences affect a number of practical issues which, in turn, have a direct impact on the environment.

The most important difference between the two systems has been described as follows : "...In the traditional city the process relied on rules of conduct or social conventions which proscribed certain actions on the part of the inhabitants. In the contemporary city, the rules... prescribe in physical terms not only what is to be done but also how it is to be implemented. Implied within the traditional process is a reciprocal and possibilist relationship betwen form and use, while the contemporary process advocates a determinist approach to the relationship of form and use." (Al-Hathloul, 1981, p. IV)

Another important difference that follows from the above is that in the traditional city social activities and contact were controlled by controling access in a hierarchy of public to private areas, while the modern city is designed to provide maximum physical access to all parts.

A third basic difference lies in the traditional neighborhood being based on an economically heterogeneous social structure geared towards development and growth,while the modern concept of zoning leads to segregation by income and seems to be more concerned with preventing undesirable patterns of development. In sharing similar backgrounds, residents of traditional neighborhoods maintained a "shared image" of their own environment.

The above philosophical differences are manifested

in the following practical isues :

1- Response to local conditions.
2- Dealing with socio-cultural values and behaviour.
3- Dealing with new technologies
4- Control over public areas
5- Enforcement of rules and regulations.

2.3.1. Response to local conditions :

The variety of land tenure system provided within the traditional city allowed for a great deal of flexibility responding to local conditions and encouraging urban development and renewal. Furthermore, the traditional system did not in itself attempt to respond directly to the .various local conditions of an Islamic city or environment ; rather it did so indirectly, by allowing the local residents to develop their forms as they saw fit as long as they did not cause harm or damage to others. The system did not intervene unless called upon to do so, such as in a situation in which neighbours refer to arbitration to resolve situations of conflicting interest, or when damage is seen to be inflicted upon a member or members of the community.Solutions were sought from within the community itself and were therefore readily accepted in most cases.

It is therefore argued that this attitude towards controlling a residential development allowed for innovation, alteration, and diversity in solutions to a given situation. This diversity in turn led to applying the best available choices, which in turn were always subject to reappraisal and revision in order to keep up with changes and variations in local conditions be they climatic, social, economic, or otherwise.

Modern regulations, on the other hand by adopting a " physical and prescriptive" approach, automatically limit themselves to a very narrow range of solutions that may not be the best for a given locality, and much less so for general application throughout the whole region.

Historical, and practical experience seem to indicate that controlling an environment through "prescriptive" measures (as in the contemporary system) requires a larger and more complex system of design, implementation, and enforcement than through "proscriptive" measures (as in the traditional system). Furthermore, good systems of control, whether prescriptive or proscriptive, require freqent and systematic revisions and updating in order to keep up with the times and changing conditions and therefore maintain successful control over the environment. It seems only logical, then, that the simpler the system, the easier and faster

it will be to adjust to change. In this respect, it can be concluded that the concepts used in the traditional Islamic system of control offer great potential in response to our present local conditions that require a system that is flexible enough to be able to cope with a variety of requirements, yet simple enough to be well understood and accepted by the majority of a rapidly growing population

2.3.2. Dealing with socio-cultural values and behaviour :

The traditional Islamic system of control, as discussed earlier, was applied to a fairly homogeneous society as far as social values and behavioural conventions were concerned. Residents of the same comunity usually shared a common bond of allegiance, origin, or trade etc. and society was relatively stable and had little or no exposure to external influences. This made for a relatively higher degree of harmony, consideration and tolerance between residents and neighbours, who also shared the same social cultural and religious values. A judicial system of arbitration based on the concept of "harm" seems appropriate for such conditions. In contrast it may be questionable whether such a system would be realistically workable in a modern community, socially, religiously and politically heterogeneous , as well as being regulated by a modern secular judicial system that no longer deals with the concept of "harm" in the same ways as in the traditional manner.

It could be argued that perhaps the major element of support to the traditional system of arbitration based on the concept of "harm" is the social cohesion and sense of belonging of the community. This sense of belonging seems to have become diluted to a great extent, especially in the new residential areas not built on common ties between residents who have not yet had the time to develop their own community ties and sense of belonging.

Whether the traditional system is still, or is no longer, applicable under such conditions may be debatable (and indeed will be debated in the forthcomming pages), but what should be clearly recognized here is that it was closely connected and responsive to the socio-cultural values of the communities it served, which is far more than can be said for the present "modern" system.

2.3.3. Dealing with new technologies :

The traditional Islamic cities in their heydays were, in effect, the centers of progress and the latest technologies of their times and did not seem to have any inhibitions about applying new techniques, or testing new designs,building materials or forms whether these were local or imported. However, it should be noted that such innovations and changes came along gradually and new technologies were revised and improved over relatively long periods of time, which gave the local craftsmen and communities, the opportunity to assimilate and integrate them within the local tradition and vernacular.

Considering the military, political, and economical effects of the new technologies developed in western Europe during the Industrial Revolution, it becomes quite understandable that the countries that did not possess these technologies at the time - such as Turkey and Egypt - felt that they were at a severe disadvantage, and logically decided to import such technologies in order to maintain their international competitiveness, or at least defend their independance. It seems that the industrial and consequently military , political and economical superiority of the West at this point in history established the perception of modernization as being synonymous with westernization.

Modern industrial technology once imported into Egypt initiated a series of inevitable changes (for better or worse). Modern industrial technology, being fundamentally different from traditional systems of manufacture and artisanal crafts required and developed it's own pace, organizations, and networks. The relative speed and complexity with which modern technology operates created new requirements for coordination and integration, and gave rise to a new breed of administrators: the technocrats. The urban environment, in turn, came under the administration of these technocrats who applied the same principles of industrial production by setting objectives, then proceeding to design and implement plans to reach these objectives (which is the way we work now). The outcome, is the result of their own vision of what the physical environment should look like, a vision not necessarily shared by the people who have to live in these environments.

As explained earlier, both the Islamic reformists and the secular modernists agreed upon one central point, the desire to introduce " modern technology " within their societies. However, this new technology was viewed by each party from an entirely different point of view. The Islamic reformists adopted the position that western technology can

(47)   *Reinforcrd concrete frame & brick infill becomes a "traditional"*

way of building in informal settlements.

be stripped of any unwanted cultural implications it may have and modified to suit local conditions. This, as we saw earlier, was very much the position held by Mohamed Ali during his efforts to modernize Egypt in the mid 1800's. We have also seen that this belief does not seem to hold entirely true, since the technologies in question were usually developed in response to specific conditions and requirements within the cultures in which they originated. They also invariably entailed a variety of social and technical organizations which in turn directly affected the societies in which they were applied. On the other hand the modernists also seem to be making two big mistakes. By disregarding the the past, they ignored a number of valid solutions and ideas that could have saved them time , effort and money, and secondly, by equating progress and modernization with "westernization" they again overlooked valid potentials that may have been close at hand and insisted upon looking towards the west for solutions to local problems. This position generated a desire to " wipe off everything and start from scratch " by importing technologies and materials from other cultures that were seen to be superior. By doing so it may have imposed heavy economic burdens on a country that could ill afford it.

It should also be recognized that now, as in the past,

many imported technologies and materials have been increasingly used over the years and have become assimilated into the traditional way of building, to the extent of replacing other long standing traditional techniques and materials, even though the latter may be superior, more efficient, or more economical than the former. Such is the case with reinforced concrete structures and cement that have become the prime building and finishing materials in all but the most remote areas of the country. Other traditional materials such as fired bricks, manufactured for centuries from the silt deposits along the banks of the Nile, are now outlawed (prohibited) by the government in an attempt to protect the fertile agricultural land in danger of rapid depletion as a result of excessive brick-making to meet the ever increasing demand. Fired bricks are now being replaced by clay bricks, concrete blocks and gypsum board, to name only a few.

Today as in the past, new materials and techniques continue to be introduced, and will eventually be judged upon their true, overall merits. Only now the choices are greater, the pace faster and the mistakes much more costly.

2.3.4. Control over public areas :

The present system of control tends towards the polarization of the built environment into two main types of domain , public and private, while the traditional system acknowledges a much greater range of different degrees of privacy , including public, semi public, semi private, and private . Different levels of control over access and social behaviour were built into the street networks creating gradual transitions from state control to communal to individual control over open areas and streets. Although the *Muhtassib* and *Sheikh Al-Hara* were theoretically responsible for ensuring the unobstructed flow of traffic through all streets, the responsibilities of individuals to maintain and clean the streets were assumed to grow as the streets became more private, while the state's authority represented by the Muhtassib was greatest along major public thoroughfares and market places. This gradual and overlapping transition seems to have had both positive and negative effects as far as issues of control are concerned. On the one hand it promoted a sense of responsibility on the part of the residents to effectively use and maintain their streets and open spaces as extensions of their own homes, but on the other hand it also encouraged encroachement on public space which was

usually not considered to inflict any harm or damage, as long as none of the neighbours, or residents of the street in question, complained. This attitude seems to remain entrenched within the behavioural patterns of modern day residents, especially when pressured by the increasing need for space to accommodate dwelling or commercial activities. Such encroachments become increasingly difficult to tolerate under modern conditions of high densities, vehicular traffic, and the need for access to infrastructure networks for installation and maintenance.

Therefore it seems that the traditional system may not be an ideal example of controlling public streets and open areas. However it may be beneficial to apply the traditional concepts of responsibility to communal open spaces shared by a defined and limited number of residents.

2.3.5. Enforcement :

"Laws and regulations if not perceived by the majority of the population as being in their own best interest, as well as for the common good, will be challenged." (Serageldin, 1979.) This puts more strain than necessary on the enforcement process which, at best, is a difficult operation. Therefore the first consideration on the issue of enforcement, I believe, is the formulation of realistic regulations that are acceptable by the majority and can therefore be adequately maintained and enforced. This logical consideration corresponds with a familiar Arabic saying : " If you want to be obeyed, order what can be done". It follows that realistic regulations that take into account the ability of the communities involved to conform to its limitations will be much easier to maintain and enforce than others that do not. A significant advantage of the traditional system is that it seems to be self-regulating, or self enforcing in many ways because it is based on the concept of harm. The term *" La darar wa la dirar"* means that "...There shall be no damage, and no mutual infliction of dammage" . By encouraging the community to regulate itself, the system minimizes the role of the state in law enforcement . Studies also indicate that when a given ruling was passed within the

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traditional system, or when the need arose to enforce a given rule it was usually done swiftly and strernly (This is clearly exemplified by the powers of the *Muhtassib* to sanction punishments and have them carried out immediately and on the spot). Violations were usually removed entirely at the violators expense unlike many modern systems that revert to imposing a monetary fine upon the violator.

It may therefore be concluded that the traditional system of control, while allowing for greater flexibility and latitude, was in fact much stricter and was uncompromising when it came to enforcement.
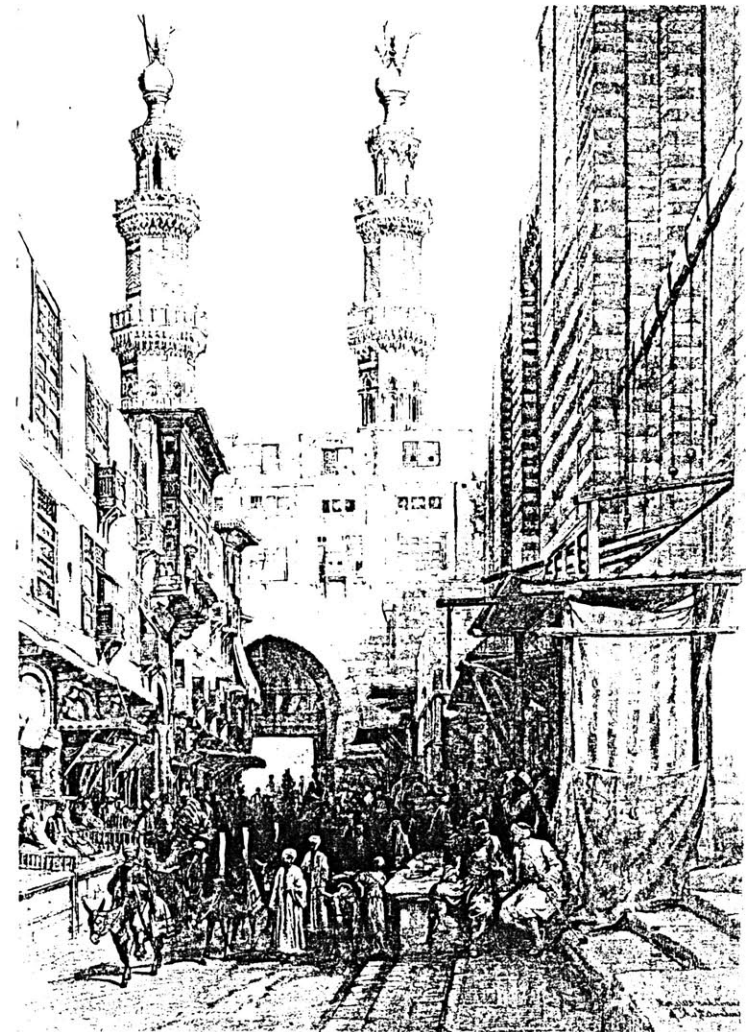
(48)   *Activities along the main thoroughfare by Al-Mu'ayyad mosque*

and Bab-Zueyla.

CHAPTER THREE

3.1.Contemporary conditions and requirements

3.2.Proposed guidelines

3.3.Epilogue

Having shown the disadvantages of the present system of control over the built environment in the first part of the thesis, and presented many of the advantages of the traditional system in the second, it may now seem logical to conclude by proposing to adopt principles learned from the traditional system in order to solve a number of contemporary problems. Yet it seems to me that simple recomendations to adopt principles x, y or z cannot be a fitting of acceptable conclusion to the study. It is further argued that the issues of validity and applicability considered in the preceeding chapter, are in fact only the beginning ao a long process of establishing a new, efficient and successfull system.

Having determined the limitations, as well as the potentials of the traditional system , and decided upon what can be carried forward, we now reach a stage requiring us to consider the methods by which such concepts can be implemented in a contemporary context, and the manner in which the, may relate to existing modern systems, in addition to anticipating possible problems and preparing adequate strategies to deal with such situations.

3.1. CONTEMPORARY CONDITIONS AND REQUIREMENTS

When considering the application of traditional concepts and values to contemporary residential conditions we should recognize three important elements of modern residential environments : Infrastructure, vehiccular traffic and apartment buildings.

3.1.1. Infrastructure :

Streets in modern formal developments support a host of services and infrastructure above as well as below ground, that are usually pre-designed to be installed and maintained as economically and efficiently as possible. The provision of such services benefits considerably from economies of scale and are therefore usually supplied by the state. This in turn usually leads the relevant government agencies to adopt more or less standard designs and configurations for infrastructure systems both regionally and

nationally. While the importance and influence of adopting efficient and economical infrastruture systems should be recognized, as indeed may be noted in the case of the old city of Fez which is known to have been built based on an elaborate system of water supply and drainage canals, we should also emphasize the importance of close cooperation between the urban designers and municipal engineeers at the early stages of design and development in order to avoid unecessary restrictions that may result from the implementation of a given pattern or system of service lines that may not lend itself to a required built form and environment.

3.1.2. Vehicular traffic :

Private and commercial traffic in traditional Islamic cities was adequately accommodated relative to the existing technologies and physical requirements of the time, as we have seen in the example of determining street widths to enable the passage of fully laden camels. It should also be noted that commercial traffic was controlled by the diminishing widths of the more residential streets, yet it was not explicitly denied access or avoided by means of "footpaths" reserved for pedestrians only. The notion of segregating pedestrian and vehicular traffic does not seem to

have been present in traditional Islamic cities. It has been argued that the nature of modern vehicular traffic with its high densities and speeds constitutes a dangerous hazard for pedestrians in a residential area, and that avoiding this situation by means of segregated pedestrian paths justifies the trouble and expense of seggregating the two systems of traffic. We therefore find numerous examples in proposals for residential developments where residents are required to park their motor vehicles in designated lots along the periphery of the site, then use a network of internal "pedestrian only" foothpaths to reach their dwelling units which may be quite a distance away. Yet pedestrian safety within residential areas can be achieved quite efficiently by reducing the speed of motor vehicles and emphasizing pedestrian priority . Indeed, the traditional quarters in Cairo where almost all means of transportation (motorized and otherwise) mix and mingle, are in reality much safer than they appear to be, mainly because of the slow speed that is forced upon all due to street size limitations. Controlled residential streets in many European and North American cities are now becoming accepted as efficient solutions allowing both vehicular access and safety for the residents. Segregated footpaths that do not lead to specific internal communal services, such as children's playgrounds or sports facilities, have usually tended to become lonely, unattractive

and neglected places as they fail to produce the variety , excitement and social contact of the "real" streets alive with shops, services and the wide spectrum of people using them. Safe areas in which residents may engage, undisturbed, in various outdoor activites are definitely an asset ; however, I believe that the value of direct access to the street should not be underestimated, whether from the authorities point of view requiring rapid, unobstructed acess in case of emergencies (fire, ambulance, etc.), or from the residents' point of view. They may feel that direct access to the street increases the value of their investment in the dwelling units, in addition to the high value that is usually attached to the possibility of maintaining close visual supervision over their motor vehicles.

3.1.3. Apartment buildings :

Relatively high rise residential buildings have historically been used in traditional Islamic societies such as in San^{c}a, and in Cairo, where the *tibaqs* and *wekalas* served similar functions to that of the modern apartment building. · In addition to increased height and other technological features made possible by the application of modern technologies, the traditional models basically differed from their modern counterparts in that they had dwelling units arranged around a large internal courtyard as well as other units, or rooms, facing towards the exterior, whereas the units in a modern apartment buildings are usually extrovert only. Although the gallery access system was sometimes used, traditional models in many cases provided a private stairway for small groups of unit sas opposed to the common staircase - and elevator where applicable - in the modern apartment building.

On the other hand, it becomes quite interrsting to note the striking similarities between the modern apartment building, and the traditional *hara*, as urban models, especially when considering the following :

- Access from street through controlled gate or doorway.
- The traditional position of the *bawab* as a security guard in charge of supervising the gate continues to be used in exactly the same manner, with even the name :*"Bawab"* conserved.
- The vertical circulation elements of the building, the staircase and elevators, and the floor landings which they connect may be compared to the main road or lane through the hara which branches out into smaller dead end streets arround which open the entrance doors to the individual dwellings.
- The physically defined boundaries of the residential

structure in both cases, whether on a horizontal plane (in the case of the hara) or a vertical plane (in the case of an apartment building).

- The sense of unity and belonging to a well defined part of the neighborhood (a specific building or hara).
- The hierarchy in social relationships that follows, such as the relationship each resident has with his immediate neighbours - sharing the same floor landing, or dead-end street, then his fellow neighbours residing in the same building or hara, and finally with the remainder of his community, neighborhood or quarter.
- Even the heterogeneous social structure of the traditional hara can be found in the older apartment buildings (built 20 to 30 years ago) where many servants quarters on the roof-tops have been converted to accommodate a host of social and economic levels of the population. These older and usually larger apartment buildings have become what may be considered as modern , or vertical, *hara* communities, with most if not all of the characteristic traditional social values and economic interdependence mechanisms .

There are, of course, important differences between the traditional hara and the modern apartment building, perhaps the most important of which is that residents of apartment buildings have, for better or worse, a more direct visual and physical contact with residents of the surrounding buildings and the main street ; in this sense they are extrovert, as opposed to the haras which are usually more sheltered from the external environment that lies immediately beyond their boundaries and relate primarily to other elements within the same hara, and may therefore be considered as introvert.

The similarities between the hara and the modern apartment building in Egypt, may raise important issues, especially when considering that many medium and high rise, high density, residential developments in the West are now considered failures as far as social relations and security are concerned, and indeed some have been demolished while still structurally sound. It is interesting to note the effect of different cultures on the use and perception of similar physical forms. Therefore, by the same reasoning that led us to question the validity of directly transporting and applying foreign models to other environments that may be fundamentally different, it also becomes questionable whether we should condemn a given building type in one environment ,just because it has failed to satisfy the requirements of another, even if the latter was the

environment for which this type was originally designed. In other words, let us not make the same mistake again by judging the validity, or otherwise, of a given building type or model in an Egyptian context, only through the western values and standards. The reasons that have led Western authorities to conclude that these bulding types are unacceptable for their communities, may not hold true in the case of Egypt or other countries. The following substantiated examples may prove this point :

- "*Density* as a physical variable should be differentiated in its effects from the psycological factor of *crowding* i.e. dense areas are not necessarily crowded" (Canter, 1975). According to Canter, the experience of being crowded involves individual cognitive interpretations of density in a particular context. Cultural differences in the use and organization of space may then explain the differeces in acceptance levels of density.

- This notion may be substantiated by a 1963 study by Schmitt which revealed that in Hong Kong, where the urban density was more than 2000 persons/acre the rates of disease, mortality, mental illness and serious crimes combined, were all much lower than those in the United States where high density areas such as New York and Boston seldom exeed 450 persons/acre (El Sayad, 1984, p 132).

- Another study in 1971 on Tokyo by D. & S. Canter reports that : " More than 20 000 persons/square mile lived in Tokyo, over ten times the average for many American cities. However violence, and vandalism are rare. Streets are alive until late at night, and community participation is an integral part of local decision making." (Canter, D. & S. 1971, pp 60-63.)

A number of important factors contribute towards the tendency to use medium to high rise apartment buildings as a preferred building type for residential development in Cairo and other major cities in Egypt :

- Egyptians are accustomed to relatively high densities, which may even be considered as an asset insofar as higher densities increase communal interaction, neighbourly relations, and increased care for the young and the elderly.

- Good location relative to employement and commercial activities remains a highly valued consideration.

- The scarcity of serviced sites naturally suggests high density developments.

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- The economies of scale involved in installing infrastructure services based on a certain optimum building height and the ensuing population densities (e.g. sewerage networks may need to increase only slightly in order to accommodate disproportionately heavier use, up to a given point where the cost will then rise sharply due to the necessity of applying a new and different system which in turn will reach a higher plateau of optimum economy and so on).

- Optimum constrction costs, depending on building techniques in use seem to point towards a clear preference to either five storey walk -ups or ten storey elevator-served buildings.

- The high demand for housing due to "population explosion" continues to apply strong pressure in the direction of high density residential development.

We may therefore conclude that apartment buildings as a building type in Egypt do, in fact, respond to a number of important local conditions, especially economic, although they also leave much room for improvement vis a vis their response to climatic and socio-cultural considerations. I would therefore argue that the problems of the present residential environments do not lie in the apartment buildings as a building typology , but rather in the configurations and spatial relationships of the buildings to each other on the one hand, and to the public spaces on the other.

The above physical conditions of the contemporary residential environment in Egypt (infrastructure, Vehicular traffic and apartment buildings), as well as the changing social structure and value systems discussed in the previous chapter, should now lead us to reflect upon the ways by which we may approach the task of formulating new proposals for the shaping of contemporary Egyptian residential environments that are both responsive to present needs and conditions as well as benefitting from the experience gained through the study of the traditional environment .

3.2. IN SEARCH OF GUIDELINES

Architects interested in developing and promoting urban forms that are appropriate to contemporary conditions, as well as being conducive to reestablishing traditional and local characters, may be faced with a dilema which is basically how to maintain control over rapidly developing communities and yet allow and encourage variety and character ? The question seems to echo much of what Habraken presents in his work on supports and thematic systems. Alhough these may have been a product of attempting to deal with the monotony and inadequacy of mass production and prefabrication systems, the isssues of control and restrictions imposed upon the built form and social activity of residents are very similar. Our objective may then be to create an "ordered" rather than an "organized" environment. The notions of "ordered" versus "organized" environments as set forward by Habraken may be explained as follows : an ordered environment may be compared to a "game" which is governed by only a few basic rules agreed upon by all parties envolved and thereby allows for great variations and exciting possibilities, as opposed to an organized environment which would be comparable to a "parade" that requires everybody involved to follow a predetermined course of action from which they are not allowed to deviate. However in order to avoid uncontrolled chaos, we must also note at this point that such an ordered environment, by definition, requires the setting of a minimum of rules upon which all parties concerned must agree and, as emphasized earlier, these should be as few and as simple as possible. It is at this stage that the role of the architect and urban designer may be instrumental in determining the shape and quality of the future environment, by proposing appropriate systems and typologies and demonstrating the capabilities and effects of each on the environment, the continued study of which may lead to the elimination or improvement of defective systems until the most suitable is achieved. The questions now become : Which and how much, or rather how few, explicit rules and regulations should we impose ? And how can we determine that the regulations that we have imposed are in fact reasonable or otherwise ?

A precise answer does not seem possible at this time and stage of this study. Obviously there is a fine balance to be sought between the contradictions which may vary according to the local conditions of each locality, and we can only attempt to come as close as possible to it. The important point that becomes apparent from this notion is the necessity of establishing a system that allows for experimentation, trials, revisions and constant improvements.

Although physical, technological and some social conditions may have changed, certain basic concepts and approaches seem to hold true and remain valid to this day. Indeed it seems to me that the key lies not in the physical forms, but in the manner by which the environmental problems are approached, and the reasoning behind the systems we choose or develop to deal with the situations in hand. In this respect, I believe that the traditional system has a lot to offer.

Changing the current situation and cultivating new systems of control based on decentralized public participation will no doubt require a considerable amount of time and effort, however it is said that "the journey of a thousand miles starts with one step".

When considering guidelines for the development of new residential areas, I feel that the issues should be considered from two points of view; that of the municipal or state authorities and their responsibilities towards controlling the quality of life in the new developments, and that of the residents and their natural desires to shape their environments according to their individual needs and desires. In other words we should consider one set of guidelines at the level of the authorities and another set at the level of the residents. In all cases however we should also understand and recognize the element of time as a fourth dimension in the development process (Habraken, 1979) and learn how to use it to our advantage in developing built environments that are formed and developed by continuous and gradual additions, modifications and improvements over time.

3.2.1. Guidelines at the level of state and municipal authorities :

Before attempting to implement a new system of control (based on traditional concepts or otherwise), we should understand that such a change within a centralised bureacracy as it exists in Egypt will usually be resisted by the bureaucrats and technocrats who may fear to lose some or all of their powers of control that they presently command.

It may be advisable to suggest gradual changes rather than confront the "system" with an all-out reform. A good approach to the authorities when proposing changes to their system, may be that of physical and economical efficiency which would have a good chance of attracting the attention and interest of influential, high ranking officials in the administration, who would add more leverage towards implementation and might later on become substantially helpful in presenting and implementing more complex proposals. In all cases, there is a definite political dimension to be considered and taken seriously into account. This

consideration, and its subsequent ramifications and details of implementation lies beyond the scope of this thesis, and is perhaps best left to the administrative and political experts, who will hopefully become convinced of the architects' and urban designers'proposals.

Among the basic issues being argued in this thesis is that the predominantly "prescriptive" system of controlling residential developments is rigid, and allows little flexibility in coping with change, an inherent character of all societies. It eventually loses contact with the realities of the surrounding conditions and leads either to inappropriate environments, or to the disregard and violation of set laws and regulations.

It is therefore proposed to review the basic philosophy upon which the present system of control is based in the light of a "proscriptive" approach to the issues involved.

While I recognize that many of the forthcoming guidelines and proposals may be difficult to implement without entailing a host of political, administrative and other reforms in the bureaucracy, the extent of which is not clear at this point, we should not however be discouraged from presenting our proposals within a positive and optimistic frame of mind, for it is the optimism that enables us to have a vision of an improved environment, and goal to pursue and hopefully achieve.

Safety & sanitary standards should not be compromised at any time, however it must also be accepted that rthe same standards may be achieved by different techniques. Such techniques or technologies may be continuously revised and updated in a competitive market to provide better services at lower costs. Therefore, rather than setting standard specifications based on a given technology which will become superseded sooner or later, it is proposed to set the standards based on the results that should be achieved,i.e. the quality of life that is expected. Building designs and projects submitted for permit approval, may then be considered in the light of, and judged by, how successfull they are in providing effective solutions to the requirements of the local conditions. Thus the process of submitting for a building permit approval may be developed and raised to a level in which it becomes a permanent field of comprtition where new ideas are encouraged through a system of incentives to the designers and owners/developers and judged upon their merits without unecessary inhibitions and restrictions. Valid designs and new solutions may be developed further and implemented on a larger scale in local or surrounding communities.

In order for such a system to succeed, two major requirements must be achieved :

a- A system of incentives for the designers (architects and engineers), as well as the owners and developers, such as recognition and publication for the former and fee waivers for the latter for example, in order to encourage the development and refinement of new solutions.

b- An efficient, qualified and reputable panel of reviewers to evaluate the design proposals in question.

Shaping the environment in a manner that is responsive to local conditions may require the authorities to consider the following :

a- Define which responsibilities the authorities can effectively undertake and provide for the community, and which it will delegate to the residents. The clear demarcation and division of responsibilities should be made clear to all residents as well as the public servants involved. A good example may be that of the so called public gardens or green areas. Since it has become apparent that the municipality cannot afford to cultivate and adequately maintain such facilities, it should therefore become a design policy to incorporate as many green area spaces as possible to the care and responsibility of the residents. This in turn would have an influence on the physical design of the neighborhood by, for example, leading to a continuous, linear progression of small individual gardens attached to the ground flour units of the buildings, rather than a single large public space.

b- Allow for the development of an economically heterogeneous society within the new developments by offering different sized plots, and allowing greater flexibility in the process of division and consolidation of sites.

c- Population densities may be determined by more rational economic reasons such as the capacity of the infrastructure services system.

d- Respond to ecological conditions (i.e. Resources, available materials and technologies, climate,etc.) and allow residents to de the same. A simple example may be that of street design within the residential areas. Accepting that the street layouts will be influenced by the requirements of the infrastructure services, it is still possible to desigm streets that are slightly curved rather than absolutely straight thereby reducing the effects of sand-laden winds in addition to providing a welcomed variety in light,shades, shadows and vistas.

e- Within the areas of responsibility delegated to the residents, maintain a minimum level of control, leaving a greater amount of flexibility to the residents to shape their own enviromment. However it is important to determine and agree upon this minimum, and make sure that "the rules of the game" are understood by all involved.

f- Control over the built environment can be made easier if adequate counselling and consultation services are provided to the communities. Municipal architects and engineers, it is proposed, should be substantially involved with the communities they serve, on location, to give advice and propose alternatives to raise efficiency, reduce cost, ensure safety and sanitary conditions and avoid causing dammage to neighbours. This process may take place at the design stage, the building stage, or later on during expansions and home improvement projects.

g- Regulations and laws affecting community life (such as zoning, and plot size etc) should be considered in conjunction with comprehensive social studies relating to known patterns of behaviour for the different groups of the communities in question. Blue collar communities may have different patterns of behaviour regarding leisure time and socializing from white collar communities, for example; their respective environments should then accommodate these differences.

h- The system should seek to build in a self-regulatory device ,which ensures constant revision and updating in order to keep in touch with the realities and needs of the communities. This may be achieved by maintaining an open door to the comments and complaints of the community and maintaining public accountability.

i- In order to raise the quality of the design for residential developments it is proposed to remove this responsibility from municipal design offices (which usually lack the incentive for research and development) and revert to open competitions and private architectural and urban design firms who could still work in conjunction with the public authorities along an agreed theme, but would no doubt introduce much needed innovation, practical market experience and relay the needs and aspirations of the public.

j- Regulations should be as few as possible, as clear and realistic as possible, and should be uncompromisingly enforced.

k- The disadvantages and long delays experienced through litigation in the slow and overloaded civil judicial system [9] may be short-circuited by setting up a system of arbitration similar to the traditional system in which a designated panel of reputable and qualified personnel may help resolve local problems expediently, either by mutual agreement or by a court ruling which should then be immediatly enforced before new developments in the situation cause further complications.

A major question at this juncture is , how valid are the concept and implementation procedures of the principle of harm or damage which formed the basic premise for the traditional system of control ? It seems to me that the concept in itself remains absolutely valid and applicable. Indeed, both the traditional and the modern systems of control agree upon the same principle, the difference is that the modern system attempts to prevent harm or damage by prescribing a set of rules and regulations hoping to cover all aspects of what the authorities perceive as damaging actions. This, however, may lead to a situation in which an action can be harmfull but not illegal, or beneficial but illegal, whereas the traditional system was based on the first-hand perception of harm being directly inflicted or experienced by one or more parties (i.e.

no harm was considered to be done unless somebody complained). Conversely, it could be argued that the traditional system entails an uncomfortable notion of ambiguity as to the reaction of a neighbour to the structure being erected by another, and the implication that a complaint lodged after a substantial amount of work has been carried out can cause serious and unecessary delays and financial damage to the developer, which could have been avoided had there been some earlier agreement as to what could and what could not be done. This situation may be somewhat problematic, but it is one that I believe can be solved through a synthesis of the two systems and the infusion of new procedures such as establishing basic rules formulated by the local authorities in the light of local conditions, such as the limitations dictated by the capacity of the infrasructure system for example. Aditional guidelines and general points of agreement could then be formulated with the active participation of the local community. Developers or neighbours wishing to deviate from the guidelines may do so providing they present their case beforehand and make their plans known to the community and available for criticism and discussion; such a system may lead to settling the major differences that may occur between neighbours in advance, thereby saving valuable time, effort and money.

In order to propose a successful system of control

over a given environment or community, it is most important for modern planners to have at least a fairly accurate idea about the behaviour patterns and social values of the residents, in order to anticipate what may or may not be acceptable and how the community will be expected to use their neighborhood. These notions will consequently influence the type of system to be proposed and the ways in which it may be implemented and enforced. It follows that the exercise of correctly anticipating such patterns of social behaviour can become much easier and more accurately predictable if the community in question is structured around a strong bond such as common profession or allegiance etc . irrespective of differences in income that may exist between individual families. This organization which existed in the traditional *hara* and made it a successful urban unit can also be developed in a modern community through the already popular system of cooperative building societies and should be encouraged further and developed to its full potential. Furthermore, it is suggested that members of communities, who originally may not have much in common with each other as was the case in the traditional neighborhoods, can be made to come closer through active participation in community activities of mutual interrest, which will in turn stimulate their sense of unity and belonging to the neighborhood.

3.2.2. Guidelines at the level of the residents and developers :

a- Cultivate awarness of the benefits and validity of traditional forms, through grass-roots as well as highly intellectual programs aiming at erasing the stigma attached to traditional forms and environments. Emphasis should be given to programs aimed at school-children and students by evoking the qualities to be admired in traditional architecture and historic monuments, through well-produced publications, field trips, seminars, audio-visual presentations and programs of active participation in historical preservation projects in the form of summer jobs for high school and college students

b- The role of the media , especially television, and its importance in presenting the desired image to an extremely broad spectrum of the population should not be underestimated, and may be used as an extremely effective tool in shaping a shared image regardingthe way people relate to their past, as well as their present and future, environments. Direct

praise of traditional forms, values and systems in dry scientific documentaries may not appeal to the masses who should be the primary audience to be addressed .A more effective approach may be in the intelligent choice of settings and indirect educational information skilfully blended into popular programs, shows and drama. It may even be beneficial to borrow some of the commercial marketing techniques used to re-introduce an old product to the market by presenting it within a modern context and playing down its history, which may not be very appealing to the targeted consumers.

c- Climatic conditions have not changed with time; therefore, traditional methods and techniques of creating cool and comfortable living environments in hot dry climates remain as valid now as they were centuries ago. Needless to say, the various solutions thereof have been widely studied and documented by both local and international scholars who have established their validity and applicability to present buildings. The straightforward application of these design concepts, such as wind catchers, ventilation systems, courtyard designs, shading and screening devices etc. in conjunction with modern yet simple technologies of passive and active solar design, seems to be relatively easy and would generate a substantial momentum in taking the first step in the right direction . In addition to providing practical solutions in dealing with the environment, this approach would also contribute substantially to changing the public's misconceptions about traditional architecture and urbanism, thereby paving the way for another step in this direction.

d- Design social and community programs aimed at encouraging community residents to become involved in the decision making processes, thereby gradually developing a sense of consensus regarding social behaviour and a shared image of the physical environment.

e- Encourage pilot projects and pioneering communities and developers who wish to explore the possibilities of developing such communities . The concept of reviving "dead land" may be reintroduced and encouraged as a tool for directing development into the desert away from precious agricultural land, and a contribution towards reducing the total cost of finished dwellings.

f- Encourage new thoughts and ideas of local designers along the lines of developing better residential

communities through frequent public competitions, the results of which should be highly publicised and local feed-back from communities and individuals encouraged.

g- Encourage the development of cooperative societies as effective community organizations that can offer a variety of social and environmental benefits as well as the usual financial assistance currently provided.

In conclusion , we should note that the above are but a few of many possible proposals and alternatives ; they may not be perfect, or applicable to all cases, but they do open up a variety of possibilities that I feel are worth investigating. It can be argued that some proposals may entail major administrative changes; this I believe may have to be
individually judged on its merits, depending on the specific conditions of whether the possibilities of success and the benefits gained are seen to outweigh the trouble, effort and time necessary to make the required changes.

3.3   EPILOGUE

Traditional Islamic architecture is indeed beautiful and impressive. Centuries of development and improvement have led to some of the most dramatic and admirable architecture in history ; yet it seems that this beauty and aesthetic refinement may, ironically, present the major danger of misreading and misinterpreting its true values, and thus letting our aesthetic appreciation of, and romantic attraction to, certain forms and spatial relationships override our best judgement of applicability and validity within the context of our present conditions. The splendour of traditional Islamic architecture was made possible by people and communities bound together in their common beliefs, ideologies, aesthetic values and patterns of social behaviour, working with relatively limited materials and technologies and restricted by a minimum of rules and regulations. External influences were not rejected but assimilated and gradually filtered into the local tradition at a pace that allowed for adequate evaluation and modification until they became part of the tradition itself. Their architecture was therefore a pure and unhesitating manifestation of their own lives, values and aspirations .

I feel that it is important for us to keep this notion in mind, and to acknowledge that it will not be possible to improve the quality of living in our residential environments until we first reach a level of understanding, agreement and unity amongst ourselves regarding our aims and perceptions. Perhaps what we perceive as "architectural" problems are really social problems, and as such the road towards new, appropriate and characteristic built forms and physical environments actually starts from deep within the social structure . By studying the social conditions and the systems of controlling the development of the traditional built environment we may begin to understand the true generators of appropriate solutions and their subsequent physical forms and spatial relationships. It then follows that the application of the most appropriate systems relative to specific local and contemporary conditions, may generate new forms and relationships which may, or may not, resemble any of the familiar traditional forms. This , I believe, is the true challenge that presently faces the architects and urban designers of this part of the world who are now called to draw upon their technical skills, aesthetic talents and social sensitivity as well as their cultural and historical awareness to synthesize new forms and typologies to be submitted to the tests of humanity and time.

What these new forms will look like, and whether new, successful typologies will be developed remains to be seen . To the author, at least, this is presently the most exciting goal to pursue.

APPENDIX

Helwan public housing estates :

Until recently, residents of this housing estate rented their units from the public authorities. During this period only a few tennants carried out some individual additions and alterations to their units, as shown in photograph (49).

Accepting that they can no longer afford to maintain the buildings and site adequately, the authorities offered the property for sale to the tennants.

Now owners of their own dwellings, the residents set out to expand their units in an organized fashion by contracting local builders to put up the abbutting structures shown in photographs (50) and (51).

The resulting facades, although similar to the original structures as far as regularity and repetiteveness are concernrd, display the individuality of each dwelling through differentiated finishing materials, colours and ornament as shown in photograph (52).

(49)   Typical public housing apartment buildings. Note few

individual additions by tennants.
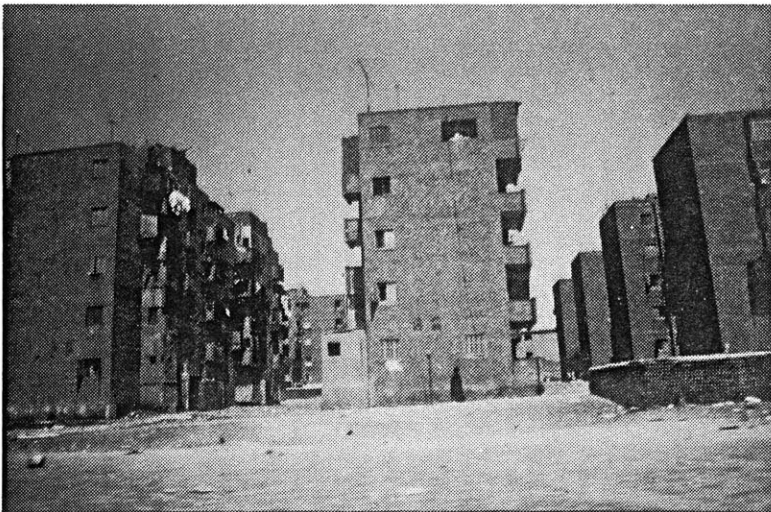
*   *Photographs (49) through (52) courtesey of Professor Mona Serageldin.*
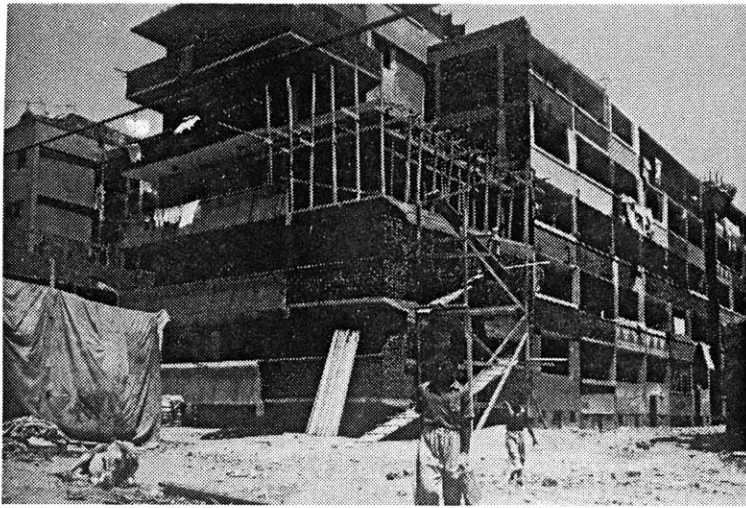
(50)&(51)   Residents increase their habitable space by erecting new

structues abbutting the existing apartment blocks.
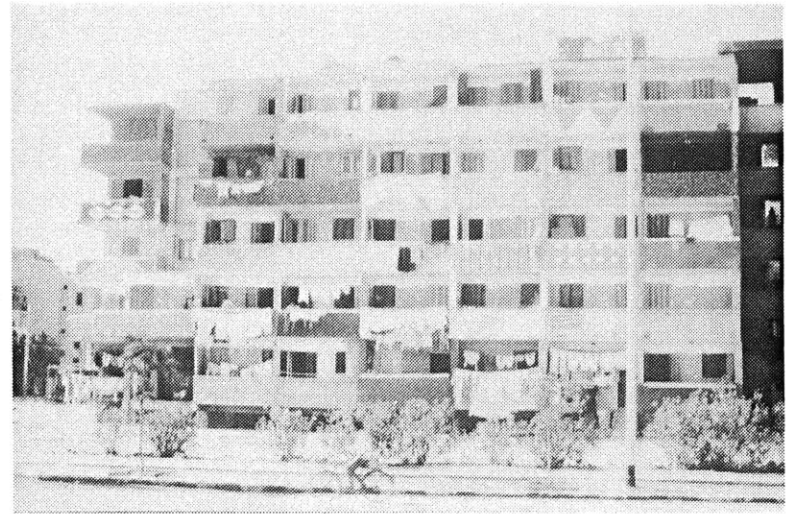
(52)   New facade of apartment building.

GLOSSARY :

Ahl Al-Khibra   Litterally means "the people of experience", i.e.experts, specialists, etc...

Amir   Prince.

Bab   Gate or door at the entrance of a residential area, or city gate.

Bawab   Door-man, as in "janitor", responsible for guarding and securing the gate (bab) to the residential quarter.

Darb   Gate at the entrance of a residential area.

Derviche   Also darwish : Members of religious fraternities. These fraternities formed the organized expression of religious life in Islam.

Dorquaᶜa   Also Dorqa'a, or Dorka'a. The central space around which the quaᶜa type house is arranged.

Hadith   Narrative, talk. The definite article " al-hadith " is used for tradition, being an account of what the prophet said or did, or of his tacit approval of something said or done in his presence.

Hara   Quarter , ward or part of a town.

Harem   Also harim : Term applied to those parts of a house to which access is forbidden, and hence more particularly to the women's quarters. Also "Haram" may refer to "Sanctuary", as in *Al-haram al-sharif* (the noble sanctuary), an area to which entry is forbidden to all except those authorized. The same term may be extended to refer to areas abutting buildings or waterways in which no building or obstructions are allowed.

Hisba	Non-Kur'anic term which is used to mean on the one hand the duty of every Muslim to " promote good and forbid evil", and, on the other hand, the function of a person who is effectively entrusted in a town with the application of this rule in the supervision of moral behaviour and more particularly on the markets; this person entrusted with the *hisba* was called the *muhtassib* .
Imam	May refer to "supreme leader" of the Muslim nation after the death of the prophet. In a more general sense, refers to the leader of the congregation during prayer.
Iwan	A room, chamber or hall open at one end to the outside or to a larger space.
Kadi	Judge. A representative of authority, invested with the power of jurisdiction. In theory, the head of a community, the Caliph, is the holder of all powers; like all other state officials, the kadi is therefore a delegate, direct, if appointed by the Caliph in person, or indirect if nominated by intermediate representatives (such as the wazir, governor of a province, etc...). The kadi can, in turn, appoint delegates and may consult with other qualified jurists.
Khalifa	Originally *" Khalifat rassul Allah"* i.e. the successor of the prophet of God. Refers mainly to the four successors of the prophet : Abu-Bakr, Omar, Uthman and Ali. Later extended to refer to the head of the Islamic nation.
Khamsin	Arabic for fifty. Refers to hot, sand laden winds that blow over Egypt intermittentely during a period of fifty days from March to May.

Khedevies	19th century rulers of Egypt. Descendents of Mohamed Ali.
Kism	Area of jurisdiction, corresponding to police precinct.
Metro	Term used to refer to the metropolitan light rail public transport system in Cairo.
Mufti	A canon lawyer of standing. A *Mufti* delivers a *fatwa*, a formal legal opinion in answer to a question submitted to him either by a judge, or by a private individual. On the basis of such an opinion a judge may decide a case, or an individual may regulate his personal life.
Muhtassib	See Hisba
Qua^{c}a*	Also Qa^{c}a, or Ka^{c}a. Hall or large room.May also refer to a building type : The Qua^{c}a type house is arranged arround a central hall (in lieu of a courtyard) of double or triple storey height illuminated and ventilated by clerestory windows.
Qur'an	Also Kur'an : The Muslim scripture, containing the revelations recited by the prophet Muhammad and preserved in a fixed, written form.
Rab^c	Building type containing different land uses in the same building such as shops, workshops,residential tenements or dwelling units and a large house or palace.
Sharee^{c}a	The clear path to be followed. As a technical term, the canon law of Islam.
Shari^c	Street.

Sheikh Al-Hara	The term "Sheikh" refers to a man who bears the marks of old age, a patriarch of a tribe, family, or, in this case, of the *hara* (the residential quarter)
Shiyakha	Administrative term, used to denote an area in which a *sheikh* has some form of formal jurisdiction and supervisory responsibilities, usually a *hara* , quarter or neighborhood.
Sunna	Custom, use and wont, statute. Usually used in reference to the deeds, utterances and unspoken approval by the prophet. (also see : Hadith)
Tabaqua	Level, floor or storey. May also refer to a "mezzanine" in a house.
Tanzim	To regulate, to put in order, also reffers to the regulatory committee of the city of Cairo
Tibaq	Plural of *tabaqua* . Also refers to a building type that contains a number of units (usually residential dwellings) that are multi storied and identical.
cUlama	Plural of ^calem, one who possesse the quality of *^cilm* i.e knowledge, learning, science in the widest sense. (Usually refering to the clergy who had theological knowledge).
Waqf	To prevent, to restrain. In Muslim legal terminology it means primarily : "to protect a thing, to prevent it from becomming the property of a third person" by dedicating it to God through a charity.

NOTES

(1) The quotations of the articles and laws referred to are extracted from the English translation of the laws entitled: " Important laws and regulations regarding land, housing' and urban development in the Arab Republic of Egypt " Report by the joint teams of the Ministry of Housing & Reconstruction, Ministry of Planning, with the Office of Housing U.S.A.I.D- August 1977.

(2) Fourier published a weekly newspaper entiteled *Le Phalanstere ou la Reforme Industrielle,* which ceased publication in 1834 and reapeared in 1836 as *La Phalange* . In 1843 it became published as a daily *La Demcoratie Pacifique,* which continued until 1850.

(3) Arabic translation for " There shall be no harm inflicted or sustained" or ... " There shall be no damage, and no mutual infliction of dammage ".

(4) A precise measurment for the cubit is not well known and has been determuned to be between 0.5 to 0.75 meters, which would make the street width in question in the range of 3.50 to 5.25 meters.

(5) The " reasonable " time limit varied depending on different jurists and schools of thought or geographic location, but was usually betwen seven and fifteen years.

(6) The *dorqua^{c}a* is the central space in the qua^{c}a type dwelling, usually several storeys high and is lit and ventilated by means of clerestory windows.

(7) Hassan Fathy is an Egyptian architect and a pioneering advocate of traditional architectural designs and building techniques. He is best known for his design and active participation in the building of "New Gourna" - a small village in Upper Egypt - where he used traditional mud brick construction and vault & dome roofing systems. On this subject , Fathy has writen his book "Architecture for the Poor" (also published under the title "Gourna, a tale of two villages"). Fathy's work and writings have won international acclaim and respect, as well as having a substantial influrnce on many local and international architects of younger generations. Hassan Fathy has been awarded the Egyptian government's National Prize for the Arts and Letters, the French Literary Prize, and the Aga Khan Award for Architecture in 1980.

(8) Ramses Wissa Wasef was an Egyptian artist and architect, a contemporary and close freind of Hassan Fathy. He is best known for establishing his comunity school and workshop in the village of Harraneya near Cairo, where he trained and encouraged the village's children and youths to produce their distinctive vernacular arts, especially tapistry. The complex in which he lived and worked contains workshops, exhibition galleries, as well as residential houses, all built in the traditional Egyptian mud brick vault & dome system . Ramses Wissa Wassef also received the Aga Khan Award for Architecture in 1983.

(9) One of the major reasons for violating the building laws is also the fact that legal procedures are so slow and time consuming, that by the time a court ruling is issued the situation under dispute may have changed considerably. Many cases involving such violations that have caused harm and damage to one or more parties have been known to go on for more than twenty years.

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Figure N⁰ ————————————Source————————————

(1)   *Housing process and physical form.*
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(2)   Vigier, F. and Serageldin, M.
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        Metropolis...Coping with the urban growth of Cairo." - Cairo,
        Egypt, November 1984.

(4)   Ditto.

(5)   Ditto.

(6)   Photo by M.Hazzaa, for the author.

(7)   As (3).

(8)   Top, as (3). Bottom, as (6).

(9)   Abu-Lughod, Janet.

             Cairo : 1001 years of the city victorious.

             Princeton University Press, 1971.

(10)   Ditto.

(11)   Opposite : Nasr City Housing and Development Authority.

                     8th Zone Site Plan. - 1 : 250.

             Top : Ain Shams University.

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(12) to (21) Photographs by M. Hazzaa and R. Habib, for the author.

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(26)   As (2).

(27) to (29) As (9).

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(47)   As (6).

(48)   Volkoff, Oleg V.

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(49) to (52)   Courtesey of Professor Mona Serageldin.