

ARAB-ISLAMIC URBAN STRUCTURE

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الخلاصة :

تسائل العديد من الدوائر المسؤولة في حكومات عدد كبير من البلدان العربية والإسلامية عن ظاهرة إستيراد أساليب وتقنيات أجنبية واستخدامها في أعمال التنمية والتطور العمراني والمديني دون تمييز ، ونتيجة لمثل هذا الوضع الذي إستمر طوال خمسين عاماً وأكثر برز هناك القطاع ~~مستورد~~ بتراث غني من النشاط الإنساني والإنجاز البشري .

ولكي نكون قادرين علي صياغة سياسات ناجحة وطرق نستطيع الوصول بها إلى تغيير هذا الإتجاه واستبداله ، فإنه يلزمنا المعلومات العلمية الدقيقة لشرح العوامل والعمليات التي تنطوي عليها هذه الظاهرة والتي حددت شكل المباني التقليدية والمدن وبالتالي كي تتمكن من الإستفادة من المعرفة والخبرة التي تميز بها الماضي من أجل إيجاد مستقبل أفضل في العمارة والمدنية .

وهذا الموضوع يلخص البحث المكثف للمؤلف في هذا المضمار عن طريق نقل ما توصل اليه من أفكار ضمن طريقتين .

الاولى : تعالج المواضيع والدراسات المتعلقة بطبيعة إتخاذ القرار في أعمال البناء .

الثانية : توضح خصائص الأسلوب التنظيمي ~~الأكثر سؤالاً~~ والتي جرى إستغلالها تاريخياً في العالم العربي والإسلامي .

يختم المؤلف بحثه بقائمة موجزة عن المواضيع والدروس التي نجمت عن الفهم العميق للأسلوب التقليدي .

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ABSTRACT

Many responsible persons and groups inside and outside government in many countries of the Arab and Islamic world are questioning the phenomenon of indiscriminately borrowing alien styles, techniques, and processes for their building and urban development activities. As a result of this situation which has persisted for more than fifty years, a break in continuity with a very rich tradition in this sector of human activity and accomplishment has occurred.

To be able to formulate intelligent policies and approaches to replace this trend, adequate scientific information is necessary to explain the underlying factors and processes which shaped traditional buildings and towns, so as to be able to benefit from the knowledge and experience of the past for a better future in architecture and urbanism.

This paper summarizes the author's extensive research in this area by communicating the findings in two separate categories: the first deals with issues and topics related to the nature of decision-making in building activity, and the second with the characteristics of the most predominant physical organizational system historically utilized in the Arab and Islamic world.

The paper concludes with a summary list of lessons and issues emerging out of a sound understanding of the traditional system.

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INTRODUCTION

For the past fifty years or so the pace of modernization associated with technological transfer has accelerated in most parts of the world. Recipient countries and regions within each country have accepted all manifestation of modernism and encouraged its transfer and adoption. Contemporary architecture and urban planning practice were part of the export-import packages of 'modern' goods. This naturally embodied the theories and values which formulated 'Modern Architecture' practice in the West, the exporter. This was given greater prestige by naming it the 'International Style'. Current developments in the West have created a new style called 'Post-Modernism', a potentially more attractive label for the importers or borrowers.

This indiscriminate borrowing, under the umbrella of modernization and technology transfer, created a situation which made it very difficult for local traditions and values to persist and evolve within normal economic and societal endeavors. The results of this phenomenon are most apparent in recent building and urban planning processes and practices. This situation made it possible to destroy local traditions and practices and facilitated the distortion of cultural values. Thus it has also eliminated the potentials of maintaining and nurturing international and regional diversity in architecture and urbanism.

Nowhere is this more true than in the Arab and Islamic countries, which can boast of a strong and sophisticated tradition in building and urbanism, whose roots can be traced back to at least 3000 B.C. in the region of Mesopotamia (contemporary Iraq).

The process of indiscriminate borrowing associated with modernization and development can be traced back to the first half of the 19th century after it was initiated by Napoleon's expedition to Egypt in 1798. It was institutionalized during the colonial occupation and rule of the Middle East and North Africa by West European powers in the 19th century and extending to the mid-1950's. This process was further accelerated by independent regimes in the area, particularly after the mid-1970's owing to substantial increases in oil revenues.

To redress the current situation in most Arab and Islamic countries, it is essential, as a first task, to study and evaluate the traditional indigenous building and

urban experience. This would make it possible to ascertain intelligently the factors and processes which have shaped traditional towns and their architecture. This task, unfortunately, is obstructed with difficulties owing to the lack of readily available information to architects, urban planners, and policy makers. This is an exasperating and difficult situation for the young generation of Arab architects and urban planners who are taught, in their home countries and abroad, Western theories, techniques, and processes, and graduate with absolutely no knowledge or understanding of their architectural and urban heritage. This, of course, can also be said of the situation in other fields of knowledge.

This paper attempts to review in general terms the findings of the author's research, rather than discuss particular topics in detail. Accordingly, and in order to simplify the communication of the lengthy and complex material, a macro-framework is used which consists of two major topic categories: process and product. These are defined for the purposes of this presentation as follows:

The *process* is the nature of decision-making related to building activity within a cultural framework. The *product* is the organizational nature of the built form and its component parts.

Each of the above two categories is decomposed into sub-categories which will further clarify the material.

THE BUILDING PROCESS

First to be presented are the roots, background, and framework for the building *process*, as it is the underlying and hidden key to city building.

1. Tradition and Superstitions

The work of Leonard Woolley (published in the early 1930's) on his excavations in southern Iraq is extremely useful, particularly the results of his excavation of Ur which flourished around 2000 B.C. The following examples are from the Omen Text found in Ur:

If a house blocks the main street in its building, the owners of the house will die; if a house overshadows or obstructs the side of the main street, the heart of the dweller in that house will not be glad.

If the water in the court runs to the back, expense will be continual; if the water in the court runs to the middle of the court, that man will have wealth.

An example of a more 'recent' tradition (approximately 4000 years after the Omen Text), recorded in the early 1930's in a northern Iraqi town, is:

The doors of a house are built very low so that the inhabitants may be humble.

2. Legislation

There is a tradition of drawing up legislation in the ancient Middle East. The famous example is that of the 'code' of Hammurabi, who reigned from 1792 to 1750 B.C. in Babylon.

3. Religious Law

Although the tradition of documenting problems and providing solutions and opinions to each case is pre-Islamic, it was in the 'Fiqh' that this tradition was fully developed. The 'Fiqh' is the Arabic term for jurisprudence, or the science of religious law in Islam. It concerns itself, with two spheres of activity: 'ibadat', i.e. matters concerning ritual observances; and 'mu'amalat', i.e. legal questions that arise in social life, e.g. family law, law of inheritance, of property, of contracts, criminal law, etc. In essence, therefore, 'Fiqh' is the science of laws based on religion and is concerned with all aspects of public and private life and business.

Within the first three centuries of Islam, i.e. by about 900 A.D., the 'Fiqh' had developed a comprehensive body of literature covering all its aspects, including elaborate sections on building problems. *Problems arising from the building process were viewed by the 'Fiqh' in the same light as other problems resulting from activities and interaction amongst people.* Cases were usually developed in response to actual conflicts arising amongst people, particularly between neighbors (due to the nature of the built form) (see Exhibit 1). A few of the cases were developed on assumptions by independent authorities (Mufti), with the purpose of expanding and refining this body of knowledge.

4. 'Urf' or Local Traditions

Each school of law in Islam developed separate

interpretations and sometimes distinct solutions to problems over the centuries. However, it should be stressed that the nature of the mechanisms used were almost identical. In time, references within each school of law tended to be recycled and used extensively, thus, in effect, becoming a local tradition, recognized and followed in some locations to this day.

5. The 'Fiqh' as a Mechanism

The guiding source of the 'Fiqh' is the Qur'an and the 'Sunnah' (or traditions) of the Prophet Muhammad (peace be upon him). The analogy can be used with our notion and use of 'values' and 'goals' in contemporary urban planning practice. The nature of the mechanism is its dependence on *intent* or *performance* rather than prescriptive standards, i.e. solutions to cases are put forward in the form of what we

"The case of the party-wall that has fallen down: A man 'notifies' his neighbor that the party-wall has fallen down and requires him to repair the wall jointly with him, but the neighbor 'has not agreed' to do this; the complainant therefore carries out the necessary repairs himself and the other party is forbidden to use the wall by putting in nails or beams until he has paid his share of the cost." From the series of texts called *ana ittišu*. Existing copies of this work belong to the Neo-Assyrian period, being late transcripts representing two revised editions, those of Assur and Nineveh. It is thought from evidence to contain material going back to the time of the third dynasty of Isin (c. 2301-2076 B.C.). From: *The Babylonian Laws*, edited with translation and commentary by G. R. Driver and John C. Miles, Volume I: Legal Commentary, Oxford University Press, London, 1952.

"The case of a jointly owned wall which collapses: one of the joint owners rebuilt it and prohibited his partner from utilizing the wall until he pays half the cost of rebuilding. Imam Malik said that the partner who did not collaborate in rebuilding the wall should be told that he cannot utilize the rebuilt wall unless one of the following two choices are pursued and implemented: either to order the wall to be demolished and he should rebuild it with his partner, or to pay him half the equivalent cost of the wall in its demolished state."

From: *Arabic-Islamic Cities: Building and Planning Principles*, by Besim S. Hakim (forthcoming).

The above case is documented in a 14th century Tunisian manuscript, which in turn was based on various earlier sources traceable to Imam Malik ben Anas: born in Medina in A.D. 712 and died there in A.D. 795.

Exhibit 1. An Example of a Case Whose Legal Prescription Has Precedence Covering a Time Frame of 4000 Years as Evidenced by Written Records: from Approximately 2100 B.C. to the Early A.D. 1900's

understand today by 'performance criteria'. It should be stressed that the impact on the built form of this type of mechanism is phenomenal, as compared with that resulting from a mechanism based on numerical standards. This is particularly evident when comparing traditional residential neighborhoods with their contemporary counterparts. Three-dimensional diversity and identity are abundant in the former, whereas sterility and monotony can vividly describe the latter.

THE BUILT FORM

Second to be presented are the roots of the organizational system and the nature of the traditional built form and its component parts, i.e. the *product*. This is the visible and three-dimensional aspect of the city. In this presentation I have not discussed the factors of climate, materials, and methods of construction as they are adequately covered in other published works.

(A) Ur, in southern Mesopotamia (contemporary Iraq), is the oldest organizational form similar to what could be found in most Arabic-Islamic cities to the early years of this century, a continuous period of almost 4000 years (see Exhibit 2). The organizational structure and form of southern Arabian cities, such as Sana'a in Yemen, had limited diffusion, and are not discussed here.

(B) The emergence of three types of cities in the Arab and Islamic world:

- (a) The planned and designed city, e.g. the round city of Baghdad.
- (b) The renewed and/or remodeled pre-Islamic city, e.g. Aleppo.
- (c) The 'spontaneously' created and incrementally grown city. This type was the most predominant, as most existing and inhabited cities and villages in the Arab and Islamic world today trace their origins to this type (see Exhibit 3).



Exhibit 2. The Organizational Housing Pattern of the Most Prevalent Type of City in the Arab and Islamic Worlds. The Example on the Left is from Ur (2000 B.C.) in Southern Iraq. The Example on the Right is from Tunis Medina, Based on Sources Dating from the Mid 1920's to the Mid/1960's and Compiled by the Author. The plan of Ur was First Published in The Antiquaries Journal, October 1931, Vol. XI, No. 4. The Two Plans are Reproduced to the Same Scale and Compass Orientation.

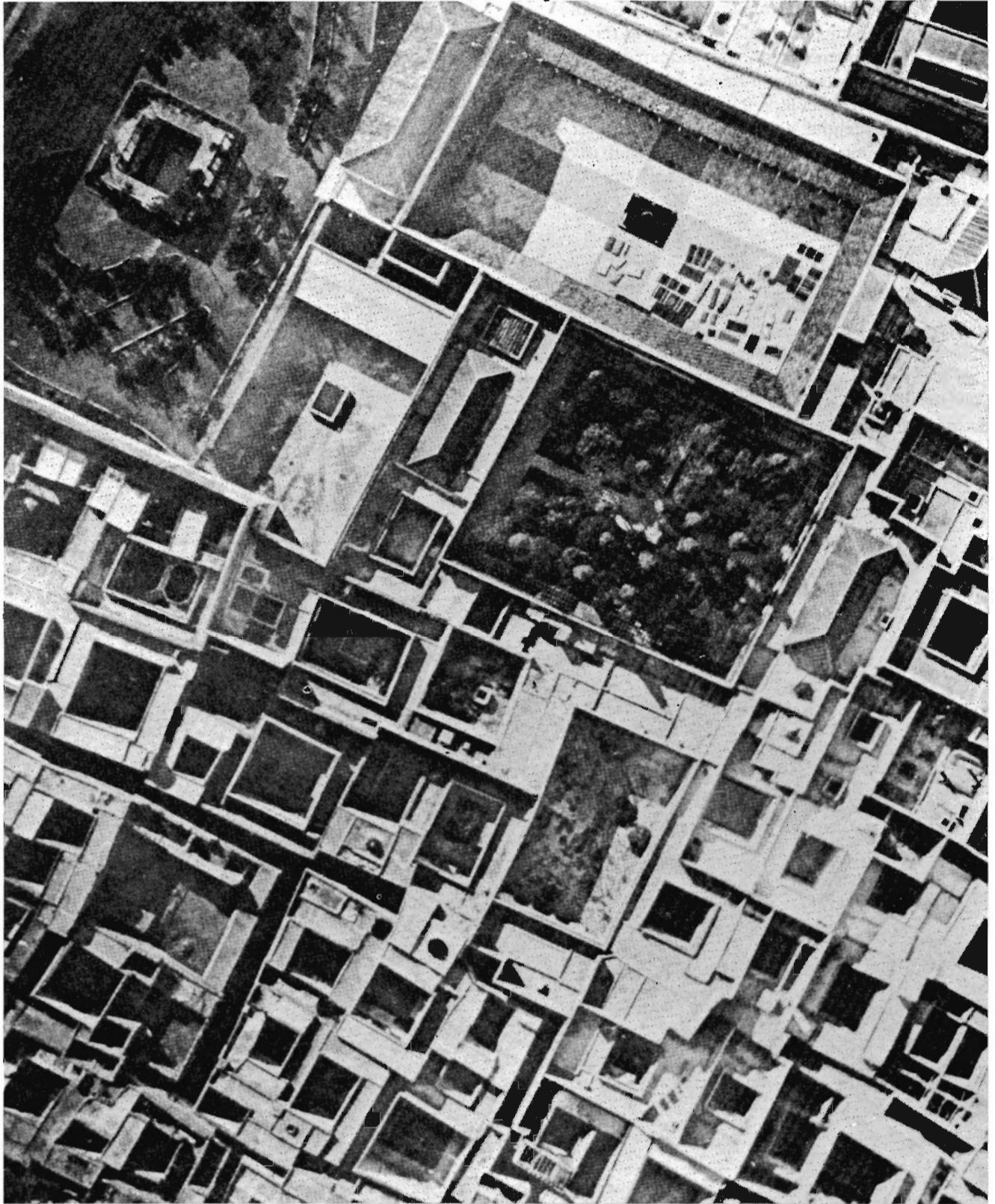


Exhibit 3. Perpendicular Airphoto of the Bahia Quarter in Marrakech, Morocco. (Photo by M.H.A.T., Rabat, with Permission)

The author undertook detailed study and analysis of existing examples which have undergone minor modifications due to recent technological influences. Within the 'Maghrib' region the old city of Tunis and the village of Sidi Bou Sa'id proved to be excellent candidates for this purpose.

(C) Physical and related cultural factors shaping the Arab-Islamic City in the Maghrib:

(1) Primary planning elements: the organizational system of buildings and access is rooted in the Mesopotamian model as mentioned earlier (Exhibit 2). Most of the ancient legal literature assumes this model in its interpretation of

problems and prescription of solutions. Further research is required to ascertain the interface of law, local custom, and built form when other organizational systems were used, such as the examples found in the southwest region of the Arabian peninsula.

(a) The courtyard building: the basic module used for housing and public buildings. The ratio of building area to its plot is usually 1:1, with the court taking approximately 24% of the ground coverage. Usually one or two and sometimes three storeys (see Exhibit 4).



Exhibit 4. Oblique Air View of the Same Quarter in Marrakech as in Exhibit 3. (Photo by Papini-M.H.A.T., Rabat, with Permission)

(b) The street system and its elements (see Exhibit 5):

- (i) the through street is a public right-of-way, wide enough for two packed camels to pass;
- (ii) the cul-de-sac is the private property of people living off of it;
- (iii) elements used within the street system:
 - 'sabat' or room bridging a street or a cul-de-sac,
 - columns for 'sabat' support,
 - and
 - buttressing arches to provide support and strength to exterior walls.

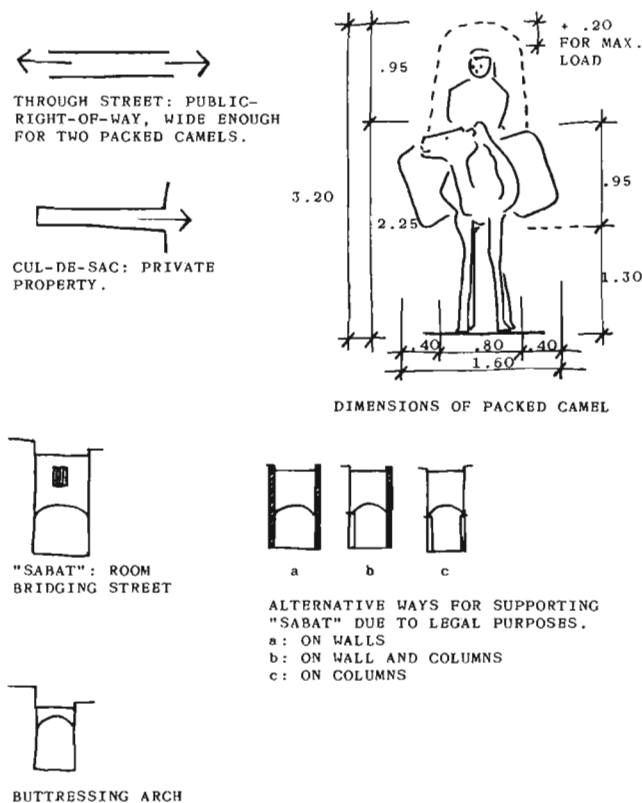


Exhibit 5. The Street and Its Primary Elements

(2) A vocabulary, or language, or terms of specific building design elements which is understood by all users and builders. Examples are available from the Tunis region (see Exhibits 6 (a) and (b)). This vocabulary acted as a communication tool between client and builder. It tended to recycle, improve, and perpetuate elements of design and urban form.

(3) An elaborate set of building guidelines primarily addressed to potential conflicts arising from building activity at the dwelling group scale, and is a product of the 'Fih'. These guidelines are therefore rooted in religious values and ethics, such as: respecting the privacy of others; avoiding the harm of others by one's actions and/or decisions; accepting the concept of interdependence; and creating beauty without arrogance. To illustrate: an important prescription of the Prophet Muhammad (peace be upon him) which affected building activity and form was لا ضرر ولا ضرار 'La dharar wa la dhirar'. I mention it as an example of how a saying (or Hadith) of the Prophet was interpreted legally and used within regulatory systems in various spheres of societal activity. One interpretation of its meaning by some Islamic scholars is: no infringement, whether profitable or not. This principle, for instance, affected the limits of the heights of building, the use of boundary walls between neighbors, the distribution of uses relative to each other, and other aspects of building activity. The author's forthcoming book on the subject of building and planning principles of Arabic-Islamic cities contains many examples of how these guidelines were used, and their influence in shaping urban form. Comprehensive sources and references are also available in that work.

AN OUTLINE OF CONCLUSIONS AND LESSONS FOR CONTEMPORARY PRACTICE

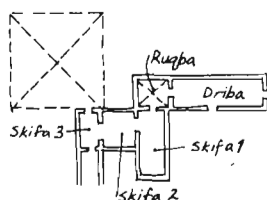
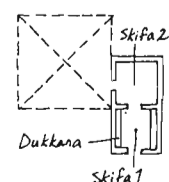
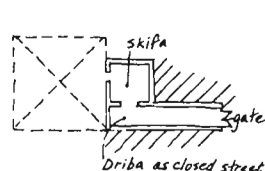
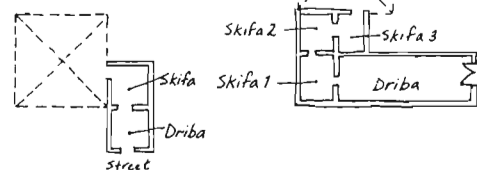
Lessons from the Knowledge of the Topic of 'Traditional Arabic-Islamic City Building'

Traditional process of city building

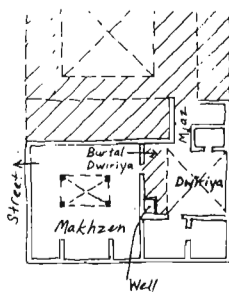
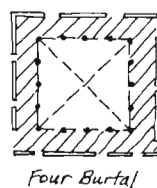
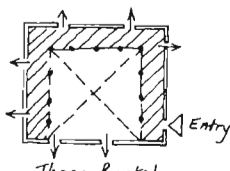
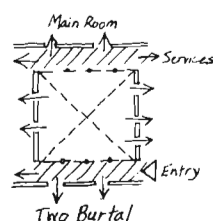
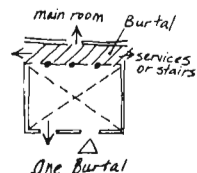
- Impacts of decisions by governing authority.
- Framework of decision-making and 'user-participation'.
- Performance and impact of building guidelines at the scale of the neighborhood.
- The 'Islamicity' of cities built in the Arab and Islamic world is primarily due to the transfer of Islamic societal values to the built form, particularly at the neighborhood scale, via the mechanism of the 'Fih' and its traditions of building guidelines.
- The time factor: growth occurred incrementally in manageable scale over long periods of time.

Design Elements

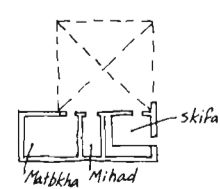
Entrance



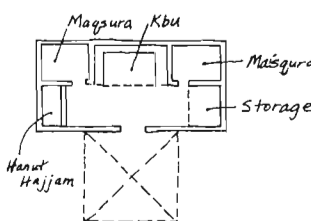
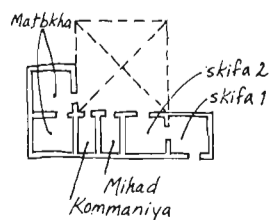
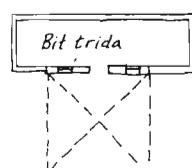
Courts



Service



Rooms



NOTE: For examples of plans, sections, and photographs of houses in Tunis medina, where these elements were extensively used. I draw the attention of the reader to Jacques Revault's excellent work published in two volumes: *Palais et Demeures de Tunis* (XVI et XVII siècles, 1967) and (XVII et XIX siècles, 1971), both published by Centre National de la Recherche Scientifique, Paris-France

TRADITIONAL ARAB HOUSING: TUNIS REGION A SAMPLE OF DESIGN ELEMENTS

ENTRANCE

1. Driba دريبه : A primary entrance vestibule or private lane. Allows "skifa" to be further removed from the street.

2. Skifa سقيفة : A secondary entrance corridor or lobby with entry doors placed so that no one can see directly into the courtyard from the outside. Used in conjunction with a driba or another skifa. "Dukkana" دكانة or built-in bench is usually provided in the first skifa. Traditionally the male owner or occupant of the house received casual visitors or salesmen in the first skifa.

3. Ruqba رقبعة : A small unroofed space occurring at the end of a driba, at the junction of a driba and a skifa or at the junction of two skifas. Sometimes the location of a well.

COURT

4. Wust al-dar وسط الدار : Privy open courtyard in the centre of the house. It could have a gallery "burtal" on one, two, three or four of its sides. It sometimes has a small water pool and/or fountain at its centre. In rich houses a "majin" ماجين : or cistern is built under the courtyard for collecting rainwater from the roofs.

5. Burtal برطال : A colonnaded gallery off of a main courtyard, giving importance and sometimes sun protection to the main room, and/or giving access to services or stairs.

6. Dwiriya دويرية : A secondary courtyard in a service area joined to the main courtyard by a corridor. One of its sides is sometimes roofed by a "Burtal Dwiriya" برطال دويرية giving protection to a well. The Dwiriya

is sometimes connected to the Makhzen the major space for storing bulky provisions, which is also accessible from the street.

ROOMS

7. Bit trida بيت طرية : The most common room type. It usually has no wall recesses. It occurs in rich and modest houses.

8. Bit bel-Kbu u mkasar بيت بالقبو ومكاسر : The primary room in a rich or middle class house. It is usually located opposite the entrance and could have a colonnaded gallery in front of it.

The room is divided into:

- a central alcove called "Kbu" قبو where there is usually built-in seating and elaborate wall & ceiling decorations. It is used as the primary living area where close relatives or friends are received.
- two small rooms symmetrically located on each side of the kbu and called "maqura" (singular) مقصورة . They are used as bedrooms.
- two opposite alcoves used for built-in beds and/or storage. The built-in beds could occur on one or both sides, and are usually framed with a decorative wooden structure and called "Hanut Hajjam" هانوت محيايم , literally translated as 'Barber's shop'. The reason is because they look like the decorative fronts of barber shops found in Tunisia.

SERVICE

9. Matbkha مطبخة : Kitchen

10. Kommaniya كمانية : Pantry

11. Mihad مباحض : Toilet

Exhibit 6. (a) Examples of Traditional Housing Design Elements and (b) Their Associated Vocabulary, from the Tunis Region. This Was First Published in Sidi Bou Sa'id Tunisia: A Study in Structure and Form, edited by Besim Hakim and Published in 1978 by Nova Scotia Technical College, Halifax, Canada.

This fostered the refinement of the building process, which was already well entrenched as part of the local tradition.

Traditional city as product/organizational system

- The emergence of a predominant type of built form with cultural maturity.
- The tendency of that built form to perpetuate itself and spread. This was directly influenced by the rapid spread of Islam from Arabia in the seventh and eighth centuries.
- The role of building guidelines as a mechanism which sustained the perpetuation of the built form three-dimensionally and as an organizational/planning system.
- The traditional approach in decomposing the built environment at all scales into elements which were identified by a vocabulary of terms familiar to all members of society involved in decision-making within the process of building.
- Traditional technological solutions: building construction and materials, cooling devices, storage of water, ice-making and storage, etc.
- Traditional aesthetic solutions: role of decoration in building, role of water, the approach to space, proportion and other aesthetic devices.

Implications for Contemporary Practice in Urban Design and Architecture

- The importance of the legal framework as one of the prime shapers of the built environment. Examples of traditional concepts which are relevant today: the nature of 'zoning' and its responsiveness at the local level; the diversity of 'tenure' patterns; the use of 'consensus' for generating solutions to conflicts.
- The use of a building design language as a communication and design decision-making aid. A possible example for today is the concept of a language of good 'patterns' which might be agreed upon by consensus within a locality.
- The nature and 'efficiency' of the traditional physical organization (mentioned above). Example (1): maximum utilization of streets as an access network. In the case of the central area of Tunis medina, we find that all streets take up 12.5% of the gross built-up area and only 13.3% of those are cul-de-sacs serving 28.5% of all buildings (figures based on ground coverage). Example (2): efficient utilization of energy (outlay and operating aspects) at the community scale. The 'passive' approach was predominant.

- The knowledge of how Arab-Islamic culture achieved beautiful and functional towns and buildings by using a system of values and techniques which are not followed today. This should provide practitioners of urban design and architecture the opportunity to reflect on, and critically evaluate current design values and construction techniques/processes.

Implications for Architectural Education

- The teaching of history needs to be rewritten and taught with a totally different approach. Less emphasis on 'styles' and the individual building as a work of art, and more emphasis on the history of the built environment as a total system in which individual buildings are elements within a context.
- Curriculum content to be representative: a curriculum in architecture today should have its contents represent proportionally the realities of the built environment, i.e. if say 60–70% of the city is housing, then a proportional emphasis on the values and techniques necessary for housing must be allocated in the curriculum, and so on. A result of this approach might necessitate a partial elimination of professional boundaries and distinctions between architecture and urban planning/design, as it has evolved in the West during this century.
- Implementation devices and related processes: integrating and emphasizing these in the curriculum. Regulatory and control mechanisms to receive special attention. Their creation, design and improvement to be within the domain of an architectural curriculum.

ACKNOWLEDGMENTS

A one page abstract of this topic was published in the *Proceedings of the First National Conference on Urban Design* held in New York City on 18–21 October, 1978. Subsequently the contents of this paper were presented as a lecture in November 1978 to the students and staff of the Faculty of Architecture, Al-Fateh University, Tripoli, Libya. A similar and shorter version was presented in January 1980 during the *International Symposium on Islamic Architecture and Urbanism* in Dammam, Saudi Arabia. It was subsequently presented in this format mid-September 1980 in Baghdad, Iraq for the *International*

Symposium on Arab Architectural Heritage and our Contemporary Architecture. Lectures on this topic were also delivered in various North American universities.

The author is grateful to the Technical University of Nova Scotia in Halifax, Canada and the Arab Development Institute for facilitating the research and writing undertaken during the period 1975–80. The results of that work are available in the following published and forthcoming books:

Sidi Bou Sa' id-Tunisia: A Study in Structure and Form,

edited by Besim Hakim, Halifax, Nova Scotia Technical College, 1978. Reprints available from University Microfilm International, Ann Arbor, Michigan, U.S.A. and London, England.

Arabic-Islamic Cities: Building and Planning Principles by Besim Hakim (forthcoming).

Islamic Urbanism: Structure and Form, edited by Besim Hakim (forthcoming).

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