RESEARCH

Somaiyeh Falahat

Re-imaging the City

A New Conceptualisation of the Urban Logic of the "Islamic city"

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Somaiyeh Fahalat

Contents

Introduction

Part of understanding a city is reading its morphology; and since the form of a city is the direct reflection of the life-world of its people, it has to be studied within its own individual context, something which does not seem to have happened in the case of 'Islamic cities.[1]'

In texts on the morphology of 'Islamic cities', a series of attributions have been typically applied to the city's geometry, mainly based on the form of the street network, which has appeared to lack 'order' in comparison with European and western cities. The major and usual points of departure for these descriptions were the cities' non-rectilinear paths, their large number of seeming culs-de-sac, and the feeling of getting lost within the city.

These attributions can be traced back not only to general portrayals of 'Islamic cities' but also to the body of scientific urban studies literature, dating from the point that French historians first coined the term of 'Islamic city' in the early 20th century and started to describe and analyze 'Islamic cities' through their various aspects, including social structure, city administration, religious affairs and morphology. In the main body of this first set of studies, shaped by the works of the Marçais brothers, Jean Sauvaget, Robert Brunschvig and Roger Le Tourneau, and continuing up to the 1950s, a number of cities in North Africa and Syria — such as: Rabat, Algiers, Fez, Aleppo and Damascus — were studied and their general characteristics were generalized to all cities in the Islamic world[2] as the 'distinguishing features' of the morphology of every 'Islamic city'.[3] Furthermore, such interpretations and definitions of the cities resulted from the formal analytical methods which were based mostly on comparisons with medieval European cities, Greco-Roman cities, and the theories of Max Weber.[4] The form of the cities in these texts was conveyed in attributions such as: complicated, sometimes like labyrinths, cooped up behind the houses in the culs-de-sac,[5] tortuous, reminiscent of Daedalus's labyrinth in aerial view,[6] winding with numerous dead-ends,[7] districts that are inorganically

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[1] This research is cognisant of the problematic nature of the term 'Islamic City'. But as it is the main term used in most of the reviewed texts, it has been retained, although within quotation marks: ' '.This term generally indicates the cities in the geographical region of North Africa and the Middle East.

[2] All cities the majority of whose population was Muslim.

[3] They affected this by categorizing all the cities of North Africa and Middle East under the term 'Islamic city'. This can even be discerned from the title of publications: for example William Marçais named his article 'L'Islamisme et la vie urbaine' (1928); while George Marçais called his two main articles: 'L'urbanisme musulman' (1939) and 'La conception des villes dans l'Islam' (1957).

[4] See for example: Sauvaget (1934a; 1934b; 1934c; 1941)

[5] See Brunschvig (1947:155).

[6] See Le Tourneau (1957:20).

assembled, a negation of urban order, not attaining to a complex, nothing but an assemblage of the residents' contradictory interest, [8] and other similar ascriptions.

These ideas constituted a basis for later studies of 'Islamic cities' and were reproduced in later writings on the cities' morphology. In the second phase of 'Islamic cities' studies, beginning in 1950s and continuing largely up to the 1970s, these interpretations came to be modified with greater emphasis on the social structures of the cities and taking the approach that 'Islamic cities' are not really as 'negative' and 'strange' as earlier authors had deemed them to be.[9] They attempted to justify this 'negative' form of the city by acknowledging certain differences in social structure and opening new perspectives to studying the form of the cities in question, but they still retained similar approaches to analysing the city. Although they adduced some social explanations and advantages for the cities' layouts, they tended fall into similar-sounding descriptions, such as: a narrow labyrinthine street pattern, a syndrome of crooked alleys,[10] the hodgepodge pattern of street communication,[11] shapeless, fluid, twisting, amorphous, lack of defined physical form, and physical formlessness.[12] Other, similar attributions typical of the literature on these cities' morphology, whether or not issuing from the mainstream of academia, can be summarized as follows: tortuous, crooked, curved, winding, indirect, twisting, weaving, zigzag, irregular, non-geometric, unplanned, formless, haphazard, loose structure, chaotic, no pattern, *planlos*, spontaneous, *ad hoc*, organic, tree-like, maze, labyrinth, labyrinthine, and labyrinth-like.

The problem with these attributions is that they only represent what the city does not have, or 'what it is not'; thus, it remains unclear exactly 'what it is'.[13] Since the city, which solves complex relations within itself, cannot but have its own distinctive qualities and structures, it is a mistake to define it by negation. We therefore need a new approach and new concepts beyond these clichés to be able to describe the cities and explain 'what they are'. In order to read the city, changes must be made, not only to the foundation on which are laid the usual criteria and benchmarks, but also to the ways of measuring and mapping it. Even the vocabulary for presenting the concepts should be changed, to be redefined through an understanding of indigenous terms and concepts, because autochthonous terms are connected to the mentality of the people and can express their cities more exactly.

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[7] See Le Tourneau (1961:26).
[8] See Sauvaget (1941: 247-8).
[9] See Lapidus (1967; 1969); Hourani, (1970); and Brown (1973).
[10] See Ettinghausen (1973:305).
[11] See Brown, (1973:22).
[12] See Lapidus (1967:114).
[13] As also Raymond (2005) emphasised.

The pioneer authors of 'Islamic city' studies today– who are fundamental critics of the Orientalist approach and propose strong arguments challenging the clichéd (Western) understanding of the city – attempt to re-read 'Islamic cities' and establish a new and appropriate method away from the clichés, in order to better understand their essence.[14] However, they remain within the domain of concepts and definitions that were set out by the earlier authors. This means that they attempt to reject, justify, or improve upon the previously stated set of ideas and concepts about the city. Their comparisons for understanding the essence of the city are not made against certain preconceived standards, as the earlier ones were, but with the former attributed stereotypes, arguing against and rejecting them. Thus, while the earlier authors, comparing the city with their benchmarks, claimed that the cities *are not* — for example — 'regular', the recent pioneers, by contrast, argued that the cities *are not* 'irregular'. As a result, a number of attributes continue to meander through texts relating to the form of the 'Islamic cities' and the new theories are deficient in finding replacements for them and proposing any pattern or concept by which the 'Islamic cities' can be described according to their exclusive features and in their own context.

Thus, the following questions arise: is there another kind of definition for the pattern of the city in the mentality of the native people, a kind of principle, with which the city and its form can be described? Is the city's seeming irregularity always the embodiment of a lack of order or does it embody the kind of complexity that can result in similar forms? Does a special indigenous essence in the city make it mysterious in a way that might be (mis)understood as chaotic? In the city's form, rather than the non-existence of a character, is it possible to read the existence of a particular character?

It seems relevant to re-examine the validity of the clichéd attributions on the morphology of the city, under the following suppositions: although as stereotypes they do not capture the city's main characteristics, they nevertheless do reveal an aspect of its essence, by reproducing concepts of the city in another mentality; consequently, we need to find out what it is about the city that causes the city (viewed or traversed) to be perceived in such a way. This is to be attempted through basing new theories and analyses about the city on indigenous concepts and structures as the best foundation for a better understanding.

Among all aforementioned attributions, labyrinth-like, labyrinthine, and maze-like have unique content in the way that they allude to deeper dimensions in understanding the city and express more aspects of city's form. This is because they are not merely formal attributions with largely formal associations, but are able to connote other conceptual-historical implications and associations,

[14] See for example: Abu-Lughod (1981), Alsayyad (1991), Hakim (1986), and Raymond (1994, 2005, 2008).

which correspond to the feelings and mental images evoked by the city in those who read or perceive it. Besides this, by their inherent suggestion of certain forms — not regular and winding — they also encompass its attributed formal characteristics. Thus, a good departure point would be to seek how and why an 'Islamic city' can be related to the concept of the labyrinth, and which hidden native features lead to this interpretation.

These attributes, like the others mentioned, appeared in the first stage of studies on the urban morphology of 'Islamic cities' and were subsequently improved, justified or rejected by later authors. One group explicitly states that the urban form of the 'Islamic city' is like a labyrinth because, according to them, similar to a labyrinth, it lacks any kind of order/rationale/logic and so on: it is a completely negative form without bearing any defined pattern.[15] These justifications were adduced by authors who observed these cities to be labyrinth-like but who tried to find some explanations and advantages for this, and by considering only isolated aspects of the city they reduced the entire city to certain defined issues.[16] The third group, pioneers in problematising the assumed labyrinthinity of 'Islamic cities', reject these attributions and argue them to be inapplicable to 'Islamic cities'. However, their arguments leave some questions unanswered. For example Bonine (1979), studying the morphology and structure of some of 'Iranian-Islamic cities', concludes that they have geometric patterns, so they contradict the attribution of labyrinthinity to 'Islamic cities'. But this evokes the question: do all 'Iranian-Islamic cities' thereby have an underlying geometric order? As an instance, a glance at the structure of Isfahan reveals that it does not follow Bonine's theory. It does not have any clear geometric order and thus could not be called regular in its general sense. Similarly, Kheirabadi (1991) reviews the principle formative factors of (Iranian) 'Islamic cities' and elaborating these factors, establishes that the form of the city is the result of the interaction of these factors. Because the city follows these principles and there are some basic factors according to which the city has been shaped, according to him, it can never be a labyrinth. Although he defines a functional order for the city, he does not deal with the city's physical pattern, the large body of descriptions of its form and the way it has been perceived as a labyrinth.

On the other hand, O'Meara in his book, *Space and Muslim urban life: at the limits of the labyrinth of Fez* (2007), applies the term labyrinth while emphasizing that "If this book insists on the term labyrinth to refer to it, it does solely in the sense of a convoluted network of segmentalized, interconnecting passageways bordered by tall, seemingly impenetrable walls" (2). He chooses characteristics related to the labyrinth as the concepts that get nearest to the

[15] See for example: Le Tourneau (1961), English (1966), Burckhardt (1976), Najmi (1988), and Beattie (1996).
[16] See for example: Brown (1973), Antonion (1981), and Kostof (1991).

essence of the city; however, he defines a special refined ‘labyrinth’ for his text. It is noteworthy that he applies terms like labyrinth and labyrinthine throughout his book, while explicitly asserting that ‘Islamic cities’ are not labyrinthine. He emphasizes that he intends solely the physical aspect of the labyrinth; but if this is the case, why were the adjectives such as tortuous and winding insufficient for him, although they have the same physical aspect as labyrinth? This shows that the labyrinth is sensed as being the nearest concept to the pattern of the city, while, at the same time, it does not coincide with that pattern. Here again the issue of the lack of words, concepts, and terminology for describing the pattern of the cities comes under discussion. The city is a labyrinth, while it is also not a labyrinth. The labyrinth is the best expression of a particular characteristic, while it is emphatically not that characteristic as such. It seems there is a distance between what has been immediately sensed and what has been defined, understood or expressed; taking into account that in order to express a feeling and direct perception, one must have recourse to the limited arsenal of concepts belonging to one’s own life-world and the known scope of vocabulary to make these cities readable and understandable in terms of their existing mental structures, the observers evaluate these cities through comparing them to the preconceptions, standards, and predefined mental images which have evolved in ~~a~~ mentality different from the city’s. Even when they attempt to observe the city in its context, identifying relationships between the city’s form and the society and culture of its location, they convey an improper comparison in the framework of their analysis, because their theories are based on a limited, internationally-known roster of concepts.

So the question of the labyrinthinity of ‘Islamic cities’ can be revisited from two perspectives: first, re-examining the relevance of this concept as a cliché, on one hand, and as a level of reading the city on the other, by considering it in its scientific context; and second, seeking an indigenous structural term which can plug the gap in the field of terminology. For the latter purpose, sources such as literature and philosophy, being those which can provide access to the autochthonous mentality, are the main inspiration points.

To this end, this text studies in its first part, the process of the emergence and reproduction of clichés on the form of ‘Islamic cities’ across three sections. The typical images of the form of these cities found in the texts will be discussed in the second section, and in the last section of this part, texts in which the ‘Islamic city’ has been connected to the concept of labyrinth in any way — attribution, justification of attribution, and rejection — will be reviewed to gain an idea of the relationships between these images. Throughout the body of this first part of the research, the research questions will take shape and be posed.

The second and third parts of the account shape the body of the inquiry: in the second part, the idea of the labyrinth through history, in its scientific context, is reviewed to figure out which patterns and features have been

connected to it. In the third part, the 'Iranian-Islamic city' of Isfahan in the Safavid period (16th-18th centuries), as a concrete case-study, is re-read through two aspects: when the city is seen from above and when the city is experienced from inside. The 'city seen from above' is carried out through three levels of: observing the form of the city alone, its historic evolution, and the factors shaping the form of the city in the Safavid period, to analyze what the pattern of the city is and how it can be defined in its context. The 'city from inside' is a description of a journey inside the city from the bazaar as the most public realm to the house as the most private space, to explain which main characteristics are conveyed through the city's spaces.

The fourth part belongs to the conclusion, where both sides of the so-called analogy ('Islamic City' and labyrinth) will be put together and compared to find out their similarities and differences, and if the city can be called labyrinth-like or labyrinthine. Ultimately, the structure of the concept of complexity in the indigenous context and its connection to the city will be proposed and it will be shown how the 'Islamic city' can be described 'as it is' through native concepts, inspired by the structures of mystery in the literature of the region.

1 The Model of 'Islamic City'

1.1 Emergence and Reproduction of Clichés

Interest in the concept of the 'Islamic city' first emerged in the early decades of the 20th century among European scholars. Scholarship on the 'Islamic City' at this time was based mainly on two approaches: the first attributed the structure of 'Islamic City' to social and religious factors and the second attempted to describe it through a perspective that was mainly based on the analysis of the urban structure and its physical features. The first approach derives from English and German Orientalist studies, while the second comes from Orientalist studies of French derivation, based on a body of knowledge regarding the 'Islamic city' was born from actual conquest over the Mediterranean area (Neglia, 2008).

The origin of French Orientalist studies on the concept of the 'Islamic city' can be traced back to the works of William and George Marçais, Jean Sauvaget, Roger Le Tourneau, Robert Brunschvig and Von Grunebaum during early decades of 20th century. Their deliberations had a strong influence on the current understanding of Muslim cities and shifted attention from the study of monuments to the study of the urban fabric. After the colonization of the Maghreb by France in the 19th century, and its taking of a part of Syria under mandate after the First World War, a high number of systematized field surveys were carried out, relating to the needs of the colonial administration. The surveys undertaken of regional society, and those of the cities, with their concentrations of population, were both large-scale and thorough. As a result, detailed city maps and sketches of buildings were created and political, economic and religious systems were discovered and described. Such systematic large-scale surveys had been a speciality of French Oriental studies. During this period of colonial rule, the concept of the 'Islamic city' came into being as a topic of debate among European scholars − mostly French Orientalist scholars, who were involved in the study of the Arab cities of the Mediterranean [1] (Haneda, 1994). Raymond emphasizes the particularity of this body of research, quoting Stephen Humphreys who refers to it as "the great French tradition of Islamic urban studies" (Humphreys, 1991:228; cited in: Raymond, 2008). A number of authors believe that these texts clearly display the influence of the colonial spirit, which doubtless partly explains the rather negative judgments they issued on these traditional native towns (Raymond, 2008; Haneda, 1994; Alsayyad, 1991; Abu-Lughod, 1987; Wirth, 1975).

This trend in the research and the definition of an 'Islamic city' emerged in urban studies of the Maghreb, North Africa, in what is called the Orientalist

[1] No such general debate existed in Iran and Turkey, where there were scant studies by Europeans (Haneda, 1994).

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school of Algiers (Kiasaichi, 1994). Haneda divides the history of the debate into two periods: the first, lasting up till the 1960s, when the question was discussed principally among historians, and the second, after the 1970s, when scholars from other disciplines joined the argument. Whereas up to the 1960s, discussion of the 'Islamic city' tried to set forth a general model of the physical and social features of the cities of the Islamic world, from the 1970s the centre of the argument shifted to the question of the extent of Islam's influence on urban structures and society in the Islamic world. The arguments of E. Wirth (1975) and B. S. Hakim (1986) on this point are all the more interesting for the contrasting conclusions they offer[2] (Haneda, 1994).

The morphology of these cities is one of the most alluded-to themes in the aforementioned texts; indeed, the authors tried to represent the form of the city and its street network as the main characteristics of the cities in their theories. Their attention was seized by the seemingly irregular street patterning and in their attempt to explicate it, they deployed terms and concepts which are still traceable in current theorizing and studies about 'Islamic cities'. This section will first look at trends in research undertaken since the early decades of 20th century as it relates to the concept of the 'Islamic city', noting and examining the attendant problems, and changes to the research methodology. In order to outline the main theories behind the concept of the 'Islamic city', three main phases for the development of the 'Islamic City' concept may be supposed. The first stage concerns the origination and emergence of this concept in important works by William Marçais ('L'Islamisme et la vie urbaine', 1928) and George Marçais ('L'Urbanisme musulman', 1939), which preceded a programme for the publication of significant monographs on the great Arab cities of the Maghreb:[3] Marrakesh, by Gaston Deverdun[4] (1959), Rabat, by Jacques Caillé[5] (1949), Fez, by Roger Le Tourneau (1949), and Algiers, by René Lespès [6] (1930). Subsequently, the Damascus school was added to the Maghreb school: its most notable works are the texts of Jean Sauvaget (1934; 1941) on Damascus and Aleppo and the research of Jacques Weulersse[7] (1931; 1945) on Antioch. The final formulation of the first phase notion of the 'Islamic city' was framed in

[2] Wirth (1975) made a study of the common geographical characteristics of cities in western Asia and North Africa and concluded that there were problems about calling them 'Islamic', since none of those characteristics could be directly related to Islam as a religion. Hakim (1986), on the other hand, said that cities in the Arab lands at least could be called 'Arab-Islamic' since Islamic law functioned as the guideline for urban construction and life.

[3] The Maghreb or Maghrib refers to five countries located in North Africa**:** Morocco, Algeria, Tunisia, Libya, Mauritania and the disputed territory of Western Sahara.

[4] See: G. Deverdun (1959-61). *Marrakech des Origines à 1912*, 2 Vols. Rabat.

[5] See: J. Caillé (1049). *La ville de Rabat jusqu'au Protectorat français*, 3 vols. Paris.

[6] See: R. Lespès (1930). *Alger, etude de géographie et d'historie urbaine*. Paris.

[7] See: J. Weulersse (1931). Antioche, Essai de géographie urbaine. *BEO* 4; J. Weulersse (1946). *Paysans de Syrie et du Proche-Orient*. Paris.

Gustave von Grunebaum's article 'The Structure of the Muslim Town', published in 1955. This text effectively sums up the doctrine which had developed in French research from the 1920s to the 1950s (Raymond, 2008). Already by the second phase, the definitions made by the earlier authors had been put into question and scholars had tried to open the way to new levels of understanding about the city. The main scholars within this group are Albert Hourani (1970) and Ira Marvin Lapidus (1969). And the third phase belongs to a new generation of authors who to some extent attempt to study these cities at a deeper level. Each of these scholars, reacting against former approaches, proposes new points of view and methods for reading 'Islamic Cities' (table-1).

In the following, studies on 'Islamic cities' will be reviewed across three distinct categories and phases: first the emergence of the term 'Islamic city', second, the ideas of the revisionists, and third, the new wave of fundamental critiques. It will be reviewed how these cities first began to be studied by scholars and how descriptions and images of their form have evolved over the century among in mainstream academic texts. It will be developed extracting from these texts the ways in which they attribute characteristic forms and morphologies to 'Islamic cities' and the characteristic ways in which cities subsumed under this category have been described.

Table 1: The table presents the three supposed phases of studying the concept and model of the 'Islamic City', as mapped in this research (source: author).

First Phase	Maghribi School Based on Maghreb and North Africa examples	William Marçais (1928) George Marçais (1939, 1957) Robert Brunschvig (1947) Le Tourneau (1957)
	Damascus School Based on Middle East examples, which had strong roots in pre-Islamic urban tradition	Jean Sauvaget (1934, 1941)
	Accumulation of two stages	Von Grunebaum (1951)
Second Phase	Revisionist ideas	Ira Marvin Lapidus (1969) A.H. Hourani (1970) L. Carl Brown (1973) Eugen Wirth (1975, 2001)
Third Phase	Fundamental Critiques/New Approaches	Abu-Lughod (1987) Nazar Alsayyad (1991) A. Raymond (1974, 2008)

1.1.1 First Phase

Maghribi School

William Marçais (1872- 1956) is one of the earliest scholars in this field who introduced several concepts that were adopted by later scholars. His article, 'L'Islamisme et la vie urbaine' (1928) is one of the earliest codifications of the

characteristics of the 'Islamic city' – at least "the earliest generally cited in subsequent literature", pointing to topics that were to make several appearances in subsequent discussions on the 'Islamic city' (Abu-Lughod, 1987:155). His main idea was that Islam is essentially an urban religion, and, because of the Muslim's religious requirements, urban living is a prerequisite for the Muslim life. He based his analysis on this idea and tried to identify the main morphologic elements of the city. Subsequently, in the belief that the 'Islamic city' in its physical dimension can be introduced through its characteristic elements, he came up with a quintessential model of an 'Islamic city': it must have a *Masjid Jami*[8] with a nearby Suq or market place; these must be surrounded by a series of *hammams*[9] as the third physical feature of the Islamic city, because these functions prepare a Muslim for Friday prayer. Proposing similar ideas on the shape of the city, he emphasized that the form of the 'Islamic city' was determined only in part by the exigencies of power (which decided, for example, where the citadel, the walls and the gates should be), but in larger part by its being Islamic; or, in other words, by the fact that the city is necessary for Islam (Hourani, 1970). W. Marçais (1928) underlines the second point when he notes that new cities were often founded by new Islamic dynasties and powers and concluded that Islamic civilization was not merely a set of religious beliefs and laws but also a functioning society which was Islamic in the sense that it organized the life of Muslims not just within a community of believers but also one of actors. Although this description was very elementary, it became the nucleus upon which other scholars built further additions, to generate the later 'Islamic City' model (Alsayyad, 1991).

The ideas of W. Marçais were incorporated in George Marçais's (1876-1962) texts, and elaborated in two of the latter's articles: 'L'urbanisme musulman' (1939); 'La conception des villes dans l'Islam' (1957). It is believed that G. Marçais was the first author to adduce an exact morphology for the 'Islamic city' (Abu-Lughod, 1987). He agreed with W. Marçais that Islam is an urban religion and that the mosque underlies the creation of the 'Islamic city'. He added three other characteristic physical qualities: the differentiation between commercial and residential quarters; the segregation of residential quarters according to ethnicity or specialization; and a hierarchical order of trades in the market, situating the cleaner trades closer to the mosque — showing that they were ordered according to a particular hierarchy and their position was not completely accidental. Furthermore, George Marçais (1957) wonders, without proposing a response, about the revealed disorder, referring to the form of the street network. He writes: "It is not, besides, as if the Muslims, for all that they seem content with narrow roads, had not appreciated the

[8] Friday mosque.
[9] Public baths.

advantage of a straight line as the route from one point to another" (G. Marçais, 1957; translated in: Ibid.:157).

William and George Marçais, known as Marçais brothers, applied the principles derived from the urban organization of Maghreb cities to all other cities across the Islamic world. According to Alsayyad, (1991) the model for the physical form of the typical Muslim city set forth by the Marçais brothers was adopted by most scholars over the course of time and it was the first step in the construction of a mental image of the Muslim city.

Continuing the work of the Marçais brothers, Robert Brunschvig (1901-1990) in a famous article tries to go beyond the question of morphology to consider the Islamic city's social organization, in order to discover the factors that may underlie its shape. In his often-cited article, 'urbanisme médiéval et droit musulman' (1947), he argues that it is customary law, applied by judges, that has yielded the typical physical pattern of Muslim cities over time, because, as the bedrock of the legal and administrative organization of Islamic society, it determined the modes of construction of urban forms, as well as the spatial and structural relations between different neighbourhoods (Neglia, 2008). And explaining the transformation of ancient cities, he writes:

> … les pages qui précèdent projettent peut-être un commencement de lumière — on ne veut pas pour elles d'autre mérite — sur un problème capital de l'histoire méditerranéenne, c'est-à-dire de l'histoire de la civilization: la transformation, fréquente sur le meme site, de la ville antique, romaine, d'allure ouverte, régulière et bien dessinée, en une ville musulmane, aux voies tortueuses et compliquées, à l'allure parfois de labyrinthe, aux demeures claquemurées, qui se complaît aux cul-de-sac, aux replis d'ombre, aux coins secrets. (Brunschvig, 1947:155).

In this text Brunschvig describes 'Islamic cities' morphology, as tortuous, labyrinthine, complicated, with manifold secret corners and shadowy recesses. In fact, he adopted Marçais' spatial model and followed the widespread tendency of Orientalists in defining the urban form of 'Islamic cities' as "irrational and without any plan" (Neglia, 2008:5).

Roger LeTourneau's (1907-1971) work on Fez is considered as another attempt to identify a general morphology for the 'Islamic city'. In this work the stereotype is modified to some extent and the physical characteristics of Fez are generalized and applied to all cities of North Africa. Le Tourneau's reflections on Maghreb towns are supposed to indicate the characteristics of the Maghreb turn of mind (Alsayyad, 1991).

In his book, *Les Villes Musulmanes de L'Afrique du Nord* (1957), he writes about the morphology of 'Islamic cities':

> Le résultat est qu'une ville d'Afrique du Nord apparaît en general comme une série de cellules juxtaposés et plus ou moins bien soudées les unes aux autres par des rues étroites et tortueuses. Rien de plus étranger à une ville musulmane du Maghreb que les avenues rectilignes d'une ville romaine ou d'une ville moderne; c'est à un dédale,

> à un labyrinthe que fait penser la photographie aérienne d'une ville musulmane quelconque…" (Le Tourneau, 1957:20).

As is clear, he believes that the aerial photograph of an 'Islamic city' brings to mind Daedalus' labyrinth. The buildings are not integrated into a preconceived pattern, but rather, they individually define the shape taken by the roads, and the result is a large number of blind alleys and roadways which are rarely rectilinear.

In his other book, *Fez*, *In the Age of Marinides* (1961), Le Tourneau describes the urban pattern of Fez and generalizes it to all 'Islamic cities'. He writes:

> …three principal gates of the city…through which passed the main external traffic of Fez…these streets were blocked by gates and closed at night…Each quarter could…try to isolate itself from the rest of the city; access was shut off each evening after nightfall. Consequently, it was difficult to circulate during the night…Outside the main arteries, the number of blind alleys was great. In fact, Moslem [Muslim] cities of North Africa were not laid out according to street plans; the location of the streets was determined by the arrangement of the buildings. As a result, there were numerous dead-end passages winding between houses in order to provide access to those located in the centre of a residential block (26).

Explaining these houses located in the alleys, he writes:

> On the street side…there is a wall without other openings than several dormer windows, through which it is possible to see what is happening in the street without the risk of being seen, and a solid wooden door…Once the door is open, the entrance is almost always into a corridor so bent and narrow that it is impossible to see from the threshold what is happening in the courtyard…The corridor leads to a courtyard. (Ibid.:57-60).

Carleton Coon (1951), influenced by Roger Le Tourneau's first book on Fez, published in 1949, is another author in this tradition, who evolved a general description of the physical structure of the 'Islamic city' in his book *Caravan*.

Damascus School

Another branch defining a model for the 'Islamic City' grew from within Middle Eastern urban studies. If the major referent for the foregoing studies on the 'Islamic city' is North Africa, and more particularly Fez, the crucial starting point for the Damascus School is Syria, and in particular the cities of Aleppo and Damascus, whose physical aspects are covered mainly in the solid scholarly work of Jean Sauvaget. According to Abu-Lughod (1987), these studies have had a substantial impact on the evolving image of the Islamic city.

Jean Sauvaget (1901-1950), in his studies on Damascus and Aleppo, claimed that the Greco-Roman geometric block structure had started to decompose with the decline of the Byzantine Empire (Sauvaget 1934 (a) (b) and (c); Sauvaget, 1941). He insisted on the idea that the radical alteration of the plan was consummated under Arab-Muslim rule (Alsayyad, 1991). According to him, the physical shape of what is usually called the 'Islamic city' followed that of the Greco-roman city which had preceded it, although in a form that was somewhat altered by the dynamic forces of Islamic society. Studying the physical shape of cities and the human community in Syria, he claimed that classical cities underwent slow transformations, nevertheless retaining the traces of their first incarnation. When the Arabs came, mosques and palaces gradually took the place of temples and cathedrals or were built on the site of the agora; whilst a certain lack of grandeur in the Islamic conception of the city, and the emphasis on the individual in Islamic law, led to the gradual encroachment of the broad avenues by shops and dwellings; and when a period of anarchy succeeded that of the early caliphate, the insecurity of life caused the population to withdraw into districts within the city, small units where the ties of proximity were reinforced by those of common religious allegiance or ethnic origin (Sauvaget 1934 (a) and (b); Sauvaget, 1941). Emphasizing these kinds of encroachments, Sauvaget contrasted the regular plan of the ancient cities and the tortuous streets of their Islamic successors, and tried to show through examples how these straight, porticoed streets of antiquity were gradually changed and resulted in a new townscape (Stern, 1970). Sauvaget, in his article on Damascus, notes again that the status of the cities was neither the object of any particular disposition of Islamic law nor of any municipal institutions. He goes further and asserts that no positive contribution has been made by the Islamic period:

> One can attribute to it nothing but the dislocation of the urban centre…The work of Islam is essentially negative…and the city is an inconsistent and inorganic assemblage of districts…and is nothing so much as the negation of urban order…The Islamic city is no longer considered as an entity, as a complex and living being in itself; it is no longer anything but an assemblage of individuals and their contradictory interests. (Sauvaget, 1941:247-8).

He identified the elements of a typical 'Islamic city' as: the *suq*; the square, which disintegrated into a network of alleyways serving a variety of commercial and residential functions — he believes the suqs, the Qaysaria and Caravanserai in 'Islamic Cities' were merely the degenerate remains of the colonnaded avenue, the basilica, the agora and citadel (Sauvaget, 1941). So a great part of Sauvaget's work was devoted to highlighting the traces of ancient town planning still present in the organization of Muslim cities. Neglia (2008) believes his work, was based on the interpretation of the urban fabric of Syrian cities as "the product of a progressive degradation of the classical plans beneath" (6).

Accumulation

Gustave von Grunebaum (1909-1972) was the author of various publications on the 'Islamic City' and the most important and influential among these are his articles entitled 'The Structure of the Muslim Town' (first published in 1955) and 'Die islamische Stadt' (1955).

Von Grunebaum (1961) defines the "full-fledged Muslim town" as a city which has two focal points — the Friday mosque (Jami) and the markets (145). The Jami as the spiritual, political, and religious centre is in general placed along the main thoroughfares or at the crossing of two main thoroughfares. Next to the Jami is located the principal government building, that is to say the palace of the ruler or the official residence. The markets (*awsaq*) in Islamic territories show the same general structure, characterised by a special functional hierarchy. Grunebaum (1961) writes that

> in the business district the unity of the town is apparent; the arrangement of the residential districts reflects the separatist tendencies at work within it… In newly founded cities the Arabs would settle by tribe, each tribal quarter to be complete with its own mosque, bath, and, as a rule, its own market…within the quarters there is hardly any open space or square to relieve the narrowness of their streets and byways. The Muslim house is oriented away from the street… (147, 148).

In his other text he points to the shape of the neighbourhoods and their roads „Innerhalb der Viertel findet sich kaum unverbauter Grund; auch freie Plätze sind äußerst selten; die erdrückende Enge der Straßen und Sackgassen wird architektonisch nicht ausgeglichen" (von Grunebaum, 1955:146). And the main forces behind this shape, according to him, are "ethnic, tribal and occupational segregation in the residential quarters, the lack of established municipal organization, and a guild-like socioeconomic structure" (ibid.:145). He categorizes towns in the Muslim world into two groups: the spontaneous and the created. Created towns, he claims, originated in armed camps in newly captured countries, sometimes located in the neighbourhood of an older urban centre. By contrast, spontaneous developments were those which "evolve without systematic planning on the part of a governmental body" (ibid.).

In sum, he systematized and consolidated the arguments of the Orientalists, declaring that:

> the elements identified by W. Marçais were inherent to the city [and the] other elements noted by numerous observers, such as the narrow, winding, maze-like streets, the many blind alleys, and the inner courtyard of buildings were…derived from the unplanned nature and the chaos of the cities. (quoted in: Kisaichi, 1994:34).

According to von Grunebaum (1955a, 1966), although the Muslim town is functionally united, it does not have any civic unity. He is of the opinion that the 'Islamic city', in contrast to Roman or Greek town, did not represent a coherent

form of civilized life. Considering the role of Islam in the city's development, he remarks that only a city, with its Friday mosque, markets, and possibly, public baths, provides the requisite setting for the requirements of the religion be fully observed. With regard to the social organization of the 'Islamic city', he follows the conclusions of the earlier Orientalists and concurs with G. Marçais' view that Muslim towns lacked municipal organization by contrast with Western medieval ones and accepts Louis Massignon's (1883-1962) idea that the guild-type trade associations of the Islamic cities knitted social organization together.

Alsayyad (1991) claims that the simplicity of von Grunebaum's concepts led to the stereotype he developed being taken up by numerous Eastern and Western scholars of Muslim urbanism by the 1960s. The same approach could also be observed in the work of Arab and Oriental scholars of the mid to late 1960s, such as Xavier de Planhol (1959), Jairazbhoy[10], Ismail[11], and Monier[12].

De Planhol (1959) states that there is a "special look" to an 'Islamic city', "composed of a tangle of blocks, badly ventilated by a labyrinth of twisted alleys and dark courts" and there is also a "special feeling" about an 'Islamic city', dominated by a "contrast between the noisy bazaar and the silence of the residential districts" (7). According to him, there are two facts that most influence the form and appearance of cities: "the urban ideal implicit in Islamic religion and the absence of municipal organization in Islamic countries" (ibid.: 9). He believes that the strong, strict framing of the towns, their general appearance of having been established in consequence of rigid principles are derived from the first influence. And from the second influence derives the "extraordinary anarchy of detail, which conceals the basic skeleton beneath a proliferation of parasitic features" (ibid.). Elaborating on the second influence, he declares that the general framework of the 'Islamic city' is generally "obscured by an entanglement of detail which seems quite inextricable… Especially in residential districts are the streets nearly always tortuous in the extreme…Onto these streets open a number of dead-end alleys, blind passages leading into inner courts, at the entrances… the streets are just as narrow as they are twisting" (ibid.:15); and the residents conceal their private life behind the "forbidding walls" of their houses in "the maze of alleys and back streets" (ibid.: 8). In the end, he draws a similar conclusion to that which Sauvaget had previously defended. He (1959) writes:

> Apart from the exceptions, irregularity and anarchy seem to be the most striking qualities of Islamic cities… the fundamental institutions of urban life have retained only the form given them by antiquity…The effect of Islam is essentially negative. It

[10] See: Jairazbhoy, R. (1965). *Art and Cities of Islam*. NewYork: Asia publishing House.
[11] See: Ismail, Adel (1969). *Origin, Ideology and Physical Pattern of Arab Urbanization*. Karsruhe: University Dissertations.
[12] Monier, Ahmad (1971). *Cities of Islam*. Beirut: BAU Press.

> substitutes for a solid and unified collectivity a shifting and inorganic assemblage of districts; it walls off and divides up the face of the city. By a truly remarkable paradox this religion that inculcates an ideal of city life leads directly to a negation of urban order. (ibid.: 22, 23).

1.1.2 Second phase

The ideas of the Revisionists

During the 1960s, the concept of the 'Islamic city', constructed mostly by French scholars, was revised by these authors. They tried to examine cities and towns within the context of their own society and culture, taking into consideration socio-cultural factors as shaping elements of the city. Although they opened up new levels of understanding of the city, they perpetuated the traditional stereotypes. By this time some scholars, for the first time, had begun to study Muslim urban society and its institutions had become the focus for many discussions of the 'Islamic City'. Bonine (2005) believes that at this time the attempt to characterise the physical dimension, which dominated the work of the Orientalists, was augmented by the deepening understanding of the role and place of Islamic law and in particular Islamic institutions within these societies.

In this period, Ira Marvin Lapidus (1967, 1969, and 1973) attempted to study Muslim urban society based principally upon Mameluke Damascus, Cairo, and Aleppo. He emphasizes how historical and social experiences and religious and aesthetic ideals influenced physical and architectural form and proposed that the world of Islam is not one world, but many, and each has its own type of traditional city with unique qualities and gestalt (Lapidus, 1973).

> The study of traditional Muslim cities touches on all aspects of Islamic civilization, and to understand traditional Muslim cities we must appraise the historical context in which they have developed, the nature of the society they embodied, and their cultural significance. (Ibid.: 51).

What Lapidus (1973) suggests for understanding the physical form of traditional cities is involving the relationships between social organization and spatial patterns in studies (Lapidus, 1973). He (1967, 1969) studied the forces existing in Muslim cities as urban phenomena and concluded that the urban society of 'Islamic cities' was not defined by any particular political or socioeconomic body but rather it was a society that divided essential powers and functions among its different component groups. And in fact this is the net of relations which governed Muslim cities, whose urban form was the outcome of interactions between these subsidiary groups. He proposed that the social organization of Muslim urban society played the most important role in giving the city its form. He elaborated different classes of society, the organization of city districts, the organization of economic life, fraternal associations in society, and the role of *Ulama* [religious persons] in forming urban society, in the three

cities of Aleppo, Cairo, and Damascus which were under Mameluke influence, and concludes that Muslim urban society divided into numerous small communities which stayed unified through the role of the Ulama and their ties across divisive family and community lines. He emphasized that there were neither any special agencies to deal with the affairs of the city as a whole, nor any municipality, and furthermore, no regular bureaucracy to deal with city-wide concerns. Lapidus (1967) continued that the shapelessness, the apparently fluid, twisting, and amorphous structure of the markets, are the result of this social structure and its functions. And although the cities may look formless… they have quite definite and logically patterned organizations (Lapidus 1973). He writes:

> The harat [mahalla or neighbourhood] may have lacked…defined physical form because of the need for privacy, isolation, and protection, and because of the lack of concern for public as opposed to family life. But in the markets, in the public part of the city, amorphous form resulted from the absorption of physical features by the style of social life. All institutions, shops, mosques, schools, and administrative offices were thoroughly intermingled to accommodate the demand for easy access and constant change of activities, from trade to prayer to teaching and so on. The Muslim city had the physical form of the bazaar because it was appropriate to the fluid pattern of social interchange and of daily living. (Lapidus, 1967: 114).

However, he implicitly mentions that the encroachments of home and shop-owners onto the public thoroughfare, the twisting narrow streets of the districts, and numerous blind alleys, cul-de-sacs, and blank walls connote withdrawal from public concerns and public life (Lapidus, 1967).

Albert Hourani (1970), another author of this group, considers it a mistake to observe the physical shape of the ‘Islamic city’ simply as an expression of its social structure. “A city cannot be just an external sign, in stone or wood or mud-brick, of a system of social ethics or social institutions… there are many factors which affect the shape of the city, and first of all there are physical factors” (Hourani, 1970: 20, 21). After sounding a note of caution about the innumerable variations that can arise in the city form, Hourani (1970) constructed a picture of what a typical ‘Islamic city’ would look like. According to him the ‘Islamic city’ includes: a citadel, a royal quarter, or royal city, a central urban complex consists of great mosques, religious schools, central markets (qaysaria), and special places assigned for the main groups of craftsmen or traders. The houses of merchants and religious people would be located in this strict core of residential quarters, with two main characteristics: “the combination of local with ethnic or religious differentiation, and the relative separateness and autonomy of each quarter or group of quarters”; and suburbs (Hourani, 1970: 22). Although he criticizes the ideas of a former generation, in proposing his hypothesis, he compares the ‘Muslim cities’ with ‘those of the Western Europe in the same period’ and to justify this comparison he referred to

Max Weber's critical criteria for a city in its full sense. He made the point that although 'Islamic cities' may have lacked some of Weber's criteria, they were still able to flourish and maintain a high level of urban activities (Hourani, 1970). With these kinds of comparison he approaches the Orientalists' basic ideas on observing the European and the 'Islamic city' as dichotomies.

Similarly, L. Carl Brown (1973) criticizes former approaches to the study of the 'Islamic cities' and declares that the broad boulevards and grid patterns are more related to the modern West than to Western civilization generally, and at least in the case of Herat, the two intersecting main arteries show how narrow winding streets and the absence of straight lines is not the case in all 'Islamic cities'. In this regard he believes in a special essence, a kind of particular soul in these cities:

> No, the near eastern city is not readily categorized according to a pre-determined check-list, but it nevertheless possesses its own elusive essence. A more poetic writer would dare to assert that it has its own soul. Perhaps in a certain sense the near eastern city is like near eastern music: it can be readily analyzed and described, but to all but the most perceptive ears, considerable time, a slowly nurtured familiarity, and a subtle shifting of psychological gears on the part of the listener are needed before this music can be understood and appreciated on its own terms (Brown, 1973: 21).

This description presents a new kind of view in observing 'Islamic cities'. He also proposes that the peculiarity of the cities must be taken into account more than their generalities; the things-themselves more than comparisons. He states that:

> The most appropriate answer would appear to be in making a virtue of the dialectic process and the dynamic tension realized in pitting the unique against the category, the thing-in-itself against the thing-in-comparison-with-others, and the cultural principle of classification against the structural-functional. (Ibid.: 22).

Yet, pointing to the aerial view of Fez, he argues that this view conveys "both the hodgepodge pattern of street communication and the orderly, square internal arrangement — showing each house built around a courtyard" (ibid.: 20).

Another scholar in this category, Richard Ettinghausen (1973), conveys his ideas and visions of the features of the street network of the 'traditional Muslim city', and, referring to the aerial view of the old quarters of Damascus, notes the great use of inner courtyards and prefers a description of the city in terms of "a narrow, labyrinthine street pattern" (291). In this regard, he introduces four major clichés about the 'traditional Muslim city', one of which is about the form and features of the network of roads in these cities:

> Cliché number two wants us to believe that there is no planning within an Islamic city. This idea is based on the crooked lanes and the lack of open spaces that characterize many of the old towns. However, every visitor to the Maydan-i Shah, the Royal Square in Isfahan, is familiar with the bold layout of the vast open square

> around which four major monuments are placed; in at least two instances they are in turn the key points leading to important quarters behind them. Nor is this the only case of early 17th century planning in that city, because Chahar-Bagh Avenue, leading to one of the magnificent bridges over the Zenderud [Zayande-rud], runs in a straight line and is also laid out according to a master plan which, again, runs counter to the general idea of nondescript building everywhere and a compulsion for curving streets. (Ettinghausen, 1973: 305).

As another counterexample he points to the layout of Baghdad in the 8th century and asserts that the several attempts at town planning show that the "widely held image of a jumbled-up Muslim town" does not universally apply (ibid.). He emphasized the regularity of the formal rectangular court, around which all the buildings of the 'Islamic city' are constructed, is in contrast to the crooked lanes and shows that a sense of clarity and orderliness exists in an 'Islamic city', a fact which could also be proven by the works of famous mathematicians of this world. Ettinghausen (81973) concludes that:

> Here another related point should be made: that the syndrome of the 'crooked lanes' does not imply 'disorganization' in civic matters. Speaking in the most general terms, one can say that the suq usually represents the main artery and urban axis from which secondary side streets with other shops and ateliers branch off and that close to it are the khans and other important buildings. Around this area are the residential districts. Minorities have their own quarters with their own places of worship and civic needs, and altogether there is a definite pattern of urban organization. (305).

In this way, Ettinghausen tries to find a kind of order in the structure of the 'Islamic city', to prove that the previously developed clichés are not valid in all cases.

Moreover, the book *The Islamic City,* which includes selected papers from the colloquium held at the Middle East Centre in Cambridge, England in July 1976 (edited by R.B. Serjeant), is a good example of the arguments of this group. In this book, the 'Islamic City' has been studied through its different urban institutions including: religious institutions, legal institutions, governmental, educational and social institutions and briefly through its physical layout; with a separate article devoted to elaborating each institution (Serjeant, 1980).

1.1.3 Third Phase

The third phase belongs to the new generation of authors who try to study 'Islamic city' from new points of view and to open up fresh perspectives for the body of 'Islamic City' studies. They basically and fundamentally criticize the ideas of first phase authors and propose new approaches to considering the cities

The pioneer of this group is Janet Abu-Lughod, an author who has published a number of works on the subject of the 'Islamic City', takes a broad look at the 'Islamic city' studies and warns of the dangers inherent in making generalizations from a small sample within a specific region. She, in the much-cited article, 'The Islamic City, Historic Myth, Islamic Essence, and Contemporary Relevance' (1987), examines and criticizes some of the basic works in the tradition 'Islamic city' studies and, after deconstructing the concept of the 'Islamic city', tries to build up a somewhat different and more analytic model.

The main thesis of the article is that the idea of the 'Islamic city' was constructed by a series of Western authorities who drew upon a small sample of pre-modern Arab cities "on the eve of westernization (domination)", and she traces the *isnad* transmission of authority as each drew upon the next (ibid.: 155). In other words, she likens the historiography in this case to the 'traditions of the Prophet'. She elaborates:

> The authenticity of any proposition is judged by the isnad or 'chain' by which it descended from the past. Certain chains are deemed more trustworthy than others. One makes reference to an earlier authority in order to substantiate a statement's authenticity or truth. The truth, therefore, is only as good as the isnad (chain) of its 'construction'. (Ibid.).

She counts all the authors of the first phase as links in this chain or *isnad* and tries to demonstrate how loosely the bricks have been stacked to make the model of 'Islamic City', by putting their ideas into question.

Looking for the 'Islamic city', she observes the Muslim and Hindu quarters in Indian cities and tries to compare the urban patterns of Muslim-origin cities with those of Hindu origin. The major (and maybe only) distinction she makes is that "Cities originally occupied by Muslims or substantially expanded by them had far more convoluted street patterns than cities founded by [the] Vedic/Hindu population. The latter were arranged more regularly, had straight streets unencroached by structures, and achieved privacy largely through court-houses rather than alleys and dead-ends" (ibid.: 161). She proposes this difference derives from the nature of property law, rather than religion per se.

On the other hand, she understood that, with reference to Africa, scholars believed there to be significant differences between Islamic and non-Islamic cities. African cities inhabited by a Muslim population were said to contain "complex and narrow street systems, courtyards, and the spatial segregation of males and females" (ibid.). Likewise her informants suggested that the cities in Muslim areas of Asia (Indonesia and China, for example) exhibit distinctive street patterns, noise levels, and a sense of Islam. She argues that if there is something Islamic about these cities, it is unlikely to be some "simple architectural patterns and designs" although it would be easy to say it is not "a

form, per se" (ibid.). She intends to determine the underlying forces: whether Islam per se generated this kind of street network or whether other factors also had a role. In this regard she writes that:

> Cities are the products of many forces, and the forms that evolve in response to these forces are unique to the combination of those forces. A city at one point in time is a still photograph of a complex system of building and destroying, of organizing and reorganizing, etc. In short, the intellectual question we need to ask ourselves is: Out of what forces were the prototypical Islamic cities created?" (ibid.).

In answer to her own question about what created the traditional city in the Islamic world, she proposes three main ways in which Islam affects and shapes the form of 'Islamic cities': the first is by effecting juridical distinctions among classes of the population on the basis of their relation to the *Umma*; the second by encouraging gender segregation, which leads to certain spatial imperatives; and the third way is the Islamic definitions used for the property system. She believes also that "The blind alleys or dead-end court streets was such a device for achieving this compromise between the exigencies of life and the directives of female seclusion" (Abu-Lughod, 1987:168).

Another critic, Nazar Alsayyad (1991), propounds that there is a special typical imagination about the 'Islamic City', its typical elements, physical layout, spatial structure and morphology, which he refers to as the 'stereotype of Islamic City'. This typical image, according to him, goes as follows:

> The Muslim city is a city whose central nodes is [are] a Masjid Jami, or Friday mosque, with a well defined and somewhat central royal quarter and a qasabah or a major spine extending from one main gate to another along which lies [lie] the most important buildings scattered along the linear bazaar which branches out into the city forming irregular but functionally well-defined specialized markets. The city also has a citadel or a defensive post on the outskirts and this seems to tie well with its successive walls. Housing was mainly made up of inward oriented core residential quarters, each allocated to a particular group of residents and each is served by a single dead-end street. As for its spatial structure, the Muslim city had no large open public spaces serving its movement and traffic network were narrow, irregular and disorganized paths that do not seem to represent any specific spatial conception. (Alsayyad, 1991: 6).

Alsayyad (1991) believes this description represents the common picture of traditional Muslim urban settlements, and names it as the "stereotypical" model commonly used to theorize, teach and discuss the Muslim city: however he believes this description is not accurate because it "is very static and thus inappropriate because it does not take into consideration the factor of time or the nature of urban growth functions…the stereotypical model is inadequate because it divorces form from function and because as a theoretical construct it is too simplistic to be of any substantial use" (6). He asserts that this stereotype is the creation of the chain of authors who belong to the main academic stream

of 'Islamic city' studies in the early 20th century. Their terms were adopted by both Eastern and Western scholars of Muslim urbanism. In this way, the stereotypical Muslim city invented by Westerners has been developed and extensively re-produced by Arab and Muslim scholars. He supposes that the stages of development of the concepts of the Muslim city assumed by researchers at certain period of time is highly influenced by the state of scholarship and the predominance of particular research theories at that same time point (Alsayyad, 1991). Moreover, Alsayyad (1991) believes that the study of Muslim urbanism is grounded on the postulation that "Muslim cities are self-contained entities that make up a distinct society and culture radically different from that of other civilizations… It [the Muslim city] is a concept based on the belief that the Islamic element has had the most profound influence on the historical and physical development of cities in the Middle East" (1).

On the other hand, identifying the other main problem with the basic concepts behind the Model of the 'Islamic City', Alsayyad (1991) mentions that the whole enterprise of understanding the Muslim city was based on juxtaposing it with its medieval European counterpart. In other words, "the concept of the Muslim city was invented by scholars who were only capable of describing this urban entity using norms and standards developed elsewhere" (Alsayyad, 1991: 16). Obviously there is not any fundamental fault intrinsic to observing the Muslim city in a comparative context, as those early scholars had attempted to do. The problem, in his eyes, existed because such observations were not incorporated within any appropriate comparative framework and were mainly a "reflection of western modes of representation" (ibid.: 17). Furthermore, the prevailing network of concepts does not seem to work anymore and should:

> be replaced not by an alternative, objective network but by an interdisciplinary analysis of intentions of the makers and the actions of the inhabitants over a reasonable period of time. (Ibid.: 41).

Alsayyad (1991) believes that a more accurate and less stereotyped view of the Muslim city can result from studying it through different disciplines, with research that "did not seek to understand it directly, but that instead analyzed the structures and institutions of Islamic society" (33). He puts forth that more attention should have been paid to the early Arabs. The urban images they contributed, the urban settings they conquered, the gradual process of change and transformation should be studied. Moreover, considering "what the Muslims originally wanted of their cities and try[ing] to relate that to what Muslim cities turned out to be" may help in finding some answers (ibid.: 41). For that reason, he tries to study the role played by caliphs in shaping the urban form of the Arab Muslim city, to recognize the importance of the Islamic component in this process of urban genesis and determine the nature of this component. In this book, he suggests that the model of a typical Muslim city, consisting of a

mosque, a palace, a citadel, and residential quarters, is inadequate and he introduces an alternative framework for analyzing and understanding the cities of the Islamic Middle East based on morphological analysis. He intends to introduce a more relevant approach to looking at Muslim cities by concentrating on the process of urban genesis (Alsayyad, 1991).

André Raymond (1994) divides the period of evolution of images of the concept into two main eras: the Orientalism period and the end of Orientalism. The Orientalism Period belongs to the whole body of literature created from 1920 up to 1956—the year that marks the end of Orientalism in the field of the Muslim city and Muslim town planning. According to him, this body of work was directly influenced under various forms of French authority — direct colonization in Algeria, protectorates in Tunisia and Morocco, mandates in the Levant. He writes:

> …these texts clearly display the influence of a colonial spirit, a fact which doubtless partly explains the rather negative judgments they render on these traditional 'native' towns" (Raymond, 2005: 207, 208).

He declares, the concepts of the Orientalists, concerning the 'Islamic city', fit naturally into the fundamental concept of Orientalism, according to which "any phenomenon arising in the civilization of a Muslim country is totally conditioned by Islam" (Raymond, 1994: 3, 4). So it is not surprising that Islam was considered to be the instigator of all political organizations, socio-economic activities and also the physical structure of a town, including the configuration of the network of streets, or even the features of a house.

Another factor which, according to Raymond (1994), influenced the Orientalist vision of the 'Islamic' city was the fact that the French colonization occurred in areas where ancient Greek and Roman cultures had been expressed in urban creations whose relics remained in the city textures, causing scholars to be constantly drawn by the fascination of ancient town planning. A similar thing happened in the comparison of 'Islamic cities' with the cities of medieval Europe.

Raymond (1994) believes these remarks to appear to illuminate the negative characterization of the 'Islamic city' and why the city is studied through a fundamentally negative approach:

> a city defined more by that which it is not than by any positive features of its own. In physical appearance, it has lost the regularity of the ancient city, substituting for Greco-Roman orthogonal order a structure which apparently obeys no logical principle. Its streets follow a highly irregular pattern — worse, they frequently end in blind alleys. (209).

Since the 1940s, the end of the colonial period, with the decline in the colonizers' self-assurance and their tendency to develop prejudices against the

civilizations they studied, the Orientalist stereotypes were critically re-examined. As among the main revisionists Raymond points to the ideas of Oleg Grabar, Jean-Claude Garcin, J. Cl. Balthy, Samuel Stern, and Hugh Kennedy, who radically criticized the traditional concept of the 'Muslim city'.

Raymond (2005) proposes a new methodology for understanding the city, that limits the area of study to the Mediterranean Muslim world, expanded to include Morocco, Iraq and the Arabian peninsula, in order to be able to define its coherent characteristics, and thus to describe "a 'traditional Arab-Mediterranean city'" (213). He believes that the main error of the Orientalists was that they considered the 'Islamic' city to be anomic and anarchic. According to him, the 'Islamic city' should instead be understood as a complex system with particular functions and characteristics. In this direction, instead of drawing a debilitating contrast with other ancient or medieval European urban examples and judging the 'Islamic city' to be a non-city, it is more useful for understanding its constitution to consider its exclusive and specific elements. He writes, "the traditional Arab city must also be considered as an urban system with its own originality, endowed with its own specific characteristics, whose structure must be analyzed and whose workings understood, even though they may obey principles different to those with which we are familiar" (Raymond, 2005: 213). Raymond (2005) introduces the features and the elements of this distinctive whole as: an opposition between a public centre and a vast private zone, and the city's vigorous centrality. He also refers to the structure of the streets. Explaining the main commercial roads of the cities, he asserts that there is a network of regular and relatively wide roads, connected via other streets to the outskirts of the town. He believes that this relative regularity "contradicts the stereotype of an anarchic 'Islamic' street-plan" (Raymond, 2005: 214). In other passages, illuminating the character of the residential districts, he writes:

> It is here that we enter the famous network of irregular streets and alleys without exits which some scholars have seen as a specificity of the whole city…such impasses made up no more than 40 to 50 per cent of the total street network, concentrated in the residential zone. (Ibid.: 215).

He concludes that the irregularity of the streets and the abundance of blind alleys which attracted the attention of the Orientalists were a particular local phenomenon and answered to the needs of the people who inhabited the residential neighbourhoods, for example, their need for privacy. The only direct communication they needed was with the city centre, outside of which they did not have any direct contact with other parts of the city. Thus, the irregularity of the streets is not a general characteristic of the whole city (Raymond, 2008).

1.1.4 Demand for New Perspectives

As seen, the first phase of academic writing is made up by the large body of texts which have, for the first time, tried to examine, explain and define the 'Islamic city'. Although a number of travellers had already described the structure and appearance of Muslim cities in their texts, mostly these were not scientific examinations but consisted of general, emotive descriptions based on an immediate experience of being confronted with such cities. However, in the same period, scientific morphologic studies were beginning to take place, setting the foundations for later discussions about the reading of Islamic cities. According to the main ideas of the key authors of this period as well as the later critiques of them — both discussed in this chapter — it can be said that the authors of this period encountered and saw the city as an object, an other, apprehended from the point of view of a foreign observer, far from the immediate lived world of the cities. These writers interpreted the cities without having a direct experience of their urban life and values. Their objective observations were manifested in the huge reductions they made in their conceptualisations of the city. Reducing the cities to a set of urban components and formal characteristics led to a schematic definition and depiction of the structure of the city. This is clearer in the writings of W. Marçais when he states that the 'Islamic city' has three functions, functions which contribute to preparing a Muslim citizen for Friday prayer. Merely considering the mosque as a location dedicated to daily worship must be the result of observing the mosque as an object, cutting it off from its wider social and political implications. On the other hand, these writers' descriptions are based on a body of pre-suppositions and pre-conceptions already formulated according to a particular Western cultural and social background and state of mind. In other words, they presupposed a set of general forms and functions as the criteria for an ideal city, and attempted to define the character of the case studies in terms of the absence or presence of these special characteristics. This constant comparison with a manufactured check-list led to the fact that the 'Islamic city' in this period was defined as a 'foreign' phenomenon belonging to a 'foreign world'.

Moreover, studying these authors' descriptions reveals that they are generally limited to highlighting only those special urban elements which can clearly be seen to be particularly distinct from typical Western cities, such as the bazaar, the mosque, and the street networks. This is probably due to the fact that such general images were negative and allowed observers to mark out a greater distance between 'themselves' and 'the others' (Muslims), between 'their cities' and the 'others' cities' (Muslim cities). Based on this point of view, and their clear, special definitions about completeness, order, regularity, rule and so on, the 'Islamic city' was understood as an incomplete, chaotic, irregular, rule-less phenomenon.

In the second period, the surveyor of the city is not at such a distance from the city, but attempts to gain greater proximity with it and its world, avoiding 'negative' observations of the city, and instead studying its complexity and context-dependent nature in a more appropriate way. From this stance, some scholars have paid attention to the city's social structure, justifying its morphology through its social pattern — such as Lapidus (1967). On the other hand, some of them — such as Serjeant (1980) — criticize former studies, declaring that the chaotic (intertwining) form of the city corresponds with urban institutions, and though it is irregular, it can be a good response to the necessities and needs of city life.

In this period, although scholars were able to distance themselves from the basic ideas of the first phase, some similarities and concepts common to their lines of thinking could be found at particular points. For example, Hourani (1970) criticizes the ideas of William Marçais, Massignon, and Sauvaget, but himself compares the 'Islamic city' with Weber's criteria for a typical city. It means he evaluates a city belonging within a distinct, exclusive context with theoretical bases developed in a quite other context. Similarly, Lapidus (1967) in his claim that the shape of the streets connotes a withdrawal from public concerns and public life, shows that he has not paid attention to the different nature of public life in different kinds of cities.

In this period some pioneering ideas are also proposed; for example, when Carl Brown (1973) argues that the city has to be understood "through the thing itself against the thing-in-comparison-with-others" approach, he opens up a very deep perspective but this nevertheless remains just an observation, and does not go further to be embodied in any concrete methodologies.

However, in general the second group modified the original approach to 'Islamic cities' and set an agenda of deepening their studies and envisaging a wider domain of affairs to read cities by; they did not only limit themselves to formal aspects, but broached informal ones such as social, cultural, ethnic, and urban dimensions. However, their analyses of the city failed to propose any new methodologies.

The third period's most important aspect was its fundamental critique of the first period, eschewing the modifying, revisionist approach of the second period, and instead proposing an out-and-out refutation of their principles and thoughts. These scholars proposed a series of strong arguments that challenged the understanding of the first group and stated that the basic ideas of these scholars misdirected later research and set it onto an erroneous path, in that by creating a stock cliché they adversely affected the theoretical discussions of the field in question. Some of these scholars criticized the first phase concepts — for example Haneda (1970) and Dumper (2006) — whereas others attempted to re-read 'Islamic cities' and to establish a new and appropriate method far removed from clichéd understandings of the essence of 'Islamic cities' — this group

included Abu-Lughod, Alsayyad and Raymond. Instead, third phase scholars tried to define context more closely and in a way that was more suitable to the subject in question.

However, in this group's approach the form of the city is still mainly studied separately from its semantic context. What should be particularly attended to in the case of 'Islamic cities' is the fact that as they have been established according to a top-down created order, the development of their form follows some hidden-order rules of which a large percentage can be deemed to belong to semantic forces. So studying the form alone as a final and complete phenomenon could not be sufficient. Another problem is that the focus is mainly on two-dimensional maps. Although studying maps can reveal a great deal of information regarding city morphology, it cannot be adequate to the case of 'Islamic cities' and studying the *space within the city* should be considered as one of the crucial parts of observing the cities and as a necessary point in understanding their morphology.

An essential deficit of this pioneer group — and possibly for most of the authors in this field — is that they remain within the same domain of concepts and definitions as their predecessors. That means they attempt to reject, justify, or improve upon, previously posited ideas and concepts about the city but they do not try to step outside of this framework to observe and explain the city in a new context belonging to itself. Thus, although the latest phase of studies on the concept of the 'Islamic city' has attempted an interpretation that derives from the context of the city and its cultural, religious, social and political background, and some new aspects of the city were thereby opened up, some other issues, such as the perception of the city from a new viewpoint, observing the city as an integration of form, meaning, and symbols, and not concentrating only on form and function, have nevertheless remained eclipsed. In fact, the city has to be observed and described through the structure of the life-world of its people and without comparison to other basic defining frameworks, without repeating the same definitions and attributions, and by grasping native concepts, patterns, and typologies.

The necessity therefore emerges of trying to sidestep this current, and read the city with fresh eyes, to discover its complexities and inclusive characteristics, which could be the first stage in a new step forward. In taking this step forward, distance from the 'Islamic city' should be reduced. And, besides observing the city as a phenomenon which has its own special geometry and characteristics, its space should be entered into and explored. As Alsayyad (1991) states: we should let cities define "their own system of relationships, symbolic languages, and metaphoric messages" (41). These new viewpoints necessitate re-reading the city within this 'new context' and through a 'new methodology'. These alternative terms and models could be applied to explain the pattern of relationships and the physical layout of cities in the region. So, a

new viewpoint and perspective in the study of the city's morphology is necessary and can be helpful in improving the mainstream of studies on the concept of the 'Islamic City'. In this regard, the questions to be posed are: *how this new perspective can be defined? What is the key approach for achieving it?*

1.2 Imagined Morphology of 'Islamic City'

Outside the mainstream of 'Islamic city' studies, there are other historians, architects, urban planners and geographers who have dealt with and write about the urban growth and shape of the 'Islamic cities' from first phase of literature up till the present day. Their texts reveal the prevailing characteristics which have been inferred and intuited from the 'Islamic city', the image that is held of the form of an 'Islamic city', the dominant features attributed to the morphology of the city, and the adjectives and concepts meander through the descriptions that are being used as uncritical presuppositions in teaching and theorizing this topic.[13]

The process of urban growth of the 'Islamic cities' is explained mostly by concepts such as spontaneous, organic, natural, and like an organism, which have their own definitions in the vocabulary of urban studies. Hakim (2008) declares that three urban models have evolved in Islamic world. These are: a- the planned pattern, belonging to pre-designed cities, e.g. the round city of Baghdad; b- the renewed and/or remodelled pre-Islamic city: this targets the group of cities which were founded prior to Islam and encountered some changes after its arrival, e.g. Aleppo; and c- the 'spontaneous' or 'organic' city which has grown up spontaneously and expanded incrementally. The most pervasive model of the 'Islamic city' has proved to be the third of these (Hakim, 2008).

In a similar way, Akbar (1988) and Bianca (2000) posit two types of Muslim towns with regard to their evolution: 'spontaneous' or 'organic', and 'created' or 'planned' ones. According to them, spontaneous towns with organic growth are those with vernacular urban configurations that have developed without the stimulus of official planning. Created ones, by contrast, are those founded by Muslims as military town camps such as al-Kufah, and the political town of Baghdad (Akbar, 1988). According to Bianca (2000), this "prevalent 'spontaneous' urbanization mode" is often reflected by "tortuous residential access lanes and cul-de-sacs [sic]…broken into successive hierarchical sections"

[13] The sample-texts have been selected to show the diversity of approaches and the various main features that have been attributed to these cities' urban form. The criteria for selecting the texts to be mentioned in this chapter is that they are by scholars who have emphasized the form, pattern, and geometry of 'Islamic cities' in their works, generally or especially, and their works have been referred to as forming part of the general or professional body of the knowledge on the 'Islamic city'.

and its urban structures were influenced by principles and attitudes firmly rooted in the rules of Islam, the traditional community life of Muslims, and the tribal customs of the Arabs (142). He writes,

> It can assimilate the external world after the circulation has been gradually filtered by various intermediate sections of the street network. Dead-end alleyways and a progressive sequence of gates and thresholds are the preferred tools for achieving this protection, which preserves the aura of the family sphere and prevents frictions with the public realm. (Bianca, 2000: 142).

Kostof (1991) states the spontaneous, grown, chance-grown, generated, or geomorphic city, presumed to develop without any designer, or master-plan, but from "the passage of time, the lay of land, and the daily life of citizens" (43). The resulting form is "irregular, non-geometric, and organic, with incidence of crooked and curved streets" (ibid.). It is called "unplanned evolution" or "instinctive growth" to stress processes that take place over time in the making of such city-forms (ibid.). Quoting F. Castagnoli (1971), Kostof (1991) writes:

> The irregular city is the result of development left entirely to individuals who actually live on the land. If a governing body divides the land and disposes of it before it is handed over to the users, a uniformly patterned city will emerge. (124: quoted in: 43).

Kostof (1991) assumes the regular grid system to be the sign of a planned pattern and the maze of streets to be a sign for the organic pattern, and believes that the Islamic town has a "self-regulated residential maze" (62).

A.E.J. Morris (1994) defines three types of 'Islamic city': existing cities, organic growth; existing cities, planned; and new Islamic cities. The first two are those existing urban settlements of either organic growth or of Greco-Roman planned origins which were taken over by the Muslims as their empire expanded; and the third type is those new cities founded in conquered lands by the Muslim armies. He adds that the more usual form of traditional Islamic urban morphology is adjoining, densely packed courtyard houses to which access is gained by "way of narrow, indirect cul-de-sac alleys, entered off marginally wider through routes leading from the city gates to the centrally located main mosque" (Morris, 1994: 370).

1.2.1 Physical Layout of the City

In addition to the scholars who have written on the pattern of the urban growth of the 'Islamic city', there is a large number of authors who have engaged with the form of the streets in the city or its neighbourhoods; some explore this in detail and for others, it is a presupposition. Here, we study some of these approaches by mentioning or quoting the texts in chronological order.

Fisher (1951) deals with the physical, social and regional geography of Middle Eastern cities. In his description of aspects of the historical geography of the Middle East, he defines the main characters of morphology of a Middle Eastern town as: "the grouping of population often by sect…the tendency for trades to gather in the same street or location, and the lack of development in civic consciousness" (Fisher, 1951:132). For him, the Aleppo bazaar is a "bewildering labyrinth of tunnels lined by alcoves where goods are displayed" (ibid.). And Old Jerusalem is almost entirely of this pattern, where "only two streets [are] usable for any length by wheeled vehicles, and the covered labyrinths are so confusing to visitors that many are driven after mounting bewilderment to pay to be let out—since there are only four gateways" (Fisher, 1951:132-3).

English (1966) claims that the hallmark of the 'Islamic city' is "the labyrinth of twisted alleys, which has been replaced later by regular-street patterns because of westernization (English, 1966:46).[14] He also explores one of the traditional 'Muslim cities', Herat, comparing it to the general theories and models proposed for traditional cities (English, 1973). Believing in the texts of von Grunebaum as the important basic studies, he describes the models of cities that developed before industrialization: one belongs to the West, the other to the Muslim world. He writes:

> For the Muslim town the key definitions were the centrality of the mosque, the formlessness of the quarters, the concentration of crafts in the bazaar, the lack of civic self-expression, ethnic division of labor, and segregation by race, religion, and occupation. (English, 1973:74).

Moreover, he attempts to describe the shape of the city and the reason for this shape:

> The organic, irregular plan of these quarters of the old city is universal in the Muslim world. The streets and lanes are narrow and twisting, often subterranean, with many sharp turns and frequent culs-de-sac. The street as a means of circulation is exceptional; there is no traffic network… The alleyways tend to follow slight contours of the land along which water is channeled… the walls of household compounds are heavily studded and barred, and windows are ten feet above the

[14] This idea was confirmed later by Ralph Thomlinson, in his book *Urban Structure, the social and spatial character of cities*, published in 1969. One of the chapters, 'How Urban Areas are arranged', deals with international contrasts between city structures and the general similarity modernity brought to them. Among his descriptions, pointing to the increase in the resemblance between the cities of all cultures and the adaptations made for the car in preindustrial cities, he cited Paul Ward English as providing back-up for his notion: "Such automobile-induced morphological change is illustrated by Kirman, an Iranian city of 60,000 residents: A hallmark of the Islamic city—the labyrinth of twisted alleys—is being replaced by regular street patterns which can be used by automobiles and trucks" (Thomlinson, 1969:179).

> ground… There are no street signs and no numbers, and one cannot find a specific residence without a guide. This is not accidental… (Ibid.:78).

Similarly, Fathy (1973) points to the winding shape of roads but, by contrast, he attempts to confirm the advantages of the shape of the streets. He declares that the typical layout of the 'Islamic city' was characterized by "narrow winding streets with a similar arrangement of housing plots" which are the result of and the best answer to the climate and that in fact it is the special desert climate of region which necessitates this kind of pattern (Fathy, 1973:320). He asserts that by simple analysis, it is quite possible to understand how such a pattern came to be universally adopted by the people of the region. Anybody living in, or experiencing, the severe climate of the desert naturally seeks shade, which is incorporated into the city by narrowing and orientating the streets to avoid the hot desert winds, which can be achieved by making these streets winding in shape, with closed vistas (Fathy, 1973). He writes:

> At first sight, the plan of the Arab city, with its irregularities, might appear to have developed haphazardly. But …from further analysis, we shall see its functional and logical reasons. (Fathy, 1973: 322).

He adds that this kind of pattern, of narrow and winding streets with closed vistas, has certain distinct advantages over modern city plans using the gridiron system and has the same function as the courtyard in a house, namely, to act as a 'temperature regulator'.

Investigating the structure of Fez, Burchkardt (1976) describes the features of its street network and writes:

> Fez is situated on a junction of trade routes... These routes were travelled by caravans and their extensions into the town from the main gates to the central market can be used only by pedestrians... Impassable to vehicles, they become gradually narrower as they approach the town center, where they do not emerge into open squares but continue to make their way through the labyrinth of market alleys where traders and craftsmen ply their trades. (Burckhardt, 1980: 168).

On the other hand, Yasufumi (1989) believes that the historical parts of the cities in Islamic countries are immediately remarkable and supposes the "culs-de-sac...and weaving street networks," which were constructed during a long Islamic history, to be the most distinct and popular things in these cities (315). He asserts that both of these features could also be observed in the historical districts of European cities, but that the proportion of culs-de-sac to streets that are through-routes in 'Islamic cities' is very much higher. He concludes that the street network pattern in 'Islamic cities' can be likened to a tree, labyrinth, maze, or to the nerve system. He believes that culs-de-sac are the main reason for apprehending this pattern as a labyrinth-like or as a maze (Yusufumi, 1989).

Abu-Lughod (1989) trying to clarify the role and presence of Islam in influencing different aspects of the city's form, writes:

> The same can be said for the street patterns of Muslim-Arab cities, notorious for their circuitousness and their complex reticulation of bent alleys and culs-de-sac. While to some extent the nature of Islamic property rights, which gave precedence to the rights of proximate neighbours over the rights of the community-at-large, encouraged this maze-like arrangement of narrow passageways. (203-204).

Abu-Lughod in her other publication, a study of Cairo (1971), combines census-tract analysis, historical reconstructions and the author's personal knowledge of the city. Her book is a history of Cairo's morphology, culminating in her division of the present city into 13 sub-cities. By the end of the 19th century, Cairo consisted of two distinct physical cores. In describing and comparing these two cores she points to some features of the Islamic part of the city:

> To the east lay the native city, still essentially pre-industrial in technology, social structure, and way of life; to the west lay the colonial city with its steam-powered techniques, its faster pace and wheeled traffic, and its European identification. To the east lay the labyrinth street pattern of yet unpaved harat [lanes] and durub [culs-de-sac]…; to the west were broad straight streets of macadam flanked by wide walks and setbacks, militantly crossing one another at rigid right angles or converging here and there in maidan …Yet the city to the west was elaborately adorned with French formal gardens…" (Abu-Lughod, 1971: 98).

Najmi (1988), in describing the new city of Herat which belongs to the 1940s, writes: "The historic city of Herat [before modernization, Islamic city] was a compact labyrinth of houses and courtyards…which were very difficult to change to any new organism" (69). He adds that, to respond to the need for development and tendencies towards modernization, the government initiated some rebuilding, but these special characteristics of the old city's texture made them decide to build a new city beside the old one (Najimi, 1988:69).

There are a large number of other publications which directly or indirectly accept these kinds of characterisations of 'Islamic cities' as the most exclusive and insightful ones. Kiasaichi (1994) examines various studies conducted during the first decade of the 20th century, which mostly concentrate on Maghrebi cities. Among these accounts, he points to the article by Bellaire and Salmon, 'Description de la ville de Fès' (1907) which is the survey report on an old quarter in the city. In this article it is concluded that "the distinctive features of the town were its numerous blind alleys and the unplanned nature of its urban architecture" (17). Dounton (1989) writes similarly "What emerges as the crucial feature of the Islamic city is the 'looseness of the structure', both in the sense of municipal and the articulation of its physical form" (28). Beattie (1996), describing the city of Damascus declares: "the Old City is a labyrinth of small streets and narrow winding lanes with the traditional Muslim and Christian sectors" (204). In this regard, Haneda (1994) also asserts that traditional arguments about the 'Islamic city' stress such features as "blind alleys", the bazaar, and the location of the mosque (247). Deither (1973) states

that "Foreigners flock into the medina to wallow in 'real exoticism' and to experience the 'mysterious adventure' of 'discovery' of Muslim cities" (232). Describing the features of quarters in Damascus, Miura (1989) quotes the book of an Arabic writer about the daily life of a damascene in the 19th-20th centuries and writes: "the narrow and zigzag alleys protect the women of quarters from the eyes of outsider" (Hasan, 1988; cited in: 407).

1.2.2 Iranian Cities

There are many more such explanations based on a similar approach and understanding, and Iranian cities are no exceptions to this rule and are equally seen to conform to these patterns. For example, English (1966) has studied the Iranian city of Kirman and concludes that the streets and lanes in the quarters formed "a maze of dark, twisting passageways, alleys, and culs-de-sac" (41). He mentions some factors which, according to him, have contributed to this "maze of twisting alleys" (English, 1966:42). One of the factors is the religion which played a major role in urban organization and caused the decrease of political and civic interest in the city. This matter led to a lack of city planning commissions or organizations and segregation into quarters which created a collection of small communities within the larger whole. As the second factor he points to the vagueness of Islamic law regarding encroachments on the public way.[15] The result is that the residential quarters are "chaotic; there is no pattern to the lanes, and they are cluttered with arches, projecting walls, and overhanging buildings" (ibid.).

Clarke *et. al.* (1969) described Kermanshah as the city of composed of "winding kuchehs and numerous culs-de-sac" (127). Clarke (1963) made the same conclusion about Shiraz, another city in Iran when he observed this city to be full of "narrow twisting alleys" (18). Hans-Eckhard (1999) writes as a footnote to a sketched map of pre-modern Isfahan, "Isfahan, Planlos gewachsene und veränderte iranische Stadt" (17). And Blunt, (1966), describing the Royal Bazaar of Isfahan, writes "[Qaysaria is] the labyrinth of smaller bazaars which beyond it [maidan] run like a rabbit warren through the heart of the old town" (84). Similarly, Browne (1976) declares that in Isfahan the historic monuments are "buried…in a maze of mud brick streets" (260). In the bazaar the routes are narrow and they wind impossibly and "defy the makers of street plans" (ibid.: 198). Herdeg (1990) tries to analyze the formal structure of some cities of Iran and Turkistan as 'Islamic cities'. His analyses are mostly

[15] It seems that the writer denies his hypothesis when he emphasizes that the Jewish quarter was even more irregular than the Muslim residential quarters. Since, as he mentioned in former parts, every community was "completely responsible for construction and repair of buildings, lanes, and streets within their own quarter", it does not make sense that Jews constructed their neighbourhoods according to the Islamic law (English, 1966: 165).

visual, attended by some sketches and diagrams. Describing Isfahan bazaar he claims that the street is flanked mostly by commercial buildings, which have been built along the street by accretion, in "a typical 'ad-hoc' bazaar" (Herdeg, 1990: 31). In addition, Gaube (1979) generalizes these characteristics to Isfahan, asserting that the plan of oriental cities including Isfahan consists of: "a- the main axes of intra-urban communication which connect the city center with the gates and give access to the residential quarters; b- […] twisted dead-end lanes which give access to individual buildings or groups of buildings" (71). In a similar way, Planhol (1959) declares that until the last third of the 19th century, "there was not a single street in any Iranian town which ran more than sixty feet in a straight line" (32). Scharlau (1961) states the same idea: that until Reza Shah's time there was no straight main street in any Iranian city.

1.2.3 Exclusive Attributions

The aforementioned texts have been intentionally chosen to present various explanations and attributions that have been made about the 'Islamic city' at different times. As is apparent in these texts and also the texts from mainstream academia regarding the studies of the 'Islamic city' — that were mentioned in the first section — the morphological attributions to these cities can be categorized into three main groups: the supposed characteristics of the pattern of the city or neighbourhood, the kind of process of growing the city, and the features of the form and geometry of the street network. In fact, all of these attributions imply a certain kind of characteristic which is in relation to the special form of the street network. The proposed reasons for this morphology range from the need for protection to the lack of wheeled vehicles. The three most widely accepted explanations are: the lack of a defined status in Islamic law for cities, the inability of authorities to impose a regular plan on the urban environment, the lack of protection of the already existing streets against encroachment of private residences.

Summarily, according to the aforementioned chosen texts, it can be concluded that the most repeated characteristics for the 'Islamic cities' are: tortuous, winding, haphazard, spontaneous, organic, labyrinth-like, maze-like, with lots of cul-de-sacs. Although all of these characteristics point to a similar kind of geometry, the way they describe the morphology of the city makes them very different from each other. Generally, these qualities, according to how they relate to the city and the way they re-describe the pattern of the city, can be considered through four distinct categories:

1. Tortuous, crooked and curved, narrow winding, indirect, twisting alleys, weaving street network, zigzag alleys, sharp turns, impossibly winding: These are expressions regarding the *form* and *geometry* of the street network, which all point to a similar characteristic and express it in the same way: they talk of non-

straight roads which have a large number of twists. They have been applied as adjectives to explain the geometry and form of the city in a formal way, because these adjectives inherently express merely the form of a quality, namely its surface. In other words, with these explanations it can be conceived that the pattern of the roads is not a straight line, but a line with lots of meanders; a definition of a *two-dimensional geometry*. Thus, they express just one aspect of a quality — its formal aspect — and when a fact bearing more aspects is explained with these features, it has been reduced to some definitive properties. Consequently, in these explanations, the road is not considered as a space or part of a space, but merely a line in a geometrical context. These adjectives could be attributed to any other geometrical line which has a special shape of 'not straightness' and do not bear any further information or indications.

2. Irregular, non-geometric, unplanned, formless, haphazard, loose structure, chaotic, no pattern, *planlos*: These expressions have been applied to explain the features of the *pattern of the city* or *its neighbourhoods* and represent another level of understanding the morphology of the city. This group of attributions does not define, like the former group, a two-dimensional geometry but speaks about authors' *interpretation* of that special form and pattern. As these interpretations respond merely to some formal aspects, they bear the same level of depth as the adjectives listed in first group, but with less precision, because they are subjective interpretations.

What is conspicuous is that all these adjectives, instead of pointing to the presence of a feature, emphasize the lack of some essence; such as lack of regularity, geometry, plan, form, order, structure, and pattern. It seems the observers had some predefined mental images and, since what they had seen differed from their presuppositions, they have applied these words to express the difference. So, they describe the form of the city through comparing it to their own preconceptions, standards, and ideals, which belong to other life-worlds. That means that for the authors some cities are regular, geometric, planned, with pattern, not chaotic, and so on and since the 'Islamic cities' do not share common features with these prototypical cities, they have been interpreted as irregular, unplanned, formless, chaotic, and so on. Thus, some codes have been defined as standards, with reference to which, the cities have been understood in such ways.

To summarise, the problems which could be identified in these explanations are that: on one hand, the authors read the city as an object and only through its two-dimensional form without considering its other dimensions, characteristics and elements of context, and on the other hand, they described merely the lack of features, rather than the real, existing characteristics.

3. Spontaneous, ad hoc, grown, organic, tree-like: These terms refer to the way the city has developed: *the process of growing the city.* Spontaneous and ad hoc bring to mind a kind of arrangement which has grown without any prior

plan or map or even any underlying shaping forces. In many 'Islamic cities' there were no preplanned maps for the development of the cities and the cities grew instead through the constructions made by people who wanted to live in that place. But it does not mean that there were not any shaping forces underlying these developments. Various social-cultural, political, and physical forces played the role of the sinew and framework of this growth, although they are not explicitly apparent at the formal level (form and geometry) and they didn't lead to some geometric patterns. So the difference in growth of preplanned cities and 'Islamic cities' (generally) is that, in the former, the rules of development have been explicitly defined and applied to the city, but in the latter, the rules are hidden within the whole structure of the city-population and are implicitly transferred to the morphology of the city. Thus, adjectives such as ad hoc and spontaneous could not express the city's developmental processes in a fitting way.

As discussed with regard to the texts of Kostof (1991) and Morris (1994), expressions such as grown and organic have their special definitions and mostly point to cities with village origins which expanded mostly on the basis of natural forces and their streets or other urban elements transformed in accordance with natural conditions. Since, as will be discussed, there are many other important influential factors — such as religion, politics, society — in the formation of 'Islamic cities' and physical forces are also a part of the texture of growth, these expressions are also inadequate to the processes they aim to describe.

4. Labyrinth, bewildering labyrinth, labyrinth of twisted alleys, a compact labyrinth, maze-like, maze of dark alleys, maze of culs-de-sac, dead-end alleys and culs-de-sac, mysterious adventure: These terms have been attributed to both the pattern of the city, quarters, or streets, and the feelings evoked from walking through the city. Considering the term labyrinth, it may be asserted that unlike other expressions — such as those we have discussed so far — which are merely formal attributions with mostly formal associations, the word 'labyrinth' and the concept of 'labyrinthinity' have numerous formal as well as conceptual and historical connotations, implications, and associations. In other words, labyrinth is a concept with a long tradition and background in European history, literature, and architecture, and to apply it to the structure of 'Islamic cities' is to do more than just make a formal analogy. So, when a 'Western scholar' refers to the 'Western concept' and describes cities as labyrinthine, she/he does not merely intend to make a formal comparison and analogy, but has a definite image in mind regarding this concept, which can carry a series of connotations, mentalities, and associations with it. So, the attributions of labyrinth-like, maze-like, and so on not only suggest a form but also its deeper dimensions. Accordingly, due to the fact that this ascription bears many other implications, by attributing labyrinth or labyrinthine to 'Islamic cities', the observer not only tries to explain their form or interpret their geometry, but also expresses a

combination of feelings, impressions, ideas, and images. That is to say, this expression, in addition to giving somewhat imprecise information about the form, also alludes to the emotions of individuals encountering the map of the city or walking through it and explains for them a mental image which is aroused from the *spatial* atmosphere within the city. So it can be said that the attribution of the term labyrinth implicitly bears all the other characteristics that have been identified in the preceding three groups. Thus, by the term 'labyrinthine neighbourhood' an observer does not mean a geometric, regular, and clear-defined street-network structure, but rather a tortuous and winding one, which may be experienced by some as irregular, formless, and chaotic. In other words, it encompasses a wide range of concepts.

Therefore, labyrinth-like, labyrinthine, and maze-like, amongst other adjectives, have a unique content in the way that they connote deeper dimensions in understanding the city and point to further aspects of the city's form (although they may not be thoroughly correct).

1.3 Labyrinthinity of 'Islamic Cities'

1.3.1 Labyrinth and Urban Form

A review of the different texts in which the concept of the labyrinth is ascribed to the 'Islamic city' is likely to encounter a certain elusiveness. In these texts, to which the following is devoted, we can discover the variety of approaches and the contexts of this attribution. The texts are chosen as examples which interpret and describe the street-network of 'Islamic cities' as a labyrinth, labyrinth-like, labyrinthine, or maze-like; or which try to justify these attributions. The ways these concepts are attributed to the cities or the justifications for them reveal the general outlook on this matter among the authors. The criterion used for selecting these texts is to present the variety of: the ways in which the concept of labyrinth has been connected to the 'Islamic city', the ways this attribution is interpreted and read, the ways of posing reasons or justifications for these ascriptions, and the depths of their perspectives, in different contexts and periods of time.

One of the first authors who attempt to describe the form of the streets and the feeling of walking through them in the 'Islamic cities' is L. Torres Balbás**.** A historian of Spainish cities, he undoubtedly believes that the Muslims imposed a new urban form on Iberian cities, one which has survived into the 20th century. In defining this exclusive urban form he explains how the street network of some of cities has been influenced by Muslims' constructions. Using the city of Toledo as an example, he writes: "Visitors to Toledo, who do not know it well and wish to explore it, will frequently retrace their steps as they reach the end of a cul-de-sac", "which penetrated deeply into the residential areas, ramifying into

a labyrinth, like the veins in the body" (Torres Balbás, 1968; cited in: Chant, 1999:128).

Gutkind (1967) tries to find justification for the "labyrinthine character, their maze of streets" in the 'Islamic cities' whose main function according to him is to allow access to dwellings, while traffic flow is of secondary importance (225). He adds that "…the web of the streets in an Islamic town was an extricable maze, the physical embodiment of the contrast between intentional planning and natural growth" (Gutkind, 1967: 229). And it shows that while to the Romans, "the raison d'etre of the streets was movement"; to the Muslims, it was "restful lingering in social intercourse" (ibid.). According to Gutkind (1967) all these features made defence against external enemies and, above all, against internal troublemakers, easier. In this case, the entire urban form is reduced to the extent that it is considered as a mere defensive system.

Brown (1973), arguing using assumptions about the characteristics of 'the Near Eastern city', points to a story about a visitor to Fez who wanted to discover Fez's streets:

> The scholar set out…into this venerable Islamic city while carefully keeping a mental note of his orientation as he went down one after another of Fez's labyrinthine streets…some 45 minutes after his stroll had begun, he realized he was lost…and began to look furtively for someone to give him directions. (21).

Subsequently, he attempts to find out why "those narrow labyrinthine streets" — according to him, the typical pattern form of 'Islamic cities' — have emerged in these kinds of cities and whether they are efficient or inefficient. He believes there is a neat adaptiveness. First, the pattern of the street arrangement was confusing and cumbersome only to the modern mind that seeks to move men readily through all parts of the city and presupposes high levels of mobility. The manifestation of this mindset was the grid pattern of broad thoroughfares. The traditional near eastern city was designed not to ease mobility but to control and compartmentalize it. On the level of the individual city dweller, this meant that there were only certain parts of the city that he needed to know, his own residential and market area plus a few central points of exchange and communication. The narrow, labyrinthine streets were, accordingly,

> a sort of built-in system of traffic control, inhibiting the movement of men, animals, and commodities through areas where it was preferable that they be barred or at least limited…Certain areas were deliberately given narrow streets and relatively less accessible locations. (Brown, 1973: 34).

Brown (1973) tries to posit some positive advantages for the so-called 'labyrinthine' urban form to convince his readers that this feature in the context of 'Islamic city' is not as negative as they think. Yet, what he refers to as controlling the traffic in the city can be considered one of the results of the pattern of the street network which seemingly fits with the culture of the people; but this advantage could be achieved by a kind of hierarchical geometric street network too.

Wheatley (1976) argues that the public domain of the street in 'Islamic cities' is in fact the space which remained when the house was constructed, and "the resulting complexity of the layout forms a common theme in western commentary on the Islamic city, which is seen as confused, lacking in form and rationality" (Wheatley, 1976: 42). He proposes that:

> Confusion and rationality are…culturally loaded terms and it is necessary to escape from the notion that the street of Islamic cities was in some way a retreat from a 'superior' open and clearly articulated street plan. (ibid.).

He points to another important second point that up till then there had only been a few minor attempts to analyze the layout of the 'Islamic city' with its numerous dead-ends which, to Wheatley's mind, was more "an integral feature of the culture" than "a retreat from regularity" (ibid.). He continues that a grid street system is rational for the movement of man and goods, but when the aim is to limit and compartmentalize circulation within the city, "the narrow and labyrinthine streets were functional" (Wheatley, 1976: 42-3). He adds that although the 'Islamic city' may "have looked formless to western eye", it has "a quite definite and logically patterned organization" (ibid.). He draws attention to the matter that in these cities life focused on the internal courtyard of houses, not the street, and this priority of the internal courtyard reveals that the street layout is "rational and systematic" (Wheatley, 1976: 43). Wheatley, by declaring that the 'Islamic city' has a defined and logical pattern, opens up a new kind of perspective, but without elaborating on this putative logic or pattern, he simply claims that these cities are rational and systematic because their life is not focused on the streets.

Benevolo (1980) basing his idea on the notion that these cities, founded or transformed by the Arab, share similarities of composition which, in the case of the latter, result from the radical differences the invaders imposed on their inherited cities, he tries to define these similarities. He believes "The simplicity of their [the Muslims] new cultural code, contained in the pages of the Koran, resulted in a reduction in social activity" which led to the Arab cities lacking the complexity of their non- Muslim counterparts (Benevolo, 1980:260). The lack of a municipal administration to enforce the rules, and the emphasis of Islam on the secret nature of family life had the effect that "The streets were narrow ... and formed a labyrinth of twisting alleyways…These led to the doors of the

houses, but did not give any idea of the overall nature or dimensions of the quarter" (ibid.: 261-2).

Antoniou (1981) studies the exclusive general features of 'Islamic cities'. He studies the typical structure of traditional 'Islamic towns', and illustrates the development patterns and their impacts on traditional urban settings. Defining the major elements of 'Islamic cities', he points to the historic texture of Isfahan and writes: "…street markets, public open spaces and religious buildings, all [are] interlinked in a continuous pattern. On the north side of the Maidan-e Naqsh-i Jahan in Isfahan…lies the bazaar…Here alleyways bursting with activity form a labyrinth" (Antoniou, 1981: 30). He believes that the typical structure of the street network was based on a controlled hierarchy of roads, spaces and buildings. In contrast to other authors, he believes that the compactness of layout not only made it easy to walk to different parts of the city but also that the narrow twisting streets had the additional advantage of "providing defense by confusing the enemy" (ibid.).

Norberg-Schultz (1985, 1986) indicates some common features of 'Islamic cities' in which he attributes the term labyrinth and labyrinthine to the patterns found within these cities. Describing the role of the mosque in the morphological context of the city, he writes "the mosque is organized over a regular, orthogonal pattern, and brings an element of general order into the labyrinthine settlement" (Norberg-Schultz, 1985: 69). In another part of his text he asserts that the settlement pattern of 'Islamic cities' is a "dense, topological labyrinth" which is the best answer to the challenge of desert living (ibid.). Dealing with the patterns that existed in the 'Islamic city', he emphasizes two distinct kinds of geometry in these cities and writes:

> the Islamic city comprises spatial as well as formal variety. As a first, spontaneously perceived differentiation, we recognize the difference between the urban space of everyday life, and the interiors of mosques and other principal buildings. While the former generally appears as an 'informal' and multifarious labyrinth, and often has a somewhat rundown and shabby look, the latter exhibit a high degree of formal order and articulation, and generally a perfect upkeep. (Norberg-Schultz, 1986: 9).

Akbar (1988) tries to explain the generation of urban form in 'Islamic cities' according to the different kinds of submission that occur as part of city life. Among his explanations he deals with the attribution of labyrinthinity made by certain authors, and tries to dismiss it and justify this by proposing a new theory. He categorizes the forms of submission of property into six types, each composed of three main factors: ownership, control, and use, and believes this especial kind of submission is the main factor influencing the shape and layout of 'Islamic towns'. He quotes Creswell when he in 1979 concludes that Basra, Kufa and Fustat are characterized by a "chaotic labyrinth of lanes and blind alleys, of tents and huts alternating with waste ground" (Creswell, 1979; quoted in: Akbar, 1988: 82) and "at Kufah the inhabitants of one quarter required a

guide when they entered another" (Creswell, 1979; cited in: ibid.). Akbar (1988) declares a major misunderstanding among scholars had resulted from their effort to understand the lay-out and growth of the city from various points of view without considering the question of responsibility. Because of this omission most scholars arrived at their conclusions prematurely.

In 1989 an international conference was held on the subject of Urbanism in Islam. In this conference the pattern of the 'Islamic city' were given immense consideration, but not in the light of completely negative phenomena. In fact, features such as labyrinth-like or labyrinthine have been attributed to the city and there have been various attempts to justify them. As Einger (1993) relates, one of the central questions in this conference was: how did the compact, irregular quarters with their narrow streets, typical culs-de-sac and semi-public spaces which are described as organic, cellular, tree-like or labyrinthine, come into existence. But no convincing answer was given. One of the articles is by Jianni (1989) who believes that the cities of the Arab world, inspired by the old cultures of the Mediterranean world and the cities of ancient Mesopotamia, Greece, the Roman Empire and Byzantium, embody a "highly developed sense of the concept of 'living space'" (392). The 'Islamic city' forms a "complex urban fabric of houses built around courtyards within a labyrinthine network of narrow roads" (ibid.). Jianni asserts that to an observer accustomed to the clear-cut layout of European cities or the world's more modern cities, the 'Islamic city' undoubtedly appears to lack order and planning and scholars have only quite recently have come to recognize the highly unique spatial order[16] in these cities. He declares the private world of the residential district is "a complex labyrinthine structure" because it is "purposely meant to be difficult of access to outsiders" (Jinnai, 1989: 394). He believes that this characteristic has arisen from the statement in the Koran that says the household must be guarded and preserved, which is the most important aspect in the design of houses. The structure of the road network and the feelings that are evoked by walking through this network in the cities of the Middle East and North Africa have the

[16] There is small number of texts which observe and try to discover positive aspects to the pattern of 'Islamic city'. As another author who praises the pattern of 'Islamic cities', Dumper (2006) can be mentioned. He believes the cities of Middle East and North Africa evoke many colourful and vivid images. As one of these images he describes the flavour of streets: "Gray-walled and featureless twisting streets suddenly reveal a vista of an imposing mosque with the blue-and-gold ceramics of its domes and minarets flashing in the hot sun. The noise and press of heavily clad humanity and overloaded beasts can immediately give way to quiet and secluded residential areas where old men on wooden stools play backgammon with their neighbors. Next to rooftops and open spaces blistering with the dry summer heat are dark alleyways with high walls throwing a blanket of cool shade across their paths" (Dumper, 2006: xvii). Although there are a certain number of texts that praise the mood of the organic streets of the European cities of the Middle Ages, the urban pattern of the 'Islamic cities' has been seldom considered in a spirit of admiration.

same kind of aims and structures in fulfillment of this idea. Kostof (1991) assigns a logic to the labyrinth of the Islamic city. According to him, much of the urban process in 'Islamic cities' depended on "implicit conventions informally established and observed" and also some "written building codes of local currency" and "religious law"[17] (63). He believes these building codes prove that "the labyrinthine medina" is "quite rational" (ibid.). He adds that:

> If the outcome of this rational organization is not a formal layout, it is because it did not start as one, and there was no prescriptive guidance to steer it into a pure, geometrically unadulterated outline. Without the force of tradition and a consolidated social agenda, unsupervised city-making will succumb to disorder. (Kostof, 1991: 64).

In contrast, Lindemann (1999) writes:

> im Gedankengut des Islam finden wir keine Hinweise auf eine Stadtidee, wohl aber auf Quartiere, die sich zellenförmig ohne plan aneinanderreihen. Die spezialen Kontakte sind auf das private Familienleben in den Wohnräumen und höfen eingegrenzt. Nach außen sind die Anwesen geschlossen. Ein baumartig verzweigtes System von Knick - und Sackgassen erschließt ihre Zugänge. Die großräumigen Moscheen und die Basare sind in dieses Labyrinth der Wege und Häuser eingebunden. (10).

Ford (2000) defines the medina as "the traditional mazelike core" and the city whose urban form, according to him, consists of a "dendritic pattern of narrow pathways and a nearly solid mass of buildings with little if any space between them" (Ford, 2000: 15). From above or within, the city appears to him to be "a solid, undifferentiated mass of buildings" (ibid.). And not to be perceived as being made up of individual buildings, since it is usually difficult to determine where one building ends and another begins. To his mind, "rooms and courtyards form a labyrinthine internal corridor, discouraging any sense of a city of individual structures" (Ford, 2000: 15, 16).

Bianquis (2006) tries to extract the main characteristics of the cities of the Islamic region. Besides observing various aspects such as social and religious structure, climatic features, city structure, urban elements, and house layouts, he defines the typical layout of the cities in the region of Islam. Explaining the

[17] This law derived from the Quran and the body of traditions called *Sunnah* which address all aspects of public and private life, including questions relative to buildings—and therefore to city-making. "General laws were few. The minimum width for public streets—7 cubits—was established in a saying of the Prophet: this dimension allowed two fully laden camels to pass freely. Religious law agreed on a sensible minimum height, also about 7 cubits, set by the unobstructed passage of a person riding a camel. The planting of trees in a public right-of-way was disallowed. The cul-de-sac houses opened onto it. Standard building types for the public life of the city were the major mosque, local prayer facilities, schools, burial places of holy people, markets, merchants' quarters, baths. They too, like the residential tissue, locked together in interdependent systems expressive of social conventions" (Kostof, 1991: 63).

towns' layout, he writes "The town's layout was haphazard, and the most frequent layout was a great intersection of narrow lanes that crossed at the center of the town, near the Friday mosque…" (Bianquis, 2006: 849). Concerning the characteristics of the lanes he declares:

> As seen by a pedestrians, the city looked like a labyrinth inside blank walls; however, upon ascending a minaret, one could see many open spaces, the courtyards of mosques and houses, and dark green vegetation enveloping nearly every building. (Ibid.).

O'Meara (2007) attempts, in a new approach, to investigate "the spatial nature of an environment conventionally, but awkwardly categorized as the Islamic city" (1). He asserts that 'Islamic cities' share some similarities. One such similarity is

> the labyrinthine web of frequently narrow and half-lit streets, alleys, and culs-de-sac that unites the urban infrastructure and does so much to define the space. Indicative of neither urban laissez-faire nor the indigenes purportedly irrational mind as once was held, this complex arrangement of partitioned thoroughfares and passages reveals a deliberately structured, readily defensible, and environmentally efficient habitat capable of supporting a large population. If this book insists on the term labyrinth to refer to it, it does solely in the sense of a convoluted network of segmentalized, interconnecting passageways bordered by tall, seemingly impenetrable walls (O'Meara, 2007: 1, 2).

O'Meara (2007) believes that pre-modern Arab-Muslim culture had a preoccupation with walls, and that the built expression of this preoccupation is "the labyrinthine structure of the region's medinas", while its territorial expression is in their residential quarters and non-Muslim enclaves (2). He writes:

> If this preoccupation could be used to identify the meaning of a wall in premodern urban Arab-Muslim culture, the resulting interpretation could then be applied to the structure of the premodern Arab-Muslim medina and the space this structure defined, analyzed. In inhabiting, or more correctly 'haunting' the labyrinth's logic this way, the space it organizes would be apprehended from within the organizing principles of urban Muslim culture; not regarded from an external and socially exceptional viewpoint, the customary position for architectural histories of the middle east and elsewhere. (Ibid.).

A question which could be drawn from this is that why O'Meara actually applied the term labyrinth? Why does he continue to use terms like labyrinth and labyrinthine throughout his book when he explicitly asserts that 'Islamic cities' are not labyrinthine? He applied these terms and emphasizes that he means to refer only to the physical aspect of labyrinth. Why were adjectives such as tortuous and winding not proper and sufficient for him, although they point to the same physical features as the labyrinth? Could the reason be the

lack of a concept? The city is a labyrinth while it is not a labyrinth. The labyrinth is the best available expression of a characteristic within the city, while it is not identical with that characteristic as such. It seems there is a distance between what has been felt and what has been defined, understood or expressed. Taking into account that to express a feeling and direct perception one has to apply the words belonging to one's vocabulary, the possibility exists that there may be a lack of *word*, *concept*, and *terminology*. The example of O'Meara (2007) shows that he understands that what he perceives about the street network in 'Islamic cities' is different from the usual clichéd attributions such as labyrinth and labyrinthinity. Because of this he puts these terms into quotation marks and adds some subsidiary explanation to clarify this difference. But it is clear that the act of reusing this terminology cannot bring about a release from the connotations hidden in it. So it seems we need a new terminology and one that is clear enough to express this distinction and clarify the character of the urban form without the need to cling to the clichéd terms that, after years of being applied in scientific texts, are hard to break free from.

1.3.2 Labyrinth and Iranian Cities

Some authors deal distinctly with traditional Iranian cities and try to dismiss the attribution of labyrinthinity to them. For example, Bonine (1979) declares that the typical Islamic and Iranian city is always described as "a maze and jumble of twisting, narrow alleyways, a disordered array of dark streets and blind alleys" and although planned cities existed in the Middle East, these are viewed as geometric exceptions to the irregular organic town configurations (Bonine, 1979: 209, 210). Bonine (1979) believes that traditional Iranian cities cannot be included in this category. He substantiates this with reference to particular cities, asserting that traditional Iranian cities have orthogonal street patterns which do not conform to the maze of irregular, twisting lanes postulated for the ideal 'Islamic city'. This grid system developed due to irrigation systems whose orthogonal network of water channels corresponds to the slope of the land. Passageways follow these channels to reach various plots of cultivated land. "The basic morphology of traditional Iranian cities was created by houses filling in adjacent rectangular fields and orchards" (ibid.: 208). So, according to him, water courses and topography are definers of street pattern in these cities and the shape of their topography influenced the geometry of the irrigation system and consequently their street network. Major streets, as well as many blind alleys, already existed within the field patterns before houses spread into these areas. Even the sizes and shapes of the new suburban houses were governed by the preexisting system of fields and passageways.

Similarly, Kheirabadi (1991) tries to explain if there is a rationale behind the physical form of traditional Iranian cities. He examines some factors that influenced the development of the spatial patterns and morphology of traditional

Iranian cities and finds out how these factors relate to the location, form, and function of various physical elements in the city. According to his findings he rejects the general attribution of 'labyrinth like twisted alleys' in 'Islamic cities':

> Traditional Iranian cities are not simply a tangle of blocks badly ventilated by labyrinth of twisted alleys and dark courts. On the contrary, they have been planned to satisfy the cultural needs of their users and, at the same time, to deal with the pragmatic realities of heat, dust, and shortage of water (Kheirabadi, 1991: 87, 88).

He believes there is a "distinct order" to the form of traditional Iranian cities and, in this regard, refers to the fact that the streets in most cities followed a geometric pattern, only where permitted by their topography (ibid.: 88).

1.3.3 'Islamic Cities' through Eyes of Travellers

Taking a look at the travel stories of travellers to Iranian or other 'Islamic cities' reveals that similar perceptions have also existed among travellers. For example Baron C.A. De Bode writes in 1845 about his experience in Isfahan:

> … at last [I] reached the gates of Isfahan…I had to traverse the whole breadth of the town from north to south; first by cut-throat lanes between high-raised walls which enclose the gardens of the suburbs; then by covered bazaars, lit up here and there by some solitary lamp, till I reached the Chahar-Bagh of Shah Abbas, that celebrated alley, bordered by eastern plane-trees, which brought me to the magnificent Stonebridge over Zoyenderud. Here I felt more at home, as I had so frequently crossed the river over this bridge… (De Bode, 1845: 41).

Likewise, Arthur Arnold in 1877 explaining the Iranian city of Shiraz writes "A labyrinth of walls and narrow ways rendered the further progress of the takht-i rawan impossible" (Arnold (a), 1877: 120). Similarly he describes Isfahan and makes mention of two kinds of routes in Isfahan. The first appears in the following passage:

> A stranger to Persian ways and means, seeing us fording watercourses, winding round ruined walls, passing between miserable sheds scarcely eight feet apart, would hardly suppose that by the most frequented route, we were entering the chief city of the Persian Empire. The main street of Coomassie was, according to the sketches of correspondents, hardly more barbarous than the ragged bazaar through which we rode in the suburbs of Isfahan; in fact, we were reminded by it of the picture we had seen in the Illustrated London News of Coomassie… The ragged roof of boughs and straw, which was intended to cover the way, but the result of which was to chequer the path with patches of sunlight, was supported by saplings just as they were brought from plantations by the river side, and the road was such as it had pleased the population to make it. (Arnold (b), 1877: 311).

And he describes the second kind of way as:

> …the grand avenue…which …remains the glory of Isfahan. From near the center of the town for half a mile this avenue slopes in straight lines to the river…The greater part of the avenue is paved (ibid.: 312).
> In addition to that, he relates of Julfa, one of the neighborhoods of Isfahan:
> Through a small maze of mud walls, past the Armenian cathedral, with its brown dome…approached the house…In Persian eyes the construction would indeed be faulty if anything of the interior could be seen through this one opening of communication with the outer world. There is always a turn in the dark, covered entry. (Ibid.: 317-18).

Arminius Vambery, another traveller, writes about Isfahan in 1884:

> On the 13th of September I saw Isfahan, the former capital of Shah Abbas, through the thin mist of the morning…The citizens determine the extent of their city, by stating, with Oriental exaggeration, that it would take the boldest horseman two full days to make circuit of its walls. And indeed the appearance of the city, with its extensive gardens, avenues of trees, and cupolas is really an imposing one. But in the east things look beautiful only on the surface, and shine only at a distance, and I was therefore but little disappointed when upon entering the town I met with the same labyrinth of crooked, narrow streets, the same miserable huts, dirt and extensive mud puddles in the roads, that I had before occasion to observe in Teheran and other towns of Persia. (Vambery, 1884: 100-101).

1.4 Necessity of New Conceptualisations

As discussed, the term labyrinth has been broadly applied in describing the structure of the 'Islamic city' in different ways. Through the aforementioned texts we can envisage how the authors discuss the pattern or street form of 'Islamic cities' in the general field of study and propose various ideas about this. What can apparently be traced in all the aforementioned descriptions is the long distance between the cities described and the mental structure of those doing the describing, who have always tried to make these cities *readable*, and understandable within the terms of their own mental structures. In doing so, they sometimes contrast these cities with their ideals and evaluate them both superficially and poorly in the context of their own standards and cities. At other times, they propose justifications for assimilating the city and its labyrinthine form to their mental structures and ideals. Generally, these attributions could be considered under three categories:

1. When the cities are understood as labyrinths in terms of their geometry and plan or in terms of the feeling of walking through the city, and the concept of labyrinth is supposed to have a negative character: Among scholars who have systematically studied 'Islamic cities', G. Marçais (1957) was the first to make explicit reference to their pattern and configuration. He wondered about the idiosyncrasies which such disorder appeared to reveal:

> It is not, besides, as if the Muslims, for all that they seem content with narrow roads, had not appreciated the advantage of a straight line as the route from one point to another. (G. Marçais, 1957, cited in: Abu-Lughod, 1987: 156-7).

After Marçais, Brunschvig (1947) directly applied the term of "labyrinth" to describe the − to his mind− negative complexity of the tortuous routes within the city; the complexity which arouses feelings such as that of getting lost in the city (155). At the same time, Le Tourneau (1957, 1961) wrote that the aerial photograph of an 'Islamic city' brings to mind Daedalus' labyrinth. Clearly he dealt with the plan of the city or its roads when he was using this term. He likens the 'Islamic city' to a labyrinth to emphasize how unorganized and chaotic it was in comparison with its counterparts, that is to say, the rectilinear Roman and modern cities. He mentions also that the tortuous roads of the city made circulation difficult. Similarly, Planhol (1959) saw the 'Islamic city' as a maze behind which the Muslim hides himself to stay safe. Similarly, Balbás (1968), Benevolo (1980), Norberg-Schultz (1985, 1986), English (1966), Najmi (1988), and Beattie (1996) consider 'Islamic cities' as labyrinths, because their form and the form of their streets have a similar geometry to that of a labyrinth. Likewise, some of authors assert that bazaars in 'Islamic cities' are like labyrinths (Fisher, 1951; Burckhardt, 1976; Blunt, 1966). In addition, Gulick (1974, 1976), refers to the several reports of the strong impression of a labyrinth of alleys, which shows that he likens the feeling of walking through the city to the feeling of walking through a labyrinth. And Dethier (1973) describes movement through the city as a real exoticism and a mysterious adventure.

On the whole, this group of authors either attribute the terms labyrinth and labyrinthine to the structure, shape, and pattern of the cities, or confirm that the perception of walking through the city is like walking through the labyrinth — according to the presuppositions they had about a labyrinthine space and place. They explicitly express that the urban form of 'Islamic city' is like a labyrinth because, according to them, similar to a labyrinth, it lacks any kind of order/rationale/logic: it is a completely negative form which does not bear any defined pattern.

2. The cities are implicitly considered to be similar to labyrinths, but since the authors assume labyrinths to be a negative concept, they try to find some reasons, justifications, and advantages for this similarity. These scholars mostly belong to the second phase of 'Islamic cities' studies, consisting of authors who reject or criticize the ideas of first phase authors. In this regard, we can point to Lapidus (1967) as an author who relates the shape of the city to the urban social structure in order to justify its tortuousness. In a similar way Kostof (1991) argues that the Islamic laws' influence in shaping the city might support the idea that the labyrinth of the 'Islamic city' is completely logical. Other authors with similar opinions proposed certain reasons or advantages for this labyrinthine shape, such as: traffic control (Brown, 1973); limiting circulation, focus on the

courtyards (Wheatley, 1976); defence by confusing the enemy (Antonion, 1981); purposely making outsider access difficult according to the comments of the Koran (Jianni,1989); and transport technology (Bulliet, 1975). The authors of this group considered always only a part of the city's aspects and therefore reduced the entire city to them. For example Brown (1973) believed that since people needed to know only selected particular parts of the city, its morphology worked to support such a level of knowledge among citizens, so there was no problem if its form was labyrinth-like.

3. The third group of the authors rejects this attribution entirely: Alsayyad (1991), Raymond (1994, 2005, 2008), Bonine (1979, 2005), and Kheirabadi (1999) are the main members of this group. Bonine (1979) states that Iranian cities are exceptions to the above-mentioned prevailing viewpoint. He studies the morphology and structure of certain of Iranian cities and concludes that they feature geometric patterns. But the question arising here is: do all Iranian cities really have an underlying geometric order? As a contrary instance, a glance at the structure of Isfahan reveals that it does not follow the theory of Bonine. It does not have any clear geometric order and thus could not be called as geometric in any general sense. So, if we trace Bonine's theory as our point of departure, how can we explain Isfahan's urban form?

Kheirabadi (1991) reviews the principal factors in the formation of the (Iranian-) Islamic cities and, elaborating these factors, proves that the form of the city is the result of their interaction. According to him, these factors constitute the bases for the structure as well as the street network of the cities. Thus, since cities follow these principles and there are some basic factors according to which the city has been shaped, it could never really be a labyrinth. He does not engage with the geometry of the roads but mostly with their function and attempts to define a functional order for the city in order to disprove the aforementioned ascription. Kheirabadi (1991) deals with the layers of function in the city and confirms that the urban form of (Islamic-) Iranian cities should answer appropriately to the different functional needs such as climatic, social, and other such needs. What he does not deal with is the physical pattern of the city, and the large body of descriptions of its form and the way it has been perceived. Furthermore, he does not focus on distinct case studies, which places his work more in the realm of the conceptual.

Alsayyad (1991) and Raymond (2005) claim that the attribution of labyrinthinity to 'Islamic cities' is entirely the creation of the French Orientalists. They believe that the Orientalists' negative presupposition led to the emergence of a large number of negative ascriptions for the 'Islamic city', among which the ascription of labyrinthinity is an example. In their arguments concerning the attribution of a labyrinth form, it remains unclear how they would account for the simple travellers, who, many years before Orientalists, although not belonging to any specific discipline or school, reported the same

feelings and interpretations on the shape of the 'Islamic cities'. No doubt they also made these interpretations in line with their preconceptions and backgrounds, but they did not seem to make them intentionally. So, by merely ascribing these attributions to an Orientalist mind-set and thus invalidating them, they ignore their emergence among the common expressions of travellers and others who were outside of the Orientalists' milieu, thus leaving some important questions unanswered.

All of these critiques on the attribution of a labyrinth form overlook the fact that this kind of constant interpretation by non-native observers can imply other significant characteristics. Many more recent authors engage in demonstrations of how 'Islamic cities' are not labyrinthine or sometimes they accepted their labyrinthinity but try to justify how logical and useful it might be. By contrast, nobody has tried to engage with it as a special interpretation of the city which, though (possibly) false, can point to some of the city's inherent features which remained eclipsed for the natives because of its mundanity for them or became concealed behind a host of other clichés. Maybe as the next step and with the aim of initiating a new perspective, we do not need to delete this attribution, but should instead elaborate it, to find out what lies behind it, behind this kind of the perception of the city.

In this regard, some questions could be drawn out: why have Iranian cities or 'Islamic cities' been perceived as labyrinth-like phenomena by non-natives? Which similarities have convinced observers to formulate an image of the 'Islamic city' as labyrinthine? Is this rooted in a formal syntactic similarity, or based on a conceptual semantic resemblance? And most important: are there other alternative concepts by which the city can be interpreted and described closer to its nature and essence?

To answer these questions, three main facts must initially be investigated:

a. first, *the term labyrinth*, namely what has been thought to be a labyrinth, what a labyrinth actually is for a western mind, and which characteristics and geometry may make a phenomenon such as a labyrinth?

b. second, *the City*, namely, how the geometry and form of the city, when seen from above, can be understood and explained? how the space of the city, seen from inside, is perceived?

c. third, *comparing* the city and the pattern of labyrinth, looking at what relates the concept of the labyrinth to the city, and thus what has caused the aforementioned attributions.

2 The Idea of Labyrinth

The general knowledge and the image of the term labyrinth are strongly connected with the Greek myth of the *Cretan* labyrinth, which was a kind of prison, and the key characters in its story, namely the Athenian hero Theseus, the Minotaur and Daedalus, the builder of the prison. The combination of history and concepts related to the term labyrinth make it a symbol of complexity: sometimes it represents a positive complexity — for example, when it is applied admiringly to the art works of Battista Piranesi or the texts of Luis Borges — and in other cases, a negative one, the result of irregularity and chaos.

Authors try to define the labyrinth through different points of view: some scholars pay attention mostly to its graphical features, others to the characteristics arising from its forms, or to the way the labyrinth is interpreted, and the others to multifarious mixtures of such approaches. The definitions based on the form of the labyrinth explain this concept through its special form as *a graphic, linear figure* (Kern, 2000). From this point of view, the labyrinth is one well-defined path that leads the walker into the centre and back out again. There are no tricks to be solved, no dead ends or culs-de-sac, no intersecting paths. There are no choices to be made, other than the primary one: the decision to enter the path. A labyrinth has only one path and there are no blind alleys. The path leads the person on a circuitous path to the centre and away again. A more passive, receptive mindset is needed. The choice is whether or not to walk a spiritual path (Artress, 1995).

At the same time, labyrinths are sometimes thought to be "architectonic devices of apparently aimless structure, with a complex pattern making it extremely difficult to escape once inside" (Bancroft-Hunt, 1996: 584). According to Bancroft-Hunt (1996), while the labyrinth and the maze are virtually synonymous, the latter suggests "a multicursal design from which confusion arises and is more commonly associated with a children's puzzle or the hedge or garden maze" (585). And, according to Conty (2002), "Any sinuous path, any fortress or fortified enclosure, can eventually represent or evoke a labyrinth" (5). In some other definitions, the labyrinth is defined through its characteristics and based on the feelings or experiences of the walkers as they pass through it as a three-dimensional space. For example, Redford (2004) explains: "a labyrinth is a single-path, maze-like pattern. Yet while a maze is confusing, one cannot get lost in a labyrinth... You begin at an opening at the outside, make your way to the center (the 'rosette') and back out…Walkers enter the labyrinth and make their way around the turns toward the center. The center is the destination, but it is, of course, still only the halfway point" (43). For Conrad (1980), labyrinthine means everything which does not have a classic geometry, which is unordered and chaotic. In contrast to that, Pieper (2009) believes that "Opacity and

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confusion should not be equated, by contrast, deliberate mystification, attribute of the labyrinthine, demands an identifier and the calculus of a clear head" (16). Thus, the labyrinth is not equal to chaos, but indicates a very subtle form of architectural arrangement. Moreover, interestingly, Drake (2006) believes that due to the control exercised over the movements of the inhabitants of a building and the way in which it determines the sequence of possible access to its rooms, every building is a labyrinth (Drake, 2006).

There are still further similar and divergent explanations on the concept of labyrinth in contemporary texts. The high variety in possible definitions and interpretations creates difficulties for orientation around the subject and necessitates a clearer investigation based on the real representations of the concept through history. The following text tries to provide a review of the main significances of this concept and applies a historical chronological methodology. The concept of labyrinth will be considered across five distinct historical periods and in each period its manifestations and interpretations will be studied. Reviewing the history of the labyrinth reveals that this concept has been crystallized sometimes through its real visible manifestations — graphical shapes,[1] dances,[2] (movements), and texts[3] — and sometimes, in contrast, through metaphors. The review helps to discover which patterns have been interpreted as labyrinthine and what kinds of characteristics and features have been imagined in connection to the labyrinth.

2.1 The Labyrinth in the Pre-modern World

2.1.1 The Prehistory

The authors believe that what has been inherited from the ages before the emergence of Greek culture, at a time when the seminal labyrinths appeared for the first time, can be extremely helpful in leading the mind to the original idea of the labyrinth (Kern, 2000). The labyrinth appeared in this period in two forms: as graphical forms and as movements, performed during rituals.

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[1] Graphical representations include all visual graphical representations which represent the labyrinth with its special diagram as a symbol. The existence of the labyrinth as a visual depiction dates back to the prehistoric ages.

[2] Dances or rituals, which are thought to be in association with the labyrinth and are sometimes named labyrinthine dances, are part of the group of ritual manifestations. In this group, the labyrinth has been embodied through a series of movements on a diagrammatic pattern. There is not enough and exact information about the meaning and the pattern of these kinds of dances or rituals, except that they were performed as series of movements in connection with the labyrinth myth or according to its pattern.

[3] Written testimonies, which are texts which have any relation with the labyrinth; either have a labyrinthine structure, or explain the labyrinth/labyrinthine embodiments.

Graphical or pictorial labyrinths have been inherited from antiquity through carvings on rock surfaces, graffiti on walls, as well as paintings on pottery (Kern, 1983). A series of seven concentric pathways, carefully connected and surrounding a central goal was the style of design used in nearly all the instances dating back earlier than the first few centuries BC (Doob, 1990) (figure-1). The most exclusive feature of this typical design, also called *Cretan* labyrinth, is the composition made up of 7 circuits and bearing no interjectional line (Bord, 1976; Kern, 2000; Sward, 2005).

> Starting from the exterior, the path runs inwards a short distance, turns so as to run parallel with the outer wall until nearly a full circuit has been completed, then doubles back on itself and runs round in the opposite direction, doubles upon itself again, and so on until it finally comes to a stop in a blind end, having traversed all of the space within the outer walls without covering any part twice and without forming any branches or loops (Matthews, 1969: 45).

One has to follow the *one path*, either to penetrate to the inner goal or to escape to the exterior (*unicursal* pattern). In the course of this penetration, the individual first advances towards the centre, then back to the periphery and in the first three turns he continuously becomes farther from the centre. In the next two turns he nears the absolute centre but cannot enter it. In order to reach the centre, he has to leave the central area again so as to finally be able to attain access.

The existence of labyrinth carvings near to burial sites as among the earliest employments of the labyrinth motif, leads authors to conclude that it had certain associations with death (Bord, 1976). Clarifying the connection between death and rebirth in prehistoric times, Bord (1976) writes that some barrows[4]

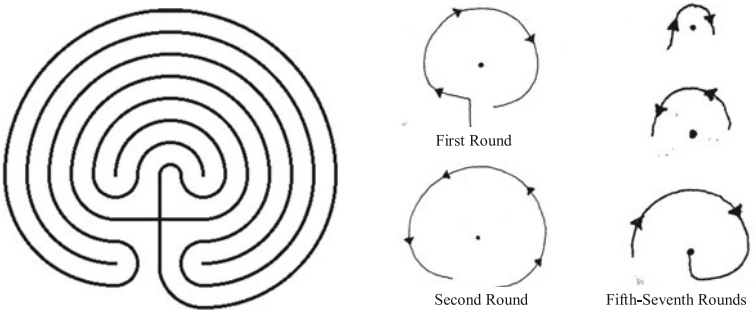


Figure 1: Typical Pattern of Cretan Labyrinth; modified from (Kern, 2000).

[4] Ancient graves in western Europe

> were designed to represent the anatomy of a mother, in whom the dead might rest, in a pre-natal condition…At each stage a man is reborn; and this applies to death. At death men are consigned to the earth, the universal mother from whom they came. They return to the earth, to be reborn. (11).

It means while the Greater initiation to the other world is defined as such, the Lesser initiation is supposed to be achieved by following a labyrinth/maze to its heart. Kerenyi (1950) believes that both labyrinths and labyrinth-like forms, such as spirals, were "maps of the underworld" and "symbolic of death" (cited in: Bord, 1976: 10). The ingoing path implies the death and the outgoing one the birth. Bord (1976) additionally believes that these attributions signify a presupposed link between the two themes of death and rebirth within the labyrinth. In death one returns to the earth from which one would eventually be reborn. According to her, the presence of the labyrinth and of labyrinth-like forms on burial structures imply a "ritual entry into the earth" (10).

On the other hand, the petroglyphs, especially those which have been found in the northwest of Spain indicate an association between the labyrinth and tin mining. According to the idea of a cult symbol of the miner's self-concept, it is presumed that

> labyrinths might have functioned as a sort of guide… as a symbol of hope that the miners would return to the earth's surface, and, at the same time, as a magical assurance thereof. (ibid.).

Some other authors relate the pattern of the labyrinth to cosmology. According to Pennick (1990), the whole 'year pattern' bears a resemblance to the meander pattern that is at the geometric heart of the Cretan labyrinth. It is possible that the various turnings and returning of the labyrinth pattern represent the daily path of the sun.

A similar pattern and interpretation was the base of the *labyrinth dances* in this era. It is claimed that this kind of dance bore a share of the meaning and notion of the original idea of a labyrinth, in tandem with the graphical symbols of the labyrinth and their designs. Sources in myth provide authors with knowledge about the existence of such a dance belonging to the prehistoric age. It is called Theseus' labyrinth dance, or the Crane dance, and was related to Theseus when he performed with his youthful companions a dance that imitated the circling passages in the labyrinth inlaid on the dance surface, based on certain rhythmic involutions and devolutions (Kern, 2000).

2.1.2 The Classic Era

At the dawning of the Roman era, labyrinths were manifested in new ways, interpreted as new symbols, and no longer appeared in carvings. Roman labyrinths emerged as a new style of labyrinth in three forms: as graphical forms, depicted on mosaics; as movements, performed during dances and rituals

and as words and accounts of historians. Labyrinths in Roman art were represented mostly through mosaic pavements. The earliest Roman labyrinths date back to the Roman period, when mosaic paving was the most popular means of providing flooring for buildings.

They belong to the era from 100 BC up to the fall of the Western Empire in the early 5th century. These labyrinths are small and they were not intended to be traced on foot (Pennick, 1990).

The typical Roman labyrinth is unicursal, and the principle is the same as in the pre-historic examples. One enters at a certain point and traverses the whole quarter before passing on to the next quarter. This is traversed in turn and continues until, after the final, fourth quarter is walked the centre is reached (figure-3, left). Although about a dozen circular labyrinths are also known, most of them are square and surrounded by depictions of fortifications with battlements, protected by towers, which usually bears a polychromatic illustration and divided into quadrants that must be crossed successively to reach the centre depicting sometimes a flower or the Minotaur legend (Theseus in battle with the Minotaur) (Kern, 2000). Mosaic labyrinths always have just one entrance − only one of the four gates is open. Most of these kinds of labyrinth are circumscribed by a thick perimeter which is interpreted as a wall − the general view of the explanation for this is that the labyrinth represented a fortified city that was divided into quadrants (ibid.).

In this era, the idea of the labyrinth has been associated with the rite of the 'Troy Game' whose complicated movements have been compared to the Cretan labyrinth. The boys, between seven and 17, used to perform this ritual to demonstrate their ability to be accepted into society. The Game of Troy was also related to the founding of a city, as a religious action, that meant strengthening the city walls. In this way, the city would be preserved as a sacred place and remain secure and the interior would be separated from the exterior (ibid.: 82). The comparison of the Troy Game to the labyrinth is based on the latter's complexity of pattern, difficulty to follow, and interwoven character (Doob, 1990: 28).

Literature was another medium through which the labyrinth was manifested. The Cretan-labyrinth-myth and the descriptions of historians regarding the historic buildings of that age are the manifestation of the labyrinth through words at that time. In the labyrinth-myth, a labyrinth-structure is mentioned as a prison for the half-man half-monster Minotaur: Minos, king of Crete, made the architect Daedalus build a prison for his monstrous child, Minotaur, and Daedalus built the prison as a labyrinth. This myth is arguably the pristine manifestation of the labyrinth in words (language), from which the symbol of the labyrinth (visual form) has gained its original existence and meaning (Doob,

1990). It has inspired authors to expect a labyrinth in Crete and try to discover its nature and situation. Some authors believe in its three-dimensional existence as a palace or a cave (Matthews, 1969), some discuss it as a dance or as a mere concept and claim this labyrinth does not exist in the physical realm, but exists in other forms such as myth, drawings, history, and narrative (Kern, 2000; Bord, 1976). And subsequently, each defines a particular pattern for their supposed version of this mythic labyrinth.

The myth as such is supposed to be the equivalent of the *multicursal* (not unicursal) pattern which it suggests. The myth's structure is defined as a maze and the thread of Ariadne as a solution to it, a way through which the hidden meaning of the myth and accordingly the nature of the maze which the myth explains, become reachable (Conty, 2002). As a form of language, the myth is presented as a network of signs which are linked together by a hidden and unreachable thread. An unlimited number of possible connections between these signs can occur: "Each sign holds the trace of other possible meanings and other connections with other signs within language" (ibid.: 35). As reaching an absolute meaning is impossible in this net, the meaning reached depends on a subjective interpretation.

On the other hand, the necessity of the Ariadne's thread for escaping from the labyrinth implies that the structure of the labyrinth explained in the myth is also supposed to be multicursal.

Moreover, during this period, the historians, in their geographical texts, started to designate the term labyrinth to some buildings that had been constructed during or before their age, as a way of illustrating their character. Roman scholar Pliny the Elder and other historical-geographical writers mostly regard labyrinth buildings as architectural splendours and are chiefly absorbed by their complexity or uncommonness. The sole common features between these buildings are "their confusing, dark, dangerous under worldly character, and the fact that they were located far afield" (Kern, 2000: 41).

Among the labyrinths of the ancient world, the most celebrated was the Egyptian labyrinth, which was described by some writers of the Roman epoch. This is one of the important and most commonly-discussed labyrinths of ancient times, although in practice it was Greek and Roman authors who nominated it as a form of labyrinth: there is no evidence to suggest that it was called a labyrinth by the Egyptians (Doob, 1990). These descriptions are the first attributions of the term labyrinth in describing a building (Kern, 2000). The Egyptian labyrinth is a mortuary temple that was erected to the south of a pyramid near Hawara by the Pharaoh of the XIIth Dynasty, Amnenemhet II. This large structure, with

dimensions of around 305×244 m^2 was admired as a wonder of the world and the best Egyptian edifice after the Pyramids, and named as a 'labyrinth' in antiquity, although only by Roman authors (ibid.). According to Herodotus (5th century BC), it had 12 covered courts, with opposing doors, six courts on the North side and six on the south, all communicating with one another. There were thousands of rooms in all and the system of passages through the courts, rooms and colonnades were very intricate and bewildering (*Histories,* second book, Herodotus. 5th century; cited in: Kern, 2000). The Greek historian Diodorus Siculus (1st century BC), in his *library of world history*, describes the Egyptian labyrinth through collating two reports. He writes "for a man who enters it cannot easily find his way out, unless he gets a guide who is thoroughly acquainted with the structure" (*Library,* first book, 61 and 66; cited in: Kern, 2000: 58). In a similar way, Strabo (ca. 64 BC- 19 AD) another ancient writer, in his book *Geography of the World*, explains the Egyptian labyrinth as:

> a large palace composed of as many palaces as there were formerly nomes. There are an equal number of courts, surrounded by columns and adjoining one another, all in a row…in front of these entrances are many long covered alleys with winding intercommunicating passages, so that a stranger could not find his way in or out unless with guide (Geography; cited in: Kern, 2000: 58).

Kern (2000) debates the Greek term, labyrinth, was employed by the mentioned authors "metaphorically… as the name of a complex, remarkable structure made from stone" (Kern, 2000: 59). In fact, the metaphors that emanated from the concept of the labyrinth were first presented in the literature in this period.

The core issue is what kind of pattern the descriptions of so-called labyrinths in classical literature connote. As emerges from earlier sections, neither is the plan/space of so-called ancient labyrinths a unicursal one, nor did historians' descriptions of their labyrinthinity imply the one-path pattern that was commonly depicted on mosaics. Instead all convey a pattern which allowed a large number of possibilities of movement, which was the main quality of the configurations that these historians saw as labyrinths.

Interpretations

As was mentioned, the Roman labyrinths were small and decorative, and were held to be magically protective or regarded as objects of contemplation. Moreover, their placement and shape are thought to infer to their apotropaic function in doorways and cities. This view of the labyrinth arose from the Roman belief according to which evil spirits can only fly in a straight line, that is, they cannot find their way through the labyrinth's twists and turns. So,

mosaics depicting fortified cities and labyrinths located near the entrances of houses to ward off evil establish the protective function of the labyrinth in Roman thought. In fact, the labyrinth symbolized 'no entry' when used on doorsteps to keep witches and evil spirits at bay.

Another aspect of the impenetrable labyrinth was the idea that the way through is known only to the initiate, and that unauthorized entry is therefore difficult. Thus only special individuals can trace the labyrinth to its centre. This interpretation was highlighted through the initiation rituals — for example the Troy Game — which were so prevalent in Roman times (Kern, 2000).

2.1.3 The Christian Age

In the 9th and 10th centuries, two new forms of labyrinth, the *Otfrid* type and the *Chartres* type, gradually came into being. The Otfrid type was a modified version of the classical labyrinth and the Chartres type's form is peculiar to medieval Christian pavement labyrinths (Kern, 2000). These patterns emerged in two main ways: as graphic forms, drawn in manuscripts, depicted on the floors of churches, cut into turf, and laid out as stone labyrinths; or as words, through the expressions of authors when they use the labyrinth as a feature or symbol, in verbal manifestations.

The Chartres type labyrinth, the most important type of church labyrinth, first appeared in manuscripts, later transferred to drawings or carvings on walls and ultimately evolved into floor-patterns in church floors (Pennick, 1990) (figure-2). The labyrinths have been laid across the entire width of the nave as a sort of obstacle or buffer. The pious first had to internalize the labyrinth by tracing its path, and only after that could they continue on their way to the inner sanctum (Kern, 2000; Matthews, 1969). This has been posited as a way of distancing the church entrance from the altar (Pennick, 1990).

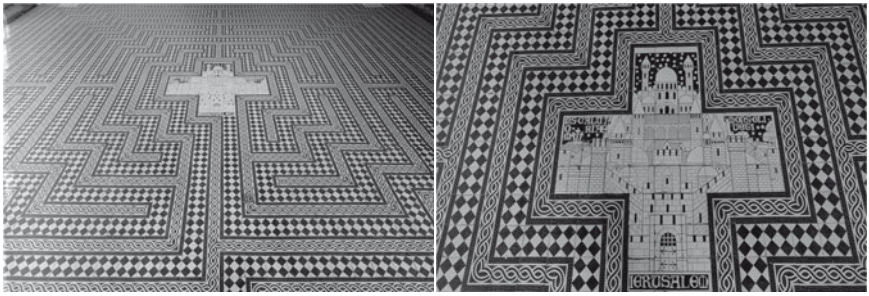


Figure-2: Labyrinth in the Maastricht Cathedral (source: author).

The Chartres-type pattern comprises 11 circuits and is overlaid by the shape of a cross which makes a more explicit reference to Christian ideology. It is unicursal in form, being arranged in such a way that, if its paths are analyzed as being 'opened out', it creates an arrangement of paths with a sequential symmetry. Walking in towards the centre, and then out from the centre again, one makes 70 moves, which parallels the Biblical 'threescore years and ten' of human life (ibid.).

In sum, the concept of labyrinth was interpreted in this age: 1. as *a pilgrimage:* the unicursal labyrinth has been recognized as a kind of pilgrimage, with its twists and turns first bringing the pilgrim close to the 'goal' and then taking him or her away again, before the centre is finally reached. In addition to that, authors concur about the fact that the larger church labyrinths were used for the performance of symbolic pilgrimages — such as pilgrimages to Jerusalem. In the case of wall labyrinths, the journey was performed using the index finger (Pennick, 1990); 2. *as world:* the cosmos as the craft of god and as an obscurity resembles to a labyrinth with a perfect pattern whose unreachable goal is God's obscurity. Also, there is thought to be a perfect order in the divine labyrinth of creation, but the feeble tool of human reason, limited by its imprisonment within the maze of mundanity, ill equips him to discover it and in some cases it functioned as "a sign of complex visual or verbal artistry" (Doob, 1990: 66); 3. *as world of sin:* in Christian interpretation, the labyrinth can also symbolize the world of sin. In this case, church labyrinths were constructed to represent the folds of sin which prevent man's pilgrimage to Heaven (Bord, 1976).

Figure 3: (left) Typical pattern of Roman Labyrinth; modified from (Kern, 2000); (middle) Typical Otfrid pattern, modified from (Bord, 1976); (right) Typical Chartres pattern, modified from (Bord, 1976).

2.1.4 After the Renaissance

The gradual transition of the labyrinth during Renaissance times led to the emergence of a relatively new style and variant interpretation of the labyrinth, with some exclusive features. During these periods (between the 15th and 20th centuries), for the first time, the multicursal pattern was embodied through a visual entity: the word *maze*, which had occasionally been used in Christian times as a synonym for labyrinth, was applied to labyrinths with a multicursal pattern at this time. The labyrinth was beginning to leave buildings and to come to form an element of gardens. Embodying labyrinths and mazes into gardens in form of flower-bed labyrinths, puzzle mazes and the hedge maze became extremely fashionable at these periods (figure-4). In these mazes the partitions were at the height of the average person, to instill the feeling of being lost (Pennick, 1990). A labyrinth was a "Place cut into several Windings….The most valuable labyrinths are [were] always those that wind most…" (ibid.: 145).

During these years, the labyrinth was manifested largely in a visual form and these visual embodiments, in contrast to those of earlier ages, presented both unicursal and multicursal patterns, with various external shapes. The typical characteristics of this model are the possibilities of choices and decisions, the various options for continuing one's route, and the culs-de-sac. To draw the features of choice points in a multicursal pattern, the different positions in the figure-5 can be considered. As can be seen, in points of A and E in the case of incorrect decisions, the individual encounters a cul-de-sac and turns back to his main route. In this case, although he had to trace his way back, the way is clear

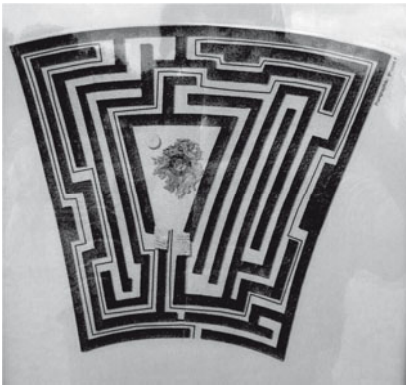


Figure 4: the plan of a maze in Marzahn park, Berlin, which is inspired from the puzzle maze at England's Royal Hampton Court Palace (source: author).

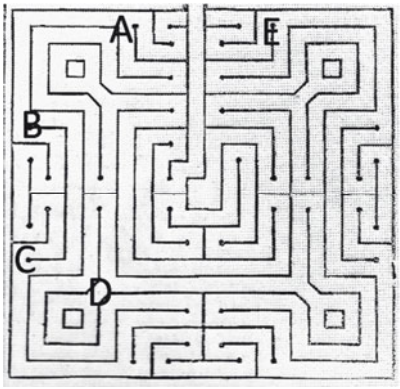


Figure 5: another exmaple of a multicursal labyrinth, modified from (Kern, 2000).

for him because he was able to discover which way was incorrect. In points B, C, and D in fact both decisions terminate at the same point but the walker is not aware of that. And after any choice it will remain in his mind that one way was not explored by him; and it might be the eventual right way. Subsequently, a sense of unclarity is aroused. Thus, feelings such as doubt, uncertainty and not having a clear imagination about the whole pattern are typical. It seems, here, that concentration focused more on the route itself than its end point — due to attempts to find the right way among the various possibilities, trace the winding route, and make choices several times along the way.

One of the most important events of this period, besides the emergence of the multicursal visual manifestation, is the disappearance of any interpretations of the labyrinth. In these years the labyrinth lost all its metaphysical, ecclesiastical meanings and reverted to a formal pattern that was used for entertainment and to apply in garden designs (Kern, 2000). The interest in the mazes and labyrinths, by makers and users alike, did not go beyond the desire to be amused by scholarly allusions and decorative shapes; that is, to be confronted with the supposed danger of getting lost, and to take advantage of the labyrinth's many corners and openings for all manner of dalliances. The labyrinth was no longer a symbol or a representation of the relationship between two divergent worlds: it was a circuitous path in a natural setting to be traced out in enjoyable engagement with its bewildering characteristics.

The Term 'Maze'

The term *maze*, as an interpretation, usually supposed to have a close connection with labyrinth, was embodied for the first time in the late Renaissance in the form of the visualization/materialization of the multicursal pattern. The maze and the labyrinth are topological invariants, involving two largely different kinds of passage: in the latter, the passage follows the twists of a single path and the architectural subject is never lost within it; by contrast, the maze mostly presents complexities by posing choices among alternative routes, of which some are deliberate dead-ends. The maze's pattern is expressed as a multicursal pattern and mostly common in the visual form of this manifestation which emerged for the first time in the 15th century (Doob, 1990; Kern, 2000).

The etymology of the term maze could contribute to an illumination of which characteristics are most connected to it. According to Doob (1990), the word enters Middle English with *amasod*, "astonished, and bewildered" (Doob, 1990: 98). In MED *ameaset*, *amaiset* are two other words companying *amsed* in the meaning of "Stunned, dazed, bewildered; alarmed, frightened; dismayed

/Out of one's mind, irrational, foolish" (ibid.). The noun *mase* appears in 1300 and its meaning and similarity to two other words, maze and masse, in MED is proposed as "a source of confusion or deception; vision, fantasy, delusion; deceit; …confusion, bewilderment, disorder; … in a state of amazement or confusion; … confused or useless activity; idle diversion" (ibid.).

2.2 The Labyrinth in the Modern World

In recent years, the concept of labyrinth has been applied to refer to two thoroughly different concepts. One approach considers the labyrinth as a mere *form* and the other considers it as a mere *metaphor.* According to the former view, the form (just as a geometric form) of a labyrinth is used for several goals which have no direct relationship with the original meaning of the labyrinth; such as meditations and relaxation; they are also employed for various ceremonies such as graduations and coming-of-age rituals. And through the second point of view, the labyrinth is a concept with special and also exclusive features. These special approaches belong to the body of the history of the labyrinth and will help to know what the labyrinth is thought to be through the point of view of the current age.

2.2.1 First Approach: Labyrinth as a Form

Contemporarily, the use of labyrinth has a somewhat different and distinctive intention and goal. It seems that its symbolic, mythic, religious and metaphysical character has been replaced by a secular account within which it is largely a subject of entertainment, or sometimes a tool for scientific investigations. In fact, the labyrinth is manifested in a new type of light in the contemporary graphic designs, methods, and new possibilities for colour and optical illusion. Pennick (1990) has explained the new patterns:

> Cryptomazes were designed on the principle that at each decision point there is a direction sign which makes the maze-follower turn in a specific direction. In this way, although there are no dead ends, the possible number of paths is increased greatly…. Similarly, colour mazes are based on the concept of increasing the possibilities of a maze without dead ends. It is the modern version of Ariadne's clew (171).

All these patterns are intended to make the labyrinths more attractive. In fact, from the middle of the 1970s there has been a resurgence movement in Britain, where different types of labyrinths and mazes have been constructed in public or private according to various patterns.

Accordingly, the pattern of the labyrinth has transformed from a metaphysical and sacred geometry to a more private, secular one which could assume different forms and patterns according to the idea and intention of the designer, including unicursal or multicursal paths.

2.2.2 Second Approach: Labyrinth as a Metaphor

The term labyrinth, as an essence, is applied by authors to describe contemporary artworks. Giovanni Battista Piranesi's series of *Carceri d'invenzione*, the 'Prisons', is one of the most celebrated, presenting visual spaces that have been described as labyrinths or labyrinthine by many authors (Tafuri, 1990; Agrest, 1992). This series of 16 copperplate etchings, dating from the 1760s, according to Stoppani, is as ambiguous in content as it is in representtation of space. Massive architectural forms loom above darkly shadowed spaces, and stairways lead nowhere while insignificant human figures are barely noticeable. Sharp, deep diagonals are counterbalanced by flat planes and dense patterns of line to create interlocking, mysterious compositions (Stoppani, 2006). Eisenstein (1990) describes the figurative spaces created by Piranesi as:

> The nature of architectural fantasies in which one system of vision is transformed into others; where some planes, opening up to infinity behind each other, carry the eye into unknown depth, and the staircases, ledge by ledge, extend to the heavens, or in a reverse cascade of these same ledges, rush downward" (220).

Piranesi's theoretical work was already exploring the spatial and temporal complexity of the 'difficult complications, alternations, and superpositions' (Deleuze and Guattari) of the different forces at work in the space of the city (Stoppani, 2006).

In the field of literature, the novelist Jorge Luis Borges engages with the concept of the labyrinth, and used it extensively throughout his short stories. His modern literary use of the labyrinth has inspired many other authors in their own works. All hyper-fiction texts bear this kind of labyrinthinity.

Moreover, some theoreticians of avant-garde architecture use this term to explain their ideas, and these explanations reveal their interpretation of the concept of labyrinth. For example Deleuze (1993) explains the labyrinth etymologically:

> multiple because it contains many folds. The multiple is not only what has many parts but also what is folded in many ways. A labyrinth corresponds exactly to each

> level: the continuous labyrinth in matter and its parts, the labyrinth of freedom in the soul and its predicates. (3).

For his part, Tschumi (1996) defines the figure of the labyrinth as one term in an architectural binary, opposing it to the Pyramid, understood as a "dematerialization of architecture in its ontological form" (cited in: McCaffery, 2003: 43). Tschumi (1996) likens the labyrinth to

> the dark corners of experience […] where all sensations, all feelings are enhanced, but where no overview is present to provide a clue about how to get out. Occasional consciousness is of little help, for perception in the labyrinth presupposes immediacy. (cited in: McCaffery, 2003: 42).

One of the exclusive interpreted features of the labyrinth in this kind of approach is infinity. Earlier, the labyrinth was always a path between two distinct points which are different in either two dimensions (conceptual and physical) or one dimension (physical). By contrast, in the modern conceptual labyrinths or labyrinthine facts, there is no start or end point. The main issue is merely the path and all points spread through this context have the same values and dimensions. This kind of labyrinth is likened to the rhizome or net:

> so constructed that every path can be connected with every other one. It has no centre, no periphery, and no exit because it is potentially infinite. The space of conjecture is a rhizome space. (Eco, 1983: 57).

Conty (2002) adds that the modern labyrinth is:

> a realm of the mind where an irremediable divorce has separated two worlds; the visible and the invisible. This broken bond has condemned us to a definitive exile. As if its interpretation were obeying the swinging of a pendulum, the modern labyrinth presents a flaw exactly inverse to that of the medieval tradition. (10).

2.3 The Labyrinth: Manifestations and Interpretations

As discussed, in ancient times, the labyrinth, as a symbol, was understood as a link between earth and heaven, the world and metaphysics. People understood the labyrinth not as an object, but as a lived experience and it belonged to their world-life. In the Renaissance, garden labyrinths lost such connotations and meanings and transformed to mere forms, abstract figures. They shed their metaphysical implications and were transformed into a recreational facility, the maze, which is merely a form, an earthen form, without symbolic meanings. In recent years, devoid of its metaphysical connotations, the labyrinth symbol has undergone a rapid evolution in the secular domain. Modern man, with an essent-

ially different world-life and intentions, considers the labyrinth as an object, not as a lived concept, and this fundamental difference leads to new and different kinds of visions, opinions, and conceptualizations.

It has also been elaborated that the concept of labyrinth was manifested visually through the graphic geometrical figures which were depicted on stones, mosaics, manuscripts, the floors of churches, gardens, and so on; ritually through the labyrinthine rituals or dances that vary from the Crane Dance and the Troy Game to the moral Christian pilgrimages to Jerusalem; and literarily through the myth of labyrinth with its many unclear and unknown recesses and a large number of texts which relate to the concept of labyrinth through its characteristics and metaphors; such as the Roman or Greek historians' description of some historic buildings of their own time.

Since patterns and interpretations of the concept of labyrinth are the main questions of this discussion, we summarize the matters discussed so far in this regard, and try to draw some conclusions about them in the following pages.

2.3.1 Patterns of the Labyrinth

As may be concluded from the discussions above, the labyrinth's various manifestations evoked its different patterns. While the exact pattern of the ritual labyrinths is not yet clear, and it is only a speculative assumption that these rituals were performed on patterns similar to the diagram of the labyrinth, the visual and literary examples[5] have exhibited some typical patterns.

In texts, the narratives always stress the labyrinth's complexity and confusion; invariably there is some description of tortuous dead-end passages which are inescapable. Yet the image of the labyrinth, as it appears on Cretan coins as well as in all later representations from Roman mosaics to the floors of the Gothic cathedrals, is not confusing at all; instead it has a very clear and regular configuration.

Until the Renaissance, all labyrinths visualized in a graphical way were realised with a unicursal structure, while written testimonials — including the Cretan myth — as literary examples, all implied the labyrinth to be a space with a multicursal pattern; while some of these texts insisted on the multicursality of the labyrinth in Crete, some authors go further in asserting that the Cretan myth as such has a labyrinthine plot with a multicursal pattern too. Doob (1990) asserts that:

> … there were two radically different models of the labyrinth: the multicursal labyrinth-as-building described in literature, that complex construction with many chambers and winding paths in which one can easily get lost, and the unicursal

[5] What is meant by the literary labyrinth's pattern is the textual structure or the structure that authors impute to the object they are describing in their narrative.

> labyrinth-as-diagram in which a single twisting path laboriously meanders its way to the centre and then back out. (41).

As was discussed, the first time the multicursal scheme entered the visual and graphic field was after the Renaissance, a form that has been called a *maze*, a familiar expression mostly used in tandem with the labyrinth concept. By the age of the Renaissance, the labyrinth underwent a major transfiguration and transmutation and another form of labyrinth based on the multicursal pattern appeared. Subsequently the main feature and maybe rule of the form of a labyrinth, its unicursality, disappeared. Although the labyrinth's geometry was strict, it no longer followed the main features and limitations of its original form.

Therefore, this concept has manifested three main patterns across the course of history: until the Renaissance it was shaped according to a unicursal pattern; while later it assumed multicursal and rhizome patterns as well.

The Unicursal Model

The unicursal model derives from the visual diagrammatic manifestations of the labyrinth in pre-Renaissance era. The two-dimensional 'Cretan type'/'classical type' or 'Christian type' labyrinths are representatives of this pattern. According to the discussions in previous sections, some of these labyrinths are circular, others are rectangular. Some are simple in structure, having only one axis around which the path curves continually, whereas others are more complicated, being divided by axes into four or more segments through which a walker must pass sequentially. Naturally these variants have led to a formal taxonomy, which was mentioned in each section.

However, there are common characteristics, which unify these somewhat varied examples. The basic design, in this model, lies in a graphic, linear figure whose entire structure consists of a sole 'path'. Walkers simply go where the road leads and unwaveringly directs, because this is the only course that can be taken. The path begins at a sole opening in the perimeter leads to the centre by wending its way in a circuitous fashion with a special pulsation or rhythm across the entire labyrinth. This sole path is not intersected by other paths. However, it is full of delays, embodying the longest way to proceed from A to B. The perimeter may take a round, a rectangular, or a polygonal form. The layout of the labyrinth's path is largely unaffected by differences in its shape. The outer line clearly separates the exterior from the interior space.

Comparing these derived explanatory statements with similar geometric patterns — such as spirals, knots and meanders — could reveal some factors exclusive to the labyrinth-unicursal pattern. All these geometric patterns, similar to visual labyrinth forms, have a unicursal pattern, are circuitous, and include one point as a start point and another as an end point, but none of them are labyrinths. Spirals can be eliminated by noting the pulsation feature of the

labyrinth's path but knots could still be a possibility. Similarly, these explanations include one path which starts at one point proceeding in a meandering way and eventually reaching the other point which can be named and located as the centre. The design overall has (can have) a central symmetry. The path is rhythmic too. But there is a main difference between the labyrinth's centralism and the knot's central symmetry. The labyrinth's path is, always and at every point, centripetal. Its whole gravitation is focused on one point at the heart of it. All circuits encircle the centre, even when the direction of movement changes. So some other major features could be drawn for the labyrinth-unicursal: a pronounced centralism, (thus), the centre seems to be the most important element; the rhythmicality of the path, oscillating towards and away from the centre periodically. In a more precise way, it can be said, the visual labyrinth as a form consists of: a start point, a sole circuitous, sinuous, rhythmic path with a protracted and sometimes constant central tendency, a centre point which is emphasized continuously and frequently by path, an end point which is based on the start point. The centre is hidden/framed within the centripetal/curved lines of the path. Nonetheless, the purest definition for its form is its presentation through the image.

The unicursal pattern conveys some exclusive characteristics which have arisen from its special form and can be considered as its conceptual denotations. These characteristics can be summarised as follows: dizzying turns of the single path distort all sense of direction and lead to disorientation and confusion; it is a process of moving from one point to the next, a journey from beginning to end; it is based on the concept of the path; it uses longer path than is necessary to get from one point to another; it implies a sequence of movements; the course from entry to centre is profoundly circuitous, turning to and fro; the paths are invariably indirect; the paths' circuitousness causes delay; straightforward access to the centre is not permitted; vision is constricted; "one feels imprisoned by the curving walls, by one's narrowly limited view ahead and behind" (Doob, 1990: 55); the process is defined by the sequence of turns and disorientations, so that the wanderer will appreciate the centre when he gets there (Doob, 1990); "One cannot know what lies around the next curve until one gets there; means dominate ends, process obscures product, and the wanderer must continue, choose, or retreat with no sure knowledge of the sequences" (ibid.: 19).

The Multicursal Model

The multicursal pattern derives from literary tradition — in particular, the Cretan/labyrinth myth and many written accounts from the third century BC in which the labyrinth is employed as a literary motif — and is envisaged as a collection of intersected paths. It comprises more than one path, so it offers a series of choices between paths: an array of choices. The concept of the term

maze is traced back to this pattern. It embodies continual testing and constant confrontations, with no clear end until the goal or entry is achieved.

> The characteristic quality of movement through such a maze [labyrinth] is halting, episode, with each fork or alternative requiring a pause for thought and decision. The direction of movement is constantly shifting, now here, now there, as the wanderer's choices and the pattern's paths lead him/her. (Doob, 1990: 46).

Confusion, doubt, curiosity and frustration are the dominant feelings of the wanderer. Uncertainty would be heightened without a guide who is familiar with the pattern; thus where there is a guide (Ariadne's thread, Christ's guide) they can help the man to choose the proper path at junctions and trace the right way leading to the centre/goal. So, there is an interlaced context, as the multicursal pattern with numerous (more than one can be included too) forks, routes, and therefore choices, conveys a latent involved meander. This meandering path is the result of a series of appropriate choices which may be made by an especially privileged person, and it is the right way, the one which eventuates in reaching the goal/centre. This pattern presents a choice of paths to the labyrinth-walker, with dead-ends and even cross-roads adding to the confusion. The literary labyrinths, which are mostly multicursal, are symbols of moral and intellectual difficulty, possibly requiring guidance to reach the goal, which resides at the centre. The centre is most often found at the geometric centre of the labyrinth, or in literature after following a long path. This is where the centre can be most protected or hidden depending on its contents (Doob, 1990).

Despite structural differences, the two paradigms of the labyrinth pattern share important characteristics. Most fundamentally: both are based on the concept of the path: a journey from a beginning to an – at least imagined – end. As a subjective experience, the journey through the labyrinth is thus transformed, through the disorienting twists and turns of the unicursal form as much as the repeated choices of the multicursal, from a straightforward linear progression into a disjointed sequence of movements and perceptions.

2.3.2 Interpretation

By reviewing the former sections it can be understood that the labyrinth has been interpreted in two ways:

1. Labyrinth as *a metaphor*: in cases where the term labyrinth has been attributed to objects because they are supposed to have a group of special features or characteristics, which have been connected to the concept of labyrinth. In this way, buildings, texts, and any object, considered to have some of labyrinth's features, will be called labyrinth or labyrinthine; such as ancient buildings whose complexity led people to call them labyrinths. The metaphors attributed to the labyrinth, which all connote the multicursal pattern, are

available from Roman times, which according to some authors arose from misconceptions about the origin concept of labyrinth and occurred because of a lack of understanding of the myth or dances (Kern, 2000). Therefore any matter that was complex, inextricable, impenetrable, mysterious, not understandable, confusing or ambiguous was interpreted as a labyrinth.

2. Labyrinth as *a symbol*: in cases where the labyrinth represents and narrates from a certain object. Although the symbolic meaning is attached to the object, it is partly unconscious and relatively difficult to understand. The labyrinth during its history was associated with the underworld and death, with the uterus and the maternal womb, and therefore with birth and life, with psychological or spiritual progress, with the moral conduct of life and salvation which is its end, with meeting the unconscious or God, with the resolution of problems, with medieval pilgrimages and crusades, and with the ploughing of fields. It often has a metaphorical notion which assumes a symbolic meaning.

Two types of characteristics led to these metaphors or symbols: one group which is directly interpreted from the form of the labyrinth; and the other which results from people's understanding of the concept of labyrinth including its form, myth, and history. Most of the metaphors result from the second type, because they are based on a multicursal pattern. In the Christian age, certain symbols were derived from the metaphors. For example, some Christian writers believed that the labyrinth is complex, impenetrable and inextricable, and because it is impossible to extricate oneself from this 'world of sin', thus, the labyrinth is posited as an accurate symbol for sin and the sinful world. In brief, these interpretations can be categorized and summarized in two major groups:

i. *A sign for a difficult process*: the labyrinth was conceived as a difficult trajectory, which could be traversed by only a few special individuals. The twists taken on this trajectory, being educational or instructive, lead the walker to a conclusion greatly to be desired. It is a mental exercise, a challenge to be met if there is to be any progress. A circuitous route may be the only effective way to reach a goal. This view obviously came from the characteristics of the labyrinth's form, its unicursality and also circuitousness. Perceiving the labyrinth as a means of initiation in prehistory (to entering the next world), in Roman rituals (as a 'no entry' or qualifying process), and in the Christian age as a way to Jerusalem, can convey this interpretation. Here, an entrance, which belongs to the general context and a centre, which belongs to a different realm, are supposed, with this idea that this centre would not be easily achieved.

ii. *A sign of complex, impenetrable, and inextricable matters*: as has been mentioned, for most periods succeeding the Roman epoch, the labyrinth has been interpreted as a sign of complexity in structures or texts and been attributed to every fact or object which could not be understood or seemed to be unintelligible because of its high intricacy. Sometimes this complexity has been defined as situations which are hard to penetrate or hard to exit. These

attributions have been based on the impossibility of escaping from the labyrinth or finding the centre without special aid or help. Most of them involve a kind of narrative, describing the confusing and frustrating process of treading a labyrinth whose design and goal are unknown. These metaphors, then, lead to the realm of morality, and labyrinthine aesthetics are left behind. The interpretations of the labyrinth as the 'world of sin' or the labyrinth as an impenetrable world are examples of this kind.

2.4 Labyrinth and Labyrinthine

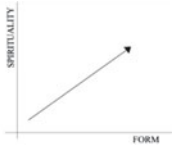
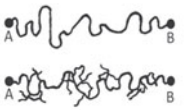
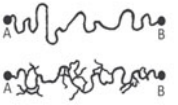
Ultimately, considering the concept of labyrinth, it seems we encounter two main senses: the *labyrinth* and the *labyrinthine*. All authors concur that the graphic manifestations of the labyrinth up to the Christian age represent the *labyrinth* in its real sense. Those particular contours and geometry belong to the labyrinth as such and are labyrinth's exclusive embodiments. So, there have been some objects which are accepted as direct embodiments of the labyrinth concept and there has been no intervening connector between them and the original essence. These embodiments are accepted by all as labyrinths which are not merely graphic representations; rather, they convey a load of meaning and belong to a context, a context as a synthesis of history and people's beliefs. Moreover, the form of the labyrinth had been never a mere form until the Renaissance, and it had borne a great deal of significance. It had been always a symbol for a number of major concepts, so it connects these concepts to its form: the entire form is a connection between a concept and a figure.

Furthermore, according to the various manifestations and interpretations of the labyrinth across the history, it can be understood that the labyrinth always has been applied as a connector of two points and as a link in the shape of a winding path between two substances which are far from each other in meaning or/and in position (table-2). What has differed over time is actually the nature of these two points which have been defined in each period according to people's world-views. For example, before the Renaissance, the labyrinth connected two points that were different in depth and meaning inasmuch as their coordinates were completely different. In fact, the labyrinth has traversed a process throughout history, varying from the most extreme form to no abstraction at all. The actual form of the labyrinth often is not just a two-dimensional form as a path between A and B on a background, but it bears a dimension of a meaning too. Because A and B are not located at the same layer of depth in abstraction.

It is clear that all affairs related to the concept of labyrinth are not figurative or with an exact form, and there are a various issues that have been referred as labyrinths without actually being real ones. These subjects or even objects are associated with the concept through similar features and characteristics which have been interpreted differently in each historical epoch. These manifestations

or related issues can be called *labyrinthine*, it means they are not exactly labyrinths but have some particularities which make them to be interpreted similar to a labyrinth. Identifying certain features closely associated with labyrinths—such as "enforced circuitousness, disorientation, the idea of planned chaos, critical choice between two paths, inextricability, intricacy, complexity"—Doob (1990) explains the labyrinthine as things, metaphors, and texts in which constellations of these features operate and make them function like labyrinths, even though they may not be identified as such (2). In fact, referring to later metaphorical uses of the term labyrinth, any complicated building with many chambers and corridors is potentially labyrinthine; any building or mental process difficult to penetrate or escape without a guide as well. In sum, the labyrinthine seems to be a mixture of characteristics of the form of the labyrinth, its metaphors and symbols.

Table 2: Labyrinth as connection between two points (source: author)

	A (start point)	B (end point)	Pattern	Dimensions of A, B
Pre-history	Earthly world	Unearthly world		
Classic	Out of house/city	Inside house/city		
Christian	Humankind's knowledge Sinful world …			
After Renaissance	A point on the ground	Another point on the ground		
Modern	A point on the ground	Another point on the ground		
	All the points laid on a context can be supposed as A or B. All points are the same.			

3 Discovering the City

So far we have reviewed how an 'Islamic city' has been defined; which characteristics or clichés have been attributed to it; how among its attributed features the term labyrinth can be considered as an exclusive concept which embraces all others and at the same time speaks of deeper dimensions; subsequently, what has been thought to be a labyrinth over the course of history, and which patterns and interpretations have been linked to it.

We want to examine in a case-study if these attributions are applicable, what is common to the city and the concept of labyrinth, and why authors or travellers find walking through the city, or the plan of the city, to be labyrinth-like phenomena. To answer these questions we examine a case-study city from two perspectives: 'city seen from above' which deals mostly with the geometry and morphology of the city narrowed down to concentrate solely on the research questions; and 'city perceived from within' which deals with the process of perception within the city. This is because, authors either liken the plan of the city to a labyrinth or the city experienced from inside (walking the city): as when people walking through the city perceive it as a labyrinth.

3.1 Isfahan by Safavids (17th-18th)

The contemporary city of Isfahan, as the capital of Isfahan province and Iran's third largest city, is located halfway between the Caspian Sea and the Persian Gulf — about 340km south of Tehran. In the 2006 Census, Isfahan city had a population of 1,583,609 and the Isfahan metropolitan area had a population of 3,430,353. It is the seat of major industrial enterprises, and an important commercial city with more than two millennia of history. Isfahan is situated at an elevation of 1,500 meters, and is surrounded by deserts and semi-deserts. Sufficient water supply for agriculture and urban growth has been provided by the Zayanda-rud River. The main historic fabric is located at the centre of today's city and it is surrounded by new developments and by modern urban growth. The form of this pre-modern core is substantially shaped by the urban developments until the late Safavids era and has been influenced strongly by the street network and other new constructions, which were imposed onto the historic fabric after modernization during first decades of the 20th century.

Since Isfahan is one of the age-old cities which evolved and developed over the history, mainly in the Islamic period, and was capital of the country during the reign of the Safavid dynasty, its historic core is being considered as an important case study in 'Islamic cities' studies. This core has also been named as the most typical kind of pre-modern Iranian city, that is to say, the typical Iranian-Islamic city (Ahari, 2007; Habibi, 2006; Gaube, 1979; Blunt, 1966). For

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example, Blunt (1966), pointing to the importance of Isfahan before and after the Safavid period asserts that “Isfahan is the quintessence of Iran” (14) whereas Haneda (1994) declares that Isfahan is a “typical pre-modern Iranian city” (236). Furthermore, Habibi (2006) claims that Safavid Isfahan, being “the ideal, typical Iranian traditional city”, excellently represents the traditional life-world (93). In fact, scholars believe that all the main Persian urban patterns and foundations were flourishing in Safavid Isfahan; indeed, these urban patterns are now known as the ‘Isfahan Urbanism School’. This flourishing was not only in architecture and urban planning, but also in philosophy and mysticism. This tendency is also referred to as the ‘Divine Isfahan School’ (Ahari, 2007). But besides these facts, what mainly makes Isfahan a special case study for studying the urban form is that the pattern of Isfahan in the Safavid period exhibits two distinctly different forms in its north-east and south-west parts. As can be recognized from a first view (figure- 6), the north-east of the city seemingly follows a non-geometric pattern while the south-west part has a relatively regular geometrical pattern. Thus an investigation of the city will have to deal with both patterns and the exploration of underlying reasons for this difference is undoubtedly helpful in finding out the special nature of the city patterns in each part and how the city in the north-east got its special shape.

Figure 6: Street network of Safavid Isfahan based on the Seyyed-Reza-Khan Map (source: author).

3.2 City Analysis Method

Authors have proposed different ways of reading the city with their own distinctive perspectives and, thus, there exists a vast modern literature on urban form, "how to make it and how to 'read' it" (Kostof, 1991: 9), which began with Camillo Sitte's *The Art of Building Cities* of 1889, and other works in the *Stadtbaukunst* genre, and continued down to the present generation of Gordon Cullen, Kevin Lynch, Rob Krier, Conzen(s), and many other professional accounts. Each of these methods addresses and reveals the city's nature from a particular point of view.

For example, the morphological studies of urban form by the Urban Morphology discipline studies the city by analyzing its form and the process of its shaping. The analysis of the 'town plan' is a technique promulgated principally by M.R.G. Conzen,[1] who initiated the types of studies that explore city's morphology. According to the Conzenean School, the urban fabric comprised of three interlocking elements: *the town plan* itself, which consists of the street system and is mainly a two-dimensional representation of a town's physical layout; the *plot pattern*; and the *building fabric*. All this is observed from the ground level. This analytical method, taking in three geometric levels of the city, its blocks, and its buildings, introduce the approaches of inferring geometric layers and submitting the city to a formal-geometric surgery, as a way of observing its morphology (Conzen, 1960).

The Conzenean School belongs to one of three European schools of thought on morphology or typomorphology and focuses on research, analysing and describing urban form and explaining how it came to be. The second, the Italian school, deals primarily with traditional typomorphological patterns to inform current design approaches about historical context and subsequently views of how the new will harmonize with the old. At the same time, the third approach, the Versailles School, applies this method to develop socio-critical critiques of cities and how they evolved over time (Moudon, 2007).

Muratori (1978)[2] and Caniggia (2001)[3], the initiators of the Italian morphology school, mostly emphasize on the transformation of the urban form

[1] See for example: Conzen, M.R.G. (1952). *Geographie und Landesplanung in England*. Bonn: F. Dümmlers Verlag; Conzen, M.R.G. & J.W.R. Whitehand (1981). *The urban landscape: historical development and management*. Academic Press; Conzen, M.R.G. & Slater, T. R. (1990). *The built form of western cities*. T.R. Slater, ed. Leicester University Press; Conzen, M.R.G. (2004). *Thinking about urban form: papers on urban morphology, 1932-1998*. Michael P. Conzen, ed. Oxford; New York: Peter Lang.

[2] See also: Muratori S. (1976) *Autocoscienza e realtà nella storia delle ecumeni civili*, lezioni dell'anno accademico 1971-72, a cura di G. Marinucci, Roma, Centro Studi di Storia Urbanistica; Muratori S. (1967). *Civiltà e territorio*, Roma, Centro Studi di Storia Urbanistica; Muratori S. (1963). *Architettura e civiltà in crisi*, Roma, Centro Studi di Storia Urbanistica.

through history. Their analyses are based on classifications of buildings and open spaces extending from their original condition to their various changes over time. According to Muratori (1978, 1963), the structure of these cities could be understood solely on a historical basis, through defining building typologies as the basis of urban analysis and the buildings and their surrounding spaces (gardens, streets, etc.) as the manifestation of *ideas, choices and actions* making urban form and structure. On the other hand, Caniggia emphasizes not only the historical process but the fundamental principles of city making to "guide the identification of the elements and rules that mark the genesis and then the transformation of city fabric" (cited in: Moudon, 2007: 259). He identifies built objects at four different scales: the building, the group of buildings (building fabric), the city, and the region; that is to say, it is an analysis of urban form that proceeds from the smaller to the larger elements of the environment (Moudon, 2007). The concepts of the group of Italian school typomorphologic studies emphasize the mutual correlation between buildings and the void spaces around them (such as streets, courts, etc.), more generally, the relationship between voids and solids, and the evolution of these relationships over time. This also shows how the city, like a texture which results from interweaving buildings and spaces, can be introduced through its elements at different time periods.

In a completely different direction, Cullen (1961) and Lynch (1960) or phenomenologists — Norberg-Schultz (1980), Pallasmaa (1996) — apply methods which help to uncover the feelings of people walking around cities and also their manners and styles of perception of environment. Cullen, in his book *Townscape* (1961), observes urban space in serial vision, based on the perception of the observer when she/he moves around the city. He considers movements through the routes of the city, how people encounter certain elements on their way in the city and which processes change this immediate encounter to a perception. This in fact studies the image of the city through walking within the city, as it emerges through a gradual perception.

On the other hand, Lynch (1960) observes the city as a whole and studies the procedures through which people read the whole structure of the city by studying the mental mapping. He establishes that a legible environment is one that is capable of being structured by people into accurate images. According to him, there are five key physical features through which people create their city image; they are *path*s, *edges*, *districts*, *nodes*, and *landmarks* (Lynch, 2000). Paths are the channels of movement within the city. Nodes are "the strategic spots in a city" (ibid.: 479). And the perceptual study of place should aim to establish the distribution and location of nodes. Lynch defines the Landmarks as

[3] See also: Caniggia G. (1988) *Saverio Muratori. La didattica e il pensiero*. In: M. Montuori (a cura di), Lezioni di progettazione. 10 maestri dell'architettura italiana, Milano, Electa, pp. 143-161.

external point-references, Districts as the subsidiary sections of the city with common characteristics and features, and Edges as the two-dimensional linear elements (Lynch, 2000). These all have a significant role in determining the legibility of the city and constructing its identity.

Among these approaches to reading the city, another group of authors proposes and applies combined methods of analysis, in order to bring more aspects of cities under consideration. Moughtin (2003) and Trancik (1986) present one such combined methodology. Moughtin *et. al.* (2003) suggests a combination of historical analysis as "peeling back the layers of history" and townscape analysis for discovering the genius loci of the city (33). Perceptual structure, permeability, and visual analysis are three factors which Moughtin (2003) suggests as the main branches for studying townscape, while he differentiates the direct perception and reading of the city (according to Lynch's method), the number and kind of points of access, and the visual character of the city. In fact, he analyses two main factors of the gradual perception of the city together. The perceptual structure, based on Lynch's theory, concerns the legibility of the urban structure and the characteristics of a place which are immediately perceived by people and, consequently, define its immediate identity. The permeability of the environment is the possibility of choices the city offers to the walker which is dependent on the pattern of street blocks and the indication of the degree of flexibility which the user has in moving around the area. And a visual study conforms more closely to the ideas proposed by Camillo Sitte on the meaning of townscape (Moughtin, *et al.*, 2003). It includes studies of urban space and the treatment of visual detail, which distinguishes one place from another, in two ways: "a three-dimensional study of main public spaces" and a study of "the two-dimensional surfaces that enclose public space…which give the town much of its character" (Moughtin, 2003: 224).

A different method of combined analysis is proposed by Trancik (1986). In this method for the analysis of historic precedents, three approaches to urban-design theory: figure-ground theory, linkage theory and place theory are taken together. Based on the study of land coverage, with buildings as solid mass (figure) and their absence as open voids (ground), the figure-ground theory determines the analysis of relationships between building mass and open space as the starting point for understanding urban form. Trancik (1986) claims that each urban environment has its exclusive pattern of solids and voids. Thus, this analysis can be a tool for identifying distinctive characteristics of the texture of the urban fabric and can lead to a "static two-dimensional conception of space" (ibid.: 98). The map of Rome drawn by Giambattista Nolli in 1748 is an illustration of the figure-ground theory.

The linkage theory mostly involves the study of circulation around and connection of, urban structures and is derived from lines connecting one element to another which are formed by streets, pedestrian ways, linear open

spaces, or other linking elements that physically connect the parts of a city. The further steps of adding the components of human functions to a city's cultural and historical contexts are incorporated in the place theory. In this theory, social and cultural values, historic significances and visual perceptions of users are the main aspects of the analysis (Trancik, 1986).

Alsayyad (1991) is one of the rare (or, put more boldly, the only) authors who put forward methods for analysing the urban form of exclusively 'Islamic Cities' — although he only provides a very brief discussion of this in his book (1991). In this case, a model as the combination of the Lynch-Rodwin analytical system and the linkage and place theory of Trancik's classification is introduced. The city is analysed under this model in terms of solids and voids by categorizing urban solids into two types of public institutions that are object buildings "serving as center pieces in the city fabric and acting as visual foci when they are prominently located in space or in a background of solids", and fabric solids that are the predominant field of urban blocks (Alsayyad, 1991: 7). He studies the relationship of urban solids to each other as the physical layout. Moreover he supposes two types of urban voids: "the primary circulation network of streets and alleyways, a category corresponding to the predominant field of urban blocks"; and "the public squares and gardens that are mainly large functional nodes that contrast the large public buildings and provide space for active public life" (ibid.: 8). He refers to the relationship between urban voids as the spatial structure and, according to him, the physical layout and the spatial structure make up the city's physical form. Subsequently, its functional form is made up of activity and land-use patterns. Urban form includes both physical and functional form (Alsayyad, 1991).

3.2.1 Particularity of Safavid Isfahan

The aforementioned methods, mostly developed based on examples from cities in particular parts of the world, are among the large body of the studies of the ways of understanding the cities. Each of them reveals an aspect of the city and proposes a proper way for discovering it from a distinct perspective. Yet, in the case of 'Islamic cities' — or maybe other groups of cities which are strongly influenced by a regional culture — they have to be adopted or modified according to the particularities of these cities, otherwise the study will overlook some main characteristics of these cities and will fall in the same trap as some of the previous authors in this field fell, namely not observing the city in its indigenous context. However, each of these methods can provide inspiration in defining the method by contributing to defining the general methodological framework, broadening perspectives, and giving greater precision to the way the subject is approached.

To this end, the aim is proposing and applying a method that is more relevant to the characteristics of 'Islamic cities' in general and the city of

Isfahan in particular, which helps to read the city as a multilevel entity by means of penetrating into the city itself and setting the usual preconceptions and presuppositions aside. In this regard, two vital issues should be considered:

i. The first relates to the long history of Isfahan's emergence and development. There were settlements in the region of Isfahan dating from long ago; gradually these have been transformed and have become the core of the city; and this core has been enlarged, developed, or sometimes contracted over history, but has yet remained existant over a long period. This origin meant that Isfahan in Safavid period was the result of the superimposition or juxtaposition of many historic-layers — an urban palimpsest. That is why its historic evolution and development should be emphasized and studied in depth — so as to be clear also for all other cities;

ii. Another exclusive character is that the factors that are influential in the city constitute a Framework of Relations within Isfahan — and maybe also in most 'Islamic cities'.

Main elements such as water, religion, and politics are important and influential for all cities and according to the conditions within cities, as suggested through the ideas of Kostof (1991) and Morris (1994), they may also impact their form. What is exclusive in the case of Isfahan or similar cities is the relative importance of these elements and, namely, the way they relate to the life-world of the people. Each of these elements — because of the role of Islam in defining them, or their social value, or the prevailing climatic conditions—

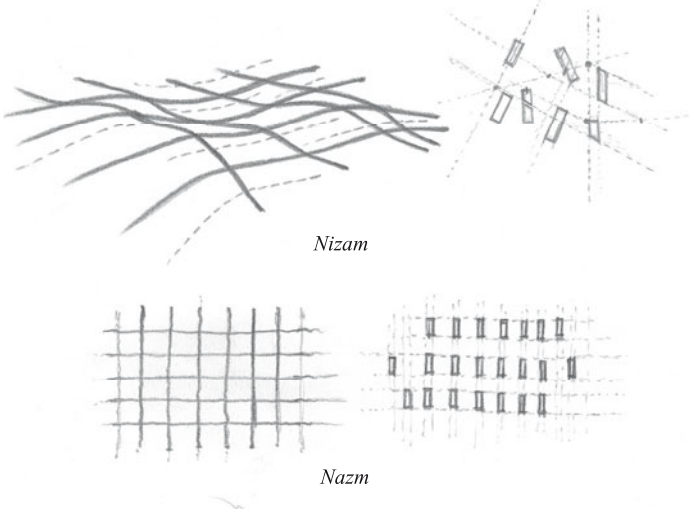

Figure 7: The abstract representation of *Nazm* and *Nizam* (source: author).

constitutes a framework of relations over the city, which determines how the city should embrace the element and interact with it. That means, for example, that water is no longer merely an ecologically important element which forms the city and exerts a one-dimensional (physical) influence, but instead its special role[4] in religion or religious-philosophy necessitates another kind of presence in the city: *a net (network) of relationships based on the Life-world of the people* which defines the framework of water's presence in the city. This framework and relationships can be better understood by grasping a Persian (and similarly Arabic) word: *Nizam*. *Nizam* is derived from *Nazm*. *Nazm* means regular order and is manifested in regular geometric patterns, such as ornaments, while *Nizam* connotes another kind of hidden order which does not lead necessarily to a regular geometric pattern. In fact, *Nazm* has *Nizam* but *Nizam* does not necessarily present *Nazm*. *Nizam* points to a hidden framework according to which the elements of a complex are connected to each other. It is a kind of *Nazm* but does not necessarily exhibit a clear, determined, regular order (figure-7).

Thus, it seems — and as will be discussed in later sections — each essential factor in the city (Isfahan and probably many other 'Islamic cities') constitutes a *Nizam* which together are, in fact, the results of people's mental regulations and presuppositions which impose into the city their rules — structural rules or formal ones, and are treated as matrices within the city. This means each factor is no longer just a factor, but something that originates a *Nizam* and, being present in the city, should follow a framework determined by the relationship between it and the life-world of the people, called a *Nizam*, which defines how the city should react, embrace, read, understand, and interpret the element and which level of importance this element should be accorded. *Nizam* is the result of the role a factor plays in the city and the way the city embraces it. This role is defined by the place and value this factor has for the people, according to their mental structure; and this value can be both for physical aspects (climatic, ecological) or nonphysical aspects (social, religious, etc). A number of main characteristics can be ascribed to *Nizams*:

- Clearly the greater the relationship and coherence between the element and the life-world make the *Nizam* more complicated and difficult to read;
- In Isfahan, for all *Nizams,* an element of their coherence has originated in accordance with Islam; so it can be said that Islam makes *Nizams* more complex;
- Since, on the one hand, *Nizams* interact with the main cores of the life-world of the people, and on the other hand, religion and philosophy are present in many aspects in the city, *Nizams* can be somewhat enmeshed;

[4] This kind of relationship and role will be discussed in the succeeding sections on the case of Isfahan and on the elements of water, trade and society.

− Their relations to the life-world define at which level of the conceptual or physical realm they exist.

− A *Nizam* in the city may or may not lead to a *Nazm*.

− There is a *mega-Nizam* in the city which consists of a number of *Nizams* together with their *sub-Nizams*. The more *Nizams* and *sub-Nizams* each *mega-Nizam* has, the more complicated and deep it is, even if the manifested form may not be difficult to be read. In contrast, the less *Nizams* it has, the less deep and complicated it is, although the manifested form may be so chaotic that it can only rarely be understood. Thus these *Nizam*s and *sub-Nizam*s define if the form of the city is the result of an intelligent order, even when it has a seemingly chaotic form and they are the hidden forces within the city: they sew its various elements together; sometimes, however, they integrate with each other, and influence the morphology and geometry of the city.

In sum, according to the discussed methods for studying the city on the one hand and the particularities of Isfahan on the other, this text proposes and takes the following steps to understand the city: it will study the city in two ways, city seen from above and city perceived from inside. In the section, city seen from above, there will be some investigation of how Safavid Isfahan gained its form and how this form can be analyzed and interpreted. For this purpose, Safavid Isfahan will be studied, first, in linear way, presuming to follow the line of history, to understand the juxtaposition or superimpositions of the patterns belong to the different historical periods; and second, in depth, to find out which elements are influential in its formation, whether they constitute *Nizam*s, and how they contribute to the shape of the city. In studying the life of Isfahan through time, we do not concentrate on individual *Nizam*s for each period, but instead consider the result of their integration, namely, the *mega-Nizam* in each period. And in studying Safavid Isfahan in depth we will concentrate on three major factors: water, trade, and social structure, as examples of shaping *Nizam*s. In this way we have supposed the city to be the result of the integration of *Nizam*s and we approach it with this presupposition. At the end of studying these *Nizam*s separately, we will see how they acted within the city, influenced its morphology, and what is the special form of Isfahan as an ‘Islamic city’.

Similarly, in the second section (city seen from within), we investigate the feelings and the process of walking through the city based on Cullen’s method, but relatively modified according to the case-study. That means a route will be chosen and the incidents that are revealed to the walker while traversing it on foot it will be studied.

3.2.2 Safavid Isfahan in Maps

For the analysis of the *Safavid Isfahan*, the body of information and literature which address the morphologic characteristics of the historic fabric of present-day Isfahan (Old Isfahan) in the Safavid era should mainly be focused. In fact, since the structure of the city remained almost the same until the modernization impacts on the city, the maps from the pre-modern Isfahan can also be applied.

The first sketches and maps of Isfahan were drawn by travellers. Adam Olar-ius,[5] Jean Baptiste Tavernier,[6] Jean Chardin,[7] John Ogilby and Xavier Pascal Coste who travelled to Isfahan in the Safavid and Qajar periods have bequeathed a few sketches or maps of part of the city or sometimes giving a general view of the city. In these sketches, the detailed information about the structure of the city is not supplied.

The earliest map of the city was drawn by Pascal Coste in 1867 (Qajar period) (Shafaghi, 2003: 350) (figure-8). In this map are shown the main structure of the city, its main urban spaces, water canals, city wall and gates, and the various neighbourhoods with their names and supplementary information. But it is not sufficient for understanding the form and structure of the street

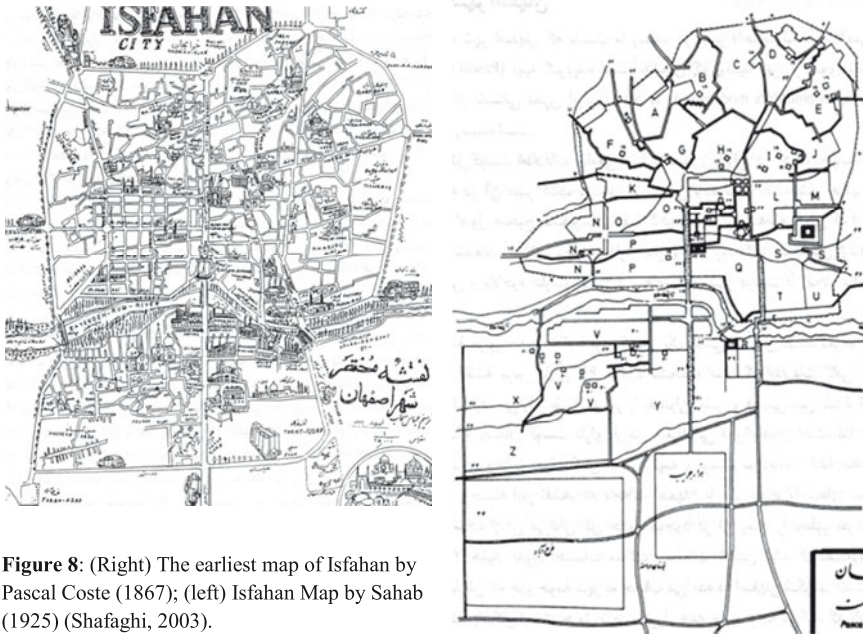

Figure 8: (Right) The earliest map of Isfahan by Pascal Coste (1867); (left) Isfahan Map by Sahab (1925) (Shafaghi, 2003).

[5] See: Olearius, A. (1669) *Travels*.
[6] See: Tavernier, J.B. (1678) *The six voyages.*
[7] See: Chardin, Sir J. (1686) *The Travels of Sir John Chardin into Persia.*

network in the city. The next map has been attributed to Jenab[8] but has not been published to date (Shafaghi, 2003). The other map belongs to 1924 and was drawn by the Sultan Seyyed-Reza-Khan (figure-9). This map includes more comprehensive information especially with regard to the street network and the urban spaces and is actually the earliest detailed map of Isfahan, drawn before the impacts of modernization and industrialization began to emerge in Iranian cities. Gaube and Wirth (1978) used this map as the base map in their study of the Isfahan Bazaar.

Haneda (1996) in his study on Safavid Isfahan drew upon this map for his analysis. He believes

> there was no great change in the urban pattern of the city since the Safavid period...However, the original Safavid road pattern remains, which means…that the basic pattern of roads has been preserved since the 18th century. Furthermore, when the map was produced, Reza Shah's modernization policy had yet to begin, so that roads have neither been enlarged nor extended. It is not inappropriate…to regard this map as the basis for reconstructing the topography of Isfahan…in the 17th century (Haneda, 1996: 372).

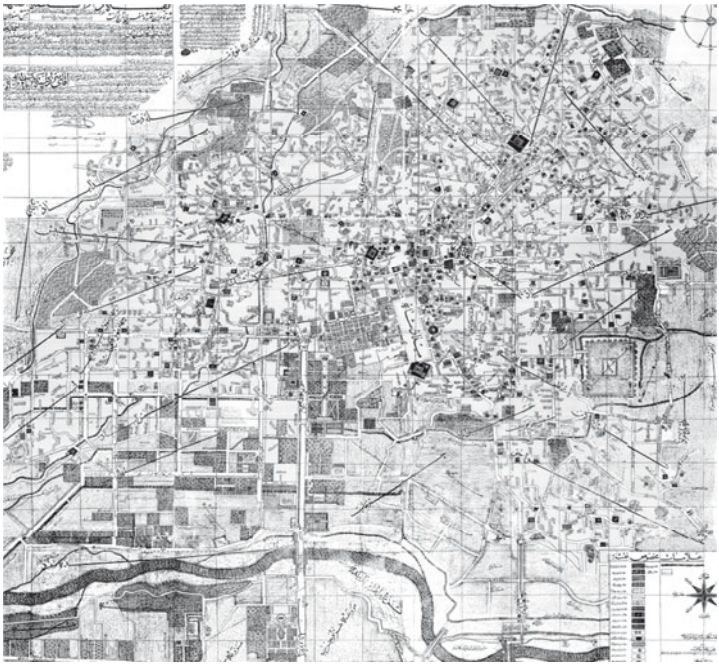

Figure 9: Sultan-Seyyed-Reza-Khan Isfahan Map, 1924, with facsimile edition of Sahab Geographic and Drafting Institute; from Sahab Geographic and Drafting Institute Archive, Tehran.

[8] Jenab, mir Seyed Ali (1925). *Alesfahan*. Isfahan (in farsi).

The map drawn by Sahab in 1953 (figure-8) and the aerial picture of the city taken in 1956, both showing straight and subsequently-added streets, show that at that time the structure of the city began to change. So, the Sultan Seyyed-Reza-Khan's map is, in fact, as Haneda also declares it, simultaneously the latest and at the same time the earliest detailed map of pre-modern (traditional-Islamic) Isfahan. Subsequently, Mahavash Alemi, an important researcher on Iranian Cities, takes Reza-Khan's map as the basic portrayal of Safavid Isfahan, and imposes upon it other information gained from travellers' stories or sketches, to create a modern reconstruction of what the Safavid city is supposed to have been like (figure-10).

Since it seems that the city-map drawn by Sultan Seyyed-Reza-Khan, during the late Qajar period, should be the best indicator of the structure of the city in the Safavid era, it has been chosen as the basic informative map for this text. The interpretation of the sketches or alternative analysis will thus focus on this map. Additionally, information from Pascal's and Mahvash Alemi's maps will be integrated to supplement the Reza-Khan map.

Figure 10: Safavid Isfahan by Mahvash Alemi (appendix to Architecture and Urbanism Journal 42, 2002).

3.3 Isfahan Seen from Above

The form of the city can be investigated from different angles, such as: considering the form alone, or the process of its historic evolution, or by going in-depth and studying the influential factors that shaped the city at a particular period of time. Obviously, each of these levels opens up some distinctive aspects of the city. All three will therefore be examined.

3.3.1 Geometric-Form Layers of the City

Before dealing with the city's historic evolution and its system of Nizams, it seems worth taking a general look at the geometry and pattern of Safavid Isfahan, in order to gain a first impression of the city's form — the form that has been interpreted as a labyrinth. As can be seen in figure-ground maps (figure-11), a first impression can relate the form of the city to clichés such as chaos and irregularity of form. In the Seyyed-Reza-Khan map the streets are categorized in four types: the relatively long and straight roads are called the *Khiaban*; the alleys flanked by gardens are called the *Kooche-Bagh*; the alleys are the *Koocheh*; and a final group, the culs-de-sac alleys, is named the *Bon-bast*. The categorization is made according to the formal characteristics of the roads, namely, their length, their degree of straightness, whether they were inside the city and among the buildings or ran between the gardens, and whether they ended up in another road or in a house. Thus, those roads which are not straight on a large scale, which connect to each other to make the street network of Old Isfahan, and which are flanked by buildings, make a level of the street-network and could be categorized in a group named *Koocheh*-s. Another level belongs to the culs-de-sac (*Bon-bast*) and another one to straight alleys (*Khiaban*).

Kheirabadi (1991) categorizes the paths in a similar way. According to him, *Bazaar* is in fact the primary thoroughfare that passes through the city and connects the city gates. *Guzar*s and *Rastihs* are the primary streets of the city; "they come off the rastih-bazaars (linear stretches of bazaar), run through the residential zones, and usually end at neighborhood centers" (Khierabadi, 1991: 28). *Koocheh*s, as secondary access routes are narrow alleys that "branch off the primary streets and wind through the neighborhoods, normally ending at another primary street" (ibid.). Their width is between two and four meters. Houses are located directly along them or are connected to them by way of *Bon-basts*. *Bon-bast*s are kinds of tertiary access routes and are blind alleys. They branch off from Koochehs and provide residential access (Kheirabadi, 1991).

At first view, the form shows a geometric-contrast between two parts of the city, north-east and south-west. The latter is relatively regular while the former seemingly follows no order. All roads are interwoven and no pattern can be imputed to them, and their geometry is not legible. The only way to approach this geometry can be to infer layers within it. Considering the ideas of Seyyed-

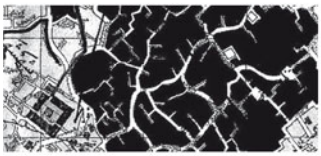

Figure 11 (top-right): second street-geometric surface including main structure of street network; (below-right): third street-geometric surface; (top-left): third street-geometric surface in Safavid construction part; (below-left): third street-geometric surface in old city part (source: author).

Reza-Khan and Kheirabadi (1991), and studying the figure-ground map of the street-network in Seyyed-Reza-Khan's map, reveal that three main street-geometry levels can be imagined in the city (figures-11). The first is the level of blind alleys or *Bon-bast*-s, which are the narrow alleys separated from the fluid network of the city. Extracting this layer, what remains is the second surface which is the street-network of the city; this mean all the roads which are connected to each other in an un-ending network of lines and create access between all points of the city without culs-de-sac. This level could embrace both the *Guzar* and *Koochehs*; that is to say it could divide into two groups of main roads and secondary roads. Included in the second level is the main route of the

city, starting at the north end in the south and connecting to the city's central areas.

To explain the initial and overall interpretation (prior to studying the city), it can be said that the overall view of these three levels reveals that the main route of the city is an un-straight route which stretches from north to south or vice versa. The second geometric level bears two kinds of geometry. The first belongs to the north-west of the city –Old Isfahan –and is some kind of 'deformed grid'[9] with roads that are split from a centre. In other words, there exists a group of roads resembling a network which has been deformed by particular forces. We can see a similar case, but at a smaller scale, in the north east of the city. The south of the city has a relatively different kind of geometry. It includes more straight streets and these streets are laid in east-west/north-south directions. And finally the other kind of street, *Bon-bast*-s, consist of blind alleys which penetrate blocks and permeate every section of the city. In fact, this text supposes three geometric-levels for the form of the street-network or pattern of pre-modern Isfahan and will try to explain how the geometry of these three levels has been influenced by various factors and characteristics within the city. Through this pre-reading of the form, discussing the effect of each Nizam on the shape of the city should be easier and clearer.

3.3.2 Historical Evolution

Each historical period in the life of the city is a framework of circumstances—including political, economic, ecological, social, and so on — within which the residents make their environment according to their world-views. These circumstances are the result of the juxtaposition or combination of all factors that have been vital, valuable and worthy of respect for the citizens and constituted the main structure for the principles by which they live. They consist of all affairs relative to the life of the city and its people: not only the climatic-ecological conditions or the economy, but also politics and religion, which have a direct relationship with the values and beliefs of the people. In some cities, due to their special situation, ecological factors were more important and determining; in other cities politics was crucial, while in yet others the city's administration system was to the fore. The form of the city is the most visible manifestation of the city's reactions to circumstances and its structure of principles. It precisely represents which factors, with which kind of hierarchy of importance, were vital and critical for the people of the city and subsequently influenced its form. That means the form of the city in each historic period is in fact an embodiment of a mega-Nizam which consists of a number of sub-Nizams. However, what the first view of Isfahan announces, because of its spec-

[9] Borrowed from Matthew Carmona, Tim Heath, Taner Oc, Steven Tiesdell, *Public Places-Urban Spaces, The Dimensions of Urban Design*, 2003.

ial geometry, and according to various authors, its labyrinthinity, is the lack of a structure and principles of this kind, or the lack of their manifestation in the city's form: absences for which a historical study is the most reliable method of finding an answer.

The intention of this section, therefore, is to supply such a study of the history of the evolution of Isfahan, and subsequently, the traces that historical layers have left on the form of the city. It will develop an understanding of how, for each period, the form of the city is the outcome of the political, economic, cultural and mental framework (a combination of Nizam-s) of the people who have lived there. Although Isfahan has an ancient origin and has a long history behind it, with a considerable incidence of wars, earthquakes, and changes in government, the order of its main street network has never completely disappeared, but is rather the result of successive superimpositions. The forces that have influenced the geometry of the city in each period are recognizable and provide the basis for the following text. So we will present the general dominant circumstances of the settlement/city at each period of time and the urban structure they engendered.

The transformation of Isfahan over history, in this text, will be considered over four periods: i. up to 8th century, as a context featuring particular elements and forces through which the city began to emerge; ii. the 8th-9th centuries, when the city began to grow; iii. 10th-12th century, the Buyids to the Seljuk period; iv. 16th -18th centuries, Safavid period.

i. Satellite Villages (up to 8th century): the context in which the city's seeds started to grow

Authorities on this topic have confirmed that the history of settlement in the Isfahan region goes back to the Achaemenid period and the place mentioned in post-Achaemenid literature as Aspahan, actually points to the location of present-day Isfahan. The first documentary testimonials about the district have been provided by Muslim authors, historians, and geographers who were living in the first decades of Islamic rule in Iran, namely middle of the 7th century (Gaube, 1979). The first undisputed date is the year of 643 A.D. Just after the commencement of this period, the establishment of present-day Isfahan city began. At that time the first Muslim conquerors encountered two cities (main settlements), lying about 4 kilometers apart (Blunt, 1966), in the present-day location of Isfahan;[10] these were known as *Yahudiyya* and *Jayy* (Honarfar, 1971).

[10] According to Mehrabadi, before Islam the region of Isfahan included 7 cities: *Kahseh*, *Jar*, *Dram*, *Sarouyeh*, *Jayy*, *Gheh*, and *Mahrin*. The first four of them were destroyed before Islam and at the time of conquest; by the 7th century, only three of them remained. Arabs destroyed Mahrin and Gheh, and only Jayy survived unspoiled (Rafiee Mehrabadi, 1973).

Jayy today is identified as the village known as *Shahristan*, which lies to the east of the modern city, on the north bank of the river. Yahudiyya, literally the Jewish quarter, has been identified as the large quarter known as Jubara, at the northeast of the present-day Old Jami mosque. Sometime later, the town of Jayy declined and the life of Isfahan was concentrated nearer to the Yahudiyya area (Gaube, 1979).

Jayy was a circular Sassanid city with four gates whose locations were determined by the seasonal position of the sun and other astronomical orientations (Rafiee Mehrabadi, 1973). It was divided into four parts by its two main axes. The division of city into four parts, corresponding to four main directions, was one of the important characteristics of Iranian cities prior to Islam, arising from the Zoroastrian Religion. There existed a main route from each city gate to the city centre, and subsequently the city was divided into four (Sultanzade, 1988). According to Blunt (1966), the founding of Jayy was the result of an imperial order, usually attributed to *Firuz*, who reigned from 459 to 483. Golombek (1974) points to a story told by Arab historians about the selection of the site for this town:

> The Sassanid king wished to move his capital to a healthier climate and wrote to the Byzantine emperor, asking him to send a capable physician. The physician was asked to tour the realms and find a place where the elements, water, earth, air and fire, were free from blemish. After traveling the length and breadth of the Sassanid kingdom, the physician chose Isfahan and wrote to the king. He found the land so much to his own liking that he asked permission to settle here. (22).

Yahudyya belonged to a Jewish colony which had come to the Isfahan region long before the founding of Jayy and whose origin is supposed to date back to the time of Nebuchadnezzar II (Golombek, 1974).[11] Regarding how the colony found this land and came to settle there, it is narrated that after Nebuchadnezzar decided to expel the Jewish community they started to search across the world for a place whose 'soil' was similar to Jerusalem's. They were unable to find their desired 'soil' until they found the Isfahan region. There the soil was similar to that found in Jerusalem, so the Jews decided to settle there (Rafiee Mehrabadi, 1973: 5). Ibn Hawqal[12] preserves the account:

> The Jews settled in a place which they called Ashkahan, meaning in their language 'We stop here'. It was then an uncultivated land. Struggles with the people pasturing in the region stirred up conflict. The Jews were able to subdue the encroachers and

[11] Nebuchadnezzar II (634–562 BC), king of the Neo-Babylonian Empire, reigned from 605–562 BC. According to the Bible, he conquered Judah and Jerusalem, and sent the Jews into exile. He is credited with the construction of the Hanging Gardens of Babylon.

[12] Mohammed Abul-Kassem ibn Hawqal was a 10th century Arab writer, geographer, and chronicler who travelled between 943-969 AD. His famous work, written in 977, is called *Surat al-Ardh* (*The face of the Earth*).

founded Yahudiyya where they began to introduce irrigation and domesticate animals. (quouted in: Golombek, 1974: 21).

ii. Emergence of Isfahan (8th-9th Centuries)

In fact, the first seeds of Isfahan city's founding were grounded in a political decision of the 8th century, when an Abbasid governor had settled down in the area. In 767-68 this governor set up residence in the village of *Khusinan*, which lay between Jayy and Yahudiyya, and this settlement caused the heart of the area to move from Jayy to Khusinan. In fact, the political stabilization during that period significantly reduced the necessity of living in walled cities and, on the other hand, such cities, in the early Islamic period, were military stations which were constituted by the rule of the Islamic central government in order to maintain the relations between the military and the central seat of government. Some of these cities were intentionally established to provoke the wane of the existing Sassanid cities. In both cases the new city was founded within a particular distance from the older one. And in most cases after the wane of the nucleus of the old city, the dwellers began to gather around the new governmental focal point (Habibi, 2006).[13]

The governor built a new mosque overlooking the banks of a canal, the *Nahr Fursan,*[14] and opposite it, he built his palace complex, on the site of the present-day *Shaya* mosque (Golombek, 1974). He built a large bazaar on the outskirts of Khusinan in the direction facing Yahudiyya which acted as a common point between two the villages. These elements—bazaar, mosque, and palace—were the main elements of Islamic-Arabic cities in the 9th and 10th centuries (Gaube, 1979).

By constructing these main elements the Abbasid governor established an incipient urban body with its markets and crafts. Not long after their establishment, the governor was removed from Isfahan and the development of this new urban core was continued by the Arabs who were settled in the nearby villages. In 772 AD they started to construct the present-day Old Jami mosque which became most important mosque of area (Gaube, 1979; Blake, 1999). At that time, the pulsating life in Yahudiyya was such that it came to absorb

[13] According to Habibi there were three more kinds of cities that emerged during the first centuries of Islam. First: the old cities which admitted Islamic government. In these cities the flavour of the new world view entered the city with the construction of some new key elements such as the Friday mosque, or their replacement in the former urban context —without there being any huge spatial-physical changes to the city texture. Second: power-cities which were the centre of Islamic government; such as Baghdad. And third: religious-cities, which the people founded around the graves of holy men (Habibi, 2006).

[14] This canal has not remained intact, but a subterranean channel does run through the complex and may possibly be left over from the early system. The configuration, canal with mosque and palace built on opposite banks, is one that we know from Abbasid Iraq (Golombek, 1974).

Khusinan and grew to be the most important centre in the region. After a while, each of the two settlements (Khusinan and Yahudiyya) grew in the direction of the maidan [square] and eventually the houses of Khusinan touched those of Yahudiyya (figure-12). Up to the 8th century, the maidan and the mosque were at the edge of the Yahudiyya, but after the amalgamation of two adjacent settlements by the 8th century, they became the centre of the combined settlement which was called, wholly, Yahudiyya (Gaube, 1979). Subsequently, a new administration was introduced for Yahudiyya which had control over 15 other villages (Golombek, 1974) and, according to the Muslim geographers of the 10th century, it became the most important settlement of the region with a large Friday mosque in the centre of a bustling bazaar, which was visited on a daily basis by large crowds of people bringing wares from various kingdoms; while Jayy became a small village in the region (Gaube, 1979).

Shaping of the Urban Structure

In sum, in the area of today's Isfahan, at the time of the conquest by Islam, there were two main settlements: one was a geometric walled city with a defined social, juridical and political structure bearing the character of an ancient Iranian city; the other was a village founded by immigrant minorities and in line with their beliefs and ideas. There were also some unremarkable villages dispersed in the area. Each of these elements, according to the circumstances of this period

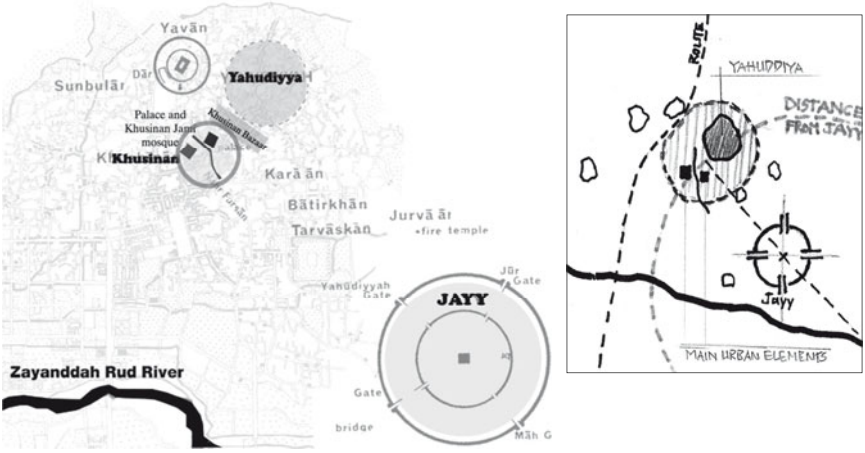

Figure 12: (left) Embryo of the city by 8th -9th century after urban elements' construction in Khusinan; by author based on: (Golombek, 1974; Gaube, 1979). (Right) the circumstances and principles that defined the location of the first settlement (source: author).

of time and people's standards, affected the establishment of the city and the way it grew by imposing particular forces. In other words, a framework of circumstances arising from physical or mental factors developed at that time and affected the scale of the settlement. We can review again the historical process: in choosing the location of the founding of the original settlements, Jayy and Yahudiyya, the determining factor were the norms respected by the founding peoples, corresponding with their life-world in that, namely, they both had been searching for a kind of terrain which was appropriate to their culture: for the Persian settlers, a terrain that combined the Four Elements of Zoroastrianism, and for the Jews, a soil similar to that of Jerusalem. In later stages Khusinan was chosen because it was at a proper distance from Jayy, which at that time was the symbol of heresy (for Muslims) and at a distinct distance from Yahudiyya (because it was a Jewish village) (figure-12). At the time of the Arab invasion the main city elements were defined as a mosque, malace and bazaar, because of their functions in Islam, and they were constructed at the edge of a canal (Gaube, 1979), thus this was also the case for Isfahan. And finally because of the importance of these elements for the daily life of the people, they arranged their settlement so as to profit from them. They arranged it highly differently from the way Jayy had been organised, and dissociated their settlement from it, either through physical distance or through the principles of urban design. This high contrast shows how strongly the ideals of people can change the definition of principles in the city and also the interaction of the city and people with these principles. So, the location of Isfahan was chosen according to religious, political circumstances and it grew according to the daily needs of the residents (because the one-time governor did not remain there).

iii. The Buyids to the Seljuk Period (10^{th}-12^{th} century)

For a long time, in the period between the fall of the Sassanid dynasty (632AD) and the resurgence of native Persian rule (the Samanids, 819-999 AD), urbanization and urban-developments underwent little or no improvement in Iran. During this period the character of urban life was defined according to events which inclined to fundamental changes to achieve a balance between the formative forces of the city, constituent institutions, and economic, social, and cultural bases. During this long period — two centuries — no city was founded, a fact which underlines the unstable condition of urbanization in that era (Falamaki, 1996).

The 10^{th} century is believed to be the period of greatest social and cultural fermentation in Iran and of the first full flowering of Islamic urban civilization (Beaumont *et al.*, 1976). At this time Iran had achieved political autonomy and had absorbed Islamic ideals and principles into the makeup of its traditional culture. This provided the creative impetus for a new direction and was carried

through into the following centuries. This synthesis is evident in the flourishing of the arts, science, literature, and urban development (City of Light, 1976). This flowering can be seen in Isfahan's urban life too. Until the 10th century Isfahan was governed by petty princes and remained as a village-style settlement, but by about the 10th century, Isfahan was under the rule of a powerful Iranian governing force, called Al-Buyids (932-1055 AD), which defined the next important stage of its development. At this time, a part of town was encircled with a defensive wall and a strong citadel (*qalah*) was built in its southwest quarter (figure-13). Soon after the encircling of the town, the area inside the walls was divided into mahallas, or quarters. Although the names vary, most sources indicate a total of four quarters inside the walls. The names recurring most often are three: *Jubara*, *Karan*, and *Dardasht*. Jubara is still the name of one of quarters in the northeast of Isfahan, corresponding to the ancient settlement of Yahudiyya. Karan occupied the southeast quadrant and Dardasht covered the large area of the northwest quadrant and divided into several subdistricts. Dardasht as a mahalla incorporated the villages of Yavan and *Chumulan* (now *Sunbulan*). The remaining southwest quadrant of the walled city, which later became the Safavid quarter of *Dawlat*, bore the name Kushk. It is also listed, along with Jubara, Karan, and Dardasht, as one of four original villages joined together to form Isfahan. These four quarters constitute the quadrants of a circle or oval, and the centre where the quarters meet falls at a point just south of the Old Jami Mosque (ibid.).

In Isfahan the axial street running between Kushk and Karan was a bazaar in these times and in fact the four main interurban axes of the city which converged from the old maidan were in existence from this period and the most important city gates were situated along them. These four main axes of old Isfahan were lined for long stretches with shops and workshops, forming the arterial bazaars of the city (Golombek, 1974; Gaube, 1979). Also, there were a series of major arteries (Koochehs) within each of the quarters, which radiated from the central point of the city outwards toward the gates in the city walls. Gaube believes that there was no route in the south-east direction, most probably because "the density of the population in the area between the old maidan and the citadel was never as great as it was elsewhere and a road was not needed" (Gaube, 1979: 76).

At the point of intersection of the axial bazaar, the old maidan was located (Golombek, 1974). In the course of extensive building activities that took place in the 11th century, the old maidan became and remained the most important commercial, religious, and administrative centre and heart of the city for a long time, up to the 16th century, when the new maidan was built (Gaube, 1979).

According to *Nasir-i-Khusrau*[15] — who presents the first comprehensive image of Isfahan in this era — the city had: a strong high wall with gates and fortifications, and all the walls are battlemented. Inside are channels of running water, tall handsome buildings, and in the centre of the city stands the great and magnificent Friday Mosque (cited in: Blunt, 1966).

Moreover Nasir-i-Khusrau writes that: "They say the town walls are three and half farsangs [over thirteen miles] in length. The city looks uniformly prosperous. I noticed a large number of bazaars. Each bazaar has its wall and its gates, as has every quarter and street. There are clean and well-kept caravanserais… I have never seen anywhere where Persian is spoken, a finer, larger or more prosperous town than Isfahan (quoted in: ibid.: 23). This description gives an overall image of Isfahan in the early years of the Seljuqid dynasty.

Urban Structure

In sum, one of the most important stages of urbanism and urbanization in Isfahan had occurred by the reign of Seljuks (12th).The prevailing political

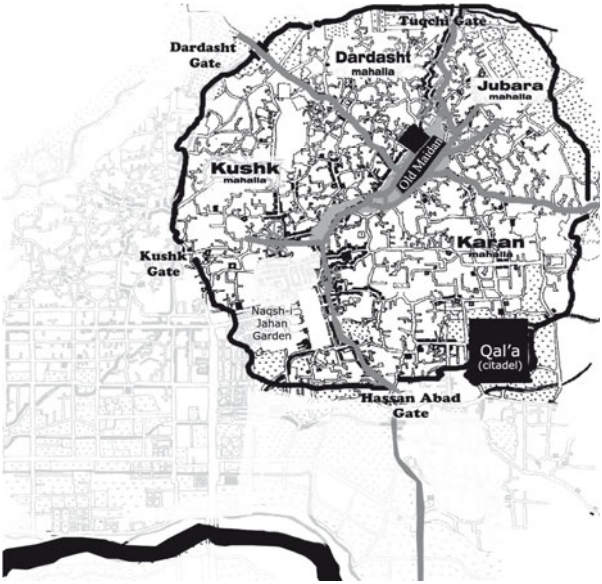

Figure 13: The structure of Isfahan in the 12th century; modified from (Gaube, 1979, p.80) and (Golombek, 1974).

[15] Abu Mo'in Hamid ad-Din Nasir ibn Khusrau al-Qubadiani [also spelled as *Nasir Khusrou* and *Naser Khosrow*] (1004 - 1088 AD) was a Persian poet, philosopher, scholar, and traveller. The *Safarnama*, an account of his travels, is his most famous work.

stability and commercial and economic improvements changed the age to one of the most magnificent periods for the establishment and creation of various arts, including architecture, throughout Isfahan and the whole of Iran as well. And, as has been noted, Isfahan gained its initial city-structure with defined city walls, gates, neighbourhoods, main artery roads, and a main Central Square in this era. So the dominant change influencing the circumstances of this period was the flowering of trade. Its apparent effect was to engender recognition of Yahudiyya/Isfahan, a village on the caravan route, as a city in its own right. According to the conditions pertaining to cities at that time, a city wall was erected for Isfahan and the internal area was divided into four mahallas with a maidan and mosque at the centre. Here the circumstances of the time and the hierarchy of important principles imprinted their own effects. For example, at this time, trade was more crucial, so it shaped the structure of the city in such a way as to facilitate its flourishing by optimising circulation. On the other hand, social and religious issues were also important so it resulted from the interaction of the city and elements that the mosque was located at the heart of the city, which had a reciprocal effect on commercial-spatial arrangements too. Culture and society were further principles within the city and were manifested through the way the mahallas were determined. The city remained within the borders of this city wall for a long time (until the 16th century) and developed within itself according to the Buyids city structure.

iv. Safavid Period (16th -18th Centuries)

After the Mongol invasion[16] and the centuries-long stagnation in the urban development of Isfahan and other Iranian cities, the Safavid Shahs' reign saw a return of the efflorescence of metropolitan life.

At the time of the rise of the Safavid dynasty at the beginning of the 16th century, Isfahan was rebuilt by the first two Safavid shahs, Ismail (1502-1524) and Tahmasp (1524-1576). They integrated a number of new constructions into the existing plan of Isfahan. Their main concern was the construction and

[16] In 1228, a great battle against Mongol invaders took place outside the city walls; after this, the Mongols captured the city. In the year of 1386 Tamberlane — who established the Timurid reign in Iran around the capital of Samarkand — and his hordes descended upon Isfahan from the north. They captured Isfahan, and although they slaughtered a large number of people, they did not cause massive ruination of the city. It seems all principal buildings of Isfahan survived their brutal invasion. During the Timurid reign the centres of development of Islamic architecture were transferred from western Iran to the cities Samarkand, Herat and Meshed. By the mid 15th century the Timurids had lost their grip on most of Iran proper and a Turkoman tribe, under Uzun Hasan, assumed rule and made Tabriz their capital (Blunt, 1966). A Venetian ambassador, Ambrogio Contarini, who visited Isfahan in the year 1474, writes that "the city is surrounded by a wall of earth like the others and it is said that, as this city refused to surrender, much of it was destroyed after it was captured" (cited in: ibid.: 24).

embellishment of the old maidan. Around it, they had constructed five major urban buildings — one madrasa, the shrine, the Ali Mosque, and one caravanserai. Additionally, two mosques, one madrasa, and one *hammam* (bath) were erected along the road running from the maidan in the southwesterly direction (the main artery of the bazaar) (Gaube, 1979).

In winter of 1597 Shah Abbas-I decided to transfer his capital from Qazvin to Isfahan. Blunt (1966) believes that the Shah decided on this transition because:

> Isfahan was fairly centrally placed; it had an excellent climate and great reserve of water not far below the ground. Moreover, it was the capital of the province and ancient kingdom of Fars (60).

Shah Abbas made Isfahan the capital of his kingdom and made efforts to embellish it and to encourage trade and intercourse with other parts of the world: “a concourse of cultural foreigners flocked to his court” (Blunt, 1966:

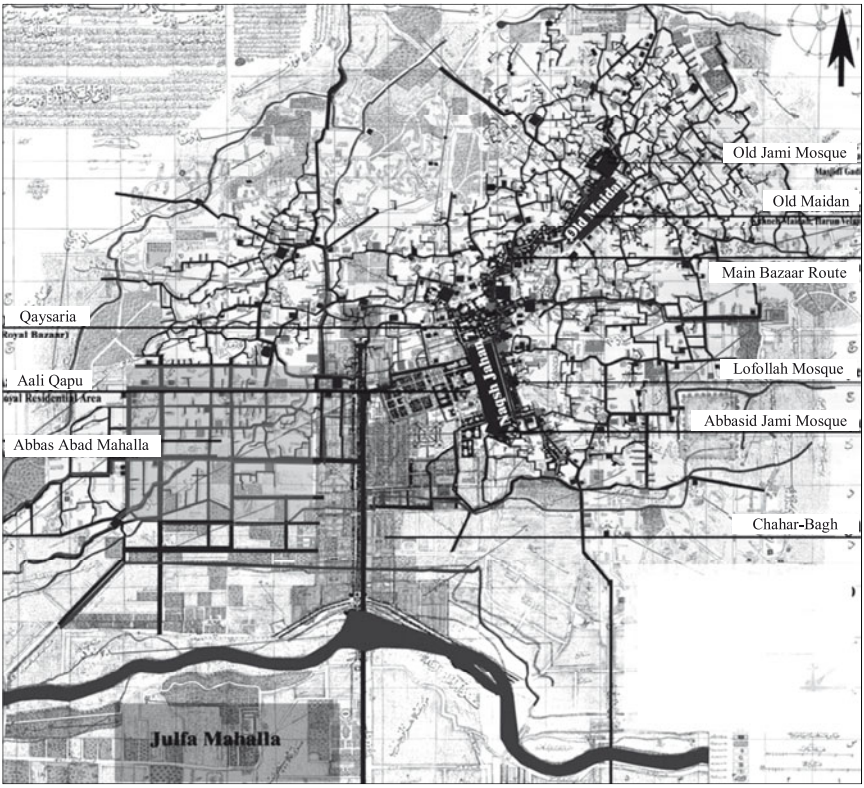

Figure 14: Structure of Safavid Isfahan, based on Seyed-Reza-Khan Map (source: author).

54). During that period, merchants from different places of world flocked to Isfahan to buy the luxury items produced by Safavid craftsmen. In addition to merchants seeking trading privileges, many ambassadors, representatives of foreign monastic orders, and so on came to Isfahan (Savory, 1980). These events brought Isfahan to its highest point of development and made it a capital of intercontinental importance. According to Ehlers (1992),

> Isfahan's urban growth and economic upswing from 1600 onwards is documented by an impressive sequence of architectural as well as industrial/manufactural developments: the construction of the royal quarters, the embellishment of the central square with its mosques, Madrasas and caravanserais, the design of Chahar-Bagh or of a new bazaar, shops and caravanserais of which were the private property of the ruler (160).

Such developments underlie the belief that the century following upon the accession of Shah Abbas in 1587 was "the Golden Age of Isfahan" (Blunt, 1966:19).

In this period, in a short time the basic concepts of enlargement and reformation of the city were established, comparable in their extent only with the foundation of the early Islamic city of Isfahan in the 8th century. In these plans the development of Isfahan was directed along new paths, because Abbas-I decided not to live in the 'old city'[17] and built his court on its southwestern edge. "Shah felt it essential to carry out drastic changes in Isfahan in order to make it a fitting metropolis" (Lockhart, 1976: 219). Deciding not to reconstruct the existing city except in minor points, the main feature of the new scheme was the removal of the city's central point a mile or so to the south and the construction of magnificent new buildings around the area named *Naqsh-i Jahan*[18] (Lockhart, 1976) (figure-14). Prior to this move, in the 16th century, this part of the city, southwest of the walled city, was at some distance from the main centre of the city, Old Maidan, and was largely undeveloped. It contained the garden retreats of urban nobles because around the Buyid period, in the 10th century and afterwards, in the 11th century due to the work of the Seljuk emperors and great amirs, garden palaces were constructed in this area. After a period of time, the Naqsh-i Jahan garden laid on this part transformed from a

[17] This old city, in fact, belonged to a time before Safavid Isfahan and represented the integration of all former historic layers. The city was almost circled around the central zone of the old maidan and Friday mosque and its structure besides this centre consisted of a number of major routes, city wall, a citadel, and some main monuments that had survived from former ages including: one or two remaining Buyid structures (from the first great moments in the life of city), eight Seljuk structures, eight Mongol buildings, and five Timurid ones. The absence of monuments from the Buyid period is partly compensated through the surviving literary sources (Golombek, 1974).

[18] The central point of the city had been a maidan (Old Maidan) when Shah Abbas had adopted it as his capital. It is said that at first he decided to retain and enlarge it but because of some problems with one of the owners he decided to move the centre of city's life elsewhere (Blake, 1966).

suburban retreat into a palace (Blake, 1966). According to Gaube (1979) and Golombek (1974), what actually encouraged Abbas-I in choosing this site was the pre-Safavid southern axis of the city that ran parallel to the Maidan-i Shah and formed the busiest axis of Isfahan. Along this artery flowed all the traffic to and from the south, especially to Shiraz.

In fact, Abbas's constructions occurred in two stages. In the first stage, from 1598 to 1606, the Naqsh-i Jahan maidan, the *Ali-Qapu*, the *Chahar-Bagh* Avenue, together with the *Allah-Verdi-Khan* bridge across the river, and the *Lotfollah* Mosque were erected. Then an interruption arising from conflicts with the Turks put a halt to the building up to 1612 (Blunt, 1966). The second or major phase of the Shah's plan for embellishing and expanding his capital thus commenced in 1611-12, when construction began focused on the buildings around the maidan, including the royal mosque (Abbasid Jami Mosque) and the entrance to the *Qaysaria* (royal bazaar) (Lockhart, 1976). Though Safavid Isfahan was founded by Abbas in 1602, it acquired its final form in about 1722 after a process of gradual construction and expansion. The erection of the principal buildings was finished during the reign of Abbas-I and the construction of the rest of city, the completion of its splendid plan, took the rest of 17th century (Blake, 1999). For example, during the reign of Abbas-II (grandson of Abbas), prominent men and women built edifices on both sides of the imperial bazaar and by the end of century this area overflowed with workshops, caravanserais, markets, retail shops, mosques, and Madrasas. Over the century, the population of the city increased, the hinterland of the villages grew, and the garden retreats of the emperors and nobles reached farther and farther into the suburbs (ibid.). The centre of this new capital was Naqsh-i Jahan, which, together with Chahar Bagh were two key features of Shah Abbas's master plan for Isfahan.

Chahar-Bagh was originally designed and built as a garden-avenue that was would be flanked by various gardens (Chahar-Bagh-s) (Barthold, 1984). It continued for about one mile to the north of the river and 1.5 miles to the south, ending up in the garden of *Hezar-Jarib,* and consisted of a paved pathway for pedestrians lined with rows of trees and water channels (Curzon, 1892). Later, this street was flanked by the garden-palaces and garden-mansions of princes or grandees. In the alleys running from the street there were also water runnels and rows of plane trees (Chardin, 1971). Some of these pavilions were "places of public resort and were used as coffee-houses where … the good burghers of Isfahan assembled to sip that beverage and to inhale their kalians [hookahs]" (Curzon, 1892: 38, 39). Before the construction of the surrounding mansions and quarters, namely at the time when the Shah ordered the erection of this street, Chahar Bagh was located in the areas outside the city. But after a while, when the new mahallas, such as *Abbas Abad*, were connected up with each other, its location changed to become more central (Esmaeeli, 2006) and played

a connecting role in the structure of the city, linking north to south and west to east (Brignoli, 2006).

The Naqsh-i Jahan maidan was the second key place of Shah Abbas's Isfahan and the center of the new city (Herdeg, 1990). Two mosques (Lotfollah and the royal mosque), a government complex (Ali Qapu)[19], and a bazaar (Qaysaria) were the main buildings around it. Naqsh-i Jahan was a huge multi-functional open space, approximately 507 metres in length and 158 meters in width, which lay to the east of the northern end of the Chahar-Bagh and at a slight angle to it. It is surrounded by a uniform portico-screen of two stories with commercial function (Savory, 1980). Other uses of the maidan varied from polo games and the focal point for performance of all the festivals to the accommodation of entire caravans (Herdeg, 1990).

In this new maidan, one could detect the same main elements that had constituted the old maidan, although the dimensions and monumentality of the new plan were unprecedented (City of Light, 1976; Gaube, 1979). According to Golombek (1974), it was the "pre-existing patterns of the city" that determined its special disposition (18). She believes Shah Abbas did not have a free hand in setting out the maidan as he wished and the reason for its peculiar and baseless orientation was the underlying, pre-existing patterns. Besides these constructions, some new residential quarters were erected; one of them (Abbas-Abad Mahalla) in west of Chahar Bagh for the immigrants from Tabriz, a city in North West of Iran, and the other (New Julfa Mahalla) in south of the river. Thousands of skilled Armenian artisans were transferred from Julfa on present-day Azarbayjan (one of the provinces of Iran) to 'New Julfa', a suburb of Isfahan (Savory, 1980). The Shah's purpose was to "enlist the industrious and thrifty nature and the commercial expertise of the Armenian merchants in the service of the Safavid state" (ibid.: 174).[20]

With the end of the Safavids (1722), a depressing vacuum occurred, which brought significant destruction to the city: city quarters that had once contained 600,000 active inhabitants suddenly found themselves abandoned. The

[19] The Safavid imperial palace was a fortified palace-city bounded by the Naqsh-i Jahan maidan on the east, the Chahar Bagh on the west, (the wall of the city on the south) and the palace wall on the north. Each Safavid emperor built his own halls there which were used for ceremonies too. In the Safavid city the palace and fortress were separate structures (Blake, 1999). The meeting ground of King and people occurred in the outermost gate of the palace. This gate was called Ali-Qapu and located in the Naqsh-i Jahan maidan (Kostof, 1992).

[20] Safavid population policy included the resettlement of approximately 100,000 nomadic families, not to speak of at least 20,000 Armenians and Georgians settled in the southern precincts of Isfahan. It is guessed that about one million people were forced to move in Safavid Persia. "Resettlement was accompanied by a genuine population policy: new villages were founded, existing villages enlarged and cities were transformed by the addition of new mahalla, adding to the pre-existing variety of inner-urban quarters, separated by ethnicity, language and/or religion" (Ehlers, 1992: 161, 162).

remaining population of 100,000 continued a meagre life in the surviving parts of the city (City of Light, 1976).

Discussion: Mega-Nizams in the Pattern of the City

What we see on the map of the city as its form is merely a two-dimensional picture which does not yield any information about its essence. As can be seen, the city of Isfahan, like many other cities, is the result of the superimposition of historic layers and is a phenomenon which has been under continuous transformation during its existence as new layers are built onto previous ones and, with some rare exceptions, the traces of these old surfaces have largely, explicitly or implicitly, endured in the structure and space of the city. Isfahan has a very long history behind it, it is the capital not only of a single ruler, but through some powerful and important reigns, and each period of its prosperity has distinguishing features and has imprinted a special pattern on the geometry of the city. In Isfahan this aspect is defining, insofar as its multi-layered, palimpsest-like nature has become one of its most salient characteristics. As each period resulted in a particular geometric layer and subsequently the city

Figure 15: The layer of the old city (source: author).

Among these historic layers some are more illustrious, belonging to the periods of greatest change in urban life generally. Some are the result of the organic growth and assemblage of a number of villages and some, on the other hand, are the outcome of King's direct orders and plans. But what is common to all of them is that they represent the reactions and responses of the people and the city according to their life-world and to the general circumstances of the time (Mega-Nizam). Next, as the basis for further discussion, these major layers and their probable traces on the geometry of the city will be reviewed.

The Layer of the Old City

As has been mentioned, the core of the city was actually a small village without any special urban elements, located between two important nucleuses of the region. This point started to develop and certain urban elements were constructed in its environs. Following such constructions, this became the core of subsequent settlements there, and at its own centre was a sited a maidan. This change made a focal point in the region and this focal point, namely the maidan, began to grow. The result was a circular city with a maidan at its centre. At the same time, the trade road passing by the city became important and another geometric element was added to the structure of the city. The schematic geomet-

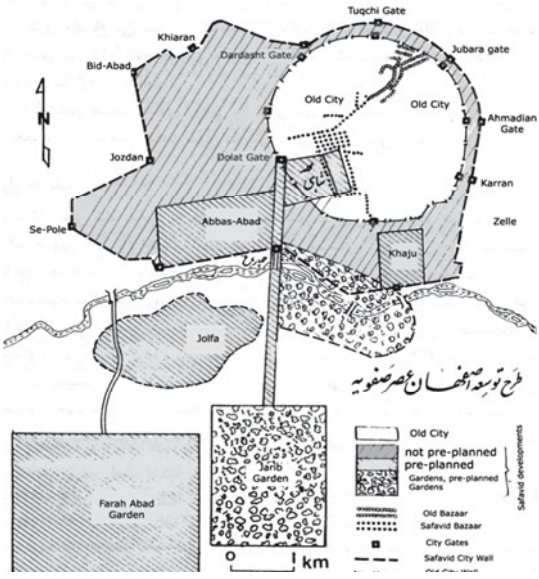

Figure 16: The Safavid pre-planned or not pre-planned developments; modified from (Shafaghi, 2003).

ric result was: a centripetal city traversed by some major road-lines and other road-lines of secondary importance, all ramifying from the core of the city (figure-15). This structure could be traced back through maps as the old part of the city.

The Layer of New City

Another crucial stage in the life of the city was the reign of the Safavids; during this time the city grew vastly in its southern and westerly directions. Shafaghi's map shows which parts of these developments were pre-planned and which not (figure-16). As is clear from this map, a part of this development was with pre-defined plans and the rest was the result of the prosperity of the city at that time. The planned development ideas added a new maidan (Naqsh-i Jahan) with all important buildings around it, Chahar-bagh Avenue, and Jolfa and Abbas-abad residential quarters. This maidan was the new core of the city, which added to the old one, made two focal points for the city. So at this time a new layer of the geometry emerged, which includes two different surfaces: one belongs to planned Safavid developments and the other belongs to the parts of the city which grew un-pre-planned or with a village origin that ultimately merged with the city. The south west part, as has been discussed so far, is the main core of the Safavid developments which were pre-planned areas. This pre-planned quality is clear in the general geometry of the street network in this sector. The south-east part had been a part of the Seljuqid city but after the Mongol invasion nothing remained from this part of the city. Thus, its development belongs to the Safavid period (Shafaghi, 2003). But according to Shafaghi's map (figure-16) it was actually one of the unplanned areas. And the north western part, according to Shafaghi, had a village origin, also unplanned, and defines another secondary core for the city, of which the connections formed with it by the centripetal roads are evidence (figure-17). Different periods of time and different contexts of growth, had been gathered together to culminate in Safavid Isfahan. In fact, each of these contexts imposed their exclusive characteristics on the geometry of the city, as is apparent in its different parts.

What we have discussed so far is in order to show how the form of the city can be dissected from a historical point of view. That means that the form of the city can be understood to some extent when it is considered as a 'process' and the result of the juxtaposition and superimposition of historic layers. Each of the aforementioned historic layers is the manifestation of the mega-Nizam at a particular period of time. Thus, when the city is historically dissected, a part of its logic and some of its different component parts become unveiled. Each of these sections should be studied in its exclusive historical context by means of context by means of elaborating its Nizams and sub-Nizams. In the coming sections, therefore, three major Nizams that were strongly influential on the form of Safavid Isfahan will be investigated.

Figure 17: (above) The city growth in Safavid era: layer of Safavid City; (below, right) South Western developments belong to the major pre-planned constructions in Safavid time; (below, middle) North Western part has a village origin and was developed by common people in the course of time; (below, left) the South Eastern part was developed without predefined urban plans (source: author).

3.3.3 Mega-Nizam and Nizams of the City

Socio-Administrative Nizam

The social structure is one of the most complex systems in all cities. But the way it is expressed in the construction of the city differs between various cultures. In some, through formally-defined building codes, the impacts of this structure and the embodiment of its complexity become channeled and confined to some defined regulations. What makes 'Islamic cities' different is the fact that their social structure does not define direct Building Codes for the construction of the city, but instead determines some regulations and sub-Nizams for different parts of the city (residential areas, commercial areas, religious buildings, etc.). For example, for residential areas, according to *Figh*[21] and community-based customary-rules[22] (*Urf*), respecting others' privacy is one of the most important valid rules, and neighbours in each situation must decide what is the best physical-architectural solution for providing this privacy according to the existing context. [23] This matter means that social relations are reflected in the form of the city with more immediacy and also leads to the way in which all the citizens contribute to the construction of the city according to some hidden rules.

On the other hand, because of the impact of Islam and other cultural norms on urban affairs, social relations are inherently more complex and interrelated, which duplicates their intricacy. So, we encounter a Nizam with various sub-Nizams, each retaining its impact on the form of the city. The following section tries to outline some of these influences.[24] First the main sub-Nizams of the Socio-Administrative Nizam will be introduced in three distinct sections: city administration; Religion; and Structure of Society. And then the way the features of these sub-Nizams are reflected in the form of the city will be discussed.

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[21] *Figh* is the Arabic word for the science of religion in Islam which deals with two spheres: ritual observances and the legal questions that arise in social life, including the law of inheritance, of property, of contracts, problems arising from building activity and related procedures, and so forth.

[22] This expression is borrowed from Hakim (2008). He believes in the operation of two 'rule systems' in the 'Islamic cities': "the centrally imposed system, and the localized, community-based customary rules" (Hakim, 2008: 78).

[23] Hakim (2008) points to some other related rules according to Figh: "accept the concept of interdependence, respect the privacy of the private domain of others, particularly avoiding the creation of direct visual corridors, and respect the rights of original or earlier usage…" (77).

[24] Undoubtedly there are a large number of cultural-social factors which implicitly or explicitly influence the shape of the city, but this text focuses on the most influential factors as exemplary discussion to elaborate its theory.

City Administration

Due to the particular characteristics of city administration, the form of government in the 'Islamic cities' was one of their exclusive aspects until the late 19th century, because there was no council charged with overall responsibility for town management,[25] but instead, the inhabitants of traditional 'Islamic cities' had a highly developed sense of unity and social cohesion which was not expressed in the form of the municipal autonomy and local self-government (Abdel-Rahim, 1980). Instead, the structural constraints were internalized in the society so the need for external controls was minimized (Bianca, 2000). So, the administrative, political, social and economical affairs of the city were handled through a hierarchy of officials who were intermediaries between the government and the people. Each of these officials was responsible for a special aspect of urban needs. Generally speaking, the official system of the city was essentially based on collective bargaining and originated at the level of ordinary citizens. In other words, administrative affairs were rooted in the autonomy of the quarters and social groups, rather than a disciplined, systematic order dictated from the top. Keyvani believes

> The government in attempting to keep the urban populations under control generally used their traditional organizations as intermediaries, while the various social groups in the large cities managed to keep some measure of autonomy and to continue handling their internal affairs in accordance with their own traditional rules and codes…and governmental appointed officials as well as elected elders supervised the activities of the trade guilds, people, and so on. (Keyvani, 1982: 62).

Traditional Iranian cities, similar to other 'Islamic cities', did not have municipal governments. Most of their services were provided by the leaders of each neighbourhood, the city quarters were responsible for their own well-being, and the activities of community and neighbourhood leaders were controlled by the *Darughih*, chief of police (Kheirabadi, 1991). Particularly in the Safavid era, because the Shahs sought to centralize authority in their own hands, this did not permit any effective development of the spontaneous local institutions which are necessary for the lasting vitality of large urban agglomerations. Indeed, under the absolutist system of government which existed in Iran in the 16th and 17th centuries and again in the early 19th century, the idea that any political or economic organization might be independent of the palace was virtually unthinkable. The nature of urban life was determined by the dominance of the palace and the governing classes (Keyvani, 1982). In fact this organic, internal, and interwoven kind of city administration was the dominant way of controlling Iranian cities until the 19th century.

[25] The only Islamic institution, which had a relationship with royalty, religious domains, and civic functions, was endowment (Waqf). Waqf is donations dedicated by wealthy people for social purposes. It is the property of the whole community and is administrated by judge (Bianca, 2000).

In Safavid Isfahan, urban affairs could be categorized into four main types: general political and security affairs which were controlled by *Hakem*; social and economic affairs, for which the *Kalantar*, *Ra'is-Shahr* and *Kadkhuda*-s were responsible; the security of the city, including its bazaars and quarters, controlled by *Asas* and *Darugha*; and finally juridical problems, addressed by *Kadi*-s (Sultanzadeh, 1988). These functions played the main roles in steering the city and the relations among these functions, as well as the relations between them, the people and the governor, could resemble and be aligned with the characteristics and features of the structure of the city administration. There follows an outline of the role of some of these functions in ruling the city which can give a general idea of how the city's administrative responsibilities worked:

a. *Hakem* was the representative of the government and the king in each city and region who had command over affairs concerning landlords and other urban administrators. Besides this, he managed the construction of public spaces, city walls, and bridges; controlled the prices of different goods in Bazaar; watched over the maintenance of caravan routes and caravans; and supervised the functions of the clergy and juridiciary.[26] (Sultanzadeh, 1988).

b. *Ra'is Shahr* or *Kalantar* (called after 15th century), was an urban administrative post which did not exist in the Arab and Turkish worlds, being formally appointed by a sovereign. It was concerned with all kinds of urban issues, including police work, secular trials, the levy of guild taxes, decisions about the official prices of goods and the civil service. This figure was also supposed to direct the activities of the *Kadkhuda*-s and due to the fact that he was not under the authority of the governor, he exercised great power and often protected the urban residents from unjust taxation (Haneda, 1996; Arasteh, 1964). The *Kalantar* in Safavid times had considerable authority over the affairs of artisans and traders (Keyvani, 1982).

c. *Kadkhuda* was nominated by the masters of each *mahalla* from among themselves, and was regarded as an outstandingly proficient individual whose jurisdiction was not derived from any government decree, but from his personal standing and relationship with the people of the *mahalla*. The *Kadkhuda* represented the people of the *mahalla* to the government, and through him the government would be kept acquainted with the affairs of the quarter (Duri, 1980). The *Kadkhuda*'s function was hybrid. On the one hand, he was appointed by his fellow members to promote their interests before the government; on the other, he served as a link between high-ranking supervisory officials and his people. The authorities expected him to enforce regulations and maintain order among his members. Besides this, he had the task of solving local disputes and acting as the intermediary between the government and the people. Although the

[26] Due to the fact that Isfahan was the capital city during the Safavid era and, subsequently, the King's seat, it did not need to have any *Hakem*.

Kadkhuda's position was an official one accepted by both the people and government, he was not paid for it and this office was mostly transferred hereditarily (Sultanzadeh, 1988).

d. *Muhtasib* enforced religious laws relating to morality and the conduct of the bazaar, supervised business practices, oversaw the quality of manufactures, eliminated unfair competition, had authority to control prices, and was also the collector of market taxes. In Safavid Isfahan, the basic duty of the *Muhtasib* was the regulation of everyday economic affairs, such as supervision of the prices of goods, sealing the official lists of prices, punishing any artisans or traders, and so on. He carried out his tasks in accordance with Islamic law and at the same time he represented the government's authority in the bazaar (Keyvani, 1982; Arasteh, 1964). So he was expected to know the *Sharia* and to be familiar with the practices of the crafts (Duri, 1980). Before the Safavid reign, the *Muhtasib*-s were always chosen by the governor from among the sages, nobles, and religious scholars and had a high level of authority in society. Since the Safavid era, due to the increase in the governments' power and the decrease in the vigour of social groups, also because of excluding the nobility from such posts, the *Muhtasib*-s' social-religious authority and reliability reduced significantly[27] (Sultanzadeh, 1988).

e. *Darugha*, under the Safavids, was the person who was chosen by the governor (*Hakem*) and was responsible for disciplinary command and controlled adherence to the regulations of urban life (ibid.). Having to protect the town against robbers and criminals, he was directly responsible for the security of the bazaars at all hours of the day and night. In fact, his basic task was "to protect the town from disorder and from any threats to its security"[28] (Keyvani, 1982).

f. *Asas*, in the company of the *Darugha*, were the people with responsibility for policing the bazaar and residential districts. At night-time, the *Asas*-s patrolled the Bazaars and quarters and apprehended anyone deemed suspicious. They were responsible for the safeguarding of people's goods (Sultanzadeh, 1988).

g. *Kadi* had one of the most important socio-religious positions (jurisdiction) in the city and had to hold a very high degree of social respectability. The religious leaders determined various conditions for this occupation, one of which was having knowledge of religious commands (*Ijtihad*). During the first

[27] In the Qajar period (1794-1925) an institution named '*Ehtesabieh*', with two branches of *Ehtesab* and *Tanzif*, was established. Later on, it was replaced by the *Baladieh* system which was a kind of municipal organization (Sultanzade, 1988).

[28] The position of the *Darugha* faded in 19th century. During that time *Naser-adin Shah* (1831-1896), the Qajar king who had become familiar with the European style of city administration and its constabulary (police) during his trips to Europe, asked the Austrian authorities to help in the constitution of a *Shahrbani* (constabulary) in Iran. An individual named Kont Mont Fort came to Iran and established the Tehran *Nazmieh* which employed about 600 people, leading to the constitution of a new structure similar to the European one (Sultanzade, 1988).

centuries of Islam, all juridical affairs were solved under the supervision of religious leaders. But later, due to the development of cities and the increase in a variety of issues and problems, some other kinds of jurisdictions appeared. In the Safavid period, there were three kinds of tribunals: first, religious tribunals, run by religious leaders, concerned with trading, marriage, and divorce; second, statutory tribunals, handling murder, and robbery, and penal jurisdiction: *Darugha*-s, under the supervision of *Divan-Beigi* who was the holder of *Adlieh*, were responsible for these; third, *Hasbat* tribunals, under the responsibility of the *Muhtasib* which dealt with weights, prices, and issues relating to *Sinf*-s and mayoralty (ibid.).

h. *Bashi*, head of guilds: The internal affairs of the *Sinf*-s (professional groups) in the Safavid period were administered by officers or elders of their own choice, known variously as *Kadkhuda*, *Rish-sefid*, or *Bashi*. The representatives were initially chosen by their members, but generally had to be confirmed in their position through a diploma from the Shah or *Hakem* (Keyvani, 1982). The *Bashi* controlled the internal administrative organization of every *Sinf* and, in fact, served as a liaison and link between the Hakem and the members of his guild, in that he received the annual tax order from the *Kalantar*, signed it on behalf of the group and then transmitted the information to the guild members. The *Bashi*-s as representatives of a significant group of people had close relations with other urban functions—for example, they were called by the *Ra'is Shahr* for assistance at various times, and in their close contacts with the religious authorities, they conveyed the latters' needs to their fellow-craftsmen — at the same time each group maintained its own separate means of communication with the rest of the community (Arasteh, 1964). The *Bashi's* seat was at the central crossroads (Char-Suq) of his *Sinf*'s bazaar or at a special *Sinf* house (Keyvani, 1982).

i. *Malik ut-Tujjar* was appointed by Shah from among the city's leading merchants. He was charged on one hand with the supervision of his fellow merchants and the settlement of disputes among merchants and between them and their clients, and on the other hand with the protection of the government's interests and the communication of its demands to his fellow merchants. The seat of the *Malik ut-Tujjar* of Isfahan was the Shah's caravanserai (Keyvani, 1982).

j- *Ulama*: The *Ulama* were in close contact with people through preaching daily in the mosque (Arasteh, 1964). They were the rulers of the daily life of the urban community whose deep participation in local urban society, spiritual authority and wide network of social connections led to the belief that they could act as representatives of the population (Bianca, 2000).

k- *Naqib*: There was probably a close link between the functions of the Naqib pertaining to religion and those pertaining to the guilds: "The Naqib supervised the relationship between masters of crafts (Ustadan) and apprentices

(Shagirdan)… But his principal role was the supervision of certain categories of guild affairs" (Keyvani, 1982: 67).

Sinf

Another important part of the administrative body were the *Sinf-s* which flourished from the 9th century. In fact:

> Sinf has a very wide and often ambiguous application, being used to designate any category or association of people in society who are distinguished or brought together by common activity or interests" (Keyvani, 1982: 37).

Moreover:

> The meaning of Sinf in the 17th and 18th century may be defined as a group of city-dwellers engaged in the same occupation, working in the same bazaar, headed by their own chiefs, and paying a regular guild tax to the local authorities. (Ibid.: 38).

According to Habibi (1996), since the movements for *Sinf* organizations' were established in the Sassanid period[29] (224-651 AD) and flourished again after the arrival of Islam in the Samanids[30] period (819-999 AD), they were strongly affected by ancient pre-Islam traditions and were ruled under the Islamic government and empires. That is to say, the political, economic, and social activities of *Sinf-s* were limited by the government and the *Hasbat* office was determined as the body responsible for monitoring them. These 'social groups' were developed became more organized in the 11th century, when thousands of rural or civic people occupied positions in industry and trade, and the craftsmen, artisans, and workmen began to constitute social groups according to their careers; thus, the *Sinf-s* activities grew significantly. At the same time, because the government and Bazaar were functionally interrelated and the government was actually the most powerful craftsman, the government's control of Sinf-s increased (ibid.).

The Sinf-s were mostly social groupings and, as it was mentioned, each of them had its particular leader or advisor. In fact,

> The authority of the leader was not obtained by power or physical force but given to him by the members of the group because of his recognized fame, personal and moral traits, and perhaps his relative wealth. Such a position of leadership often demanded a life-time of preparation and experience. A guild leader, in addition to possessing seniority, also knew his trade well. (Arasteh, 1964: 34).

[29] The Sassanid Empire was the last pre-Islamic Persian Empire, ruled by the Sassanian Dynasty from 224 to 651.

[30] The Samanids (819–999 AD) was a Persian dynasty in Central Asia and Greater Khorasan, named after its founder Saman Khuda who converted to Islam despite being from Zoroastrian theocratic nobility. It was among the first native Iranian dynasties in Greater Iran and Central Asia after the Arab conquest and the collapse of the Sassanid Persian empire.

The number of main Sinf-s in Isfahan was 33, including book-binders, goldsmiths, glass-makers, textile printers, carpenters, and so on. Each of them pursued their occupation in a particular lane (*rasta*) in the bazaar leading to the crossroads (*Char-suq*) of a certain quarter. Each had its own chief (*bashi*) and each paid the guild tax (Keyvani, 1982).

Religion

Over time there has been always a close interaction between what people build and what they believe in, which is in fact the result of man's influence on his environment and conversely the environment's impacts on man. Similarly, the special character and the practice of the Islamic religious order were reflected in spatial preferences, basic urban layouts and artistic concepts, which shaped the physical appearance of the built environment. This occurs on a pre-formal level and strongly conditions the inner structure of urban and architectural expressions (Bianca, 2000).

Muslim society derives its philosophy of life mainly from Islam, and the most dominant characteristic of Islam lies in its repeated insistence on Unity; the unity of God and the ultimate unity of the spiritual and the worldly aspects of life; of the religious and the secular (Nashabi, 1980). In fact, with the religion the "Muslim personality is positively enwrapped in the recollection of Divine Unity" (Michon, 1980: 39). Within this institutional framework, there are transformations and syntheses affecting a "veritably spiritual alchemy which owes everything to Islam but transcends its strictly normative aspects" (ibid.). This matter can be achieved when the products of Islamic art are considered,

> …which transmit a vision of reality- and one that is homogenous, original and always true to itself through time and space − which neither the rites of religion nor the prescriptions of law and jurisprudence have ever undertaken to define specifically; nor to ponder the teachings and writings bequeathed to us by Muslim thinkers and mystics − the philosophical and metaphysical legacy of such men as Ibn Sina, Ibn Arabi or Mulla Sadra, or the songs of divine love of Ibn al-Farid, Rumi and other Sufis without number (Ibid.: 39).

Islam as the dominant religion of the 'Islamic city' has two dimensions or aspects: one that is outward-looking, the divine Law or *Shari'a*; and the other that is inward-looking, the Truth (spiritual dimension). The Islamic system of *sharia* laws has been developed as a comprehensive body of guidance which is as much concerned with the regulation of all facets of private and social life in its earthly forms as with the offering of moral and spiritual guidance for human beings with a view to enlightenment and salvation (Abdel-Rahim, 1980). The spiritual dimension, manifested in mysticism, Sufism, art, literature and philosophy, is largely concerned with the unitary nature of God, His unrepresentability, His omnipresence, and His relationship to the people.

Islam has been present in the 'Islamic city' through both its dimensions. For example, the impacts of the spiritual dimension can be traced back in many masterpieces of architecture, especially in their geometry (plan, form). As Bianca (2000) declares Islamic artists and craftsmen needed to explore

> the intermediate realm between spiritual ideas and material representation: on one hand, they had to appeal to the visual sense, as the eye is the organ through which the inner meaning of art is carried to the human intellect; on the other hand they had to stay away from naturalism, which would have betrayed the transcendent character of the message. This attitude corresponded to the paradoxical goal of Islamic art, which was to pursue the dematerialization of physical reality, while at the same time seeking the embodiment of the invisible reality. The best method of resolving this ambivalence was to remain on the narrow ridge between physical and metaphysical forms, that is, to capture reality in its vibratory state, as it were, before it solidifies into concrete manifestation (42).

Islam as a *Shari´a* presents its other dimension through the clear practices, rules, and regulations, which make up its formal dimension. Islam is a comprehensive and integrated cultural system which embeds religious practice in the daily life of the individual and society. According to a group of authors — such as Hakim — Islam's law has shaped traditional Arabic-'Islamic cities' through creating guidelines derived from *Fiqh* or *Shari'a*. He declares that the roots of the structure and unity, which he thinks is prevalent in the numerous cities in the Islamic world, are attributed to "the relationship of parts and the resultant structuring system which is generated and sustained by a set of building principles and guidelines" (Hakim, 1986: 137). He emphasizes that these are all products of the *Fiqh*: the mechanism for interpreting and applying the value system of the *shari'a* within the processes of building and urban development (Hakim, 1986).

On the other hand, there are authors who believe that Islam has not prescribed any formal architecture concepts; instead it formulated the whole Islamic way of life by describing behavioural archetypes and conceptual thoughts such as: God is omnipresent and his forces are manifested in his creation through the countless 'signs' (*ayat*) of nature; God is both 'transcendent' and 'immanent' and his presence can be felt everywhere on earth; Man's perception of God is limited and he should avoid any attempt to seize and fixate the divine in human artefacts (Bianca, 2000; Ardalan *et al.*, 1973). These archetypes have necessarily generated physical patterns. One of the major concerns of Islam is supposing two completely different levels for existence, one of these levels is allocated to the human and temporal realm and the other to the Divine or timeless realm, which both accumulate within the whole world as God's creation (Bianca, 2000; Ardalan *et al*., 1973; Nasr, 1987).

On the whole, what is clear is that Islam exists as an important part of the culture and the way of thinking in almost all aspects of the life of the people,

among them, city-making and architecture. For example we have discussed the way the city was administrated; all of these matters were highly affected by Islam and its rules. Maybe it could not be said it was derived directly from Islam but it was strongly under its influence. As Keyvani (1982) writes:

> The available evidence indicates that a guild's social status in the 17th and 18th centuries depended to a great extent on the religious and moral qualities which Islamic laws (Shari'a) and tradition ascribed to its trade or occupation. This religion-rooted distinction between high and low occupations had persisted in all the Islamic nations throughout their history. Occupations which are sanctioned by Shari'a rules were regarded as superior to occupations which are reprehended by the Shari'at (42).

A similar influence held sway over other facets of the 'Islamic cities' such as the importance of differentiating between public and private zones, gender segregation, privacy, restrictions on ornamental representation and so on.

Social Hierarchy

One of the impacts of Islam on the social structures was breaking down the social class system that had existed before Islam in some cities; due to the fact that in Islam any kind of priority and subsequently separation according to wealth, ethnicity, race, and so on is strongly forbidden[31] (Habibi, 1996). In fact, in the Islamic view of the world there was the individual believer and there was the whole community of believers, based on common obedience to God's commands. In Safavid Iran, as Keyvani (1970) declares,

> It is difficult to determine the relative social ranking of the different guilds, since in the Islamic doctrine there is no nobility except the nobility of devotion to God. Moreover the available sources do not clearly state what criteria of social worth were acknowledged at that time (Keyvani, 1970: 39).

But what is clear is that the "Class distinctions were not recognized in law, and were not considered right in practice" (ibid.).

Although these issues confirm that there was no kind of explicit segregation by rank within the society, it cannot be claimed that the society had a pure uniformity in terms of people's life conditions. In other words, the disappearance of discrete classes did not mean that poverty had faded completely away, or that there was a complete balance in the wealth and life conditions of all people. Due to the fact that imperial governments did not fulfil the rules of Islam in all their aspects, distinctions in rank and economic disadvantage still existed. Thus, what in fact existed in the city were some kinds of differences between various ranks of society which never conduced to the emergence of

[31] According to Islam none of these groups has any particular priority over other people. Merely, the *Umma*, the community of believers, or those who believe in Islam, has a special position. The citizen of the 'Islamic city' is a follower and subordinate purely with regard to the Islamic rule, Imam, Caliph or their representatives (Habibi, 2006).

explicit separations and never led to the appearance of concrete categorizations such as the bourgeoisie and aristocracy nor the division of residential areas according to them — it was more like the 'unemployed' status: such groups existed, but never affected any special structure in the city.

Some authors, studying the structure of the society, propose categorizations according to these employed/unemployed differences. Arasteh (1970) observing Muslim towns generally, divide them into four levels whose differences were determined mostly by their respectability and the role they had in the city: the ruling elite, the notables, the common people, and the *proletariat*:

1. The ruling elite were called the *al-Khassa* and were the Shah and his retinue, the highest ranking emirs and officials. In a broader context this group also included other important officials, judges, and religious leaders, albeit of secondary rank. The king, according to Arasteh, from the Safavid period on, ruled as an absolute monarch unhindered by laws or traditions. The honorary titles given to the king and the nobility reflected their unlimited power. The king, from the earliest times, had always been known as the Shah-an-Shah, the king of kings. 'Court ministers and top officials' occupied the next stage. They performed valuable services for the king and for the welfare of the public. Poets and philosophers also belonged to this group (Arasteh, 1970).

2. The second level consisted of notables and was called *al-Ayan*, coming between the *al-Khassa* and the *al-Amma*. It is applied to the most prominent and respected leaders of groups or classes of people. Therefore, there were *al-Ayan* of *Ulama*, *al-Ayan* of merchants, and *al-Ayan* of *al-Nas* (people). "The term al-Ayan in particular referred to the leading Ulama − religious leaders, the scholars, teachers, judges, sheikhs, and preachers who were the most respected members of the community" (ibid.: 36, 37).

3. And the third level belongs to common people.

Similarly, Keyvani (1982), supposing a somewhat similar ranking for the social and economic life of the 17th and 18th century in Iran, shows that the population of the large cities in that age consisted of: a- an Elite (or upper class) comprised of khans (feudal magnates), high-ranking officials, military commanders, religious leaders, and wealthy merchants, in short 'the ruling class'. b- The class of those ruled, comprised of small-scale traders (*kasaba*), artisans, unskilled manual labourers, simple soldiers, and other humble groups. According to him, the military commanders, senior bureaucrats, and leading *Ulama* constituted the elite, and the artisans and tradesmen, who were the largest elements of the urban population, served this elite and did not belong to it. However, "this lower social status paradoxically did not deprive the craftsmen of dignity and esteem, or deprive individuals from amongst them of social mobility and opportunities to raise their status" (Keyvani, 1982: 40).

Ethnic-Religious Segregations

Religion played an important role in softening the distinctions between the different social-economic ranks. The emergence of different religions or denominations led to strong connections between the followers of a particular religion and, subsequently, to the loosening of ties to economical ranks. That is to say, the integration in terms of beliefs was much stronger than connections through similarities in possessing wealth or financial abilities. This integration and connectivity meant that the people gathered together in distinctive groups and lived together, which normally resulted in the division of society into various clans. Besides religious matters, ethnicity, language, and kinship could lead to the origination of distinct social groups. Habibi (1996) believes that these segregations were the result of the fact that, some decades after Islam's establishment in Iran, when the Islamic empire had been thoroughly constituted, the ancient patterns of social structure began to re-enter to the language of society; but this time there was no social or residential segregation according to people's wealth or class; instead, citizens wanted to be separated according to their kinship, race, religion, language, and religious communion (Habibi, 1996).

The different mahalla[32]-s in the city were the residential areas where people of similar "religion, ethnic background, profession, or town or village of origin" clustered together for comfort, protection, and greater security (Kheirabadi, 1991: 79). Eickelman (1981) described it as a cluster of households characterized by a particular quality of social closeness that is based on multiple personal ties, common interests, and shared moral unity. People of different ethnic origins and religions, such as Jews and Christians, began to live separately from the Muslims and began to build exclusive mahalla-s. Minorities included not only groups from within the region, but also from outside, such as Armenians, Indians, or even foreign merchants who might have their own quarters (Beaumont, 1976). Thus, the solidarity of districts was based on religious identity, and in Muslim sections on ethnic or racial groups, or sectarian religious affiliations (Lapidus, 1976) and some "strong micro-communities" were the generators and maintainers of residential quarters which were self-reliant insofar as each one formed a "virtually autonomous social unit" (Bianca, 2000:152,153). "This emphasis on kinship and ethnic groupings reflected a vertical structure of society in which the clan was as important as opposed to distinctions based on class or income" and, besides its effect on the emergence of social separation, it meant that in the mahalla-s there were no class segregations, and the rich did not gather in exclusive districts separate from

[32] The origin of the word of mahalla is "Mahall which means 'a place', such as a place where one stops to camp" (Hakim, 1986: 63).

poor[33] (Kheirabadi, 1991: 80). Segregation according to the religion or ethnicity is mainly seen in the larger cities, with their larger, more diverse populations. In smaller towns, due to cultural homogeneity, the basis for the division of mahalla-s is a difference in profession or origin (Kheirabadi, 1991).

The quarters embraced a cross section of society and included basic shared facilities. For example, the irrigation networks and the internal access system connecting the houses with the major public thoroughfares were controlled and managed by the neighborhood communities (Bianca, 2000).

Interaction of the Socio-administrative Nizam and the City

As the socio-administrative Nizam addresses the society in the city, it affected its form through a large number of factors. Here, as the goal of the research is not to elaborating the social or administrative structure, we mention some of the main structures in the society as sub-Nizams, to show how the Nizam of society can influence the form of the city, with the hypothesis that the Nizam of Society consists of numerous sub-Nizams such as the city administrative Nizam, the Religion Nizam, the Social Structure Nizam, and so on. The main structure of each of these sub-Nizams has been discussed above, and the following sections trace their impact on the form of the city.

i. The City and the Sub-Nizam of Urban Administration

The urban administration system and the responsible officials have been mentioned in earlier sections. What can be interpreted from this administration system is that it is: internal, hierarchical, overlapping, and customary, but with strong control from the most powerful person in society, namely, the King:

It was *internal* because, although the governor was the most powerful person and his rule was strict, the impact of his power over urban life and his control over the city were manifested through the people and their elected representatives. That is to say, there was no defined and predetermined organization for implementing the King's wishes but instead some individuals were elected by the citizens and from among their own ranks, to implement the rules in society. According to Savory (1980), "There existed a considerable number of local democratic institutions which together constituted the social cement of the society" (182).

It was *hierarchical* because the people were generally divided into three main levels: the king and his household, the elite, and the common people. The king was at the top of the triangle, while the common people constituted its base level.

[33] In many cases the rich and poor live together in the same neighbourhoods. A number of other reasons have been proposed for this feature, such as Islamic rules and promptings.

It had *overlaps* because some of the duties were common between roles; such as the overlaps of the Darugha and Muhtasib in the Safavid period. Besides, a number of the officials had to be aware of different fields simultaneously; for instance the Muhtasib had to know religious rules, on the one hand, and various professional skills on the other.

It was *customary* and *people-based* because the society and city were administrated by the people as such, and their organizations. In most cases social respectability was the most important matter in urban affairs and influenced many aspects of life. For example the Kadkhuda-s were responsible for all issues related to mahalla-s and their dwellers, and although this responsibility was an official role they were never paid for it. The people of the mahalla chose them according to their social or religious status and they were mentors in all manner of issues and problems. Equally, the Sinf-s' Bashi-s were mostly persons of high social (and not merely financial) respectability, famous for their chivalry, and so on.

Many of these characteristics were reflected in the structure of the city too. This reflection is justifiable by pointing to the fact that a kind of social-cultural Nizam like architecture and city building took place within the same mental structure as the administrative system which it was constituted in. This system is

Figure 18: The religious buildings including mosques, madrasa-s and Imamzadeh-s in the city (source: author.)

based mainly on the (formal or informal) relations between people in which social-cultural values and norms were all-determining; for example they determined the selection of officials, defined rules and their implementation, all based on religious-social-political conditions, and the overlapping relationships or independence regulations of mahallas and Sinf-s are some of their manifestations.[34]

Besides this, the most obvious impact of the administrative system on the form of the city was that it prepared a situation or context in which all Nizams remained at the same level of importance and the people, belonging to different social levels, participated in building the city according to the Nizams of their own levels. Thus, within this structure there was no overwhelmingly dominant and determining rule or code which all constructions and people had to follow, but rather, they decided each individual case within the Nizams. And, by not imposing a set of pre-determined regulations, the social structure permitted the sub-Nizams to contribute to the shaping of the city.

ii. The City and the Sub-Nizam of Religion

As studying Islam's influence on all aspects of the city requires immense research, and elaborating this matter is not the intention of this text, we will point to the clearest represent of religion within the city, that is to say, the Friday mosques, mosques, Madrasa-s, and other religious urban spaces such as the *Imamzadeh*[35]. The Friday mosque is one the main features of an 'Islamic city' and thus, from the early decades of Islam, the first urban element that gave a settlement the potential for becoming a city was the Friday mosque (Habibi, 2006). In a similar way, Hakim (1986) declares that:

> The first building project a Muslim leader would undertake in a new area was to found a mosque as a center around which to gather, although conditions differed somewhat between a new foundation and an already existing town…Baladhuri clearly indicated that Muslims, even at a later date, always built a mosque in the center of a newly conquered town (67).

Other mosques in addition to the major city mosque began to be created primarily in response to population growth, along the bazaar or within the

[34] Abdel-Rahim (1980) points to the overlaps in the city administration and their connection to the social structure from a similar point of view. According to him, Muslim societies and scholars were not concerned to have the institutions in question or their functions organized in accordance with the principles or requirements of an abstract system. Therefore "there was a considerable amount of institutional and functional overlapping and dove-tailing which may, in certain respects, be likened to the overlapping and crisscrossing of buildings and streets in traditional towns and cities throughout the Muslim world" (Abdel-Rahim, 1980: 50).

[35] A sacred and religious building dedicated to the 'son of *Imam*' (Imamzadeh). Imam was an Islamic religious leadership position.

mahallas. Mosques spread all over the city so that at least one mosque was available within a short distance from any location (figure-18). These mosques, according to their importance, covered an area and thus constituted a circle of forces around them. In this way they affected the arrangement of their surrounding spaces, and their mutual interaction with the routes around them, made them even more important. Generally this layer of mosques imposed its influence into the pattern of the city by contributing to the constitution of micro-cores.

As another, more concrete impact, the orientation of religious buildings toward Mecca may be mentioned. Mosques and madrasa-s' main function is as a place for prayer, which necessitates particular characteristics. Michon (1980) points to these features and asserts that the requirement for particular conditions preceding or accompanying the performance of prayer, considerably influences the design and functioning of the cities of Islam, namely:

> a- the state of ritual purity, by means of the greater or lesser ablution; b- respect for the time of prayer; c- the facing toward Mecca; d- the existence of a site large enough to accommodate all the faithful at the communal prayers on Friday at midday, which are obligatory in all important centers of population" (25).

One of these conditions is praying towards Mecca, namely, *Qibla*, which had the effect that almost all mosques or Madrasa-s are oriented in this direction so

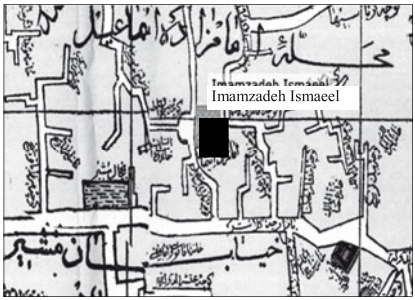

Figure 19: (top, left) Hakim mosque, Isfahan: the plan of the mosque was adapted to the shape of the street, modified from (Herdeg, 1990); (top, middle) Jami mosque, Isfahan: in the southern part it imposed its geometry onto the street pattern and in other parts was adapted to the shape of the street, modified from (City of Light, 1976); (top, right) Abbasid Jami mosque: the mosque, being oriented towards Qibla, dictated its special geometry onto the street pattern, modified from (Herdeg, 1990); (below) the location of Imamzadeh Ismaeel within the street network, modified from (Seyyed-Reza-Khan map).

that their altars stand at the axis of Qibla. This matter affected the form of the surrounding routes directly or indirectly, depending on the relative date of the mosque's construction with regard to the route, and also based on how much the route was consolidated at the time of mosque's erection. For instance the Hakim mosque, one of the largest and most famous mosques of Isfahan, built in the Safavid period, followed the geometry of the road, in other words, the plan of the mosque was adapted to the shape of the street, maybe because the routes had been fixed before the mosque's construction (figure-19). And in some other cases the mosque imposed and dictated its special geometry onto the street pattern; for example, in contrast to Hakim Mosque, the Abbasi-Jami Mosque imposed its special geometry on the form of the city (figure-19). Thus, we encounter another geometrical matrix which directs all religious urban spaces to a special geographic direction and this matrix left its traces on a relatively large number of cases. And as these spaces were dispersed all over the city — because of the importance of daily prayer — we may observe its impact in different areas.

Another religious urban space which affected the shape of the street-network in some cases is the Imamzadeh. There were cases where the people — based on a dream or the discovery of some historical evidence — came to the belief that a particular place in the city was sacred and a religious building had to be built there for the son of the Imam, called Imamzadeh. This could take place anywhere in the city. In this way, they imposed new buildings in the existing context of the city, and over the ages, this building, because of its importance, attracted attention and consequently imposed its own special street matrix within the street network of the city. One of the examples of this in Isfahan is the Imamzadeh Ismaeel in Imamzadeh-Ismaeel-mahalla, in east of Isfahan. The figure-19 shows how this Imamzadeh made a focal point in the city and the routes that have been directed towards it.

iii. The City and the Sub-Nizam of Social Structure

a) Constructions of Three Social Levels

As mentioned in the description of the social and political structure of the city, the social order of the city was based on a hierarchical system in which the social levels had their particular political, social, economical power, and internal relations and norms, which constituted the Nizam of each level. Because of this aspect, the domain of influence, activities and urban decisions was limited to the power and hegemony of the level in question. In fact, the social hierarchy of Islamic societies including Isfahan's society,[36] which has been explained briefly

[36] The hierarchical structure of 16th and 17th century Iranian society may be conceived generally as a pyramid having the Shah at the top, followed by a large number of governors, military commanders, *Vizir*s and other high-ranking officials, *Ulama*, and chiefs of the tribes (khans), who dominated

in earlier sections, as well as the urban constitutional activities that occurred at different periods in Isfahan's history, encourage this idea that there were some connections between the social hierarchy and city making scales. As Hakim (1986) confirms too:

> The dynamic decision-making process operating in the city was primarily based on decisions by rulers and citizens. Rulers' decisions were macro in nature, creating in most cases a planned effect on the urban fabric, or initiating the building of a Jami, a Madrassa, or extending a road, and so on. In other words these decisions had relatively obvious manifestations. The citizens' decisions were of a micro nature, with less discernible effects than the decisions of rulers, but their aggregate impact on the city was ultimately more significant, and affected the lives of most people directly. (18).

In this regard, the social levels of Safavid Isfahan which affected the structure and organization of the city can be studied at three main levels: the King, the elite, and the common people. On the other hand, considering the urban constructions in Isfahan, three levels or scales can be observed: first, the large scale constructions in Isfahan's new city, namely, the immense edifices added to the old Isfahan city during the Safavid period; the second scale is the intermediate scale, including urban public buildings which were more important in the cityscape than residential constructions. These public buildings were built gradually, by nobles, in predominant points of the city, such as the centre of the mahalla-s and the flanks of the arterial urban routes. The third scale is related to houses in the residential areas, for which only the householders and users were responsible. The builders of each of these layers of construction belonged to a particular social level and some parallels seem to have existed. The impact of each social level Nizam on the form of the city will now be discussed in detail.

The Role of the King

The King, as the head of the country and capital, in the Safavid period, was able to control, lead and direct all the affairs of the city according to his wishes and intentions. He had direct influence on other social levels, and as economic power could establish any kind of construction in the city (Keyvani, 1982). With this dynamic of the building process at city level, major decisions, and building events were acting as catalysts for further developments and expansions.

Generally, kings affected Iranian cities in three ways: a. they established new cities or their political decisions had important role in the selection of city sites; b. they chose particular cities as capitals of their reign and developed their urban structure and organisation; c. in other cities they added or destroyed special elements or spaces, or revived an existing factor.

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social and economic life at every level, and the common people at the bottom of this pyramid (Keyvani, 1982).

For example, the shahs and provincial governors first built "complete central markets in the important cities or at least Qaysaria-s" to assert their control (Keyvani, 1982: 63).[37]

Safavid Isfahan belonged to the second group while the Shah's presence influenced the city more clearly and decisively– due to reasons such as changes occurring in the economic system which led to the fact that the Shah was the effective owner of all lands (Habibi, 2006); or because of the high prosperity of the country at this time in all fields of arts, literature and architecture; or due to the personal characteristics of Shah Abbas-I. This effect was so dominant that some authors believe that Isfahan can stand as an example of the importance of a leader's taste and decisions, and of royal influence in the development of the spatial pattern and morphology of Iranian cities (Kheirabadi, 1991). Blake

Figure 20: The figure shows the main urban elements constructed in the Safavid era (Naqsh-i Jahan, Chahar-bagh); modified from (Ardalan, 1973). All the elements follow an exclusive regular pattern which constitutes the layer the king added to the pattern of the city.

[37] According to Ehlers (1992), until the middle of the 19th century the development and destruction of capitals was the result of 'total power', in other words, the ruling dynasty or Shah had absolute power to decide and to implement decisions: "As such, capitals are the creation of ruling families, sometimes of lengthy perseverance like Isfahan" (155).

(1999) believes that Safavid Isfahan was in fact founded by Abbas-I while Blunt (1966) declares "Isfahan is Shah Abbas's memorial" (13). Similarly, Savory (2007) states that rarely in the course of history has an entire city been planned or re-planned at one time by a master mind but Isfahan, which Abbas-I made his capital in 1598, was essentially the King's creation. For his part, Lockhart (1960) claims that: "He [the king] re-planned and largely rebuilt the city, personally supervising a great part of the work" (23) (figure-20).

The constructions of the Safavid period, which are mostly attributed to Shah Abbas-I's ideas, have some particular characteristics that differentiate them from other parts of the city insofar as the two names of 'New City' and 'Old City' have been used for the two parts of Isfahan. The 'Old City' applied to those parts were erected before prior to the Safavid era, while the 'New City' applies to the Safavid edifices.[38] One of the exclusive and special features of this section is its geometry whose contrast with the order of the Old City can be recognized at the first sight. The New City has a geometric pattern and all spaces of this part are juxtaposed according to a non-organic geometric 'order' — which had previously always occurred only within single buildings, and not over the Islamic-period city. It may be justified on the basis that the inherent geometric lay out of the gardens flanking the Chahar-Bagh Avenue inspired this geometrical quality. But due to the fact that the whole city is the product of the juxtaposition of a large number of geometric and symmetrical single elements although it does not itself bear a geometric geometry, this idea can be easily rejected. A safe concept here is to associate it with the King, namely, with the power of the King, his ideas, his plans and his superiority and powerfulness in society. In fact, this part of the city is the manifestation of the King's power. That is to say, if the 'spatial element'[39] with which the common people, due to their social, political, and economical ability, could contribute to city-making was a building at the scale of a house, and the notables at the scale of an urban public building; the king had the potency and sway necessary to order the construction of an immense urban spatial landscape. And because that 'spatial element' was always geometric, this urban composition followed the same geometry and symmetry, with the difference that this time the scale was much larger — as proportionately larger as the power of King was in comparison with the common people.

In fact, over all the periods preceding the Safavid era, the kings always had the highest power and interfered in the urban texture by erecting various buildings, but until the Safavid period, such a huge urban block had never been erected. The special circumstances of the Safavid period augmented the King's strength and the king of the Safavid era was not only the power point of the

[38] For instance, see Morris, (1994)
[39] The block that the creator designs; the archetype.

Safavid era but he was also one of the strongest kings of Iran, and this omnipotence accompanying the particular circumstances of the time led to his immense constructions in the city. These constructions imposed their special geometry on the city. As was mentioned, the south of the city has a relatively different kind of geometry and this difference is derived from its exclusive circumstances of creation: Shah Abbas-I created this sector of the city.

So, the pattern of the city in its south-western part is the result of an interaction between the sub-Nizam of the Shah, influenced strongly by the Shah's ideas and power, and the city itself.

The Elite

The elite occupied the second political, financial, and social level of the city and in Safavid Isfahan they played important roles during religious celebrations and served as intermediaries between the imperial household and the mahalla residents. As discussed in earlier sections, they erected public buildings in the city to gain social respectability and as a form of religious charity. Their constructions had similarities with the king's building programme but were on a more restricted scale and the extended households and gardens of high-ranking officials were modelled after the imperial household (Blake, 1999). Their mansions dominated neighbourhood squares, similarly to the domination of the imperial palace in Naqsh-i Jahan square.

Nobles constructed the main buildings of neighbourhood centers, such as caravanserais, small shrines, public baths and mosques, and were patrons and protectors of mahalla. Blake (1999) declares that "The dominance of high-ranking tribal or slave Amirs in the construction of the mahalla center reflected [their] standing in neighborhood politics" (85). Thus, as the King built the centre of the city, the notables built the centre of the mahalla-s. Moreover, they erected many of the main spaces that flanked the Bazaar-s, such as the major routes which formed the structure of the city: for example *Aqa Nur-i Jula* was a rich merchant who built a mosque in the Isfahan bazaar known as the *Masjid-i Aqa Nur-i Jula*, which still exists (Keyvani, 1982). In fact, in late Safavids, when Shah Abbas-II, directed the major economic project of Safavid Isfahan by building of the shops, covered bazaars, and caravanserais that lined both sides of the main linear bazaar, stretching from the new maidan to the old one, the elite erected buildings on both sides of the imperial bazaar and by the end of century it overflowed by workshops, caravanserais, markets, retail shops, mosques, and madrasa-s (Blake, 1999). Moreover, when the work on Chahar Bagh Avenue began under Abbas-I in 1596, the Shah divided the lands along the avenue between the elite and ordered them to build 'sumptuous Chahar Baghs'. Therefore, high-ranking elite built 25 large garden retreats on both sides of Chahar Bagh Avenue (Blake, 1999).

Thus, the elite participated in the development of the city at an intermediate level, erected edifices and buildings alongside the existing routes, or created public buildings in mahalla centres, to maintain their authority or even gain popularity. In the case of the Bazaar, they erected buildings around and along the main or secondary routes, and thus participated in the growth of the bazaar. By that means, they contributed to the flourishing of some routes which had previously been defined by other circumstances — for example, lying on the major trade routes. So their constructions, not being on so large a scale as king's, signalled and affirmed a hidden order in the city based on potential points for further development. This defines the second geometric layer: the network of the roads (figures-21, 22). This is the way the sub-Nizam of elite, which was based on their position in society, their relation to other social groups, the cultural/religious norms they believed in, interacted with the city and left its traces on the geometry of the street network.

The common people

The next level belongs to the common people who did not wield any particular political power and had only normal levels of financial power. This group both constituted the context of the society and made the context of the city through their constructions. In other words, the main area of the city, excluding the king's buildings and the city's structure, was developed by the common people and belonged to the sectors where they constructed their homes. They constructed their homes gradually and adjacent to one another; everyone was responsible for his own house, and the size of the houses differed according to how wealthy their owner was. The grouping together of these homes originated the mahalla-s which were, in fact, situated as in-fill between the structural elements of the city. Thus, the common people and elite were the builders of the mahalla-s as the context and in-filled parts of the city and they built them according the Nizam of people's informal relationships and norms for their place of residence. This Nizam consists of the high desire for privacy, living together with the people of the same profession or ethnicity, solving problems through compromises within the mahalla with the aid of the Kadkhoda, respecting one's neighbours' privacy, following the Islamic way of dividing up plots, respecting the independent authority of each mahalla, taking responsibility for their alleys, having the right to access the traffic network of mahalla, which altogether defined how the buildings of each mahalla and their internal street network have to be built and developed. Here we point to three of sub-Nizams and their impacts on the form of the city: the desire for privacy led to a double-core (public-private) city; the wish for ethnic segregation contributed an organization to the city; and, on the other hand, the authority of local people in residential sections (without direct or tough administration by a municipal institution) impacted the order/organization of the internal form of the mahalla.

Figure 21: The public buildings in the mahalla-s (source: author).

Figure 22: Elite's constructions encouraged or contributed to the flourishing of some routes which led to the constitution of another layer of urban pattern (source: author).

i) Private-Public Areas, Desire for Privacy

The strong desire for privacy in residential units led traditional Iranian cities to be divided into two major sections: public and private. The bazaar and all its related spaces shaped the centre of public life, where all public and social activities took place; while the residential zone is the private part of the city (Kheirabadi, 1999). While the bazaar is the most public area, the residential districts are shielded off from the main streams of public life. Having been constructed wall to wall as courtyard structures, houses knit closely together and shape inward-oriented autonomous units. In this case, the houses as private elements of the city are protected against visual intrusion from the street or from neighbouring buildings. The notion of the differentiation of interior and exterior, according to Bianca (2000), is in fact one of the bases of the structuring laws in the city and its elements, ranging from small private houses to the whole urban structure. The result was a typical multi-focal pattern with two poles of public and private, where the mahalla-s were separated from the core of the city and the houses were distanced from this core by being channelled into hierarchical alleys. These alleys, in spite of the reason that caused them, are good solutions to retaining a very private area in the heart of a busy city, while keeping in contact with it.

As mentioned, access from the public areas to the residential quarters is usually broken into successive hierarchical sections with increasing degrees of privacy. Non-natives do not have direct access to the sanctuary of houses.

> It can assimilate the external world after the circulation has been gradually filtered by various intermediate sections of the street network…which preserves the aura of the family sphere and prevents frictions with the public realm. (Bianca, 2000: 38).

This kind of access system prepared a selective gradual privatization of public spaces and also a direct control over access by the house owners. In addition to its architectural dimension, this matter influences the shape of the city in its hierarchy of streets, successive process of approaching the spaces, in some cases the dimensions of the paths, and also the form of the mahalla block.

Thus, desire for privacy as one of the strong factors in the Social Nizam separates a public core from the private area and defines and fosters routes inside the *mahalla*-s to be hierarchical, long, and gradated into successive stages of privacy.

ii) The Effect of Ethnic Segregation on the Organization of the City

Structure of the Mahalla

The most apparent manifestations of ethnic/professional/religious segregation on the structure of the city is the division of the city into mahalla-s or residential quarters. The residential quarters grew in the spaces left between the edges of

Figure 23: Mahalla-s in the late Safavid Isfahan (Shafaghi, 2003).

Figure 24: The centers of the Mahalla-s in late Safavid Isfahan (source: author).

the multifunctional core complex and the main spines of the city. As a rule, the housing units tended to stay close to the central core of the city, in the vicinity of the Friday mosque, where the oldest and most prestigious families used to settle (Bianca, 2000).The majority of the mahalla space was allocated to inward-oriented private houses which were located along its internal pathways. So, the basic unit of the residential quarters was a variant on the traditional dwelling house constructed in one or two storeys around a central courtyard. In this disposition, the proportion of private space was the built-up area open to the sky, and the public space was, on the other hand, the alleys between the blocks of houses. Each residential unit of the urban structure had its own inbuilt circulation system (Kheirabadi, 1999). Although household compounds covered most of the area in the residential quarters, a number of neighbourhood crafts and trades which escaped localization in the bazaar (English, 1966). In fact, each quarter had a local center which was usually located at the intersection of two or more streets and around it were a mosque, public baths and shops for selling daily requirements (Haneda, 1994; Sultanzadeh, 1988). The quarters, although characteristically isolated from the bustle of the main central city bazaars, were nevertheless connected to the bazaar by small, narrow alleys which

> wound through residential areas, providing an intricate, interesting pattern of access between residence and business. They were boarded on both sides by the high walls of residential compounds, uniform in colour and texture and usually of mud mixed with straw. The walls were windowless, with only an occasional door providing an entrance to the compound. Some Kuchihs could be quite lengthy, starting at the bazaar and continuing through residential neighbourhoods (occasionally joined or crossed by other Kuchihs) until they reached a city gate or ended at the city walls. More typically, the Kuchih ended at a neighbourhood center. (Kheirabadi, 1991: 27).

Therefore, the residential quarters displayed a cell-like structure and each of them with its main elements and general characteristics constituted the in-fill cells of the city, meaning that they divided the context of urban space remaining between the main structures of the city. The main semi-public buildings of the mahalla-s are dispersed according to this division and they contribute to the relative importance of the various roads. The juxtaposition of mahalla-s and their dispersal over the city occurred according to the existence of social forces within the city between religious, ethnic, professional and other such groups.

Mahallas of Isfahan: Divisions within the City

Isfahan included various quarters as residential subdivisions whose social solidarity, similar to that of other cities in Iran, was based on religion, ethnic background, profession, hometown, or patron-client relationship (Blake, 1999) (figures-23, 24). These mahalla-s were originated over the course of history. When Isfahan was walled and considered as a city for the first time, it consisted

of only six mahalla-s but according to Al-Isfahani (1988) the number of mahalla-s in Isfahan during the last years of the Safavid reign reached up to 40. Some of them were called: *Dardasht*, *Hasanabad*, *Karan*, *Yazdi*, *Maidan-i Mir*, *Sayyid Ahmadiyan*, *Nim-Avard*, and *Husainiya* (Shafaghi, 2003).

The ethnic and religious urban segregations can also be followed concretely in Isfahan. The principal non-Muslim minorities in Safavid Isfahan were Indians, Jews, Zoroastrians, and Christians. The district of Jubara belonged to the city's Jewish community. Jews in Isfahan from an early time tended to live in the Jubara district, in the northeast of the city (Shafaghi, 2003). Isfahan also contained quarters for Armenians (Christians) and Zoroastrians. The quarter of Kebrabath for Zoroastrians and the quarter for Armenians called Julfa, are both located south of the river as two distinct suburbs of the city. The creation of the Armenian suburb of Julfa goes back to the early years of the 17th century, following the immigration of Armenians to Isfahan (Lockhart, 1976). Julfa was the residential suburb of Christians and its building was ordered by Abbas-I.

> Abbas transferred these people for both strategic and economic reasons. However, Abbas was conscious of the industriousness and mercantile skills of the Armenians and he wanted them to contribute to the economic vitality of the city. (Gaube, 1979: 87).

The Zoroastrians lived in a suburb south of the river known as *Gabristan* (or *Kebrabath*), lying to the south of the river to the east of Julfa (Lockhart, 1976).

Struys, who visited Isfahan in 1672, pointed to another quarter which belonged to Georgian immigrants. It was called *Hassanabad* and located near maidan-i Shah (cited in: Floor, 1993).

Therefore, if the context of the city is imagined as a surface, the social segregation, which led to the constitution of the mahalla-s, caused this surface divided into different sections of various measurements which were connected up to, and penetrated by, the main structural arteries of the city. This separation engendered particular urban masses, which although they were different in size and facilities, were generally similar; and particular elements — such as urban facilities and spaces — existed in all of them constantly. On the whole, the social segregation led to the emergence of the context of the city as a number of separated units which each had its own centre and, with the elements they had, could be considered as small cities. So, if the city is imagined as an ingredient in the context of the nation, the mahalla can be considered similarly as a component in the context of the city; with this difference, that its elements functioned on a smaller scale, for example, if the bazaar of the city was associated with the trade system of the country, the bazaar of the mahalla was a place of daily demands. Therefore, the city includes some other secondary focal points, similar to a city, besides its main nucleus. Kheirabadi (1991) believes the system of mahalla-s defined the overall organization of these cities. He declares

"Besides the gathering of similar ethnic people, these divisions served as a system for administration, control, taxation, and other city affairs, such as better water management" (81).

iii) Effect of Local People's Authority on the Internal Form of Mahalla-s

The next stage of influences derived from the authority of the mahalla dwellers in building their residential parts. As mentioned before, each mahalla belonged to a group of people with a social or religious bond whose connection with the social structure of the city was accomplished by their Kadkhuda. In fact, except some general rules concerning tax, water and so on, all other regulations in the mahalla-s were internal and consensual.[40] This might be due to the administrative structure of the city or derive directly from the fact that, according

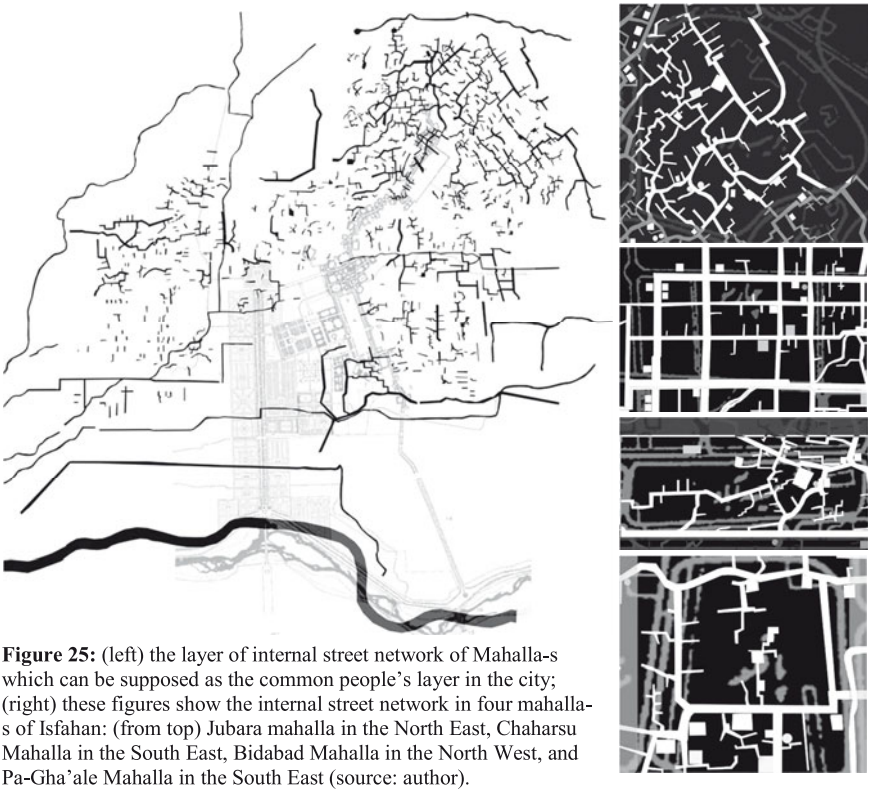


Figure 25: (left) the layer of internal street network of Mahalla-s which can be supposed as the common people's layer in the city; (right) these figures show the internal street network in four mahalla-s of Isfahan: (from top) Jubara mahalla in the North East, Chaharsu Mahalla in the South East, Bidabad Mahalla in the North West, and Pa-Gha'ale Mahalla in the South East (source: author).

[40] Besim Hakim in his book *Arabic-Islamic Cities, Building and Planning Principles* (1986) elaborates some of these cultural-social regulations.

to Islam the various social groups — such as family clans, ethnic communities, or guilds — have a large degree of autonomy in society. They were allowed to "take charge of the respective sections of public open space running through their territory, in both residential districts and market areas" (Bianca, 2000: 39). The domination of the definition of private territorial identities led to the absence of representative civic space in the Western sense. In other words, the dwellers made their buildings and occupied the public areas and routes according to certain domestic ordinances without any pre-eminent control by a political or municipal organization in the form of building codes or other restrictions — except in the case of disagreements.

This self-determination and self-government prepared a stable ground for a non-geometric pattern in the internal street-network of the mahalla. Thus, the internal order of the mahalla-s could be affected by the socio-political structure of society, encouraging the authority of local people over residential sections without any direct or tough administration by a municipal institution. It is the result of the sub-Nizam of living-in-neighbourhood, which is highly influenced by Islam and other social standards and can be categorized under the larger Nizam of society. This layer defines the third order layer of the city. These two characteristics — the organization of the city by its division into various mahalla-s, and the organic order and organization of the internal form of these mahalla-s — reflected the influence of the mahalla as a social organization at two levels: 1) in relation with the whole city and the order and organization of the city as a whole, 2) in relation with the geometry and organization inside each mahalla as an element in the city. These two kinds of effects led to the rise of mahalla-s with exclusive characteristics which imposed a general layout onto the third geometric level of the city. That is to say, the third level is divided into the fields of mahalla-s, each of which has its own internal geometric rules (figures-25).

iv) Division of Residential Plots

The way of dividing up the city-blocks was the other influential fact in the shaping of the geometry of Isfahan, by defining a main part of the divisions within the mahalla-s. According to Montazer (2009)[41] the rich were usually the owners of the lands within the city. The nearer these lands were to the historic core, the more expensive they were. On the other hand, living together with other members of the family was the basic wish of everyone within the traditional social structure. That is why, when children grew up, got married,

[41] Ahmad Montazer is the Professor of the Department of Architecture of Isfahan University. He was the chief of the Isfahan Cultural Heritage Organization for several years and has researched Isfahan and its urban history over a long period. Today, he is referred to as an expert on the subject of Old Isfahan. The following is the information derived from an overall conversation with him in Spring 2009 in Isfahan, Iran.

and needed a new house, or when a group of family members emigrated from another city into Isfahan, they divided their land-block into parts to make new houses for their married children or to provide accommodation for new guests on other side of the block. Or they separated a part of the courtyard of their own house and made an access route to the new house that was being prepared there. In this way, the blocks were divided internally among the people, according to the conventional rules defined by the family or neighbourhood members. So in this case the owner of the plot devoted a part of his territory to someone and created an access route to it in agreement with neighbours.[42]

Another case that plot division became necessary was when a landowner had died and their children or other relatives inherited a part of the land. There are complicated rules in Islam regarding the division of land for inheritance. The most simple of them is that which prescribes of 2 parts for each son of the family to every 1 part for each daughter, according to Islam. So, at that time, when there was no organization to act as the regulator and the mahalla was the main power, this land had to be divided up in different ratios among the children. This creation of division and access routes to each sub-plot was in many cases the main shaper of the internal geometry of the blocks. It worth noting again that all of this process was carried out according to the conventions of the people themselves and in the case of problems, the city administrative or religious authorities would solve it according to Islamic rules (Montazer, 2009).

A similar eventuality occurred when a rich land owner sold his land to a number of common people. For example, when a large plot of land was sold to eight families, first, they would divide the land according to their allotments, then when one or two families had made their houses on this land, they had right to have access to it from the main road, even it was only available by trespassing on others' lands. So, they made this access as narrow as possible according to conventions agreed among themselves (ibid.).

Nizam of Trade

In the Middle Eastern and North African region's urban life, "commerce/trade was a vital component" which appeared in various forms and played a principal role in the establishment and development of cities (Bianca, 2000: 118). The commercial activities in these cities has happened at four different levels: 1. trade within the city; 2. trade between the city and local villages; 3) trade between the city and other cities of the nation (local trade); and 4. trade between the city and other countries.

Depending on the importance, location, and prosperity of the cities, they embraced some of the above-mentioned activities. Where a city was located

[42] This information is applicable to the Safavid, Qajar or subsequent eras and may not be imputed to the times before the Safavid era.

on a trade route, had strong relationships with neighbouring cities, functioned as the centre of nearby villages, and had a considerable population and thus needed domestic commerce, it embraced and developed all levels of economic activity.

In the case of Isfahan, all of the above-mentioned levels of trade are obviously present. Benefiting from its strategic geographic location, Isfahan was one of the important exchange points of international and inter-regional commerce. Due to this, it remained as a trade centre for quite a while over several historical epochs (9^{th}- 20^{th} centuries). In fact, it belonged to those cities whose "central markets, besides serving as an outlet for local productions were also equipped for stocking merchandise and for wholesale and retail trade in imported goods" (Bianca, 2000: 118). For example, Isfahan's traditional covered bazaar, as the representative of its commerce — including various shops, caravanserais, and *Sara*-s[43] — was not merely in the service of local commerce, but a centre for supporting external commerce with other cities and countries. And it retained this role for centuries, with the summit of its formation and flowering taking place in the Safavid age.

The bazaar complex and commercial spaces dispersed across the city are the physical embodiments of the presence of commerce in the city — as in many other cities of the world which have the spatial equipment for fulfilling the requirements of trade and commerce. But what makes Isfahan as an 'Islamic city' different in this respect is the special Nizam of trade in this city which can answer questions like: why have such particular commercial spatial typologies (Sara, Caravanserai, etc.) with their exclusive characteristics emerged in this city? Why were they dispersed in the city in this way? What is their interrelation with the city and subsequently what is their impact on the form of the city?

The Nizam of trade is defined by the way the city, with its exclusive geographical, climatic, political, and social situation, responds to its commerce-related necessities and potentialities. This means how and which kind of relations have to be defined to enable the city to encompass the commerce that is essential to it, in its (the city's) respective context. Defining these relationships is directly relevant to the general circumstances of the country and region, the nature of trade in the city, and all the other elements that the Nizam of Trade, according to the norms and rules of its people, has to respect at different periods of time. This means that commerce as a general word has its firm meaning all over the world, but what makes it different in different parts of the city is the way that the people and the city embrace it and incorporate it in line with the framework of their mental beliefs. In some cities trade may stand under the strong influence of one or two other powers—such as politics, administrative rules, society and so on — and become absorbed into their framework, or it

[43] A space in the bazaar, smaller than a caravanserai but with similar characteristics.

may be as such the most dominant force, which somehow dictates its rules to the whole structure of the city. But in Isfahan it has to answer to many requirements at the same time, without any very dominant influence. So it constitutes a Nizam: it is under the influence of Islam so all Islamic rules regarding the methods of commerce have to be considered;[44] society has to maintain some norms regarding the professions and the city's commercial area (*Urfs*);[45] the political-administrative structure imposes its own regulations; the caravan route has its own importance; the arid climate brings its own requisites; and so on. Thus, trade and commerce in Isfahan have their exclusive Nizam which answers cultural, social, political, and climatic norms of the city and determines the way the city reacts to the commercial element.

The trade Nizam leads to the physical embodiments of the commercial element and defines how the spaces have to be arranged throughout the city. These arrangements and structures influence the form of the city in the way that they specify some routes and the form they take, they define the main core of the city and the shape of this core, they interdefine/influence the situating of the micro-cores (mahalla centres) and subsequently the divisions of the city.

Before entering the main argument, two points could be illustrative: first, the bazaar as the manifestation of commercial activities in 'Islamic cities' has been introduced as key to the structure of the city by most of the authors (Ahari, 2007; Habibi, 2006; Ardalan, 1973; Sultanzade, 2002). Thus, to study its origination and evolution is in fact to review the way the structure of the city has been shaped. Secondly, the bazaar of Isfahan and the whole spatial layer of trade in Safavid Isfahan is not an instant creation, introduced over a short period of time, but is instead is the product of a long process which has taken centuries. It evolved continuously and gradually from a rectangular open space to the complex Safavid-era system. So it appears that it will be illuminating to study it across three different periods. In this regard, three major periods can be considered, each of them bearing its peculiar characteristics: 1. before the Seljuqids (7^{th}- 9th centuries), 2. the Seljuqid period up to the beginning of the Safavid reign (10^{th}-15^{th} centuries), 3. the Safavid period (16^{th}-18^{th} centuries).

As will be shown, in every period, according to the commercial situation of the country and Isfahan, a new commercial element, including factors such as a commercial maidan-bazaar, a new trade route, or the high prosperity of the economy, appeared and interacted with the city according to trade Nizam of each age. So, having entered into the existing structure of the city or settlement, with their particular characteristics and features, these elements imposed a specific order on the general configuration of the city following the Nizam of

[44] Such as: the religious regulations of commerce, the relationships between Sinfs, the conditions under which, according to Islam, a transaction is valid and correct. For more information see: Hakim (2008).

[45] As an instance: the separation between commercial and residential space.

trade. That is to say, the emergent commercial factor established an effective interaction with the whole city and the result was a newly transformed layout: the morphology of the city was changed according to the imposed order of the new commercial element, and the element reciprocally gained new characteristics and configurations

Manifestation of the Trade-Nizam in the City

a. 7th to 9th Centuries

When the Abbasid governor in the 8th century, erected a maidan in Khusinan village near to Yahudiyya, the first seeds of commerce were sown in the initial nucleus of Isfahan. The Khusinan maidan was an open-space bazaar that included various platforms. There was a place for villagers of the region, especially those from Yahudiyya and Khusinan, to take their goods there for sale (Gaube, 1979). So, it was a central space where the occupants of Yahudiyya and Khusinan and other villages in the vicinity gathered for commerce.

At those times two kinds of marketing elements existed in different parts of the countries of the Islamic world and which share some main characteristics. The first was the common type of rural bazaar in Iranian villages which were constituted every day, week, season, month, or year, depending on the number of surrounding villages, their products and amount of intercourse. In this case, the bazaar was set up in the main village, which had the best situation and location of all, and the all villagers of the area went there to use the market. These bazaars were open areas (and not constructed ones) where the salesmen operated the market during the day (Sultanzade, 1998, 2001). Simultaneously, in that same period, in some of the newly-established Islamic-Arabic cities, an open space was devoted to trade, mostly located besides the mosque and palace, where the salespeople marketed their wares during the daytime hours. Initially, there was no special and defined constructed space belonging to the stall-holders; only a few sunshades were made. Gradually after the development of these initial cities or by converting of some of the villages to cities (in the more prosperous settlements) small shops began to be erected in these open areas and permanent bazaars started to be established (Sultanzade, 2001).

It seems the maidan of Khusinan played both roles and stood somewhere between these two similar types of bazaar. Before the city wall of Isfahan had been constructed, the fabric of the town was built through a process of constructing a complex of city elements including a mosque and palace, while the maidan functioned as a common open market space between villages. After the erection of the city wall and the foundation of Isfahan city, the maidan was gradually converted into a bazaar-maidan within the city. Namely, it was a rural market with the inherent potentiality to become an urban element, which evolved over the centuries, finally becoming one of the most important points of

the city. Therefore the first main economic site in the initial core of the city was an open area in which the people from the various surrounding villages gathered and spent their time in local commerce and marketing during the day. This place was the most important part of the district in those days, constituting a dominant focal point in the whole settlement area.

The bazaar-maidan, as the manifestation of commerce in that particular period of time, established by a non-native governor in the area, imposed a centripetal order to the region and to the complex of neighbouring villages. Its existence led to interrelation and interaction between the maidan and its surrounding settlements, so that the villages around it started to grow and expand towards it. What remained after some decades was a settlement composed of two distinct villages gathered around the maidan-bazaar which indicates that the maidan with its commercial function and centrality oriented the settlements' incremental growth.

Since during that time Iran and its commercial situation was not stable and there were some very small villages in the region without any complicated relationships and requisites, the trade Nizam in this period did not need to be so complex, and could rely mainly on some commercial characteristics such as the benefits of having land or house near the maidan, which is to somehow clear in its manifestation and in its influence on the structure of the city in this period.

b. 9th to 16th centuries

From the rise of Islam until the Seljuqid period the economy of the region and of most parts of Iran was confined to local commerce which was not that important to the development of cities. This matter was in clear contrast to the system of the Iranian cities belonging to the age preceding Islam. In fact, during the 7th and 9th centuries, when Iranians converted to Islam, not only did their urban life and social beliefs change, but their economic and manufacturing affairs evolved immediately and became strongly dependent on the 'earth' — in all fields such as irrigation and breeding livestock. Moreover, the insecurity of trade routes had caused a recession in the commerce and trade of settlements' surplus goods, which resulted in a recession hitting all cities (Falamaki, 1986). By 10th and 11th centuries, the emergence of two factors suddenly broke through this strong dependence of urban life on earth and the grounding of the economy on agricultural productions. These two factors were the commerce of various agricultural, stock farming, or industrial productions; and independent (from Arabic governments) governmental administration. Thereafter, urbanization and urbanism evolved in Iran and after two centuries urban developments began and prosperity started to return to Iranian cities (Ibid.). In those ages, trade flourished again and many new trade routes were established or old ones revived. Thus, a network of trade routes came into existence.

In the north the Great Silk Road passed westward through Mashhad, Damghan, Tehran, and Qazvin before crossing the Zagros into Mesopotamia. The ancient Indian highway ran from Tehran and Qazvin in the north through Qumm, Kashan, Isfahan, Yazd, and Kirman, to centres on the Indian subcontinent (English, 1966). One of the major routes extending north to south connected the city of Rey to Isfahan and continued up to the Persian Gulf (Kheirabadi, 1991) (figure-26).

There were some staging posts along these roads which were convenient stations on the age-old caravan routes crossing the desert areas. Similar to other Muslim countries which held an important role in international East-West trade until Europe built up its overseas trade network in the early 16th century, a large number of cities in Iran were born along trade routes and many of the existing cities grew prosperous. This fact is relevant in that some scholars believe that the trade route was one of the factors determining the pattern of dispersal of Iranian cities (City of Light, 1976).

A number of these newly born cities were rural settlements which had converted to urban ones because of the prosperity brought to them by trade. These rural settlements were mostly pre-existing villages with good climatic and geographical conditions and located on trade routes and major caravan roads. In fact, due to these privileges, during the 9th and 10th centuries, they gained this opportunity to develop, and some new structural elements started to be constituted within them. Subsequently, in isolation, or in combination with others, they became so developed that they converted into cities and benefited from new social, legal and physical facilities (Sultanzade, 1998). Isfahan was one of these settlements which had remained as a village until the 9th century, the age that trade began to flourish all over the country and region. Thereafter because of its location on a major trade route and also its central position in Iran, it became a centre for the commerce which supported its affluence for centuries (Kheirabadi, 1991).

This prosperity, resulting from Isfahan's location on the trade route, implicitly indicates the presence of another commercial element in the city. By this period, in addition to the centripetal factor of the maidan-bazaar, the linear element of a trade route emerged in the commercial and city structure, causing some changes to the whole settlement; its clearest impact was the conversion of a rural settlement to a commercial city.

The way the caravan route was embraced by the city and its relationship with the settlement can show the impact of this new commercial element on the structure of the city. The initial basis of this interaction may be similar to that found in other cities, as has been studied by Kheirabadi (1991). His theory on the process of the evolution of a rural settlement to a commercial city can explain how a village settlement, in the context of Iran in the Islamic period, reacts to a trade route.

According to Kheirabadi (1991) when trading began to flourish with the specialization of the ancient Middle East in the production of various goods, caravans were the means for the delivery of goods to various places. Subsequently some places, called caravanserais (caravan houses), came to exist along the routes to shelter merchants and protect their goods. These caravanserais were usually built in agricultural settlements along trade routes, where *Caravani-s*[46] could be provided with a supply of water and food. These spaces functioned as the commercial nodes of a city and attracted larger numbers of traders and labourers from neighbouring areas. "The major street of these settlements, along which the caravanserais were built, began to function as a main market and centre of trade" (Kheirabadi, 1991: 46). Several public buildings were added to provide for the other requirements that arose from this use. By constructing more shops along this street it became the main core and trade centre, gradually evolving into a linear bazaar (Kheirabadi, 1991). Due to the extreme weather conditions, it was, first partially and then completely, covered to protect people from heat and rain. As more traders were attracted to the settlements, the spaces built along the bazaar increased. Consequent upon the growth of population, the pattern of land use within the settlement began to change. More shops were attracted to the caravanserais' vicinity along the bazaar, and the agricultural lands gradually evolved to places with residential and commercial uses. The settlement growth created the need for more services. As a result more infrastructures — such as *qanats* — and public buildings were

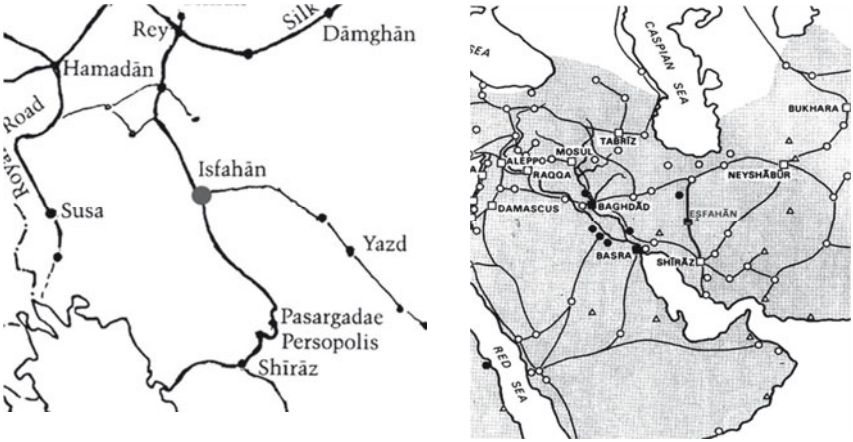


Figure 26: (left) The old Iranian trade routes. One of the major trade routes extends from north to south connected the city of Rey to Isfahan and continues up to the Persian Gulf, modified from (Atlas of Iran, 1971; in: Kheirabadi, 1991); (right) trade routes by 10th -14th centuries, modified from (Beamount, *et al*, 1976).

[46] The people who made journeys by Caravan are *Carvani*-s.

built. To provide security and defence, a governmental seat was established and a wall was erected around the settlement to provide protection and defence. Through these sequences of events, the settlement gradually evolved into a commercial town (ibid.).

In the context of the Isfahan region, which consisted of Khusinan and Yahudiyya villages joined around a maidan-bazaar and some other scattered villages, a route passing within the area became prominent and presented more dominance than heretofore. No longer was the economic, commercial, and income centre merely a local bazaar, instead, there was a route which was connected to inland and probably external commerce. This could provide the potential to attract the people and the interrelationships with this route led to the emergence of new needs, elements, structure, and geometry whose particular presence, arrangement, function, and relations could shape the settlement in a new way. Thus, the embrace of the trade route by the settlement led to the city's new structure, with some routes entering into the city's commercial structure and changing its centripetal layout. These routes include one major course which coincides with the trade route and the others which were secondary and connected the city core to its main gates. Thus, the commercial structure of the city — as the dominant organizer of the city structure — was no longer based merely on a single element, but on two: the focal point of maidan-bazaar, and the linear focus of the route.

To discover the production of the interaction of city and trade route in Seljuqid Isfahan we can refer to the descriptions of two authors who have studied Isfahan's structure in the era before the Safavid period: Golombek (1974), supporting her argument with a map, declares that there were four main axes in the city which functioned as arterial bazaars, as well as some other radial streets, which converged on the Old maidan. These arterial bazaars would have constituted major routes of access to different parts of the city's quarters. Thus, the walled city of Isfahan was divided into quarters by axial bazaars and the bazaar-maidan was located at the intersection of these bazaars.

With a similar result, Gaube (1979) tries to speculate on the structure of city between the 9th and 16th centuries. In what he supposes to be a Seljuqid city and commercial structure, there are four main routes with a maidan in their intersection. According to him these routes were the main bazaar arteries and main routes of intra-urban communication, which constituted the structure and skeleton of the city.

Therefore, the new commercial structure of Isfahan city in the Seljuqid period consisted of: 1. a bazaar-maidan called the Old maidan,[47] around which

[47] Some authors such as Gaube (1979) believe that this maidan is in fact the descendent of the Khusinan maidan, although he does not declare it explicitly. On the other hand, some authors, such as Golombek (1974), believe that the earliest demonstrable date for this maidan is the Al-Buyids age (10th century), but they do not dismiss a possible earlier origin. Anyway, what is important in our

the central bazaar area originated and to whose "commercial importance and cosmopolitan flair the literary sources bear witness" (Gaube, 1979: 79). As the first and the most important commercial element of the previous period, it played the role of an commercial centre besides the religious and social ones, had a centripetal structure, and imposed a centripetal order into the city; 2. a main route and a group of secondary routes existed in the whole city with the function of a place for commerce. They had a linear geometry and proposed a longitudinal order to the city.

The juxtaposition and combination of these two elements constituted a commercial-spatial structure — in fact the main structure — of the city. Moreover, as a result of the linkage between these two orders, the centripetal order of the Old maidan and the linear order of trade route, a new order was established with a simultaneously central and linear character (figure-27). It is central, because there is an urban space located at the intersection of the main streets and routes to the city—namely the routes converging on it — residential quarters are located around it, and the city has an approximately circular shape. On the other hand, there is a linear force within the city: there is a strong linear axis extended within the city flanked by shops and other commercial facilities. Thus, the general layout of the city is shaped by two transverse courses with a maidan at the centre, and residential quarters are arranged according to that order.[48]

c. Safavid Period, 16th to 18th Centuries

The Safavid Shahs (16th -18th) reunited most of the Iranian lands, and from the reign of Shah Abbas-I, a high degree of internal security, an essential pre-requisite to the prosperity of cities, emerged within the country (Keyvani, 1982). This matter led to a strong stabilization extending all over the country and was established by a powerful national government under the Safavid reign. This stabilization resulted in prosperity in all affairs including commercial ones. The local, overland, and maritime commerce within and across Iran was developed more than ever significantly, with cities becoming richer, the network of trade roads and their security increasing, interrelationships with other countries growing, and the commercial cities dealing with considerably more trade than

dispute is that the Khusinan maidan and the Old maidan have the same characteristics as a commercial centre, imposing centripetal force on the order of the city.

[48] After the Mogul invasion (13th*c.*) the commercial and industrial conditions in Iran suddenly declined. In 14th century circumstances again recovered and the economic improvements generated prosperity in commerce. The bazaars of the cities began to develop and new spaces and equipment were constructed near to the bazaars. In the late Mogul period, the Bazaar still remained as one of the main structural and functional elements of the cities. And some cities such as Tabriz and Isfahan developed in this period (Sultanzade, 2001). This eclipse and growth occurred within the walled city and its commercial structure did not face any remarkable changes.

before. Isfahan, as the ruling dynasty's capital, played a vital role in this. It was the commercial hub of the country and the flow of goods was partially oriented according to it. In this period Isfahan-based long distance trade was widely promoted. This was done by establishing successful peripheral networks and the active channeling of most of the traffic through one official route by providing better services there — such as caravanserais (Klein, 1993).

As mentioned earlier, the direct manifestation of the commerce factor in the city is its commercial spaces, so the prosperity of this period prepared the context for the expanse of commercial urban spaces. These kinds of spaces — ranging from the main bazaar which was utilized chiefly for overland commerce, to the mahalla's small-bazaars which dealt with local requirements — flourished in all cities over the country; including Isfahan as the capital of country, and subsequently the main representative of this high prosperity and upswing in trade. It grew with noticeable speed and its commercial elements began to expand in all possible ways, insofar as its morphology evolved as much as it could to respond to all the anticipated activities and needs.

This elaboration and growth from within, flowering from inside, and becoming mature in itself were the major spatial events happening to the commercial structure of the city and affecting the commercial-spatial layer in the Safavid era, and successively the shape of the whole city. In fact, these events testified the city's response to the new commercial circumstances of the city. In this era the city began to generate commercial elements over its whole extent, on the basis of the former city core.

This generation and dispersal, following two different processes, influenced the city's configuration: 1. one group of activities was accomplished by the Shah, which resulted in their immediate appearance; 2. the other group of activities was carried out by the people — including the general public or the elite — around the old core of the city and on the edge of the pre-existing boundaries which had belonged to preceding historical layers. These activities were carried out gradually and led to the accentuation of certain lines and the emergence of a number of cores.

Indeed, the main influence was contributed more by the Shah than by other people. He provoked major changes in the economic and city structure; while the people's actions, being carried out gradually, followed the general layouts that the Shah had imposed. This meant that people's constructions contributed to strengthening and accomplishing what the new commercial structure had defined. Yet, this division was clear in the form of these added or built spaces and also in the general geometry they conformed to.

Shah Abbas-I was the main character behind the evolution of the morphology of Isfahan. During his reign, beside the renovation and development of the former commercial-spatial elements of the city, many new fundamental commercial spaces were established through his orders and financial support.

These spaces were allocated to local commerce, both inland and overland transports; and they included shops, workshops and caravanserais, and so forth. The main new elements which were added to the spatial-commercial structure of the city by the king were the qaysaria and the bazaars of the Naqsh-i Jahan maidan.

The Naqsh-i Jahan and the Qaysaria became the major sites for wholesale merchants, skilled artisans, and artists who worked for the imperial and great Amiri households (Blake, 1999). Through this transfer in 1602, a "rearrangement of economic geography" occurred and another strong commercial focal point emerged in the city (ibid.: 105). What the king had done was to impose a commercial hub in the urban structure and shift the core of the city from its old location to a new one. Thus, in the 17th century, the city had two main economical focal points, first the Old maidan which had been inherited from the Seljuqid period, and secondly the Qaysaria and the Naqsh-i Jahan bazaar, which were organized and built by Shah Abbas-I (16th century).

The bazaar generally was a phenomenon which grew gradually and became integrated into the texture of the city over the ages. The group of activities carried out by the public — all residents except the king —led to the gradual growth of the Isfahan bazaar. The fact underlying the gradual development of the bazaar is that it is a complex: a complex of various spaces which were not originated over any brief period of time, and whose emergence or decline, according to the trade Nizam, has a mutual and close relationship with many urban factors — such as population, economy and the political and social situation. However, although the development of the bazaar mostly occurred through a gradual evolution, sometimes it grew more quickly due to economic prosperity, or was hampered by political problems — such as wars and depredations — or natural disasters such as earthquakes, and thus it can be seen to have encountered periods of rapid growth or decline in the course of its development (Kheirabadi, 1991).

From a general and overall view of the growth of the bazaar, it can be said that this development was generally based on the bazaar's initial core, to which other necessary commercial facilities such as caravanserai, Sara and Timcheh, or other urban institutions such as mosques, madrasa-s (schools) and hammam-s were incrementally added over time. These elements were arranged along an organic route and the development of the bazaar stimulated the development of residential quarters (Sultanzade, 2001, 1998).

In detailing this growth and its influence on the structure and fabric of the city, two directions of expansion can be supposed: expansion along the route (linear growth), and expansion in width (latitudinal growth). These two kinds of development make a multilayered and multidimensional economical core and create high accumulative centre, around which the city grew on all sides.

As mentioned, when Isfahan was chosen as the capital of the Safavid Dynasty, an entirely new bazaar was built to the north of Shah's square by Shah Abbas and subsequently the commercial core of the city gradually shifted from the area of the old maidan to the site of this new bazaar. This transformation in centralization affected the development of the bazaar and it grew towards the new established centre (linear growth). The new growth orientation occurred when shops and spaces began to be built by people and especially the elite, along the axes between the two major economic focal points of the city. Consequently, urban elements and institutions were added to its main streets and axes and the bazaar, as the heart of the city, gathered all the religious, social, and economical facilities towards itself (ibid.).

On the other hand, in order to respond to new and ever-changing needs, the bazaar had to expand not only in linear directions, but in its width too (latitudinal growth). Besides the linear growth of the bazaar and the addition of various buildings, adjacent sites and areas were necessarily occupied and adapted to fulfill new needs and requirements for facilities (Sultanzade, 2000). According to Kheirabadi (1991) the residential areas were always concentrated around the bazaar and within the city walls. Therefore through this growth to the structure of the bazaar grew gradually and penetrated into the residential quarters and changed their functions, according to the trade Nizam: namely, with respect to the privacy of the residential area, the segregation of functions, the importance of the roads connecting to the city gates, the rights and wealth of each mahalla, and so forth. Ultimately, the latitudinal growth of Bazaar extended its presence into other parts of the city, linked it strongly to the urban texture, and integrated it into the body of the city.

In the case of Isfahan, the latitudinal growth of the bazaar mostly occurred between the Old Maidan and the Naqsh-i Jahan Square (Qaysaria) during the Safavid era, especially by Shah Abbas-II's reign.[49] It happened through many secondary axes being extended from the main axis of the bazaar, with spaces at the rear of the existing ones being added to the complex of bazaar, changing it into an integrated urban complex. Moreover, new commercial spaces were dispersed over the city and new micro-cores emerged in different parts of the city.

Manifestation of the Trade Nizam in Safavid Isfahan

The continuous interrelationship between commercial elements/factors and the city according to the trade Nizam constitutes the commercial layer of Safavid Isfahan, which consists of some major urban elements, which structure the skeleton of the formal manifestation of the trade Nizam, and some subsidiary elements which are dispersed over the city. The skeleton consists of four main

[49] Shah Abbas II was the third king of the Safavid dynasty (1642-1666).

elements: 1. the Old maidan which kept its role as a multi-functional centre but thereafter it became a secondary commercial centre, primarily for the commercial activities of general public (Blake, 1999); 2. the Naqsh-i Jahan maidan which, as a permanent bazaar and also a good place for temporary bazaars, was the most important commercial, social, religious, and political focal point of the city in this period; 3. the covered bazaar (main bazaar) as a long commercial artery; 4. The Qaysaria gate opened onto the long, winding imperial bazaar and was the royal monopoly market with two-stories divided into a grid-system of bazaar lanes (Gaube, 1979).

As the main bazaar grows, the vital backbone of the city evolves, and the pedestrian streets leading into the city's body proper insert themselves as ribs. Within this structure and in proximity to the skeletal centre, the vital organs of the city develop: bath houses, schools, caravanserais, granaries, bakeries, water, cisterns, tea houses, and the numerous stores of the merchants and craftsmen (Ardalan, 1973). It penetrates into the city's organic texture and maintains the urban life structure. The ramifications of this backbone expand along the main routes and similar to the skeleton with the human body, which extends to all parts of the organism, it stretches to the city gates and constitutes frame for the urban life within its body. The complex of the bazaar with its multi-functional

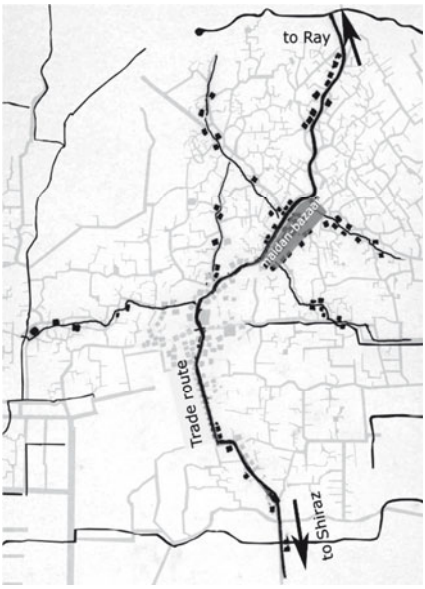


Figure 27: The structure of trade's main elements by Seljuqids which includes one focal point (maidan-bazaar) and a main route as the linear hub (source: author).

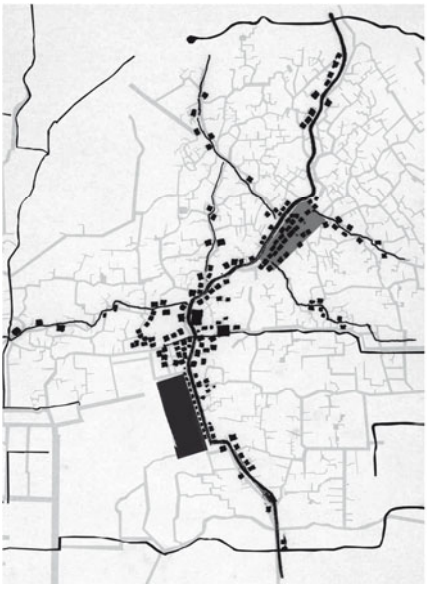


Figure 28: The general structure and geometry of the trade layer which includes two focal points, a main commercial route, and some secondary routes (source: author).

activities — economic, religious, educational, and social — is completely interrelated and interdependent with other buildings and with the residential quarters, which have been interwoven into the structure of the bazaar and into its organs, and have been located between its branches and sub-routes — so that it is hard to pick it out distinctly. Thus, the geometry and order of the bazaar determine the geometry and order of the main structure of the city, that is to say, the first geometric layer.

As discussed, the main bazaar is in fact the result of a long period of transformation over time and constitutes the skeletal manifestation of the trade Nizam. The elements such as Qaysaria and Naqsh-i Jahan maidan were added to the existing content in the Safavid era. They were strong and potentially commercial factors that created a focal point in the southern part of the bazaar complex with the same centripetal vigour as the Old maidan. As the result of these new constructions, the city which so far had merely one economic pole, transformed to a bifocal city with two commercial poles: the old one with mostly an internal and local function, and the new one with a regional and external function. These two poles were related by the covered bazaar — that conformed to the ancient trade route. According to Blake (1999),

> By Chardin's time, in the 1660s and 1670s, a man could ride from the Hasanabad gate to the new maidan, through Qaysaria gateway and down the imperial bazaar to the old maidan without exposing himself to the open air. (107).

Therefore, this main route with its two extremes formed the heart of the commercial life of the city and thus appeared as the core and backbone of the whole city. The concept of the centre was maintained but

> a center as a single point in space that moves in time and creates the line, or the linear element of the bazaar. This reorientation towards a moving point introduced a more vital planning concept which, even today, accepts growth and change as natural phenomena of existence. The paradoxes of constancy and change, of completeness within incompleteness, were here resolved much as in nature and her modes of operation…" (Ardalan, 1973: 89).

The context of this route is a commercial-historical course with an organic geometry and order. Moreover, its change and development was gradual, that is, all the supporting buildings and spaces were added during that time and its course has been changed and altered according to needs and necessities as they arose. So, the essence of the bazaar's linear geometry is an open order which can grow and transform against a background of various urban forces and orientate according to the different situations that arise. In this system the route of bazaar (flanked by the buildings of the bazaar complex which have different urban functions with a strong and 'constant' geometry) is the 'inconstant' element of a complex whose line is defined by location of the shops (Sultanzade, 2001).

To summarize, the Nizam of trade had imposed its particular geometry on the city by a mutual interaction with the whole structure of the city in each historical epoch. The main element at first was a *point* which implanted a focal point in the city, then transformed into a combination of *a point and line*, finally changing into *a line with two focal points.* At each stage and period this commercial structure was the main part of the structure of the city and actually created its backbone, gathering the main elements of the city around itself. Therefore, its shape and geometry influenced the direction of growth and the shape of the city and constituted the first Geometric Layer of the city form (figures-28, 29).

Subsidiary Elements

Besides the skeleton there were other commercial spaces dispersed throughout the city including various kinds of urban spaces which are in one way or another

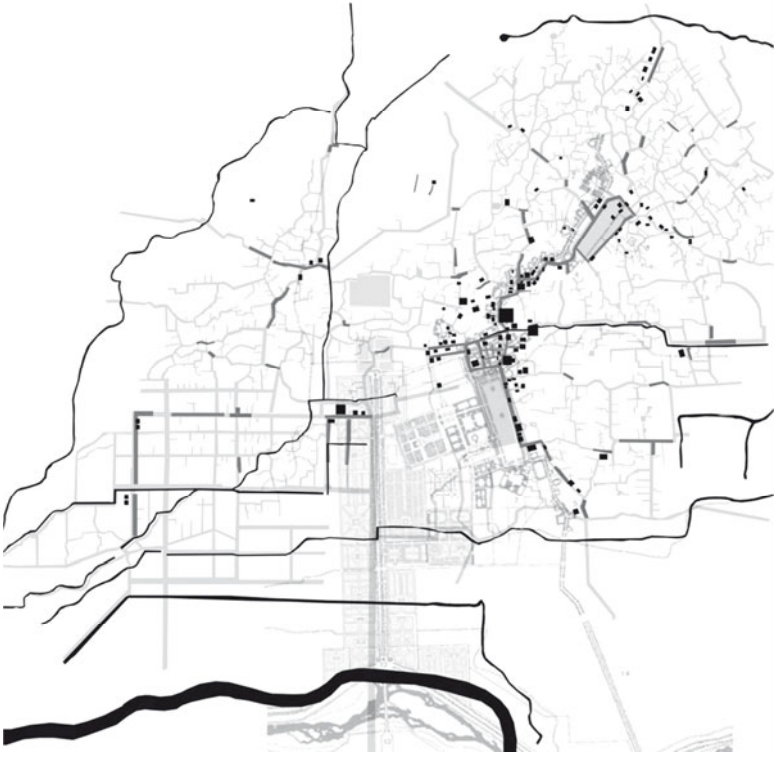


Figure 29: a) The trade elements in the city: Bazaarcheh-s, Covered Passages, and Sara-s (source: author).

related to trade and commerce. A group of them such as the Sara, Timcheh, and Caravanserai are those that connected with the external commerce; another group belongs to the roads flanked by small shops and includes *Bazarcheh*-s as neighbourhood commercial spaces and bazaars as city-wide commercial spaces. The arrangements of the elements of each of these groups stress/define a number of roads, which show the impact of the Nizam of trade on the geometry of the city.

Nizam of Water

Among the major elements that contribute to the organization, formation, and development of cities are ecological factors, a term which covers a broad range of issues including water, topography, and climate (Habibi, 2006). Isfahan is on a relatively flat area with a gentle slope extending from the north to the middle and from the middle to the south, and it seems its topography does not have strong and clear-cut impacts on the general geometry of the city — although it has undoubtedly defined the route of water canals and other issues at the micro-scale. In a similar way, the special climatic situation of Isfahan has influenced the design of spatial archetypes on the micro-scale, but has not left a big impact on the geometry of the city (Bonine, 1979). In this study we emphasize just a few of the most influential factors as examples from a far larger set of categories; thus the Nizam of Water, with its apparent influence on the geometry of the city, has been chosen as an example of the ecological elements to be studied.

Water in the Life-world of People

Water has played an important role, both physically and spiritually, in the establishment and shaping of Iranian cities, particularly over the Islamic period. Its spiritual dimension converted it into an element that was not a mere substance but an omnipresent factor with extensive effects. In other words, since water was connected to people's life-world through ecological, religious, and also spiritual (*Hikmat*) factors, its importance changed from its normal value as an ecological element to that of a very special and cherished element in the city. Each of these factors define the importance, function, and application of water in their exclusive way, and combined together, determine the way/rules the city has with regard to embracing water, using it, and interacting with it. So, the element of water constitutes a Nizam in the city because it connects to the city not only in ecological respects but also through other religious and philosophical dimensions. This Nizam is: the framework, defined by the life-world of the people and their needs, within which the city reads and uses water.

i. Physical Dimension

Indisputably, from the physical point of view, water is one of the important factors in the founding of almost all cities. Generally and historically, cities have been built in areas with an available source of water and an arable hinterland and the survival of the cities is closely related to their water sources. Without drinking water, establishing a settlement would not be possible; with a few, rare exceptions (Morris, 1994).

In the case of many Iranian cities, this issue is particularly crucial and water becomes one of the underlying factors in both founding the cities and also in the continuance of their life. The topographical bowl-shape of the Iranian plateau renders the central parts particularly dry, due to the low level of precipitation (as mountains stand in the way of winds and moisture), and this situation has led to a high degree of aridity across the whole central area. In hot arid lands, water is an important element in increasing humidity and thereby promoting thermal comfort. It improves microclimates, and modifies the hot summer days. Thus, people in hot, arid zones always cherish water and try to remain in contact with it for as long as possible (Fathy, 1986).

It can be concluded that the general dryness that characterises a large part of the country has converted water into a physically vital and essential element for Iranian cities. This physical importance has been declared by many authors. Haneda (1994) thinks “it need hardly be said that the securing of water supplies had been a very important issue for cities in Western Asia in general. This was particularly true in the case of Iran” (243). Gaube (1979) confirms that the essential precondition for urban growth in the dry region of Iran is water. Ardalan (1973) believes that “given the climatic conditions of Iran, water plays a vital role in attracting forms of life and people around it, thereby becoming like a magnet which polarizes space” (59).

the importance of water in arid zones can be further clarified by comparison of two situations: a) when water is accessible and a part of the environment, for instance in non-arid areas or in situations with a good amount of precipitation; b) when water is very rare and the people attempt to find the ways to increase the amount of water and bring it to their cities. When water exists naturally and in adequate amounts in an area, people find ways to use and to manage it, namely, they create methods and ways to channel it and live beside it. Since water is present everywhere in such terrains with relatively similar quantities and is easily acquired, it does not dictate strong differences between areas. Thus, it is important, but not inestimably so, because it is not rare. Yet, when water is a rare commodity, people try to bring this water to their cities and to utilize it in a planned way. Water is accompanied by greenery in the context of desert, so places with or without water are highly distinct, one could say polar opposites; for example within the vastness of the desert, cities rose like oases. Water is not a part of the environment but it should be, so the challenge is to make the

absolute desert liveable through supplying it with water. People search for sources of water and find various ways to put it to use. Water does not exist everywhere and people attempt to bring it as much of it as possible into their cities. In the latter case, the rareness of water makes it physically highly valuable. The celebration of water in all architectural spaces — such as mosques, madrasa-s, houses, and so forth — where water is an important feature inside courtyards or roofed spaces in the form of central pools, is an indication of this importance. The Persian word for water, namely *Ab*, provides another illustration of the role of water in this people's mentality. Ab is cognate with *Abadani* and *Abadi* which mean prosperity and denotes 'a place where water exists'. This indicates the central importance of water for Iranian cities.

Therefore, on the physical plane, water is not only vital because it is an ecological element valuable for all cities, but furthermore its rareness has rendered it more than just a basic foundational factor in the cities found in most arid zones. Such cities interact with water in order to utilize its advantages in modifying the microclimate, fertilize the soil, and bringing Abadani into the city.

ii. Spiritual-cultural Dimension

The spiritual importance of water can be discussed in relation to two spheres: the religious and philosophical-religious (*Hikmat* and sacredness). In the religion of Islam cleanliness is much emphasized and is necessary for many religious ceremonies and ritual purifications, such as preparations for daily prayer (three times a day for Shi'ah, five times a day for Sunni), the purification of the individual in particular cases, and cleansing materials to render them useable according to Islam. This cleanliness is obtainable by means of running water, which is, according to Islam, the real cleansing agent and more valuable than still water. Since water is obligatory for religion and religious ceremonies, all people need to have access to it in the city.

From a philosophical-religious (*Hikamt*) point of view, water has a very long history in Iran which goes back to Zoroastrian times. In the Zoroastrian religion, water was idolized as one of the Four Elements, a symbol of heaven and Paradise, and was appreciated as a sacred element (Ahari, 2006). After Islam came to Iran, the sacred role of water was continued not only through the Islamic religion but also within the Iranian wisdom tradition (*Hikmat*) — which was at its peak in the Safavid period — and had also been influenced by Islam. In the period of the Safavid kings, philosophy reached its highest level and Iranian-Islamic thought was brilliantly manifested through various works of art. At this time Water was understood to be one of the main elements of the *world of Imagination* (*alam-i-mithal*). Alam-i-mithal is a world supposed to exist between the world of nature and the world of Pure Intellect. The first world is identified with the physical world and the latter with Divine Essence, while the

middle world is the world of the symbolic cities of *Jabolga*, *Jabolsa* and *Hurgalia* (Corbon, 1994). The perception of the natural world occurs through sensation, of the Divine Essence through the intellect, but the alam-i-mithal is perceived through the imagination (Ahari, 2006). According to Nasr (1980), in Islamic cosmology, the world of the imagination stands in an intermediate region in the hierarchy of cosmic existence, between the material and purely spiritual worlds.

> Its forms, sounds and colors have an objective reality, and its ontological reality serves to give human imagination a function above and beyond profane imagination as understood in the modern world. (2).

He continues :

> The imagination of the traditional Muslim artist was constantly nourished by the islamicized cosmic sector of this world, and of course more directly by the central theophany of the Islamic revelation, which is the holy Koran. (Ibid.: 2).

Furthermore, the image of paradise is always represented in connection with water, in the way that water is an element present in all the scenes describing paradise in the Quran. So, from a religious-philosophical point of view, water is a limpid and sacred element belonging to *alam-i-mithal*, whose limpidity can reflect infinity, paradise, purity, and so forth. As Bianca (2000) declares, alongside other elements of architecture, water created a contemplative state, in which man's mind, according to the Islamic philosophy of life, is enabled "to open a window into the realm of timeless existence" (66).

Therefore water fulfills a multiple function and is an essential and valuable resource for survival and furthermore, as the symbol of eternal life, bears a religious and an aesthetic dimension. Its particular special value in the culture, its relationship with the life-world of the people, and its manner of interacting with the city together constitute the Nizam of water, which defines how water should be respected and integrated into the city. Undoubtedly, this Nizam includes more factors than those that have been discussed — for example, topography is another defining element in the application of water — but here we are focusing on the main determining factors in Isfahan. The water Nizam defines how water should be made available for the city and the buildings; and how buildings, mahalla-s and routes should be formed to meet the needs of the city for water. The clearest result of this multidimensional importance and manifestation of the water Nizam is that: a) water is brought to the city through the system of water canals (*Madi*-s); b) a number of rules and regulations are set out that prescribe how water is controlled and distributed in the city and mahallas. Certain tasks are designated to those who supervise the implementation of these rules. Minorsky (1943) explains this system of control as follows:

> The whole system was run by an official known as the Mirab: The duty of the Mirab of the capital, Isfahan, is to appoint the supervisors of the irrigation canals (madi-salar), to clean (tanqiya) the canals and [ditches] (Jadavil), to conduct the [water of Zayanda Rud] to the whole of the district (mahall) of Isfahan according to [the rights] of each place (mahall). He must see that the peasants of any place do not trespass (ziadati) on those of another district with regard to the shares of water (haqqaba). He must prevent the powerful from trespassing on the weak with regard to the shares of water. Whatever discussions and quarrels arise between the landowners (arbab) and the peasants of a district with regard to the shares of water, the investigation and settlement (tamyiz va tashkhis) of cases belong to the Mirab's competence and in every case he must carry out (mamul) [the decision] with the confirmation and approval (tasdiq va tajviz) of the Vazir [sic], the Kalantar and the Mustaufi. The Mirab was a highly remunerated official" (83);

and c) water is celebrated within the buildings by being located at the centre of buildings or courts, with a presence in all main urban buildings such as mosques and so forth. The flow of water is *celebrated* in a sophisticated way through the many types of fountains, channels, ramps and pools. Water is displayed in a subtle and intimate manner through the "soft bubbling of a spring in a pool, the rhythmical trickling of an overflowing basin, or the silver-like veil of water coating the stone surface" (Bianca, 2000: 66). According to Kostof (1992), Islam, always enamored of water, made playful use of bridges, and deployed it in the cityscape as something pretty to look at and enjoy aesthetically, thus exploiting water's picturesque aspects; d) many exclusive spaces emerged in this regard, such as the *Ab-anbar* (water reservoir), *Yakhchal* (ice reservoir) and the system of water supply, and most wealthy and notable people kept small water reservoirs within their homes.

This interaction and coordination left impacts on the geometry, form, structure, and arrangement of space in some parts of the city. In following the most obvious of these impacts are discussed with emphasis on the fact that at the micro-level, such influences are far more numerous than can touched upon.

Water in Isfahan

Isfahan is a significant example of the kind of city whose water supply is provided by a river. Although the region of Isfahan as well as the city itself is serviced to some extent by qanats, it is the river which provides the more readily accessible and therefore fitting water supply that is more easily disseminated through a network of canals than would be possible with the chains of qanats (Holod, 1974).

The river passing to the south of Isfahan is called *Zayanda-rud* and is one of the rare large rivers in Iran, flowing through the Iranian central plateau. Through this river, Isfahan had an abundant natural supply of water for irrigation and drinking (Blake, 1999). The importance of the Zayanda-rud's presence and its strong linkage to the life of the city is clear from its name — 'Zayanda-rud'

means 'life-giving river' — and has been mentioned by various authors. Habibi (2006) believes that Isfahan was born near the river, endured over the centuries due to this natural source, and indeed, owes its life to the Zayanda-rud River. This river played an important role in the existence and fertility of Isfahan (Sultanzadeh, 2001). Gaube (1979) declares the Zayanda-rud with its abundant flow of water to be "the basis of existence of the city" and Isfahan owes its enormous growth potential to the almost inexhaustible water reserves of it (66).

The initial significance of the Zayanda-rud in the city of Isfahan lies in the way it has prepared a land with better conditions in terms of climate, earth and water compared with the surrounding hard and dry conditions. This matter can be traced back to the myths about the origins of Yahudiyya and Jayy. It is said that the Jews settled in this area because they found the soil of the region identical to the soil of Jerusalem (Al-isfahani, 1988). On the other hand, it is said that the origination of Jayy city was the result of a long search for a region in which the Four Elements of water, air, soil and fire were in finely balanced relationship (ibid.). Therefore, Zayanda-rud played a major role in the constitution of climatic conditions that were appropriate, according to the people's criteria and values, for founding settlements — namely, its main role was its influence on the selection of the location in which the settlement was born.

All settlements which were established near a water source would need to apply a particular method of irrigation to transfer water from the water source to their farm lands or residential quarters. These irrigation methods varied from place to place and they were all of vital importance for founding and building cities (Habibi, 2006). In some cases and geographical conditions it is possible to have water diverted from existing rivers and fed into a separate irrigation and discharge systems, sometimes this is achieved through a system of qanats which channel water from mountainous areas to cities. In the Isfahan region, a network of canals, called the Madi, played this role. These canals existed from the early times of the settlement's establishment in the region and their network developed according to the needs of the city in each historical epoch.

In the Seljuqid period (11^{th}-14^{th} centuries) this network was expanded and new canals were added to it. In this period the Madi-s were not integrated within the city and were used only for irrigation purposes in the lands outside the city walls.[50] The city was located to the north of Zayanda-rud, far from its immediate vicinity, and had kept its distance from the river. The river's north shores were occupied only by royal palaces and aristocratic estates taking advantage of the waterfront location. As Golombek (1974) remarks:

[50] From consideration of the topographic map of the city, it becomes clear that the old mahalla-s such as the Jubara and Dardasht are in elevated locations and the Madi would not be able to pass through them (Ahari, 2001).

> the Seljuqs founded numerous garden-palaces here, one of which was the Bagh-i Karan… In the 14th century the famous Juvayni family held its fief in the Lunban district far west of the walled city…[they] built a garden of 1000 jaribs, the Bagh-i Karan, in the present Khaju district with two palaces, one overlooking the river, the other looking out on the street called Shari-i maidan. (30, 31).

Some authors reason that the distance between the city and the river at this period was because of the existence of fertile lands to the north of the river which were more suitable for agricultural purposes than as a place to establish a city. But Golombek (1974) attributes this disposition to the settlement of non-Muslim minorities at the north of the river. In any case, what is important is the fact that Madi-s derived from the Zayanda-rud did not exist within the city before the Safavid period, and the city was located in a special distance from the river. Although the city walls conformed to the geometry of the Madi-s for some stretches of their length, it seems these canals did not impose any special order to the city structure in this period.

After rapid urban development in the Safavid period (before which the river itself used to be the most important water source for both agricultural and urban purposes) more Madi-s were constructed. In this era the network of Madi-s entered the texture of the city and transformed into one of the elements of urban organization (Ahari, 2000). This fact necessitated a system of regulated distribution, which latterly fell under the supervision of *Shaykh Bahaii*.[51] In this regard,

> The regulation of the waters of the Zayande Rud according to special rights (ekhtesas), joint rights (eshterak), and rights by rotation (tanavob), was the basis of the systems, and each of these was divided according to three further principles, by district (boluk), by streams (anhar) and by villages (qora). (Spooner, 1974: 701).

Due to the development of the Madi network and its entrance into the body of the city, the major impact of the Water Nizam on the urban form and geometry occurred in this era.

Interaction of the Water Nizam and the City

i. Zayanda-rud River

As a result of the development of the city in the Safavid period, Zayanda-rud became part of the cityscape and appeared as a boundary and city edge, and also as an organizer of the urban axes and thoroughfares (Ahari, 2006: 95). As a river and as a natural factor, it has an organic geometry at the micro-scale. But at the macro-scale and when it is considered as an element additional to the city,

[51] He was a scholar, philosopher, architect, mathematician, astronomer and a poet in 16th century Isfahan.

it delineates a linear non-geometric line in the city's southern reaches. The most evident impact of the Zayanda-rud on the form and geometry of the city are:

a. the river was influential in the location of the embryo of the city;

b. the main axes of the city, such as Chahar-Bagh, were defined according to the orientation of the river, and the city began to develop in this direction;

c. it determined the southern edge of Safavid Isfahan;

d. Zayanda-rud played a role as a natural boundary in the religious segregation of residential quarters; it divided off the residential quarters of religious minorities in the south (Christians and Zoroastrians) and isolated them from the core of the city. "The Zayanda-rud separates Isfahan from its southern suburbs, which include Julfa and what in Safavid times was the Zoroastrian settlement of Guebristan" (Blunt, 1966: 73);

e. The idea of having the water within the city suggested the regularization of waterfront. So a large number of palaces and gardens — such as *Sa'adat-Abad*, *Haft-Dast*, *Tavous-Khaneh* — were erected along the river and some attractive bridges built on it. This approach to the river turned it into an urban division line, a beautiful element of the city that makes an art work of the water (Ahari, 2001). Thus, it was influential in the location of palaces and gardens[52].

ii. Madi-s of Isfahan

As mentioned, irrigation methods were needed to channel water from water sources to the cities and their essential elements such as mosques, public baths and private houses; they were also used in cultivating fields and orchards. In Isfahan Madi-s played this role and Madi-s or subsidiary streams, together with wells and covered canals, are the means by which water is distributed throughout the city (Gulick, 1974: 634). Madi-s are the first ramifications of Zayanda-rud's division into a network of water courses. The second group, branching from Madi, were named the *Jadval-s*, and the runnels forking from the *Jadval-s,* which were used for household purposes, were called *Jooy* (Mokhtari Isfahani, *et al*, 2006). In the Safavid period, Madi-s entered directly into urban spaces and mingled with them, and consequently it can be said that the most important presence of water in the structure and life of the city at this time was through the Madi-s — more than the Zayanda-rud. This mingling occurred in different ways, and according to character of the urban zones where the Madi-s penetrated, they gained a distinctive quality and configuration (figure-30).

The course of the Madi-s generally followed a natural order, according to the topography of the land, but was changed and modified in many cases to fulfill particular functions. This modification is in fact the result of interaction between the element of water and the city, based on the water Nizam, and it leads to emergence of three different patterns for Madi-s over the city. The three main

[52] As a further example it can be remarked that the various bridges constructed on the river in the Safavid era.

typologies are as follows: natural, natural-manmade, and manmade. In the natural type, the course of water followed the topography and parallel paths and routes followed it. In natural-manmade type there is a mutual interaction between the two dimensions, so that the generated order is the result of the mutual adaptation of the natural order of the water course, the arrangement of quarters and paths, and the regular geometry of the buildings. In the manmade type, geometry of human design determines the course of the water and this course was formed according to the manmade geometry and space. It happened in Safavid urban constructions such as Abbasabad mahalla and Chahar-Bagh.

Manifestation of the Interaction on the Pattern of the City

1. Madi and mahalla: as mentioned, certain rules — special rights (*ekhtesas*), joint rights (*eshterak*), and rights by rotation (*tanavob*) — were defined for determining rights of access to water in mahallas or districts. According to this matter and also what was discussed about the importance of water and its availability for the city, it seems that water distribution through the Madi-s had a reciprocal on the positioning of mahalla-s locating outside the Seljuqid wall. The map in the figure 31 confirms that all mahalla-s have direct access to at least one Madi. Thus, one of the impacts of Madi-s on the configuration of the city is its contribution to the arrangement of mahalla-s and subsequently the disposition of their semi-cores, which affects the form and importance of the routes.

2. Madi and paths: as is clear in the map in the figure 32, C, most of the Madi-s ran parallel to a path along their entire course and in this way a layer of roads is defined by the Madi network. For example the Tiran Madi enters into the city from the west and passes through the boundary of the city into the north. This Madi's course accords with the urban paths and routes and is completely adjusted to them. It is hard to say whether the paths have been adapted to the course of Madi-s or vice versa. However, considering the fact that the Madi-s were channeled around the city earlier than the Safavid era, and taking into account the growth of Isfahan in that period, it is safer to say that the urban paths have adopted themselves to the course of the Madi-s in this zone of the city.

3. Madi-s and distribution of urban spaces such as Yakhchal-s (ice/water reservoirs) and mosques: as mentioned, the availability of water for urban buildings, especially religious ones, such as the mosque and madrasa, is considered vital. Furthermore, constructions such as the Yakhchal and Ab-anbar, which were built exclusively to stock water, had to have direct access to water courses. This can be proved by considering the existence of urban buildings along the Madi-s courses which confirms that along their entire course the mosques were located at more or less similar distances from each other. A similar thing happened in the case of Yakhchal-s but with the difference that all

Yakhchal-s of the city were found only along the Madi network. The system of water distribution imposed its order to the location of major water reservoirs (Yakhchal) in the cities and within the neighbourhoods; and the location of small water reservoirs within houses, schools, mosques (Habibi, 2006). Thus, Madi-s directly influenced the location of some of urban buildings, which left an impact on the creation of micro-cores and determined more important routes. Thus, the form of roads was in this way influenced by the water distribution system (figure-32: a, b).

4. Madi-s and city wall/border: the map shows that the city wall is parallel to the Madi-s in some parts. In these cases, the Madi-s function as borders to the city, effecting a separation between residential quarters and the fields and agricultural lands. As the Madi-s parallel to city wall existed from the era before the Safavids, it can be presumed that the city wall was built according to the geometry of the Madi-s at these points.

5. Madi-s and direction of buildings: The interaction between Madi-s and buildings comes under the heading of natural-manmade, meaning that the buildings are oriented in such a way that the water of the Madi-s can run within them while the course of the Madi or a branch of it can be modified for a short part of its course to make this entrance and movement possible (figure-31). For example the Madi of *Fadin* enters into the city from the south-west and branches into two courses at the city centre: one branch passes through the Bazaar and the other branch goes to the north and irrigates the northern quarters. This Madi enters into the heart of the city and mingles with the important city elements, buildings, and urban spaces. The way water enters into the single buildings implies that there has been a mutual interaction between the order of the building and the order of the Madi. The natural course of the Madi transforms into a geometric order within the buildings, but after leaving, it continues to follow its natural order. This phenomenon shows that the Madi-s have impacted the configuration and form of the city by influencing the orientation of the urban buildings in some cases.

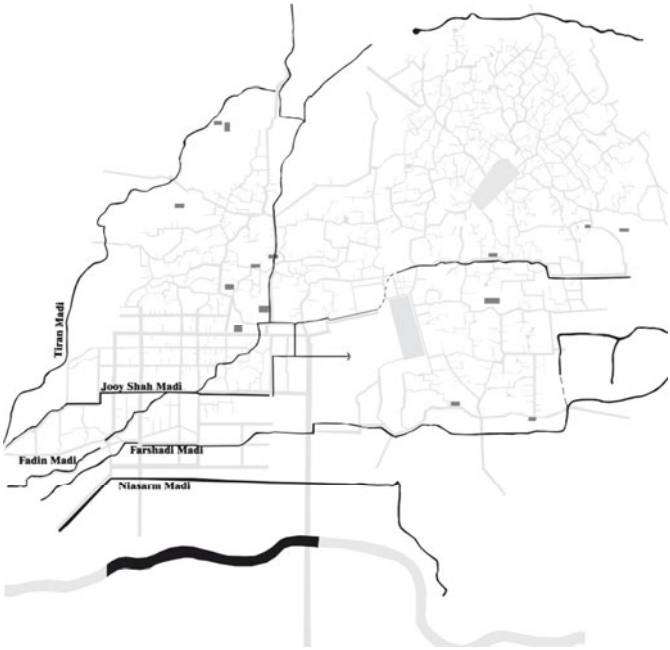


Figure 30: The network of Madis in the city; modified from (Ahari, 2000).

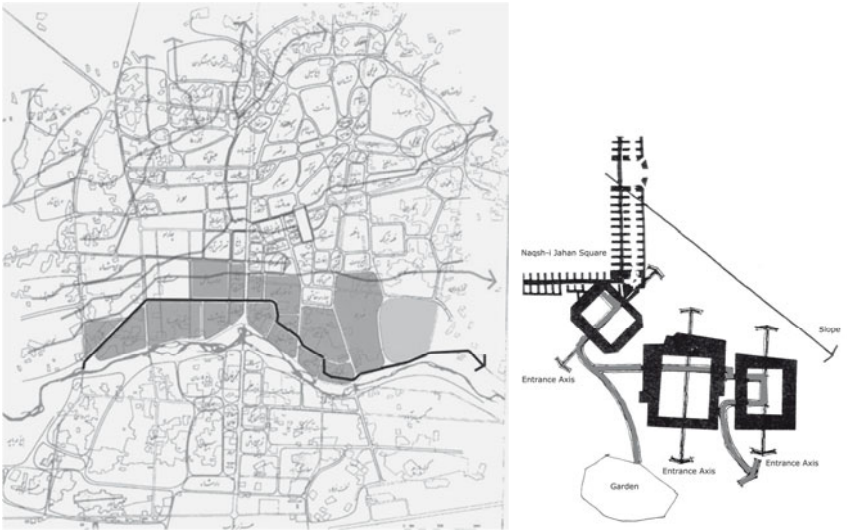


Figure 31: (left) Mahalla-s and Madis: Niasarm Madi; (right) water and buildings: most of the public buildings (except the religious ones) are oriented in a way that water of Madi-s can run within them; modified from (Ahari, 2000).

Figure 32: The impact of water on the pattern of the city (the Nizam of water) (source: author).
a) (Top): Madi-s and Yakhchal-s (ice reservoir),
b) (below, left): Madi-s and religious Buildings,
c) (below, right): Madi-s and roads. This figure shows that a number of roads, and, in northern and western parts, the city walls accord the water courses.

3.3.4 Simultaneous Presence of Nizams

Our study of the structure of Safavid Isfahan shows that the production of the city over a long period of evolution is in fact the result of 'interaction' between factors, elements, or Nizams, in different social, cultural, religious, and administrative contexts/dimensions.[53] These Nizams exist within the city and impact its form. The impact of three major Nizams and their historic evolution on the form of the city have been discussed in separate sections. It has been shown how each Nizam was constituted by the internal interrelations and role played by each vital element of the city in relationship with the life-world of the people, and how each Nizam can affect the form of the city, from the micro level of the 'single building' such as the house, mosque, and madrasa, up to the macro level of the mahalla. We picked out the major and most evident influences of these Nizams on the form of the city as exemplary of a far larger group. These effects together lead to a distinct 'configuration' which might be understood, perceived, and interpreted by the non-native as labyrinthine, chaotic, and unplanned.

The research relayed in the first part, on the city's historical evolution, shows that at each period the city was a reaction to dominant existing circumstances, according to the main norms and standards of that time, and its form was shaped in such a way as to answer the combination of these circumstances and people's values. The second part of the account showed how each vital element of the city, due to its relationship with the life-world of the people and its reflection of their culture and religion, defined a special network of relations (*Nizam*) that traversed the city and correlated and interacted with the city through these relations. The impact of each Nizam on the form of the city is the manifestation of this interaction.

In fact, the form of the city in each historical period is the sum result of the interaction of all Nizams in that period. It is this interaction and omnipresence of Nizams which enable the city to meet all its needs in the context of the prevailing circumstances. On the other hand, the internal relationships of each Nizam, which arise from the presence of an element in the city, change and grow over time according to its importance and the nature of its relationship to the life-world of the people. For example, in the first settlements up to the Safavid period, water did not enter within the city and was used mostly for irrigation purposes, while a system of wells provided the water inside the city walls. But in the Safavid period, in that period of the flowering of the economy, philosophy, art, and so forth, water became more important, entered within the city and was integrated with it. Thus, Safavid Isfahan has two dimensions: on one hand it is the result of the superimposition of the Nizams of its own age, and

[53] And emphasis was, in fact, on the interaction of each Nizam and the structure of the city more than investigating the underlying basis.

on the other, it is the result of the superimposition or juxtaposition of the combined manifestations of all Nizams of previous historical periods (this combination also includes the development and growth of each Safavid Nizam) (figure-33, a).

The city is the outcome of the Nizams' interaction and the most influential factor in forming the structure of the city is the simultaneous presence of all Nizams with (almost) the same level of importance, rather than the dominance of just one or two of them. It means that, as observed, the city did not only have to smooth the way for trade and commerce, but also establish the bases for religion, respect cultural values such as privacy, segregation of ethnic groups and professions, and so forth, while embracing their diversity, and at the same time consider climatic and ecological factors due to heat and aridity, that necessitate special solutions. The city divides up the lands according to Islam, keeps the members of a clan, religion or family together, tempers the unbearable hot-arid climate, and channels water to where it is needed, all simultaneously. So all factors and Nizams contribute to the building of the city and none of them is so dominant that it overshadows the others and dictates its framework to the whole city and the other Nizams.

There are some other determining matters: a. certain factors in the city constitute Nizams because all factors in the religion and culture are conditional on their integration, and thus they stand on a network of relations in the city; b. the internal relations of the Nizams are complicated because Islam, permeating all aspects of daily life, has a strong influence over the Nizams, even the

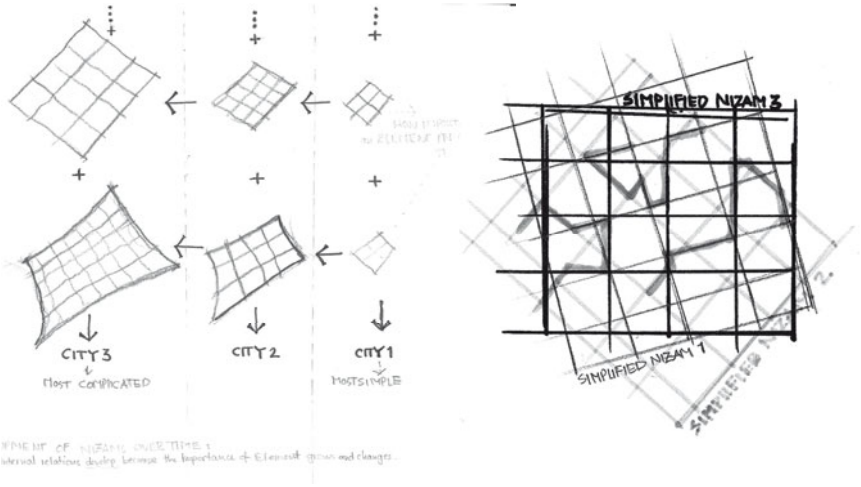


Figure 33: a) (left) changes of Nizams over time: the internal relations of each Nizam change throughout the history according to its relation to people's life-world; b) (right) Nizams together and superimposed (source: author).

unreligious ones; that means, for example, that the element of water constitutes a Nizam in the city because it connects to the city not only through its ecological aspects, but through other religious and philosophical issues, as well as being dependent on the regulations of Islam for its importance. Thus, the different ways it is used make its network more complex; c. the Nizams are interwoven because they have commonalities: the Nizams of trade and society, the Nizams of trade and religion, the Nizams of water and religion; d. as mentioned, each Nizam manifests its internal relations/principles in its interaction with the city and makes a geometric layer within it. Since the goal of each Nizam is based on an element — such as commerce, water, religion, and so forth —these relationships have different kinds and extents of physical manifestations over the city. That means each Nizam contributes to the geometry of the city according to its physical or nonphysical dimensions; for example the Nizam of society has a more apparent physical embodiment in the mahalla-s, trade appears in the main bazaar, but religion is dispersed throughout the city, as confirmed by the regular distribution of religious buildings over the city; e. the combination of these Nizams creates a mega-Nizam in the city, which defines the general configuration of the city's structure, including such features as the location of the bazaar and the mahalla-s. The main principle is to let all Nizams be present in different parts of the city — indeed, this principle is probably the dominant Nizam, which arises from the religion and culture.

Therefore, in Safavid Isfahan, we encounter a city whose geometry is the product of the superimposition of the physical manifestation of the interwoven and (almost) equally important Nizams. If we suppose the framework of each Nizam, very simply and without considering its semantic, historical, and dimensional complexities, to be a Network (or matrix), we will have a number of Networks which are superimposed onto each other and constitute the form and order of the city (figure-33, b).

What is important in this composition is that even if we reduce each of these Nizams to a simple network, the combination of these networks seen from above issues in a seemingly chaotic geometry, because there are so many orders in it with no dominant framework to impose a form on other orders according to its framework. So *what makes Isfahan (or other 'Islamic cities') different is mainly the simultaneous presence of all the Nizams in the city without any one having an overwhelming dominance Nizam*. Assuredly, the large number of interwoven Nizams, which has grown in time, with their internal relations, makes this composition more complex. The twofold geometry of Safavid Isfahan might be the best example of this claim. In the Old City of Isfahan — the Seljuqid city — where the city was being constructed by its residents, there were a number of principles and Nizams in the city whose hierarchy of importance followed a generally defined picture of equality/balance. Although in some periods according to circumstances, one of the Nizams increased or

declined in significance there was nevertheless always a general balance so that none of the factors was decisively dominant and determining. This relative equilibrium meant that in building this part of the city, the important principles were present simultaneously, and this lead to the city's non-geometric form. In high contrast to this, in the Safavid period, the ideas and orders of the Shah stood at the top of hierarchy and became decisively dominant, so that a framework was defined and most other vital elements of the city — such as water, society, religion and so forth— were inserted into this framework and modified according to it. The result is a relatively geometric order in which the hierarchy of mahallas, water canals, commercial routes, and religious buildings were shaped or dispersed according to a dictated order. This might respond to the Shah's ideas as well as the settlement of the immigrants from Tabriz, and if it were to become a part of the real city, belonging to its residents, its form might become somewhat different. This dictated order might not necessarily be or originate from a geometric order; it can be the order of nature which leads to an organic pattern, it can be the direct order of religion alone, and so on. The question here is the combination of orders.

Thus, Isfahan did not achieve its form by chance or haphazardly, or because of a lack of administration or principles or because the principles in its form were not manifest. Isfahan has this form because its relationships, values, and principles and their hierarchy were such that they that led to this kind of pattern forming over a long period of time. Isfahan is neither an organic city, because the pattern of the nature is merely one part of its defining factors. The order of nature in combination with other factors constitutes its own Nizam and contributes to the formation of the city.

Thus Safavid Isfahan has its own logic, which does not necessarily lead to a 'regular order' and can be studied by analyzing and elaborating Nizams and their influences on the form of the city when the city is seen from above. The concept of the Nizam offers a new perspective in understanding 'Islamic cities'.

3.4 Isfahan Perceived from Inside

3.4.1 Why this Route?

To study the feelings aroused while walking inside the city, as the result of the combination of Nizams, and the way they are perceived, we chose a route to walk through and describe what happens along different sections of this route. The route starts from the Naqsh-i Jahan Bazaar and continues up to the Tarikiha alley and Najafi house (figures-34 a, b, c).

In fact, the goal of this walk has been to identify a route from the Bazaar as the most public point and the heart of the city to the interior of a home as the city's most private point. Unfortunately, although a large number of historic

buildings have been renovated in Isfahan, it was barely possible to find any historic texture which remained original or had been restored in line with its original structure. Following a degree of research, making a few journeys to Isfahan, visiting all the nooks and crannies of its old neighborhoods, and talking to researchers who have been working on the city — such as Montazer (2009) — it became clear that the mahalla Poshte Masjid (neighbourhood behind the mosque) had faced fewer changes and might be the most suitable area for our field-research. Since Koocheye Tarikiha ('Darkness Alley') was in this Mahalla and has a direct connection to the heart of the Bazaar and at the same time terminates in an assortment of historic houses, it meets all the criteria for this part of the research and consequently it has been found suitable for a case-study.

The historic maps (figure-34 b) show the situation of this route in its context and the rare modifications to the mahalla which have taken place over the years.

3.4.2 The Journey

a. Bazaar route and a residential alley, Situations 1-8 in First Map Legend (figure-34 d):

We start our journey from inside the Naqsh-i Jahan Bazaar.[54] What we see as the first view [1][55] (figure-35) is a row of similar small vaulted spaces, consecutively lining the bazaar route up to a fountain of natural light. Each vaulted space, consisting of two shops, four columns, and a small vault, composes a cell (cellular units) within the Bazaar's space, breaking the routine straightness of the line, and changing it into the outcome of a juxtaposition of spatial cells.

Thus, what is seen is a route/line in which a number of sub-spaces repeat each other in a continuous succession until the view ends: the repetition of spatial cells which get smaller and smaller and disappear into a point of brightness. We perceive it as if a spatial cell is repeatedly reproducing itself within itself and as if these reproductions are born and opening inside each other. In terms of spatial arrangement too, they are born inside each other, because in the middle of each sub-space the next one starts and the last one finishes. These repeated cells break the space and at the same time make it into a fluent continuum. Through walking within the bazaar, we enter and discover

[54] We observe this route through the eyes of a modern observer, which will surely have surely some considerable differences with the perceptions of a native person who lived during the earlier periods of Isfahan and experienced the old city according to the structure and rules of those times. But the goal of this text is to re-read the city, that is to say, to re-consider it without determined presuppositions. This re-reading helps us to find out if there is a common feeling and characteristic, and to discover if it is really like a labyrinth or a labyrinthine pattern.

[55] This section [ ] refers to the position of the individual as shown on the legend maps.

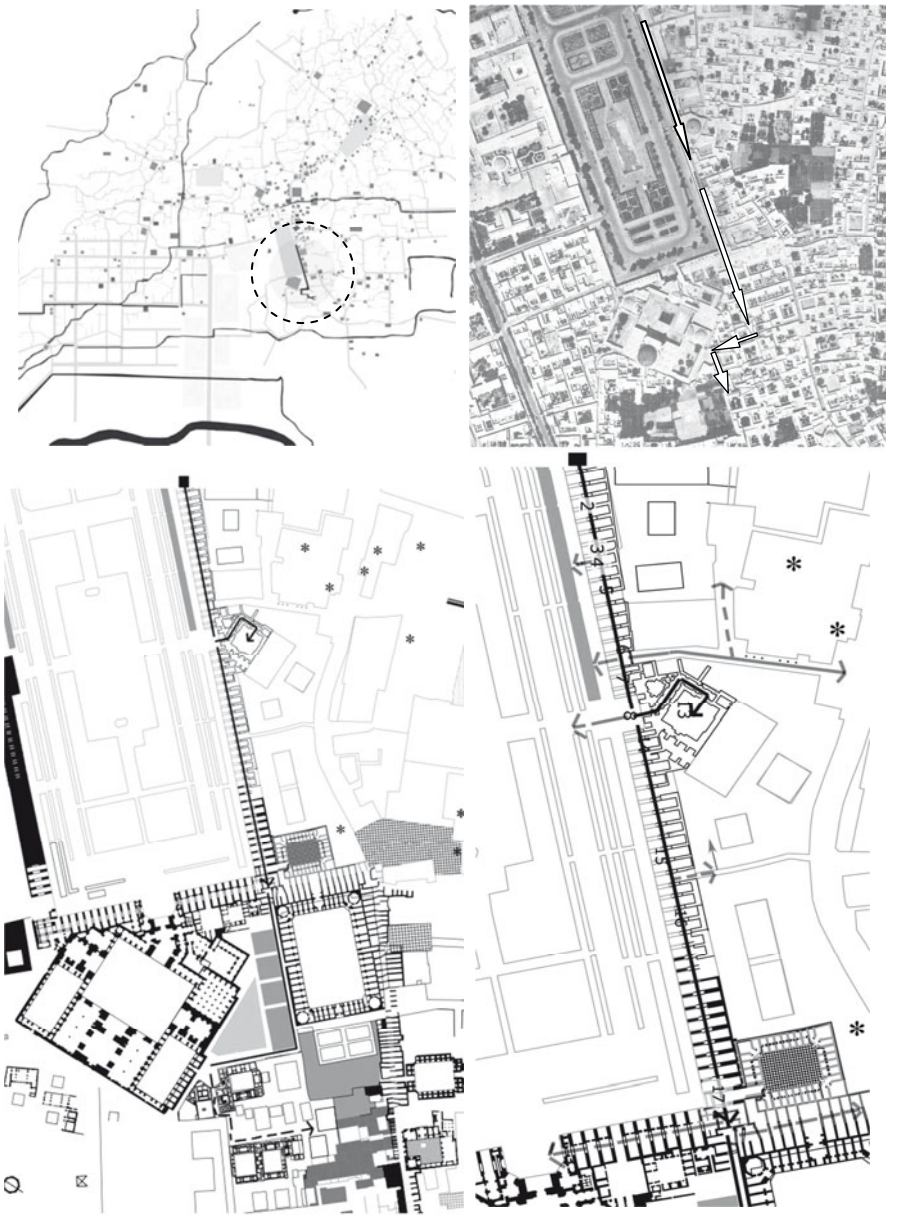


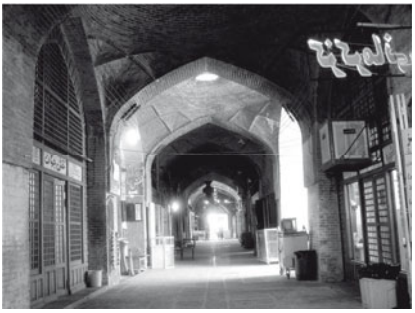
Figure 34: a (top left): the route in Safavid Isfahan (source: author); b (top right): the route in aerial view of Isfahan 1945, modified from the documents of Tehran National Cartographic Center; c (below left): the route with the surrounding buildings and (below right)**:** First Map Legend, modified from the documents provided by the Naghsh-i Jahan Pars Consultation.

each of these spatial cells and become curious to continue exploring — spaces inside spaces.

Each of these cells includes its special materials, including the handiwork of artisans, which alter the Bazaar and fill it with colour, sound, odour, and movement. It is the world of things which are, as such, their own worlds. For example, the Carpet, as one of the main commodities to be sold at the Bazaar, has a kind of geometrical pattern which is the result of the superimposition of various lines of geometrical or organic form.

This repetition of spaces occurs in the bazaar's special occlusion, where the intrusion of light at particular points is noticeable and can point to a difference in the space [2] (figure-35). Approaching the source of light, the contrast between darkness and brightness increases and it becomes perceptible that there is a point of access to the outside of Bazaar towards Naqsh-i Jahan bazaar [3] (figure-36). The only visible thing at first is the invasion of light, and then a new view opens up, revealing the maidan and specifically, the Aali-Qapu palace [4] (figure-37). The sky, the greenery, the partitions of Naqsh-i Jahan Maidan, and the palace are assembled in the view seen through the arch-shaped opening in the bazaar. What is observable in this view is the partition of the maidan, which consists of (again) the repetition of certain geometric elements, namely, arches of different sizes. This time the repeated elements do not so much create the space, as happens inside the bazaar with its spatial-cells, but they form a layer of space. In the respect that, instead of lining up in a row to engender the depth of space, they are juxtaposed in an arrangement that frames the view; although the opening up of this view from within the bazaar is in itself a layer of depth for the bazaar-walker.[56] This composition gives the walker enough information for them to understand that there is something different there, in another part of the space, not so far away from the path they are using; but it does not clarify completely what this other place might be. It appears to be a sign of/for something, but it does not reveal of what, because its elevation, structure, ornaments, and so on do not point to anything directly and explicitly. And this obscurity is the result of the simplicity of the repetition of its abstract geometrical patterns as architectural structures or ornaments. This repetition and similarity in shape, in both the bazaar space and the maidan's partition, plays the role of an outer covering that helps in the understanding of the space, although the space has been manifested through it. It is somewhere between revealing and, at the same time, concealing a concept. The space, our view/perspective, is arranged in the layers and in this order we see the similar geometric shapes on different surfaces which frame the sky, the space, and our view. There are a number of similar openings —such as those last mentioned —which are the way the walker

[56] It adds a depth to the perception of walker because it gives a new space-layer to the spatial-structure of the walker.



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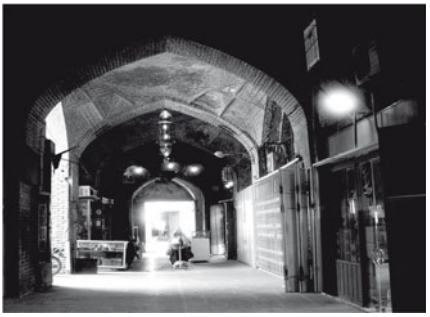

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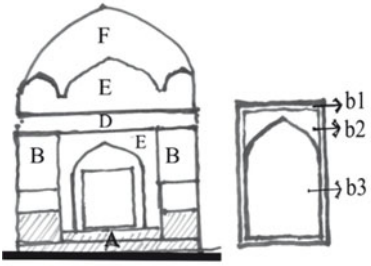

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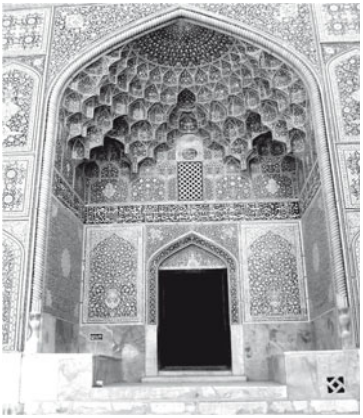
becomes informed about the other parts of the surrounding space, so they form a vast dimension of spatial perception and add another layer to it. In fact, in this way the maidan, connecting to bazaar, behaves like a subsidiary layer as the background of main space (bazaar). When walking through the bazaar, the presence of the maidan can be felt behind the windows of shops and is noticed several times through the similar openings along the way or in the shops. This gives the space variety and makes it more complicated/obscure, because again there are some connotations to a space but the spaces are not unfolded: they are, rather, continuously noticed.

Although this is a public area and so belongs to the most open realm of the city, the repetition of elements and lines (geometries) avoid expressing or displaying its hidden concept directly. Nowhere can any sculpture or painting or other such manifestation be found that presents any public concept, anything which the people believe in, their values, faiths, stories or sacred figures, directly and explicitly. The principle and pillar of these beliefs and values are all hidden behind the lines of arches, sub-spaces, ornaments, calligraphy. What can be seen is a large number of surfaces decorated by repeated lines of ornamentation or repeated sub-spaces which may appear to those unfamiliar with them to be without any meaning, dimension, or value. But an informed eye knows that all these are manifestations of the Nizam which is rooted in the thought and life-world of the people and one of the most crucial aspects of this Nizam is based on the principle of the unrepresentability of God and the dictum that nothing is allowed to be presented figuratively (through physical materials) in Islam. The bazaar continues with the same spatial order, the combination of arches, vaulted sub-spaces, contrasts of darkness and brightness [5]. On the way to reaching the main light source at the end of the first vista, another wing of light appears on the left hand side (figure-38). In this view, the presence of light has defined a special character for the space and it has cut through the repetition of sub-spaces in the bazaar route. This time, three dominant sub-sections, distinguished by their contrast of darkness with brightness, are perceptible. These sectioning results in a gradation of space and these dark and bright spaces transform to each other gradually until the brightness at the end of the first vista, that seems to be the end point of the bazaar, is not actually the end, and the light point on the left is actually a ramification point, an alley going to a residential section which has a completely different flavour [6]. Suddenly the sounds, smells, and colours change to silence, a single colour (monochromatic); a different world. On the one side of this alley, there is a tall brick wall, above which a colored blue dome can be seen, announcing other activities behind this tall monotone wall. The alley is narrow, flanked by tall walls with curves along the way, which prevent the walker from seeing, perceiving, or guessing the end of the route and subsequently make the way unclear and obscure. The walls, with their simplicity and height, yield no information about what is happening behind them.



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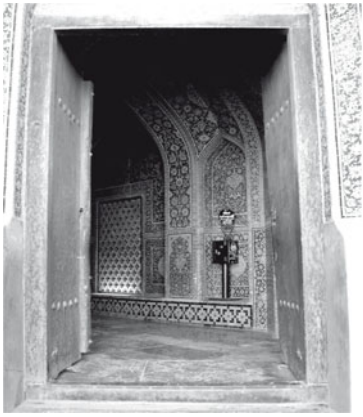

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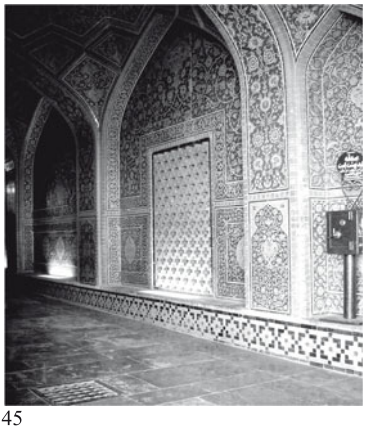

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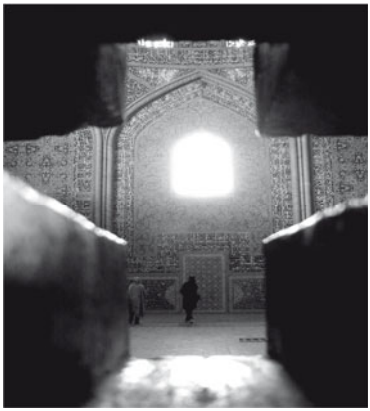

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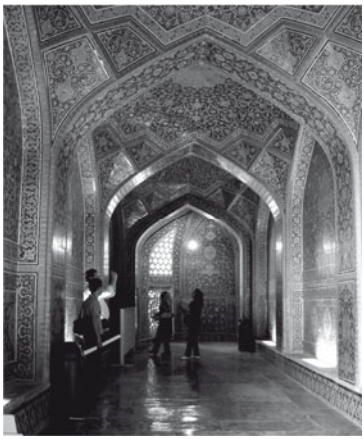

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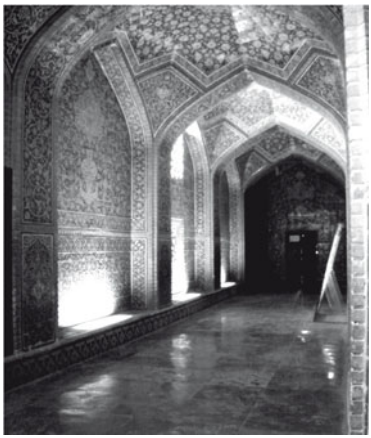

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They do not open up to other views and the only things the walker sees on these walls are simple doors and occasionally small windows at some height. These characteristics make the space obscure and mysterious, and arouse questions in the mind about where and what is at the end of this route, how it ends up, if there is any special feature at its end, if it will terminate in some significant space, if it is safe, and so on. It keeps the walker un-informed and this obscurity could either encourage them to stay on the route and discover it further or it could simply frighten them from continuing.

Returning to the main walking-route, namely the bazaar [7] (figure-39), and getting closer and closer to the light source at the end of the way, it becomes clear that there occurs a break in the repetition of the bazaar's spatial cells, because the doorway of Sheikh-Lotfollah Mosque stands in an opening (figure-40). Here, the colour and flavour of the view change completely and the Sheikh Lotfollah Mosque appears.

b. Sheikh Lotfollah Mosque, Situations 8-13 (figure-43):

The portal of the Sheikh Lotfollah Mosque, with its colours, lines and text-inscribed surfaces, seems to invite the walker to enter into a special space. Its manifold ornaments, a combination of geometric lines and flowers, make the perception/understanding of this doorway area complex. In fact, it is not possible to apprehend it thoroughly in the first look but only through a series of consecutive stages and views. This consecutive perception and interpretation could be referred as the 'plays of perception'.

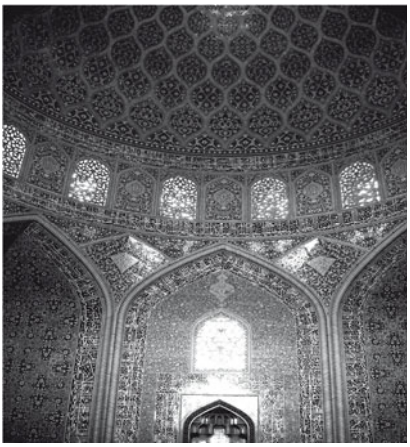
At first sight, the view perceived is a combination of the predominant elements including: a flavour of dark blue, a main door, two ornamental arches on both sides of the door, a small interlaced window on the top of the door, the external lines of *muqarnas*, and the strip consisting of alphabets and wording that extends from the right to the left side of our vision, and which all seem to be filled — at first look — with dark blue coloured surfaces. This is the first perception of the general structure of the portal. A second view, that is, a more penetrating look at this portal, reveals other colours such as dark yellow and light blue at the two sides of the interlaced window and main door; the portals of ornamental arches and of the door; the ornamental flowers on the background of all surfaces; and the undulating surfaces of muqarnas. So one discovers another aesthetic layer — a new perspective — of the portal. With the third gaze, one reads the texts of the strip; sees portals in other parts such as at both sides of the interlaced window, and remarks the points of each sub-surface (the ones which have been framed in small frames). This view is deeper and more detailed than the previous ones.

With the fourth gaze, one thinks about the meaning and also the graphic style of the text; sees the interconnected and superimposed lines of the ornaments; understands that the ornamental lines are of three different kinds; follows some of the lines; and considers the number of flowers, the central/emphasized point of each frame, the colours and other detailed elements. With the fifth gaze, one tries to understand the texts, their symbols, and significations, and to observe each geometric ornamental layer separately to discern its concept and principle, to discover it.

This play of perception doubtless differs from person to person, according to their different world-views, presuppositions, and information. To each individual, these views and layers of perception could be defined different in quantity and quality, but what remains intact is the fact that this portal cannot be perceived in one or two stages, but includes different layers of seeing, discovering, understanding, and reading, each of which is a complete layer with an exclusive structure. It seems it can be said that similar to the bazaar, which has sub-spaces that the individual has to trace, one after the other, to experience and penetrate them, this portal has sub-layers of perception which must be conceptually traced in order to understand them. Each view bears other views inside it; the various 'withins' which open inside each other.

Another interpretation could be that, at the first glance, this vista could be divided into various surfaces which in combination build the symmetrical pattern of the portal (figure-41). Each surface is as such a combination of sub-surfaces. For example, surface B consists of three sub-surfaces of white frame (b1), green surface (b2) and blue one (b3), each of which also consists of further sub-surfaces. As an instance, the sub-surface of b3 is the combination of arabesques and flower motifs based on an elaborated geometrical pattern. This sub-surface takes one from the two-dimensional field of motifs and colours, to the three-dimensional world of associations and connotations, to the greenery and ideality of 'paradise' via the flower motifs, and to the deepness of heaven through the blueness of the colour. Through this gaze, this surface becomes a matrix of layers with associations of revealing-hiding. Therefore, one does not remain on the surface, but is invited into a 'mirror-play of layers' and to a journey of semantics.

On surface C, one encounters another kind of multi-layered-ness. Instead of motifs, lines of the Quran are conveyed through calligraphy. These lines, part of the Quran, artistically written and tiled, narrate the original context of the holy text, and open up another multi-layered-ness: the multilayed quality of the world of the entrance through the individual into the spiritual realm, and the attention not only moves through the lines of the text, but goes into the semantic matrix of words and meanings. Thus, this vista, the entrance, is a symphony of layers, every layer a symphony in itself, and the overall scene a mirror-play of layers.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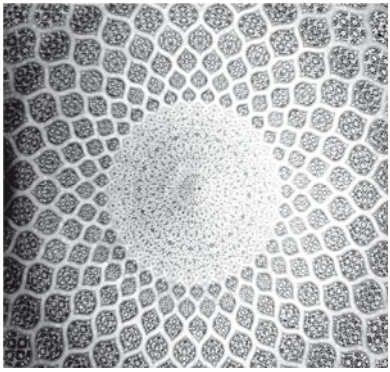
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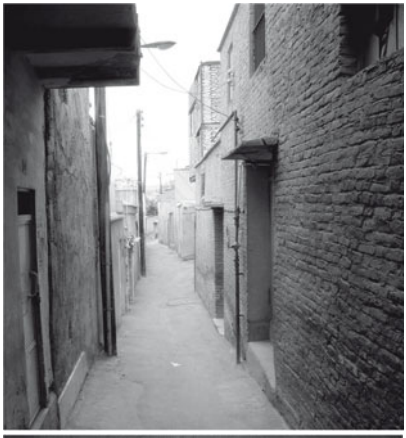
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Following this challenge with the portal and entering the space of mosque, an ornamented wall — with similar ornaments to the portal's — stands directly behind the door of the Mosque. This wall extends the view further back and inhibits the intention to penetrate further into the building, in high contrast to the strong invitation to enter presented by the portal [9] (figure-42). Approaching the threshold of the door, this wall becomes more apparent and another interlaced window, of a completely different colour and geometry, begins to appear in our view (figure-45). The high difference in its colouring in this context and the simplicity of the geometry of its ornamentation, in contrast with the detailed ornamentation of the other walls, are such that it attracts the eyes and attention.[57] Approaching it, a dim source of light can be seen behind its lattice, which connotes another space behind this surface. Looking through it, one sees a framed, determinate, narrow, and attractive view which signifies a large and important space (figure-46). But it remains unclear where this space is, what it is, if it is the last outpost of the route through this building, if it is anyway a part of that route, and so on. It reveals an entity but does not say enough about it. The continuation of the route is a corridor with sub-spaces or spatial-cells, similar to those of the bazaar, but much more colourful and ornamented. At the end of this vista on the passageway, a curve can be seen, which is emphasized and highlighted with the light that invades through the lattice window at this curve. Tracing these sub-spaces one after the other, the two-dimensional view changes to a three-dimensional one, which makes the experience of this space more determinate. Each sub-space has a vault and two walls on both sides (left and right), which are full of the lines and colours of ornaments, of which it is impossible to form a proper conception on first view. Thus, each sub-space has its own spatial depth and this depth originates from the superimposition of the geometric layers (perceptible layers/views) behind/on each other —similarly to the depth of this corridor, which is the result of the consecutive positioning of spatial-cells or sub-spaces. These cells transform structurally to each other so smoothly that a gradual transformation happens at all stages of walking through this space. On approaching the luminous curve, the continuance of the way on the right hand is observable [10] (figure-47). Here the 90° change is mitigated by the smooth transformation of arches, ornamental lines and figures, and the illumination of the space with a lattice window. At this point, a new view opens which, similarly to former one, includes consecutive vaulted spatial cells and a door at the end [11] (figure-48). Nearing the end point, another large door opens onto a vast space on the right hand side. As the first view of the interior, a lattice which admits an intentionally vast amount of light can be perceived. When one

[57] This time it is the simplicity of structure and colour which distinguish this element in the coloured and ornamented context. And this leads to the fact that it attracts our attention more than any other element.

stands at the threshold, the view is one of a framed altar, which is celebrated by ornaments, texts, and light [12]. Here is the dome space of the Mosque, composed of a square plan with a huge circular dome on its head [13] (figure-49). This is a sacred space which, despite much ornamentation, is replete with abstraction: the single-ness of the space, the two simple geometries in space with their complex transformation (the square plan transforms to the circular plan of dome), the simple lines of ornaments and their complex combination, the play of light, the texts that run through the space, and so on. It is full of layers — the layers of lines and the layers of meaning and symbols — which are like interwoven threads and materials. The symbolic presence of light is crystallized before entering the space. The meanings and significations are alive in the words on the walls, in the sacredness of centrality and unity, and in the endeavour of lines to present abstract geometric shapes. Here, the depth of the space can be read and experienced, not through physical movements, but by a spiritual progress, and penetrating contemplatively the layers inside the space. Here, instead of spaces opening within each other, it is meanings or words or geometries that open within each other. It is the celebration of spiritual multilayerd-ness (figure-50).

c. Continuation of the Bazaar, Situations 14-17:

In the continuation of the route, a door in the south wall of the Sheikh-Lotfollah Mosque entrance portal opens to the bazaar and the same characteristics are revealed: the cellular units which are arranged in a row with a glimmer of light which invites one to continue along the way, to pass, to discover, and to walk through these spatial-cells one after the other [14]. This view too is closed by a wing of light. On the left side of the way, again another interruption appears: a brick wall which makes the walker aware of the beginning of a subsidiary road on this side [15] (figure-51). This alley, just like the last one, has different spatial features from the bazaar: it does not have any colourful goods like the bazaar; instead it is surrounded with tall brick walls, with few windows, and punctuated with a few small doors (figure-52). One's view is truncated by the first curve of this alley. To discover where it goes, one has to trace the alley at least till this first curve. Reaching the curve, a new view opens out, which is closed by the next curve. This means that it is a similar view, which begins and ends in two curves. The monotone walls, in their muteness, encourage and persuade one to proceed and discover more. When walls give no information at all about what is happening behind them, the only way that remains for the walker who wants to find out more about the space is guess-work, based on associations and codes. The state of the walker is not one of absolute ignorance, but is an invitation to 'play': advancing, discovering, and being made happy (surprised) by the discovery or becoming hazy due to the special perceptual qualities of the space. In the bazaar the space is more open and more eligible,

Figure 55: Legend, the rehabilitation proposal, the caravanserai at north east of map is not reconstructed yet and at the time of visit (Spring 2009) there were small houses and allevs instead.

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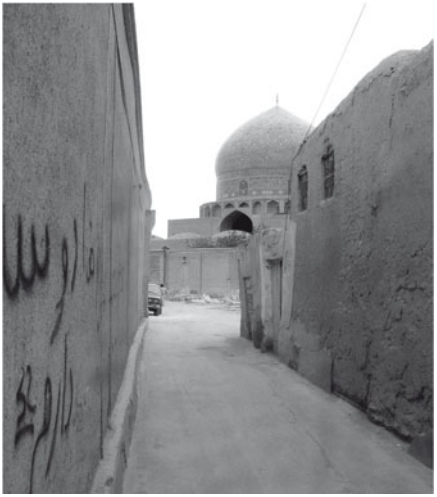

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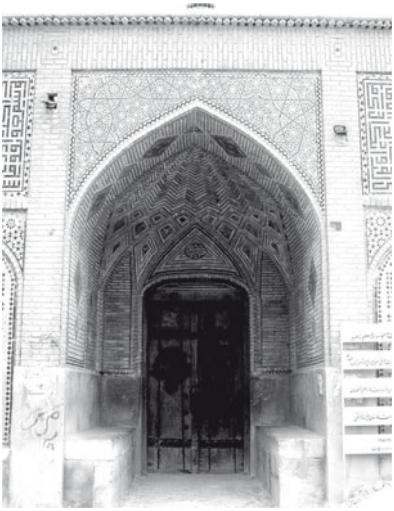

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because the bazaar is a place for 'presenting', and we can apprehend it through all our senses. In high contrast to this, the alleys are not for 'presenting' and are more for 'hiding': they hide their interior, which generates feelings of mysteriousness and obscurity in space. With each curve the mysteriousness increases — the walker becomes distant from the bazaar as the centre of movement and of their mental city plan as the way becomes more obscure. What happens in the space of the alley with its special curves is in fact a challenge of discovery, and with each opening of a new view/way this challenge is recommenced. With the passing of the last curve and the opening of the last view,[58] the fall of shadows decree that there must be another way branching from the alley. Arriving at this point, a narrower blind alley can be seen, onto which the doors of some of the houses open.

Tracing the way back, one can continue walking the main route/direction of the bazaar, to the continuance of bazaar and its very brightly-lit end point [16]. The arches of the maidan can still be seen through the windows of the shops, reminding the walker that they are still in the area of the maidan. This presence is like a lateral spatial-surface in the background of the walker's movement. Close to the brightly-lit end of the view, two openings appear (figure-53). One is a new view to the maidan, a general view of the whole maidan from its south-eastern corner and also the doorway of the Abbasi Jami Mosque, which shows the walker that she/he is leaving the maidan's area (figure-54).

d) Residential alley, Situations 18-27:

The bazaar continues in the same way up to the end of the eastern wing where there is a choice of three routes [17] (figure-55, 56). It is similar to the last two alleys traversed, in that the colourful flavor of the bazaar suddenly changes to the monochromatic flavour of the alley (figure-57).[59] The heights of the walls are relatively similar, which makes an unbroken line of shadow on the ground. The first view and perspective to the route is blocked by the tall curved mud wall which bends to the right [18]. The single-coloured, homogenous appearance of all the walls prevents the walker from gaining any clear understanding of whether this is a blind alley or a through route. Along the way, another narrow alley appears which splits from the main route and has similar features:

[58] The last point of our route — it is the wall of a house. But, according to the map provided by the Ministry of Housing and Urbanism, this wall belongs to a house which has been built recently and is the result the kind of inappropriate new construction which here and there cuts into the historic fabric of Isfahan.

[59] The first is the continuance of the south wing of the Naqsh-i Jahan bazaar, and the second is the path of the main city bazaar which terminates in one of the old city gates. The two of them have shops at both sides and their roofed ceiling seems to be a part of the main bazaar and its commercial space. But the third way is no longer roofed and its windowless mud walls confirm the beginning of a new and different space.


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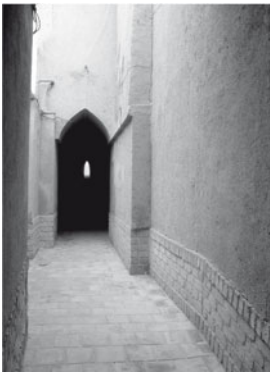
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the monotone shadow line on the ground, same wall height, a few small windows here and there, and sometimes the tops of trees above the walls. It seems this alley connects to another alley on the other side. Approaching the curve, even up to the nearest point it is impossible to guess what will happen and what is actually behind it [19]. Suddenly an unexpected view opens up: a pleasant blue dome at the end of an alley with high mud walls [20] (figure-58). This dome, within the context of the walled silent alleys, is like an event, which makes the walker happy and encourages them to continue along the route, discovering its twists and turns. The dome is observable, but it is not clear if

there is any access to it from this alley, nor is it clear what this dome symbolizes, which kind of space is under it, and its actual distance from the walker. Approaching the end of this view, a relatively small doorway with ornaments, on a wall which is the same height as the other walls of the alley, appears at the back of the dome [21] (figure-59). It shows that entrance to this different place is possible — its different portal and the dome behind it tell us that the space inside is likely to be different. It was almost unexpected that such an event should suddenly occur between these silent, introverted, and simple walls and twists, although the walker has in fact not yet discovered its exact nature. A building can be seen which is introverted and hides its principle purpose but makes the walker aware of its presence with two signs: the dome and the portal, whose coloured and ornamented surfaces draw the attention within the context of the surrounding homochromatic walls. The surfaces of these features are full of geometric and flower ornamentation and it seems that the combination of these geometric layers has a similar effect to the other signs within this space: they make a pattern, and when one sees it one has a general feeling about it, but to understand or perceive, it must be penetrated. It hides its principle among its various geometric surfaces and at the same time it can connote its principle with the combination of these layers. Thus, it notifies, that is to say, it reveals, but it does not reveal clearly and it is not directly understandable; instead its layers should be read, and understood, so that this principle and concept might be cleared and discovered, just like the thing of value that has been hidden behind many doors. It is a paradox: it hides its concept among the layers of lines, behind many doors, and at the same time it is these lines and doors which have embodied it. In fact, this concept as such is very close to 'hiding', while at the same time 'revealing' an understanding that must be arrived at through encountering a 'challenge'.

In this alley, there is a *Hashti* in which there are three doors, and each of them seemingly opens onto a house: doors within doors or openings within openings. At the end of this view, in front of a small colored portal there is a more spacious area which is the junction of three ways, the first way is the one we were on, the second the alley which follows the wall of the mosque is and called Koocheye Masjid (mosque alley), and the third one is a narrow roofed alley [22]. The light source at the end of the third way shows that it is roofed for a short distance and there is a curve on its other side. There is a relatively large doorway close to it. Walking through this roofed alley, two doors, seemingly the doors of two houses, are noticeable [23]. At the end of this short alley there is a curve, after which the way branches into two routes.[60] Choosing the historically

[60] According to Montazer (2009) this way was not originally divided in two and there was only one way here. The second way has been recently added after the division of the Zerehsazan Garden, which belonged to Qajar period. Thus, we chose the original way.

original way, one enters a roofed dark alley, without any door, which is called Tatikiha (Darkness) alley, and again there is a short view which is curtailed with a curve [24] (figure-60). Here, the space is surrounded on four sides — left, right, above, and below — by monotone simple walls without any opening. But a dim light at the point of the curve indicates that the way continues (figure-61). At the end of this view, another new view opens up: an attractive perspective with two points where light intrudes, cutting the simplicity of the space and making it more mysterious [25] (figure-62). The first light source is from a narrow and blind alley on the left side in which there are some house-doors (figure- 63). What is seen at the end of this narrow alley is half of a door, which either announces a more spacious area there or that alley is in some way continued from here (figure-64). But again it is unclear. The silence, the introversion of the buildings, and the narrowness of the route make the space so heavy and private that even today (in modern times) no one can easily trace them to their end, unless they have a reasonable justification to do so. Turning back to the route, namely the roofed alley, the second light source is also another alley and at its curve a new and different view opens up to us. This alley is roofed for a short distance and then is open for another short distance. What can be seen is a view divided into three parts: darkness, first space; brightness, middle space; and darkness, last space. The last space is so dark in contrast to the middle space that one cannot guess what happens there, the only available supposition is that the way might be continued. The flavour of this space is special: the tall mud walls, small windows at a height, the tops of some trees over the walls, two simple doorways which are signs of the houses behind them, and the constant opening and closing of the spaces from brightness into darkness and from darkness into brightness [26] (figure- 65). Approaching the last dark area, its space reveals a roofed alley with a light source at the end, but it seems like there should also be another space in the middle of this last space. To clarify this surmise, as ever, we have to walk our way through. And an unexpected pleasant event is that at the midpoint the way is divided into two very narrow low-roofed alleys which both terminate in a very bright point [27] (figure- 66). On the right side of the alley there are two doors and on the left side there are four doors. And the terminus of both alleys is not a wall, but a door. That means both alleys end in doors and not simple walls. The door of a house is not a cul-de-sac, it is as such a world of goings-on, hidings, discoveries, and so on. Unfortunately, we do not have any access to these two houses to show how this way does not actually end in a cul-de-sac, but rather changes to another space and world which is called the house, the space which encompasses many concepts and principles. So the walker can trace back a bit and go inside another house in this alley. It named Najafi house and is a typical middle-class traditional Iranian house (figure-67). Before entering the house, one has to pass a Hashti, which is a small-roofed intermediate space between the alley and

the two doors inside belonging to two houses. So, one passes the first door off the alley, the door of the Hashti, then the second door, the door of the house within the Hashti, and then a long corridor to reach the main courtyard of the house around which the spaces of the house are arranged. So the courtyard as the core of the residents' private life (house) is hidden behind a large number of successive curves, alleys, doors, and corridors, that resemble the conceptual values hidden in architectural spaces — such as Sheikh Lotfollah Mosque — or in ornamentation.

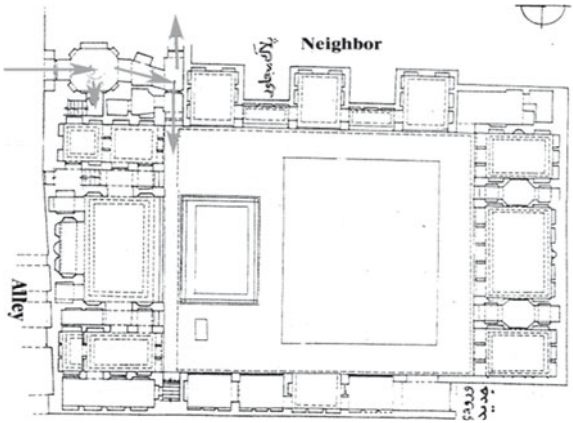

Figure-67: Najafi hause, modified from documents in the archive of the National Cultural Heritage in Isfahan .

3.4.3 Revealing but Hiding

Based on what has been experienced in this perambulation, it can be said that the main characteristics of the space are: connoting but not revealing directly — through ornamentation, through repetition of sub-spaces, through visual access to the main space in the mosque, through the walls in alleys, through curves; hiding the valuable spaces/concepts behind numerous layers — as regards access to the main spaces in both mosque and house, and reading the ornamentation; absence of direct access, protecting important spaces by siting them at the centre — the courtyard inside the house, the Dome-space at the centre of the mosque; concepts of ornamentation — the necessity of challenge for achieving goals (space or concept); and the successive discovery of spaces and layers — the opening of curves, tracing sub-spaces of the bazaar, passing through the doors, the hashtis, or corridors of houses, discovering layers of ornamentation, the process of encountering the Dome-space.

So, as the main principle it may be possible to say that in the spaces or ornamentation there mostly exists a Valuable Core which must be protected behind a series of Layers in such a way that to achieve it these layers must be opened one after the other; indicating a continous Challenge and Lingering. For example: in the mosque the dome-space is the most important and sacred space which has a high spiritual difference from the world outside (bazaar). This sacred space has become hidden behind layers in two dimensions: the physical — having to pass through a corridor, although the designer could have created a direct access to the Dome-space; and the immaterial — the ornaments in the sub-spaces constitute the immaterial dimension of the challenge. The individual passes through these spaces (layers) to become prepared for an encounter with, and enterance to, the sacred Dome-space (core). A similar thing happens in the case of houses. The interior of a house is the most private space in the city and should be strongly protected. Thus, it has been hidden behind a large number of layers — such as various curves, walls, simple and monotone surfaces or uniformity of walls, hierarchy of alleys, doors, hashtis, further doors, and corridors — so that, in order to reach it these successive spaces have to be traced and discovered; from penetrating a layer (within) to penetrating an other (within). The valuable core in the ornamentation is their concept and pattern, which is legible after engaging with their challenges and revealing their superimposed layers.

So the above-mentioned cases prevent direct access to their valuable cores and do not present them in a direct manner. Most of the spaces in the city have the same feature, except the bazaar which apparently has no core and is in fact a route connecting different sections of the city. Although the bazaar seemingly has no core, its repeated sub-spaces that cut while connecting up the path, constitute its layers, which have to be traced and dicovered one within the other. The various accesses to other spaces and routes along the route of the bazaar constitute further layers of its space.

This hiding and not directly displaying, suspending access to a goal, opening layers within each other, makes the space obscure and strange for a non-native who is unfamiliar with the valuable hidden cores dispersed across the city. Such a visitor cannot communicate with and understand this space, so comes to feel as if lost.

4 Towards a New Terminology

As has been mentioned in preceding sections, the concept of labyrinth accompanying other epithets such as tortuous, bewildering, winding, irregular, and formless has been applied to explain the structure and form of the street network of 'Islamic cities'. These attributions have been made by two groups of authors: 1. scholars of the 'Islamic city', dating back to the early days of scientific study of this kind of city, when the scholars were strongly influenced by Orientalism; 2. travellers who visited traditional Iranian cities or other cities belong to Islamic countries in various historical epochs; and in two ways: a number of these authors describe the plan and general shape of the cities as labyrinths while others believe that the feelings raised while walking through the city are in some way labyrinthine or labyrinth-like. To examine the accuracy of these attributions, we have studied the two sides of the analogy, the concept of labyrinth and the city. On the one hand, studying the concept of 'labyrinth' has revealed that a number of geometric patterns, interpretations, and characteristics have appeared in various historic periods as typical representatives of this concept. The patterns include unicursal, multicursal, and rhizome patterns and the interpretations render it the symbol of underworld, of 'this world of sin', of the world as God-like being, as the way to Jerusalem, and so on. On the other hand, studying the city shows that the city has its unique features: its form is the outcome of the interaction of different Nizams and its spaces reflect particular shaping concepts, such as the simultaneous revealing and hiding that is affected by embedding various possibilities of 'reading'.

Now, in this part of the account, putting these two sides of the analogy side by side, we want to discover what similarities exist between them, if their patterns are similar, if the feelings aroused from their patterns are similar, if they are comparable, what are their similarities and differences, if these similarities are enough to attribute to the 'Islamic cities' the quality of labyrinth.

4.1 'Islamic City' and the Concept of Labyrinth

According to the conclusions arrived at in the first part of this account, the concept of labyrinth is related to two main terms: labyrinth and labyrinthine. As discussed, the major difference between these two terms is that the labyrinth refers to the various entities the term labyrinth has denoted over the history, including how these entities have been interpreted; while labyrinthine denotes the characteristics that people have interpreted or experienced in relation to the patterns of the labyrinth. That means that a group of feelings, such as confusion, mysteriousness, inextricability, and impenetrability, have been connected to the concept of labyrinth over the course of history. On the other hand, it has been manifested mainly through three patterns — unicursal, multicursal, and rhizome

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— and a number of ramifications and interpretations have been derived from this aspect of the concept. To be a labyrinth, an 'Islamic City' should bear at least one of these patterns, or share a number of these interpreted characteristics. For that reason, we should try to trace each of the physical manifestations of the concept of 'Labyrinth' in the city and compare the characteristics imputed to this concept and to the city, to figure out the main common or contrasting points.

4.1.1 Isfahan: a Labyrinth-like City?

Unicursal Pattern of Labyrinth in Isfahan

According to what is discussed in former section, it can be summarized that the unicursal pattern has the following main characteristics:

- the entrance and the centre (points A and B) are highly determinate;
- there is just one route to be traced;
- the centre becomes hidden behind the various folds;
- the centre has a different value from the entrance point: the high valuable centre versus the undistinguished entrance point;
- tracing the path needs special qualities, so that it has been supposed to be the symbol of rebirth, reincarnation and an Apotropaic device;
- the valuable centre is hidden behind many curves and the labyrinth has indicated 'no entry', which means: it is not enterable by all.

So the single-path-nature of this pattern places most emphasis on the uniqueness of the centre which is sucked into a pocket by the symbolic complexity of this process. The individual is not engaged so highly with the way as such, but with the process of traversing it successfully.

In order to trace the unicursal pattern in Isfahan, this pattern could be considered through two aspects: its form, and its conceptual characteristics. If we mainly observe the formal shape and geometry alone, it could easily be concluded that the geometry with a labyrinth-unicursal pattern — that of a line with a special defined geometry of a route that circles centripetally around a centre and creates a feeling of puzzlement up to the point when it arrives at that centre — does not exist in Isfahan or other 'Islamic cities'; not in the city, not in the spaces, and not in their elements.

Yet we can also consider this shape not merely as a form but as a concept, the symbol of the assemblage of certain characteristics, such as the differentiation between two points, the entry-point and the centre, and their special kind of connection, with its phasing and delaying. Through this perspective, some similarities could be drawn; for example, for the owner of house or a native the way from the bazaar, as the most public area, into a house, as the most private space, or into a mosque, as the most sacred space, could conceptually be

considered similar to this pattern in some ways (figure-68). Thus, the inside of the house (as point A) becomes hidden behind layers of roads and curves, and thereby differs itself from the most public point of the city (as point B). And to reach it, a defined set of stages along the route must be traced. In addition to this, a native person knows their way so they follow just one way to reach this goal point. The general feeling may seem to be the same, the delay set on achieving the goal, through the imposition of some compulsory stages and processes.

But there are some major differences between these two sides of the comparison. In a labyrinth the curves, as the stages of the way, all denote a same level of meaning without any emphasis or sign of emphasis on a different nature for the stages: the path in a labyrinth does not provide any access to other spiritual or conceptual fields.

Yet, in the city, this defined way — the way from the bazaar to a house or to the inside of a mosque — consists of various physical sub-spaces which, as was mentioned in the last chapter, stand behind each other and define the way through their transformations. An individual experiences this way not merely as a road but as the result of an assemblage of small spatial cells which transform to each other to create this way: in a bazaar these cells are the vaulted sub-spaces and on its secondary routes, each section of the road (between two curves) makes the cells. So the variety in the kinds of cells gives different characteristics to each part of the road. Moreover, there exist visual openings to

Figure 68: A pattern similar to the conceptual unicursal pattern (source: author).

the events or spaces behind or beside the main route which widen the individual's spatial perception and imagination.

Thus, in Isfahan each part of the way, each section of it, is in fact the assemblage of various 'things'. It is not merely a route, but each stage is the result of the gathering of different 'things' — such as arches, walls (with different colours, materiality, and height), sky, alleys with different widths, the play of light and darkness, the goods to be sold, like carpets with their special patterns and symbols — and views — visual access to Ali-Qapu and the maidan, views of the domes and minarets — which in combination with each other provide a sub-space with many conceptual (semantic) and visual openings. These determined openings and views make the presence of another space possible. It is a small world made up of assemblages visual and spiritual elements and each stage is not a simple physical stage, but is a space consisting of many symbols and meanings. And in fact it is these worlds, that open within each other, that constitutes the process and leads to the goal point as the most sacred space. Sometimes these openings are emphasized by the punctuations of the Hashti-s, the narrowness of alleys, and the doors. Similar features occur when walking through the Sheikh-Lotfollah mosque. As was discussed in the last chapter, achieving the principle essence of the geometric combination of ornamentation and spaces is possible only through a staged/layered process of perception which includes two kinds of phases: the visual/geometric perception and semantic perception. These change each sub-space of the main corridor, as a part of the way, into a multi-layered space, whose layers accumulate behind each other in spiritual depth. These layers and stages found both in the alleys and in the mosque's corridor not only stand behind each other but they open within each other. And in order to reach one, the former one needs to be traced. The stages/layers of the passage are not just a part of a route but they are spaces in which the individual stands.

Since the spatial events along the route are principal characteristics of Isfahan, while they are not present in the conceptual principles of the unicursal pattern, it could be concluded that the essences of the paths in these two cases — the unicursal labyrinth and Isfahan — are completely different and they could only be considered the same or similar if no attention is paid to the various connotations arising on traversing the paths of Isfahan. In another words, if the path is reduced to just a route with a particular form.

Moreover, the nature of the centre is different in these two cases. In the labyrinth, it is the end of the road and in Isfahan it is the beginning of another physical-spiritual domain: it is not the end, but the transformation of spaces.

Furthermore, hierarchy is another distinguishing characteristic of the city which differentiates it sharply from the labyrinth-unicursal pattern to whose principles the hierarchy does not belong.

Therefore, similarities can be drawn between the labyrinth-unicursal pattern and Isfahan, as an example of a larger category of 'Islamic cities', only in the case that the city's main characteristics are ignored or reduced to some formal features stripped of its context. This approach has led to the drawing of an overall sketch or schematic layout from the structure of the city which overshadows and obscures many important principal features.

Multicursal Pattern of the Labyrinth in Isfahan

The Multicursal pattern can also be discussed through two perspectives: through its physical manifestations, such as garden mazes in the Renaissance era; or through its conceptual characteristics which arose from (or inspired) its physical pattern, on which the structure of some texts — such as the labyrinth myth and some Christian religious texts and so forth — are based. The multicursal pattern is supposed to be a collection of intersected paths and offers a series of choices between paths, continual testing and constant confrontations, with no clear end point. Confusion, doubt, curiosity, uncertainity, and frustration are the dominant feelings of the wanderer (Doob, 1990). In summary, its main conceptual characteristics can be described as follows:

- the points A and B are important but, because of the special nature of the main route, they are not so distinct and divergent as in the unicursal pattern. In this pattern, there is one main path which connects A to B from which branch off some secondary paths. The secondary routes change the pattern to a puzzle and endow the main path with a new essence;
- as applied in the literary texts of the Christian era, the points of A and B are not supposed to be spiritually so different as they are in the unicursal pattern. Indeed, the difference disappeared altogether in the gardens of the Renaissance era. Thus, the most important element is the path itself, and the main goal is getting lost among these complicated paths and finding the right way;
- the most important issue is entering, finding the proper way, and making an exit — not the centre as such.

Another reading of the city form extracts a network of routes which may be likened to the multicursal pattern (figure-69); which is what the authors[1] who describe the geometry of the city as labyrinth-like do. In this network there are a large number of possible choices, there are seemingly a number of culs-de-sac, and the way as such seems to be the biggest challenge, so in this regard it seems similar to the multicursal pattern. The same position may be valid for the plans of many architectural typologies such as mosques, houses, caravanserais, bazaar routes, and so on. But it is again the outcome of a general view of the city which

[1] See for example: Le Tourneua (1961), Planhol (1959).

does not penetrate the spatial features and layers in combination with each other and reads only the first layer, namely, the mere form. Thus, the paths in the city are not just completely interchangeable, dead routes devoid of events, but bear their own concepts, and by approaching these concepts, their real essence is graspable. For example, what seem in the geometry of the city to be culs-de-sac, are, in fact, blind alleys only for non-natives who are not familiar with the city's social-urban rules. In fact, there are no useless paths or culs-de-sac in Isfahan. Because the culs-de-sac terminate in houses which are the beginnings of another space, thus the culs-de-sac for the inhabitants play the role of a transition point in the space. As a rule, these culs-de-sac belong to the owners of the houses that open on to them (Hakim, 2008).

Moreover, as another major difference, we can point to the exclusive characteristics of different paths in the city, which, as mentioned in the case of the unicursal pattern, make it different from the multicursal pattern.[2]

Furthermore, the hierarchy in the street network of Isfahan is one of the main features that differentiate the pattern of the city from a multicursal labyrinthine pattern.

Therefore, again, considering the pattern of the city — seen from above or as it is walked through — as a multicursal labyrinth or maze, actually pays no

Figure 69: A pattern similar to the conceptual multicursal pattern (source: author).

[2] In the principals of the multicursal pattern there is no indication of the essence of paths or if they are different or not. So it can be concluded that these paths were supposed to be the same.

attention to the internal rules, meanings, symbols, and ideas hidden within the city; and ignores the real identity and context of the city.

4.1.2 Isfahan: a Labyrinthine City?

As mentioned, the matters related to the concept of labyrinth are not all essentially figurative with an exact form. Some subjects or objects are associated with the concept through similar features or characteristics which are described using the term labyrinthine; it means they are not exactly labyrinths but have some particularities which make them similar to a labyrinth. Doob (1990), identifying certain features closely associated with labyrinths, explains *labyrinthine* as things, metaphors, and texts in which the constellations of the features such as circuitousness, disorientation, planned chaos, inextricability, intricacy, complexity, being difficult to grasp, confusion, doubt, uncertainty, curiosity, and so on operate and make them function like labyrinths even though they may not be identified as such. These features are not only connected to the form but also to the feelings/interpretations it arouses. So they express a kind of mixture of form and feeling. The relationship between the aforementioned features and the term labyrinthine has the result that everything which is inextricable, complex, difficult to understand, and so on, is assumed to be labyrinthine and vice versa everything that carries the adjective of labyrinthine is supposed to be thus, conveying a kind of incomprehensible complexity. In this case, labyrinthinity is being applied as a mere synonym for complexity. As mentioned in previous sections, the works of Borges (short stories) and Piranesi (depictions of 'Prisons'-*Carceri*) are attempts to embody this concept in the modern era. In the *Carceri*, the complexity is manufactured by creating abnormal spaces which exceed and defy humankind's usual visual rules. Piranesi's spaces are complex for us because we cannot locate the routine relationships between the elements in them, and we continue to search for them in order to be able to understand and read the work. It is the goal of the creator to create challenges for the audience. In the stories of Borges, we encounter a similar complexity: we may get lost in spaces which do not have any clear beginning or end, so we have to rise to the challenge to understand them — regardless of whether any special pattern is actually discernible, because the goal of the creator may be to create a context for a kind of complexity and the challenges in it rather than to create challenges on the way to finding out a valuable hidden concept.

Interestingly, the same adjective has been applied in describing 'Islamic cities': when their patterns are supposed to be labyrinth-like, the feeling of treading the city is described as some kind of labyrinthinity; that is, getting lost, obscurity, uncertainty, and so forth, are the typical interpretations of 'Islamic cities'.

It seems that these feelings are the result of the similarities between the pattern of the city and the multicursal pattern of the labyrinth on the one hand,

and the pattern of constant hiding and not-directly-presenting space on the other. These two factors together make the space of the city for those unfamiliar with it mysterious, incomprehensible and obscure, so they cannot easily understand the city and its inner relationships. This aspect, besides giving a flavor of the observations of 'Islamic cities' in less elevated contexts than the authors' who attributed such characteristics to the 'Islamic cities', means that the complexity in the city is represented not as a positive but as a negative, lacking any shaping or underlying pattern or idea. That means that for these authors the city has a labyrinthine space merely because it is chaotic, irregular, unordered, and so on.

4.1.3 Is an 'Islamic City' Labyrinth-like or Labyrinthine?

When the terms labyrinth-like or labyrinthine are applied as attributions, used as general concepts to express the negative emotions and interpretations of observers considering the form or space of the cities — their seemingly irregular, unplanned, and chaotic street network — these ascriptions can be easily rejected with reference to the Nizam structure of the city: the Nizams underlying the form of the city from its logic and constitute its own pattern. So the city is, from this perspective, neither labyrinth-like nor labyrinthine.

But when we consider the concept of labyrinth in its real scientific context, according to the conclusions reached in the second part of this text, we can discuss the relationships of these terms and of the 'Islamic city' individually. As mentioned, the concept of the labyrinth can be assumed to be assimilable to the city through the conceptual characteristics of its unicursal or multicursal patterns, by reading the city formally without paying attention to its exclusive relations and connotations (labyrinth-like). On the other hand, the city may seem to be mysterious, complex, and obscure at a particular level of understanding (labyrinthine). In both cases, the form or space of the city is related to the concept of labyrinth through a layer of reading and interpreting the city. However, since in this layer the elements have been observed shorn of their context and inner relations, the assimilation cannot be comprehensive and precise.

Another reason that makes the attributions of labyrinth-like and labyrinthine improper for explaining the 'Islamic city' is that these terms, with their connection to the concept of labyrinth and its historical background, are freighted with meanings which belong to another context and life-world. Making these ascriptions is like describing a fact in a context, by grasping at concepts belonging to other completely contexts with different frameworks.

Therefore, we can understand that although the adjectives labyrinth-like and labyrinthine could point to some levels of reading the city, these remarks remain at the level of referring to modified general similarities and features. On the other hand, considering the fact that the attribution of the term labyrinth to 'Islamic cities' has been discussed in different ways across the history of studies of these cities and no clear answer has yet been proposed, and that the feeling of

the cities' labyrinthinity has been mentioned by numerous travellers, and, as mentioned in first part, was the deepest characteristic ascribed to the city (a mixture of form and feeling), it can be concluded that there is a polarity in the relationship between the concept of labyrinth and the 'Islamic city': *the city is, while it is not, labyrinth-like and labyrinthine*. On the one hand, the labyrinth is a deeper attribution, it conveys some common features, it is one of the most oft-repeated epithets for the 'Islamic city', and it is the result of a common feeling and recollection held by visitors to an 'Islamic city'; thus, the labyrinth could have some conceptual relations with the essence of the city. On the other hand, this term can only describe a schematic city layout and no more.

Referring again to the statements of O'Meara (2007), we can trace the aforementioned polarity in his ideas too. He applies the term labyrinth while emphasizing that:

> If this book insists on the term labyrinth to refer to it, it does solely in the sense of a convoluted network of segmentalized, interconnecting passageways bordered by tall, seemingly impenetrable walls. (O'Meara, 2007: 2).

He chooses characteristics related to the labyrinth as the nearest concept to the essence of the city but he defines a specially refined labyrinth for his text. The questions that pose themselves again here are: why did O'Meara (2007) actually apply the term labyrinth? Why did he use terms like labyrinth and labyrinthine all through his book when he had explicitly asserted that the 'Islamic cities' are not labyrinthine? He applied these terms and emphasized that he means only the physical aspect of the labyrinth. Why were adjectives such as tortuous and winding not acceptable to him, although they have the same physical aspect as a labyrinth? Could the reason be a lack of a required word? It is a labyrinth while it is not a labyrinth. The labyrinth is the best expression of a characteristic while it is emphasized that it is not a labyrinth. It seems there is a distance between what is felt and how it should be defined; and maybe a lack of the right word/concept. It seems these attributions are the attempts of people and scholars to make the city legible within a mental framework and to express it in a particular scope of vocabulary. They have perceived the city and formulated this perception in their mind and to explain it, they are bound to apply the concepts that belong to a known vocabulary — labyrinth-like and labyrinthine are among these. In fact, by applying these attributions, they read the city not within its context but re-contextualise it within another mental framework.

According to all these discussions, it might be said that the term labyrinth points to and talks about an 'essential characteristic' in the city but it expresses this characteristic somewhat inappropriately, in other words, labyrinth is not a proper term for this 'essential character'. It connotes some kind of complexity in common feelings and images, but, according to its pattern, history, interpretations and what was discussed in the second chapter and its relationship to the

'Islamic city', it could not precisely grasp this complexity. It seems that *an original feature has been hidden behind a non-indigenous concept and term*. This term, although it could point to this original feature, hides the original characteristics of this essence and connects (attaches, binds) some false interpretations to it. So, we encounter a lack of word, term, concept to describe this essence more accurately.

4.2 Complexity in the City

Reviewing our study on Isfahan, in the third part, it could be generally concluded that one of the most repeated characteristics of the city is the opening of spaces or layers within each other, which make the achievement of the principles difficult and connected with a constant challenge.

What makes the city seen from above (viewing the city) complicated and unclear is the superimposition of Nizams that are simultaneously manifested in a balanced hierarchy and without any dominant framework which dictates the overall structure. This characteristic makes the urban form into the outcome of the integration of all the Nizams' manifestations. So on the first view, no exact geometry or order emerges from the city, because it does not follow any Euclidean shapes; with the exception, perhaps, of the dominance of the bazaar routes or probably the centre. The various Nizam-s present in the city and the way they have integrated means that a large number of lines which belong to different Nizam-s are superimposed, creating a combination whose structure is not legible at first view and that needs to be discovered and studied. This means that the form of the city is legible only in the case of opening these Nizam-s one after the other in the geometry of the city. This matter makes the perception of the city difficult and opens it up to different interpretations, so that different — even contrasting — understandings of the form and morphology of the city have been presented, none of which is sufficiently comprehensive. However, the geometry of the city can actually be rendered legible by reading and opening the integrating Nizam-s, whose various combinations can lead to different understandings of the form of the resulting pattern.

The ornamentation in the city is also the outcome of the superimposition of different geometrical (or flower-like) designs, which makes their patterns open to different ways of 'reading'. To understand their ultimate patterns the component layers should be studied and opened separately. Certainly the essences of the city and of the ornamentations are different: an ornamental pattern has one or some creators with a predetermined design while the city has many creators

without any exact predefined pattern. But what is crucial here is that they both have a common characteristic.

Regarding the interior of the city and its spatial characters we encounter a similar principle. The culturally valuable spaces, such as houses and mosques, are hidden behind many spatial layers — curves, sub-spaces, Hashti-s, doors, corridors, etc — and these spatial layers have to be opened and walked through to reach the inside of the core space. On the other hand, the bazaar as the main urban route of the city is flanked by many spaces — such as mosques, madrasa-s, hammam-s, caravanserai-s, Timcheh-s, etc. To understand its space, these lateral spaces must also be entered and discovered. The lateral spaces likewise all consist of a group of other spaces. So they are insides which stand inside other insides.

Therefore, what makes the city mysterious is that its various phenomena (the city, the space, and the ornamentation) are not legible upon the first view. They bear some sub-layers which increase the possibilities of reading them, prevent direct and clear presentations, and delay or suspend the attainment of the core — the core can be a space, an overall pattern, a concept, and so on. The sub-layers are not two-dimensional: in the city they are Nizams, which are complicated networks of relations; while in spaces they are three-dimensional sub-spaces; and in ornamentation, each geometrical pattern has its own composition with particular connotations.

This kind of complexity can be traceable in the autochthonous literature which confirms and illustrates a kind of complexity existing in the mentality of the native people. In the next section we will deal with this particular complexity under the concept of ‘Hezar-Too’.

On the other hand, walking through the city, in the bazaar the sub-spaces are arranged consecutively and open into each other constantly. These sub-spaces could be defined as each vaulted space along the line of the bazaar or the views or perspectives which are closed by the curves of this line. We encountered on the one side, walking through the bazaar, constant visual openings to the buildings around the maidan or the arches of the maidan which are all determinate, framed views, and also a number of physical accesses to it. These views seem to be like reminders of the presence of the maidan as the space on the other side of the route, which extend the spatial image held by the walker and at the same time render it obscure. On the other side of the route are located a number of alleys. Tracing these alleys, each view opens on to other one and in each view, which is limited by the curves at each end, we gain information merely about one part of the route and to discover the next ones we have to continue our way on the route. Some narrower alleys open off the main alley, which are punctuated with a number of hashti-s. And in each of these hashti-s, again some doors open up to the houses. In each house after following a long or short corridor, the courtyard may be reached, which provides access to the

various rooms of the house. This represented a constant opening up of spaces or views set inside each other. Each sub-space was like a story, an event or a symbol which welcomed the walker into a new part with various materials. Events are opened up to the walker's gaze but they do not reveal themselves completely. Here, the perspectives or sub-spaces are like layers which stand behind each other and have to be traversed to be discovered. And each layer — the view to the maidan, views in alleys, curves in alleys, and so on — while indicating certain events, does not clarify them but instead tries to hide them. So we encountered a frequent 'revealing' and 'hiding' in the space or in its elements, which made the space mysterious, so that to understand it was a *constant challenge*.

A similar process was stimulated by the ornamental surfaces too. Each surface includes a number of geometrical layers whose combination creates the ultimate pattern of the ornament. As was discussed in the last chapter, to perceive this surface fully, two kinds of layers need to be picked out. One group of layers consists of the visual ones which could be perceived through a process, meaning that to perceive the structure of an ornament its different layers should be read. So the final point of perception is, in this case, understanding the pattern of the ornament, and for that purpose, each of the geometrical layers, as stages in this perception, should be understood consecutively. The other group consists of the spiritual/conceptual layers which may be apprehended by the observer according to their personal background and knowledge. The principal of this string is the meaning and the main idea of the ornamentation, and the perception and interpretation at each stage composes the layers of this stage. For example when first looking at the text that makes up part of the ornamentation, their graphical formal aspect attracts attention, this is the first layer. Then with more protracted concentration it may be perceived that among these ornamental graphical lines there exist some lines of text, this is the second layer. After that, the words may be read (clearly by someone who knows the language), which is a further layer. And understanding the meaning of the text, the idea behind it, its relationship with the space and the ornamental surface and so on compose the other layers that culminate in reaching the essence of this element of space.

Thus, this process has alternate phases of *revealing and hiding*, which encourage the individual to enter onto a route/journey that is, respectively, physical (such as an alley), spiritual-physical (such as the corridor of Sheikh-Lotfollah Mosque), or a spiritual (the ornamental surface). It encourages the person to engage in a challenge to discover the secrets of space which were have been concealed behind the (physical, physical-spiritual, or spiritual) layers. It is like an invitation to a game, a game of discovering. The opening of spaces within each other should be pursued to reach the furthest principal point and each of these spaces should bear elements (carpets, ornaments, lattices, light incursions, words, geometries, and so on) to whose perception the layers of

concepts should be opened. So there are manifold interwoven layers, each within the other.

Thus, the principles in the city (seen from above or inside) can be summarised as follows:

- Intentionally building or unintentionally emergence of complexities and unclearness by intertwining the facts or layers (physical, physical-spiritual, spiritual): in the city, seen from above, different Nizams are so interlocked that they make reading the city difficult. The general structure cannot be perceived at a first look, but subsequent observations reveal more of its main skeleton, which is in fact the result of the superimposition of various layers. Within the city, walking through the city, the views/sub-spaces and spatial elements consist of different Withins opening inside each other;
- spaces, meanings, symbols, geometries, views, and paths are opened within each other to point to the new (physical, physical-spiritual, spiritual) routes;
- encouragement to discover in processes/stages and a challenge to discover. In the bazaar each spatial cell or view is a stage of discovery; in an alley each perspective is part of the discovery; and in Sheikh-Lotfollah mosque, each sub-space with all its elements work in combination together to make the sub-worlds of the route;
- constant revealing and hiding, intentionally suspending the discovery of the principles. The unclearness is the context of this delaying, and mysteriousness is its result;
- the inherent concept is always hidden behind veils. There is not any straightforward form of expression. These veils — curves, doors, hashti-s, and lines— should be traversed to approach the kernel.

In this point, it should be highlighted that obviously the essence of the process of the growth of the city is different from the process of designing and constructing a building or an ornament. While in the former case, the city grows not according to a designed plan but through the incremental decisions of the people according to their life-world over a long period of time, in the latter one definite plans have been designed by skilled individuals. What is a common fact here is that these creations all belong to a people with an exclusive life-world, philosophy, art, and literature. Moreover, the goal of this text is not to elaborate how and why the city or the buildings or the ornaments have taken on these patterns and structures, but instead the main goal is to re-read the city from a new point of view to find out which characteristics cause a large number of authors to feel that these cities are labyrinthine. So our reading was not an analytical reading to reveal underlying reasons, but it was a re-reading of features of the city, examining how it is and how the observer perceives it.

4.3 Towards a New Terminology

4.3.1 The term 'Hezar-Too'

The term *Hezar-Too*[3] consisting of two words, *Hezar* and *Too*, is a Persian term. The word Hezar, meaning literally a *thousand*, implies multiplicity, plurality and infinity, and is added to other words to intensify the indication of variety and infinity.[4] The word Too means inside, within, and depth. Thus, the word Hezar-too literally means *a thousand insides* or better to say *a thousand Withins*. It points mainly to a concept, character, or principle, rather than to a special figure or form. Another similar term is *Too-dar-Too*, literally meaning *Within inside Within* or *Within within Within*. According to Ali Akbar Dehkhoda,[5] Hezar-too denotes *Hezar-Khaneh* (a thousand houses) which is many houses, or *Hezar-la* which means literally a thousand layers. And similarly, again in Dehkhoda, *Too-dar-Too* denotes many Withins which are interconnected through doors and access points. It worth drawing attention to the fact that the Within here points to the inside of a three-dimensional space.

Terms such as Hezar-Too and Too-dar-Too are expressions which are sometimes used as equivalents or translations of English words such as: complex, intricate, labyrinth, maze, and so on, and in this way point to a similar kind of complexity. But by considering their literal meanings and also by referring to the masterpieces of national literature whose structures have been described in these terms, it can be understood that the complexity which is hidden within them is different from what is denoted in the concept of labyrinth or other such terms. The Hezar-Too and labyrinth are two words on two sides (areas): both point to complexity, and are sometimes used as translations of each other, but they connote different structures for the complexity.[6] The particularity of the concept of Hezar-Too laid in its characteristic of Withins and the way

[3] This term has been originally used in the form Hezar-Tooi or *Hezar-Khaneh*, literally a thousand cells, or *Hezar-La*, literally *a thousand layers* which was used as a synonym for 'gut', since this animal organ tends to be convoluted and layered (Dehkhoda Dictionary).

[4] For example, the word *Hezar-Dastan* or *Hezar-Avaz*, both literally 'a thousand songs', means a nightingale, since this bird can produce thousands of tunes. Similarly *Hezar-Pa*, literally a thousand feet means diplopod and alludes to its numerous feet. *Hezar-Rangh*, literally thousand colours is used to describe a colourful thing. *Hezar-Roo*, literally a thousand faces is used for a insincere person. Hezar is also used to emphasize the size and dignity of an entity. For example, Baghe Hezar-Derakht, literally the Garden of a Thousand Trees was a garden in old Ghazvin built by Sultan Mahmud Ghaznavi (971-1030 AD), and Baghe Hezar-Jarib, literally Garden of a Thousand Jarib and built in the Safavid Era at the south of the city denotes the vastness and grandeur of the garden.

[5] *Loghat-naameh-ye Dehkhoda* (Dehkhoda Dictionary) is the masterpiece of Ali Akbar Dehkhoda (1879-1959), and the largest Persian-Persian dictionary ever published, in 15 volumes. After Dehkhoda, Dr. Mohammad Moein accomplished the completion of the unfinished volumes according to Dehkhoda's request.

[6] It may be possible to say that the structure of complexity differs between the two mentalities (Islamic/Iranian, and European).

they stand in connection to each other. Within, here, connotes a collection of things and worlds. It is not just a physical interior but a place where things with their associations in connection to each other make a composition. Besides, these Withins stand not beside each other but inside each other and the process of their opening results in opacity.[7]

4.3.2 Different Types of Hezar-Too

Generally, one may distinguish three kinds of Hezar-Too in the Islamic way of thought, including religious texts, literature, and philosophy. In fact, different layers of associations, implications and connotations, different kinds of Withins, and various manners of their connection determine these three kinds.

Syntactic/Physical Hezar-Too

What creates the complexity in a syntactic Hezar-Too is its special structure or syntax in which a (large) number of 'events' opening within each other complicates understanding of the literal or architectural mega-space. These 'events' are some spaces or sub-spaces which stand on one general semantic level (figures-70).[8]

Thousand and One Nights Story

The best example of this kind of Hezar-Too is the story of 'A Thousand and One Nights':

> One feels like getting lost in the Thousand and one Nights, one knows that entering this book one can forget one's own poor human fate; one can enter a world, a world made up of archetypal figures but also of individuals (Borges, 1984: 50).

The story and its origin: Hezar Afsaneh

The basis of this story is that Shahryar, a mythical Persian king, discovers his wife's infidelity with the kitchen servant and kills her. Afraid of any sexual betrayal, every night he takes a new virgin to his bed, but kills her the day after. The Vizir who was responsible for preparing the new candidates was on one occasion unable to find any, and his daughter Shahrzad volunteered herself as the next offering. She also takes her sister Dunyazade to the chamber. When the time is right, she asked her sister to tell a story. She began telling stories composed of sub-stories from inside the main story so that it should not be finished on that first night. Subsequently, the execution of Shahrzad was postponed to the next night. The following night, Shahrzad continued the story,

[7] These matters can be considered as the main differences between the structure of Hezar-Too and labyrinth.

[8] Assuredly, a syntactic Hezar-Too has its own semantic connotations, but the fact is that the characteristic that made the structure a Hezar-Too is not its semantic connotations but its syntax.

in the same way. This event continued for 2 years and 271 days. By the end of this period, she had become the mother to several of Shahryar's children, and the king had forgotten the original decision. These numerous interconnected stories make up the body of the mega-story called 'A Thousand and One Nights'.

Techniques of Narrative: the Story within a Story

Generally, the collection of A Thousand and One Nights is based on three district layers of story-materials:

> First, a collection of stories was made in Baghdad in the 8th and 9th century, possibly based on a Persian example, the Hazār Afsāne, or Thousand nights; second, this core of tales was supplemented with Arabic material to form the first truly Arabic version of the collection (9th to 10th centuries); finally, in the so-called 'Egyptian period', from the 12th to 18th centuries, stories were added to give the work the shape with which we are familiar now. (van Leeuwen, 2007: 2).

Abu al-Hasan al-Masudi, the copyist of 'Hezar Afsaneh' in 947 AD, mentioned in his text that the prototype tales for the Thousand and One Nights

> have been passed on to us translated from the Persian, Hindu and Greek languages. We have discussed how these were composed, for example the Hezar Afsaneh. The Arabic translation is Alf Kurafa ("A Thousand Entertainment Tales")… This book is generally referred to as Alf Layla ("A Thousand Nights"). It is the story of a king, the daughter of the vazir [vizir] and the slave of the latter. These last two are called Shirazad and Dinazad." (cited in Jasim Musawi , 2009: 43-44).

Therefore, according to the manner of its collation, different stories have been inserted into the book, or developed and modified during over time, and this has led to the special structure of the book in which different techniques of storytelling have been employed. Moreover, it became a story without author or a story with thousands of authors. As Borges (1994) puts it,

> The origin of the book is obscure…It is the work of thousand of authors, and none of them knew that he was helping to construct this illustrious book, one of the most illustrious books in all literature. (46).

Gerhardt (1963) distinguishes three main techniques of story-telling in this narrative: oblique presentation, inserted stories, and frame-stories. In oblique presentation

> The facts of the narration are not presented straight, but obliquely, through one of the characters, who tells them in the first person, while playing but a subordinate part in the story. (384-85).

The inserted stories are normally shorter than the main stories, and just support the main line of the narrative, mainly in the first part of the book (figure-71).

In a frame story an introductory main story is composed to set the stage for a fictive narrative or to organize a set of shorter stories, each of which is a story within a story and thus leads the reader from the first story into the smaller one within it. As Gerhardt (1963) explains,

> A frame-story may be defined as a narrative whole composed of two distinct but connected parts: a story, or stories, told by a character or several characters in another story of lesser dimensions and subordinate interest, which thus encloses the former as a frame encloses a picture. (395).

These techniques produce a 'story within story' narrative in which a story is narrated within a frame story as an answer to the questions raised by a previous tale (Marzolph *et al.*, 2004). Moreover, as van Leeuwen (2007) states, "the narrative is not a homogenous and continuous whole, but rather consists of a complex unity, of multi-layered configuration of components, of multidimensional construction" (6).

The word thousand is a key word in this story. Thousand designates innumerable and countless, or infinity. This book narrates infinite stories without end; this infinity was confirmed by the common people too: "According to the superstitions current in the Middle East…No one can read the whole text without dying" (Irwin, 2004: 1). This current points to the infinity of the stories,

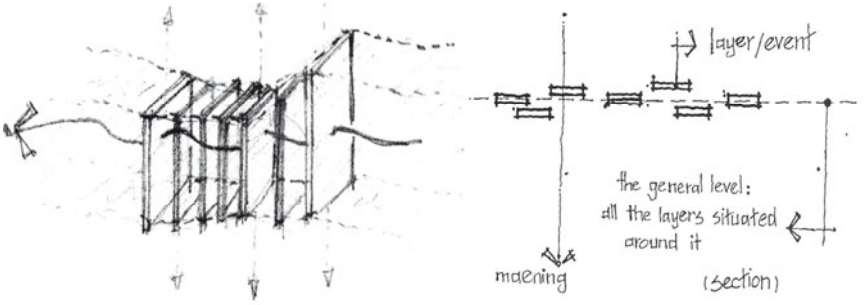

Figure 70: Syntactic Hezar-Too, structure (left) and section (right) (source: author).

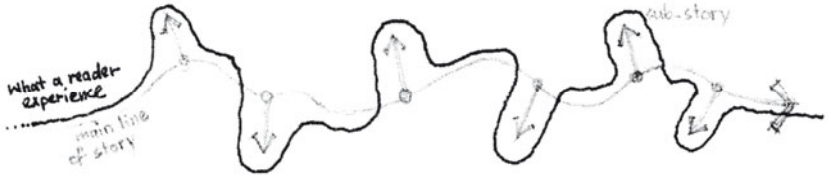

Figure 71: Line of story in Thousand and One Night (source: author).

never-ending stories which require a whole life-time to master and read. Borges (1984), presenting an interpretation of the title of the book, writes,

> I think it lies in the fact that for us the word thousand is almost synonymous with infinite. To say a thousand nights is to say infinite nights, countless nights, endless nights. To say a thousand and one nights is to add one to infinity" (46).

Suspension of Death

A central concept in the A Thousand and One Nights is the matter of postponing, or suspending the end point (death). To escape death, Shahrzad, created sub-stories that left the main story unfinished, and subsequently postponed her execution for another day. This means that life is born from a postponed death, through a chain of stories and narratives which being interwoven into each other in the action of story-telling create a structure in which thousands of Withins and realms are opened into each other, so that we may lose our exact location. We are within one narrative space, and are at the same time travelling within another one. These interwoven Withins' enrich the dimension of the space-narrative, and initiate one into a mysterious journey, in which one walks through the narrative-spaces without exact start and end, departure and destination points.

By entering each sub-story another sub-story is born inside it and the direction of the story changes constantly. So, achieving the end point is continuously postponed. This floating in unfinished stories makes the space of the main story incomprehensible, obscure, and complex for the reader.

In the City

Turning the attention back to the city, this kind of Hezar-Too is traceable in certain urban or architectural spaces such as bazaars, alleys, and hammam-s. The standard bazaar plan is a network of streets covered with higher domed or open areas at its crossing-points, which are flanked by urban spaces — such as mosques, madrasa-s, hammam-s, Sara-s, or shops. Each of these sidelong introverted spaces plays the role of a sub-story and a Within in the main line of the bazaar. One may enter them and they, with their exclusive spatial characteristics, provide accesses to other similar spaces. So, by entering each space, other spaces are born. All this takes place in roofed introverted spaces, and because of that the feeling is like a continuous opening of Withins inside each other. Moreover, the sub-spaces (vaulted parts) of the main route of the bazaar are other Withins which are born constantly within each other and lead to different individual routes. By entering each of the routes of the bazaar one may enter another realm and loose the exact location.

A similar process takes place in the case of the alleys. The curves create the sub-spaces on the routes, various possibilities of choosing the way, and most importantly, the opening of the alleys inside each other (hierarchy): a semi

public alley into a public cone, a semi-private alley into a semi-public one, and a private into semi-private alley, then a door opens into a Hashti, and again some doors open from the Hashti into the houses, a corridor opens to a courtyard, and rooms which all have a similar configuration open onto the courtyard. When the individual wants to enter a house, she/he has to enter all of these Withins.[9] Achieving their goal is suspended through the opening of Withins inside Withins. Since the Within does not point to just a one-dimensional physical quality of space but refers to a collection of things in its Interior, it can express the characteristics of these spaces in an appropriate way.

In both these cases, the complexity has arisen from the structure and the configuration of the Withins (syntax), and thus both follow the characteristics of a Syntactic Hezar-Too.

Semantic/conceptual Hezar-Too

In a semantic Hezar-Too, the complexity has arisen from the different ways of interpreting and reading a physical element — that can be a word, text, or an ornamentation — in/behind which, because of its symbolic essence, various meanings are hidden. In this case, each word or expression has no physical Withins but many conceptual Withins, which should be opened in order to understand the core (figure-72). In this case, the Withins are not all at the same conceptual level, but they are arranged in stepped levels with a gradation of semantic depth. The deepest point is the core concept and the initial level is the most substantial layer that a person as a visitor could perceive. The individual according to his mental background could discover and understand a number of these layers. The greater the intellect, the more in depth the person can go, the more Withins they can discover and the nearer they becomes to the core concept.

This issue makes the comprehension of the element difficult and subsequently produces complexity. The best example of the semantic Hezar-Too in literature is the set of mystical texts written by sages and Sufis[10] whose initial source of inspiration was the Quran. In fact, it is believed that there are hidden inner meanings in the Holy Text which can be uncovered through *Tawil*[11]. As Annemarie Schimmel (1992) puts it,

> the mystics of Islam have striven to reach a more profound understanding of the Divine word. They knew that a deeper meaning lies behind the words of the text and

[9] They are Withins because, as discussed in the section of 'the city seen from inside', they all have the spatial structure.

[10] Bayazid Bastami, Jalāl ad-Dīn Muhammad Rūmī Mansur al-Hallaj (full name *Abū al-Mughīth Husayn Mansūr al-Hallāj*) (858 –922 AD) was a Persian mystic, revolutionary writer and pious teacher of Sufism most famous for his poetry, accusation of heresy and for his execution at the orders of the Abbasid Caliph Al-Muqtadir after a long, drawn-out investigation.

[11] Interpretations.

> that one has to penetrate to the true core… the search for the never-ending meanings of the Quran has continued through the ages. (48).

According to Sufis, the Quran has various levels of meaning and these levels of meaning could be uncovered by the reader through a process of endless interpretation. As we read in the Quran, "If all the trees on the earth were pens and the seven seas after it to replenish it, the words of God would not be depleted" (31: 27). Some scholars believe that, "every verse could be understood in sixty thousand ways, and what still remains unexhausted (of its meaning) is still more numerous" (Peters, 1993: 199). Furthermore, as Corbin asserts (1993), the Qur'an is not restricted to its literal aspect:

> The Qur'an possesses an external appearance and a hidden depth, an exoteric meaning and an esoteric meaning. This esoteric meaning in turn conceals an esoteric meaning (this depth possesses a depth, after the image of the celestial Spheres which are enclosed within each other). So it goes on for seven esoteric meanings (seven depths of hidden depth). (7).

Thus, there is a literal meaning, but multiple inner meanings which are not clear at the first glance, and for all people; the inner meaning is only understandable for certain select persons. In this regard, Nasr (1973) explains that

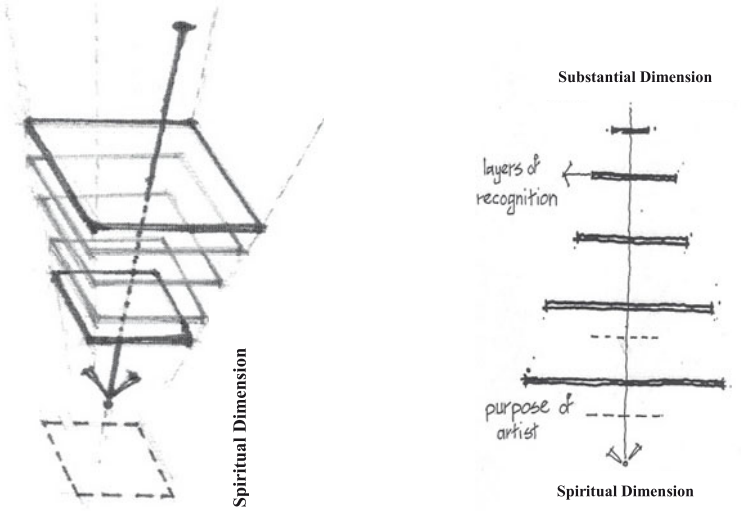

Figure 72: Semantic Hezar-Too (source: author).

> *Zahir* is the sensible form, that emphasizes the quantitative aspect which is most readily comprehensible, such as the shape of a building…The batin is the essential or qualitative aspect which all things possess. In order to know a thing in its completeness, one must not only seek its outward and ephemeral reality but also its essential and inward reality — that in which the eternal beauty of every object resides. (5).

The commentaries on the *zahir* (outward aspects) of the text are called *tafsir*, but the commentaries on the esoteric layers (inward aspects) or the *batin* are called Tawil. According to Nasr, the ultimate meaning of the Qur'an is known only to God (Nasr, 2007).

Similarly, Sufis developed a language of symbols, associations, and brevity in saying-while-not-saying, in guiding man but leaving him alone on his spiritual journey. Ahmadi (1997) remarks that at the beginning the Sufi vocabulary was limited to that of the Quran, but later a religious and mystical language was developed through the Sufis' explanation of Quran, and then altered according to the unique Sufi experiences through which the words received new connotations and implications. Thus, a kind of Sufi language was developed full of implications, associations, symbols, and allegories: "The Sufi speech as the Shatah (paradoxical word) is a kind of short and compact utterance which allows multiplicity of explanations and interpretations" (Ahmadi, 1997: 122). Rumi's poems also have several layers of meaning, so that each reader, according to their knowledge, has their own understanding.

Thus, in a semantic Hezar-Too the main concern is the meaning. In this kind of Hezar-Too the meanings are layered behind the word, and the wiser someone is, the more they can uncover the grades of the meaning and discern the deeper levels. In fact, in this Hezar-Too, one does not travel through the lateral structure of the text, and does not encounter the linear structure of particular places and times, but rather one encounters an archeology of meaning; one unfolds the Withins to reach the hidden, covered and mysterious meanings. The experience of thousand-ness and Withins happens through a vertical contemplation of the meanings and the mysteries of the text.

Figure 73: Some Withins of an ornamental element (source: author).

In the City

The best embodiments of the semantic Hezar Too in the city are the ornamentations and symbolic elements such as dome, and the geometry of the spatial prototypes.

The generating source of much Islamic design and ornamentation is the circle, with a radius that functions as a basic linear unit, and divisions of the circumference that determine the system of proportion. The basic unit may be developed into a square, a triangle or a polygon. Squares, pentagons, hexagons and octagons, frequently star-shaped, are in turn often contained in circles. These forms are then elaborated by multiplication and subdivision, by rotation and by symmetrical arrangements. Particular attention is paid to the principles of repetition and continuous permutation of design so that objects and their decoration seem to reflect only a fleeting impression, being but a portion of a design which can extend itself beyond the form it decorates and by implication beyond the world of reality (Herdeg, 1990). In the Islamic context these infinitely extensible designs have been interpreted as visual demonstrations of the Unity of God and His presence everywhere. They represent unity in multiplicity and multiplicity in unity (Ardalan, 1975). Nasr (1980) writes:

> Islam is based upon Unity (tawhid) and is the means toward the integration of human life, and in fact of all multiplicity, into Unity. Every authentic manifestation of the Islamic spirit reflects the doctrine of tawhid. This doctrine is the principle of all the Islamic arts and sciences. (3).

An ornamental pattern, consisting of geometrical or flower-like lines, includes many geometrical layers. As each of these layers has its own pattern and subsequently its own connotations, we can consider them as Withins (figure-73). This characteristic means that even the form of the ornament can be read in different ways or, as mentioned in the section of city seen from inside, its apprehension does not happen in one go, but through a process. Furthermore, the connotations of these Withins constitute other Withins. For example: according to Nasr (1980) “beauty is an intrinsic dimension of the Truth and its manifestation, and it is therefore a necessary component of every legitimate artistic creation” (2), thus a layer of the configuration of an ornamentation should be beautiful, but its beauty has another Within in it, and that is that it is the symbol of the Truth. On the other hand, the ornamentation and its formal Withins reflect the doctrine of *tawhid*, so another Within is the representation of God’s Unity. Therefore, in an ornament we have a series of formal Withins and a series of conceptual Withins which open inside each other vertically. To understand the ornament thoroughly, all of these Withins should be discovered. These concepts are not presented directly or figuratively, but are hidden behind several Withins which makes achieving them intensely difficult.

Semantic-Syntactic/conceptual-physical Hezar-Too

In the semantic-syntactic Hezar-Too, both aforementioned Hezar-Too-s are present and together create the complexity in the configuration (figure-74). This means not only that the syntax consists of many Withins inside Withins but that each of these Withins has semantic Withins inside it. The Quran, through another view, is the best example of a semantic-syntactic Hezar-Too. On the one hand, as noted, the Quran is a semantic Hezar-Too and, on the other hand, a central characteristic of the Quran is that its narration is not linear, but is full of small, discontinuous narratives interwoven with each other. As Taha Hussein states, for example, the Sura of Al-Baqara talks about various themes without logical continuity: it advises believers, narrates the story of creation, then of the Jews, then a part of the story of Prophet Ibrahim and so forth (Khorramshahi, 1999: 6). Thus, whatever the reason is — the nature of the revelation or the later assemblage of the Verse — it has a non-linear structure in which the various stories and expressions, and hence the dimensions of place and time, are interwoven and interrelated.

The Ghazal's of Hafiz

Khorramshahi (1999) states that the structure of the poems of Hafez (1315-90) is highly influenced by the structure of the Quran. Structurally, the Ghazals of Hafez are based on verses devoid of any linear coherence. In his Ghazals, Hafez talks about various concepts and things, mainly belonging to different contexts, and even with contradictory connotations, so that the variety of the topics does not have seem to have any clear sequence.

> The Ghazal of Hafez is not one-dimensional and linear in which the relation between the concepts is constituted through the literal sequences. Ghazals of Hafez constructs a multilateral volume in the mind of the reader in which the lateral sequence is not important at all. (Khorramshahi, 1999: 22).

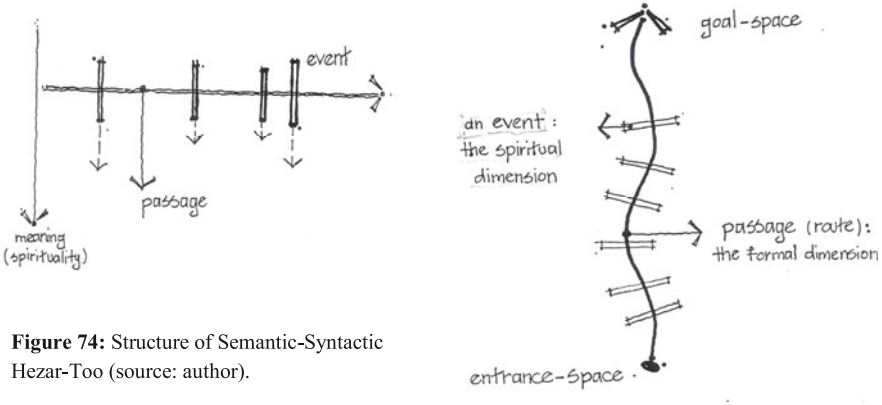

Figure 74: Structure of Semantic-Syntactic Hezar-Too (source: author).

In this way, the structure of the Divan[3] "is not linear... but circular and even spherical. It expands in all directions. Therefore, it could be read from everywhere, and be finished anywhere" (Ibid.: 24). Thus, the semantic structure of Divan is spherical: with no certain beginning and ending, a series of Withins (Ghazals and verses) are interwoven with each other.

On the other hand, the semantic aspect of Divan has a similar character. Ashuri (1998) explains the dimension of his poems in detail:

> *Divan* is a text which speaks ambiguity, with allegories, metaphors and symbols whose decoding is difficult, and everybody understands it based on his preconceptions and presuppositions. (4).

He claims that the entire Divan is a dialogue between Hafez and Beloved, enveloped in semantic and syntactic levels.

> The mastery of his poetry is its double-level-ness; an outer level and an inner level. The outer level is generally understandable for the common people. But the inner level must be read by 'Him' or by 'sages' or 'Hakims'. (Ashuri, 1998: 260).

Therefore, the semantic-syntactic Hezar-Too could not be uncovered by readers initially, but only through numerous readings and deep contemplations. In order to catch the inner meaning of the Divan, one should go beyond the surface structure of the poems, and catch the hidden dimension of the text, because the Divan has a semantic and syntactic complexity which makes it a mystic text and introduces Hafez as the most mysterious poet of Persian literature. By means of this complexity, the ultimate objective and concept is concealed within the physical as well as the conceptual complexity and multi-layered-ness of the text, and thus the core meaning is delayed and suspended.

In the City

The best manifestations of the semantic-syntactic Hezar-Too in the city are the mosques and the city as such. Their spaces open physically within each other, while each also includes semantic Withins.

The plan of most mosques is based on a number of courtyards and colonnaded spaces. This structure makes the spaces so that: they seem to be opening inside each other, there are various access possibilities, and the space is seemingly homogenous and obscure.

Besides, in the 'Islamic City' due to the influence of religion and tradition, most spaces have had their special character with exclusive connotations.[4] This aspect has led to the establishment of some kinds of characteristic differences between spaces. To resolve such differences and relate the spaces together

[3] Hafiz's poem book

[4] For example mosques and houses as sacred spaces are conceptually different from the bazaar as the daily life realm.

fluently, artists have employed hierarchical and ceremonial entrances by applying transition spaces through which individuals become prepared to enter the definite space. In the case that the difference between the entrance space (where the person stands) and goal-space is great, the route that links the two includes events to manage the preparation of individuals for confronting the goal-space; and when there is not a clear difference, the linking passage could be just a bend or an intermediary gap. Briefly, in such spaces the individual is made to pass through a route with some conceptual, virtual, and circulatory features in order to prepare them for entering a space with a high spiritual value. These features (each of them can be Hezar-Too-s) are experienced successively and build the Withins of Hezar-Too. For instance in the case of Sheikh Lotfollah Mosque the entrance space is a maidan or bazaar which belongs to a public and mundane area, and in high contrast to that, the goal space is the dome, a pure intimate space with deep associations, thus, there is a connecting passage between the two (figure-75). As elaborated earlier, this corridor consists of a number of sub-spaces which are opened within each other. These sub-spaces are the vaulted cells along the corridor and also the ornamental surfaces on the walls of these cells. These features not only make the changing of direction in the route occur smoothly but also work as filters which prepare the individual, who enters from routine daily life (the maidan and bazaar)(the entrance-space), to confront a spiritual space: the dome space (goal-space). In fact, this is not just a corridor but a passage within which there are several spaces, A, B and C. After their entrance, the individual gets to the A-space via two features, a partial view to the dome space (goal-space) that is not clear and vast but fairly restricted and another feature is the rays of light that penetrate the space through the lattice window, at the corner. That feature is shared with space B. there is also access to a courtyard which the individual does not know anything about unless they go through and discover it. This yard is a secondary space.

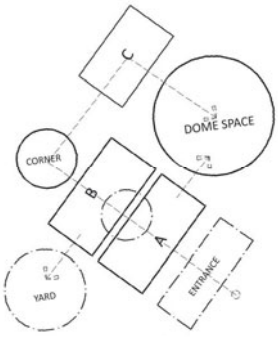

Figure 75: Spatial diagram, Sheikh-Lotfollah Mosque (source: author).

4.4 Isfahan, the City of Hezar-Too-s

Therefore, the pattern of the 'Islamic City' is a Hezar-Too, whose Withins are other Hezar-Too-s: Viewing the city, the Nizams create the Withins, and in walking the city, the urban spaces over the city, its architectural spaces, and ornaments open within one other constantly. What makes the 'Islamic city' mysterious is these continuous openings, avoiding direct access, and the deferral of the attainment of their valuable cores, principles, and main concepts. This is what can be traced back in the indigenous literature, culture and religious-philosophy. None of these principles is presented in these cities explicitly and every concept has been hidden inside Withins, whose discovery presents challenges. The continuous challenge plus unfamiliarity with the context can lead to some superficial readings from the pattern of the cities such as: irregularity, chaos, unplanned-ness, formlessness, unordered-ness, organic-ness, and so on. As discussed, the pattern of the city is not any of these, because it is the outcome of the superimposition and interaction of complex network of relationships which are enacted by Nizams, a kind of order in an autochthonous vocabulary, in the city. Each vital factor in the city, according to its position in the life-world of people, constitutes a Nizam which defines how the city should read and embrace that factor and in that way its manifestation affects the shape of the city. These Nizams each have their own exclusive role and stand in a relationship of equilibrium to others of their kind, with none of them predominating to dictate the city's framework, and it is from their coexistence that the city has acquired its special from. The presence of all Nizams simultaneously without the direct and determining dominance of any one of them gives the city its form and makes understanding its pattern difficult. At the same time, inside the city, characteristics such as connoting but not revealing, hiding the sources of value, absence of direct access, necessity of confronting challenge to achieve goals, successive discovery of spaces and so on make the perception of these spaces difficult. So, the city does not present itself directly and to gain an understanding of it one has to meet its challenge: the same principle exists in many masterpieces of national literature, such as Hafiz and Rumi's poems, the A Thousand and One Nights narrative, and Sufi texts.

Therefore, this is the mentality of the people and Hezar-Too (the opening of Withins within each other offering many possibilities of reading) is the structure of complexity in this mentality. Thus, ascriptions such as 'labyrinthinity' and 'labyrinth-like-ness' and so on are mere readings of the level of the city and its complexity translated into another mental framework or vocabulary. Ultimately, the 'Islamic city' is best described by making the effort to grasp autochthonous structures, principles, and concepts.

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