

The Metaphor of Atomic Activation Energy For a Sustainability Model of Historical Cities:  
Antakya Case\*

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**ABSTRACT**

The historic city is the memory of the human existence within the urban milieu; she is the reflection of the very idea of settlement. The historic city is a form of accumulation of what we inherited from the past, and thus what we will pass on to the future. Furthermore, with all her layers, and all the interactions between the human beings and their environment, the historic city is a cosmos within herself. As a cosmos, she is consisted of elements at different scales. These elements have their spatial and literal manifestations making up the image and the signs of the city. The connections between these elements form the networks of the city, the patterns of circulations and the flowing of life between some focal points.

This questioning while discussing on processes and timings on historic city is likely to explain in some predefined natural rules and systems. Thinking of the urban nucleus and the focal points at different distances to this nucleus, one is likely to end up questioning the atom as a metaphor for the historic city. As an atom, the historic city has a nucleus and particles of different features. These particles move along the orbits that are of different distance and energy levels. Regardless of the distance and the number of the particles, our aim was to convey that it is the nucleus that holds all of them in balance and in the right place to exist. The process of historic city Antakya is explained throughout the process of vitality and survival of an atomic model in order to understand how to preserve her body-mind spirit with all her patterns of circulations and sustainable urban spaces before it gets into radioactive behavior.

**Keywords:** Memory, Cosmos, Historic city, Sustainability, Antakya, Turkey

**I. INTRODUCTION, SCOPE AND AIM**

Dualities are evident in many of the historical sites, since they have encountered a lot of cultures and civilizations throughout their long histories. This is what attracts us in a historic site – the implementation of a Muslim way of life on a former Christian urban landscape, a Jewish community scattered across Christians in a land formerly under the reign of Persians, and so. These diversities throughout time results in the wisdom of the historic site – the questions she asks to us.

The case is no different in Antakya. As the contemporary reflection of Antioch – *the fair crown of the Orontes*, Antakya has her layers that are the indicators of the different periods of the city.

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## **Antakya as a phenomenon of historic city**

Antakya is the southernmost city of Turkey. She is on the borderline with Syria, and is very close to the Middle East, although the identity of being Mediterranean dominates her life and lifestyles above the other geographic references. Although situated on a Muslim setting, she is a flourishing point for Christianity, the first place where the name “Christian” was used for the followers of Christ.

Antakya has a glorious history going back to the 300 B.C., to when she was founded with the name of “Antioch” by Seleucos I. Nikator, a general of Alexander the Great. “The layout of the city was typical of those of the Hellenistic period with a grid plan of streets intersecting at right angles. This was known as the plan of Hippodamos, still regarded as the modern city today, this plan was applied to many Hellenistic cities, the streets normally following the main point of the compass in a north-south and east-west direction. (...) Topographic conditions at Antakya meant that the city developed within a distorted rectangle.” (Demir, 1996, 25) The plan was developed with great respect to the climatic conditions, the main direction of the city repeats the main direction of the dominant wind flow in Antakya.

Not only the wind, but also the other natural elements of Antioch are worth mentioning here. “The city of Antioch occupied a narrow strip of land bordered by the meandering lines of the Orontes River to the west and to the east by the mountain (which) rises up, stretched out beside the city like a shield raised high in defence...” (Kondoleon, 2000, 8) As understood from the definition, the landscape is almost dramatic with the river Orontes passing through, Habib-i Neccar Mountain (formerly referred to as Mount Silpius) and the fertile land extending from the Amik plain. They did not only took the Seleucids under their spell, but also the others soon. The Seleucid era was soon followed by the Roman era, which marked the glorious times of Antioch. Under the reign of Rome, Antioch became “... a city known for its sophistication, for the grand style of its buildings and broad avenues, for its markets filled with exotic and luxurious goods, and for its famous sanctuary of Apollo with its healing spring waters. Antioch “the beautiful and great” ranked with Rome, Alexandria, and Constantinople as one of the four great cities of the Roman and the Early Christian world, but it is by far the least known.” (Kondoleon, 2000, 3) However, the days of glory did come to an end with natural forces and invasions. As summarized by Kondoleon, the city experienced a series of calamities in the 1st half of the 6th century. The fire of 525 was followed by two fatal earthquakes in 526 and 528. the Persian invasion in 540 paved the way for the plague in 560. (Kondoleon, 2000, 4) These events marked the beginnings of the downfall of the city. The Persian invasion was succeeded by the Arab occupation, the Byzantine reign, the Seljuks and then the Crusaders. Following these was the second long-term and the second most effective period in the history of Antakya – the Ottoman period for more than four centuries, the Ottomans left marks on the city that are still clearly visible today. The Islamic organic texture imposed a new and unifying spatial dimension on the gridal layout of the Roman town. “In this sea of pulsating geometric figures, the layout of the thoroughfares is totally lost to the sight, and because the contrasts between volumes, spaces, sensations, and even chromatic values are so ideally balanced, the overall effect is one of urban homogeneity. Therefore, the city is always an image of totality.” (Montequin, 1982, 53) Thus was “completed” the historic core of the city. The spell was completed by the examples of French architecture during the period of French occupation.

In the current situation, the most sensed influences are the Roman period (Kurtuluş Avenue – the former Herod Street, the grid plan that still dominates the urban plan, the gates to the city, ancient forum areas, city walls, St. Pierre Church – the first church in the world), the Ottoman period (the organic texture, indoor dominated residential construction, courtyards, mosques) and the French period (examples of French architecture throughout the city). These different periods acquire the city different, but cooperating layers and the spell of being at the human scale physically, at the generations scale symbolically and in the collective and individual perception.

These layers are also significant in the social strata of the city. A lot of ethnic communities and members of different religions inhabit in Antakya with similar and different aspects, but almost always meeting at the common denominator.

## II. METHODOLOGY

### Questioning and understanding about the “illnesses” of Antakya

When all the aspects stated above are evaluated with the “illnesses” of the city, Antakya seems as a perfect place to be chosen for a competition about “historical district renewal area”, since the areas that are the manifests of the wisdom of time are becoming dystopias.

To begin with, Kurtuluş Avenue, the longest straight axe in the city, which was also the spine of the Roman grid plan, is today unable to carry the load of the traffic. The periphery area surrounding the core is full of illegal housing and it is subject to very low quality of living. The images making up the urban memory is disappearing day by day, like the Roman Bridge that which was centuries old, which was almost a symbol of Antioch, was destroyed three decades ago. The situation is no different for the natural elements. The river Orontes, or Asi with its contemporary name, gets more and more polluted and this effects Antakya negatively, since Asi is the largest open air corridor cutting through the city. Likewise, Harbiye, the legendary Daphne of the ancient times, the place where the myth of Apollo and Daphne is believed to take place, and where the most significant profiles of the Antioch community had resort houses, is today a polluted area, not reflecting the former glory.

The degradation is not limited with the historical district. The west side of Asi, the “new town”, develops fastly. What is more dangerous than the urban spread is the thread of loss of identity for Antakya. The buildings in the new districts are far away from reflecting the vernacular architecture, they are planned and implemented as “anywhere else”. They are not able to reflect the spirit and the spell of Antioch. A very important aspect in terms of this is the migration and exile. The imbalance between the migration and the exile rates began to put their significance on the social dynamics of the city. Antakya is bleeding, losing its population, and the incoming population creates social, physical and economic deprivation since they are mostly ethnic minorities (among them the Kurdish migrants dominate), they are of worse economical conditions, and they physically isolate themselves in the periphery. This situation also a thread for Antakya since she loses her competence in the international area.

### Why Antakya was chosen for the competition

In November 2005, an international competition on the themes of gentrification of historic districts is launched by Carleton UNIVERSITY, under the auspices of UNESCO and UIA, the results were presented during UN-HABITAT World Urban Forum III Conference in Vancouver, B.C., in Canada from 19 to 23 June 2006.

The urban design competition was open to all regions for 3rd and 4th year undergraduate students and 2nd year graduate students in architecture, city planning, urban geography and sociology. The students were asked to identify issues of gentrification that may impact historical districts urban identity in its region by enhancing traditional architectural characters and social sustainability constructs, and articulating novel socio-cultural and economic perspectives in historical districts -- through an urban design project and accompanying brief. Carleton University and UNESCO Working Group on the creation of an international interdisciplinary network of researchers for the study of urban revitalization projects sponsored the competition.

The purpose of this competition and brief was to invite faculties and students to:

- a) Increase and improve the level of awareness and understanding on issues of urbanization (re: migration, host-guest population conflicts, ethnicity and multicultural identities and integration,) in historical districts;
- b) Stimulate and support high quality, integrated and timely policy research and knowledge on priority issues related to historical districts infrastructure upgrading that challenges social sustainability (re:

upgrading housing units by controlled rent increases, etc.)  
c) Encourage the development and maintenance of a strong theoretical research and pragmatic design community on issues pertaining to gentrification of historical districts (re: un-employability leading to poverty, displacement, eviction, homelessness, etc.) and  
d) Foster stronger exchange of information and knowledge on issues related to social perspectives in historical districts (re: new employment potential creation for local residents, plus low income housing stock development, etc.) among policy makers, experts (architects, planners, designers, engineers, etc.) communities, non-governmental organizations, industry and the general public. (Andonian, 2006)

After revising these, one can wonder why Antakya was chosen for such a competition with a gentrification focus, since her historical heart is not a slum today. The main idea of the point of view in this study is that; some of the historic cities have already been transformed and regenerated within the framework of gentrification and/or similar processes, and the other ones are not likely to escape from this destiny. However, in cases like Antakya, where the city centre is not slum, but is likely to become one because of the increasing pressure of the periphery, gentrification can be reconsidered from a standpoint in-between gentrification and rehabilitation. To indicate more clearly, historic cities should be rehabilitated partially or wholly in order to escape the fatal effects of the slum areas. Although gentrification can be viewed as a return to the vitality of the city core, the aim of this study is never to lose this vitality.

### **What can be done?**

Dancing between the contradictions that the historic city presents to us, it is not easy to develop a program of conservation that can be applicable to all of the historic cities. However, there are some major guidelines that can be derived for a holistic program.

The first is to recognize the importance of the historic city, to see her as a witness of the presence of human beings.

*Conservation of cultural heritage of the city is inevitably essential to sustainable development. It recognizes the importance of cultural continuity and of human history in nourishing social cohesion, a sense of self, of belonging, and of place in a context within which to understand the past and to contemplate the future. Particularly in times of dramatic and wrenching social and economic change accelerated by globalization, the well-preserved historic city represents a source of stability, of continuity, of permanence, and of the familiar. It is a witness of where we have come from and where we are. (Williams, 2001 , 401)*

The second is to see the historic city not only as the past, but also as the future.

*This is not local heritage anymore. It is everyone's common heritage, and our children's and our children's and our children's children's heritage, the memory of humankind. (Bonneterre, 2001, 132)*

The third step is to increase the public awareness about the subject, since if the local residents do not "own" their city, no project or development will be sustainable.

*In most of the many cities around the world that have been designated as historic cities, very few of the local people understand or even have any knowledge of what this concept means. (Bonneterre, 2001, 133)*

## **Discussing on the urban nucleus, atomic theory and urban undertaking**

Then comes the phase of analysis. It is wise to determine some criteria and sub-criteria for the analysis, since historic city is a place for the diversity and the accumulation of time. In this stage, working with metaphors seems as a reasonable approach to the historic city, since historic cities work very much like living organisms. Such a metaphorical framework will also ease the process of finding the right concepts for the analysis and the synthesis processes. The metaphor we offer for the historic cities in general is atomic model, inspired by the ancient models of the cities growing around a nucleus, public spaces around this nucleus at different distances and the circulation that is established between these publicized areas is very much alike the atomic model.

The aspects that should be analyzed can be stated as culture, sustainability, history, religion, ethnography, different time and space layers, typology and morphology of the city, natural elements, population dynamics, economical dynamics, local government, local agenda, circulation patterns, macro form of the city, the existing connections and where they are weak, references of vernacular architecture, employment dynamics, urban policies, actors, diversity of functions and usage, and tourism activities. This list can be revised and enriched in each city, but it is a starting point, a chart for inspiration.

In the phase of analyses, the dynamics of urbanization should not be ignored, since they will be determined as the sum of all mentioned above. The collection is most likely to approve the existing development corridors of the city, and can show us the way to manipulate these corridors.

The period of analysis should cooperate with the scales of social dynamics and the macro form approach towards the city. A survey within the scales is fundamental for a holistic look towards the historic city. For instance, the expert(s) looking for a solution for the integration of the periphery to the centre should also think about the social stimuli of the demography and the spaces that these people are continuing their lives.

Then comes the design period, again interactively. The design period should change via flashbacks to the analysis stage, and it should consequently change the phases before it.

The following is an attempt to exemplify such a methodology through Antakya.

## **Building metaphor between historic core and the orbits of energy**

### **Framework of the approach**

1. Significance of the area – one of the metropolises of the Roman world, a very important site for pilgrimage and the history of faiths, a multicultural and multiethnic city, a history of 2300 years.
2. Significance for the future – there are many lessons to be derived from Antakya and Antioch. These lessons can continue to be derived only if the city stays there, well preserved.
3. Before and throughout the process, the expert(s) must assure the participation and active contribution of the local people to the conservation program. Although the historic city is the heritage of us all, she can only be preserved through local support.
4. As also indicated above, the metaphor we came up with for Antakya – and the concept of historic city in general – is the atomic model. Whether laid out rigidly over a grid plan or developed organically throughout the years, the historic city has an urban nucleus. Around this nucleus is scattered the public institutions and/or spaces that enhance the city, its culture and the urban identity. The orbits between them become the pedestrian or chariot directions in the ancient setting, while they can continue to take the burden of the contemporary city. The relationship between the nucleus and its particles are also evident in different scales. The macro form may indicate one nucleus and orbits', however looking at the urban quarters, each square become a nucleus and defines its own circulation patterns.

With this point of departure, it is easier to derive the concepts. In Antakya, the matter of the historic city was examined under three major headings: social perspectives, macro form approach and urban design

decisions. In the analysis of each heading, to determine the problems was the starting point to offer its solution. The problems are listed below:

Social Perspectives: the imbalance between the static and the dynamic population, socially and physically deprived areas (especially in the periphery), the “terminal” area.

By definition; the Terminal area issue is essential to be discussed within the context of culture, sustainability, urban ethnography, different time and space layers, typology and morphology of the city, natural elements, population dynamics, economical dynamics, local government, local agenda, circulation patterns, macroform of the city, the existing connections and where they are weak, references of vernacular architecture, employment dynamics, urban policies, actors, and diversity of functions and usage,

### **Social Perspectives:**

Gentrification of historical urban district of Antioch - ``Queen of the East``

Reconsidering the urban nucleus and restructuring synergy between new and historical district

Social structuring by regeneration of slums around historical district

Sustainability of cultural heritage

Increasing the public awareness about conservation

Increasing the public awareness about environmental problems

Preservation of multicultural urban identity – revitalizing the meaning of being from Antakya.

Conservation of urban memory in spatial and social dimensions

### **Revision of social dynamics:**

Increasing the employment rate by means of reinforcing the local economic activities

Offering methods for healing the results of immigration and exile

Increasing social integration, decreasing the rate of alienation

Enhancing the quality of life (especially in the periphery)

Social and physical integration, training and education

Diversity of economical functions, recapturing old activities

Establishing the socially balanced, democratic city

### **Macroform :**

#### **1-Natural Elements**

Natural boundaries

Natural threats and calamities

Rehabilitation of the banks of the Orontes for reducing the risk

Soil abilities

Revitalizing the Orontes

Harmony with the natural and climatic references of the city

Revising and rehabilitating natural networks

#### **2-Urban Undertaking**

Sustainable urban development corridors

Urban nucleus circuit pattern

Establishing a sustainable conservation plan

Considering the city from a holistic point of view  
To rehabilitate and to strengthen the urban circulation  
Revitalizing the cultural landscape and connecting it to the existing open space system  
Harmony with the natural and climatic references of the city  
The periphery as a supporter for the historical core  
Clarifying the macroform, increasing legibility  
Enhancing public transportation  
Change of functions in a portion of the existing building stock  
City gates  
Establishing a synergy between the old and the new city through a continuity of spaces  
Evaluating and rehabilitating the periphery as a supporter to the historical core rather than a threshold of pressure  
Designing according to the constraints of nature and possible calamities  
Establishing physical, economic and social integration, restoring the collective perception of deprived areas  
Circulation networks  
Revising and rehabilitating the natural and urban networks  
Taking the right impulses to the right places  
Urban focuses like the electrons around the nucleus, in – between connections via urban orbits – the scattered interactive forum model  
Determining the tension between the old and the new – and finding methods for the solution  
Revitalizing the core  
Presence of time---dialogue between the old and the new fabrics  
Proposing an urban forest to Mount Silpius to reinforce the natural network within the city

### **Urban design approach: Meeting at Forum**

A special pausing point in the square  
Transparent urban spaces  
The uniting of the new and the old city in the forum  
Giving priority to pedestrians in the design of space  
Multi-purpose urban space  
Human scale  
Developing the language of contemporary architecture by getting the references of vernacular architecture  
The forum – citizenship, sense of belonging, urban space as an indicator of collective identity  
Human scale  
The urban skyline  
Designing multi-functional urban spaces  
Integrating the forum with the old and the new texture  
Cosmic metaphor – order and balance in the square, matching of functions (library – mosque, museum – a/v centre, cinema – exhibition hall)  
Developing the language of contemporary architecture by getting the references of vernacular architecture

### **III. RESULTS**

“Architecture comes from either memory or invention” (Sorkin, 2001, 64)

“The population of ancient Antioch was a heterogenous mixture of Syrians, Macedonians, Athenians, Cretans, Cypriots, Argives, Heraclids, (who were the original inhabitants of Silpius) and a sprinkling of

Jews. Many were the former inhabitants of Antigonía, and other former soldiers were settled here.” (Demir, 1996, 28)

“Antakya had a population of unusual ethnic and religious diversity, was a major centre of trade lying at a junction of major roads in all directions, and situated in a region where Eastern and Western cultures converged. These were the principle factors which resulted in Antakya becoming an early centre for the propagation of Christianity.” (Demir, 1996, 32)

“Habermas believes capitalist societies can be divided into three basic subsystems; (1) the economic, (2) the politico-administrative, and (3) the cultural (what he later calls the lifeworld)” (Turner, 1991, 214)

“This sphere is a realm of social life where people can discuss matters of general interest; where they can discuss and debate the issues without recourse to custom, dogma, and force; and where they can resolve differences of opinion by rational argument.” (Turner, 1991, 210)

“The historic landscape therefore needs to be read, interpreted and perceived in terms of two dimensions – of time (temporal change and continuity) and space (patterning at various scales).” (Fairclough, 1999, 121)

“The fact that spiritual values are essentially beyond forms, yet have to be experienced through specific forms, is a condition of human existence. Without the interplay between a transcendent vision and a tangible human embodiment, “culture” will remain either meaningless or unproductive, and so will the creation of the built environment.” (Bianca, 2001, 21)

“There, beyond constituting mere cultural memories, historic cities should be able to act as productive nurseries of cultural continuity.” (Bianca, 2001, 20)

As stated by Kostof, the main square of a city reflects the character of the society. (Kostof, 1992)

“Material evidence for the assertion that the main congregational mosque – the Friday mosque – and its courtyard were the true forum of Islam comes from the treatment of Roman forums by the Muslim conquerors in cities that came under their dominion. The mosque was commonly placed over the forum, which ceased thereby to exist as an open space.” (Kostof, 1992, 128-129)

Kostof states that scattered public spaces within a city indicate that the power is scattered. (Kostof, 1992)

“Centrality appears to be the norm for the principal meeting ground and representational space of a city.” (Kostof, 1992, 130)

“In recognition of the main role of city gates as channelers of traffic and long-distance commerce, and the ceremonial nature of official entries.” (Kostof, 1992, 132)

“The street as an institution is a critical subject. Beyond its architectural identity, every street has an economic function and social significance. The purpose of the street traditionally have been traffic, the exchange of goods, and social exchange and communication.” (Kostof, 1992, 189)

“Since it (division of labour) combines both the productive power and the ability of the workman, it is the necessary condition of development in societies, both intellectual and material development. It is the source of civilization.” (Turner, 1991, 94)

“The only legitimacy of the street is as public space. Without it, there is no city.” (Kostof, 1992, 194)



“In the long and fecund evolution of Middle Eastern and European urbanization, three essential types of cities appeared: (1) the “private” and religious city of Islam; (2) the “public” city of Classical Antiquity (the Greek polis and the Roman civitas); and (3) the “domestic”, ruralized city of the northern European world. (Montequin, 1982, 43)

“The Muslims does not seem to care for the spatial effect produced by the endless line of a continuous, longitudinal urban vista, since such impression destroys all feeling of intimacy.” (Montequin, 1982, 49)

The methodology Lage-Filho and Darling suggest can be used as a starting point, or an inspiration chart for every historic city, however every city should also be evaluated in its authenticity and uniqueness. The elements stated by Lage-Filho and Darling are;

Cultural relevance – Historic, artistic, scenic, ethnographic, archaeological

Potential for Economic Use – Potential to form partnerships to maintain the area, potential for private participation, interest and capacity of users to contribute to maintenance, potential of municipalities to provide required urban services, unoccupied space available for use, easy accessibility for cars, potential for cultural tourism

Urgency of intervention – Exposure to risk, state of conservation, compatibility of present use with conservation

Cost of intervention – Complexity of intervention, magnitude of intervention

Potential for social improvement – Potential for educational benefits, potential to improve living conditions, potential to generate employment, other positive impacts on the area

Local political support for heritage conservation – Political will and capacity to manage heritage, interests in conflict with preservation, existence of lines of credit and incentives for conservation. (Lage-Filho&Darling, 2001, 269)

“The basis for the understanding of the traditional architecture of Islam is the relation existing between the cosmos, man in the traditional sense of anthropos, and architecture, which extends the principles of sacred architecture from the mosque to practically every other architectural unit and finally to town-and city-planning itself.” (Nasr cited in Oliver, 1982, 122)

### **Radioactive behavior and halving cultural heritage of historic city**

This sort of a questioning about the role and the process of the historic city is likely to conclude in a lot of models inherited from the nature. Thinking of the urban nucleus and the focal points at different distances to this nucleus, one is likely to end up questioning the atom as a metaphor for the historic city. As an atom, the historic city has a nucleus and particles of different features. These particles move along the orbits that are of different distance and energy levels. Regardless of the distance and the number of the particles, our aim was to convey that it is the nucleus that holds all of them in balance and in the right place to exist.

So is the historical core to the whole city. It acts as the main centre of the energy of the city. However, without conservation, it acts as a radioactive nucleus rather than a stabile one, since it changes constantly, radiates and captures energy. Like all the radioactive atoms it has a half life, and during this what is halved is the cultural heritage.

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