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Light and Colour Symbolism in Arab Architecture

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Abstract
Light and colour as important categories of expressing architectural environment play a significant role in the development of the modern architectural language in Arab architecture. Traditional light and colour complexes belong to the coding structures of the architectural language that reflect the ethnic integrity of the society. Their changes express cultural transformations. Gradual complication of colour scheme and light structures is connected with the culture of this region becoming more complicated due to the development of Islamic philosophy and specific symbolism as well as the development of production that helped modulating the flow of light and get more colour nuances for construction materials.
Keywords: architectural language, light, colour, Arab architecture

1. Introduction

Revival of traditions in Arab architecture and urban planning requires investigating a set of architectural environment problems. One of the urgent problems caused by modern architecture that usually reflect Western European principles in international architecture is the issue of "language and speech" formation in the contemporary Arab architecture. The architectural language is the objective reality for the specific social group living in the area. And first of all, it is used as a means of contact between the author and the recipient (architect and inhabitant). If the architect fails to use the language which the consumer (inhabitant) is ready to react to, the information cannot be read and, consequently, understood. Such a gap results in psychological discomfort in numerous regions with plenty of new complexes that do not correspond to the mentality, national values, way of life and peculiarities of the climate. The environment influences a human being with the help of certain physical parameters: those of volume and plastics, space, light and color.

The role of light in architecture was highlighted by Le Corbusier who wrote, "the law of the Sun has stipulated architecture from the first steps" (Corbusier 1972), "Architecture is a skillful, precise, wonderful play of volumes in the light. Our eyes are made so as to perceive the forms that are lit" (Corbusier 1972). When looking for the architectural language of modern architecture, American architect L. Kahn pays special attention to light. Making designs for Oriental countries, he does not copy any exact traditional shapes but uses a conceptual approach towards interpreting the categories of space and light. For instance, the light-and-shadow idea is central for the building of the National Parliament in Dacca (Bangladesh). Shukurov writes, "Light and shadow are used by an architect as a unique constructive way of organizing space that is filled with light, shadow and air". The author of the Parliament building himself states, "Fullness with light triumphantly protects the fullness with air and always remains the base for architectural outlines…" (Shukurov 2014). The design of the Louvre branch in Abu Dhabi by French architect Jean Nouvel is an interesting example of modern interpretation of light. The bright daylight of the South is refracted by the dome shape that looks like accidental interweaving with geometrical openings. As a result, shadows that are chaotically transpierced by the rays of the bright daylight are created in the museum rooms. These flows of light arouse the feeling of a light rain. Any changes in their direction caused by the sun moving and reflecting in the pond water create a bright shimmering effect. The author of the project expressed the symbolic meaning of this solution, "A world is created in which there is no need of bright light because shadow filled with subtle hints is more important, semidarkness makes tactile perceptions more acute and it seems that you need to come closer directly and touch in order to prove the existence and grasp the configuration" (Riabushin, 2005). In this way Jean Nouvel explains his understanding of the "ever changing modern architecture of transparent depth, reflections, variations of a form in different lights…" (Riabushin, 2005) with the help of the traditional categories of Arab architecture.

Colour plays a more important role in Arab architecture than in European. Colour aspects of traditional Arab architecture are to a certain extent studied in numerous research works of Western authors who deal with the peculiar features of Arab architectural poetics and composition, including D. Jones (Jones, 1984), G. Marcais (Marcais,1946), Creswell (Creswell, 1989), etc. An excellently well-developed concept of Arab architectural colour colouristics was proposed by A. Osman (Osman, 1992) in the research under the supervision of professor V.Y. Kravets. Issues of colour colouristics are the subject matter of the works performed by architect Wasef Radwan, as well as the research by anthropologist V. W. Turner (Turner, 1972) psychologist B. A. Bazyma (Bazyma, 2001) and many others.

Thus, light and colour as important expressive categories of architectural environment play a crucial role in the formation of the modern architectural language of Arab architecture. In this connection it is worth

studying the light and colour category in the context of the historical development of Arab culture.

2. The role of light in Arab architecture

Light and colour categories are determinative for the language of traditional Arab architecture. In particular, they have their special history in Muslim culture and architecture. The Quran states that "God is the Light of the Heavens and the Earth". The literal meaning of the word "minaret" (Arabic "al-manara") is "the place of light". Light defines the space borders of Islamic architecture and reveals its geometrical precision and intellectual clarity. Light is identified with a spiritual principle which creates, arranges and liberates at the same time, being the decisive factor of architecture sanctification in Islam (Nasr, 2009). The Universe in Islam is shown as the clear blue sky and bright light; it is embodied in architecture as well. The most brilliant examples include Taj Mahal mausoleum and mosque (1653), Sheikh Zayed Grand Mosque in Abu Dhabi (2003), Sultan Omar Ali Saifuddin Mosque (1958) which are seen as crystallized light.

Some authors attach certain mystical symbolism to the thorough control of light sources and interplay in Islamic architecture. In their view light is a symbol of divine unity, and they believe that Muslim artists aspire to transform the substance being created into the vibration of light. The mystical role of light as evidence of divine presence, ecstatic unity with and dissolution in the Divine Light correlates with reconsidered ideas of the Neo-Platonists about god being light. Arabic Neo-Platonism with its exalted mystical form takes the leading position in the art and especially the architecture of Arab countries. The images of light and darkness are determinative. The relations between life and death, good and evil, god and human are explained through light.

2.1 Evolution of light philosophy

Mystical longing to contemplate god with the predominant idea of emanation of the single divinity in the natural world is the basis of Sufism whose doctrine combines the Neo-Platonic idea of emanation with the Hindu teaching of human soul dissolving in god and the Zoroastrian "theory of shining". In this interpretation god is present both in the light of sun rays and in the shine of fire. Medieval Persian philosopher Ibn Sina (Avicenna) develops the Neo-Platonic idea of emanation and combines it with oriental, i. e. Zoroastrian images of light. Avicenna's concept of god manifesting himself to the world through light contains the idea of a person getting cognition of the world and through it cognizing god.

The ideas of the Neo-Platonic light concept were absorbed and reconsidered by the Arab Muslim culture and expressed through the transformation of mosque architecture, this building using the peculiarities of architectural languages to the fullest extent. In case of an early court mosque the centre of the composition was a wide internal courtyard with a fountain flooded with bright light. In the 12th century the mystical philosophical and theological teaching of Sufi began to get widely spread, and the compositional centre in the mosque shifted to the space under the dome that was poorly lit with sunrays entering only through the dome openings. As a result, the theme of exaltation got intensified, supported by the mystery of intense cognition of Divine Light. At the same time the court remains an important link in the composition due to the peculiarity of the climate and ritual. The rectangular courtyard with a pond for ritual ablution in the middle precedes the prayer hall. Its space lit with sunshine enters the dark hall freely through the open nave arcades. The ideas of Zoroastrism with its worshiping of fire and sunshine were organically replaced by the absorbed Neo-Platonic concept of Divine Light emanated in the darkness of human life. The idea of a direct contact between a person and light (god) lost its dominant position as it used to be in the court mosque, and got substituted by the concept of the thing that is unperceivable for human mind and personified by light penetrating through intermediate spaces (windows, dome).

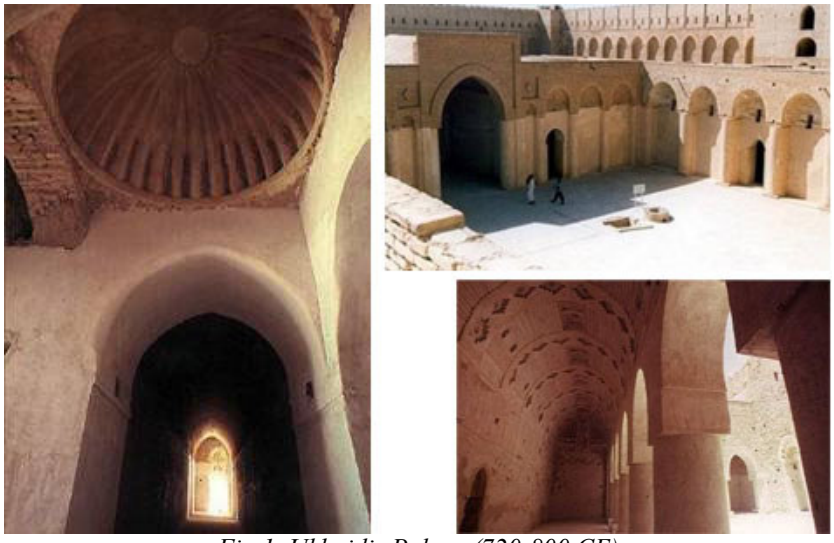

Fig.1. Ukhaidir Palace (720-800 CE)

Fig.2. Alhambra dome, 13th-14th centuries AD (a), The Selimiye Mosque Dome 1569-1575 (b), Qurdoba Mosque, arabesco mezquita interior

2.2 . Light symbolism in Arab architectural décor

Along with its religious and philosophical meaning light performs a dual function in Islamic architecture: it changes other décor elements and creates ornaments itself. Architectural elements in Islamic buildings and the materials chosen to decorate them often have a specific form that allows refracting and reflecting light as well as getting transformed with the help of light and shadow. They include sophisticated use of glossy floors and wall surfaces to catch light and send it to the sides of faceted ceilings that in their turn reflect the light back. Muqarnas catch light and refract it, as a result the ribbed domes seem to turn depending on the time of the day. Facades seem to be made of some lacy materials and become transparent screens when the sun shines on their stucco moulding which is intentionally perforated and modeled in such a way as to create the effect of getting free from their physicality. Mirrors, glazed tiles, gilded wood and polished marble shine, sparkle and reflect strong and sharp light of Islamic countries.

In this sense light, like water, contributes to the dynamic constituent of Islamic architectural décor. It adds a temporal element to the patterns, forms and pictures. During the day the shapes change depending on the angles of light and shadow, like in a kaleidoscope. Light and shadow create distinct contrasts of the surfaces and highlight the texture of pitch stone as well as moulded or brick surfaces. Light getting filtered by wooden mashrabiyyas, moulded and marble screens (covers) and windows made of figured multicoloured glass, projects the patterns further to the surfaces that are situated behind and below them, creating ephemeral and constantly changing overlapping of colours and shadows. Hanging glass lamps decorated with coloured calligraphy, geometrical and floral patterns are often placed in perforated and patterned metal containers which are designed to give a patterned projection but not a distinct ray towards patterned surfaces and thus creating additional layers of the picture. The lamp patterns are similar to those on the walls and ceiling, and in this way harmonious environment is created which at the same time is dynamic and serene.

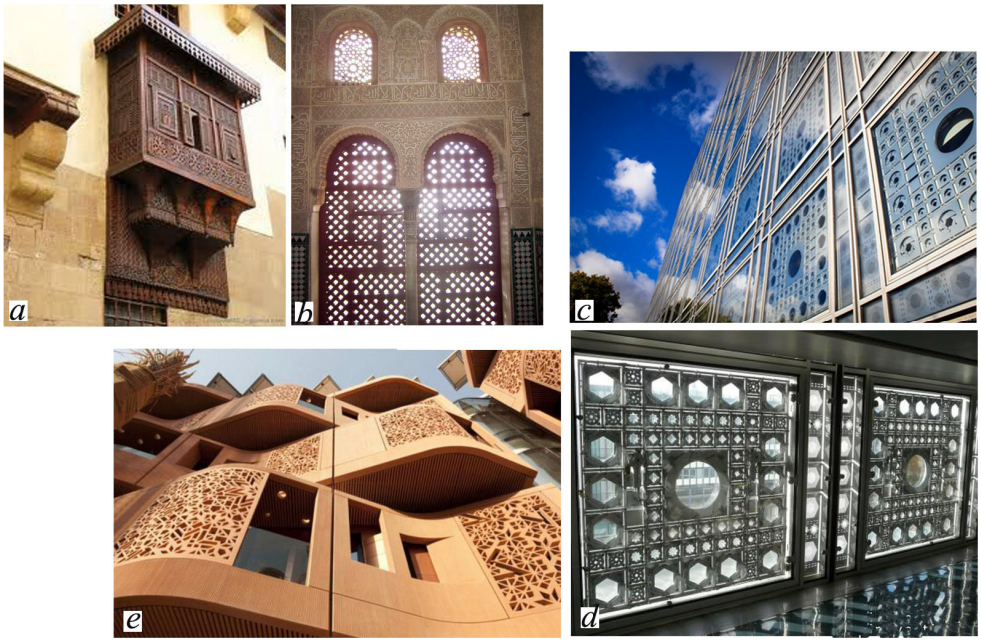

Fig.3. Traditional elements of Arab architecture (mashrabiyyas) (a, b) and their contemporary interpretations: southern façade of the Arab World Institute in Paris (c, d); a fragment of a building façade, Masdar City, UAE (e)

The effects created in Islamic architecture with the help of light filters are unique. As early as in the times of the Omeyyades there were geometrical patterned stone and moulded windows (monumental examples have existed since the time of Khirbat al-Mafjar) which prove the interest in patterned light effects. The incentive seems to originate from the late Antiquity where similar windows and screens with geometrical patterns had been used in the similar function. But the effect of two patterns overlapping due to the projection of light is a specific and unique Islamic one.

3. Colour symbolism in Arab architecture

Light symbolism is enriched with the help of highly developed symbolic interpretations of colour in Arab architecture. The canonic prohibition to depict live creatures strengthens the importance of colour as a category of architectural form in Arab world which has been a powerful way of emotional influence since time immemorial.

3.1. Origins of the traditions

Traditional world outlook has been created for centuries and is the most stable reflection of ethnical integrity of a population group. Traditional light and colour complexes belong to the coding structures of the architectural language that reflect the ethnic integrity of the society. Their changes show cultural transformation and take place very slowly. According to V. W. Turner, the most ancient and universal light and colour structure consists of three basic colours: white, black and red (Turner, 1972). Initially these colours acted as symbols of light and tectonic structure of the universe. The same colour scheme can be found in the majority of cultures as an invariant base for later modifications. For instance, such a scheme is characteristic for Yggdrasil ash tree from the Poetic Edda in Scandinavia (red roots, black trunk and white top) as well as the colouristics of Cretan and Mycenaean monuments. It is also the most ancient colour base of Sumerian architecture. The latter is important regarding the genesis of regional traditions in Mesopotamia-Babylon that were further picked up and developed by Arab culture.

The Ziggurat of Ur, the capital city of the Sumerians, which was built in 3rd millennium BC by King Ur-Nammu is an example of the oldest light and colour tradition. The colour of three floors of the 20-meters high ziggurat was created by means of different methods in brick processing. The bottom floor was black covered by bitumen, the middle floor was red as its burnt bricks, and the top floor was whitened. White colour, as opposed to black, referred to the colour of the sky and sun and was their symbol. V.W. Turner states that red colour was the colour of transition, and contextually it referred to both opposites. Later this structure was the base of the temple complex in Babylon. It was kept even after numerous ethnical changes of its population.

A seven-floor ziggurat in Babylon was called Etemenanki, i. e. “temple of the foundation of heaven and earth" (18th century BC, reconstructed in 680-669 BC under Esarhaddon and Ashurbanipal by Assyrian architect Aradachheshu). Its colouristics copied the traditional model almost completely, however, some new

cultural additions were made (the method of producing glazed tiles was discovered): the black base was opposed to the sky blue (turquoise) coating of the top temple using glazed ceramic tiles. The colour scheme was completed by a bright accent in the form of gilded oxen horns, an attribute of god containing sun symbols.Turquoise colour of the tiles in combination with several colours of the brickwork and surrounding landscape remained symbolic for the whole architecture of Arab world up to Central Asia for a long time (e.g. the architectural ensemble of Shah-i-Zinda in Samarkand).

3.2. White colour and light tones

In the context of southern climate with its bright, dazzling sunshine deep shadows and expressive contrasts are predetermined, for this reason it is monochrome but not contrasting colour schemes that predominate in the architecture. The priority of clear, light and shining colours is a peculiarity of Islamic colour symbolism. White is the main colour in Arab architecture, being the symbol of holiness and dignity, bliss and true word.

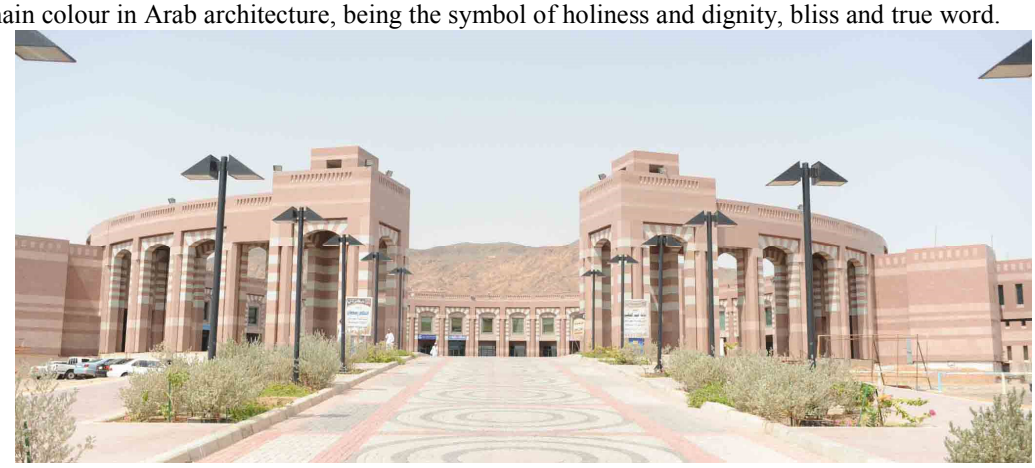

Fig. 4 Taibah University

Fig..5 Taibah University

3.3 Black colour

Black is the colour of the Kaaba sacred stone. The symbolism of white and black is not antagonistic because both colours are sacred. A special feature of Islamic colour symbolism is absence of negative character in black colour. Night, darkness and shadow always supplement light. Al-Farabi wrote, “Every colour hides the lack of another colour but white is present not because black is absent”. However, in architectural forms there is no

black colour (as well as red). We can see it as symbolic elements, for example, in calligraphy.

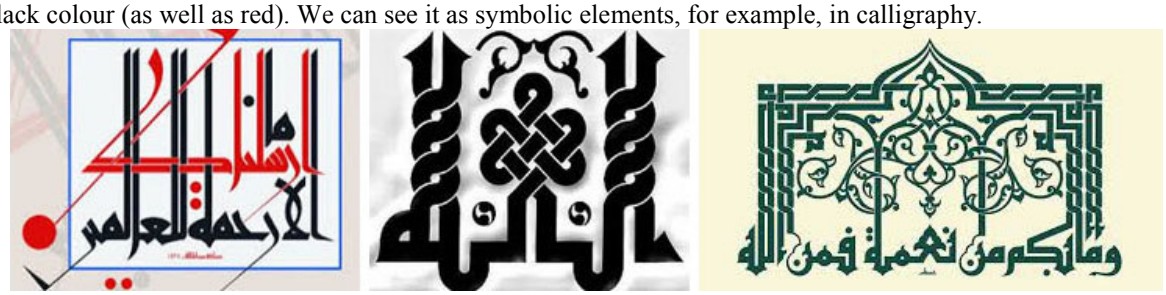

Fig. 6. Samples of calligraphy

3.4 Green colour

Green colour which is perceived as a true symbol of Islam gets special importance. It dominates in architectural solutions of mosques and in architectural elements of various buildings. Its predominance is, first of all, explained by numerous mentionings of this colour in the Holy Scriptures: "Anywhere, when you look there, in Paradise, you will see pleasure and great dominion. Upon the inhabitants will be green garments of fine silk and brocade". (The Quran, 1990). "Reclining on green cushions and beautiful fine carpets" (The Quran, 1990). Thus, green colour as a symbol of Paradise gardens arouses the feeling of integrity and harmony in the culture of Islam. Green symbolizes nature, oasis, life and rest (Bazyma, 2001).

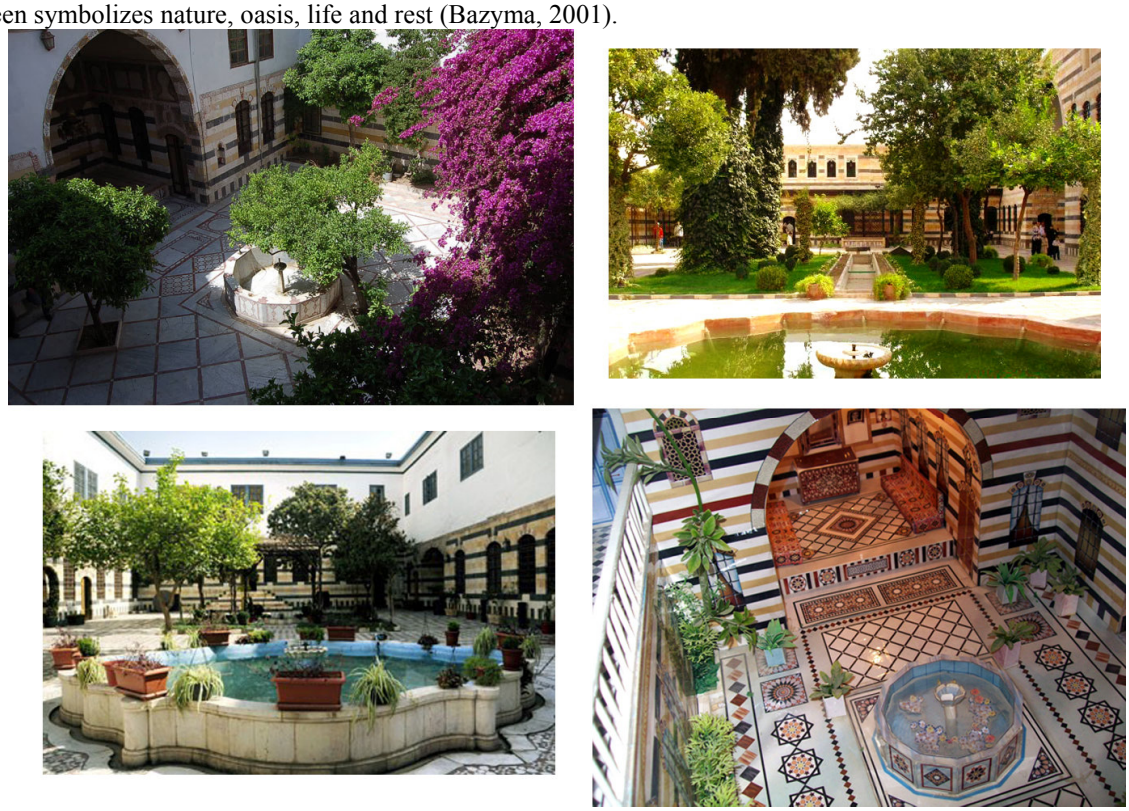

Fig.7. Mosaic Umayyad Mosque in Damascus, 707-715 AD

Fig.8. Damascian home

3.5 Light blue

Light blue colour symbolizing the truth and sky as the home of Divine is often used in architectural ensembles. The Blue Mosque in Istanbul is one of the most impressive examples

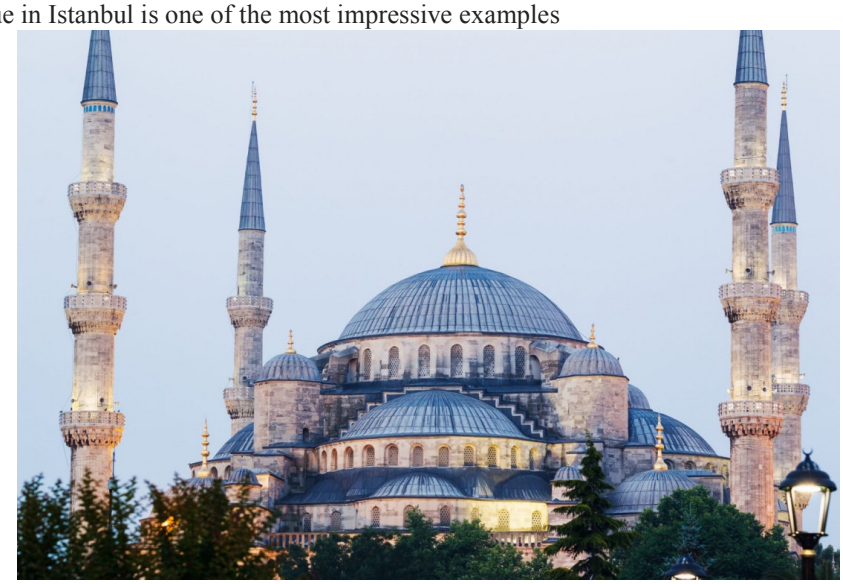

Fig. 9. The Blue Mosque in Istanbul 1609—1616 AD

In Northern Tunisia there is a town of Sidi Bou Said whose architecture is based only on the combination of white and light blue colours. Till the 18th century Sidi Bou Said had not had this white-and-blue feature and began to get its now characteristic architectural appearance after well-to-do Tunisians and Ottoman deputies had arrived and started building their residences and roads. Sidi Bou Said received its characteristic colour only in the first half of the 20th century when French painter and musicologist baron Rodolphe d'Erlanger settled in the town. The baron specialized in Arab motifs and managed to ensure that blue and white colours should be used in the town and all further construction works should follow the same style (Sidi Bou Said in Tunisia).

Fig.10. Images of Sidi Bou Said in Tunisia

5. Conclusion

The qualities of light and colour as the elements of architectural "language" form the grounds in the informational process acting in architectural environment. In Arab countries these light and colour structures gain special importance and create a series of symbolic meanings which can be used as the starting point in establishing the modern language of Arab architecture. These meanings can manifest themselves in the following ways:

-embodiment of Arab world spirituality through light flow modeling;

- expression of peculiar national features of architecture using the category of light depending on stratification of light and shadow with the help of light pattern effects;

- expression of the relations between a person and the world depending on the nature of a light flow.

Different interpretations of these relations are expressed in early mosques and those built in the times when Sufi ideas dominated as well as in the samples of contemporary architecture.

Numerous symbolic meanings of architectural forms are created by their colour scheme whose gradual complication shows that the culture of the regions is developing and getting more versatile

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