

Implementation of Art on Vernacular Architecture in Ancient Nubia -Egypt

Dina Howeidy PhD., FHEA

Abstract— Vernacular Architecture considered as the simple form of architecture that covers all of the human needs according to their culture. This type of architecture specifies the concept of design that is based on using the utilized building and construction material in native architecture.

This paper will focus on the concept of art that went parallel to the buildings' design concept by using colors and symbols on the facades and in the interior spaces, which had strong relationship to the natives believes, social life, religion, culture, traditions, utilizing materials, and resources that are common and prevalent in the site.

The paper will also highlight the concept(s) of Art, and its application on the Nubian buildings' facades to complete the shelters' design according to their consideration, and how it was effectively used in design, in which it was originated when people used the native and natural resources and materials to design their shelters, taking into consideration people response not only to the use of the prevalent materials, but also to the culture, believes, climate, and design considerations.

Keywords— Vernacular Architecture- Native Materials- Building Response - Native Architecture- Design Considerations.

I. INTRODUCTION

Vernacular architecture is the simplest form of addressing human needs, is seemingly forgotten in modern architecture. However, due to recent rises in energy costs, the trend has sensibly swung the other way. Architects are embracing regionalism and cultural building traditions, given that these structures have proven to be energy efficient and altogether sustainable. In this time of rapid technological advancement and urbanization, there is still much to be learned from the traditional knowledge of vernacular construction. These low-tech methods of creating housing which is perfectly adapted to its locale are brilliant, for the reason that these are the principles which are more often ignored by prevailing architects.

Vernacular architecture originated when mankind was forced to make use of the natural resources around him, and provide him-self shelter and comfort which is responsive to the climate, a shield from the elements. It is a pure reaction to an individual person's or society's building needs, and has allowed man, even before the architect, to construct shelter according to his circumstance.

Such simple traditions have long been regarded as

backward, and have been replaced by half-digested, largely inappropriate architectural values. Work in vernacular architecture are often expressed in a technical language, and published in unaccessible places. Those who write about buildings do not always relate their detailed findings to wider issues. It is no accident that the aspect of the subject best known among historians is the 'great rebuilding', because articles inventing and revising that idea were published in a mainstream historical journal, and because the central concept is readily grasped, and can be linked with other trends of the period.

The question of intent in vernacular architecture now becomes most important and the artifact itself used simply as a means of attaining insight into a given society. Seeking the reasons why vernacular builders created structures in certain forms, using certain methods, inquiries turn towards the understanding of culture. In doing so, revelations are uncovered pertaining to all aspects of vernacular design.

At present such an enquiry is frustrated because many studies of vernacular architecture do not make a strict distinction between the rural and urban location of the buildings, and there is a shortage of studies which set out explicitly to investigate urban buildings. The opportunity undoubtedly exists because so many timber-framed buildings survive in towns, and there are many regions, such as the south-east, where there are sufficient buildings visible in town and country to make a comparison possible.

II. THE RESEARCH METHODOLOGY

The paper will focus on the use of the Art in the residential units interior and exterior, and will identify the reasons behind using colors and symbols. Moreover, analyze their relation to their believes and habits, in addition to specify the materials, techniques, and its background, which was taken from Ancient Egypt, since the Nubians were the old tribes founded at that time.

III. CASE STUDY: NUBIAN VERNACULAR ARCHITECTURE

In earlier Egyptian texts, Nubia is mentioned as the land of Cush. It was through this land that Egyptians obtained products of the Sudan like ebony, ivory, leopard skins and a variety of resins. Its people had for millennia inhabited the middle reaches of the Nile and their traditional ways of life were based on agriculture, fishing, transporting goods up and

down the Nile, virtually unchanged until the Aswan Dam was built.

Ibrahim Fahmy says in his book values (Nuba land of perfume and gold) that the word Nubia is still the subject of different scientists, and still its history and origin of language the subject of a difference, too, was the first to launch spell the name of this country are the ancient Egyptians, the basic principle is the ancient Egyptian derivative of the word for word (NOP or Nobu) in the sense (gold), and are intended to (the country's gold), since the seizure was an old mine for the precious metal.

Nubian people are an ethnic group; they considered as one of the most ancient people all over the world, their civilization started more than 8,000 years ago. They lived in the southern Egypt and north Sudan. They had their own culture, language and the Egyptian civilization started from Nubian lands. Nubians used to live around the stretch of the Nile about 350 km upstream of the Old Aswan Dam in the reservoir area. In Egypt the representatives of the first group are the (Kunuz) occupying the northern region of Nubia, while the (Fadigga) group who dwell in the southern region of Egyptian Nubia.

For hundreds of years, the Nubians experienced a slow peaceful life in their country between the first and third cataracts of the Nile. In 1964, they were forced to leave their villages and were relocated to new ones designed and built by the government. This sudden change in their environment affected the way they had lived for hundreds of years.

A. The Location

The Dwellings extended along the Nile at irregular intervals in a staggered line more or less parallel to the river following the natural contours of the ground. The Orientation throughout Nubia, principal entrances to the houses faced the river, whether they were on the west banks of the Nile. On approaching the front of a dwelling, towards the main entrance and threshold, a person had his back to the river.

Nubian vernacular architecture continued to be ignored by the rest of the world until 1963, when the region was to be flooded for the third time. (The first was after the British built the original dam, known as the khazan Aswan in 1898. The second time the dam was elevated in 1933, and the third time was the construction of the High Dam itself in 1964). Then, they rebuilt all their villages on their own, with their own precarious means, giving them a chance to show the world potentialities of man when he is given the chance (Hassan Fathy).



Fig. 1: The Location of the Nubian Land and Dwellings

B. Design Considerations

The clear definition for the design considerations is the general characteristics of design that can affect the design and it is process. The Design considerations were taken from the perspective of the impact of the aesthetics values on the Nubian vernacular architecture.

Sociological: Social life is very important to the Nubians, they have special traditions some of it is related to the Nile river before the movement, the Nubians were also inspired in their art by the Nile river, for example some of their wedding traditions were related to it, Moreover, the females' role in the community is very big, and the house consider as the palace for them were they accept visits and guests and according to the culture it has to be clean and decorative and the visitor will find that the buildings presents a feeling of harmony and practicality.

This sociologic facet of architecture is present in a material, a color scheme, an architectural genre, a spatial language or form that carries through the urban framework. The way human settlements are structured in modernity has been vastly unsystematic; current architecture exists on a singular basis, unfocused on the connectivity of a community as a whole.

Climatic: The original Nubia is the dry hot land of about 123,000 square kilometers between the city of Aswan and northern Sudan. Much of this land now lies beneath the waters created by the High Dam Reservoir (Lake Nassar/Lake Nubia).

Aswan is in a dry, temperate zone which enjoys a very mild climate in winter, making it a favored winter resort since the beginning of the nineteenth century. It rarely rains, although torrential downpours occur every four or five years. The prevailing winds are from the northeast. Sandstorms come from the west during spring but last only a couple of days. In winter the temperature ranges from a maximum of 26°C to a minimum of 10°C, with a humidity maximum of 56 per cent. In the summer months the temperature can reach 42°C, becoming mild at night at a minimum of 26°C. The humidity in May goes down to 7 per cent.

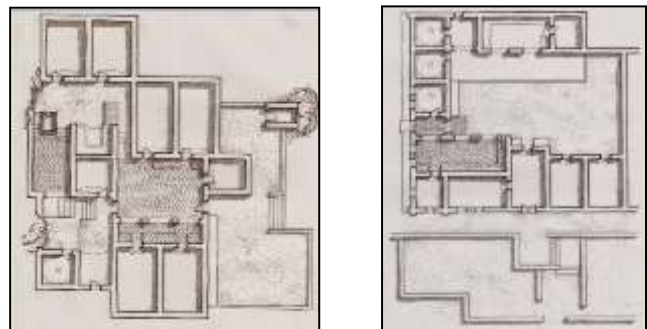


Fig. 2: Example of the Nubian Dwellings Floor Plans
Source: <http://mamdouhsakr.blogspot.com/2015/03/traces-of-vibrant-vernacular-nubian.html>

C. Cultural

The challenging task of resolving the demand of shelter for the growing urban population, and solving the environmental

crises of 21st century, it seems more than ever necessary to look into the application of vernacular knowledge in creating the kind of architecture and urban environment that are sustainable and culturally appropriate. The houses of old Nubia reflected the Nubians' world view and way of living. The displacement villages designed and built by professional architects reflected another world view based on their beliefs and social class. The design of the displacement villages did not respect the Nubians' way of living and view of the world. This forced many changes on the Nubians' way of living and everyday life experience.



Fig. 3: The Decorative Elements



Fig. 4: The Use of Symbols and Colors

IV. THE USE OF MATERIALS

The native architecture for the Nubians in the villages were inspired by the Nile river, they used the mud as bricks in the building constructions and as finishing materials, with barrel vaulted roofs and domes for air circulations, and when the family expands they extend the main building design and new spaces will be added for more rooms.

Houses Nubian built of adobe any mud bricks because the mud is not heated and is not affected by heat dramatically, as well as there must be domes over each house and function of these domes is the distribution of the sun's heat so as not to be perpendicular are kept on a horizontal surface Transmits all the heat inside the house, but rounded idea Let's assume that raining and in front of you Petain one surface flat horizontal and the other surface is dome-shaped, not necessarily rain water Satkhozn on the surface horizontal while the water fall over the dome would make him "ski" and drops to the right of the dome and its left, and the same idea talk with sunlight.

The technology of making mud brick is inherited from

ancient times in Egypt. Inhabitants in choose the best soil for mud brick casting. There are common places they tend to go and get the mud from. They are nearby their farm lands on the periphery of the town. They choose these locations because they are places where grazing animals are taken every day to graze. As a result, the soil is full of animal manure. Moreover, it is far from the farming land, where the upper layer of the soil is salty or recently affected by fertilizers. The process starts by adding water to the soil to achieve the proper consistency, plasticity and workability. Straw and dung are added to increase malleability and impermeability. Finely chopped rice or wheat straw is mixed with the mud to act as shrinkage compensator and for reinforcement. This helps the entire mud brick block to dry evenly from inside and from outside. It also increases compaction, which reduces cracks and keeps the brick more solid.

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V. THE USE OF COLOR & SYMBOLS

The Ancient Egyptian system of color symbolism was mostly, but not entirely consistent throughout all regions and time periods. Colors, meanings for colors, and artistic conventions relative to color were revised or added to this system at various points of Ancient Egyptian history. During the Amarna Period, for example (which will not be covered further in this article), many of the preexisting conventions of color symbolism were altered significantly, in order to more fully break away from "the old religion." Only the more important, consistent rules of color symbolism and lasting additions to them will be discussed in this article, and must be taken under the advisement of these caveats. Ancient Egyptian artists gave their Nubian neighbors from the South dark brown or pure black coloration, as we would expect most African groups to be portrayed in any art form.

This system initially consisted of four basic color-concepts: green, red, black, and white. In Old Egyptian (the stage of Egyptian language spoken from about 2600 BCE to 2000 BCE), they are called wadj, dešr, kem, and hedj. These were colors derived from mineral pigments, which had been used since Prehistory. Blue (khesbedj / irtiu) and yellow (khenet) enjoyed differentiation and development somewhat later on. Other colors such as gray, pink, orange, and brown, while they clearly could be created by combining the basic pigments and were used in Egyptian art, did not achieve the importance of the preferred, "pure" basic colors. These "secondary colors" were categorized under the major color-concepts they most closely resembled. White was not a commonly used color for the complexions of the deified deceased, or the Gods. In the same way that silver and electrum (an alloy of gold, silver, and copper) were considered by Ancient Egyptians to be essential

equals to gold in the realm of precious minerals, in the two-dimensional realm white could take the place of yellow.

Most of the symbols used in the facades were used based on beliefs, cultural, social, religious, physiological.

TABLE I
SHOWS THE CONCEPT OF USING SYMBOLS














Symbol	Concept	Pict.
Animals/Fish/Birds	The common birds, crocodiles, camels, and others were added to the drawings and paintings on the facades.	
Nile River/ Boats	The use of the blue color of the Nile and its small waves. The relationship between the Nubians and the Nile river is very strong, the people live close to it and the river means the life for them.	 
Text/ Pictures.	-The written texts were related to the beliefs, religion. -Some of the texts used for welcoming. -Drawings highlighted the social life like weddings the land fertility and the community.	
Human Figure (Males & Females)	-Most of the drawings were related to the females as they have big role in the community. - They were colored with brown, inspired by the mud color as the skin-color of the Nubians. -They also use it to document their occasions	
Plants	The greenery and agriculture due to the fertility of the land especially the palms	
The Geometrical Shapes (The triangle mainly)	-The use of it framing the windows and doors, and according to the culture each tribe has its own style and color in designing their façade. -The geometric shapes around windows and doors referred to their dynamic life.	

TABLE II
THE COLOR CONCEPT IN THE NUBIAN CULTURE

Color	Concept
Green 	This color is predominantly associated with the Nile, the Mediterranean Sea (called Wadi-Weg, "Great Green"), the earth, and vegetation. name of this color-concept. (Wilkinson, SMEA, 106)
Red — <u>Delt</u> 	-While it describes the color red, tended to include the colors yellow and orange, as these were all derived from the same sources: naturally occurring ochre and oxide. (Wilkinson, SMEA, 106, 107; Robins et al., 59) -Red was the "heraldic color" of Lower Egypt, embodied by its signature <u>Deshet</u> crown. -It was associated with the sun. Unlucky days and the names of hostile beings, for instance, were often written in red rather than black ink. (Wilkinson, SMEA, 106) -The use of red in Egyptian art and language was rather ambiguous to say the least, so its meaning must be carefully evaluated on a case-by-case basis.
Black — <u>Kem</u> 	-Black pigment was acquired from various forms of carbon, and was one of the earliest pigments known to man. It was chiefly associated with the dark silt of the Nile Valley (hence Kemet, "Black Land") and the Afterlife. -As a natural corollary, it signified "resurrection from the dead and even fertility and thus paradoxically life itself." (Wilkinson, SMEA, 109) -Being akin to <u>wadj</u> , it occurs frequently in all religious contexts. As for its negative connotations, black could also convey total annihilation in the same capacity that red could. This is demonstrated within a relief from the burial chamber of Ramses VI, where bound and decapitated enemies are depicted alternately in red and black. (Wilkinson, SMEA, 112)
White — <u>Hedj</u> and <u>shesep</u> : 	-Like <u>wadj</u> , <u>delt</u> , and <u>kem</u> , it was a pigment that had been used since Prehistory. White pigment was derived from chalk and gypsum, which were plentiful in Egypt. This was the heraldic color of Upper Egypt, embodied by its signature <u>Hedjet</u> crown. It was associated with light, not just of the sun, but especially of the moon; <u>hedj</u> is also a term for silver, a material believed to have lunar qualities. As the color representative of cleanliness and purity, this was also the color of the clothing of ritual specialists, a number of sacred animals, and of the stone used in temple architecture.
Blue — <u>Khesbedj</u> and <u>iriu</u> : 	-This blue pigment was produced from lapis lazuli, or <u>khesbedj</u> in Old Egyptian, for which the color-concept was named. (Robins et al., 58) This rich blue color is associated with the life-giving properties of the Nile's waters, the heavenly realms, the Primeval Ocean, and all their eternal, regenerative natures. -Blue was not part of the earliest system(s) of color symbolism, though it would grow to become the most prestigious color. -It came to be almost synonymous with royalty, not just because of the pigment's costliness of both source and refinement, but also as a result of its New Kingdom connection to the Supreme God <u>Amon(-Ra)</u> , and the subsequent identification of Pharaohs with their State God beginning in the 18th Dynasty. (Wilkinson, SMEA, 108) -By the 19th Dynasty, the "blue form" of <u>Amon</u> was for whatever reason chosen over and gradually replaced His interchangeable and original "red(-brown)" form." Depictions of <u>Amon(-Ra)</u> with blue skin coloration were the sole representations of that deity to survive into later periods of Egyptian art. (Wilkinson, SMEA, 114)
Yellow — <u>Khenet</u> : 	Like red and white, yellow could represent the sun and its life-giving, regenerative properties. It was used, albeit rarely, to represent the heavens themselves. Yellow served as a two-dimensional substitute for gold, and was seen as symbolic of all that is eternal and imperishable. (Wilkinson, SMEA, 108)

VI. DISCUSSION

To allow the practice of self-help housing and participatory modes of development is only sensible and timely for many communities in need of shelter, since the know-how to build shelter effectively with regard to local materials and technology at hand are available to people and are much affordable. Government authorities should set up a self-help building advisory service in the communities to encourage higher standards of construction.

The vernacular buildings provide us with a large repository of natural and cultural heritage that illustrate a genuine and symbiotic relationship with the spirit of a particular place. This relationship that is mediated through knowledge and values can be valuable lesson for the mainstream architecture of 21st century.

VII. RESULTS

The design and art should represent in the vernacular architecture cover the aspects of the community, it focuses on the religion, climate, social, and culture to achieve sustainable human settlements. Vernacular Architecture allows the practice of self-help design and housing and Interior Architectural spaces’ development especially for the communities in need of shelter, since the know-how is clear and the local materials and technology are available to those natives and affordable. Governments should set up services such as advisory for the self-help design and build to encourage the natives to solve the population extension problem and other problems as sustainability, using different flexible designs, and public service specify the budget.

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