MEANING IN THE ARCHITECTURE AND URBANISM OF ANCIENT HISTORY

A CASE STUDY OF MICROCOSM IN THE GIZA PLATEAU

By

Ibrahim Mahmoud Taher El-Hadidi

A Thesis Submitted to the
Faculty of Engineering at Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
Architectural Engineering

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Key Words:
Semiotics; Meaning; Ancient History; Microcosm; Archaeoastronomy, The Great Pyramid of Giza

Summary:
Within the framework of the quest for understanding the traditional meaning in the architecture and urbanism of Ancient History, the researcher studies the impact of the traditional societies' understanding of the world on their architecture and urbanism. The research points out the common aspects in the cities and sacred buildings from ancient history attributing them to a common practice of cosmologically conscious architecture and urbanism. Following the footsteps of Mircea Eliade, a traditional cosmological model is postulated to perceive how cities and their sacred buildings were shaped as heavenly models in the process referred to as microcosm. This model is used to analyze examples from the ancient world with where a set of traditional concepts show persistent, which are consciously utilized to connect the city and the temple with their heavenly counterpart. The traditional cosmological approach is used to interpret meanings in the case study of the Giza Plateau to present an alternative interpretation than that commonly supported by main-stream historians and Egyptologists

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Abstract

This research deals with meaning in architecture and urbanism of ancient history. Following the Industrial Revolution, Modernism arose as a new paradigm governing how people perceived architecture as vessels of function, a mode of perception which equally includes historical traditional settings. Accordingly, meaning in historical traditional settings becomes a mere expression of function, which leaves the actual meaning obscured. This research adopts an alternative approach to that of mainstream historians and archaeologists; taking Eliade, Hancock, Bauval among others' cosmological approach which tends to interpret the architecture and urbanism of ancient history as models of heavenly objects. In their approach mirroring heavens on earth is their "function".

The goal of this research is to present an alternative approach to understanding meaning in historical settings which integrates the architecture and urbanism as aspects governed by the same traditional understanding. This research hypothesizes that if cities and sacred buildings of ancient history reveal patterns of cosmological significance then it would be possible to interpret these cities and their sacred buildings as aspects of an earthly model for a heavenly counterpart revealing an earth-heaven correlation. This thesis is divided into two main parts, first: the theoretical part which includes the introduction in Chapter One, then the literature review in chapters Two and Three, and second: the application, presented in chapters Four and Five. Chapter six features the conclusion of this thesis, the discussion and the prospects for future research.

The quest for understanding meaning in ancient architecture and urbanism commences in Chapter Two. The chapter studies the ancient brain set responsible for the construction of architectural and urban settings influenced by their own ideologies and their views on life and death. The symbol and the archetype are presented as the ancient means of interpreting everything man encounters as representations of a higher reality. This means that the ancients believed the physical realities of everyday life to be paralleled by a metaphysical reality of a higher nature which they associated with the heavens. Accordingly, the natural domain was regarded as a microcosm, and man was its center. This ancient brain set extended to their understanding of their built environment where their cities and sacred buildings were perceived of as recreations of this original microcosm.

Chapter Three investigates the different approaches in interpreting meaning in built environments of ancient history from an academic viewpoint. An emphasis is made on the cosmological approach lead by Eliade, and Rapoport which interprets meaning in constructs of the ancient world as a function of an earth-heaven correlation. Examples from Ancient Mesopotamia, Ancient Egypt, the indo-Chinese civilizations, Ancient Rome, the Judeo-Christian tradition and the Islamic tradition are studied and analyzed in light of the cosmological approach. The examples show a common process of microcosm in man-made constructs of the ancient world which is manifested using concepts such as centrality, verticality, and horizontality, referred to as the "traditional concepts".

The set of derived "traditional concepts" are then studied in Chapter Four to show their importance in establishing the constructed microcosm connecting earth and heaven. These traditional concepts are studied in light of a few examples from Ancient

Egypt, Ancient Greece and Rome and the Judeo-Christian and Islamic medieval cities and their sacred buildings. When tested in cities and sacred buildings modeled as microcosms, the concepts of centrality, verticality and horizontality help connect the "earthly model" to its heavenly counterpart.

The ultimate expression of a constructed urban and architectural microcosm is best expressed with the Giza Plateau case study. The Ancient Egyptian mythology tells us of a "heavenly" counterpart to the earthly Egypt. The Great Pyramid of Giza shows evidence of great microcosmic significance in its orientation, location, form, geometry and mathematical symbolism, all of which is discussed at the architectural level of the pyramid itself. Furthermore, the theory proposed by Bauval, Gilbert and Hancock, suggests a deliberate alignment of shafts within the pyramid towards certain stars of great significance to the Ancient Egyptians. Their theory as well supports an earth-heaven correlation in the laying out of the three Great Pyramids at Giza through mirroring the relative positions of certain stars on earth. They similarly suggest a similar process in the laying out of the entire pyramid sites from Dahshur to Abu-Rawash.

Other pyramid enthusiasts suggest that the entire Giza Plateau and its constituents have been deliberately designed and placed as such in response to certain celestial considerations. Some of the interesting aspects of the Giza plateau which seem to correspond to celestial phenomena are the Sphinx, the Queens' pyramids of Khufu and Mykerinos. The evidence shown from the Giza plateau altogether suggest a conscious process of designing, laying out and constructing sacred structures around the entire plateau as earthly models of heavenly counterparts. This process presents the entire plateau as a microcosm which connects earth and heaven through using the set of traditional concepts discussed in the previous chapter. In light of this evidence, the Giza Plateau serves as a perfect model for a man-made microcosm proving an earth-heaven correlation in the architecture and urbanism of one of the oldest civilizations of ancient history. Meaning in this case becomes bound to realizing the possibility of a deliberate earth-heaven correlation in the design of ancient cities and their sacred buildings.

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

This research deals with the subject of meaning in the architectural and urban byproducts of traditional civilizations of the era known as ancient history. Most if not all of these civilizations are characterized by densely populated urban centers following specific patterns which evolve from a "central religious complex" or a sacred space or place.[1] The concept of traditional cities is linked to the existence of a sacred space or place whether natural or man-made as the urban center. The term traditional in this sense is crucially linked to the cultural and religious ideologies which help shape the city and the sacred space or construct in historical times.[2] Accordingly, this research inevitably deals with meaning in the urban environments of traditional societies from ancient history as well as their sacred buildings as the typical centers of these traditional urban dwellings.

The current academic dilemma with regards to meaning in form and architecture is best expressed by Michael H. Mitias's in his book entitled "Philosophy and Architecture". Mitias shows that there exists a philosophical dispute on whether or not architectural form is intrinsically meaningful and if it is, how is this meaning conveyed? Mitias explains that this confusion only occurred after the decline of modernism followed by a rise of multiple architectural styles causing a serious "crack" in architectural expression.[3] Modernism in its ultimatum was concerned with dissolving regional architectural styles, local, traditional and vernacular architecture were similarly left out. Accordingly, modernism presented itself as the universal way and the sole solution to architectural form and expression, reducing architectural expression to the very functional. In the process of dissolving the local, regional and the traditional, modernity may have well dissolved our ability to comprehend any qualities which transcends the functional in the architectural and urban heritage of ancient history. Our current architectural and urban status reveals this confusion and lack of identity which in many cases drives architects to recycle historical forms and styles in their quest for meaningful architecture.[4] In his book "Sacred Architecture", A.T. Mann agrees that the modern international style of architecture was in fact responsible for how we perceive architecture as a vessel of function, and historical architecture as "more primitive forms of design" or mere prototypes.[5]

Our "neo-Darwinian"[6] world view hasn't been doing better a job in helping us understand meaning in our architectural and urban heritage. The neo-Darwinian world-view suggests that human intelligence is part of the process of evolution which implies an "incremental learning process".[7] Accordingly, this view tends to

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[1] Mark, J., J., (2014, April 5). The Ancient City. Retrieved November 20, 2015, from http://www.ancient.eu/city/

[2] Gabr, A., H., The Influence of Traditional Muslim Beliefs On Medieval Religious Architecture : A Study of the Bahri Mamluk Period, Ph.D. thesis, University of Edinburgh, 1992. p. xiv

[3] Mitias, M., H., Philosophy and Architecture, Editions Rodopi, The Netherlands, 1994. p. 109

[4] Mitias, *op. cit*., p. 109

[5] Mann, A.,T., Sacred Architecture, Element Books, USA, 1993. p.7

[6] Neo-Darwinism: The modern synthesis of Darwin's theory of evolution through natural selection.

[7] Sternberg, R., J., Kaufman, J., C., The Evolution of Intelligence, Psychology Press, New York, 2002. p. 340

unconsciously deny the builders of ancient history the mental complexity of delivering meaning in architecture, owing to the fact that this is currently an architectural ordeal in modern times. Hence, the urban and architectural byproducts of traditional societies from ancient history are commonly reduced to purely functional or aesthetic objects which lack an "overall" meaning. Yet time and time, we are struck with examples of structures from ancient civilizations that do not seem to conform to this theory of "evolution of intelligence", in that they tend to express a sophisticated system of symbolism and meaning that modern architects fail to understand and express in their architecture. Accordingly "neo- Darwinism" fails to explain how this supposedly primitive form of architecture manages to evoke mysteries within the person who visits them.

Without being able to decipher the original meanings within the remains of ancient civilizations, we will remain alien to the true nature of our ancestors, their sciences, their religion, and their ideologies as they understood them. Accordingly, understanding meaning in the built environments of the ancient world is a matter of understanding not only the products of these civilizations, but rather the true nature and history of these civilizations, their politics, religions, ideologies and generally; their world as they perceived it. This is inevitable for our understanding of the power of architecture and urbanism in establishing the image of a civilization with its scientific and technological advancements. Only through adopting alternative methods of interpretation can we hope to arrive at a better understanding of our ancestral heritage.

1.2 RESEARCH PROBLEM

In common with almost all aspects of our modern civilization, architecture and urbanism have lost their depth and originality. Architecture that age with dignity rich in meaning that transcends physical and functional requirements is no longer addressed. Modern architects are busy keeping up with the very rapid demands of creating buildings and houses that smoothly and quickly respond to the changing economic needs and must abide to the “order of the day” as William Lescaze explains in his article: "the Meaning of Modern Architecture".[8] According to Lescaze, this necessity is the root of our modern architecture where functional order is its essence and it is due to this that modern architecture looks different from all the previous forms as it is designed to serve a completely different life.[9]

Owing to this lack of depth and meaning in modern architecture which merely addresses function, a contemporary historian dealing with a historical building tends to project our modern functionality and abstraction in his studying of historical buildings. A historian's objective when dealing with a monument becomes to solely place things within their historical and contextual time-frame. A historian is mainly concerned with answering questions regarding when, where, why and by whom a building is constructed. Yet a comprehensive understanding is necessarily incomplete without consulting a structural expert to understand how a building was erected and hence the technologies available at the time, similarly a geology expert is consulted to explain topographic and geologic features of a specific site which could have

[8] Lescaze, W., The Meaning of Modern Architecture, The North American Review, Vol. 244, No. 1, University of Northern Iowa, 1937. Pp. 110-120
[9] *Ibid*

influenced the choice of location or materials, similarly nowadays with the rising science of archaeoastronomy, experts on astronomy are now consulted to present and interpret findings of astronomical significance. Accordingly, there seems to be much more considerations

The specific branch of history that deals with Ancient Egypt is called Egyptology. An Egyptologist is primarily concerned with locating and placing ancient Egyptian kings, their tombs and temples, within the postulated chronology of ancient Egypt which in itself is still a controversial matter; the ancient Egyptian chronology is still subject to continuous revisions. Yet the true essence and understanding of the ancient Egyptian civilization and its driving force remains a matter of intense speculation. Monuments such as the Great Pyramid at Giza still stand in pride to puzzle both Egyptologists and the curious scholars. Very little is known about the Great Pyramid and much of its secrets are yet to uncover, yet main stream Egyptology tends to accept theories regarding the Pyramid's function and construction methods which are scientifically and factually invalid. It is this uncertainty that has lead teams of architects and scientists from around the world to carry out what is referred to by "Operation Scan Pyramids"[10] in an attempt to answer some of the many lingering questions regarding the nature of the Great Pyramid. This grand project involves scanning the Great Pyramid of Giza and two pyramids in Dahshur in hope to reveal unknown spaces within these structures.[11]

It is due to this uncertainty that many alternative theories have been put forward by many enthusiasts from Egyptologists, to architects and academics, which seem to offer more plausible answers to the many posed questions. Alternative theories regarding the Great Pyramid range from extra-terrestrial based theories, to theories that believe the Pyramid to be a giant energy harvesting machine, even a giant granary, yet amidst the wild speculations and the farfetched hypotheses, comes a theory that finds much evidence in ancient Egyptian monuments to its support; a sky-ground correlation theory which was first brought up by Belgium civil-engineer Robert Bauval, and was further developed by Graham Hancock, Creighton and Osborn and many more. This theory is one which attributes many features of ancient Egyptian arts and architecture as symbols of astronomical occurrences. The sky-ground correlation theory seems to answer many questions regarding meaning in architecture and urbanism not only in ancient Egypt but elsewhere in the many similar curious sites around the world, specifically sites from the era named ancient history and older.

Unfortunately much of these theories are quickly refuted by Egyptologists owing to the fact that these theories are commonly postulated by non-Egyptologists from architects, to civil engineers and Egyptology enthusiasts. Yet unlike the many alternative theories regarding the ancient Egyptian case, the sky-ground correlation theory seems persistent and promising in that it finds much evidence in the ancient Egyptian tradition in its support, and it seems to continuously develop as more evidence from ancient Egyptian monuments uncover.

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[10] **Operation Scan Pyramids** is a thermal scanning project which began on 25 October to search for new chambers inside four pyramids including Khufu's pyramid commonly referred to as the "Great Pyramid of Giza" and two pyramids in Dahshur.

[11] Thermal scan of Giza pyramids may point to hidden tombs. (2015, November 9). Retrieved November 20, 2015, from http://www.theguardian.com/world/2015/nov/09/thermal-scanning-giza-pyramids-anomalies-egypt

The idea of a sky-ground correlation is similarly supported by the trending science of archaeoastronomy[12] which promotes the belief in ancient civilizations with unique astronomical understanding which influences their cultures and their architectural and urban byproducts. Such science is now widely popular when dealing with archaeological sites from ancient history and even prehistoric times. It is hence inevitable to open the door for further explanations and interpretations with regards to constructs from ancient history revisiting these constructs from alternative perspectives with sound scientific proof. In doing so, we can bring ourselves steps closer to the actual truth regarding the creations of our ancestors from ancient times, and the real meanings they communicate to us. It is only in such tolerant historical approach that one can hope to find new revolutionary solutions to the ever posed problems with regards to many ancient structures; why where they built and moreover what they really meant.

1.3 GOALS & ENABLING OBJECTIVES

The Goal of this research is to present an alternative method of interpreting meaning in architectural and urban byproducts of traditional civilizations from ancient history investigating the possibility of a heaven-earth relationship referred to as "microcosm". The research attempts to prove the possibility of the existence of a universal architectural and urban theme based on the heaven-earth correlation which is best expressed in Ancient Egypt as the possible origin of this historical international phenomenon.

The enabling objectives of this research are:

- Present a thorough review of literature on the subject of the traditional understanding of the world showing the role of symbolism as an ancient process of expressing multi levels of meaning
- Introducing the concept of microcosm and its significance in traditional societies as a high level of meaning
- Deriving a sky-ground connection from the built environments of the ancient world featured in the multi-leveled meaning in their cities and their temples referred to as microcosm.
- Arrive at a set of concepts and qualities which are necessarily evident in ancient cities and sacred centers as a consequence of their traditional understanding of their environments natural and man-made and revisiting ancient space and place through these concepts
- Carrying out an analytical investigation on the Ancient Egyptian case study interpreting meanings conveyed on both architectural and urban scales which denote the city and the sacred space as role players in the heaven-earth correlation as microcosms.

1.4 HYPOTHESIS

If cities and their sacred centers from ancient history show in their conception an underlying pattern of "heavenly symbolism" through astronomical alignments, or projections on both architectural and urban scales, then it would be possible to

[12] **Archaeoastronomy**: is the study of how ancient civilizations understood the phenomena in the sky and its impact on their cultures and their architecture and urbanism

interpret the meaning of these built environments as earthly models mirroring their original heavenly counterparts showing a universal theme of connecting the heavens and earth in which cities and their sacred centers function as microcosms.

1.5 RESEARCH PARAMETERS

This research discusses the issue of microcosm as a means of incorporating heavenly (or astronomical) connotations and meanings in the cities and sacred spaces of ancient history. Given the fact that this research is concerned with architectural and urban works of civilizations from the ancient history, our temporal context is confined to this specific period in human history which is attributed to a period that roughly spans some 3000 plus years; from 3000 BC to 200 AD. We are hence interested in viewing and analyzing examples which are 200 AD and older. Everything that dates back to times earlier or later are still relevant to our research but an emphasis is made on the earlier periods of human history tracing back the history of this "conscious" process. Spatially, architectural and urban evidence from the Far East to the Far West is presented to reveal this uniform process. This will be analyzed using examples from major civilizations around the world from a historical perspective.

Although this research is not concerned with specific locations, civilizations, cultures or faiths (be they religions or mere systems of belief), but a clear emphasis is made on eastern cultures and civilizations in the selecting suitable examples owing to the fact that eastern cultures are more connected to their history, and more genes of their past are still present to this day in their traditions. Many of the eastern cultures still feature in their traditional, tribal and rural cultures, tools and architectural practices and methods most reminiscent of their distant past and history, although today, they tend to lack meaning and are carried out ritualistically. It is within these remnants that many of the theories regarding the ancients and their methods of construction can be confirmed. Not much of the ancestral history of the western aboriginals is known to us today and not much of their urban and architectural constructs have been inherited. Most of what remains of their urban communities is mere incidents of isolated ruins which tell so little of their builders or their communities. Yet again, it is inevitable to refer to examples from both, the east and the west, and it is to both that this research is relevant.

Due to the fact that most ancient civilizations feature the central aspects of their urbanism as buildings of "religious" significance, the wide scope will be referred to as the city, yet the focus of this urbanism will be referred to as the temple or the sacred space or place. Although this is by no means a study of religious architecture of the ancient world, yet it might appears as such due to the interwoven nature of traditional science and religious belief in ancient civilizations. An Ancient Egyptian example will be presented as the case study to test the presence of microcosm on many different levels understanding its influence in shaping the sacred architecture and laying it out on the urban scale.

1.6 METHODOLOGICAL FRAMEWORK

This thesis is an analytical study to find a phenomenological relationship between cities and their sacred centers, and the heavens as microcosms for semeiotic purposes which arrives at an alternative interpretation of ancient architecture and

urbanism. The thesis is divided into three main parts. The first is a review of literature available on the subject of microcosm and meaning in traditional societies as the base grounds for our study. The second part analyses a group of selected examples of ancient cultures, their cities and their sacred centers presenting them as microcosms. A set of accompanying concepts which shape traditional cities are then derived and tested on a number of examples from different cultures to see their impact in shaping the city and sacred structure. The third part is a case study of Ancient Egypt analyzing the Giza Plateau in search for the meanings of microcosm and the concepts which shape traditional built environments- in the architecture and layout of the plateau.

Chapter One introduces the subject of this research and shows the need for such topic in the study of ancient architecture and urbanism. The research problem is then expressed elaborating the lack of a comprehensive approach in interpreting the byproducts of ancient history as a result of our abstract world-view. Further on the main points communicated in this study are then highlighted. The research parameters are then presented and then finally the methodology and the framework are integrated under the methodological framework which gives a brief on what shall be discussed in every chapter.

Chapter Two presents the literature review which offers the base for the entire study. In it, the archaic mentality is explained highlighting what ancient man's "problems" were and how symbolism served as a key aspect in understanding and solving these problems. The idea of the archetype is then explained as the unchanged source of the variable symbols expressing the idea of duality in the physical and the metaphysical and finally showing how duality as an abstract idea was responsible for the idea of microcosm which seemed to govern the perspective from which ancient man viewed his world.

Chapter Three, deals with microcosm in traditional built environments. The chapter first presents three common approaches in perceiving built environments where microcosm finds it way in as the traditional approach. This approach is used to study several examples: Ancient Mesopotamia, Ancient Egypt, Ancient Mesoamerica, Indo-Chinese ancient civilizations, Ancient Rome, and Judeo-Christian and Islamic traditions in an attempt to prove a conscious and continuous process creating cities and temples as microcosms. The chapter finally derives from these examples a set of concepts which seem recurrent in the different aspects of the city and the temple.

Chapter Four commences with a brief literature review on the traditional concepts which help form ancient cities and temples those are: centrality, verticality and horizontality. These concepts are then shown in different cases on how they come together to form a city and a sacred center and how they are used to emphasize meanings of microcosmic significance in those cities to layout cities and mark their centers. Examples are shown in cities and temples from ancient Egypt, Greece and Rome and from the Medieval Christian cities and their churches to the Islamic City and the Mosque. All the different examples are meant to show the interplay between the different concepts to express microcosmic creations.

Chapter Five is the case study of the research which studies the Great Pyramid of Giza and the Giza Plateau as microcosms in the light of the heaven-earth correlation revealing the hypothesized conscious process of microcosm on different

levels of construction, from the interior of the Great Pyramid to the layout of the plateau and its components. All of the components of the Giza Plateau studied separately reflect the same concepts reflected in the entire layout. The Orientation, Location, Form, Geometry and the symbolism of the Great Pyramid show the same set of concepts and underlying microcosm as does the entire plateau. The case study is presented as a text book example of microcosm on different levels proving the role of microcosm in delivering meaning in architecture and urbanism. This is followed by Chapter Six which forms the final conclusions of the research which are discussed to reveal the prospects for future research.

CHAPTER TWO: THE TRADITIONAL SOCIETY'S UNDERSTANDING OF THEIR WORLD

2.1 INTRODUCTION

This chapter presents the basis for understanding the traditional understanding of the world from the viewpoint of ancient societies. This step is vital in order to be able to carry out an extensive analysis on the traditional understanding of the city and the sacred space/place which shall be presented in the following chapters. This chapter commences with an investigation into the brain set of ancient man and the posed 'problems' interpreted as the 'quest for meaning', the nature of the human being in general as a symbolic creature and the result of the merging of these two aspects to create the ancient's foremost model of perception of the universe.

The chapter then introduces the dual mode of perception adopted by the ancients in perceiving of their world and their reality through expressing the importance of symbolism and its extensive cultural impact. The formulated understanding is then projected on the traditional societies' understanding of their urban and architectural construct in relation to nature and man.

2.2 THE NEED FOR MEANING AND SYMBOLISM

If a single thought still haunts modern man, it is his concern with the quest for meaning in everything, and most importantly, in life. The quest for meaning is not a young thought, it is probably as old as human existence as we know it, the outcome of the ancient civilizations and what they have created attests for the attainment of meaning in life and existence. Graham Hancock[1] in 'Heaven's mirror', better express the fundamental question or quest of human kind in a few questions he names: 'the simple dilemmas'; is death the "end"? Is there a way that individual life continues in some way after death? Is there anything beyond the material parts of the human being or in other words, does the human soul in fact exist?[2] Hancock suggests that the natural result of these questions for the human being is to ultimately question their physical existence and the notion of death as an ultimate end of human existence. Consequently, the need for meaning becomes an essential aspect of human thought and culture; things reflected upon must mean something beyond what they simply express.

The classic understanding of what distinguishes the human being from animals in general could be expressed by Aristotle's concept of the human being as a rational animal. Aristotle believed that the human being owned the rational principle; the ability to carry out rationally formulated projects, which distinguishes him from animals.[3] Yet the Neo-Kantian philosopher Ernst Cassirer[4] altered this expression to label the human being as a 'Symbolic Animal'.

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[1] **GRAHAM HANCOCK** is the author of many of the bestselling investigations of historical mysteries, these include: The Sign and the Seal, Fingerprints of the Gods, Keeper of Genisis (with Robert Bauval)
[2] Hancock, G., Faiia, S., HEAVENS'S MIRROR, Penguin Books, England, 1999, p.ix
[3] Aristotle, *Ethics* (1976) p. 75 and p. 88
[4] **Ernest Cassirer** (1874-1945), is a German philosopher trained within the Neo-Kantian Marburg School.

According to Cassirer, the human being possesses a spirit which deliberately manifests itself and grasps the world through the use of 'symbolic forms-myth, language, art, religion, history and science'. The characteristic quality of the human being is his ability to create and use symbolic systems through the previous elements of language, myth, art, religion and science as constructive elements of this higher form of society opening a new dimension in reality. Accordingly, the human being creates a parallel world of symbols expressing the world within he lives. Although Cassirer displays this understanding in his attempt to describe a peaceful generation within an 'ideal world',[5] yet this understanding of the nature of the human being as a symbolic animal is the emphasis of the human nature regardless of the reason or the context that Cassirer seems to present.

Clifford Geertz[6] alternatively attests the symbolic need or nature of the human being saying that it is the result of man's own creation of a world of significance in which he is suspended in his search for meaning. Such a view is supported by Eric Voegelin[7] yet slightly modified stating that that the human being was in fact "thrown into the universe" where he is in desperate need of understanding it. He sees the human being as a role player within what he calls the universal drama where he clearly realizes his own existence and hence thriving to play a role he does not clearly know what it is. As such, Voegelin believes that the human being plays a role in a universe, uncertain of its meaning hence being in a situation of ignorance.[8]

Although the notion of a "state of ignorance" can be a very disturbing one, in which the human being is born ignorant, thrown into a world he finds himself intuitively drawn to take part in, Voegelin believes that it is out of this ignorance that man's anxiety of existence emerges, one which is inseparable from the simple notion of the 'quest for meaning'. Symbols as such become the tools that aid the human being to grasp some aspects of existence through a process of reinterpretation of existing aspects of higher reality and existence, creating analogies and abstractions he can relate to and better understand.[9]

In this light some consensus on the idea of man being of a symbolic nature as a result of the faculty of ignorance and anxiety born with him- is arrived at. The questions regarding existence, the role of human kind, the origins and so forth all seem yet unanswered, and the problem posed to human mankind persists, and it would be only fair to say that civilizations maybe culturally and traditionally different, their architectural and urban expressions may hence vary, but the human condition remains the same in terms of the 'problem' expressed in the quest for meaning. The need for meaning can hence be considered crucial to the human understanding of reality and would be expressed through symbolism differently amongst civilizations through time.

The need for meaning being a fundamental requirement to humanity extends to every aspect of man's life, with the structure of the human mind according to

[5] Hankis, E, Fears and Symbols, Central European University Press, United Kingdom, 2001, p. 54
[6] **Clifford Geertz** (1926-2006), is an American anthropologist known for his strong support for and influence on the practice of symbolic anthropology.
[7] **Eric Voegelin** (1901-85) was a German born political philosopher, born in Cologne within Imperial Germany, Professor of Political Science. Voegelin fled in 1938 to the United States.
[8] Hankis, *op. cit*., p. 54-55
[9] *Ibid*

Cassirer constituted to perceive reality in a symbolic way; man is in constant search for the meaning behind everything he encounters. This is to say that things we experience are perceived as images, processed in the human mind through the preconceived archetypes[10] of the mind, all of which provide meaning to things, In other words things are inherently meaningful.[11] According to Martin Lings[12], everything on man's plane of existence is inherent with meaning and symbolic of a higher aspect of abstract nature; archetype - yet the level of contribution of the symbol to the enhancement of the original meaning is what distinguishes elements of the same plane symbolically, symbols as such are viewed as the power that connects us with the Archetype, the more connected an element is with its archetype, the more symbolic and powerful it becomes.[13]

> "The various products of culture — language, scientific knowledge, myth, art, religion — become parts of a single great problem-complex: they become multiple efforts, all directed toward the one goal of transforming the passive world of mere impressions, in which the spirit seems at first imprisoned, into a world that is pure expression of the human spirit."[14]

Accordingly, the quest for meaning is reflected in man's creation and is addressed in his architecture and urbanism to then raise the question of how to model things and according to what – a question that is highly relevant today after the fall of modernism which promoted a universal solution and a single approach in conveying and interpreting meaning. Yet Generally speaking it seems that man thinks of things as inherently symbolic. Cassirer in his treatise does not devote his work exclusively to art, architecture or planning, this though, does not deny them their symbolic aspect which fulfills man's need of having a meaning to everything he experiences, natural or man-made. As such, not only is finding meaning in things inherent, but also the means of communicating meanings is similarly inherent; symbolism.

2.3 THE SYMBOL AND THE ARCHETYPE

According to Titus Burckhardt, symbols are variations in the reflection and the manifestation of the same reality, a reality which is independent of 'time and space'. As such things may differ in time, space, material nature, or characteristics, yet when they exhibit 'an essential quality', they become of a true symbolic nature.[15] This "essential quality" is also expressed by the concept of 'archetypes.

Carl Jung[16] introduced the concept of archetypes as part of the collective unconscious which intuitively exists within the human being. For example, if in the varying representations of a single motif and its details one finds an underlying pattern that remains persistent and unaltered, this pattern is in itself evidence of an

[10] **Archetype**s: a collectively-inherited unconscious idea, pattern of thought, image, etc., that is universally present in individual psyches, as in Jungian psychology
[11] Rimmer, S. , The Symbolic Form Of Architecture, Virginia Polytechnic Institute and State University, Virginia, 1997 (not published), p5
[12] **Martin Lings** (24 January 1909 – 12 May 2005): an English writer and scholar, a student of Frithjof Schuon and a Shakespearean scholar.
[13] Lings, M, Symbol and Archetype, Quinta Essentia, Cambridge, 1991, p. 8
[14] Rimmer, S. , The Symbolic Form Of Architecture, Virginia Polytechnic Institute and State University, Virginia, 1997 (not published), p5
[15] Burckhardt, T., Alchemy, Element Books, Shaftesbury, Dorset, 1986, Pp. 11,12
[16] Jung, C. ,G. , Man and His Symbols , London, 1978, p. 58

archetype. Jung's understanding of the archetype is that of 'universal and archaic patterns' that are derived from the collective unconscious and is part of the human instinct. As such, Jung considers them to be autonomous forms that can be expressed variably by individuals and cultures and can be deduced from their art, myths, religion and so forth through the active tool of symbolism.

According to Lings, the symbol is a reflection or a shadow of a higher reality (the highest of which is the divine archetype). To understand the concept of the symbol and the archetype, Lings explains that Man, as a result of his self-awareness is separated from the natural environment he is part of, and due to the aspect of separation man is able to reflect back on nature leaving open the audacious prospect of creation. Inspired by the perfect creations of the divine in the form of the natural world, man's creations follow a higher model, this model being the archetype of which man's creations are symbolic. The more connected the symbol is to its archetype, the higher symbolic powers it must possess. Put in Lings' words, *"the Archetype is always the Heir who inherits back the symbol in which It manifested Itself*". [17] As such, the archetype is the instinctive model after which things natural and man-made are created. The symbolic human being seeking the higher archetypes symbolized in the natural world he encounters, of which he is a part of, becomes part of the function of the 'symbol and archetype'.

In support of Lings' presentation of the archetype, the Darwinian Theory as well as Kant's view on the nature of man, suggest that man tends to reflect outwards onto his environment to search for order and meaning as a natural mechanism in a physical world that seems unpredictable which man is part of. Furthermore, man tends to apply this derived order in his own creations.[18] As such, the natural world becomes a function of Lings' archetypal hierarchy which by extension is a representation of a higher archetype and so forth. In other words man's creations as well as the natural world become a function of the symbol and archetype, where the manmade creation could similarly follow some archetypal pattern inspired from the natural world, and hence even his creations become similarly symbolic of the archetype.

Furthermore, Lings postulates that by considering man part of the natural created world and having the ability to consciously create, which distinguishes him from the rest of creation, man sees himself to be the greatest manifestation of the creator (the Divine Archetype)[19], the center and a symbol of the greatest archetype of all. Biblically, man was created in the image of God making him the manifested symbol of the creator himself in the highest form[20]. This understanding according to Lings serves to present man with meaning for his own existence and places man within the concept of symbolism where he is the symbol of the creator and hence his creations are by extension inherently meaningful and symbolic. [21]

In retrospect, man's very own creations are considered as symbolic as the naturally created world, being himself a symbolic representation of the highest

[17] Lings, *op. cit.*, Pp. 1,2,20
[18] Crowe, N., Nature and the Idea of A Man-Made World, The MIT Press, Cambridge, MA, 1995, p.7
[19] Lings, *op. cit.*, p1,2,20
[20] Genesis 1:27 , Old Testament
[21] Lings, *op. cit.*, p1,2,20

archetype of all; The Creator. This system of symbol and archetype according to Crowe, seems to satisfy man's quest for meaning as a need for survival and answers the questions of life and death. [22] Furthermore, it brings about the notion that everything in our world, whether natural or manmade is inextricably linked to an archetype and becomes meaningful depending on how much the symbol contributes to its archetype. All of which paves the way for the idea of man's dual mode of perception.

2.4 THE PHYSICAL AND METAPHYSICAL REALITIES

The relationship between the symbol and the archetype is very similar to that of the physical and metaphysical realities. The similarity lies in the notion that the symbol is the physical representation of the archetype which is a non-physical quality of a "higher nature". The symbol and the archetype could hence be used to understand how man came to believe in the metaphysical. It can be clearly seen that man is wired to perceive things as duals, things exhibit in their physical form a direct meaning and in their symbolism an indirect quality, a result of which is his belief in the physical and the metaphysical[23]. According to Eliade, the metaphysical reality man believed in, paralleled the physical reality he experienced. Yet the metaphysical concepts formulated by ancient man were not necessarily expressed in theory as is the case today, but more in the symbol, the myth and the rite, expressed on different planes in the most convenient way to fit his present reality.[24] The idea of the metaphysical according to Lings gave comfortable answers to complex concepts within the universe where man searched for answers to his questions regarding his own nature, life and death. The universe and its contents are hence testimonials for the presence of an even more divine and higher power which could only be explained through believing in the metaphysical.[25]

In their thematic study on archaeoastronomical world heritage sites, Ruggles and Cotte affirm that ancient man tried to make sense of what he saw and observed in the world and the cosmos to which he belongs, through perceiving the cycles of the celestial bodies shining at inconceivable distances and relates them to his terrestrial reality. Man recognizes patterns and cycles and senses order in the cosmos which somehow gives meaning to life.[26] Yet man can only sense the effect of these bodies dwelling in the cosmos, associate cycles in his life with them and see them shine bright to be solely responsible for life on earth yet he cannot conceive their true essence or reality, he knows of their existence and importance yet he does not understand their true essence. Accordingly he arrives to the consensus that some parallel reality of higher and more divine qualities exist beyond his own yet intrinsically remains to be part of him.

Man's very own physical reality seems to be paralleled by a higher and more divine metaphysical reality in which he clearly notices the presence of order. The cosmos is apparently one that functions in a certain order through which, man was

[22] Crowe, *op. cit*., p.20
[23] **Metaphysics** referred to in this research is the philosophical study of the nature of reality, concerned with such questions as the existence of God, the external world.
[24] Eliade, M. , Cosmos and History: The Myth of Eternal Return, Harper and Brothers, New York, 1959, p3
[25] Lings, *op. cit*., p1
[26] Ruggles, C. , Cotte, M. , Heritage Sites of Astronomy And Archaeoastronomy In The Context Of The UNESCO Worlds Heritage Convention, ICOMOS, Paris, 2010, Pp. 6, 7

able to figure out the motion of celestial bodies and predict it, an order which he very likely must have used to predict his very own life and future. There where we understand the importance of the very complex belief systems of the ancients where astronomy, astrology and religion were one and where the cosmos and the metaphysical were more or less faculties of the same level of a higher reality. In other words, everything which paralleled the physical/terrestrial reality man experienced was necessarily of a metaphysical nature. The heavens where the gods dwell ruling over earth through complex heavenly order was of a definitive higher archetypal reality which belonged to the metaphysical realm, a realm which everything on earth and in their lives was symbolic and expressive of. And as Aune[27] postulates through analyzing Plato's Republic, "Forms" possess dual qualities from the physical and the metaphysical worlds. Being physical they acquire the highest form of reality to man, and being symbolic garnishes them with their metaphysical links and connections.

The belief in the metaphysical which parallels the physical reality in which man lives in provides the basis for the dual nature of the perception. Ling's asserts that the metaphysical is a characteristic aspect in the concept of religion, which indicates an established ligament with a "Supreme Archetype", hence man's symbolic nature and need to see things as symbols. [28] Consequently, it would be right to believe that "duality" resulting from the belief in the physical and metaphysical becomes an essential quality in the ancient religions and belief systems of the world.

2.5 DUALITY IN REALITY

Bruce Aune quotes Plato in his Republic to express the significance of "form" as the greatest degree of "being" or "existence" having the greatest degree of reality, being a physical entity. As such a "form" is considered real due to its contribution in the physical existence where it becomes possible to experience.[29] And if the reality and existence are perceived of as representations of higher qualities "Archetypes", then "forms" as such could be regarded as symbols of the same higher archetypes. This is to say that "form" is of a dual nature and as Plato suggests is the greatest degree of reality, this is due to the fact that it belongs to both levels of existence; the physical reality and the metaphysical existence. According to the theory of 'Duality', the symbolic "form", be it an object, a statue, a work of art or architecture represents the connection between the terrestrial (earth/physical) worldly nature and the celestial (heavenly/ metaphysical) realities.

The ancient Greeks were probably the first to properly record and philosophize on this understanding of duality and reflect it upon the human being as an element of the world of forms and beings; to the Greeks, human duality featured two distinct beings, one that was of a lower nature of the everyday self-named the eidolon and the other was of a higher nature, a transcendental being named the daemon. [30] This belief in the physical and a parallel metaphysical acting together and creating the whole is key to understanding the ancient brain-set when it comes to their perception of reality. The following quote by the prominent historian of religion and philosopher Mircea Eliade, presents a comprehensive perspective on the need for the physical and metaphysical realities and their vital need for ancient man.

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[27] Aune, B., Metaphysics, Basil Blackwell, Oxford, 1986, p. 6
[28] Lings, *op. cit.*, p. 8
[29] Aune, B., *op. cit*., p. 6
[30] Guthrie, W., K., C. , History of Greek Philosophy, University Press, Cambridge, 1962. p.318

> "The world which surrounds us, civilized by the hand of man, is accorded no validity beyond that which is due to the extraterrestrial prototype that served as its model. Man constructs according to an archetype. Not only does his city or his temple have celestial models; the same is true of the entire region that he inhabits, with the rivers that water it, the fields that give him his food, etc." [31]

According to Mircea Eliade, all the ancient civilizations shared the common understanding of a dual nature of their physical reality. By extension, their terrestrial world corresponded to a celestial world following its archetype that is to say that their city on earth had its counterpart in the heavens. In ancient Mesopotamia, the Tigris had its model in the star Anunit and the Euphrates in the Swallow. This belief in an earth/heaven correlation is similarly paralleled in the Ancient Egyptian Mythology where places and nomes were named after celestial 'fields'. The creation first occurs in the heavens and then projected or mirrored on earth.[32] A concept which is referred to as the: microcosm and macrocosm, this is to say that every earthly aspect or physical aspect had its origins in some extra-terrestrial prototype perceived as the celestial archetype.

The duality of reality is not necessarily bound to that of the terrestrial and the counter-celestial models per se, other examples feature the duality of the complementary pairs: the masculine and feminine, we see in the Ancient Egyptian mythology Osiris and Isis being the couple that come together to bring Horus, the symbol of life, Geb and Nut coming together to bring perfect order preceded by chaos, etc… Although the aspect of divinity in most belief systems seems to be bound to the masculine, yet the counter part of femininity is crucial for the creation of the whole. Without Isis the symbol of fertility, it wouldn't have been possible for Horus to become, without the Virgin Mary; it wouldn't have been possible for Jesus to exist. Such duality even in a monotheistic religion such as Islam ceases to fail where the Holy Quran expresses this reality where God states: "And of all things We created two mates; perhaps you will remember" (51:49)[33]

According to Lings, the concept of the pairs, or the duality, is an inseparable aspect of the belief in a higher singular supreme divine entity in any religion, for the very idea of creation is the manifestation of the creator himself and the result of which is the pair. The dual nature of the reality that man perceives, is consequent to his belief in a supreme divine creator of a singular quality to which the highest archetype is attributed, for the notion of the pair implies complementarity which is a condition of the union, whereas for man to 'believe in' and 'connect to' a divine creator is a function of duality.[34]

As such, all forms of duality are not separate unique entities but in fact of a complementary nature that functions as a whole. This dual nature of perception once again suggests that the physical and the metaphysical function as a whole, the heavens and earth function as a whole, male and female complement one another and so forth. Duality through repeating, complementing or linking opposites, is only functional in the form of connecting the pairs in order to establish the whole.

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[31] Eliade, *op. cit*., p10
[32] *Ibid*., p6
[33] Holy Quran, Chapter 51, verse 49. Translated by: Saheeh International - Jeddah
[34] Lings, *op. cit*., p. 19

2.6 DUALITY AS MICROCOSM AND MACROCOSM

Through observing the archaic mentality and its products, Eliade asserts that there seems to be a clear conviction in the metaphysical and a consequent process of repetition of a transcendental act. This process according to Eliade reflects a clear aspect of 'original ontology', where things natural or manmade acquire their reality not only physically but metaphysically as well; things are real only as a result to their degree of participation in the transcendental; a gesture of acquiring meaning.[35] This is true to almost all ancient civilizations and their architectural and urban products and can be deduced from the products of the different cultures of the ancient world, in Ancient Egypt, the Far-East, Ancient Mesopotamia, Mesoamerica and the Judaic, Christian and Islamic traditions.

The first literature presented on the concepts of microcosm and macrocosm was developed by the ancient Greeks where Plato asserts that microcosm and macrocosm are two aspects describing the human being and his place in the universe. The concept features the presence of patterns of the same nature (archetypes) reproduced on all levels of the cosmos from the smallest scale (microcosmic level) to the largest scale (macrocosmic level). According to Plato, man in this system was considered the midpoint, the summary of the cosmos.[36] The underlying pattern the Greeks spoke of existed on the different levels of existence, as such, there seemed to be some kind of underlying archetype repeated on the different levels of existence where a pattern can be derived from a single aspect of the cosmos and can is reflected on all the different levels under the umbrella phrase developed "as above, so below".

Titus Burckhardt[37] on the subject of 'Hermetic Wisdom'[38] which is highly relevant when speaking of the traditional understanding of the natural world – assures that "Hermetism" is based on the idea that the universe represents the macrocosm, and that man represents the microcosm. Burckhardt further elaborates that those two aspects of reality correspond to one another and are regarded as reflections of one another saying that, "whatever is in the one, must also in some manner be present in the other" [39]. Burckhardt explains that in this context, man is considered the "knowing being", while the universe is the "knowable object". As such, man is the central aspect of the macrocosm featuring as the microcosm.

[35] Eliade, *op. cit*., p. 5
[36] Plato, *Republic* , trans. By B. Jowett M.A., Vintage Books, NY. § 435, p. 151
[37] Burckhardt, T., Alchemy, Element Books, Shaftesbury, Dorset, 1986, p. 34
[38] **HERMETIC WISDOM:** a religious and philosophical tradition based primarily upon writings attributed to Hermes Trismegistus (the Greek version of the Egyptian god Thoth).
[39] Burckhardt, *op. cit*., p. 34

Figure 1 Microcosm and Macrocosm- Engravement by Merian for Johann-Daniel Mylius, 1618, one of the most complex symbols of alchemy. Figure portrays relationships that subtend between the Higher and Lower worlds, between Microcosm and Macrocosm.
(http://www1.topfoto.ltd.uk/gallery/CharlesWalker/images/prevs/0560395.jpg - last visited 4/12/2015 9:50 pm)

Lings similarly speaks of the idea of repetition as part of the concept of the microcosm and macrocosm. For not only things on earth mirror the heavens as Eliade suggests, but a broader concept of microcosm and macrocosm seems in action. In accordance with the 'Hermetic Wisdom', Lings suggests that according to almost all religions, the elements of the world the human being is part of, form all together a whole and they are represent the Macrocosm. In this Macrocosm where everything is symbolic of the higher archetypes, man is the center and the highest symbolically inherent element of all. As such, man himself becomes the symbolic microcosm where in every aspect of his existence is analogous and symbolic of the macrocosm which like it is an image of the archetype.[40] And If man as the microcosm is considered the 'knowing being' within his Macrocosm; the 'knowable object', then man is in fact analogous of the divine archetype; the all-knowing – representing the center of the universe.[41] Elaborating on the significance of man within his world, Burckhardt asserts that: "Of all beings in this world man is the most perfect reflection of the universal – and, as regards its origin, divine – intellect, and in this respect he can be regarded as the mirror or the total image of the cosmos."[42]

According to Lings, the means for expressing concepts of microcosm and macrocosm would be symbolism. Things are naturally inherent with symbols, and the more they manifest the 'hidden treasure', the more they acquire their microcosmic and macrocosmic qualities. Microcosm and macrocosm are therefore seen as planes of manifestations of the archetypal patterns through symbolism. In Lings' own words: "For the things of the macrocosm are recognized as symbols, that is, as kindred

[40] Lings, *op. cit.*, p. 2
[41] Burckhardt, *op. cit.*, p. 34
[42] Burckhardt, *op. cit.*, p. 35

manifestations of the Hidden Treasure (reference to the Divine Creator), each of which has its counterpart in the microcosm…"[43]

Lings explains the concept of microcosm and macrocosm through the analogy of the spider's web as an image of the created universe. The center of the spider web is analogous to the Divine Creator as the original center. The different circles represent the hierarchy of the many worlds which coexist, where every circle is an image of the smaller circle all the way to the center. As such, each circle as whole is a macrocosm of the microcosm of the smaller circle within. The outermost circle as such is of the lowest hierarchy and is hence considered the most downward projection of the center. The radii of the web are regarded as the connections between the centers and all that exists. The intersection of a radius radiating from the center with a circle is a symbol of the more powerful aspects of symbolism.[44]In other words, the more a symbol contributes to manifesting its archetype the more symbolic it becomes. The importance of this process of archetypal manifestation through symbolism in the light of Eliade's concept of 'original ontology', would be that things, natural or man-made, finally become meaningful having contributed physically to the manifestation of the higher and transcendental metaphysical.[45]

According to Lings, each world in the hierarchy of the universe is a reflection of a world above and beyond, each of its contents similarly is a reflection of its counterpart in the higher world which is the source of its existence which in turn reflects a more real counterpart in a higher plane of existence. The elements of the lower plane of existence symbolize a set of hierarchal archetypes which are in turn symbolic to one another and finally to what Lings refer to as the "Supreme Archetype in the Divine Essence".[46]

> "A symbol is whatever, on the planes of the soul and the body, reproduces spiritual prototypes (archetypes). In connection with this reflection of higher realities (archetypal pattern) on lower planes, the imagination possesses a certain advantage over abstract thought. In the first place, it is capable of multiple interpretation; furthermore, it is not so schematic as abstract thought, and also, in so far as it 'condenses' itself into a pure image (symbol), it relies on the inverse correspondence that exists between the corporeal and spiritual realms, according to the law that 'whatever is below resembles that which is above, as the 'Emerald Tablet" puts it."[47]

Burckhardt on Hermetic Wisdom explains the concepts of microcosm and macrocosm in a very similar manner to that of Lings. Burckhardt resorts to the idea of manifestations through multiple planes, where archetypes on the highest planes are symbolized or mirrored on the lower planes of symbolic manifestations.[48] The notion of 'planes of manifestations' of a hierarchal nature, suggest that things are not equally symbolic although everything is essentially a function of the higher archetypes in a sense, which holds the possibility of hierarchy in symbolic significance and the

[43] Lings, *op. cit*. p. 4
[44] Lings, *op. cit*., Pp. 6,7
[45] Eliade, *op. cit*., p5
[46] Lings, *op. cit*., p. 14
[47] Burckhardt, *op. cit*., p. 40
[48] *Ibid*

presence of multiple levels of manifestations, possibly within each plane. Very similar to Lings' view of the world, Burckhardt resembles the essence of things to "vertical threads or wrap of woven material" and the "substantial nature of things" which are dominated by time and space to horizontal threads.[49]

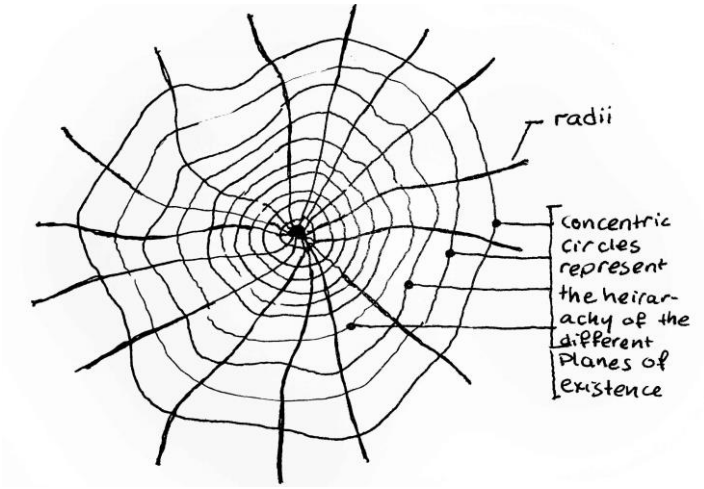

Figure 2 Show a proposed diagram of Lings' explanation of the analogy of the spider web in two dimension.

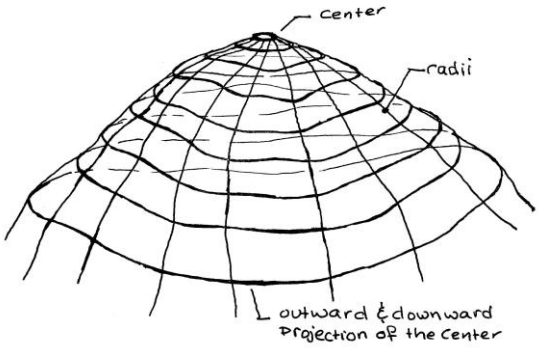

Figure 3 Show a proposed three dimension diagram of the same analogy, the spider web would seem more of a leveled or stepped mound, with the outer most circle being the widest yet the lowest level of existence projecting downwards from the center.

On this matter, Lings suggests that within each plane of existence is a hierarchy of symbolism, where some aspects are more symbolically powerful. If the human being possesses the quality of repeating the primordial act of creation which is in its pure form a Divine quality, man within his own plane of existence contributes in symbolizing the highest of Archetypes powerfully, as such he becomes the microcosm of the macrocosm. Put in Lings words he states that, "What man's human nature stands in need of above everything else is the transcendent spiritual nature

[49] *Ibid.*, p. 41

which opens it to the Absolute." [50] As such, man is regarded as the center of his plane of existence, the most conscious and inherently symbolic which brings about the idea of the center as a highly symbolic center.

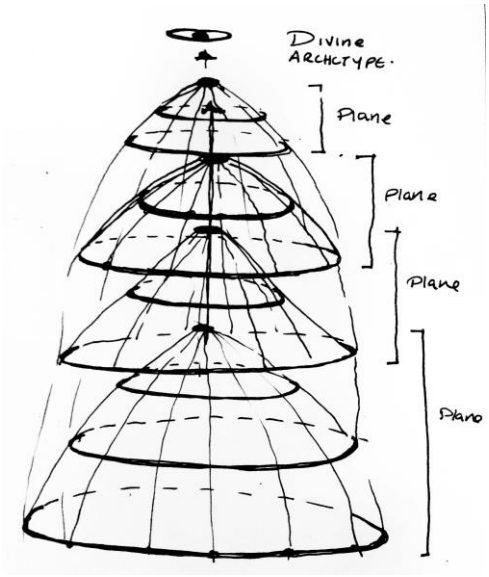

Figure 4 Proposed diagram depicting Ling's concentric three dimensional analogy of the plane as a mound shaped web multiplied and super-imposed to depict Burckhardt's idea of the vertical hierarchy of planes of existence

> "The [Man] is the greatest wonder in nature. All other things under God are always in themselves of one certain kind of being; this [human] essence is at once all of them. It possesses in itself images of the divine things upon which it depends. It also possesses the reasons and models of the inferior things which it in a sense brings forth. Since it is the mean of all things, it possesses the powers of all; hence it transforms itself into all things. And because it is itself the true bond of the universe, in passing into some things it does not forsake the others, but enters into individual things, and at the same time preserves all things. Therefore it can with justice be called the center of nature, the middle point of all that is, the chain of the world, the face of all, and the knot and bond of the universe."[51]

In light of Marsilio Ficino's[52] expression on the nature of man, man is considered a highly symbolic aspect of the cosmos; his sacredness is attributed to his central microcosmic qualities as the ultimate symbol of the Divine Archetype and hence becoming a strongly meaningful aspect of the physical world yet carrying inherent genes of the divine within himself. Man symbolic of the center to which all

[50] Lings, *op. cit.*, p. 45

[51] "Platonic Theology" Book 3, ch. (2), translated by Josephine L. Burroughs, *Journal of the History of Ideas* 5 (1944): 227-39, as qtd in Gadol 232

[52] **Marsilio Ficino:** Italian scholar and Catholic priest who was one of the most influential humanist philosophers of the early Italian Renaissance. He was also an astrologer, a reviver of Neo-Platonism in touch with every major academic thinker and writer of his day and the first translator of Plato's complete extant works into Latin. His Florentine Academy, an attempt to revive Plato's Academy, had enormous influence on the direction and tenor of the Italian Renaissance and the development of European philosophy.

the ligaments of connection collect and radiate. Over and over in the world's civilizations we find that man is constantly represented as the center of his universe and it is from him that proportions for the sacred edifices were derived. In the 'natural world', man was the center and the most symbolic of his microcosm, and it is similarly that we find in man's construction of cities and the sacred sites that he attempts to repeat the inherent patterns of microcosm and macrocosm.

2.7 MICROCOSM IN RECREATION

According to Eliade, the very idea of creating human settlements, cities and sacred structures to the human being was considered an act of repeating the 'primordial act of creation'.[53] In extension to this point, Crowe states that just as the universe is considered a manifestation of the Divine archetype, man considers his creations as manifestations of himself.

The process of building and constructing a human settlement is considered an act of creating a second nature.[54] Consequently, if nature is nothing but manifestations of higher archetypes, then this second nature (the man-made world) can only be manifestations of the same archetypes that nature itself manifests. The man-made world inevitably replacing the god given nature and being the image of higher archetypes becomes a microcosm to the pre-existing microcosm. In the process of creating architectural and urban dwellings, man will have nothing but the pre-disposed patterns of nature to mimic; he will have to resort to the same archetypes and in this sense will have to repeat the primordial act of creation.[55]

> "As there is no corporeal substance that is completely cut off from the higher modes of being it is possible in certain circumstances to transpose powers pertaining to the soul or spirit onto a corporeal substance, so that in a certain way they become attached to it."[56]

If things are naturally connected to "higher modes of being" or archetypes, then likewise, corporeal substance which includes man-made creations are similarly capable of expressing the same connection to higher archetypes and it is possible to connect them to the "higher modes of being" just like the god-created world is. [57] In order for the world man creates to successfully fit within a pre-ordered universe, not only that, but to sustain and live and arrive at some sort of authentic status- it must necessarily act as a second nature exhibiting the same concepts of microcosm and macrocosm. There where the notion of 'repeating the primordial act of creation' becomes a necessity in order to provide meaning to man's creations and act as manifestations of the center of the created-world; man.

> "Their enterprise was for them only the repetition of a primordial act: the transformation of chaos into cosmos by the divine act of Creation. By cultivating the desert soil, they in fact repeated the act of the gods, who organized chaos by giving it forms and norms. Better still, a territorial conquest does not become real until after more precisely,

[53] Eliade, *op. cit*., p10
[54] Crowe, *op. cit*., p.4
[55] *Ibid*.., p.7
[56] Burckhardt, *op. cit*., p. 75
[57] *Ibid*.

through the ritual of taking possession, which is only a copy of the primordial act of the Creation of the World."[58]

Almost all the ancient civilizations have a common belief in their mythology when it comes to the creation of the universe; creation first occurs in the heavens and then projected on earth. Earth was first chaotic and through projecting heavenly order on earth, order arises from chaos. With the arrival of order on earth, life is made possible of which man is its ultimate highlight [59] Eliade asserts that the process of human creation in the form of cultivating an uninhabited land will follow the original creation through microcosm of the macrocosm in a process that will include first, some form of archetypal repetition of celestial archetypes since creation first occurs in the heavens and was later projected on earth. Second aspect of this process would be the act of transforming chaos into order giving the "chaotic" uninhabited nature forms and norms of order.

Accordingly, one could consider the process of creating a man-made microcosm as a bi-fold process which includes two complementary aspects of archetypal repetition through celestial projection which is further adorned with repeating concepts of microcosmic significance in reference to establishing order after chaos. Those two aspects of celestial/archetypal repetition and the microcosmic concepts of establishing order will be elaborated upon in the following chapters.

2.8 ASPECTS OF THE MAN-MADE MICROCOSM

Everything which man is to create in the process of repeating the primordial act of creation creates a world of parallel significance to the natural world, an environment which replaces the natural environment, namely; the built environment. In the light of the previous sections, the built environment is the subject of the concept of microcosm. The built environment includes the city, the landscape, and the components of the city; the architecture and the sacred space/structure.[60] This is to say, that everything that man constructs when creating his dwelling space and shelter is a function of his built environment and hence a function of the constructed microcosm. The built environment is hence a term used to refer to the products of the human creation on all levels, from the city as a general term used to refer to organized and arranged urban constructs, to the sacred space or structure which typically represents the heart of the urban environment.[61]

In Lings' model of the world which speaks of the levels of existence, the earthly domain which is an image of the higher domains features an array of concentric spheres projecting outwards from a center. The center was the aspect of ultimate significance, while the outermost sphere could be regarded as the entire domain including all the inward spheres and center. In this analogy, the built environment features the city as the general domain and the outermost circle, and the sacred space around which a city is shaped as the center of this plane. In the natural environment, earth is the general domain, and man is it center, by extension, one could say that the built environment as the city and the sacred space could be

[58] Eliade, *op. cit*., p10
[59] *Ibid.,* Pp10,11
[60] McClure, R., W., Bartuska, J., T., The Built Environment: A Collaborative Inquiry into Design and Planning, Wiley, Hoboken, 2007, second edition. Pp. 4,5
[61] *Ibid.*

synonymized to the natural environment as earth and man. In this way, Lings' spider web analogy conforms to the notion that man's creations in the context of the built environment repeats the primordial act of creation; order from chaos to allow for life to take place.

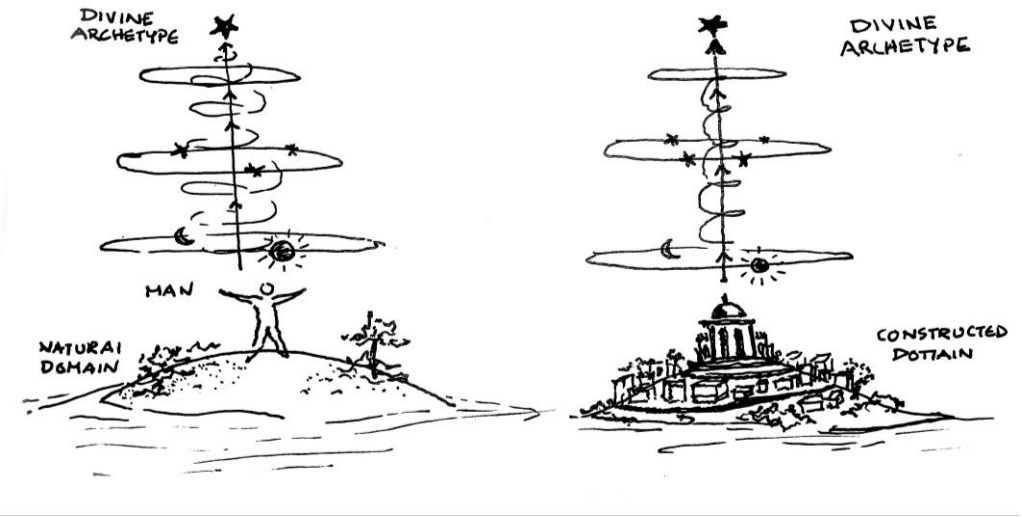

Figure 5 Diagram showing the microcosmic correlation between the natural environment and the built environment where the city and the temple correspond to the natural world and man.

2.9.1 The City and Earth

Crowe and Eliade believe that a city considered an alternative nature, means that it represents the new microcosm in its generality, and accordingly is inherently symbolic of the natural world which is synonymous to cosmic order and initial creation.[62] According to Eliade, the initial creation started in the heavens; then projected on earth through archetypal repetition. Through a successful replication of a celestial archetype or modeling after a god shown model, a perfect city and temple are created. The concepts of Microcosm and Macrocosm would hence become a sacred form of repeating the initial act of creation, and as Eliade asserts, the ancients clearly perceived this process as symbolic of this primordial act of creation.[63]

Graham Hancock explains that microcosm and macrocosm were part of an ancient cosmological system shared by many of the ancient civilizations wrapped up in a 'sophisticated astronomical system of knowledge' which taught 'duality and the interpretation of ground and sky, earth and heaven – matter and spirit – urged the initiate to shed attachments to the sense-world', Hancock attributes this need to their aspiration for upwards ascension to the celestial realms.[64]

In any case, it is evident that a city complying with the traditional understanding of the world functions as a symbol of the original microcosm (nature). To do so, it first must present itself as the alternative counterpart of the higher archetypes "the heavens". Doing so, it becomes the consequent center of its chaotic (uninhabited) domain. Methods of establishing microcosm include: mirroring certain parts of the heavens on earth as in Ancient Egypt and Ancient Mesopotamia, creating

[62] Crowe, *op. cit.*, p.4
[63] Eliade, *op. cit.*, P. 10
[64] Hancock, *op. cit.*, p. 37

axial alignments in main pathways, streets or buildings connecting them with certain celestial aspects of religious significance such as in Ancient Mesoamerica and Ancient Egypt, or inspiring elements from the natural world and repeating them in their constructions such as the concept that the mound or mountain on earth is symbolic of the divine or the location of ultimate divine connection and so their pyramids and ziggurats would symbolize certain stars as gods or the ladder to the heavenly realm.

Accordingly, the city in its generality feature symbols and aspects of microcosm being the outermost sphere in lings' model of existence, which necessarily features various symbols of the original creation through its layout, its underlying order and patterns, and its constituting elements, of which the sacred space is necessarily the point of concentrated symbolism. Whatever the city and its components generally symbolize, the sacred space or temple being the focal point within the built environment compares to the human being in his central significance.

2.9.2 The Temple and Man

Within the city, sacred structures are necessarily the center and highest aspects of the new microcosm, inherent with the highest symbols. If the city serves as a heavenly image or earthly projection of a heavenly region, the temple or sacred space will necessarily correspond to a heavenly aspect of specific symbolic significance in reference to the divine archetype. Similar to man in his natural environment, the temple or sacred space is an enterprise of centrality, connection and ultimate symbolic significance of the divine. Accordingly, the temple will mostly mimic the human being in many aspects, either through abstract concepts of centrality and verticality (axis-mundi), or through direct analogies of the human being, or through incorporating human inspired proportions, geometry or measurement units. In other cases, a temple will present itself within their constructed domain as the house of the Supreme Being making them unique

The idea that the temple as the center of the built environment corresponds to man as the center in his natural environment seems inherent within almost all ancient civilizations and traditions. In Ancient Egypt, the Temple of Luxor in Thebes is said to have been wholly inspired from the proportions of the body of man. This view was best expressed by French Egyptologist Schwaller de Lubicz in his book: The Temple in Man. The human analogy in the temple was not necessarily always expressed directly, but in many ways, the man-temple correlation was indirect. In some cases, the temple was inspired from the proportions of the human being, other cases find it sufficient to derive the basic construction unit of temples from an aspect of the human being as in the case of the Royal Cubit which was incorporated in the construction of sacred spaces in Ancient Egypt such as the stepped pyramid of Djoser.[65]

[65] Rossi, C., Architecture and Mathematics in Ancient Egypt, Cambridge University Press, Cambridge, 2007. p.61

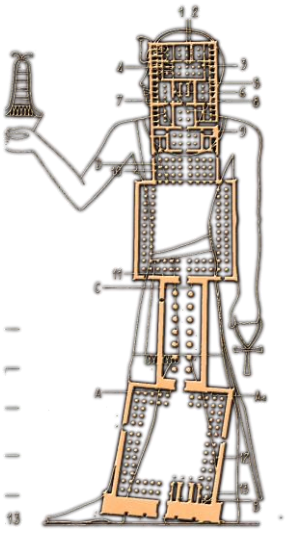

Figure 6 The Temple of Luxor with the
side view of a standing man overlaid
(after Lubicz, 1981)

In the Judaic tradition god creates man in his own image where the Old Testament states "But people, who have been formed by your hands and are called your own image because they are made like you, and for whose sake you have formed all things – have you also made them like the farmer's seed?"[66] Based on similar biblical notions, the reconstruction of the temple of Solomon was made to correspond in plan to man in a standing position.[67] The Christian tradition holds an identical view, where man was created in the likeness of god and in certain incidents in his image where Corinthians reads: "But we all with unveiled face, beholding and reflecting like a mirror the glory of the Lord, are being transformed into the same image from glory to glory, even as from the Lord Spirit."[68] This likeness is interpreted as relational, substantive or functional yet by no means formalistic or anthropomorphic. This correspondence is strongly evident in the Christian case especially in the Renaissance period where church cross plans were depicted with a human being (perfect man or the body of Christ) perfectly fitted inside of them.

[66] 2 Esdras. 8:44
[67] Villalpando in Morrison, T., Isaac Newton's Temple Of Solomon And His Reconstruction Of Sacred Architecture, Birkhäuser, Berlin, 2010. P.49
[68] 2 Cor. 3:18 NIV

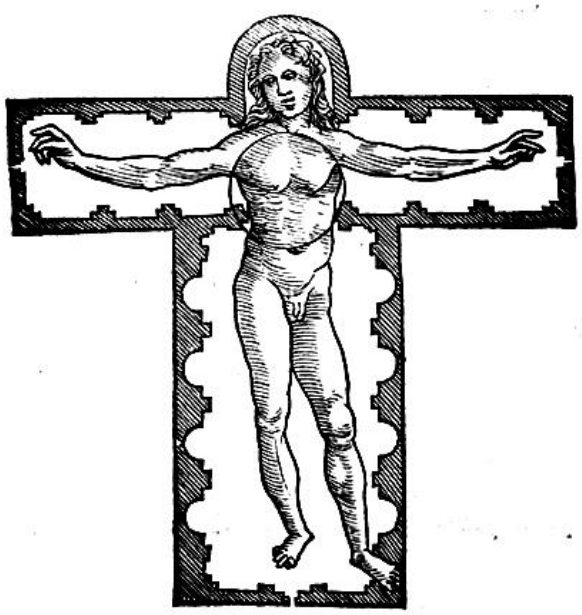

Figure 7 Vitruvian man in basilica plan with a circle marking the heart/center of Christ. (Pietro Cataneo,1554)

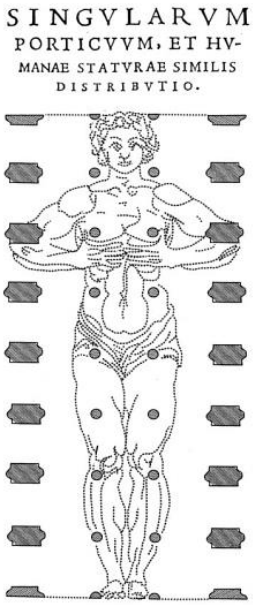

Figure 8 The resemblance of a single colonnade to the division of the human stature according to Villalpando (Villalpando in Morrison, 2010)

The Far East showed the temple man correlation differently, where temples would feature symbols within certain aspects of the temple corresponding to certain parts of the human body where the main chakras are located. According to the American historian Stella Kramrisch in its fully developed form, the Indian temple architecture is a spatial and intellectual representation and reference to the Supreme Principle of which the deity is supposedly symbolic. The statue is the manifestation of the deity through a concrete artistic creation of man and the building itself is the body and the house. Images, depictions, sculptures and paintings in the temple are all representations through their colors, lines and proportions the aspect of love to which their gods owe their existence.[69] Once again, we are faced with a very similar aspect of temple architecture, where the temple is symbolic of a the Divine Archetype, and the statues are manifestations of higher archetypes which themselves, are manifestations or representations of the Divine or Supreme Principle.

The vast examples presented earlier show different representations of the temple/man correlation where in many aspects the temple corresponds to the human being. The importance of such notion is that the temple as such contributes to the microcosmic scheme owing to the fact that it plays the central role within its built environment to resemble man as the center of the natural environment; the original microcosm. Finally, for the city and the temple/sacred space to function as aspects of the constructed microcosm in the built environment they harmonically fit into the natural cosmic order, they attain their authenticity and accordingly succeed in creating a perfect dwelling on earth which resembles the heavens in its perfection and eternality.

[69] Kramrisch, S., The Art of India Through The Ages, 3rd ed., Phaidon Press, London, 1965. p. 10

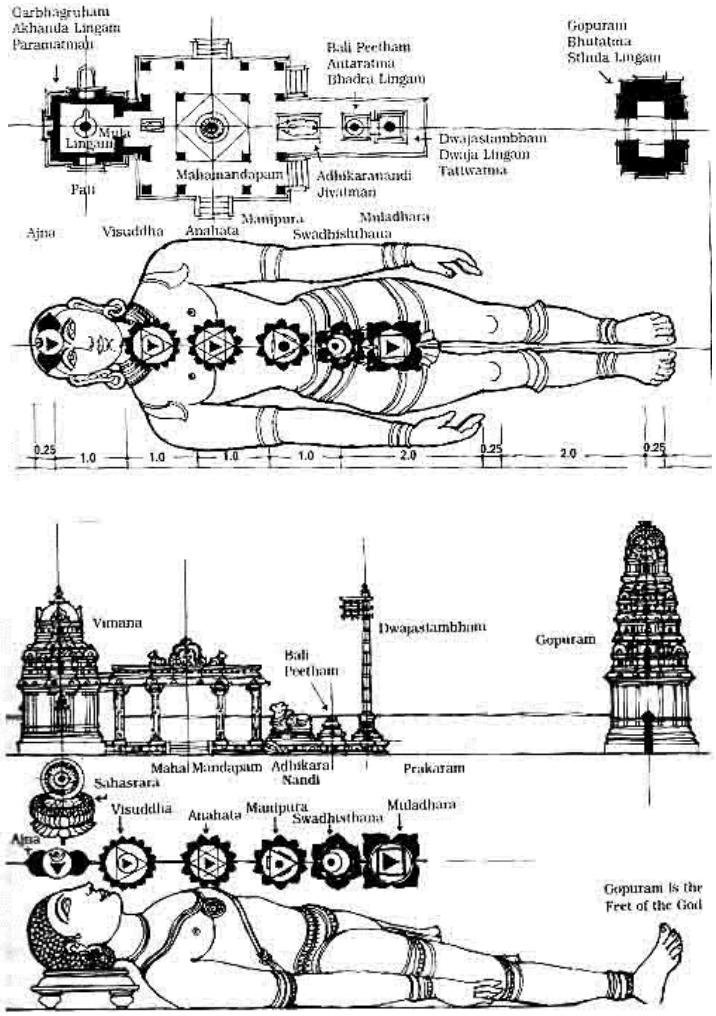

Figure 9 Correlation between the human body and the temple, where the temple is a representation of the human body as the gatherer of the essential details; the chakra in the human body corresponds to the essential elements that constitute the temple. In light of this, the chakra and the mandala are synonymous and the temple is their representation as a microcosm.
(Kramrisch 1965)

2.9 CONCLUDING SUMMARY

The most crucial aspect in understanding the architectural and urban design process of any ancient civilization comes from a closer understanding to their very personal perspective of the world. This is to say that one must start with analyzing the ancient traditional understanding of the world as it is and then carrying on with the understanding of their man-made world.

The way the ancients perceived of their world was shaped by the naturally curious human nature which urged them to understand themselves within their context. The same questions posed to us today were similarly posed to the ancients, these were expressed as “the simple dilemmas”; is death the end, does human life

continue after death, and is there anything beyond the physical reality of the human being. These questions posed, along with the symbolic nature of the human being, are responsible for his elaborate quest for meaning. The ancient man accordingly seeks meaning in everything he experiences, and to better answer his questions and resolve those "simple dilemmas", the belief in a metaphysical reality that parallels the physical existence seems very functional. This metaphysical existence is the true essence of things man experience and is paralleled in his physical reality. Earthly life was paralleled by the heavenly life; life and death were only phases to the immortal end since the mortal human body (the physical) was possessed with the immortal soul (the metaphysical).

Consequently, to the ancients, their world was a symbolic manifestation of some higher archetype through many planes of manifestations. This way of perceiving reality expressed as the dual mode of perception allowed for man to see his world symbolic of the heavens. Furthermore, this same dual mode of perception, made it possible for man to attest meaning in his very own creations, where he saw himself a symbol of the original divine creator and sought the archetypal patterns within the original creations to mimic in his creations.

The concept of repeating the primordial act of creation and mimicking the universe in its patterns was a function of validating man's creations to give them authenticity and attest meaning to them and establish them successfully as the 'second nature' following the original 'God-given nature' through incorporating concepts of microcosm and macrocosm. And the process of repeating the primordial act of creation expressed in all forms of sacred knowledge such as art, architecture, alchemy and astrology, makes the ultimate goal of the human existence possible; initiation and deliverance to give meaning to life and establish the connection with the divine archetype. If the heavens were mirrored on earth, and the divine creator was mirrored in man himself, then the new world man creates will similarly repeat this process. The world was the microcosm and man himself was the center and the microcosm and similarly, in this "second nature" man is to create, the built environment as the city with the enclosed temple were to become the new microcosm. Within this microcosm, the city as whole and the temple are to feature archetypal patterns inspired from the natural world, were the city was the new world, and the temple was synonymous to the supreme significance of man and his manifestation. The next chapter will elaborate on the notion of "meaning" in the built environment to reveal the process of creating the second nature or the man-made microcosm.

CHAPTER THREE: MICROCOSM & MEANING IN BUILT ENVIRONMENTS

3.1 INTRODUCTION

This chapter deals with meanings in the built environments of the ancient world from a traditional viewpoint revealing the process of applying the traditional understanding of the natural world onto the built environment. A comparative analysis is carried out showing the different schools of dealing with meaning in ancient built environments from a mainstream planning historical point a view. An alternative method of interpretation is then presented through the works of Eliade, Lings, Kostof, and Burckhardt, formulating a basis for deciphering meaning in built environments expressed from a religious, philosophical and scholarly historical perspective. This is presented through a comprehensive approach which takes on from the mainstream planning schools a general structure of historical city design elaborated upon by the philosophical and religious works of the scholars mentioned above. The literature is used to show how microcosm could be seen to be a prospect of archetypal repetition of heavenly models amongst the civilizations of the ancient world in the construction of their cities and their sacred spaces. This process is then used to derive a set of consequential concepts present in the built environments of the ancient world variably expressed in the works of Lynch, Eliade, and Kostof.

3.2 APPROACHES OF PERCEIVING MEANING IN BUILT ENVIRONMENTS

The topic of meaning in the built environments of the ancient world usually resorts to the literature dealing with history of planning for theory. The problem with history of urban planning is that the idea of planning is very subjective as it tends to turn a blind eye to the notion of original meaning. As discussed in the previous chapter, the notion of meaning can hardly be expressed from a single perspective. Believing in multiple planes of existence and hence multiple levels of meaning, the ancients used a completely different approach than we use today. The problem is that when attempting to reveal the meaning of certain built environments of the ancient world, typical planning classifications falls a victim of the dichotomy of planned vs. unplanned and the idea of degrees of planning according to a set of criterion that deals more with the physical and functional aspects of city planning. Again, orthodox planning criteria have been shaped by the very physical and functional modernist approach and hence fail to deal with the built environments as they were conceived by their builders. Yet the idea of meaning in built environments impels us to look at the historical evidence, the myth and the rite, the tradition, the cultural and the philosophical background - along with the obvious physical and technical parameters.[1] The notion of meaning in urban environments of historical value from the viewpoint of main stream planning is barely addressed. Some scholars such as Rapoport, Eliade amongst others, have attempted to prove some cosmological links to the design and construction of many of the ancient cities as a function of the original meaning.

[1] Antoniades, A., C., Poetics of Architecture: Theory of Design, John Wiley & Sons, Canada, 1992.p.147

According to the urban planning scholar Michelle Smith[2] in her study 'form and meaning in the earliest cities', the design of ancient cities was influenced by the common sense of their kings and builders[3]; as such the question is what "common sense" to the ancient builders was, and what was this common sense influenced by? Assuming that a traditional city is planned or not, orthogonal, semi-orthogonal, or even organic, is a very westernized view point on planning; which is by no means evidence of the existence of conscious planning in a city. Smith asserts that using the western mode of perceiving ancient cities is an ethnocentric approach which takes no notice of the various schemes of urban planning around the world. [4]

Michelle Smith expresses many views on the scholarly criteria of city planning, of which she quotes Harold Carter , a scholar who seems to clearly acknowledge the dichotomy of planned and unplanned as a simple division that lacks rigor. Smith also quotes Adam T. Smith who states that the organic city (a city which would be regarded as unplanned by orthodox planning criteria) is in fact a representation of "the cultural variation in aesthetics for decentralization of urban planning".[5] This viewpoint interestingly suggests that even the organic city, could be regarded as a planned city in the sense that it is a result of a conscious choice of its builders which must have expressed certain concepts and meanings of significance to them. This conscious planning process is hence evidence of a planned city even if it does not conform to mainstream western planning criteria. Accordingly, the very rigid criterion of western urban planning is not necessarily suitable when dealing with meaning in built environments.

Kevin Lynch[6], an American planner and influential scholar of urban planning, introduced the idea of the "city image" as a conscious planning process which contributes to the creation of a mental image of a built environment. The "city image" Lynch writes about, is the tool which planners today use to shape urban environments to induce certain meanings, sensations, and patterns of usage.[7] According to Lynch, the meanings induced vary according to the different observers making a point that meaning is a subjective aspect in urban environments. Nevertheless, there remain certain aspects of the city image that are necessarily understood in an almost similar manner, otherwise intentional planning would be fortuitous.[8] Based on the notion that the human mind is wired to perceive things as symbols of higher archetypes, the aspects of the city which are understood in a similar manner or induce the same meanings within the viewer could be regarded as the archetypes of which the elements of the city are symbolic. Examples of this are clearly evident in the use of concepts such as monumentality to influence the sense of awe, or axiality and grid patterns to induce the sense of directionality and order, and so forth. Accordingly, even Lynch's aspects of the city image which form the western criteria of urban planning are alternatively modern tools for conveying meanings in built environments.

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[2] Smith, M., E., Form And Meaning In The Earliest Cities: A New Approach To Ancient Urban Planning, Journal of Planning History, Vol. 6, No.1, Feb 2007, p.4,5
[3] *Ibid*., p.4
[4] *Ibid*., p.4,5
[5] *Ibid.*, p. 5
[6] Lynch, K., The Image Of The City, The M.I.T press, Massachusetts, 1960. Pp. 5,6
[7] *Ibid.*
[8] *Ibid.*, p. 7

Lynch's approach relies on utilizing archetypal patterns through modern city design to enhance certain meanings, some of which are similarly understood by everyone. This is to say that although Lynch finds the notion of meaning a subjective matter of the city image, his criteria for city planning addresses meaning due to the presence of what he calls "areas of agreement" which are intentionally incorporated by planners to induce meanings in most people in a similar manner.[9] In that sense, city planners today are granted the title of "manipulators of the physical environment" in a notion of a conscious process of city design to enhance certain meanings. With the traditional mode of perception of the ancients clearly relying on the symbol and the archetype, it would be natural to consider their cities as functions of the same traditional mode of perception. If this hypothesis is true, then it would be valid to consider the ancient cities' design a process which incorporates conscious planning methodologies, and consequently it grants ancient city builders the title of planners; manipulators of the physical environment- which they are surprisingly denied.

Elaborating on this matter, almost every ancient city in the world features a highlight monument around which the city is designed. In every case, that building is grand, elaborate, and monumental acting as a landmark within its context. Think of the towers of Babylon, the Great pyramids of Giza, the Pyramid/mountains in Teotihuacan, etc., all present examples of ancient monumental landmarks. Lynch in his elements of the "city image", speaks of monumentality as one of the properties of a 'landmark'. The landmark to Lynch represents one of the five elements which construct a city image. The definition of a monumental building is one which exhibits more materials, structure excellence, and scale than functionally required. And therefore, the most important reason for creating monumental architecture serves the statement and meaning more than the function. Accordingly, Lynch's landmark is an aspect of pure meaning within cities rather than function. Given the fact that built environments of the ancient world typically feature monumental landmarks which influence the form of their cities, it comes as a corollary that these urban environments were ancient forms of urban and architectural manipulation and that their builders were equally ancient manipulators of their physical environments attempting to convey meanings through the design of the built environment.

Not many seem to disagree on this matter yet they normally attribute the aspect of monumentality within built environments to the notion of inducing meanings of political or religious power and status of their builders which Rapoport expresses in his middle-level meanings[10] (one of the three levels of meanings Rapoport associates with built environments) in ancient cities, which shall be elaborated on in the following sections. Steven Snape[11] an archaeologist and Egyptologist states that this grandeur and monumentality in the case of Ancient Egypt was reserved to sacred spaces and funerary complexes and not the urban and architectural dwellings of Egyptian kings.[12]

Accordingly, the aspect of monumentality in ancient Egypt was a function reserved to sacred space as it was the space of ultimate significance within its landscape that was meant to last and continue to convey messages of religious

[9] *Ibid.*
[10] Rapoport, A., The Meaning Of The Built Environment: A Nonverbal Communication Approach, University of Arizona Press, United States, 1990, p. 9
[11] Snape, S. The Complete Cities of Ancient Egypt, AUC Press, Cairo, 2014. p.44
[12] *Ibid.*

significance to the future civilizations. Kings would alternatively express their status and power through their contribution in the urban and architectural sacred spaces such as the case of Karnak in Upper Egypt, yet this same view proves as an imprecise acquisition when it comes to the construction of the yet more elaborate Great Pyramids of Giza. If the Great Pyramids of Giza were intended in their monumentality to celebrate their king's in their life or their death (as tombs), one would expect to find elaborate detailed records within them of their builders or their kings. Graham Hancock argues that although this interpretation is possible, it only serves the wide spread theory of the "stupidity of the ancients" in which the pharaohs were megalomaniacs who aimed to project their egos into eternity. Yet in the specific case of the Giza Pyramids, such a theory fails to explain why the builders did not make the effort to credit these elaborate works of architecture to themselves and why the buildings themselves did not exhibiting a single hieroglyph or detail of any religious value.[13]

Accordingly, these monumental constructs must have contributed to a bigger picture of urban and architectural meaning rather than the hitherto postulated; the greatest tombs ever constructed celebrating the pharaohs Khufu, Khafre and Menkaure. Such meanings are alternatively expressed by Graham Hancock and Robert Bauval in their works regarding the urban and architectural logic in Ancient Egypt and many of the world's ancient civilizations. As such, the case of ancient Egypt negates the argument that monumental buildings were intended solely to express political status of their kings, but in fact must have served a higher meaning.

Another example that fails the idea of monumentality in relationship to the power/religion function would be the Stonehenge, a prehistoric architectural monument that is part of a bigger complex of Neolithic structures that we know nothing of their builders or their religion. There must be more meaning to monumentality than hitherto supposed. And accordingly, the kings and builders of the ancient cities even in a city that is of an unplanned nature which exhibits monumental structures are to be considered as manipulators of their own physical environment to convey messages of significant meaning.

The conventional approach in deciphering meaning in the built environments of the ancient world usually conceives of the city through a set of aspects which together contribute to the construction of an image and a consequential meaning. The most eminent scholars of urban planning and history; Lynch and Rapoport (representing opposite poles) are quoted in the following sections displaying their criteria of meaning in the built environment. Their views on the notion of meaning in built environments although feature a conventional planning approach which is usually criticized as being a "too western", yet it defines a framework for understanding the city elements and fails to escape the notion of "original meaning" in the city design. Eliade on the other hand as a historian of religion and philosopher expresses the alternative view which addresses meaning in built environments from a religious and philosophical viewpoint which as previously expressed is crucial to the composition of a complete perspective on meaning in built environments. Literature from the three eminent scholars Lynch, Rappaport and Eliade are used to formulate three approaches, those are: the physical modernist, the socio-behavioral, and the traditional cosmological approaches respectively.

[13] Hancock, G., Faiia, S., Heavens's Mirror, Penguin Books, England, 1999. Pp. 102,103

3.2.1 The Physical Modernist Approach

According to Lynch, people perceive their cities and their environment through constructing mental images using elements of their environment natural or man-made. Accordingly, Lynch believes that when creating a city, one can use elements of the city to convey certain messages through a designed image. The messages conveyed based on Lunch's model is composed of three aspects those are: identity, structure and meaning. Nevertheless, Lynch seems to focus on the first two components, leaving meaning as a variable component saying that "the question of meaning in the city is a complicated one."[14] However, Lynch addresses meaning indirectly through the city form, emphasizing its importance in reinforcing meaning where he resorts to the measurable physical elements of the city image: paths, edges, districts, nodes and landmarks. These elements according to Lynch are 'raw material' which together shape the image of the city, 'patterned together to provide a satisfying form.'[15]

Although Lynch makes it clear that this theory of "basic form concepts" is a function of the need to reflect certain social values of order, stability and dominance, he nevertheless makes an interesting notion of the presence of a cosmic connection in ancient city design saying that the form of any permanent settlement should serve as a "magical model" of the universe and the gods. Lynch uses data from ancient Indian and Chinese cities to derive a set of concepts of his cosmological model: using gates to encircle enclosure, axial processional lines, dominance of up vs. down, grid layout and bilateral symmetry.[16]

Accordingly, Lynch's original meaning precedes the constructed image. More interestingly, this original meaning shows evidence of a cosmic connection or a magical model as the underlying concept in every ancient city. The city as a magical model or a cosmic model, presents us with the notion of microcosm in built environments of the ancient world as the over-ruling concept which forms the built environment. This notion which Lynch barely speaks of, is better expressed in Rapoport's Levels of Meaning in Ancient Cities.

3.2.2 The Socio-Behavioral Approach

Rapoport emphasizes the role of meaning in understanding the built environment saying that "people react to environments in terms of the meanings the environments have for them."[17] Rapoport makes it clear that environments are related to meaning which contribute to the ways they are shaped and used. The importance of Rapoport's understanding is that he makes a clear distinction between meaning and function, where meaning is a part of the function yet in many cases it becomes the most important part of the built environment. And as such, he resorts to analyzing meaning at its different levels when analyzing historical cities of the distant past.

In her study 'Form and Meaning in the Earliest Cities', anthropologist and archaeologist Michael Smith[18] resorts to Rapoport's conception of meaning in built

[14] Lynch, *op. cit*., Pp.8,9
[15] *Ibid.*, p.83
[16] Lynch, Good City Form, The Mit Press, Massachusetts, 1984. Pp.75-79
[17] Rapoport, *op. cit*., p. 13
[18] **Michael E. Smith:** Professor of Anthropology in the School of Human evolution and Social Change at Arizona State University and an Archaeologist specializing in the Aztecs of central Mexico.

environment to answer the question of "what kinds of messages were being sent, and to whom were they addressed?" in reference to the original builders of these cities.[19] Smith acknowledges the presence of 'messages' inherent with meaning in the design of ancient cities and resorts to Rapoport's method in understanding the built environment. Rapoport's conception of meaning in the built environment resorts to the cultural variables of various cultures and different periods in order to be able to create a general comprehensive understanding as opposed to the orthodox tradition of only considering the recent past and western cultural tradition as references to interpreting meaning in ancient city design.[20] This is specifically the method we find suitable in grasping the traditional understanding of the built environments of the ancient world.

Rapoport identifies three levels of meaning in the built environment: high-level meaning which refers to cosmological symbolism encoded in a city layout and encoded in its buildings, middle-level meaning which convey identity, status and power; and low-level meaning describing how the built environment can influence the behavior and movement of dwellers.[21] According to Rapoport, high-level meanings are most communicated in architectural theory and are in fact the most important in understanding the overall meaning of a built environment. Following such approach according to Rapoport, is the only valid way to understand a built environment, be it recent or of the distant past. The significance of such approach is its ability to bring together many findings that when studied alone might seem irrelevant or even meaningless.[22] Smith argues that this approach allows us to get over the typically 'mute data' of the city to the original intentions of the kings and builders and the impact of the city on the inhabitants and visitors.

When it comes to understanding the original meaning of the city, understanding the archetypal aspects of which a city is symbolic - Rapoport's "high-level meaning" comes in handy. Rapoport's high-level of meaning, clearly refers to the cosmological symbolism encoded in the city design, which regards cities as images symbolic of cosmic models. Accordingly, Rapoport's first and highest level of meaning is concerned with the aspect of microcosm in built environments.

Rapoport's high-level meaning as the most influential level in shaping urban environments is concerned with microcosm. Lynch's "magical model" as the original concept which shapes the form of built environments of the past coincides with Rapoport's high level meaning as well, although Lynch does not give it such significance. On the contrary, the elements of higher significance to Lynch; "basic form concepts" which are concerned with identity and status, would relate more to Rapoport's middle-level meanings. Given the fact that Lynch finds the microcosmic concepts of the "magical model" as underlying concepts which govern the original form of a built environment, therefore, it would be natural to regard them as high-level meanings which according to Rapoport are the most important in the understanding of the built environment.

[19] Smith, M., E., Form and Meaning In The Earliest Cities: A New Approach To Ancient Urban Planning, In The Journal Of Planning History, Vol. 6, No.1, Feb 2007, p. 30
[20] Rapoport, *op. cit*., p. 9
[21] Smith, *op. cit*., p. 30
[22] Rapoport, *op. cit*., p. 9

3.2.3 The Traditional Cosmological Approach

Ancient cities were necessarily influenced in their design and construction by the sacred space and edifice which typically held a central position, not necessarily geographically but in a metaphoric sense. Understanding the overall meaning of a built environment in the ancient world is hence bound to the understanding of their religions and traditions. In the artwork and architecture of almost all ancient civilizations we find prominent figures of suns and stars usually associated with gods and goddesses in sacred spaces, architectural elements and so forth. This brings about the notion of the presence of religions and traditions of a cosmic nature influenced by aspects of the metaphysical world of which celestial objects where symbolic.

As an extension to the heavens/earth correlation discussed earlier, Mircea Eliade speaks of a similar correlation in the design and construction of urban environments in the ancient world where he makes it clear that even the man-made constructs, accord no validity except through their contribution and connection to an extraterrestrial prototype where he states the "the world civilized by the hands of man accords its validity through serving as a model of some extraterrestrial prototype or archetype". Not only does the region he inhabits or his natural world exhibit characteristics of those celestial archetypes, but the same is true of his city and his temple.[23]

With regards to meaning in the built environments of the ancient world, Eliade proposes four aspects of cosmological significance, those are; (1) the workings of the heavens are paralleled on earth, (2) the *axis-mundi* links the earth and the heavens, (3) the cosmos is laid in four cardinal points, and so should human constructions, and finally (4) divination is required to sanctify a sacred space on earth.[24]

The idea of mirroring heavens on earth is an act of creating a man-made Microcosm of the Macrocosm, where the human construct becomes part of the existing microcosm as it replaces its previously natural domain. Accordingly, first and foremost, the built environment is initially conceived as the mirror image of the heavenly model or archetype.[25] Consequently, Eliade's second, third and four aspects are made possible through establishing the terrestrial model of the celestial archetype. The second aspect; the natural cosmic-axis or the axis mundi arises as a result of the built environment being the image of a heavenly counterpart, and so, a vertical connection to the heavens is made possible through the center of this microcosm. The divine axis connects the earthly and heavenly realms and ultimately connecting the symbolic center (Greek Omphalos) of the constructed domain (the center of the new microcosm) to the divine archetype. The axis is a function of the most sacred spot within a city; the temple as the center of the city (microcosm) naturally acquires the function of the (cosmic axis) to establish along with the other three aspects the man-made microcosm.[26]

The third aspect Eliade speaks of; the layout of the city/edifice and the universe inspired from the cardinally laid out cosmos- implies the possibility of an

[23] Eliade, M., Cosmos and History: The Myth of Eternal Return, Harper and Brothers, New York, 1959. p10
[24] Eliade, *op. cit*., Pp 5-12
[25] *Ibid.*, Pp10-11
[26] *Ibid.*, Pp 5-12

aware process of laying out cities and the buildings within, orienting main elements of the city to certain celestial aspects of significance. Eliade's fourth aspect of divination suggests the need for divination as a means of connecting to the divine archetype. This is to say that in order for a subject to be deemed sacred, it must invoke meaning of divine significance.

3.3 EXAMPLES OF ANCIENT BUILT ENVIRONMENTS AS MICROCOSMS

Based on the literature presented previously, Lynch, Rapoport and Eliade all agree on some form of celestial or cosmic connection in the design of the built environments in the ancient world. Lynch speaks of the original meaning of the city as a "magical model" [27]. Rapoport attributes the cosmological significance in the built environments to the high-level meaning. [28] Eliade speaks of the cosmological significance in ancient cities and constructs where archetypal repetition comes in first expressed as the classic *imago-mundi*. [29] Accordingly, the notion of microcosm in built environments of the ancient world seems present in almost all models of interpretation of meaning in ancient constructs. Even in a model as orthodox and western as Lynch's, microcosm which is an aspect of archetypal repetition seems persistent.

Microcosm is a prospect of repetition, or duplication or even reproducing the original creation, the original microcosm (the god-given nature). As Eliade explains, the enterprise to ancients was that creation first occurs in the heavens then projected on earth. And accordingly, in order to fit the archetypal scheme of original creation, the heavens must be projected on earth in the urban and architectural constructs of man in order to allow for order to prevail.[30] Therefore, first and foremost, the entire built environment with its aspects; the city and the temple, must have its original counterpart in the metaphysical: the heavens. Accordingly, both the city and the temple must be regarded as aspects of the same process of microcosm through archetypal repetition. The concept of repetition is synonymous to the concepts of mirroring the heavens on earth, an aspect which seems persistent in the idea behind the layout of many of the ancient cities. Examples from Ancient Mesopotamia, Ancient Egypt, India, China and Mesoamerica show evidence of a process of mirroring the heavens or cosmic aspects in the design and layout of their cities and their main sacred buildings and spaces. This will be examined in the following examples of built environments from the ancient world.

3.3.1 Ancient Mesopotamia

Ancient Mesopotamia sometimes referred to as a cradle of civilization, gave birth to some of the world's major civilizations such as the Sumerians, Akkadins, Neo-Sumerians and the Babylonians. Mesopotamia (Greek for between the two rivers) included the lands between the Tigris and the Euphrates, where one of the

[27] Lynch, Good City Form, The MIT Press, Massachusetts, 1984. Pp.75-79
[28] Rapoport, *op. cit*., p. 9
[29] Eliade, *op. cit*., P.p 5-12
[30] *Ibid*., Pp10-11

earliest literate civilizations developed in the form of "independent urban communities".[31]

> "The Sumerians [the oldest of the Mesopotamian civilizations] struggled with a host of insecurities in a land where nature, particularly the weather, vacillated wildly between benevolence and malevolence. They asked the questions we still ask. Where had they come from? How could they exercise some measure of control over their environment? What awaited them after death?" [32]

According to historians Fazio, Moffett, and Wodehouse, the same questions communicated today, were similarly asked by the Sumerians.[33] These questions regarding the origin, nature, and fate of man clearly resemble what Hancock calls "simple dilemmas"[34], and prove to have shaped the traditional understanding of the world and man's creations in ancient Mesopotamia as they have elsewhere. Accordingly, the ancient Mesopotamians will resort to interpreting their world into one of a dual nature, of which their natural and built environments were part of. This thought is well supported by Eliade's conviction that the ancient Mesopotamians believed the Tigris and the Euphrates to have had their models in the stars Anunit and the Swallow respectively.[35] Cities in Mesopotamia were no exception within their natural context, they were not fortresses: they were an expression of the cosmic authoritarian power where they were believed to have their celestial corresponding archetypes in the heavens. We find in the Sumerian tradition that "Babylonian cities had their counterpart in the heavens and its constellations; 'Sippara in Cancer, Nineveh in Ursa Major, Assur in Arcturus, etc.'"[36] The map of Babylon as well, shows the city central to the vast circular territory bounded by rivers, an image so similar to that of how the Sumerians envisioned paradise.[37]

[31] Fazio, M., Moffett, M., Wodehouse, L., A World History Of Architecture, Second Edition, Laurence King Publishing, London, 2008. p.14
[32] Fazio, M., Moffett, M., Wodehouse, L., A World History Of Architecture, Second Edition, Laurence King Publishing, London, 2008. p.14
[33] *Ibid.*
[34] Hancock, *op. cit*., p.ix
[35] Eliade, *op. cit*., p.6
[36] *Ibid.*
[37] *Ibid*., p.10

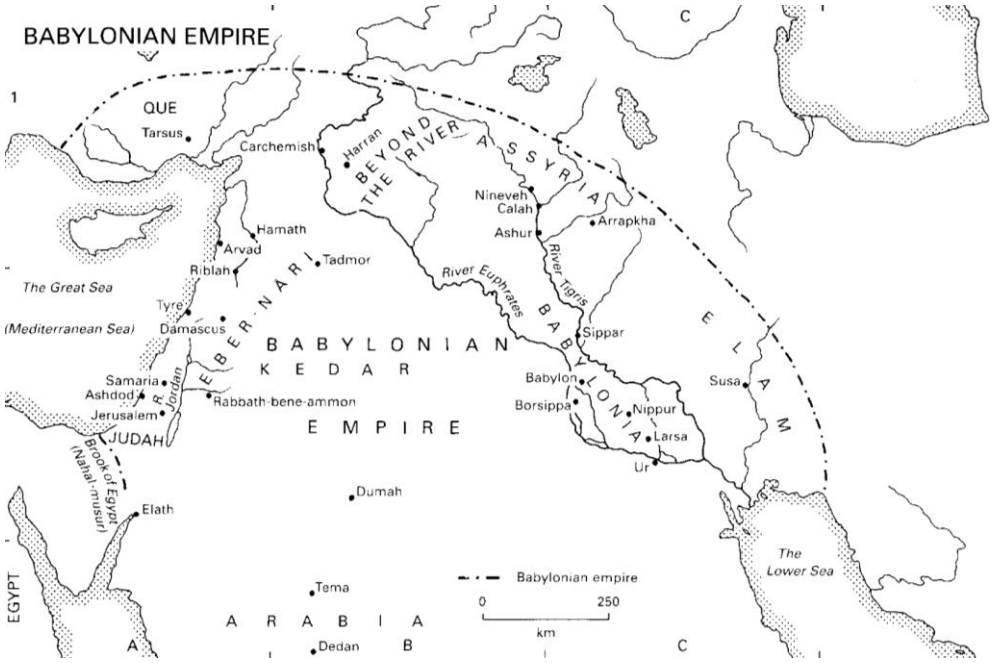

Figure 10 Map showing the major cities of the Babylonian empire (http://cw.routledge.com/textbooks/0415236614/resources/maps/map1.jpg- visited on: 10/11/2015 3:20 pm)

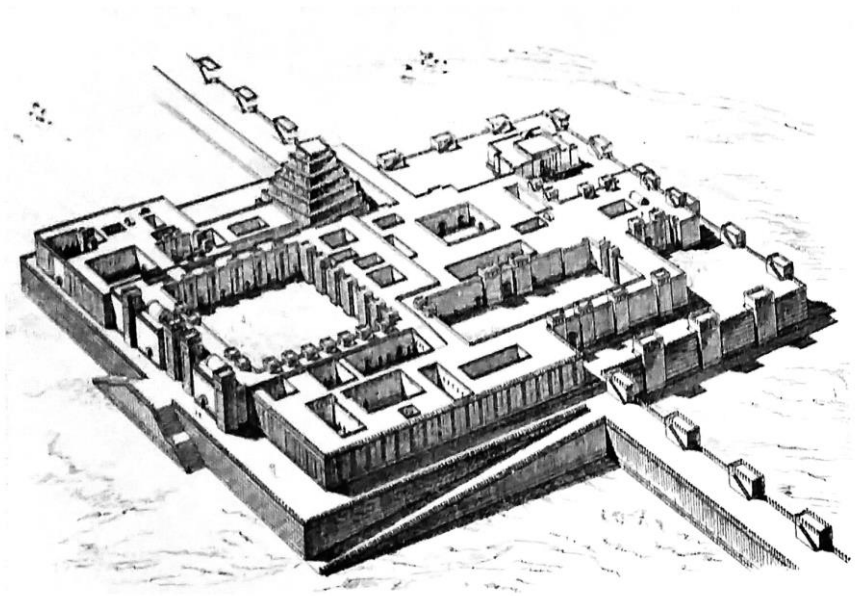

Figure 11 Reconstruction of the palace of Sargon II of Assyria – Khorsabad 720 BCE Figure shows an axial layout of the palace, a Ziggurat of seven levels representing the seven planetary spheres. (https://farm6.staticflickr.com/5221/5832912762_4c70fc0166_b.jpg - visited: 10/11/15 3:34 pm)

Figure 12 Left: plan of the Ancient City of Ur 2100 BCE Image depicts an enclosed oval-shaped city containing the sacred quarter, the Ziggurat, and excavations showed remnants of residential areas on the eastern and northern parts of the city – Right: Close-up of the remnants of the residential area on the eastern part of the city. The urban fabric of the residential area is semi-orthogonal, with a significant use of introvert architecture over-looking courts, a typical middle-eastern residential feature.
(https://classconnection.s3.amazonaws.com/192/flashcards/1109192/jpg/lecture_02_mesopotamia_egypt1348815733050.jpg - 10/11/2015 - 3:48 pm)

The Babylonians were the major power in the Mesopotamian region influenced by the earlier Akkadins, Neo-Sumerians and the Old Assyrian Empire. According to Norriss S. Hetherington an expert on historical cosmology, the Babylonian cosmology was by no means geocentric where earth was the center of the universe, on the contrary, Hetherington suggests that the Babylonians as their predecessors must have believed in the plurality of heavens and earth, where the cosmos revolved around circularly with the heavens and earth being joined and equal.[38]

This understanding suggests that the Babylonians as did their Sumerian predecessors, believed in an earth-heaven correlation, where the natural and constructed landscapes were both nothing but earthly representations of heavenly aspects of a parallel significance. The Babylonian map of the world discovered over a hundred years ago dating back to a time around the 6th century B.C, further asserts this claim. The map features a labeled depiction of the world from an ancient Babylonian perspective, showing evidence of a cosmological interpretation of the main cities of Babylonia. [39]

[38] Hetherington, N., S., Cosmology: Historical, Literary, Philosophical, Religious, and Scientific Perspectives, Taylor & Francis, UK, 1993, P. 46
[39] Raaflaub, K., A., Talbert, R., J., A, Geography and Ethnography: Perceptions of the World in Pre-Modern Societies, John Wiley & Sons, UK, 2009, P. 179

The map depicts earth as a flat disc extending to the edges of its empire, surrounded by cosmic waters, and islands reaching out in them. Many texts from the Epic of Gilgamesh, Sumerian works and even Ancient Egyptian works agree with the Babylonian map over the concept that the world they know is surrounded by mountains after which cosmic waters and the unknown extend, from which the "circle of four winds" blow (in reference to the four cardinal directions). Moreover the city of ancient Babylonia was believed to contain a manmade stepped mound (ziggurat) representing in its seven steps, the seven planets or the seven stars, a concept which was to influence the Romans later on in their conception of their city "Rome", the "Seven hilled City".[40] The American orientalist Morris Jastrow believed that the Babylonian Ziggurat was an attempt to represent the shape of the earth symbolically where the basin of the Ziggurat would represent the underground fresh waters. As such, to Jastrow the Mesopotamian constructs were "living symbols of the current cosmological conceptions."[41]

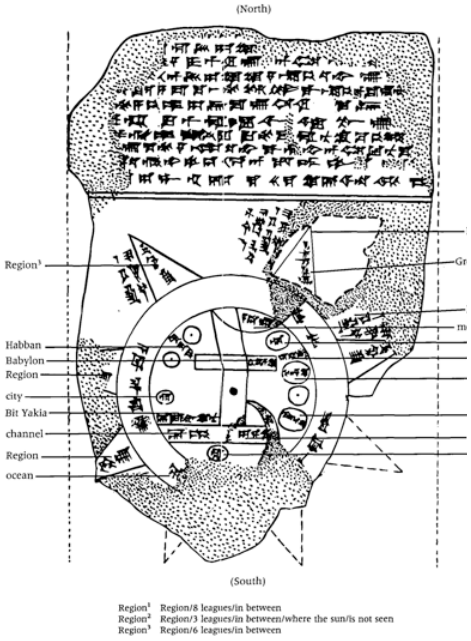

Figure 14 A depiction of the remains of the ancient Babylonian world map. (Finkel, I., British Museum Magazine, 1995)

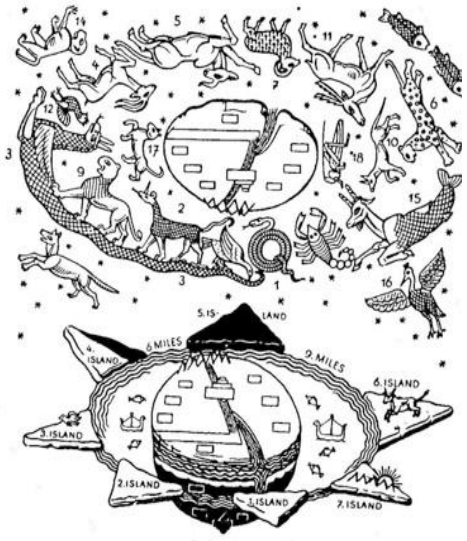

Figure 13 The correlation between the reconstructed Babylonian world map and its corresponding cosmic aspects (http://cartographic-images.net/Cartographic_Images/103_Babylonian_World_files/droppedImage_1.jpg - 10/11/15 4:42 pm)

[40] Hemenway, H., European History Foretold, Xulon Press, United States, 2007. P. 154
[41] Jastrow, M., The Religion of Babylonia and Assyria. Handbooks of the History of Religions 2. Boston: Ginn, 1898. p. 653

3.3.2 Ancient Egypt

According to Eliade, the Ancient Egyptians similarly regarded Egypt as the mirror image of the heavens, and accordingly the geography and even the architecture necessarily mirrored cosmic aspects. This belief in an earth/heaven (or a sky-ground) correlation meant that places and nomes were named after celestial 'fields'. The process of creation of cities mirrored that of the heavens, the creation first occurs in the heavens and then projected or mirrored on earth.[42] Assman supports this view asserting that the properties of the world in which the Ancient Egyptians lived, to them, was inextricably linked to the properties of the heavens as a result of their conviction that the heavens were the resting place of the gods populating the divine world, ruling over the earth.[43] The Egyptians perceived of their Memphite necropolis as the earthly projection of the heavenly Duat[44] (the starry world), regarding the Memphite region as the earthly representation of the starry Duat.

In mirroring their sacred structures, tombs and temples, the Egyptians were not only connecting the earthly realm to the heavenly realm, but in fact they were also re-producing an age of excellence in the history of man, a golden age which they believed to have followed the creation of man, when the heavens and earth were governed by the same laws: the Zep-Tepi. [45] Here again we are confronted with a physical act of "microcosm" in the construction of sacred structures in order to re-create the "primordial times" or the "primordial act of creation" in order to symbolize a time more sacred and divine, connect the earth and the heavens and abide to the same laws that govern the heavens. According to Hancock, the construction of the ancient Egyptian temples and pyramids was nothing but the "resurrection of the former world of the gods (in reference to the Zep-Tepi)."[46]Hancock, quotes Egyptologist Eve Reymond to present evidence which support the theory that the temples and sacred sites of ancient Egypt were modeled after a world which existed before the existence of the world we know of. This world was real yet of a higher and more divine nature and located in the "Duat-N-Ba", or the world of the soul which has its place in the heavens, as such temples and sacred spaces were modeled after earlier archetypes of divine nature.[47]

The sacred site at the temple of Horus in Edfu is one of many examples of temples and sacred sites that were constructed on the ruins of earlier temples in a constant process of temple development which trace back thousands of years to times even before the recorded history of Ancient Egypt. This is accurately expressed in the 'Edfu Building Texts' which according to Hancock, describe the temple as "a copy of an earlier, pristine original, and speak of various stages of building and rebuilding

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[42] Eliade, *op. cit*., p6

[43] Assman, J. , The Search For God in Ancient Egypt, David transl. Cornell University Press, United States of America, 2001. Pp. 121–28, 389–90

[44] **Duat:** The starry realm of the god of the afterlife Osiris where the dead king's soul hoped to reside after death for eternity.

[45] **Zep-Tepi:** Or the "first occasion", synonymous to the early primeval age, according to the ancient Egyptians, it was the time of Horus, or the time of Osiris, an early epoch very far away in the past when the group of Seven Sages or the builder gods settled in Egypt where they established the sacred mounds at various points along the nile (note the layout of the many pyramids along the nile and their association to the sacred mounds being symbols of the Ben Ben.) The sacred mounds constructed functioned as orientation definers to the temples to be constructed further on.

[46] Hancock, *op. cit*., p. 66

[47] *Ibid.,* p. 67

that preceded its present form."[48]Inscriptions in the temple walls confirm that the temple was built after a plan which literally "fell from the heavens". Hancock presents evidence from the temple of Edfu asserting that the temple was oriented from the constellation of the Orion in the south, to the Great Bear in the north. Hancock shows that the inscription describing the temple as one which fell from the heavens was a precise one in that sense.[49]

The construction of Ancient Egyptian sacred structures was typically associated with the ritual that goes by name: "the stretching of the cord ceremony", which according to Robert Bauval, has been practiced by as early as the Second Dynasty (some 2900 BC). Interestingly though, this ceremony features the netert (goddess) Seshat, assisting the king in fixing the "boundary poles" to the ground as part of the structure's foundation ritual.[50] Seshat was the mistress of astronomy, astrology, architecture, mathematics, along with her role as the "mistress of the builders" where she would establish the plans and foundation of every temple on its founding or its expansion. In her anthropomorphic form, Seshat was a woman wearing leopard skin[51] and a head band with an extended cord over which a five pointed star stood.[52] Inscriptions on the walls of the Temple of Horus in Edfu, show the king stating that he accompanies the netert (goddess) Seshat in the stretching of the chord, where he holds the rope with Seshat while grasping the rod and the mallet gazing at the "Bull's Thigh" in a clear reference to the stars of Ursa-Major. The king clearly states gazing at the stars, tracing their movement directing towards certain stars, in the process of fixing the poles of the temple.[53]

Clearly, the inscriptions show a connection between the founding of the temple and the position of certain stars through specific alignments. This process proves the presence of an astronomical knowledge incorporated in temple design shown in the inscriptions, the association of the netert Seshat which is concerned with architecture and astronomy, and the temple's orientation.

[48] *Ibid.*, Pp. 63-64
[49] Hancock, *op. cit.*, p. 67
[50] Bauval, R., The Egypt Code, Arrow Books, United Kingdom, 2007, p.24
[51] In ancient Egyptian tradition, the leopard skin was amongst the many types of clothing which was used to symbolized certain roles or class of the person wearing it. The leopard skin serves to denote astronomical and priestly significance of its wearer.
[52] Wilkinson, R., H., The Complete Gods and Goddesses of Ancient Egypt, The American University in Cairo Press, Cairo, 2003. Pp. 166,167
[53] Krupp, E., C., Echoes of the Ancient Skies: The Astronomy of Lost Civilizations, Harper and Row, New York, 1983. p. 26

Figure 15 The Temple of Edfu showing the axial entrance from the pylonic walls
(Dunning, 1905)

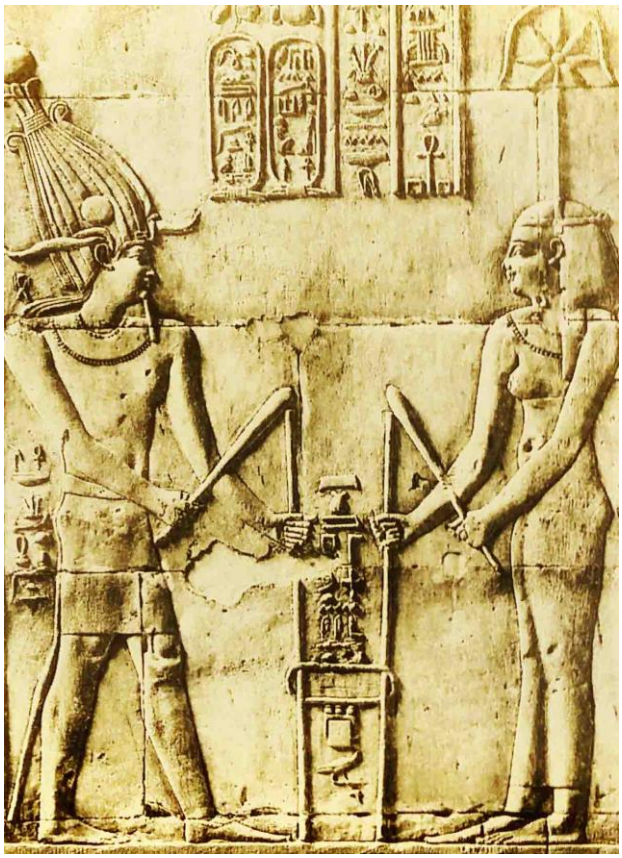

Figure 16 Wall relief from the temple of Horus at Edfu showing the king and the Netert Seshat performing the stretching of the chord ritual
(Lundquist, 1993)

Astronomical studies performed on the temple of Ramses II at Abu Simbel show that the site on which the temple stands was carefully selected for astronomical reasons so that the temple's interior carved 64 meters deep in the heart of the cliff in which the pharaoh's statue stands amongst the statues of the god Ra-Horakhty and the god Amen- would shine bright on two annual occasions in a symbolic act bringing back king Ramses to life. The few seconds in these annual occasions would be reenacted every year. Although there seems to be no reference in ancient Egyptian texts mentioning that this was the builder's intentions but the annual phenomenon is there to prove it. Furthermore this evidence supports that the builders were aware of the azimuthal twist of the sun to which a side chapel was dedicated – a kind of knowledge that suggests a paralleled astronomical body of knowledge.[54] Moustafa Gadalla[55] adds to this saying that the Egyptians were also aware that the year was slightly over 365.25 days and they aligned the temple opening and the sanctuary in a way that twice a year on February 22nd and October 22nd, a shaft of light would illuminate three of the four seated statues.[56] The statues of Ra-Horakhty, Amen and that of King Ramses II would bathe in light on these two occasions leaving the statue of Ptah (a neter/god associated with the underworld) in darkness. Over a span of 3,200 years (since the temple was built), an error of 20 days would have resulted, had the Egyptians not known of the 0.00636 difference between the average days in the year: 365.25 and the actual days of a year: 365.25636, which they apparently knew of and accounted in their calculations. Accordingly, Gadalla finds this evidence conclusive of a deliberate alignment with the sun which reveals a deeper astronomical knowledge necessary for such precise measurements.[57]

The Ram-headed sphinxes which were aligned at the entrance of the Karnak temple are another example of a possible attempt to symbolize a heavenly phenomenon in the architecture and layout of sacred space. The temple of Karnak was dedicated to the worship of Amen, a god of significant importance commonly associated with Re the sun god. Interestingly, Gadalla suggests that the ram-headed sphinxes were symbols of the position of the rising sun in the sky on in the beginning of the Egyptian year during the spring equinox[58]. According to Gadalla, the constellation apparent in the eastern horizon from which the sun rises is that of Aries which was symbolized by the Ram head. A depiction of the god Amen-Re as a ram "travelling across the heavens on his barge" further supports the astronomical connotations in this alignment and the depictions inside the temple.[59]

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[54] Hawkins, G., S., Science and Public Affairs: Astro-Archaeology – The Unwritten Evidence., Bulletin of the Atomic Scientists, Volume XXIX, the Educational Foundation for Nuclear Sciences, Chicago, 1973. Pp. 58-60

[55] ***Moustafa Gadalla:*** an Egyptian-American independent Egyptologist, born in Cairo, Egypt in 1944. He holds a Bachelor of Science degree in civil engineering from Cairo University. Gadalla is the author of eleven internationally acclaimed books about the various aspects of the Ancient Egyptian history and civilization and its influences worldwide. He is the chairman of the Tehuti Research Foundation—an international, U.S.-based, non-profit organization, dedicated to Ancient Egyptian studies.

[56] Gadalla, M., Egyptian Cosmology: The Absolute Harmony, Bastet Publishing, United States of America, 1997. Pp. 104-105

[57] *Ibid.*

[58] ***Equinoxes*** are times of the year where the Sun shines directly on the equator and the length of day and night is nearly equal, the spring equinox occurs in Egypt around the 20th of March of every year.

[59] *Ibid*., Pp. 115-116

It seems that the orientation of the ancient Egyptian temples was a conscious process that in all cases seems to conform to one of the postulated families of astronomical alignments. Belmonte, Abdel-Hady, Garcia and Shaltout in their study on the orientations of ancient Egyptian temples present a category for the different "families" of alignments all of which are cosmic alignments based on astronomical observations. Those are: eastern or equinoctial alignments, winter solstitial, seasonal, Sothic alignments (towards the star Sirius in Canis Major), Canopus, meridional, and inter-cardinal. [60]

In the ceiling of a chapel dedicated to Osiris in the temple of Hathor at Dendera, a sculptured zodiac features aspects of astronomical significance. The ceiling sculpture features a map of the stars showing the zodiacal band with the familiar Greco-Roman representations of constellations such as the Ram, Taurus, Scorpio, and Capricorn, yet not in the same typical Greco-Roman orientations.[61] Other constellations are depicted in a more Egyptian form such as Aquarius in the form of the flood god Hapy holding two water gushing vases. The five planets known to the Egyptians at the time were similarly depicted within the zodiac whose arrangement aided in the identification of the date of the zodiac. The Zodiac also features two eclipses along with the planets, a solar and a lunar eclipse. The Dendera Zodiac in that sense presents clear astronomical evidence supporting the temple as a microcosm in that it presents within the walls of the temple "the terrestrial model" symbols of astronomical significance corresponding to celestial objects "the heavenly counterpart".

In another incident where temples correspond to heavenly phenomena, the temple of Isis at the rear of Dendera's main temple shows a clear correspondence to the shifting of the star Sirius (of which Isis is its anthropomorphic representation) in its "double axis". According to Bauval, the entire complex at Dendera could have been a center of projecting the heavenly laws on earth. Bauval suggests that ancient Egyptian monuments are constantly providing us with evidence that the locations and orientations of various monuments corresponded to heavenly phenomena in an attempt to mirror the heavenly cycles in their constructions. Accordingly, any changes that occur within the locations and orientations of their constructs could very possibly be traced back to corresponding changes in the heavens.[62]

[60] Belmonte, J.,A., et al, On the Orientation of Ancient Egyptian Temples: Testing the Theory in Middle Egypt and Sudan, Journal for the History of Astronomy, 2010. p 10
[61] Campion, N., Astrology and Cosmology in the World's Religions, New York University Press, New York, 2012. p. 92
[62] Bauval, 2007, *op. cit.*, p.184

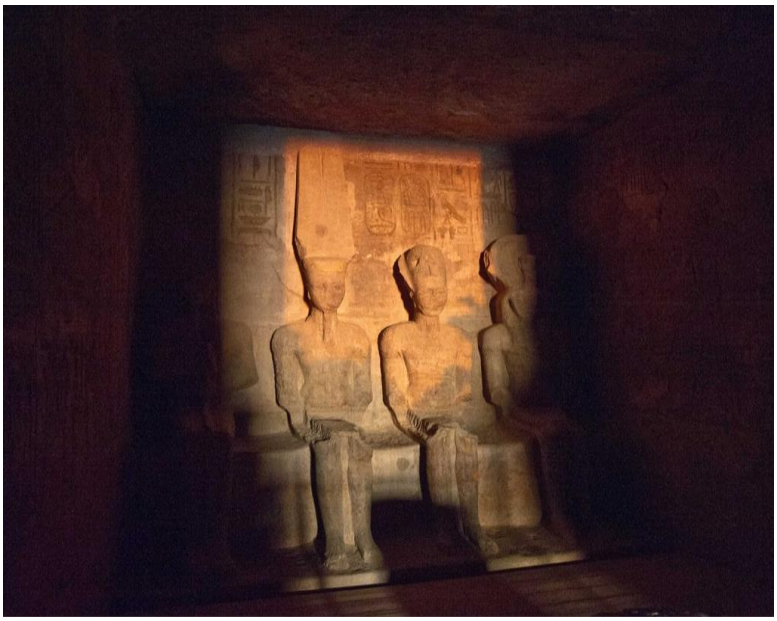

Figure 17 Image shows the innermost sanctuary in the temple of Ramses II at Abu Simbel on the two occasions in February and October the 22nd where a shaft of light during sunrise illuminates the statues of Ramses II, Amen and Ra-Horakhty leaving the statue of Ptah in darkness being himself the god of the underworld
(Source: http://www.izzietrip.com/izt/wp-content/uploads/2014/02/2e37cd10-a4fa-468e-ae41-93cd74d3bdc8.jpg - visited on: 15/11/2015 2:16 pm)

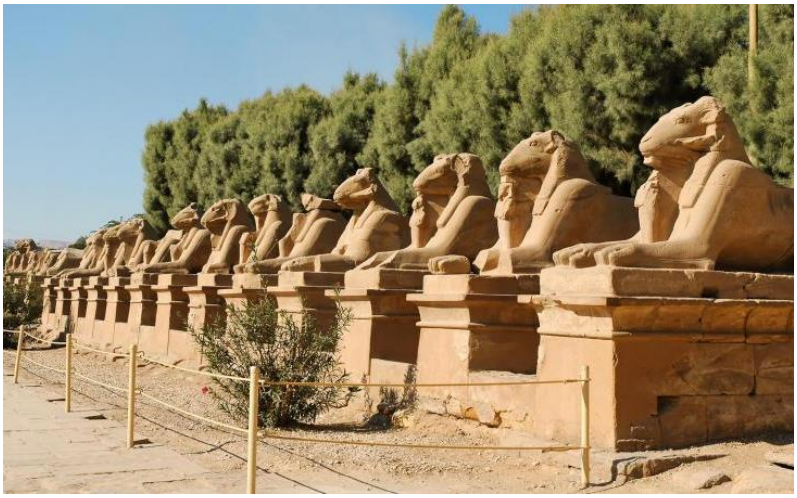

Figure 18 The Avenue of the Ram headed Sphinxes celebrating the sun in the house of Aries

Figure 19 A drawing of the Dendera Zodiac showing the different constellations depicted in human and animal forms corresponding to the mythological gods or netero of ancient Egypt. The Zodiac is also believed to show two eclipses, a solar and a lunar eclipse.

(https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSI75oQUtmvUEj0SX8vldq1H6UaPNp2gOpGnnvXx-0pAfYMTWbd5w – visited 15/11/2015 – 4:08 pm)

3.3.3 Ancient Mesoamerica

Even as far and isolated as the early Mesoamerican civilizations, cities and temples were designed in accordance to heavenly archetypes. According to Hancock**,** ancient Mesoamerican cultures expressed a terrestrial/celestial correlation scheme similar to that found in ancient Egypt. The constructed domain expressed by Hancock as the "world below" was set in order by the "world above", because the weaker yields to the stronger, and hence everything below must have necessarily come down from above.[63] The Aztecs like their Olmec predecessors believed in a religion of allegories, in which the world they lived in had its counterpart in the heavens, all their rituals were of a symbolic nature related to the human being and the process of spiritual initiation linked to a quest for the immortal afterlife.[64] The Aztecs inherited the belief of a heavenly correlation with their land from their ancestors where they believed that their tribes were born from womblike caves in the heart of a mountain on an Island which they were ordered to leave and promised the return to it after having spent their sweat, work and blood. Accordingly the Aztecs were to occupy the Tenochtitlan area on an artificial island surrounded by a series of square and circular canals, oriented to the cardinal direction with four principal entrance gates as their

[63] Hancock, G., Faiia, S., Heavens' Mirror, Penguin Books, England, 1999. p. 89
[64] *Ibid.,* p. 11

god Huitzilopochtli prophesized 'The four corners of the world shall ye conquer, win and subject to yourselves… it shall cost you sweat, work and pure blood." [65]

The people of Central America as did the ancient Egyptians believed their netherworld is located in a region of the sky in the Milky Way. Graham Hancock asserts that both civilizations shared a system of initiation focused on astronomy and the esoteric knowledge of the cycles of heaven where the people aspired at their immortality and their place between the stars. [66] The Way of the Dead was believed to have its parallel in the Milky way, just as the river Nile was the earthly representation of the Milky way to the ancient Egyptians.

> "Against the background of ideas such as these, it is not surprising that the sacred city of Teotihuacan, with its pyramids dedicated to Quetzalcoatl, to the sun and to the moon, has a complex astronomical design that connects it intricately to the heavens."[67]

Hancock further asserts that this belief system necessarily included the Pyramid structures at Teotihuacan which were associated with celestial objects, such as the Pyramid of the Sun and the Pyramid of the Moon and so forth. As such, the idea of a heavenly counterpart to the city of Teotihuacan is as vital to the ancient Mesoamericans just as it was to the Ancient Egyptians as it was the heavenly model after which the earthly counterpart is to be created to allow for a transition from earth to heavens, from mortality to immortality and so forth.

On this matter, Hancock quotes Stansbury Hagar who finds that the concept of microcosm and macrocosm within the Mesoamerican sacred sites - a common feature not only within the Aztec sites and their supposed Olmec ancestors, but also within many of the Mayan temples where she states that "many of the Maya cities were planned to reflect on earth the supposed design of the heavens." Hancock finds this true in at least four different sites these are Uxmal, Chitchen Itza, Yaxchilan and Palenque and presents zodiacal plans for the cities where the plan of the city with its sacred sites fall in place within the zodiacal plan they attempted to mirror.[68]

The Mayan city of Utatlan according to Hancock is regarded by many of the scholars and archaeologists such as Jose Fernandez and Robert Cormack as a stellar city, modeled upon a non-zodiacal constellation; the Orion. Furthermore evidence shows that the temples of the city of Utatlan were oriented to the heliacal setting of the stars of Orion where the Milky Way beside which the Orion stands was regarded as the "celestial path connecting the firmament's navel with the center of the underworld."[69] Hancock finds the ancient Egyptian belief in Osiris (Orion in heavens) inseminating Isis to create Horus as a symbol of creation, rebirth and fertility- to be paralleled by the Mayan "Three Hearthstones" creation myth, where similarly, the Orion was believed to be the 'place of creation'.[70] Accordingly, there seems to be a justifiable significance to the process of mirroring the heavens on earth in ancient Mesopotamia as was in Egypt, as a result of their common belief in a heavenly

[65] *Ibid.,* Pp. 12,13
[66] *Ibid.*, p.23
[67] *Ibid*., p.23
[68] Hancock, *op. cit*., p.33
[69] *Ibid*., p.35
[70] *Ibid.*, p.36

counterpart of their lands, and a creation myth which takes place in the heavens as a precedent to their act of second creation, in reference to building a city.

Within the continuous series of commonalities we see in Ancient Egypt and Ancient Mesoamerica, the mural in the Temple of the Foliated Cross at Palenque depicts a very familiar image of the Milky way represented as the maize tree rising from the Orion being the place of creation surrounded on both sides with the deceased ruler of Palenque being the spirit of the Lord Pacal and his successor his son Chan Bahlum. The tree as the symbol of the Milky Way serves as a representation for the pathway for initiation or transformation from the earthly to the heavenly realms. While the father ascends to rule from the heavens, the son is transformed into the apparent ruler and king whose role is to ensure the continuity of the presence of the heavenly father through performing righteous deeds. Here the son clearly engenders his father just as it was in the ancient Egyptian rebirth myth where Osiris is the heavenly father and Horus becomes the engendered son and king.[71]

The importance of this notion in both ancient Egypt and the Mayan civilization is the association of these almost identical mythologies with the same constellations and stars which both civilizations clearly attempted to mirror on earth. In both cases, life, deeds, religion, and mythology created the elements of the journey to pass from this world to the eternal world, where the process of mirroring the heavens must have represented the means for attaining initiation of the immortal afterlife.

3.3.4 The Indo-Chinese Civilizations

A parallel understanding of the heavenly counterpart or the cosmic influence is present in ancient Indian planning and architecture according to Eliade. Indian royal cities even the modern ones, were similarly built after some celestial model in the age of gold and accordingly their kings would attempt to revive this golden age through the construction of their cities and temples which were to be perfect replicas of their heavenly counterparts in order to make this perfect age a present reality for them to experience.[72]

Examples of celestial/terrestrial correlation are expressed in India alternatively in a more abstract symbolic sense. Cities and temples are laid out according to geometrical principals inspired from the geometry of the cosmos in the form of the Hindu Mandala. The Mandala is a spiritual symbol which represents the universe, it is generic for any diagram which represents a geometric pattern that is a symbol of the cosmos and hence, the mandala is regarded as the symbol of the universe (macrocosm).[73] The process of allocating the divinities on the mandala is conducted in three stages (inner, middle, peripheral) to conjure a duality in the perception of the Mandala. Within the ancient science of the Vastu Shastra[74], this duality is practiced in

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[71] *Ibid.*, p.37

[72] Eliade, M., Cosmos and History- The Myth of Eternal Return, Harper and Brothers, New York, 1959, p9

[73] Lundquist, J., M., The Temple: Meeting Place of Heaven and Earth, Thames and Hudson, London, 1993. p.73

[74] **Vastu Shastra**: also referred to as Vastu veda, Vastu vidya, Thachu shastra, Thatchu shasthra, is an ancient science of architecture and construction which incorporates traditional Hindu and later Buddhist beliefs. Designing with Vastu Shastra integrates architecture with nature and Indian beliefs using the perfect geometric patterns in the form of the Mandala. The literal translation of the term Vastu is : manifest, and Shastra: enlightened literature. Within the teachings of the Vastu Shastra, the term Vustu appears to be the

the planning of a town where it echoes the square grid of the developed Mandala; the vastu-purusha-mandala (8x8 grids for temples – 9x9 grids for dwelling places).[75]

The ancient science of 'Vastu Shastra' is considered the oldest known architectural treatise which is bound to the creation of sacred architecture. The most important aspect of the 'Vastu Shastra' is that it is based on the belief in a dual nature of reality, where the Vastu is the representation of the Manifest world, and the Vustu is the reality which is transcendent and unmanifest and the origin of the Vastu. The Vastu as such is the reflection of the archetypal Vustu. Hence those who practice the vastu Shastra perceive reality in a dual nature or in two-dimensions; first the infinite spiritual realm and second, the finite accommodating space containing material objects.

Within the teachings of the Vastu-Shastra we are told that the earth is a living being and throbbing with life and energy and this living energy is symbolized by a person; the Vastu Purusha (Purusha meaning the universal man). The site of construction is his field and named the vastu-purusha-mandala which is a development of the four pointed mandala. The vastu-purusha-mandala is regarded as well as the cosmos in miniature just like the original mandala, where an ancient Vedic saying states: "yatha pinde tatha brahmande, yatha brahmande tatha pinde" which translates, "as above, so below" or "as is the individual (microcosm), so is the Universe (Macrocosm)" or "as is the human body, so is the cosmic body", this is to say that everything is governed by one law, and therefore as above so below, i.e. the laws governing the cosmos apply to the minute scale of man and even his creations.

According to Smith, Eliade's model of cosmological symbolism is also perfectly applicable in the Chinese case, providing a particularly good fit. The ancestor of the Chinese state was the Longshan culture, which showed in their planning synthesis of a tradition of cosmology, geomancy, astrology and numerology. The Longshan synthesis generated a diagram of the cosmos placing man, state and nature in harmony, where the city was planned according to this cosmic diagram to maintain harmony and balance. Following the Longshan, when the Chinese founded their capital city, they would rely on a model derived from the "ideal Zhou capital" known as "Wangcheng" (fig #) or the "ruler's city". [76]According to Kostof and Ingersoll, The model featured a quadrangle with three gates on every side, triple avenues running from each gate and the center exhibiting the palace. The geography similarly would follow orthogonal diagrams where a territory was defined as "a series of linked squares", where the square capital of the empire lay in the center. According to Kostof and Ingersoll, these models governing the urban planning and architectural design followed a cosmic diagram (macrocosm), the center of which was the figure of the emperor (microcosm). The emperor as the microcosm was invested with the power to rule under the grace of heaven. The relevant orientation influenced by the cardinal directions was evident in the emperor palace which was oriented on the north-south axis. [77]

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opposite of the Vastu, where Vustu is the parallel world of the unmanifest and the transcendental which everything in the Vastu corresponds to and originally lies in.

[75] Chakrabarti, V., Indian Architectural Theory, Curzon Press, Richmond, 1998. p. 77

[76] Ingersoll, R., Kostof, S., WORLD ARCHITECTURE, Oxford University Press, Oxford, UK, 2012, p. 138

[77] *Ibid.*

Eliade explains that many of the ancient civilizations of the far-east would share this same perception of a dual reality, where for instance we find in the Persian traditions of the Iranian cosmology that the terrestrial and celestial phenomena correspond to one another. Their understanding of this duality was that there was the visible sky or the *Getik* and the invisible corresponding sky, the *Menok*. Creation to them was duplicated where the visible earth or Getik corresponded to its counterpart in the *Menok*. Put in Eliade's own words: *"Each virtue practiced here below, in the Getah, has a celestial counterpart which represents true reality".* [78]

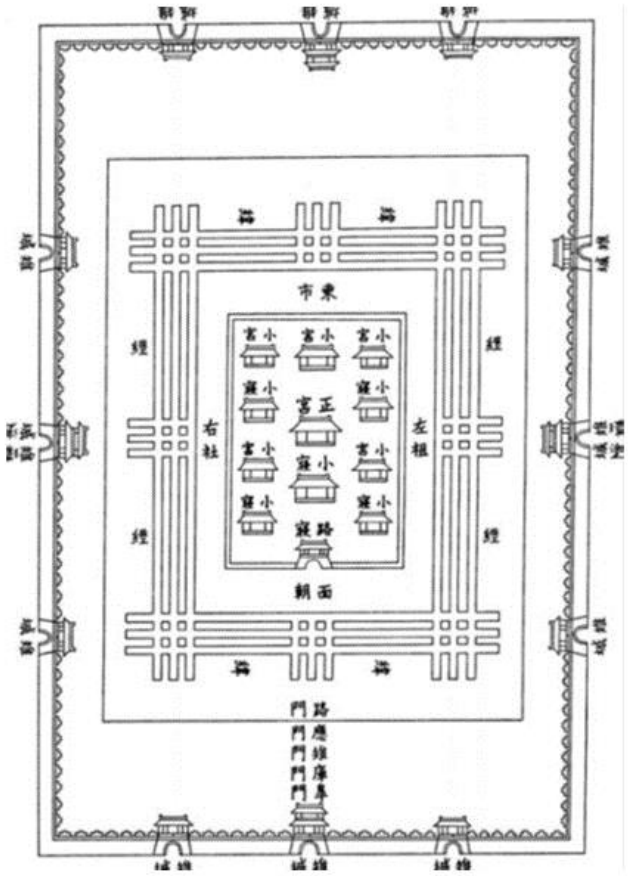

Figure 20 Idealized Plan of the Chinese Capital Wangcheng, Illustrating Features of the Chinese Cosmological Model of Urban Layout (http://www.chaz.org/Arch/China/CHINA2.GIF - visited: 15/11/2015 5:08 pm)

[78] Eliade, *op. cit*., p.6

Figure 21 Tibetan painting from Kantam showing a group of holy men receiving a mandala as an abstract concept of the temple
(Lundquist, 1993)

3.3.5 Ancient Rome

According to historian Spiro Kostof the precise location of Rome was similarly based on "divine guidance". Italy, according to Vitruvius was perfectly located between north and south as did Jupiter between hot Mars and cold Saturn, whilst Rome was precisely located by divine intelligence interestingly enough in order that it might "acquire the right to rule the world". [79] The ancient city of Rome was founded on seven hills. The number seven has always seemed to appeal to the ancients and held a great significance to the ancient Babylonians who passed it on later to the Greeks who incorporated its significance in their mathematics and architecture, and was later inherited by the Romans where we find their city Rome to be constructed on seven hills. To the Babylonians who passed down the significance of the number seven to the Greeks and Romans, the number seven was associated with the seven planets or the seven stars and in other occasions the seven continents.[80] By extension, the seven hills in Rome being associated with seven planetary aspects makes the entire city a microcosm of the bigger and grander macrocosm.

3.3.6 The Judeo-Christian Tradition

Even in monotheistic religions such as in the Judaic tradition, we find evidence of the city and temple corresponding to a heavenly/celestial archetype of a divine nature. In many occasions in the Old testament, we find references of a God-

[79] Kostof, S., A History of Architecture : Settings and Rituals, Oxford University Press, New York, 1995. P. 191
[80] Hemenway, H., European History Foretold, Xulon Press, United States, 2007. P. 154

inspired model given to the Hebrew prophets on how to model the city of Jerusalem and the tabernacle.[81]

> "Dost thou think that this is that city of which I said: "On the palms of My hands have I graven thee"? This building now built in your midst is not that which is revealed with Me, that which was prepared beforehand here from the time when I took counsel to make Paradise, and showed it to Adam before he sinned ..."[82]

According to the Judaic tradition, the ancient city of Jerusalem was believed to have had its counterpart in the heavens, where a clear reference is made to a celestial city named Jerusalem which preceded the construction of the earthly counterpart; the whole city was designed after the model god allegedly reveals to His Prophet. Eliade does not make a distinction between a celestial and a god inspired model when he presents his evidence of the ancient's conviction of duality within reality. The assumption that the Judaic sacred city had its counterpart in the heavens hence valid; the Judaic tradition presents us with much evidence that the temple and the city of Jerusalem was "shown" to the Hebrew Prophets and that both were modeled after their counter parts in "Paradise" or Heavens.

> "And when David gives his son Solomon the plan for the temple buildings, for the tabernacle, and for all their utensils, he assures him that 'All this… The Lord made me understand in writing by his hand upon me, even all the works of this pattern'."[83]

> "According to all that I shew thee, after the pattern of the tabernacle, and the pattern of all the instruments thereof, even so shall ye make it. ... And look that thou make them after their pattern, which was shewed thee in the mount."[84]

Here again, further texts from the Judaic tradition show that not only is the city or Jerusalem a terrestrial model after a celestial archetype, but even the alleged temple of Solomon seems to be inspired from the "pattern of the tabernacle". Similarly God was to reveal to Moses on Mount Sinai the corresponding "divine" model of the Sacred Temple or the sanctuary which he was to build for him. Once again, the sacred sanctuary which was to be constructed on earth corresponded to a divine or celestial model in the heavens upon the revelations of the Divine himself.[85] The Duality is once again established under a monolithic belief system; although the model here is supposedly 'God-given' yet it still reserves the genes of duality in it as it reflects a divine model or a celestial archetype, in this sense even monotheistic sacred cities and structures are adorned with concepts of microcosm. The terrestrial

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[81] ***Tabernacle*** *according to the Hebrew Bible, was the portable dwelling place for the divine presence from the time of the Exodus from Egypt through the conquering of the land of Canaan.*

[82] Charles, R. H. , Apocalypse of Baruch and the Assumption of Moses, Red Wheel/Weiser, LLC, Boston, 2006. P.36

[83] *I Chronicles 28 : 19*

[84] *Exodus 25 : 9, 40*

[85] Charles, R. H. , Apocalypse of Baruch and the Assumption of Moses, Red Wheel Weiser, LLC, Boston, 2006, p36

model is not necessarily after some cosmic figure or occurrence but rather after divine regulations from above, hence as above so below[86]

Christian tradition in this context proves to be an extension of the Judaic tradition. Rudolf Stegers in his "Sacred Buildings: A Design Manual", displays this point saying that the Christian tradition held parallel beliefs in the heavenly Jerusalem where the city of Jerusalem was described by John the Apostle as an elevated city of pure gold, and accordingly the location of the Romanesque and Gothic churches were to be located in the city in a certain manner as an analogy of the positioning of the heavenly Jerusalem.[87]

3.3.7 The Islamic Tradition

According to the mystic Islamic tradition, the Ka'ba in Makkah had its heavenly counterpart being the literal projection of God's throne. Within the mystical tradition, god's throne rests on "primordial waters" which represents all creation – this heavenly throne then descends to earth forming the Ka'ba in Makkah. The Ka'ba is a symbol of the earth representing with its cardinal orientation the four main elements of which all creation is composed of.[88] The Ka'ba as such becomes a symbol of the ultimate microcosm being a literal projection of an aspect of ultimate divinity: God's throne in the heavens- while also being a symbol of earth.

In an interesting incident, Aly Gabr shows evidence from Islamic tradition of a cosmic connection between the Ka'ba and Makkah and of the Pole star where he quotes Al Kisai who says that just like the heavens are centered around the pole star (being a fixed star around which the heavens revolve), the Ka'ba which corresponds to the pole star must similarly function as the center of earth.[89] In the Topkapi Palace Library, an interesting document of Persian origins depicts Prophet Mohammed PBUH on his prayer rug surrounded by his companions, receiving a miniature model of a city and a central mosque from Archangel Gabriel.[90]

[86] Eliade, *op. cit*., p7
[87] Stegers, R., SACRED BUILDINGS: A DESIGN MANUAL, Birkhauser Basel, Berlin, 2008. P.11
[88] Lundquist, J., M., The Temple: Meeting Place of Heaven and Earth, Thames and Hudson, London, 1993. p.8
[89] Al Kisai cited in Gabr, Gabr, A., H., The Influence of Traditional Muslim Beliefs On Medieval Religious Architecture : A Study of the Bahri Mamluk Period, Ph.D. thesis, University of Edinburgh, 1992. P.p 295-296
[90] Lundquist, *op. cit*., p. 72

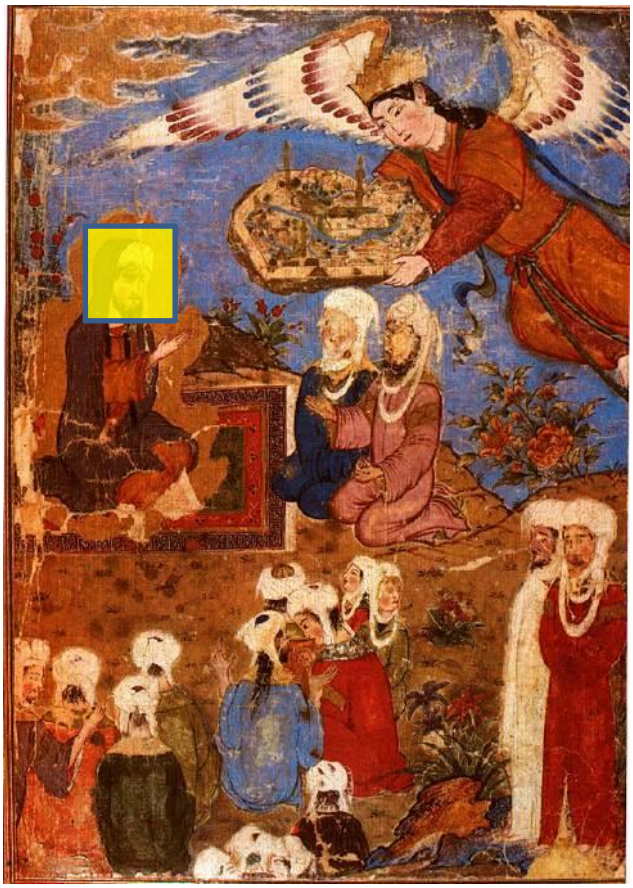


Figure 22 Persian image showing Prophet Mohammed receiving a model of a miniature sacred city from the heavens
(After Lundquist, 1993)

3.4 CONCEPTS OF MICROCOSM SIGNIFICANT IN THE CITY AND THE TEMPLE

The constructed domain as a whole being an image of the celestial archetype becomes consequently a center within its earthly domain, this center accordingly establishes some heavenly connection expressed as the axis mundi. Within the constructed domain, the temple presents itself as the central aspect of ultimate symbolic significance, influencing directionality and orientation bringing about the notion of horizontal axiality and ultimate vertical connection to the divine.

Accordingly, one can derive from the microcosm through celestial projection or repetition a set of concepts which come as a corollary to the process of microcosm. The idea of projecting a heavenly model on earth, provides this earthly model with the authenticity and sacredness where the location of this "heavenly inspired" environment becomes of a higher status and hence more sacred than the rest of the domain. Accordingly, it acquires the notion of being the center of its domain of strong directional influence and the location of ultimate connection to the heavens and hence the axis mundi. Accordingly, one can interpret these ideas into abstract concepts of the center, the axis mundi, and horizontal axiality.

Those concepts as shown alternatively expressed in Lynch's aspects of the city image, where the node is synonymous to the center and the intersection. The Landmark Lynch speaks of, is necessarily an aspect linked to the center or the node, and necessarily presents itself in terms of its monumentality as the vertical element within a city. Lynch's paths are synonymous to the horizontal axiality and so forth.

Eliade's four aspects of cosmological symbolism feature the center as a corollary of the archetypal repetition and verticality as the axis-mundi, whereas Eliade's cardinality is an aspect of a horizontal nature hence its connection to horizontality. Eliade's four aspects of cosmological symbolism along with Lynch's elements of the city image could be used to derive the abstract concepts of Centrality, verticality, and horizontality as abstract concepts which come in consequence to the city being the mirror image of a celestial archetype. And accordingly, when tested on the previous examples of cities as archetypal models of repetition – must prove present and highly emphasized. The presence of these concepts on the other hand does not necessarily suggest that cities are archetypal models but vice versa.

3.5 CONCLUDING SUMMARY

Based on the presented literature, there seems to be a common understanding with regards to the traditional understanding of the built environments – as cosmic models of celestial archetypes. Although the literature available on meaning in ancient built environments is various and diverse, even the highly westernized empirical views of scholars such as Lynch conform to this traditional understanding in the sense that it features the city as a cosmic model or a magical model. This chapter presents examples of built environments from around the world showing cities and constructs from the ancient world as microcosms, or earthly models of celestial archetypes. The chapter is capped with a set of consequent abstract concepts which adorn these earthly models working on emphasizing the meanings in the city as the earthly model of a heavenly aspect.

CHAPTER FOUR: TRADITIONAL CONCEPTS AS THE GENERATORS OF CITIES AND SACRED BUILDINGS

4.1 INTRODUCTION

This chapter deals with a set of abstract concepts inherent within the process of microcosm within ancient cities and their sacred buildings. The chapter discusses the relationship between these concepts and the process of microcosm then it displays the extent of influence of these concepts in creating the image of ancient cities and emphasizing the meanings related to microcosm linking the earthly models to the celestial archetypes. These concepts are tested in a set of traditions and civilizations ranging from the Ancient Egyptian city and temple to the Islamic city and mosque to present a rather orderly process of microcosm accompanied with the use of the traditional concepts deduced in the last chapter: centrality verticality and horizontality to generate perfect replicas of heavenly models.

4.2 ACADEMIC OBSERVATIONS ON MICROCOSMIC CONCEPTS

The founding of cities of the ancient world as expressed in the previous chapter, show evidence of a complex planning process which at some instance involves heavenly or celestial symbols in its layout and its architecture. The city in this context is conceived initially as an aspect of heavenly origin, impregnated with mythological and religious concepts which necessarily emphasize its transcendent qualities aiming at connecting the earthly model to its heavenly origins.

Every tradition may seem to have its building rites yet in essence and content they do not seem to differ from one another with disregard to the formal aspects specific to every tradition or civilization. From Ancient Egypt and Ancient Mesopotamia to Ancient Greece and Rome, the cities of Ancient Mesopotamia to the remote cities of Mesoamerica, the aim was identical; to establish on earth a divine center which transcends the rest of the earthly domain. Accordingly, the center works on repeating the cosmogony and repeating the primordial act of creation. This process was true even to civilizations as primitive as the early European civilizations.[1]

Thus, establishing a city means the recreation of the Cosmos creating a model in the likeness of that in the heavens in other words creating a microcosm. This new creation or microcosm becomes the subsequent "center" of its domain, to which everything is directed and oriented, the point of higher status ultimate divine expression on earth. This point hence, becomes the earthly magnet drawing everything horizontally towards its center and the point of vertical connection with the divine archetype. Picturing the city in this way shows a conscious interplay between a set of abstract concepts. Those concepts feature the city as the "center" of earthly domain, which enforces through its centrality "horizontal axes" pointing towards the direction and orientation of the center. The center features itself as the point of ultimate connection with the divine and hence enforces the concept of "verticality" allowing the center and the divine to connect.

[1] Delbeke, M., Schraven, M., Foundation, Dedication and Consecration in Early Modern Europe, Brill, Netherlands, 2011. P. 22

4.2.1 Centrality

Microcosm as a conceptual process is tied to the abstract concept of the center or centrality, this is because the whole concept of microcosm implies the notion of the navel; the central point, the core and the heart (Latin: *umbilicus mundi*, Greek: *Omphalos*). Amid the natural domain, the constructed domain or the new microcosm (the city) is regarded as the center. And just as man considers himself to be the center of the natural domain, man similarly emphasizes the center of this microcosm impregnating it with symbols and elements pointing out its unique and elevated status, placing the most important space and construct therein.

Eliade expresses the importance of the center saying that: *"attaining the center is equivalent to a consecration, an initiation; yesterday's profane and illusory existence gives place to a new, to a life that is real, enduring, and effective."*[2] According to Eliade, the ancients laid so much attention emphasizing the concept of centrality symbolically as a result of its association with consecration and initiation. Eliade's conviction concerning the ancient's emphases on the center confirms its connection to the navel as the heart, the core and the origin. In biblical tradition Adam was created from the center of the earth where the heavens were located, the center was the initial point of creation, the source and the origin, and the point of connecting the sacred and the profane.[3]

As such it comes natural to find that the concept of centrality is deeply rooted in the design and construction of ancient cities and their sacred spaces and buildings whether in location, status or architectural/urban expression. However, the notion of centrality is not necessarily bound to that of a "central location" or the literal center, but in many cases it is achieved through incorporating symbols implying centrality or power. In Lefebvre's[4] own words, "the call for a right to the city is a right to centrality" where the importance of centrality is exhibited historically through many forms.

In oriental cities for instance, the center is marked by the palace of the ruler as the center of the city and the symbol of the divine rule or power. In other cases the center is exhibited through the negative space or the empty space: the Agora in the Greek scenario. The Agora was symbolic of the central point of people's assembly; the center in this case exhibited itself as the contrasting space within the Greek city. The Greek Agora was later adopted by the Romans in their cities yet gradually transformed into a positive space through the exhibition of elaborate structures attesting for Roman institutional power and status. Medieval cities exhibited the center as a commercial space bringing together merchants, commodities and the public, a space characterized by the proximity of the church, a mixture of both positive and negative spaces. In all cases, the center presents itself as a characteristic space serving the function of utmost importance to every specific city.[5]

As for the exact location of the center, Vitruvius explains that it is not necessarily to be placed in the geographic center of the city; in fact the precise location of it depends on the specific circumstances of every city. For example

[2] Eliade, M. , Cosmos and History: The Myth of Eternal Return, Harper and Brothers, New York, 1959, p17
[3] Eliade,1959, *op. cit.*, p17
[4] Elden,S., Understanding Henri Lefebvre, Bloomsbury Academic, Great Britain, 2004. P. 151
[5] *Ibid.*

Vitruvius recommends in the case of waterfront cities, the placement of the forum near the harbor as opposed to inland cities where the forum would typically be found somewhere near the geographic center of the city. Accordingly, the exact location of the center is subject to multiple factors: function, topographic considerations, structural grid and meaning.[6] This is to say that the exact location of the center is not the key aspect that defines centrality as a microcosmic concept, nevertheless can add to it when being the actual geographic center.

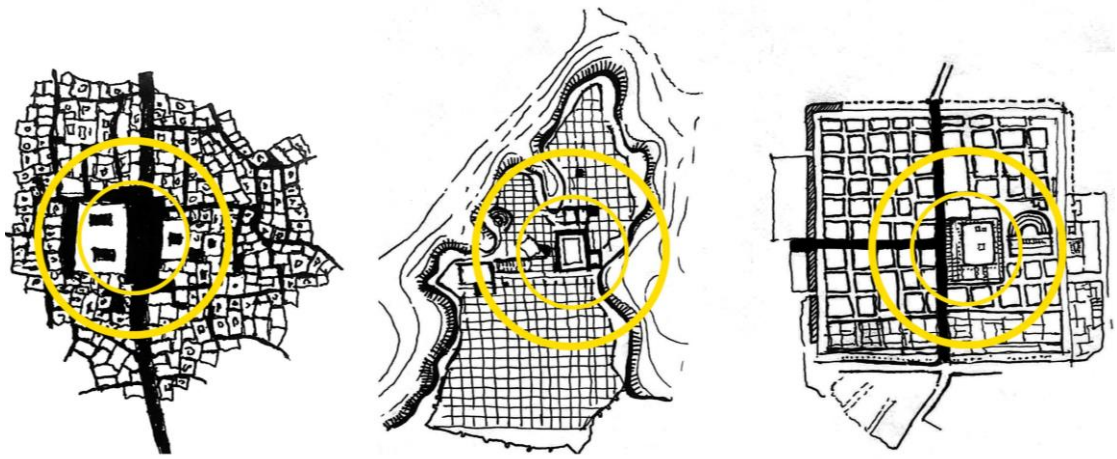


Figure 23 Different examples of centrality in historical urban fabrics

The center as such proves not only to be the point of highest significance within the city; in fact it contributes to influencing the territorial urbanism in order to emphasize its impact horizontally over its domain. As such, centrality in a sense calls for the notion of the concentric impact of a central construct. According to James Bird, the notion of centrality comes consequent to a prior belief in a human order created with the creation of the world. Bird implies a connection between the aspect of cosmic projection in the creation of cities with that of centrality and as such he expresses it as a deduced aspect of cosmic projection; "deductive centrality"[7]. As such, the physical center expresses further concepts of verticality being the axis mundi and axiality/horizontality as a result of the concentric impact of the center. Bird speaks of the center as the focal point on the horizontal plane which through its concentric effect distributes the projected power of a divine archetype onto the earthly domain.[8]

Aidan Southall[9], a British cultural anthropologist recognized for his role in urban anthropology expresses the concept of centrality similarly. Southall speaks of the center as the "sacred focus of creative force", which is never complete without horizontal axiality and vertical axiality, the axis-mundi.[10] This is to say that centrality as an abstract concept although self-expressive and powerful, nevertheless implies more abstract concepts which contribute to its existence. The center being the creative force establishes two new concepts, the vertical and the horizontal impact.

[6] Anderson, J., C., Roman Architecture in Provence, Cambridge University Press, United States, 2013. P.19
[7] Bird, J., Centrality and Cities, Routledge & Kegan Paul Ltd, London, 1977. P. 42
[8] *Ibid.*, p. 43
[9] Southall, A., The City In Time and Space, Cambridge University Press, UK, 1988. P.41
[10] Southall, A., THE CITY IN TIME AND SPACE, Cambridge University Press, UK, 1988. P.41

The impact of the center was expressed earlier through Lings' spider web analogy of the planes of existence. Lings spoke of the center as the aspect of ultimate symbolism being the microcosm of the macrocosm, bearing the highest powers through expressing the divine archetype. In lings' model, the radii of the spider web expressed the connection and orientation (horizontal impact), making the center a focal point having a concentric effect over its domain. The circles of the web represented the hierarchy of significance where the closer the circle is to the center the more symbolically significant it is. Finally the very center of the microcosm functions as the point of ultimate symbolic expression of power and divinity making it the closest point to the divine (vertical impact)[11]

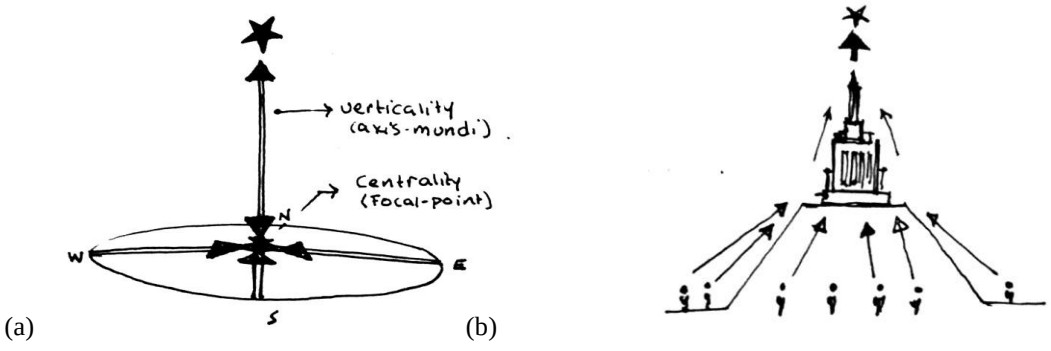


Figure 24 A Diagram showing the interplay between the vertical and the horizontal qualities of the navel as the (a) focal point "the center" and (b) the axis-mundi "

4.2.2 Verticality

As an abstract concept verticality is associated with the center as a transcendent point which attempts to connect to the heavens. Accordingly one cannot speak of the center or the focal point in reference to ancient/sacred cities without having to resort to the axis-mundi. Verticality is hence a concept synonymous to the cosmic axis, the cosmic mountain and tree of life, all of which express the same concept of the vertical link bring heavens and earth together.

> "The central point was crucial to the whole process of orientation and was thus a quintessentially sacred focus of creative force, the point of closest communication between earth and heaven above and also with the underworld below. As axis of the world, it has been symbolized in various cultures as a navel or umbilicus, column or pillar, vine, tree or other plant, rope or mountain. It was the place 'where the four seasons merge, where wind and rain are gathered in, where yin and yang where in harmony."[12]

According to Southall, the idea of the center is crucial to the process of orientation and focus in creating cities. As a result of this influential impact of the center in its domain, the center acquires an "elevated" status in an urban territory, where that point of greatest elevation is associated metaphorically with sacredness as

[11] Lings, M, SYMBOL AND ARCHETYPE, Quinta Essentia, Cambridge, 1991, p. 6,7
[12] Southall, *op. cit*., p.41

it ascends closer to heavens.[13] Accordingly, the center as the navel acquires a vertical quality which is in some cases accentuated through the choice of locating a sacred structure/a temple on a high plane; a mound or a mountain. In other cases urban centers are adorned with vertical elements such as columns, pillars, obelisks and so forth, all of which contribute to marking the center as the cosmic axis or the axis-mundi.[14]

In retrospect to Lings' representation of the multiple planes of existence within the same levels of reality, the notion of the center and the axis-mundi on the scale of the city and the temple or the sacred structure show highly relevant. Lings spoke of a general hierarchy in the universe where planes of existence are hierarchal in nature and every plane is a reflection of a higher plane above and beyond (see chapter two on Lings). Lings extended this concept to apply within a single plane of existence; the elements of a single plane of existence are themselves hierarchal in nature to represent or reflect one another arriving finally at the element of utmost significance within a single plane.[15]

The most prominent vertical elements in nature (fig#) are best seen in mountains and hills, trees, and even in man through his upright posture and similarly, urban centers will feature the concept of verticality in various ways. In some cases (fig#), the aspect of verticality is arrived at through lifting the temple over a higher natural plane or mountain or a man-made podium. In other cases, a mountain is constructed to create the symbol of the cosmic mountain as in the case of the Ziggurat in Ancient Mesopotamia, or the Pyramids in Ancient Egypt. In Ancient Mesopotamia, the Ziggurat represented the 'cosmic mountain' which connected the celestial and the terrestrial realms, establishing the axis-mundi. Through its seven stages representing the seven planetary spheres the temple symbolized the stairway to the afterworld, the link and the connection. Consequently, the aspect of centrality here is established where the temple acts as a focal point, contributing to its central position within its domain, although not necessarily in a literal sense. As such, the ziggurat acquires its divine significance, being the axis mundi through which the vertical connection is established serving as the gateway to the heavens.[16]

[13] Eliade,1975, *op. cit.*, p.380.
[14] *Ibid.*
[15] Lings, *op. cit.*, p. 14
[16] Eliade, 1959, *op. cit.*, p13

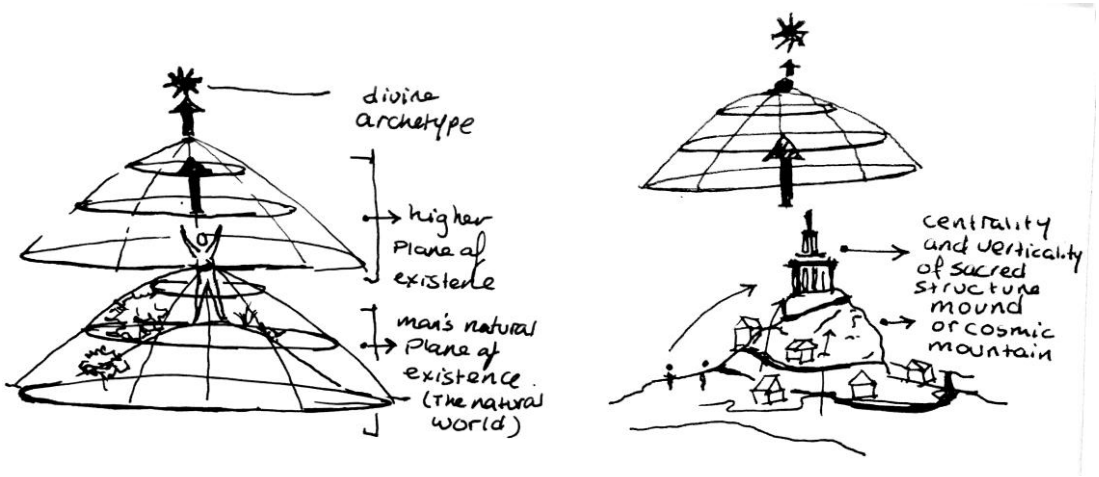


Figure 25 Diagram showing the application of Lings' analogy of the hierarchy of the multiple planes of existence- on the temple being placed on an elevated mound or podium to symbolize the cosmic mountain, and incorporating elements of verticality to establish the axis-mundi.

The association of the concept of verticality with the axis-mundi, the cosmic mountain or the tree of life, is best expressed by the theorist and perceptual psychologist Rudolf Arnheim[17]. Arnheim explains that in order to climb a tree, a stair, or a mountain, one strives to overcome the grounding counterforce of gravity, as such on feels through climbing any of them the purpose of attaining a high goal. According to Arnheim, all these different elements, express height which symbolizes high value, transcending what is earthly and achieving spirituality. Therefore, for one to ascend or arrive at a higher point, one is symbolically achieving enlightenment and wisdom as a result of the unobstructed look.[18]

As a matter of architectural expression, verticality is highly induced through the sense of symmetry which supports the vertical direction through creating a central axis. In some cases, the axis can be spelled out directly through creating an imaginary central line around which a building is symmetric such as the Parthenon and the Great Pyramid. In other cases, the axis is not spelled out directly, but it can be marked by a special element such as a balcony as the case is with Palazzo Farnese. Certain architectural elements tend to express verticality stronger than others sich as upright windows and doors pointed and trifoil arches, only to mention a few.[19]

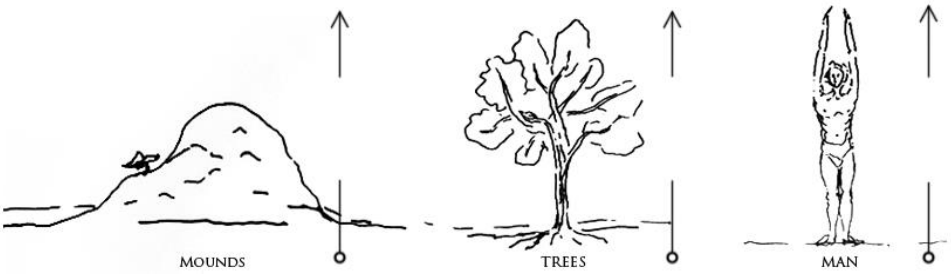


Figure 26 Natural elements symbolizing verticality

[17] Rudolf Arnheim: A German-born author, art and film theorist and a perceptual psychologist, author of: Art and visual perception, Visual thinking, The power of the center and many more.
[18] Arnheim, R., The Dynamics of Architectural Form, University of California Press, California, 1977. P.33
[19] Arnheim, R., The Dynamics of Architectural Form, University of California Press, California, 1977. P.44

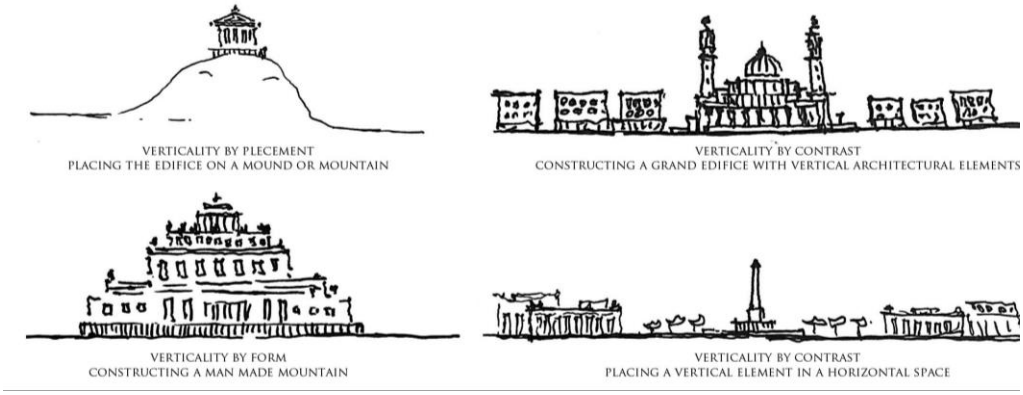


Figure 27 Methods of achieving verticality on an urban scale

4.2.3 Horizontality

The possibility of recognizing the abstract concept of verticality is only possible through presence of dominant horizontality. Just as the natural world features horizontal plains and vertical mounds, similarly, in a city, both concepts are necessarily expressed. In an uninhabited plain, an erected building acts as the vertical aspect in the rather horizontal plain. According to Arnheim, it is the vertical direction that defines the horizontal plane as it serves as the axis of symmetry. Arnheim asserts that directionality and hence cardinality and so forth, are all horizontal qualities which are made possible through the vertical axis, or reference point.[20]

The human being according to Crowe perceives the world in reference to his own body, in what he refers to as the "Human Perception".[21] And it is this "Human Perception" that allows man to derive abstract concepts such as verticality and horizontality from his perception of himself in relation to nature. The abstract concepts of horizontality, directionality and geometry are connected to one another and bound to the perception of man to nature. Crowe explains that cardinal directions (north, south, east and west) which are horizontal directions are the result of man's awareness of his own frontal and relative symmetry and the central dividing axis (vertical axis) which gives birth to the two cardinal directions east and west. Crowe then asserts that man is capable of deriving this Cartesian relationship as a result of this central dividing axis (vertical axis) through his upright vertical posture in relation to the horizontal earth.[22]

Accordingly, cardinality and the four directions when expressed symbolically by the square can be similarly used to express the concept of horizontality and hence earth. We find this symbolism very true in many of the world's traditions where the square was used to symbolize earth. The ancient Egyptian Hieroglyph symbolizing a city is the right angle cross inscribed in a square, the Roman layout of a city is composed of two crossing streets; the “cardo” and the “decumanus”. Axiality and bilateral symmetry are derivatives of the foursquare concept, for in order for the foursquare to exist; a central axis of reference is required. According to Crowe, Axiality is a concept which strongly relates to the human being and his self-

[20] Arnheim, *op. cit.*, P.35
[21] Crowe, N., Nature and The Idea of A Man-Made World, MIT Press, Massachusetts, 1977. P.46
[22] *Ibid.*, Pp. 50,51

awareness, for it is only due to our awareness with our own bodies and the four directions that left and right exist, and a central axis in consequence.[23]

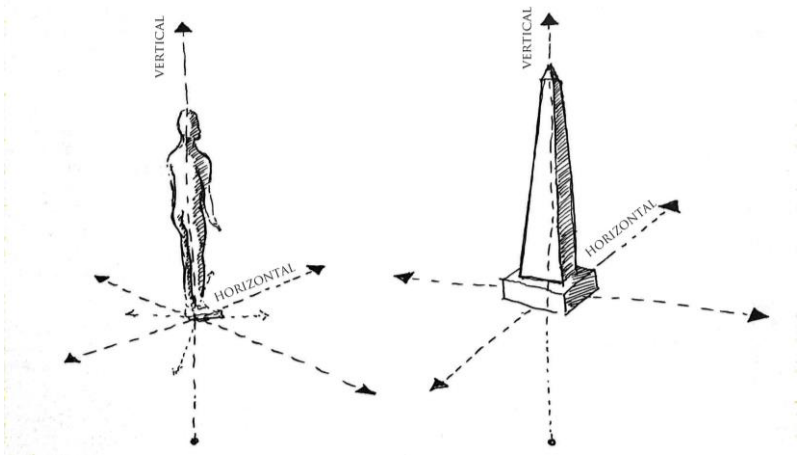


Figure 28 Diagram showing the role of verticality in defining horizontality and the determining of cardinal directions in horizontal space

In architectural expression, Arnheim expresses horizontality as a complex which serves to articulate two contrasting meanings; independence and belonging. Arnheim shows different methods of expressing horizontality where each method conveys a different meaning and message depending on the context. In a city, buildings whose main extension is along the horizontal, a sense of parallelism is induced to bring about the feeling of "belonging to the ground". This meaning is necessary to "emphasize" the center through contrast. On the other hand, within a vertical construct (fig#), horizontality presents itself as the "base" which sets off the upper body of the construct from the ground to induce the sense of independence from the ground.[24]

Figure 29 Diagram showing the dominance of the center as a result of the contrast between the vertical structure of St. Peters and the horizontal buildings

[23] *Ibid.*, p.51
[24] Arnheim, *op. cit.*, p.44

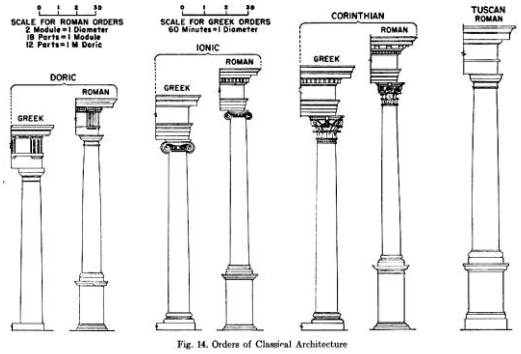


Figure 30 Diagram showing the different classical orders as vertical elements necessarily separated from earth by the base, where the base in this case acts as the horizontal element emphasizing the vertical. (Source: https://fillingham.files.wordpress.com/2008/05/column-orders2.jpg 17/8/2015)

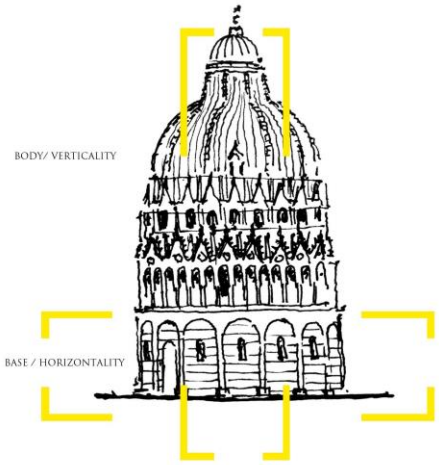


Figure 31 Sketch of the Baptistery of Pisa showing the base of the building acting as the horizontal element which separates the building from the ground allowing the body of the building to rise vertically in the sky

4.3 CONCEPTS AS THE GENERATORS OF TRADITIONAL CITIES AND SACRED CENTERS

Ultimately, whether we are speaking of a city on the large scale or a specific edifice within, both are aspects of the constructed space which is experienced through the arrangement and setting of the objects within it. It is only through understanding the underlying concepts which form these spaces that we come to understand the nature of these spaces.

The first aspect of such understanding comes from understanding the underlying meaning behind the founding of cities and sacred spaces within them. As conveyed in the previous chapter, this process referred to as microcosm carries with it

a set of comment abstract concepts or ideas which seem present wherever microcosm is and those are, centrality, verticality and horizontality. Although these concepts seem very general in the sense that there presence in general does not necessarily guarantee a process of microcosm in action, nevertheless, these concepts are powerful enough to have generated ancient cities and temples. Moreover, these concepts potent with meaning and symbolism were used to emphasize microcosm in traditional cities and temples. In the following section, examples from a number of traditions are examined to display the level of involvement of these concepts in generating the city and the temple and the enhancement of microcosmic qualities within.

4.3.1 The Ancient Egyptian City and Temple

The ancient Egyptian myth of creation is a text book example of the powerful interplay between centrality, verticality and horizontality in order to highlight the importance and significance of their land. Egypt, according to the myth of creation was the primordial land which arose from the waters of chaos. Moreover, certain areas in Egypt were believed to have their counter parts in the heavens. This naturally meant that the whole land of Egypt was regarded as the center of earth. The very first part of Egypt to rise from the primordial waters was the *Benben*, where creation first takes place. The mound is associated with the phoenix bird (the *Benu*) which lands on the mound, and the god Ra who first inhabits the mound. The phoenix is typically a symbol of reincarnation and life after death which suits the concept of the mound which allows for life after the waters of chaos (symbolic of death) reside. As such, the mound of creation is the center or naval, and the focal point, around which creation develops.

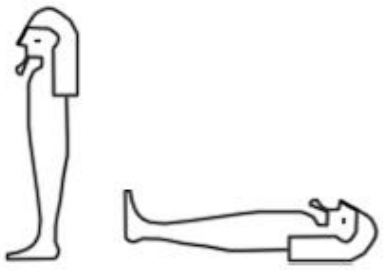
In order to mark the very center of Egypt, a sacred temple named the temple of Annu was constructed in ancient Heliopolis which enclosed a pillar adorned with the Benben stone as its capping stone. The Benben stone is believed to have been a black stone, presumably of heavenly origins which takes the conical or pyramidal form to symbolize the primordial mound of creation and rebirth. The heavenly origins of the Benben stone (meteoric origins) must have influenced the belief that it was the semen of Ra or of Osiris (the heavenly father) which he sends to earth fertilizing it to allow for life. The central pillar with the Benben stone is believed to have been the prototype of all later Obelisks which were similarly placed in Ancient Egypt's various temples.

Accordingly, the center to the ancient Egyptians was the point where creation first occurs, and it is this specific location that they saw worthy of placing their most sacred structures. Moreover the Benben form (pyramidal or mound like) must have been associated with marking centers of urbanism and used specifically in religious structures, whether as obelisks adorning temples such as the pillars in front of Karnak or Luxor, or as scale models of the Benben (the primordial mound) as in the cases of the many pyramids populating the western banks of the Nile.

The Benben as an obelisk or a pyramid is necessarily an object which inspires verticality within the spectator. The obelisk was usually ornamented with figures of pharaohs and gods. The capping Benben stones of pyramids or obelisks where in most cases adorned with solar figures as such these objects could be considered the markers of the axis-mundi, symbolizing rebirth, recreation and cosmic unity. Typically in its many forms and stages of development, mortuary architecture was

similarly associated with the Benben form. Through taking the form of the Benben, a Pyramid or a tomb is granted access to the after world or the heavens. As such, the many pyramids of ancient Egypt in their pyramidal or stepped forms are symbolic of the cosmic mountain and hence the axis-mundi. A Pyramid aside from being a vertical construct, acquires its validity as a vertical structure through contrasting with the horizontal planes of the Giza plateau.

According to Egyptologist Jan Assmann, [25] the Ancient Egyptians the concepts of verticality and horizontality where highly significant concept potent with meaning. Inspired from the human form, an upright standing man is symbolic of life and an otherwise recumbent body is synonymous to a dead corpse which inspires the static qualities of death. Accordingly, horizontality and verticality are two opposing concepts of death and life respectively. Hence when a statue is placed in an upright position it symbolically comes to life, or when a vertical element such as a pillar or an obelisk is placed within a space, it announces life and rebirth. [26]



a b

Figure 32 Ancient Egyptian hieroglyph for the meanings (a) depiction, (b) corpse (Assmann, 2005)

4.3.2 The Greco-Roman City and the Temple

The Greek and Roman examples are mentioned together given their geographic proximity which hence influences very similar concepts in their architectural and urbanism although both lead completely different "political" ideologies since their founding, ideologies which necessarily influenced their architecture and urbanism.

4.3.2.1 Ancient Greece

To the ancient Greeks, mountains had a very special place in their mythology; they were the habitats of gods given their divine preference for heights.[27] Olympus; the highest of the Greek mountains, was known to be the home of Zeus, other deities inhabited other mountains. Mountains due to their heights touched the heavens and held qualities of divinity and accordingly, it was only natural that their gods resided there. Other mountains of fairly less height and wider ranges, such as Helicon and

[25] Assmann, J., Death and Salvation in Ancient Egypt, Cornell University Press, United States, 2005. P. 106
[26] *Ibid*.
[27] Langdon, M., K., "Mountains in Greek Religion", CLASS WORLD, 93(5), 2000. P. 465

Parnassus were similarly divine, yet in a sense more "culturally central" since they allowed for humans to contact divinity as they were more accessible.

In the south-western part of Mount Parnassus in the valley of Phocis the ancient city of Delphi once stood, of which only ruins exist today. In the classical Greek mythology, Delphi was determined by Zeus and specifically chosen for being the center of Gaia, or "Grandmother Earth". And it was at Delphi that the term "Omphalos" originates to denote the navel, where the myth tells us that Zeus sent two flying eagles from the east and west, and over Delphi, their paths crossed and the Omphalos was found. Accordingly, Delphi was established as the center for mythical and religious reasons, and since that time onwards, it would be considered by the ancient Greeks as the center of earth.[28]

Just like the Benben stone, the Omphalos at Delphi was an actual stone which marked the center and believed to have fallen directly from the heavens. The Omphalos was a phallic (pillar-shaped) stone, with netlike carvings on its surface which archaeologists describe as some form of a web. Greek traditions on the other hand associate the Omphalos with birds in reference to the two eagles whose paths intersected at Delphi.[29] In all cases, centrality is clearly evident in ancient Greece through the use of the Omphalos stone marking the center, an approach quite similar to the ancient Egyptian Benben stone at the temple of Annu in Heliopolis. Both markers are central to their ancient traditions; both versions of the Omphalos similarly convey qualities of verticality in their phallic connotations.

An example of a formal model for a classical Greek city is normally given with the city of Priene. Priene just like all typical Greek cities featured an agora, an open public space for communion and assembly. As opposed to the rest of the city, an Agora was typically an empty space and not a built one. [30] The agora was the central square in the Greek polis, the place for political meetings, markets and assemblies. Typically, the Greek agora, although functioned as the symbolic center of the Greek city, in most cases they were not located in the exact center, with Priene as an exception. The location of the agora in some cases was at the intersection of major roads such as Corinth, or in other cases near important central sanctuaries such as in Athens.[31]

Generally speaking, the older forms of agoras in Hellenistic times, landscape features were taken into account in the irregular placement of buildings which meant that the agora would similarly be of an irregular form, a good example for this would be the agora of Assos. Efforts to rectify the shape of the agora would be practiced transforming older agoras of irregular forms into more formal agoras bordered by Stoas, such as the case of Athens.[32] The aspect of horizontality is well featured in the agora in its vast horizontal unobstructed open space. The concept of horizontality in the Agora was very practical with regards to the function of the agora as a political assembly space holding political meetings of a democratic nature, which required

[28] Hancock, G., Faiia, S., Heavens's Mirror, Penguin Books, England, 1999. p. 252
[29] *Ibid.*
[30] Elden, S., Understanding Henri Lefebvre, Bloomsbury Academic, Great Britain, 2004. P. 151
[31] Gagarin, M., The Oxford Encyclopedia of Ancient Greece and Rome, Oxford university press, England, 2009. P.p 44-45
[32] Gagarin, M., The Oxford Encyclopedia of Ancient Greece and Rome, Oxford university press, England, 2009. P.45

equality and space. The forms of the agoras developing from crude irregular forms to formal rectilinear forms further reinforce horizontality within the Greek city through its geometrical form.

Verticality within the agora is typically visible within the many classical orders supporting the bordering Stoas. The Doric order is a typical example of classical Greek verticality. A typical Doric order would be built on a level foundation of three steps which supported the columns and walls. The Doric order is typically crowned by a capital to support the architrave, triglyph, metope frieze, and cornice. The aspect of horizontality in the case of the Doric order is not a typical base but the stylobate, which is the top step of the stepped platform upon which the colonnades are placed.[33]

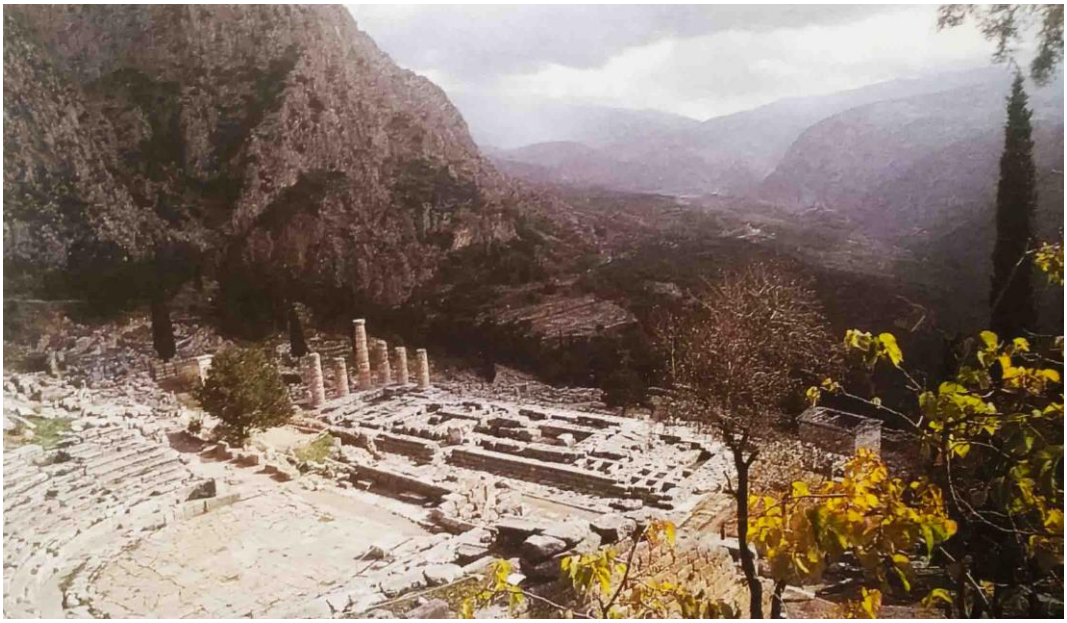


Figure 33 The Temple of Apollo at Delphi on Mount Parnassus. The shrine inside the temple was believed to mark the exact center of the world
(Hancock, 1999)

[33] Gagarin, M., The Oxford Encyclopedia of Ancient Greece and Rome, Oxford university press, England, 2009. P.45

Figure 34 A Hellenistic copy of the Omphalos at Delphi (Hancock, 1999)

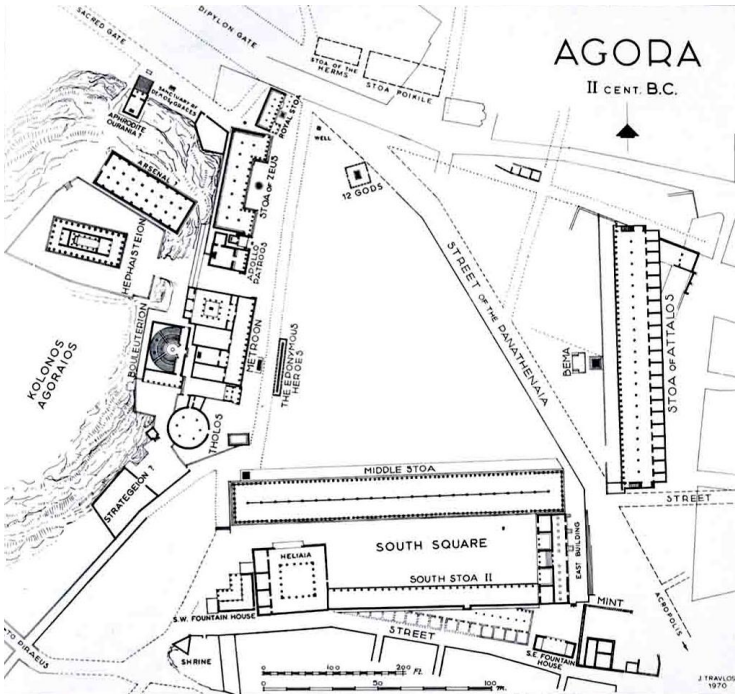


Figure 35 The Athenian Agora in the 2nd century B.C. Note the somehow regular form of the agora defined by the surrounding Stoas. The vast space and scale of the Agora contributes to the sense of horizontality in the space. (https://classconnection.s3.amazonaws.com/964/flashcards/4273964/png/untitled-1425954D8B2116CD4D7.png - 19/8/15)

On a closer look at the map of Athens, one realizes that the central zone within the city is composed of the Agora and the Parthenon, featuring the two most important aspects within the Greek city of Athens. The Parthenon is the greatest temple on the Athenian Acropolis dedicated to the goddess Athena, the patron of the Greek people. [34]The current Parthenon itself replaced an older version of the temple which was said to have been destroyed in the Persian invasion of 480 BC. Interestingly enough and to fit the sky-ground correlation in the microcosmic scheme, the temple is archaeoastronomically aligned to the Hyades.[35] As a sacred structure, connected to the cosmos through the astronomical alignment, the Parthenon presents itself as the sacred center of the city. The Parthenon similarly features classical aspects of centrality and verticality in its form and elevation.

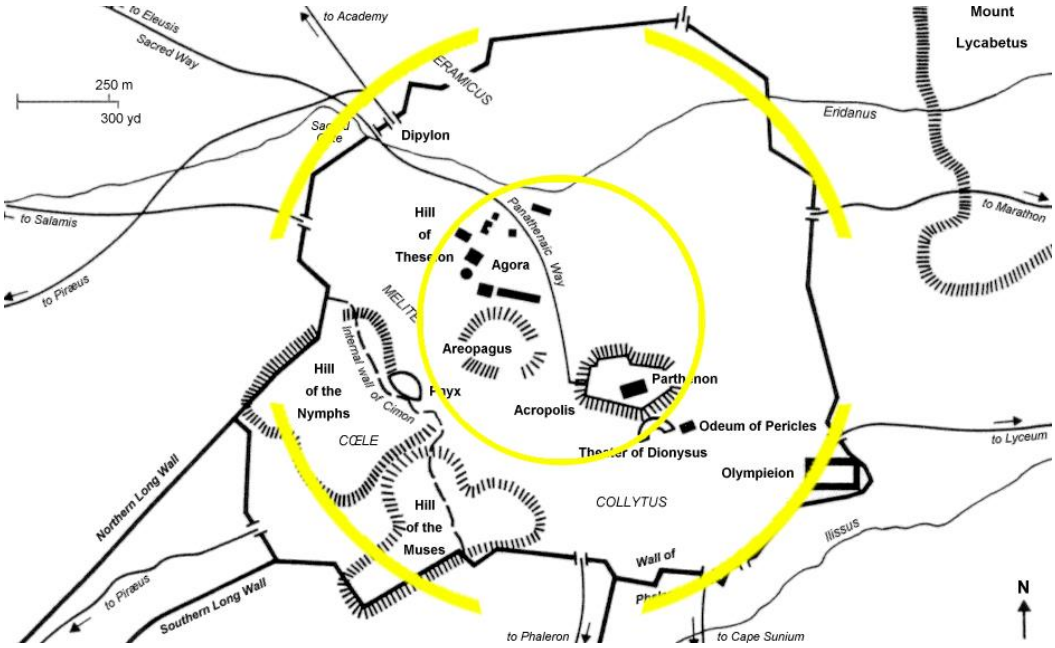


Figure 36 Map of Athens showing the central zone of the city to compose of the Agora and the Parthenon as the two most significant aspects of the Greek city. (http://plato-dialogues.org/tools/images/bigmaps/athensim.gif - 19/8/15)

4.3.2.2 Ancient Rome

The Romans appropriated and developed schemes from the Greek colonies into their town planning. The aspect of locating new towns at the meeting points of the two intersecting axes the cardo and the decumanus (north-south and east-west). The city center would be located at the intersection of these two horizontal cardinal axes pointing out both significance of the cardinal directions (north, south, east and west), and the center resulting from their intersection. Here, the aspect of horizontality and axiality can be noticed in the classic idea of the *cardo* and *decumanus* which represent the two most important horizontal paths within the city, and after which the city grid is laid out to allow for further development.[36]

[34] Beard, M., The Parthenon, Profile Books, Great Britain, 2002. P.118
[35] Connelly, J., B., The Parthenon Enigma, Alfred A. Knopf, United States, 2014.
[36] Kostof, S., A History of Architecture : Settings and Rituals, Oxford University Press, New York, 1995. P.p 191-192

The consequent intersection of the two important axes call for an elevated status for this specific point around which the whole city was to evolve. The crossing place of the two axes was emphasized through the presence of the forum and the forum basilica complex. Kostof explains that to the Romans, Architecture was the means of establishing visibility, hence the presence of the most elaborate institutional constructs at the intersection point.[37]In both the Greek and Roman cities, centrality was attached to the central spaces, be it the Agora or the forum.

The Roman Pantheon according to Crowe is a perfect expression of the four-squared directionality carved in stone. The Pantheon shapes through its form the foursquare geometry symbolizing earth, and through its massive domed structure, the heavens, symbolizing the connection of the physical and the metaphysical realms. The rest of the geometry of the Pantheon follows the conscious geometric design, where the diameter of the dome is equivalent to its height from the base to the top. The entrance to the Pantheon is through the portico which establishes the main axis of the temple and the symmetry.[38]

The Roman Pantheon in its domical form could be regarded as another representation of the cosmic mountain. The giant dome covering the cylindrical plan of the temple establishes an inherent axis-mundi in the form. According to Crowe, the dome with the bright circle revealing the sky through the apex along with the cylindrical base of massive cross section (almost 12 meters in depth) grounding the base of the temple to earth, contribute to a sense of cosmic unity connecting the heavens and earth.[39] The massive dome, the eye in the apex of the dome infiltrating a cone of light on the temple walls, and the elaborate detailed ceiling coffers (once adorned with bronze stars in their centers) are the first things one starts noticing after adjusting to the light within the temple, forcing the person to look upwards. As such the dome in its dominance and elaborate detail and oculus was the symbol of the dome of heaven making its very center the point of cosmic connection; axis-mundi. The Piazza facing the Roman Pantheon was later adorned with an ancient Egyptian Obelisk, symbolizing life after death, rebirth, eternity all of which are associated with the cosmic mountain symbolism and hence the axis mundi.

[37] *Ibid.,* p.192
[38] Crowe, *op. cit*., Pp. 80,83
[39] *Ibid.,* 80, 84

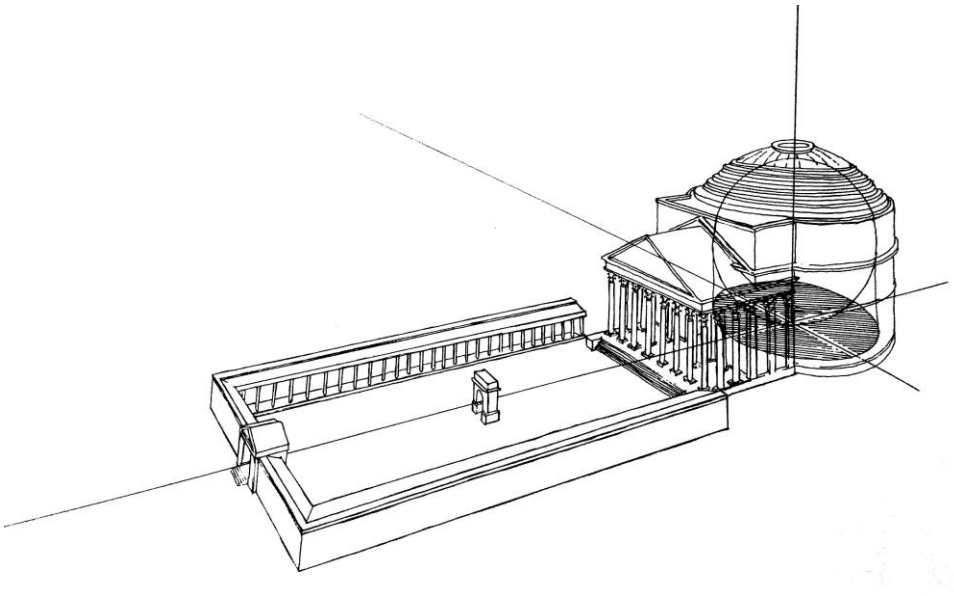


Figure 37 Reconstruction of the Pantheon and it's processional piazza showing the Pantheon's dome with the oculus as the point of vertical connection with the heavens establishing the axis-mundi, as imagined by Crowe.
(Crowe,1977)

Figure 38 Image showing the piazza facing the entrance of the Roman Pantheon with an ancient Egyptian obelisk placed in its center. The obelisk is a prominent figure of verticality as the axis-mundi commonly accepted as a symbol of reincarnation, rebirth, and cosmic unity

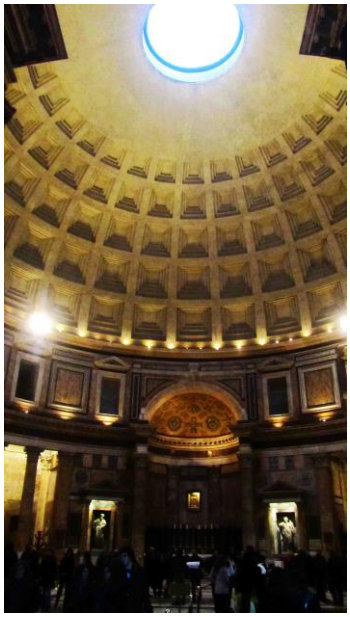


Figure 39 The view upon entering the Roman Pantheon showing the vertical qualities of the coffered dome with the central eye at the apex allowing controlled light from the heavens symbolizing the dome of the heavens

4.3.3 The Medieval Christian City and the Church

In the Christian tradition, Jerusalem attains its importance as a result of its place in the life of Jesus Christ, needless to say its former importance in the Judaic tradition which further establishes the relationship of the divine with his "chosen people". Jerusalem was important to the Christians because it is there that Jesus was brought as a child, preached in temples and was crucified in the end of his life and resurrected once again by God, to make this specific location the symbol of life and rebirth and the center of the world to the Christians; the *alpha and omega*. The location where Jesus was crucified and buried was marked with the construction of the Church of the Holy Sepulcher. Accordingly, in the medieval times, Jerusalem was considered the center of the world or the *umbilicus mundi*.

The eastern Roman Empire featured a continuation in the central-dome domination in church design influenced by the centralized architecture of the Byzantine Empire. The use of domes in this case serves to emphasize the centrality of the church in Christian tradition. Churches had a cross plan with equal arm lengths where the intersection was typically crowned by a large dome, or one large and four smaller cupolas. The circular form would become more prominent in the regions which adopted the Eastern Orthodox Religions such as Syria, Armenia and Serbia. Examples of such churches are the Hagia Sophia at Constantinople (capital of the Byzantine Empire, now Turkey), the pilgrimage church of St. Simeon at Qal'a Sim'an – Syria, and the St. Gayaneh Church at Echmiatsin – Armenia. [40]

The Romanesque era and the later Gothic eras in western Europe, feature major developments in the church Basilica plans from the very central circular design to a more longitudinal plan adding a transept at right angles to the nave and altered ceiling treatments. Further developments included the occurrence of multiple towering spires yet the aspect of centrality remained evident at the intersection of the nave and the transept named the crossing featured a vertical element to define the center. The center was symbolic of the heart of Christ which was expressed thoroughly through Da Vinci's Universal Man based on Vitruvius' ten books of architecture.[41]

Leonardo's popular drawing of the "universal man" or the Vitruvian man had been for so long the main approach for geometry and proportion in the design of sacred buildings in the western world. [42] The Vitruvian man's navel was symbolic of the center, which corresponded in church design with the central area known as the crossing, in the intersection between the nave and the transept. In Christian tradition, the church was first symbolic of the arc hence salvation which was later developed to symbolize Christ in its cross plan. The center of the church was the point of intersection of the central nave and the transept which symbolized the heart of Christ and above which a dome was placed to symbolize its elevated status as the center.

[40] Stegers, R., Sacred Buildings: A Design Manual, Birkhauser Basel, Berlin, 2008. p.14
[41] *Ibid*,. p.15
[42] Crowe, *op. cit*., P.96

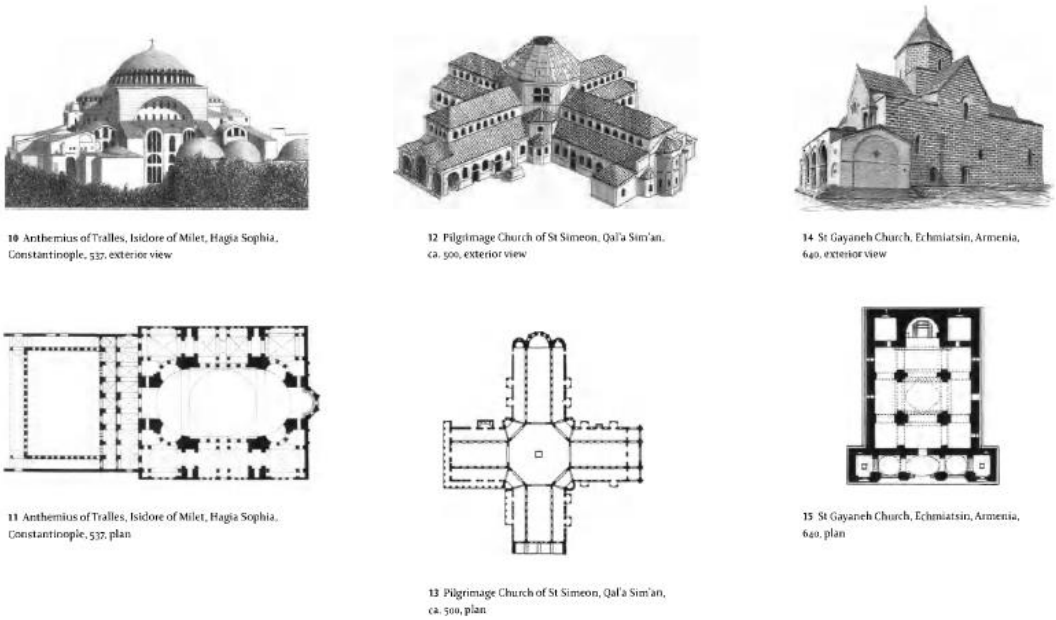


Figure 40 Exterior and plans of the Churches of Hagia Sophia (Left, top and bottom), pilgrimage church of St. Simeon (middle, top and bottom), and St. Gayaneh Church (right, top and bottom). (Stegers, 2008)

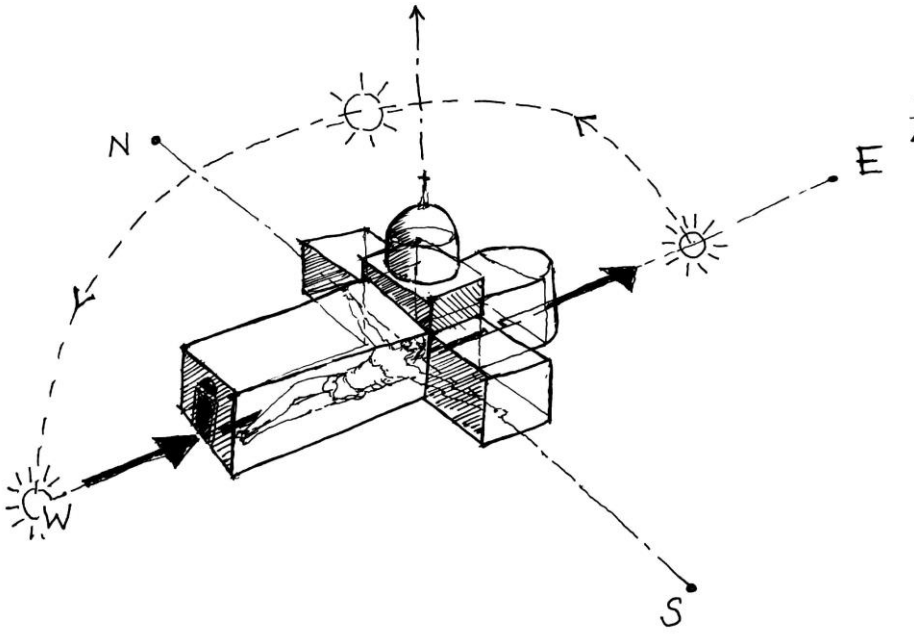


Figure 41 Diagram showing the cross plan of the church as a symbol of Christ orienting the head towards the rising sun in the east

4.3.4 The Islamic City and the Mosque

No example better explains the center and the radial impact of a sacred center and the perfect display of Lings' spider web analogy, as does the Ka'ba in Mecca. The Ka'ba is the place of ultimate sacredness to Muslims to which pilgrimage takes place, prayer is oriented and mosques are directed to is a perfect example to the concentric impact of a sacred structure as a focal point. In his book, "Cosmology and Architecture in Pre-modern Islam", Samer Akkach speaks of centrality and its contribution to the microcosmic and macrocosmic significance of the Ka'ba. Akkach asserts that The Ka'ba resembles the heart of a worshipping man. According to Islamic sacred texts, the heart bears qualities of ultimate sacredness within man as it is the only thing which encompasses God, making it the microcosmic aspect within man. Similarly the Ka'ba being the heart and the center acquires the same state of ultimate sacredness as it is what encompasses the divine out of the entire earthly domain. Put in Akkach;s own words he states that, "Just as man is defined by two extremities, namely his innermost heart and outermost body, so the world is defined by the Ka'ba, its innermost center, and the divine Throne, its outermost body."[43]

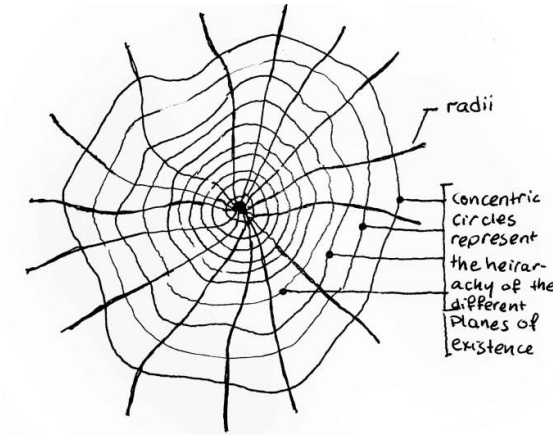


Figure 42 Diagram explaining Lings' use of the spider web as an analogy of the hierarchal/concentric nature of the planes of existence

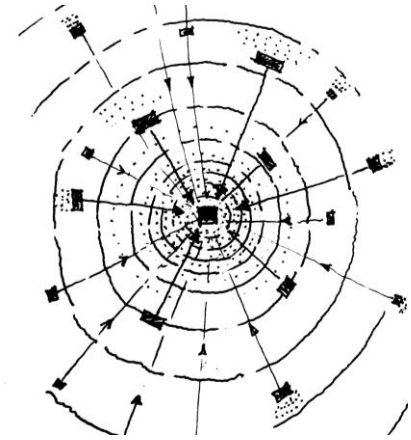


Figure 43 Diagram showing the concentric effect of the Ka'ba making it a focal point to best express Lings' analogy of the spider web

Aly Gabr further supports this view in his thesis entitled "The Influence of Traditional Muslim Beliefs on Medieval Religious Architecture", saying that not only does the Islamic tradition support the notion that Makkah and the Ka'ba within were the center of earth and creation as referred to in the Quran where God referred to it as "ام القرى" or the mother of towns, but that just like the rest of the traditions, the notion of the cosmic mountain is also present. Tradition supports that Mount Abu Qubays in Makkah was in fact the first mountain set on earth and the starting point of creation. As such, not only is Makkah the divine center, it is in fact the primordial center, the navel and the Omphalos.

[43] Akkach, S., Cosmology and Architecture: An Architectural Reading of Mystical Ideas, State University of New York Press, Albany, 2005. P141

> "When, before the creation of heaven and earth, the Throne was upon the water, God Most Transcendent sent a soft wind that struck the water, unveiling at the position of this House a piece of Rock like a dome [note the resemblance to the Ancient Egyptian myth of creation]. God stretched out the earths from beneath it; it swayed and swayed again, so God Most Transcendent pegged it by mountains and the first mountain placed therein was Abu Qubays and that is why Makkah was called "the mother of towns".[44]

According to Ibn Abbas' narration, the myth behind considering Makkah as the navel is very similar to the Ancient Egyptian myth of creation which similarly involves water and the rising of the first mound of creation, in this case represented as a dome. Accordingly, the dome in the Islamic tradition must symbolize creation in the heavens hence referred to as the "dome of heavens". The connection between Makkah and the Ka'ba specifically with the heavens is similarly established by the imaginary vertical line we refer to as the "axis-mundi". Interestingly enough, the Ka'ba in the Islamic tradition relates to the pole star. Gabr quotes Al Kisai that just like the heavens are centered around the pole star (being a fixed star around which the heavens revolve), the Ka'ba which corresponds to the pole star must similarly function as the center of earth.[45]

According to this understanding, the valley surrounded by mountains on which the Ka'ba stands, marks the point of ultimate sacredness, the center of earth, which might even explain the cubical form of the Ka'ba. The Ka'ba nevertheless rising from the valley presents the verticality needed to mark the location of the axis-mundi. Interestingly enough the Ka'ba is adorned with the presence of a black stone attached to the eastern corner believed to have been of meteoric origins. Accordingly, the Islamic model of centrality, verticality and horizontality seems to conform with the typical microcosmic models of the many ancient civilizations and traditions of the world.

The later developed prototype of Islamic architecture; the mosque, is necessarily oriented towards Mecca emphasizing the focal impact of the Ka'ba (fig#), the direction of which is known as the Kiblah. The earliest versions of the Islamic prototype of the Mosque featured the dome typically placed over the foremost prayer rows marking them as the closest to the Ka'ba, or the Mihrab (a prayer niche) marking as well the direction of the Kiblah. According to James Dickie on the symbolism of the dome, the dome which later moved to the center of the mosque was symbolic of the heavens, a symbol present in almost all religious traditions. In Islam the dome represented the vault of heavens.[46]

The Ka'ba on earth is the ultimate center which vertically connects through the axis-mundi to the seven Ka'bas in the seven heavens above. Horizontally the Ka'ba is connected to the earthly sub-centers through horizontal orientation. The concept of the sub-centers is that of other centers of secondary importance following

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[44] Ibn Abbas cited in Gabr, Gabr, A., H., The Influence of Traditional Muslim Beliefs On Medieval Religious Architecture : A Study of the Bahri Mamluk Period, Ph.D. thesis, University of Edinburgh, 1992. P.p 295-296

[45] Al Kisai cited in Gabr, Gabr, A., H., The Influence of Traditional Muslim Beliefs On Medieval Religious Architecture : A Study of the Bahri Mamluk Period, Ph.D. thesis, University of Edinburgh, 1992. P.p 295-296

[46] Dickie, J., ALLAH AND ETERNITY: Mosques, Madrasas, and Tombs, Thames and Hudson, London, 1975. Pp. 42-79

the Ka'ba those are the Prophet's Mosque in Madina, the Mosque of al-Aqsa in Jerusalem which was the Muslims first Qibla and the place of the Prophet's ascent (al Mi'raj).[47] Following these centers in importance are cities of high significance such as Cairo, Baghdad, Mount Sinai and so Forth. The power of the horizontal is so powerful in Islam as appears in the concentric power of the Ka'ba in orienting Mosques around the world towards Makkah in what is referred to as Qibla. Orienting anything towards the Qibla is a step forward to connecting it to horizontally to the center, and since the center is vertically connected to the heavens, then orienting an object towards Qibla is practically connecting it to divinity.[48]

The Dome of the Rock is the first domed mosque in Islamic architecture built in the seventh century BC. According to Burckhardt the Dome of the Rock is a centrally planned building enclosing a rock which according to Islamic tradition is the site of the heavenly ascension of the Prophet Mohammed to the heavens. The central plan crowned by a dome acted as a visual articulation of a spiritual journey marking a location of great sacredness to Muslims directly after the Ka'ba.[49]

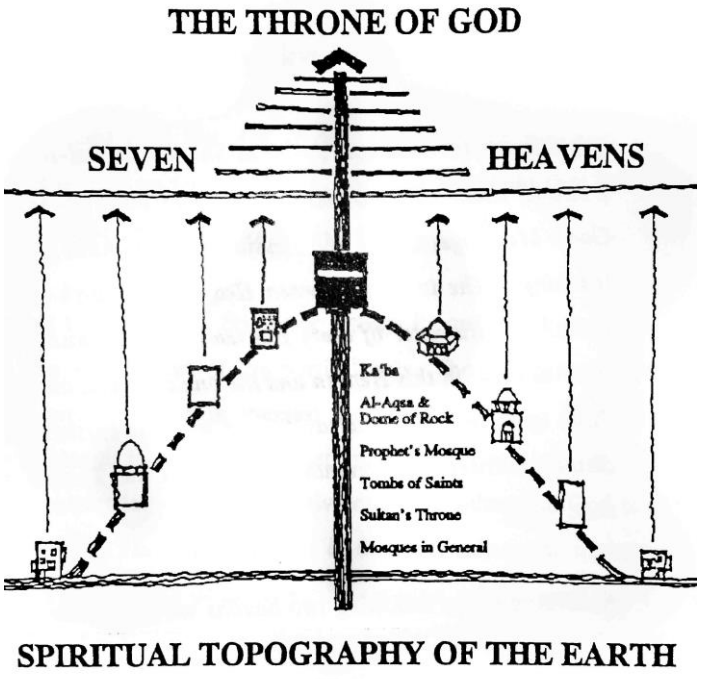

Figure 44 Diagram showing hierarchy of centers in relation to the Ka'ba as the ultimate center and the axis-mundi
(Gabr,1992)

[47] Gabr, A., H., The Influence of Traditional Muslim Beliefs On Medieval Religious Architecture : A Study of the Bahri Mamluk Period, Ph.D. thesis, University of Edinburgh, 1992. p.300.
[48] *Ibid.*, P.p 306-307
[49] Burckhardt, T., Art of Islam: Language and Meaning, World Wisdom, Bloomington, 2009. Pp. 8-9

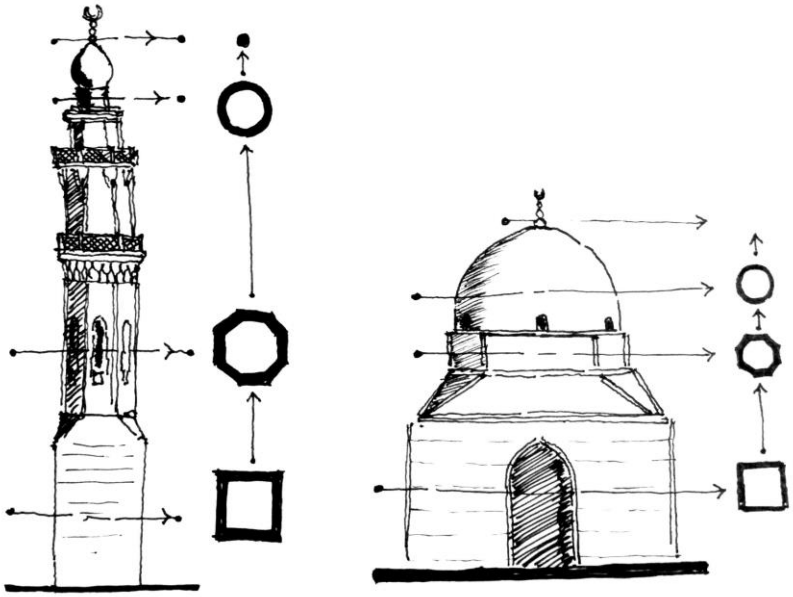

Figure 45 Diagram showing the geometrical progression in the cross-section of vertical elements in Islamic architecture. From the square symbolizing earth to the point symbolizing divinity

4.4 CONCLUDING SUMMARY

The examples addressed in this chapter bring us closer to a clearer understanding of the accompanying concepts to the process of microcosm. Through the many examples shown in the chapter, the concepts of centrality, verticality and horizontality are present in every traditional model yet expressed differently. Although these expressions vary from one civilization to the other with relative weights given to every concept, yet there seems to be a prototype in action in almost every ancient tradition. The prototype necessarily features the sacred center as the navel, the point where creation first occurs, then there is the notion of the cosmic mountain, which contributes to the concept of verticality. The sacred construct marking the navel is usually connected to a heavenly aspect. In the case of ancient Egypt it is the starry Duat, in the Greek model it's the Hyades, in the Christian model it is the Sun, and in the Islamic model it is the pole star. As such, one must derive from such results that either these traditions are connected or influence one another, or that the foundation of ancient cities and there divination, required an inevitable process evident in every ancient civilization.

CHAPTER FIVE: THE GREAT PYRAMID OF GIZA & THE GIZA PLATEAU

5.1 INTRODUCTION

This chapter serves as the case study of this thesis where an investigation of a detailed case study of the Giza Plateau and the famous Pyramid of Cheops known as the Great Pyramid is carried out in an attempt to display an example that features a high level of symbolism of microcosmic significance on the architectural and urban scales. Following a systematic process of selection through elimination, a set of criteria are presented in the beginning of the chapter explaining the reasons for choosing this specific case study. The methodology of analysis for the case study is then discussed in the following section showing the process followed in presenting and analyzing our case study.

The Giza Plateau is analyzed on both the architectural and urban scales to show a conscious process in its design which supports the heaven-earth correlation. The outcome of this analysis is used to show the entire plateau along with its constituting elements as microcosms. Through approaching the Giza Plateau from a traditional cosmological view-point, the architecture and urbanism of Ancient Egypt are shown to be inseparable components in the process of delivering meaning.

5.2 CRITERIA FOR CHOSING THE CASE STUDY

The main aim at this part of the thesis is to present a case study which serves as a prototype for the hypothesis. Accordingly an example which stands far back in the historical timeframe around the beginnings of recorded history is sought, at times considered ancient in comparison to the current "scientific" and "technological" era. From the many possible examples, the era commonly referred to as "Ancient History" is more relevant to our research. This era is preceded by the pre-historical era of which no historical records are available hence the impossibility of studying it scientifically which necessarily requires some form of documentation.

Ancient History is believed to be the aggregate of ancient events from the beginning of recorded history in an era which spans from as early as 3000 BC up till around 200 AD. Many of the examples discussed earlier- if not all- successfully fall within this period, since this study is primarily concerned with structures of the ancient world. This study intends to prove that even at times so historically remote, ancient civilizations have developed a unique understanding of the universe, an understanding so strikingly developed that at times it competes with what we now believe to be revolutionary and unprecedented. This understanding and the consequent knowledge they processed was coded time and time again in their buildings and cities. Universal concepts of microcosm were evidently the base constituent of every human creation since early times.

This research is primarily interested in interpreting meanings in the architecture and urbanism of ancient civilizations as microcosms based on a heaven-earth correlation. Moreover, the research is interested in tracing back the origins of this process to times so remote in ancient history. Accordingly, not only is it necessary to study an example from historical times but the older the example is the more significant it is to this research. At times so remote around 3000 BC, the possibilities of finding remnants of great civilizations

are narrowed down to only a few; Ancient Egypt and Ancient Mesopotamia, both of which are located in the same region of the world, namely the middle-east, which determines the region of focus of this case study. In this region and of both civilizations a plenty of surviving documents concerning with the history of these civilizations and their lives are available, but of their physical constructions, it seems that Ancient Egypt with its countless remaining monuments offers a better case study.

The Ancient Egyptian civilization has allegedly spanned for a period of 3000 years (if not more), in which hundreds of great monuments were built ranging from temples, to tombs to grand religious complexes. Those great architectural and urban projects have thrived in the Old, Middle and New kingdoms with very interesting prototypes to present from each; the Giza Plateau, Abydos, Heliopolis, Thebes and Karnak, only to name a few, yet again, the older the monuments studied are, the more significant they are. Accordingly, one is driven to look into examples such as Abydos, Giza, or Heliopolis. Yet due to the fact that not much remains from Heliopolis, this narrows down the options to Abydos and Giza.

The next criteria considers the level of authenticity of the structures from this remote period: whether or not they managed to maintain their characteristic forms and order, and whether they remained unchanged through time and layers of history managing to repeat the same patterns and concepts. Abydos is one of those very ancient religious centers containing temples and tombs, which have been functional throughout the Old and Middle kingdoms, yet the layers of constructions and reconstructions have managed to leave the original overall picture obscured. Interestingly though, among the remnants of the once vibrant city in Ancient Egypt, Abydos still preserves some of its glorious symbolic structures such as the Temple of Seti I and the temple of Osiris which has been reconstructed several times, and the Osirion. These few remnants, although of high symbolic and historic significance on the architectural scale, they do not offer much for the bigger picture on the urban scale. On the contrary though, the bigger part of the Giza Plateau with its components has managed to remain intact for almost five thousand years on both the architectural and urban scales.

Accordingly, in order to fulfill the scope of this study (which is concerned with both the architecture and the urbanism), an example which is highly expressive on both architectural and urban scales is required which is why the Giza Plateau seems more relevant compared to Abydos. Interestingly, the Giza Plateau is considered one of the most studied parts of Egyptology being the grandest and the most magical, which would suggest that it need not be studied any further. Yet, throughout the extensive studies and theories carried out on the Giza Plateau and the Great Pyramid at Giza, the intensity and number of those studies and theories suggest a lack of understanding rather than a clear understanding of the whole picture. It is exactly this lack of understanding of the overall design process that interests us, which is why the case study presented in this study is in fact the Giza Plateau and the Great Pyramid at Giza. It is worth mentioning that the recent project which has been launched on the 25th of October of this year entitled "Operation Scan Pyramids", is working on thermal scans to the Great Pyramid of Giza and a few more Pyramids in hope of revealing unknown spaces or chambers within these pyramids.[1] This supports the notion that with regards to the Great Pyramid of Giza and the Giza Plateau much is yet to be discovered.

[1] **Operation Scan Pyramids** is a thermal scanning project which began on 25 October to search for new chambers inside four pyramids including Khufu's pyramid commonly referred to as the "Great Pyramid of Giza" and two pyramids in Dahshur.

5.3 METHODOLOGY OF ANALYSIS OF THE CASE STUDY

The typical approach for the Giza case study would be an outside-in approach which usually starts with a general description of the plateau and its constituents all the way to the architecture of the pyramid itself. The order carried out in our case on the other hand, is the exact opposite namely an "inside-out" approach. This means that the obvious and immediate is commenced with: the Great Pyramid at Giza, proceeding from the established facts to the underlying meanings encoded in the geometry and alignments. Next, the same concepts expressed on the architectural scale are tested in the layout of the Great Pyramid and its immediate context. The same approach is used to test the validity of the heaven-earth correlation with regards to the relative location of the Giza Pyramids with other pyramid sites. This approach follows the hypothesis that the whole process of construction was governed by the same concepts and ideas of microcosm which not only seem to be evident on the architectural scale which many might have previously suggested, but all the way to the urban scale suggesting a governing concept on the urban level; microcosm in the city and the sacred structure.

This order in itself serves the process of microcosm in that the building being the object of immediate significance to the human being and the most important aspect within a city, must in turn be coded with the highest levels of meaning and significance, and must be able to summarize in its compactness the underlying concepts governing the entire context. Accordingly the Great Pyramid of Giza could be regarded as the "holy grail" of Ancient Egypt in that it remains to be the least understood aspect of this civilization despite being one of the most studied structures of the ancient world. It is through understanding the semeiotics of this curious structure and its domain that much of the Ancient Egyptian mysteries could be unveiled and much of the lingering questions could be answered.

5.4 THE GEOGRAPHY OF ANCIENT EGYPT

Ancient Egypt, and its great civilization developed in one of the most arid deserts in the world, yet it was only because of the Nile that it would have been possible to establish this civilization. From origins deep in east Africa, the Nile flows northward some 6500 kilometers before reaching Egypt's Nile valley an oases over 1000 kilometers long. For the last 200 kilometers, it fans out into a wide delta before it spills out into the Mediterranean Sea. The geography of the country was influenced by this journey of the Nile; what was to the Egyptians the starting point of this "heavenly river" was the modern day Aswan, where the set of rapids named the First Cataract are located. Due to the geology of Egypt, the Nile would flow from south to north, making the south “Upper Egypt” and the north “Lower Egypt” with a “Middle Egypt” somewhere in between, very possible near modern day Menia.[2] Each of these “imaginary” divisions of the land would take part in the religious mythology of Ancient Egypt.

Once a year, around late June, swollen by the monsoon rains in Ethiopia, the river would flood its banks washing the land to build a new thick layer of rich silt the Egyptians called the "black land". This life-giving force of Ancient Egypt was both a blessing and a curse. With it, Egypt was one of the richest and most fertile regions in the world but without it, Egypt was barren. Even when it would flood, the river was still unpredictable. Too low a flood meant famine, equivalent to death to the ancient Egyptians, too high a flood would destroy their villages and drown their lands. The Egyptians dealt with this

[2] Kemp,B., J. , Ancient Egypt: Anatomy of a Civilization, Phycology Press, United Kingdom, 2006, p.8

uncertainty and chaos through devising the world's first calendar in order to track the cycle of the river, this same calendar would be the model for our modern calendar. The Egyptians based their calendar on three seasons of four months each in response to the three annual phases of the river. The time of the flood was called "inundation", the time of "emergence" was when the waters receded and the crops could be planted. During the "dry period" when the Nile was lowest, the crops were harvested. Working together under the guidance of their Pharaoh, the Egyptians dug wells and built ducts to protect their villages. Furthermore, the Egyptians developed the science of geometry and mathematics to redraw their fields every year, count their harvest and measure the levels of the Nile.

In their natural landscape was a display of both arid and fertile lands with a sudden transition from one to another, an image the Egyptian witnessed daily to play another major role in their understanding of life and death their coexistence. The sudden transition between the green fields and the arid deserts was seen as "abrupt and shocking" to both the ancient Egyptian as it does to the modern day Egyptian.[3] This sudden transition must have led the Ancient Egyptian to deeply contemplate this duality of existence, and must have fed the deeply rooted concept of duality in the Ancient Egyptian mentality, if not actually initiated it. This image was a virtual reminder of the consequences of low water levels which meant the death of their agricultural lands which was equated to the death of the whole country, whereas a perfect flooding meant the rebirth of Egypt as whole.

The source of the Nile to the Egyptians was unknown, and the fixed level of waters during the annual flooding was unpredictable and never guaranteed. In order to escape this uncertainty the Egyptians sook to compare their river's unpredictable cycle with the heaven's eternal cycles, after all, they knew that their terrestrial reality was essentially governed by the same laws which governed the heavenly bodies, the Maat.[4] It was only natural then that the Egyptians would attempt to associate or relate the swelling and overflowing of their own life force (i.e. the Nile) with a cycle of divine phenomenon.

The ancient star gazers/priests paid attention to the dramatic conditions taking place in the cosmos in their attempt to understand the law of the Maat and its possible impact on their land Egypt: the image of the heavens.[5] And there it was, around the same time of the flooding of the Nile every year; an important cosmic event took place, the heliacal rising of the star Sirius. The heliacal rising of Sirius would be used to calculate the ancient Egyptian calendar.[6] This realization would deeply impact the heaven-earth correlation found in the ancient Egyptian Mythology, or the Celestial/Terrestrial correlation which we express using the term Microcosm. This heaven-earth correlation was the origins of their belief in the concept of "As Above, so below", Egypt was to be conceived as the Image of the Heavens ruled by the same divine laws which ruled the heavens.[7]

In light of this understanding, one must realize that the Ancient Egyptian mind-set was necessarily wired to believe in some form of heavenly or "divine" connection even in their earthly matters.[8] This concept of divinity was inextricably linked to that of the

[3] Kemp,*op. cit.*, p.8
[4] Bauval, R., The Egypt Code, Arrow Books, United Kingdom, 2007, p.107
[5] Gadalla, M., Egyptian Cosmology : The Absolute Harmony, Bastet Publishing, 1997, United States of America, 1997. p.100
[6] Wilkinson, R., H., The Complete Gods and Goddesses of Ancient Egypt, The American University in Cairo Press, Cairo, 2005. Pp. 90,167
[7] Bauval, 2007, *op. cit.*, p.107
[8] Sayce, A. , H., The Religions of Ancient Egypt and Babylonia, Edinburgh T. & Clark, Edinburgh, 1902. Pp. 46-47

heavens, as they believed that the afterworld was no imaginary realm but one they saw but could only reach after death. The stars in the heavens were the gods ruling the afterworld, dwelling in their eternal cycles; they were the future houses of the deceased in the afterworld as their *Akh*[9]. Hence to say that their land was linked to the heavens meant necessarily that the geography of Ancient Egypt had its corresponding counterparts in the heavens.

To sum up, the Ancient Egyptian way of thinking was very simple and rational, and to them there was no difference between the concepts of the sacred and the mundane.[10] The term religion in our modern sense did not exist, everything was connected in the main premise that "one is all, and all is one." [11] All was governed by the *Maat*[12] by extension to this concept; one can suppose that man-made creations must comply with this same law. In other words, if the whole geography was divine in that it corresponded to a heavenly counterpart, one can only suppose that the major sacred constructions on this geography must necessarily represent something of a heavenly nature.[13] It is very important to keep this understanding clear in one's mind before proceeding with any further analysis on any of the constructions bound within the borders of Ancient Egypt. According to Moustafa Gadallah, a leading scholar of alternative Ancient Egyptian Cosmology, it is necessary to interpret ancient Egyptian modes of expression such as art and architecture from their own understanding and perspective and not from the modern western perspective.[14]

It was the Egyptian's unique vision of the cosmos shaped by their environment that sustained the world's most enduring civilization. At the center of it all was the Pharaoh; he stood for the personification of a "terrestrial" god or in other words a representation of the heavenly God on earth. The Pharaoh fought all the terrestrial battles in order to maintain the order of the *Maat*. Building temples, digging tunnels, constructing dams, supervising the harvesting of the lands, fighting wars of chaos with intruders, were all carried out by the Pharaoh to maintain the order of the *Maat*. Yet there still remained one major battle of chaos he could not escape: although the Pharaoh was the terrestrial god "Horus", the son of "Osiris" the heavenly god, he still was a man, hence he would eventually die. The concept of death to the Ancient Egyptian was equivalent to chaos. The death of the Pharaoh would be equated with the greatest chaos of all; calamity would strike when the maintainer of *Maat* died. In order to avoid this calamity, the Pharaoh sought to ensure himself an eternal life, and in order to do so, the body of the Pharaoh had to be preserved for the next life- this was the Pharaohs final battle. The ancient Egyptian Pharaohs of the Old Kingdom ordered the rolling of large stones to the edge of the dessert where fascinating monuments arose as a testimony of their kings' ultimate triumph; eternal life. Slowly and steadily the Pharaohs of the Old Kingdom constructed a series of fascinating mega-structures towering over the edge of the western desert of which the greatest and most awe inspiring was the Great Pyramids at Giza.

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[9] ***Akh*:** After the Ancient Egyptian died, he believed that if his Ka and the Ba manage to successfully reunite in his body, the Akh ignites in the heavens as a star. The Akh as such can be regarded as a star born in the heavens as the spirit of the deceased.

[10] Gadalla, *op. cit.*, p.99

[11] *Ibid.*, p.9

[12] ***Maat*** or **Ma-at**: the netert (goddess) that represents the principle of cosmic order: the source without which the other neteroo (gods) are functionless. She signifies harmony, balance and equilibrium between all the different cosmic forces (neteroo).

[13] Gadalla, *op. cit.*, p.101

[14] *Ibid.*, p.9

Figure 46 The sudden transition between life and death seen in the narrow fertile agricultural land engulfed by the vast desert landscape

5.5 THE GREAT PYRAMID AT GIZA

Towering the west banks of the Nile River from Cairo to Aswan, 650 miles south along the Nile valley, scores of pyramids docked the landscape. Most of these structures were created as the resting places of their pharaohs, be they kings or queens. The pyramidal form was once inextricably linked to the search for immortality. In Ancient Egypt the concept of the pyramid had its origins at the dawn of creation; the pyramid was the symbol of the *Benben*[15]. As the ancient Egyptian myth of creation goes, in the beginning there was darkness and primordial waters of chaos, out of which the primordial mound or the *Benben* arose- upon which appeared *Ra*; the embodiment of all life and energy and the personification of the primeval creative force.[16] *Ra* crossed the skies and at sunset he dove back into the waters of the abyss to be reborn again next morning.[17] In this myth, the mound of creation is referred to as the *Benben*, of which every pyramidal form is essentially symbolic. The Ancient Egyptian hoped that by uniting his spirit with the god *Ra*, they would be swept into the sun's eternal cycle, and the primordial mound would hence be the vessel for their resurrection. Accordingly, the ancient Egyptian burial structures adopted some form of symbolism to the *Benben* in their forms. Yet the pyramidal form per-se was never exclusive to tombs, they were symbols of resurrection, life after death and recreation.

Amongst the many constructed symbols of the *Benben* from mastabas, stepped pyramids, and obelisks, the greatest and finest were built in a single century at the close of

[15] ***Benben***: is the primordial mound of creation in Ancient Egyptian mythology. It is also the name of a sacred stone in the temple of *Ra* in Heliopolis upon which the first rays of sun fell. The *Benben* is also associated with the *Bennu* bird (phoenix) which is believed to have lived on the *Benben* when creation first occurred

[16] Gadalla, *op. cit.*, Pp.64,77

[17] Thomas, A., P., Egyptian Gods and Myths, Shire Publications, United Kingdom, 1986. p.35

the prehistoric era. The first was the stepped pyramid of Djoser at Sakkara, yet the first true pyramids were the work of a single family headed by Senefru the father of Khufu and the grandfather of Khephre. Khephre and Mykerinos' Pyramids would be the last monumental true pyramids that Egypt built, where the technological progress of the pyramid's construction only lasted a century not long after it, Egypt underwent serious climate changes and the country suffered drought, civil wars and invasions. The secrets of the pyramids were lost not so long after their construction with nothing left of this age but the pyramids themselves as a testimony to their technological and scientific advancement. The greatest of them all is the Great Pyramid at Giza the focus of our case study on the architectural level.

Mainstream Egyptology promotes the theory that the concept of the pyramid as a construct began with the Step Pyramid at Saqqara: the first built tomb ever constructed of stone, dedicated to the Third Dynasty pharaoh Djoser of the Old Kingdom, by his genius architect Imhotep. In its stepped form the Saqqara pyramid was to symbolically represent the *Benben*. Saqqara was regarded as a leap in tomb construction which traditionally took the form of pits covered with mounds of sand and gravel called mastabas.[18] Yet more importantly, mainstream Egyptology stresses the fact that Djoser's pyramid was followed by a number of successive trials to achieve the perfect "true pyramid" which was mastered in the Pyramids at Giza of the Fourth Dynasty with emphasis on the biggest one of the three Great Pyramids, the pyramid of Khufu. This learning curve makes perfect sense, pyramid construction developed through a process of trial and error, yet this fact becomes somehow puzzling when one notices the Pyramid of Unas of the Fifth Dynasty, long after the Great Pyramids were allegedly constructed. The Pyramid of Unas is virtually in ruins after it collapsed soon after its construction, to reveal its poor core constructed of rubble unlike the Great Pyramids of Giza with a core of limestone, proving that the "progressing learning curve" theory is not sound. Evidence shows that all the pyramids believed to have been completed after the Great Pyramids of Giza were significantly inferior in size, scale and technology.[19]

Accordingly, the Great Pyramid at Giza presents itself as an example superior to all other pyramid constructions not only in its technical excellence but also in positioning, orientation, and its captivating geometry and mysterious interior. This will be investigated in the following sections showing the different levels of microcosmic significance in its location, orientation, form, geometry and interior.

5.5.1 Location

The location of the great Pyramid is the ultimate expression of the all-time center. According to Lemesurier, the chosen site for the positioning of the Great Pyramid lies at the "exact center" of the geometrical quadrant formed by the Nile.[20] Creighton and Osborn explain this interesting fact saying that if one places the center of an arc where the Great Pyramid is located, this arc would define the area of the Nile delta marking out its exact perimeter. This means that the Great Pyramid is located at the apex of the Nile delta.[21]

Lemesurier in his book "The Great Pyramid Decoded" suggests that not only does the Great Pyramid have a geocentric location within the Nile Delta, but surprisingly

[18] Creighton, S., Osborn, G., The Giza Prophecy, Bear & Company, United States of America, 2012. p.40
[19] Creighton, Osborn, *op. cit.,* Pp. 41-42
[20] Lemesurier, P., The Great Pyramid Decoded, Element Books, Great Britain, 1977. P.8
[21] Creighton, Osborn, op. *cit.,* p.175

enough it falls in the Geographical center of the whole earthly mass. [22] On this same matter, Creighton and Osborn quote Charles Piazzi Smyth, nineteenth century pyramidologist and royal astronomer of Scotland who said that the Great Pyramid is positioned centrally in the landmass of Earth like a "jewel in a crown".[23] This was concluded by leading Egyptologists and historians such as William Flinders Petrie who closely studied the Great Pyramid to conclude that it is in fact located at the center of the Earth's landmass. Petrie makes an interesting comment with regards to this matter saying that although the central position of the Great Pyramid seems obvious without precise measurements, yet if one becomes too precise in this specific aspect to whether or not it is in fact the exact center of land, one would be missing the point and the bigger picture.[24] What bigger picture was Petrie referring to? Interestingly, Petrie decided to keep his perspective on this matter very obscure and vague through expressing it as a mere observation without certain intentions.[25]

Although these facts are highly controversial in terms of proving the original intent of its builders, nevertheless, it is what it is. Those two aspects regarding the positioning of the Great Pyramid are of important symbolic significance. We now know from the previous chapter, civilizations of the Ancient History, incorporated symbols of centrality with regards to their sacred structures through various methods. Every sacred center is necessarily regarded as the center, and every ancient civilization, backed up their cities and sacred structures with myths regarding their land being the center of the world. In this specific case, the center was marked geographically by selecting a true center of landmass and the apex of the Nile delta quadrant. Many though would argue that the Ancient Egyptians could have never possibly known of the notion of this specific location being the geometric and geographic centers of both the Delta and the whole land mass, yet we do know that the bedrock over which the Great Pyramid stands was worshiped by the Egyptians as the Primordial mound (the center of creation) which very possibly could have influence the selection of this specific location and the form which marks it; the pyramid was regarded as the symbol of the primordial mound[26] (This will be discussed later on in this chapter).

[22] *Ibid.*
[23] Creighton, Osborn, *op. cit.,* p.177
[24] *Ibid.*
[25] *Ibid.,* p.178
[26] *Ibid.,* p.181

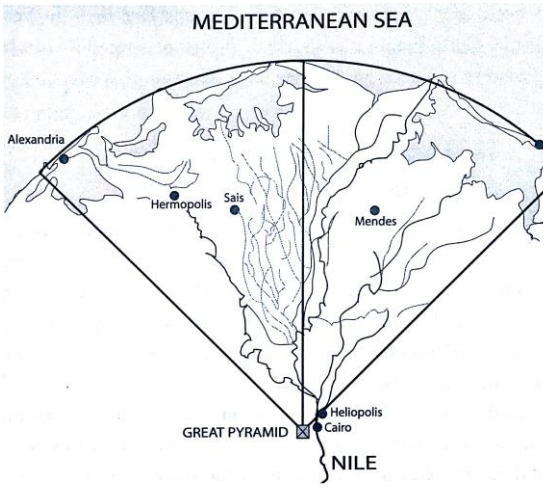

Figure 48 Diagram showing the location of the Great Pyramid at the apex of the Nile delta showing a quadrant of 90°
(Creighton and Osborn, 2012)

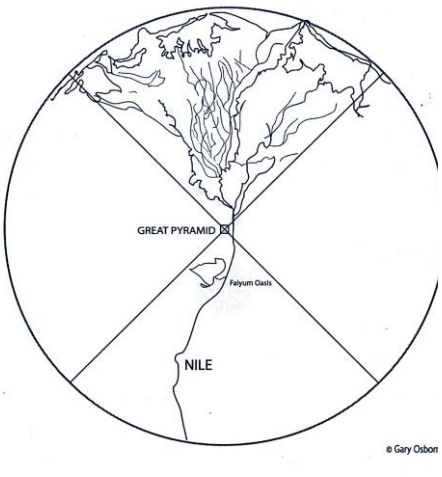

Figure 47 Diagram showing the Great Pyramid at the center of the Nile quadrant
(Creighton and Osborn, 2012)

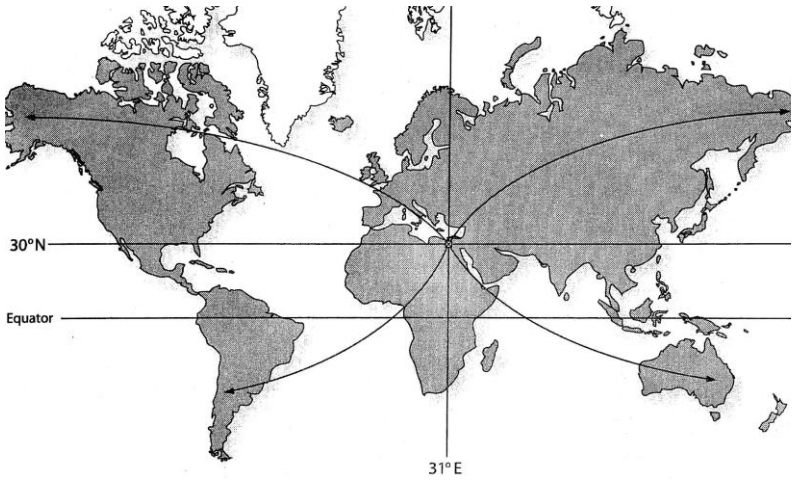

Figure 49 Map showing the Great Pyramid located at the center of the Earth's masses with reference to the four cardinal directions
(Creighton and Osborn, 2012)

5.5.2 Orientation

Studies carried out on the Great Pyramid; reveal many aspects of its technical and structural excellence of which its orientation is nothing less than striking. Studies revealed the accuracy of the pyramid's orientation towards the true cardinal orientations where the sides of the Great Pyramid of Giza are almost exactly lined up with the cardinal points of the compass with a variation of less than 0.06 per cent. [27]

Bauval and Gilbert in their "Orion Mystery" comment on the accuracy of orientation of the Great Pyramid saying that this level of accuracy in orienting the

[27] Bauval, R., Gilbert, A., The Orion Mystery, Mandarin Paperbacks, London, 1995. p.39

pyramid's base and sloping sides is "miraculous" when one considers the size of the structure. [28]Although the orientation of the Great Pyramid as many agree is nothing short of miraculous, we still find researchers arguing that claiming the error in the orientation of the pyramid towards the true north, an error of nearly five minutes of arc, of one twelfth of a degree. This error in a structure of such scale, built in times considered almost pre-dynastic, with no compass or sufficient tools – is not of actual value. Such scholars include Egyptologist and Historian Alexander Badawy who seems to deny this apparently deliberate orientation its true functional or even symbolic values and meaning.[29] According to Lemesurier, an argument as such, which denies the Great Pyramid of its cardinal orientation is one that ignores the fact that the cause of this error is rooted in the astronomical evidence which shows the inevitable gradual movement of the earth's own axis.[30]

5.5.3 Form and Dimensions

One of the very astonishing facts regarding the construction of the Great Pyramid at Giza is its rather platonic geometry. The Great Pyramid has an almost perfectly precise square base plan with an area of 53,000 square meters, with four equal triangular sides sloping to one geometrically central point at an altitude of around 135 meters measured from the base and a total mass of 6.3 million tons.[31] The measurements of the four sides aligned to the cardinal directions in meters are as follows: North side 230.253 m, Eastern side 230.391 m, South side 230.454 m, West side 230.357 m.[32]

The very form of the pyramid as shown in the previous chapter is symbolic of the primordial mound of creation or the *Benben*. The concept of the primordial mound inspires concepts of centrality and verticality in the sense that the pyramid or the mound is the point of ultimate altitude within its immediate context which first arises from the waters of chaos to announce the possibility of life. The Great Pyramid's almost perfect square base aligned to the cardinal directions is a crude expression of horizontality or earth. Accordingly, the Pyramid in its platonic form and mythological background is an abstract expression of centrality, verticality and horizontality. The Great Pyramid standing at the edge of the vast desert landscape overlooking the narrow strip of agriculture of the Nile valley, narrated the story of creation through the symbolism of its form. In doing so, it would hopefully have aided with the revival of the Egyptian lands by the perfect annual floods bringing life after death.

Lemuserier in his book on the Great Pyramid of Giza asserts that the geometry of the Great Pyramid shows *"clear mathematical links between the Pyramid's dimensions and the earth's basic geophysical data and orbital astronomy."*[33] Such facts carved in stone which occur on and on in the geometrical aspects of the pyramid which are commonly regarded as mere 'coincidence', when repeated so many times, seize to be fortuitous and become a matter of fact that the ancient builders incorporated their mathematical, geometrical and astronomical excellence in what was to become the greatest construction in human history rivaled by none for millennia up to this day.

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[28] *Ibid.,* p.40
[29] Badawy,A., A History of Egyptian Architecture, URWAND FILS, Cairo, 1954. p.135
[30] Lemesurier, P., The Great Pyramid Decoded, Element Books, Great Britain, 1977. P.3
[31] Bauval, Gilbert, 1995, *op. cit*., p.39
[32] Badawy, *op. cit.,* p.135
[33] Lemesurier, P., The Great Pyramid Decoded, Element Books, Great Britain, 1977. p.8

Creighton and Osborn believe that although mainstream Egyptologists and historians consider the mathematical, astronomical and cosmological formulas encoded in the geometry of the Great Pyramid as fortuitous or simply coincidental, does not deny the fact that they are there, encoded in stone. This data becomes relevant when the pyramid is looked at as a cosmic symbol, the microcosm of the world. Creighton and Osborn support the many studies that show that the shape and size of Earth can be calculated from the overall dimensions of the Great Pyramid. Not only that, but those studies can derive from the geometry of the pyramid the mean distance between Earth and the moon, and Earth and the sun. Creighton and Osborn go on saying that the Great Pyramid could be viewed as the scale model of the Northern Hemisphere, also that the height of the pyramid is related to the Polar Radius of the Earth.[34] Lemesurier asserts that this sequence of measurements which might be considered just pure coincidences, are in fact meaningful and reveal: "an extraordinarily advanced level of knowledge in its designer- a level rivaled only by the technology of its builders."[35]

Lemesurier presents a sequence of geometrical and mathematical facts concerning the construction and structure of the Great Pyramid. Our modern day measuring units; inches, feet, centimeters or meters – were not used by the ancients in the design of their buildings. A structure many scholars suggest was designed in accordance with the earth's geophysical data and orbital astronomy must have had its basic units of measurements corresponded to a fraction or a value deduced from these measurements. Lemesurier asserts that the basic unit of measurement was an exact 'ten-millionth of the earth's mean polar radius[36]. This measuring unit will be referred to as P for the reader's convenience. If the measurements of the pyramid's base sides are to be expressed in terms of this value Lemesurier suggests, we are presented with the following values: one of the sides of the square base plan measures 365.242 P", a figure identical to the number of days in the solar year, and due to the slightly indented sides of the square plan of the pyramid, a variation in the sides' measurements provides us with further figures of 365.256 P" and 365.259 P", figures which coincide with the number of days in the sidereal and anomalistic year. Lemesurier presents more measurements present in the Pyramid's Geometry showing the mean distance of the earth from the sun, and the earth's complete precessional cycle which takes around 26,000 years which was known by the Ancient Egyptians as the Great Year and was associated with the return of the Phoenix and the Zep-Tepi (probably referring to a former Golden Age in prehistory).[37]

This symbolism in numbers and geometry we see in the Great Pyramid in reference to the Great year, the dimensions of the earth and the mean distance between the earth and the sun, and the awareness of the ancient Egyptians of the effect of the cycle of stars, was no exception for the Great Pyramid, as it was further practiced in the orientation of temples towards certain stars, where we notice an apparent deviation in the temples' axis corresponding to the new positions of the stars.

According to a number of researches carried out on the precise measurements of the Great Pyramid of Giza, Lemesurier asserts that the measuring units used by the Ancient Egyptians in the design of the Pyramid that of their larger religious monuments were all direct functions of each other in terms of the Egyptian year-circle, these are the Royal

[34] Creighton, S., Osborn, G., The Giza Prophecy, Bear & Company, United States of America, 2012. P.p.173,174
[35] Lemesurier, *op. cit.,*. p.11
[36] *Ibid.*, p.8
[37] *Ibid.*

Cubit (RC), Sacred Cubit (SC) and the Primitive Inch (P"). Lemesurier further asserts that all four are derived from the Earth's dimensions and from its orbital and rotational frequency.[38]

We can deduct from the set of facts regarding the mathematical and geometrical connections to the geophysical data and orbital astronomy of the earth that the ancient Egyptians practiced some sort of mathematical and geometrical symbolism in the Great Pyramid of Giza to serve the concepts of microcosm. The Great Pyramid was a perfectly scaled model of planet Earth in relation to the universe. [39] The Pyramid's dimensions in symbolizing the relationship between Earth and the cosmos, incorporates geometrical and mathematical laws inspired from the heavens, abiding to the cosmic order or the *Maat*. It also serves as an analogy of the ancient myth of creation showing pyramid in the arid desert landscape as the first mound of creation arising from the waters of chaos.[40]

In light of the theorized process of microcosm, the Pyramid as such is the terrestrial model of the celestial archetype, the center of the microcosm presenting itself as the perfect center not only geographically but mathematically, geometrically and symbolically. Being the center and symbolizing the mound, it also serves as a symbol of the *axis-mundi* in its verticality. Through incorporating the heavenly laws (the laws of the Ma-at) in their architecture they would put the initial forces of creation into action once again. As the ancients believed, creation was a process of order evolving from chaos, the vast desert landscape was the chaos, and the pyramid modeled after the celestial archetype triggers the initial act of creation to bring order once again, in other words allow for creation to take place. Creation happening in the Necropolis where the sun set or died every day was to them an act of allowing for the rebirth.[41]

5.5.4 The Anatomy of the Pyramid

An extension to the many curious features regarding the Great Pyramid is its unusual interior which includes not one, or two, but allegedly three "burial chambers", these three chambers commonly referred to as "burial chambers" owing to the fact that the pyramid is regarded by mainstream Egyptology as a structure that served exclusively as a royal tomb. Although no actual remains of the alleged Khufu or his "queen" has been uncovered along with a few other facts that make the pyramid as a tomb theory somehow troublesome, the pyramid's interior spaces will be referred to by their common names for the reader's convenience: (1) the Subterranean Chamber which lies deep in the bedrock at almost 100 feet below the base of the pyramid; (2) the Queen's Chamber which lies inside the pyramid itself some 70 feet above ground level; and (3) the King's Chamber also inside the body of the pyramid some 140 feet above the ground.[42]

According to the common theory regarding these chambers, it was believed that the lowest chamber or the "Subterranean Chamber" was initially the intended king's burial chamber, yet sometime during the early stages of the pyramid's construction, this chamber was abandoned to be replaced by the chamber above: "The Queen's Chamber". Yet once again, this too was abandoned to be replaced by the higher "Grand Gallery" leading to the

[38] Lemesurier, *op. cit.,*. P.303
[39] *Ibid.,* p.8
[40] *Ibid.*
[41] Eliade, M., Cosmos and History: The Myth of Eternal Return, Harper and Brothers, New York, 1959. p10
[42] Creighton, Osborn, 2012, *op. cit.*, p.66

“King’s Chamber” which contains what is referred to as the king’s sarcophagus.[43] The theory is that those chambers were built and developed as the pyramid rose in height, in case the king died during the beginning of the construction, the Subterranean Chamber would serve him a resting place, as the king lived on, the Queen's chamber was prepared in case he dies in the process. Having managed to outlive the pyramid construction, Khufu's corpse was finally to rest in the King's Chamber as originally intended. Alexander Badawy and most of the "abandonment theory" enthusiasts were strongly supporting their theory based on the fact that the Queen's Chamber star/air shafts were incomplete shafts which stop only a few meters above the chamber's ceiling level[44], yet now we know for a fact that the Queen's chamber shafts extend all the way to the surface of the pyramid.

Generally speaking, the abandonment theory sounds convincing to the point where it fails to explain the differences in the finishing materials of the King's Chamber and the other two chambers which will be discussed in the following sections. Another fact which debunks the abandonment theory is that the "air-shafts" or "star-shafts" protruding from the walls of the Queen's chamber to the surface of the pyramid, in fact rose to the level of the King's chamber. This suggests that they were constructed in parallel with the construction of the King's chamber.[45] This matter has been extensively dealt with in Bauval's "Orion Theory" and "Egypt Code" and in Creighton and Osborn's "Giza Prophecy", among many other scholarly sources. Lemesurier believes that the abandonment theory or what he calls the "trial theory "could well be debunked given the fact that ancient excavations some 100 yards east of the Great Pyramid show what he calls "trial passages" cut out of solid rock which were apparently made before the pyramid's construction.[46] According to Fazio, Moffett and Wodehouse, the chambers once believed to represent changes in plan during the construction process, are now believed to be "deliberate accommodations".[47] Accordingly, if they are deliberate, then they must have served different functions other than being mere trials of burial chambers. For the sake of the reader's convenience, these three chambers will be referred to using their common names turning a blind eye to the actual functions of these chambers. The interior of the pyramid will be analyzed to show microcosm through connecting the interior of the pyramid with the heavens.

[43] Bauval, Gilbert, 1995, *op. cit.,* p.41
[44] Badawy, *op. cit.,* p.137
[45] Creighton, Osborn, *op. cit.,* p.67
[46] Lemesurier, *op. cit.,* p.175
[47] Fazio, M., et al, A World History of Architecture, Second Edition, Laurence King Publishing, London, 2008. P.25

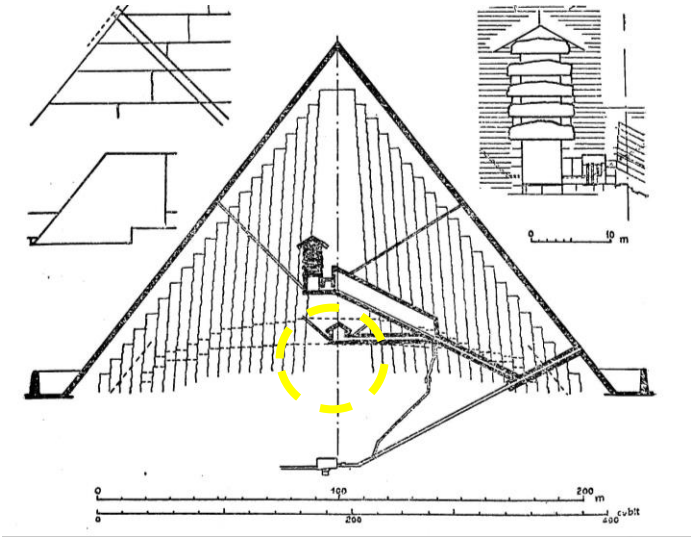

Figure 50 Cross section in Pyramid according to Borchardt – Shafts from Queen's chamber incomplete – unexplored at his time
(After Badawy, 1954)

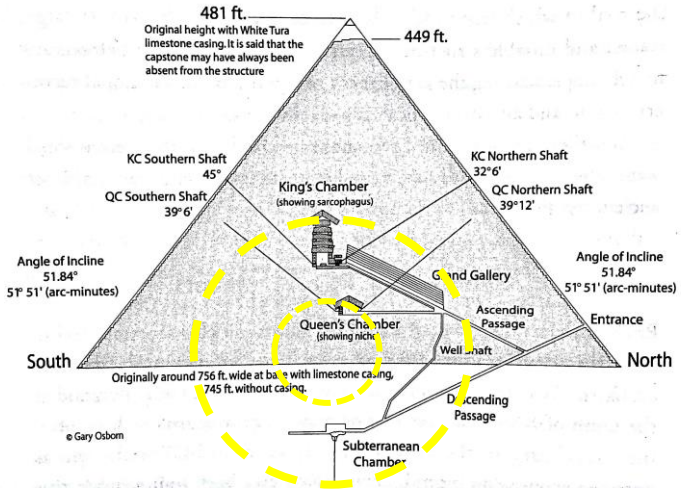

Figure 51 Cross section in Pyramid according to latest discoveries showing the Queen's Chamber shafts to extend higher than previously anticipated to reach the King's chamber's height
(After Creighton and Osborn, 2012)

The present entrance to the interior of the Great Pyramid is in fact only a hole dug by the Umayyad Khalif Al Ma'mun and his men which lies below the original entrance in the North face. The original entrance has a double triangular arch of stone beams sloping to lean against one another. The Subterranean Chamber is reached through a sloping corridor "The Descending Passage" most of which is cut in the rock. Before the "Descending Passage" reaches the bedrock, the "Ascending passage" branches out to slope upwards leading to the Grand Gallery. At the intersection between the Ascending Passage and the Grand Gallery, a horizontal corridor branches out, leading straight to the Queen's Chamber. Along the same extension of the Ascending Passage, The Grand Gallery extends leading upwards to the King's chamber.[48]

[48] Badawy, *op. cit.*, Pp.136,137

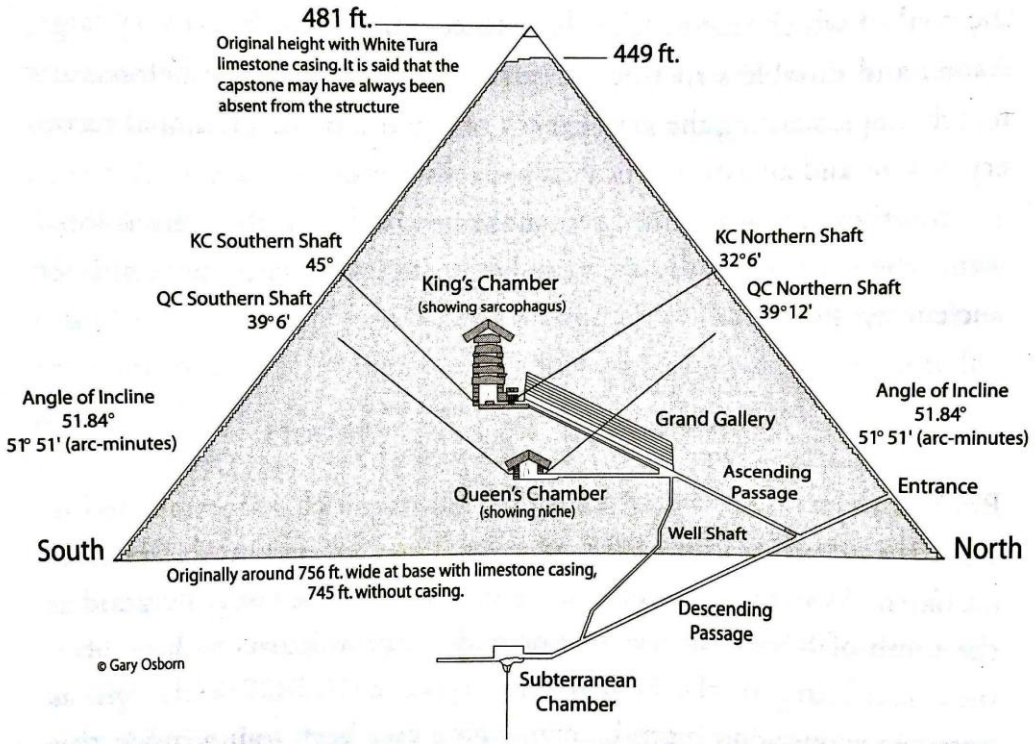

Figure 52 A North-South cross section inside the pyramid looking west showing the main components within the cavities of the Great Pyramid at Giza
(after Gilbert and Osborn, 2007)

5.5.4.1 Queen's chamber

The Queen's Chamber falls below the King's Chamber which is the highest chamber inside the great pyramid. The dimensions of the chamber are 5.74m from east to west and 5.23 from north to south with a ceiling 6.22m high. On the east wall is a niche looking like a "Mihrab". The walls of the chamber are made from limestone blocks with two shafts radiating behind two opposite walls (north and south walls) of the chamber leading all the way to the outer layers of the pyramid, one of which is directed to the south and the other to the north, yet they do not run to the outside of the pyramid as suggested in the case of the King's chamber.

It was previously believed that the shafts were abandoned when the courses of stone above the Queen's chamber continued as there seemed no need for them. This was a result of the common belief at the time, that those shafts were "air-shafts". Expeditions carried out by the Gantenbrink project in 1993, the Pyramid Rover in 2002, and the Djedi Robot in 2011 proved that the shafts were in fact extending to a level beyond that of the King's Chamber, yet they did not reach the surface of the Pyramid, hence by no means were they "air-shafts", and moreover, in their extension beyond the level of the King's Chamber, they debunk the abandonment theory. [49]

This leaves us with the question, what was the Queen's Chamber used for, and what the function of those shafts? Of the many curious aspects regarding the Queen's Chamber is

[49] Bauval, Gilbert, 1995, *op. cit.*, p.43

the corbelled niche on the eastern wall. One theory suggests that Queen's chamber could have housed an "over-life-sized statue of Khufu and served as his spirit chamber, or serdab."[50] A serdab was a room dedicated for the king's Ka statue. Although in the case of Zoser's Pyramid at Saqqara, the Serdab was located outside the pyramid, in this case it is for some reason believed to have been placed within the Pyramid. According to Sir Flinders Petrie who first suggested this theory, the corbeled niche on the eastern wall would house the statue of Khufu. Interestingly though, there is no real evidence to support this theory. With regards to the shape of the niche, Rigano suggests that it was due to structural reasons for weight relieving.[51] Nevertheless the function of the niche remains a mystery until this time.

The most intriguing aspect of the Queen's chamber is the set of two shafts existent on both the northern and southern walls. Those shafts earlier anticipated being "ventilation shafts" or "air-shafts" are now commonly accepted by main-stream Egyptologists as "star shafts" aimed at the circumpolar stars for the northern shaft and the star Sirius for the southern shaft. This change in understanding was due to the fact that the shafts do not penetrate the outer casing of the pyramid which proves that they could not have been air-shafts intended for ventilation. The same shafts as well are now used as structural evidence to refute the abandonment theory.[52]

The significance of the southern shaft lies in the specific star it points at; Sirius (the Egyptian Sopdet and the Greek Sothis). Sirius was considered one of the most important star/ goddess whose husband was Sah (god of Orion). The importance of this star lay in the association of its annual appearance with the inundation of the Nile which marked the beginning of the Egyptian year. Sirius was depicted often as Isis wife of Osiris and mother of Horus (the morning star).[53] The rising of Sirius was similarly associated with the constellation of Orion as it rose right before Sirius making them a pair or a couple.[54] The association of this shaft with Sirius implies some connection of the queen's chamber with the stars in the heavens. Same implications go for the northern shaft pointing at Kochab, one of the circumpolar stars considered by the Egyptians to be one of the "imperishable stars".

Accordingly, the symbolism here is that of regeneration, eternity, continuity and rebirth, connecting the Queen's Chamber with the heavenly bodies. These notions are similarly confirmed by the names denoted to this chamber from the Book of the Dead , those are: The Chamber of Regeneration- The Chamber of Rebirth – The Chamber of the Moon. The latest discoveries regarding the Queen's Chamber's shafts reveal that both shafts contain doorways with "bronze alloy" handles[55] which upon drilling through one of those doors, a small chamber was found revealing yet another sealed door behind it.

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[50] Fazio, M., et al, A World History of Architecture, Second Edition, Laurence King Publishing, London, 2008. p.25

[51] Rigano, C., Pyramids of the Giza Plateau, AuthorHouse, Bloomington, 2014. p.48

[52] Bauval, Gilbert, 1995, *op. cit.,* p.43

[53] Wilkinson, R., H., The Complete Gods and Goddesses of Ancient Egypt, The American University in Cairo Press, Cairo, 2003. p.167

[54] Bauval, Gilbert, 1995, *op. cit.,* p.92

[55] Doorways were made of slabs of polished stones which according to Shaun Whitehead, of Scoutek Uk, means that they were not put their to prevent debris from getting into the shaft, but must have had an important function. Copper pins according to him were ornamental given their fine loop shaped forms. Source: http://edition.cnn.com/2011/WORLD/africa/05/28/pyramid.markings/index.html visited: 1/11/2015 1:51 pm

Interestingly, in an interview conducted with Zahi Hawwas[56], he stated that he believes that Kufu's burial chamber is yet to be discovered and that even the alleged burial chamber of king Khufu: the King's Chamber is not the actual burial chamber for the king. Hawass believes that this chamber with the sealed door could be hiding behind it the actual burial chamber of king Khufu. Hawass's theory is that the three known chambers are nothing but trickery chambers to deceive thieves and tomb raiders.[57]

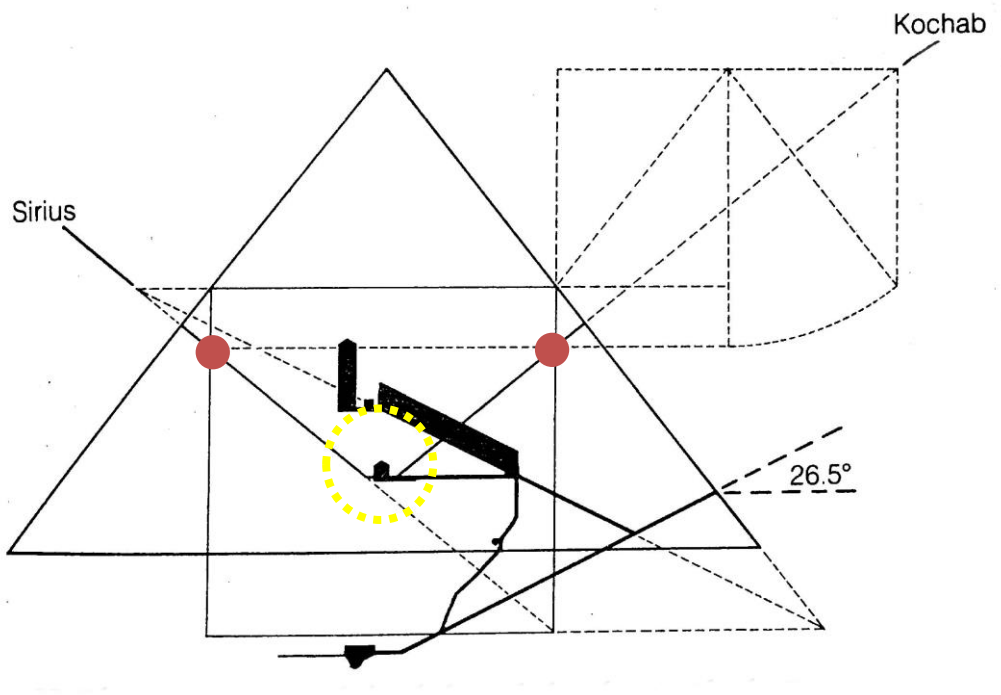

Figure 53 Diagram showing the star-shafts of the Queen's Chamber extending to their corresponding stars as they stood 2500BC. Notice the Queen's chamber shafts do not extend to the surface of the pyramid. They are blocked by stone slabs within the pyramid itself. The Southern shaft points to the star Sirius while the Northern shaft points towards the star Kochab of the Pole stars.
(After Bauval & Gilbert, 1998)

[56] Zahi Hawwas: Head of the Supreme Council of Antiquities for nearly 10 years and became Egypt's first-ever antiquities minister near the end of Mubarak's regime to be tossed out of his position during Egypt's uprising in 2011.
[57] http://www.livescience.com/37229-great-pyramid-zahi-hawass.html visited:1/11/2015 1:39 pm

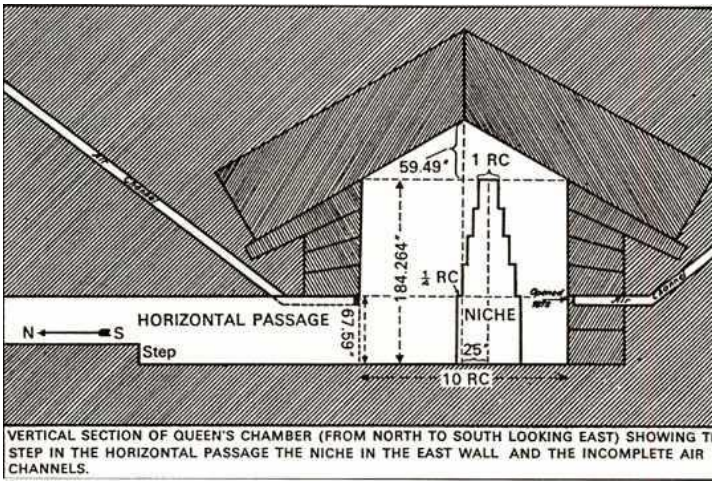

Figure 54 Diagram showing a vertical cross section in the Queens Chamber looking east showing the gabled roof, and the corbeled niche on the eastern wall – note the niche is not centered which somehow deny it the function of a statue holder since it should have been placed in the center

(Lemesurier, 1977)

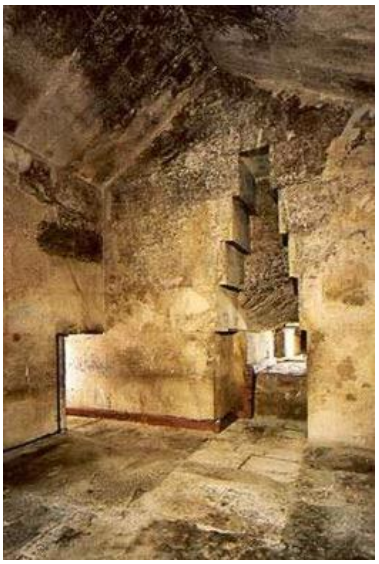

Figure 55 Entrance to the Queen's Chamber (right) and the corbelled niche in the eastern façade (http://www.touregypt.net/images/touregypt/greatpyramid3-19.jpg - visited: 31/10/2015)

5.5.4.2 The Grand Gallery

The Grand Gallery is a telescopic ascending space in cross-section with corbelled sides and a flat roof forming a longitudinal ascending corridor of 46.71m long and 8.53m high which continues the ascension of the previous narrow corridor with the same angle of around 26 degrees.[58] Inside the Gallery, an optical illusion is created as a result of the narrowing walls coming closer to one another in seven courses of limestone, making the space seem of great altitude. It is worth noting that the number seven which had a strong symbolism in many ancient civilizations including that of Ancient Egypt- can be clearly seen in the seven courses of the ascending gallery leading to the kings chamber, which according to Bauval, must have symbolized the seven planetary spheres in heaven witnessed in most of Ancient Egyptian pyramids along with many other pyramids around the world.[59] The seven courses of narrowing limestone could also imply the symbolic process of the ascension of the deceased's soul to the heavens, here represented as the King's Chamber which surprisingly enough, has a celling structure composed of a number of granite stone blocks with the top most composed of a "pyramid" like shape of two inclined granite stones to resemble the Benben (the mound of creation). Hence the Grand Gallery as such could be seen as the path of ascension in the heavens or the staircase through which the soul of the deceased reaches its final place in the heavens as a bright shining star.

As such, the Grand Gallery must have played a major role in the symbolism within the pyramid to serve a more "sacred" conviction which surpasses any functional reason we now know of. The Grand Gallery with its grand scale and curious design inside the most perfect pyramid, understood – can explain many of the questions surrounding the Great Pyramid, its design, symbolism and function. In his analysis of the Grand Gallery, Bauval states that *"In examining it (referring to the Grand Gallery), I very soon understood that*

[58] Bauval, Gilbert,1995, *op. cit.,* p.44
[59] *Ibid.,* p.23

this corridor is the key to the whole pyramid."[60] The cross section of the Grand Gallery according to Bauval 'seems to echo the curious niche in the Queen's Chamber.

Although there seems to be no viable explanation for the very curious telescopic cross section besides being of "structural" reasons, the impact of this very curious form on anyone who visits the grand gallery is nothing less than awe-inspiring. Robert Bauval describes the space as follows, *"When you are inside* [the Grand Gallery], *it gives the impression of being even higher as it sweeps towards the king's chamber at the top end. It is a very curious structure indeed…"* [61]The suggested deliberate optical illusion in the design of this space is symbolic of an upwards process, and through this very curious form, it would further magnify these sensations of elevation and procession.

Another interesting description of the Grand Gallery is given by Ouspensky where he describes the gallery saying:

> "From the place where is stood, it could be seen that the upper corridor was very high, and along its sides, like the banisters of a staircase, were broad stone parapets, descending to the ground, that is to the level where I stood. The floor of the corridor did not reach down to the ground, being cut short… at about a man's height from the floor. In order to get into the corridor from where is stood, one had to go up first by one of the side parapets and then drop down to the 'staircase' itself. I call this corridor a 'staircase' only because it ascends steeply. It has no steps, only worn-down notches for the feet." [62]

The 'staircase' effect Ouspensky describes, implies a possibility of a 'symbolic staircase' analogy, where the Grand Gallery presents the analogy of not only the 'process of spiritual ascension through the seven planetary spheres' through the seven courses of limestone, but also the staircase to the heavens, as we previously saw in the outer form of the Pyramid. Just as the concept of microcosm is evident on the exterior form of the pyramid it is similarly present in the interior of the pyramid. Hence the Exterior form of the Pyramid reflects its very essence and vice versa.

Other theories concerning the very curious form of the Grand Gallery which is referred to as "telescopic" in cross section seem to suggest some "astronomical" aspect in its design, whether it be a purely symbolic or a functional aspect. Some suggest that the Grand Gallery looks like it is some part of a machine, while other theories more ancient as that presented by the Neo-Platonist Proclus of the fourth century AD, and suggests that the Great Pyramid at some stage before its completion served as an astronomical observatory sighting the skies at night.[63] This claim would make perfect sense in light of the understanding that these Pyramids were designed and constructed under the supervision of the high priests of Heliopolis who were not only considered religious figures but chief masons/architects and chief star gazers and astronomers.

[60] Bauval, Gilbert,1995, *op. cit.,* p.44
[61] *Ibid.*
[62] *Ibid.*
[63] *Ibid.,* p.45

Figure 56 Image shows the interior space of the Grand Gallery with its corbeled walls inducing a sense of added height and accentuated ascension. (https://upload.wikimedia.org/wikipedia/commons/thumb/d/d0/Cheops_grote_gallerij.jpg/170px-Cheops_grote_gallerij.jpg - visited: 2/11/2015 12:12 am)

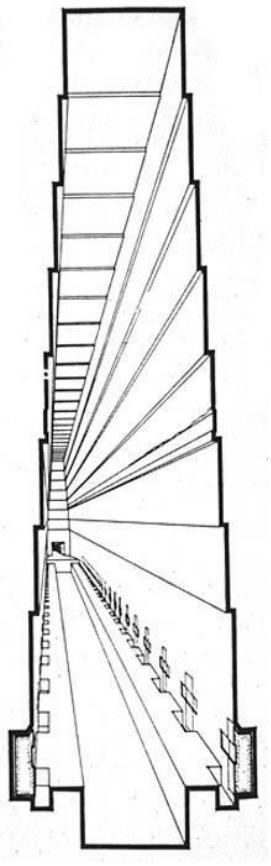

Figure 57 Cross section in the Grand Gallery showing the corbelled walls which give the telescopic effect (https://classconnection.s3.amazonaws.com/1579/flashcards/684436/jpg/01e_giza_cheops_sect_axogallery_aael03-06600.jpg - visited: 2/11/2015 12:15 am)

5.5.4.3 The King's Chamber

The King's Chamber is where King Khufu was allegedly buried. Although there seems to be no evidence to support that this chamber was a real burial chamber, the only available evidence to support this theory is the presence of a granite sarcophagus (empty of course) and the fact that this room was beautifully constructed out of red granite, unlike the Queen's Chamber which was constructed of Tura Limestone.[64]

The King's Chamber is topped with five stress relieving chambers of same floor areas. The top stones are in the form of a pent-roof (pyramidal form) distributing weight and stresses of the top part of the pyramid away from the King's Chamber. This pyramidal form in the ceiling of the pyramid is commonly reverted to purely structural reasons, yet some theories suggest that other structural forms to bare the huge weight were more common at the time yet the use of this specific form implies some further symbolic aspects.

[64] Fazio, *op. cit.*, p.25

As we now know from the previous chapter, the pyramidal form was a common symbol of the *Benben* where the *Benu* bird (a symbol of reincarnation and rebirth) first landed. The King's Chamber hence could have been the analogy of the stage of rebirth of the deceased and the reuniting of the *Ka* and the *Ba* to ignite the *Akh* in the heavens. The East-West Orientation of the King's Chamber is crucial to the completion of this symbolic process, for it is from these two directions that the sun rises and sets ever day to symbolize life, death and rebirth. This cardinality hence implies a space for "symbolic resurrection".

In one of those stress-relieving chambers, graffiti made by workers was found, one of which is of Khnum-Khuf (King Khufu). The King's Chamber holds a red-granite chipped sarcophagus which is interestingly wider in width than the entrance door to the chamber, which means that the sarcophagus must have been placed inside the room during the course of construction of the pyramid.[65]

Once again, star-shafts come up as a remarkable feature within the King's Chamber walls. Unlike the Queen's Chamber's star-shafts, the shafts here in fact did not penetrate the chamber's wall and were found by Waynman Dixon in 1872, when he thought that there must have been shafts here similar to those found in the Queen's Chamber. Dixon tapped the walls for a hollow sound, and then he broke through to reveal the two shafts on the northern and southern walls[66]. Having been blocked from the inside, these shafts debunk the "ventilation" theory and support the astral connection theory in their orientation. The northern shaft points towards the circumpolar stars, specifically towards Alpha Draco, while the Southern shaft points towards Orion's Belt.[67] According to those orientations, this chamber acquires the symbolic function of resurrection which is confirmed by the names assigned to this chamber in the Book of the Dead, those are: The Chamber of Resurrection – The Chamber of the Grand Orient – The Chamber of the Open Tomb. The chosen material for its construction; granite is another aspect of symbolic value. As Gadalla suggests, that the stones used in the construction of pyramids and temples were chosen with care, structures were living organisms symbolic of their forms and materials. The granite stone to the Egyptians was symbolic of fire, a symbol of regeneration, life after death and resurrection.[68]

[65] Lehner, M., The Complete Pyramids, The American University in Cairo Press, Cairo, 1997. P.p 111, 114
[66] Lehner, *op. cit.,* P.p 111, 114
[67] Badawy, *op. cit.,* p.138
[68] Gadalla, *op. cit.,* p.103

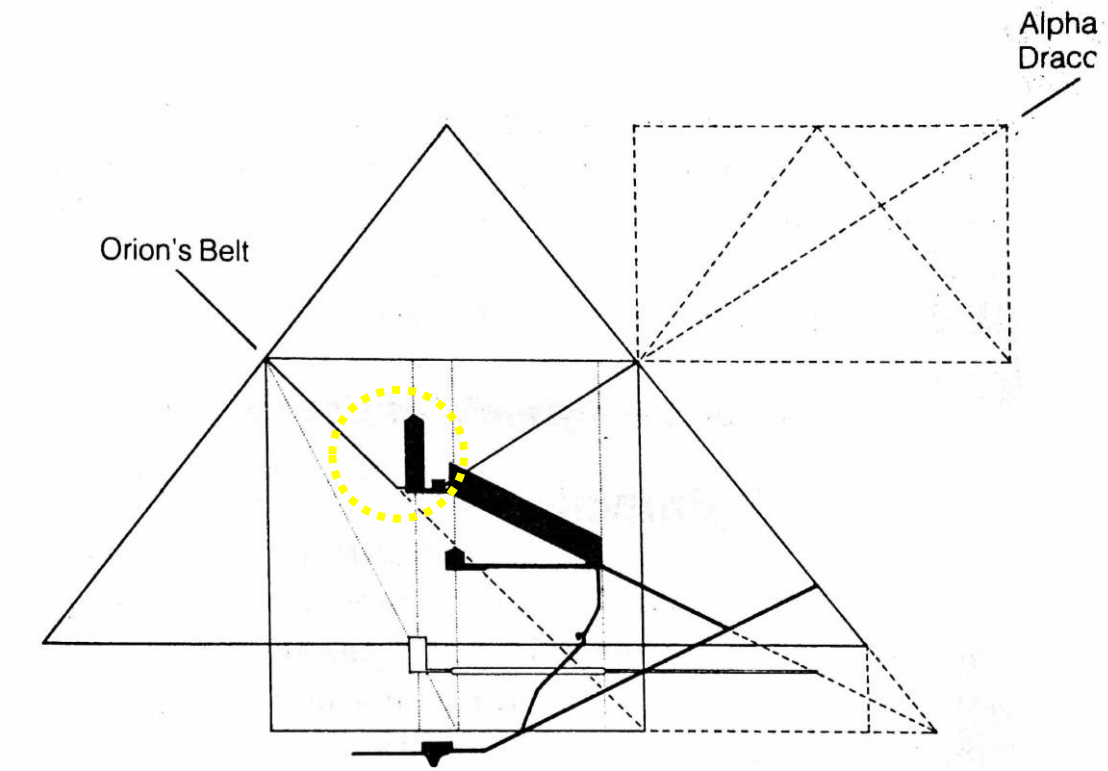

Figure 58 Diagram showing the Kings Chamber Northern and Southern Shafts pointing at Alpha Draco and the Orion's Belt stars respectively
(After Bauval & Gilbert, 1998)

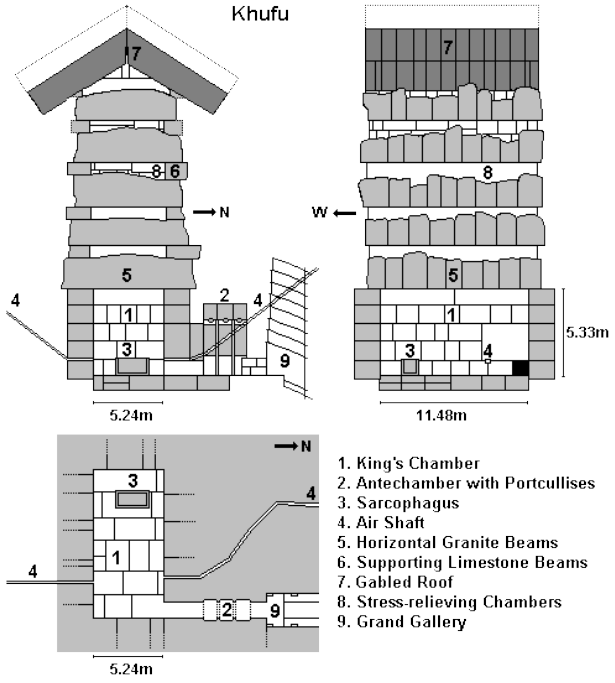

Figure 59 Longitudinal and sidereal sections in the Kings Chamber showing the relieving chambers topped with the pent-like pyramidal stone slabs.
(http://www.cheops-pyramide.ch/khufu-pyramid/great-pyramid/kings-chamber-plan.gif -visited: 2/11/2015 12:34 am)

5.6 THE PYARAMID COMPLEX AND THE GIZA NECROPOLIS

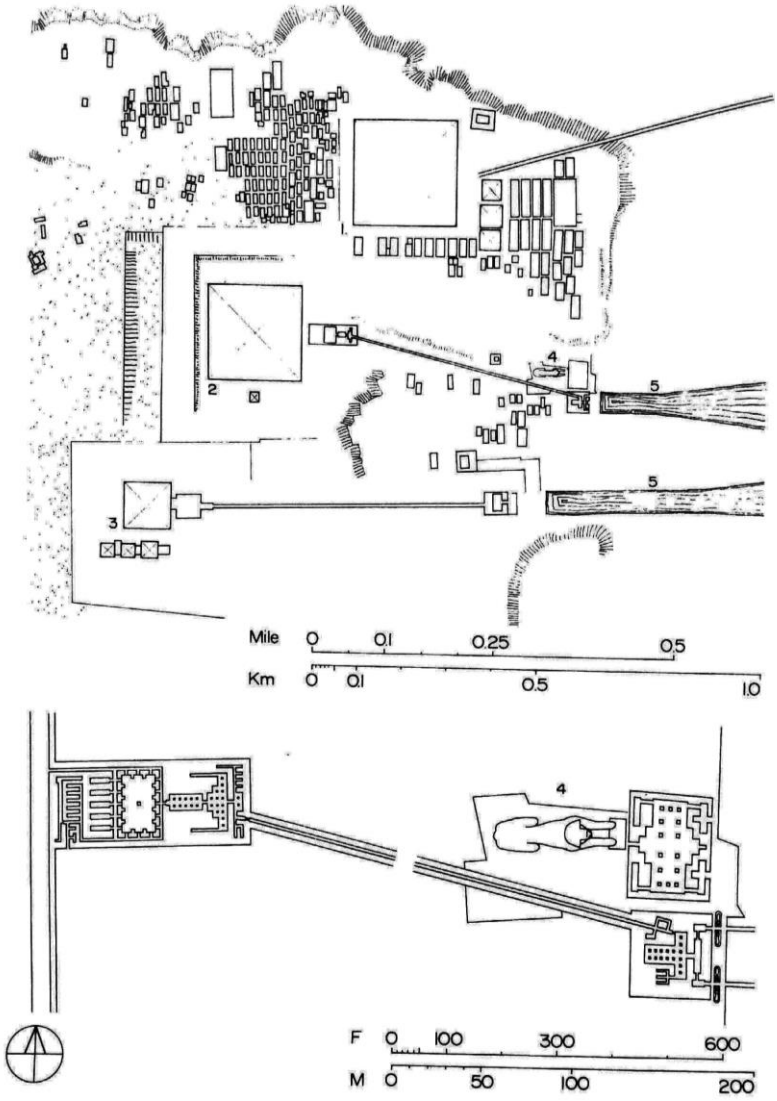

Figure 60 Layout depicting the Giza Necropolis showing the main constituents of the Plateau
(Kostof, 1995)

The term Giza Necropolis is used to refer to the site where not only the Great Pyramids of Giza stand, but a rather busy complex composed of Pyramids, tombs, mastabas, mortuary temples and the ever-glorious Sphinx. The highlight monuments of the necropolis are namely; (1) the three Great Pyramids: Cheops (Khufu), Chefren (Khefre) and Mykerinos (Menkaure), the alleged burial tombs for the three kings and hence the names "The Kings' Pyramids"; (2) The Queens' Pyramids, which are two sets of the three pyramids curiously associated to the Pyramids of Khufu and Mykerinos; and (3) the great Sphinx. These aspects will be studied in detail in the following sections showing their association with the hypothesized process of microcosm, connecting the entire plateau to the heavens.[69]

[69] Kostof, *op. cit.*, p.75

5.6.1 The Kings' Pyramids

The layout of the three Great Pyramids at the Giza plateau is a rather interesting one. The most interesting explanation with regards to the layout is part of the Orion Correlation theory. The theory basically claims that there seems to be a strong correlation between the location of the three Great Pyramids of the Giza Complex and the Orion's Belt stars. According to the theory, the stars of Orion were associated with the god Sah and Osiris, the god of rebirth, resurrection and afterlife. An extension to this theory is that not only does the Orion's belt correspond to the three Belt stars, but also the Milky Way (the celestial river) corresponded to the Nile River.[70]

The initiators of this theory were Robert Bauval and Adrian Gilbert who presented it in their book "the Orion Mystery". In it, Bauval and Gilbert quote an important passage from the "Pyramid Texts" known by Utterance 600 and in it is what he believes to be the evidence documented by the Ancient Egyptians themselves where it connects the king and his pyramid to Osiris (as Sah the god of Orion). In it the dead king instructs his son, the new Horus-king to proceed with the construction of the pyramid fields saying: *"O Horus [new king], this (departed) king is Osiris, this Pyramid of his is Osiris, this construction of his is Osiris, betake yourself to it…"*[71] Bauval and Gilbert both assert that the three Great Pyramids at Giza not only match the three Belt stars as their scaled models (1° = 333 meters) , but also in their apparent size which correspond to their apparent intensity.[72] This theory was later supported by many scholars of alternative Egyptology and Archaeology such as Hancock who in his book: "The Fingerprints of the Gods", states that: "the three pyramids were a terrestrial map of the three stars of Orion's Belt."[73] Hancock's statement is a very good reference to the heaven-earth correlation where the constructions on earth are "terrestrial models" of a "celestial archetype" to conform to our hypothesis on the existence of a process of microcosm not only architecturally and symbolically but in fact on the level of planning and laying out of the main structures.

As a critique to the Giza- Orion correlation which was initially hypothesized by Bauval, archaeo-astronomer Ed Krupp seemed to find Bauval's theory inaccurate in that the orientation of the Belt stars as seen at night did not in fact match the layout and orientation of the Giza Pyramids in other words, Bauval inverted the map to match the Pyramids' layout. Krupp assumed that the correct projection of the Belt stars meant that the uppermost star (Mintaka) should have been represented as the pyramid in the farthest north of the plateau and that the Great Pyramid which is regarded as the terrestrial counterpart of the biggest star Al-Nitak which comes lowest in the Belt-stars, must have been placed farthest south (fig#). This according to Creighton and Osborn is a misconception resulting from the modern convention which presumes that south represents the downwards direction, while north represents the upwards direction.[74]

[70] Bauval, 2007, *op. cit.*, p.143
[71] Bauval, Gilbert, 1995, *op. cit.*, p.127
[72] *Ibid.*
[73] Hancock, *op. cit.*, p.375
[74] Creighton, Osborn, *op. cit.*, p.111

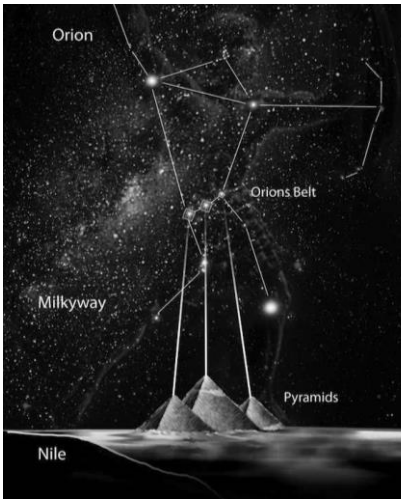

Figure 61 The correlation between the terrestrial aspects of Ancient Egypt and their heavenly counterparts (http://www.pachamama.org/wp-content/uploads/2014/01/orion-nile-pyramids-milky-way.jpg - visited 1/11/2015 6:20 pm)

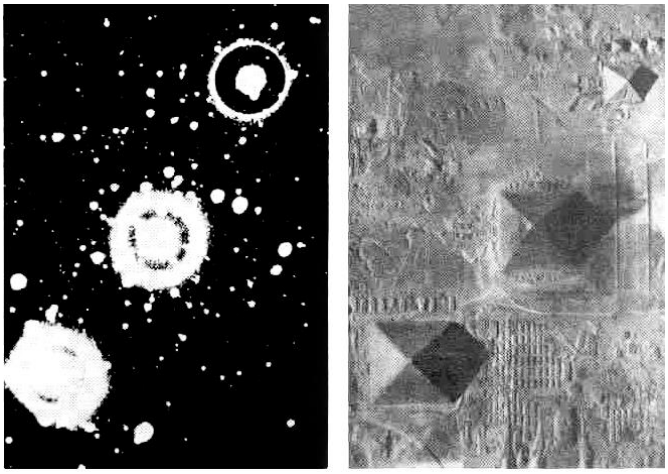

Figure 62 The sky map for the Orion Belt stars on the left representing the celestial archetype and the corresponding Great Pyramids of Giza as their terrestrial representations.
(After Bauval & Gilbert, 1998)

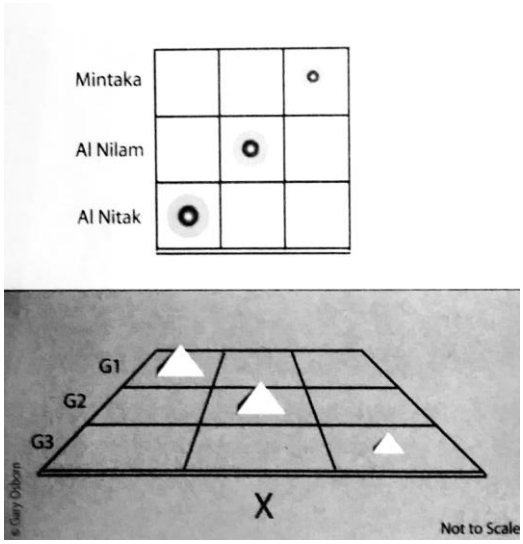

Figure 64 The Pyramid-Star correlation as ought to be according to Ed Krupp's view
(Creighton and Osborn, 2012)

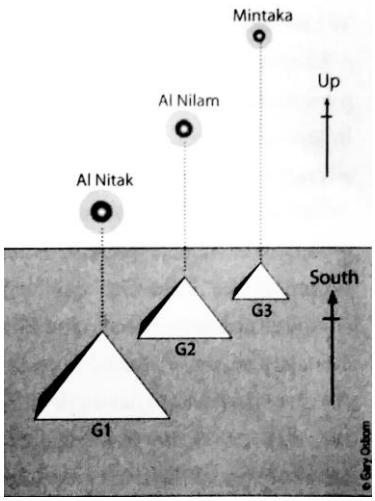

Figure 63 Actual perspective on Giza Plateau and Orion's belt looking south showing perfect alignment
(Creighton and Osborn, 2012)

In response to this critique, Scot Creighton and Gary Osborn were among the many scholars who seemed to have a simple explanation. According to Creighton and Osborn, the key word was perspective. The ancient Egyptians did not consider our modern connection between north and up, and south and the down, on the contrary, they equated up to south and down to north. It was in the southern horizon that the source of the Milky Way was found, their celestial Nile, and as their Nile flows from South to North, where south was Upper Egypt and north was Lower, so were the heavens. Moreover, the three stars of Orion's Belt are in fact floating in three dimensional space and not on a two dimensional plane, hence the only possible way to see the three pyramids floating in the same manner as the three Belt stars did, was to position them the way they did (fig#). By doing so, it was possible to see the three stars floating over their three pyramids when one looked due south.[75]

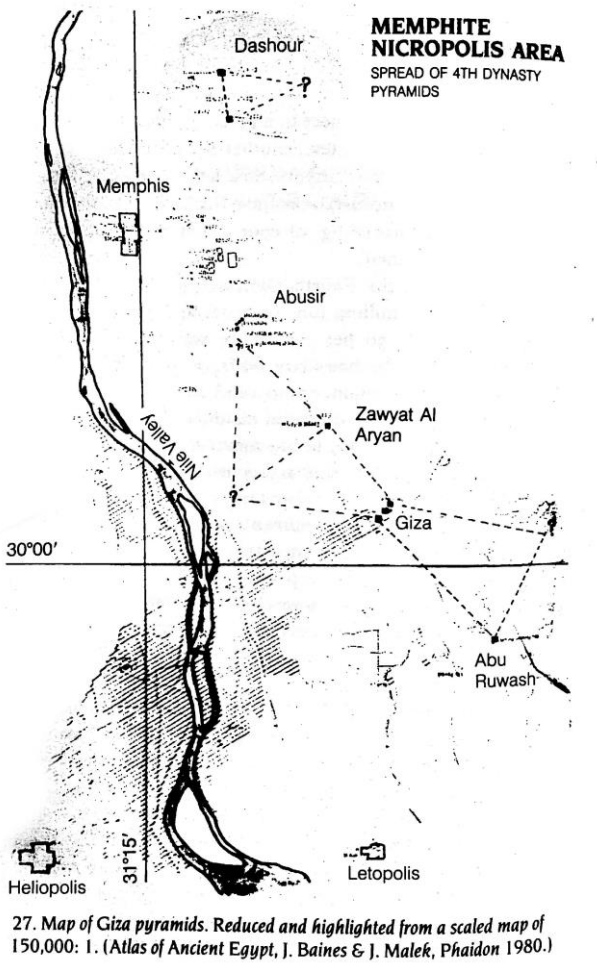

Figure 65 The map of the western bank of the Nile with the main Pyramid sites marked and connected to resemble the constellation of Orion
(Bauval & Gilbert, 1998)

[75] *Ibid.*, Pp. 111-112

According to Creighton and Osborn, the Orion Belt stars seem to hold the key to the base design of the Giza Pyramids, the "blueprint of Giza" in their own words. They further assert that not only is the positioning of the three Giza Pyramids part of a deliberate masterplan, but in fact their dimensions and their relative positioning can be extrapolated from the Orion constellation. Both Creighton and Osborn, support the claim that the Orion Belt asterism was the underlying imperative for the Giza plateau layout and the Giza Pyramids as the plateau's master key.[76] The claim that not only the three pyramids corresponded to the three stars of the Orion's Belt, but that the entire layout of the plateau was similarly influenced, puts the entire Giza Plateau into the same heaven-earth correlation to further support the hypothesis that microcosmic principles seemed to play a significant role not only in the planning of specific edifices in their locations, orientations and through certain alignments, but in the planning and design of grand complexes such as the Giza Plateau.

Bauval and Gilbert in their Orion Correlation theory believed that if the initial idea of the Orion Belt stars corresponded to the three Great Pyramids of Giza, then the remaining stars of the Orion must have their counter parts on earth. Also the pyramid texts in utterance 600 seem to suggest that pyramids were considered "Osiris". Interestingly, among placing the star map over the pyramid map, most of the remaining Orion stars found their counterparts in the west-bank pyramids. According to Bauval and Gilbert "five of its seven main stars [Orion's main stars]- correlated to Fourth Dynasty Pyramids in the Memphite-Duat." This correlation is expressed as follows, Abu-Rawash corresponded to Saiph, Giza corresponded to Orion's Belt, Zawyat Al Aryan corresponded to Bellatrix, and Dahshur to the constellation of the Hyades.[77]

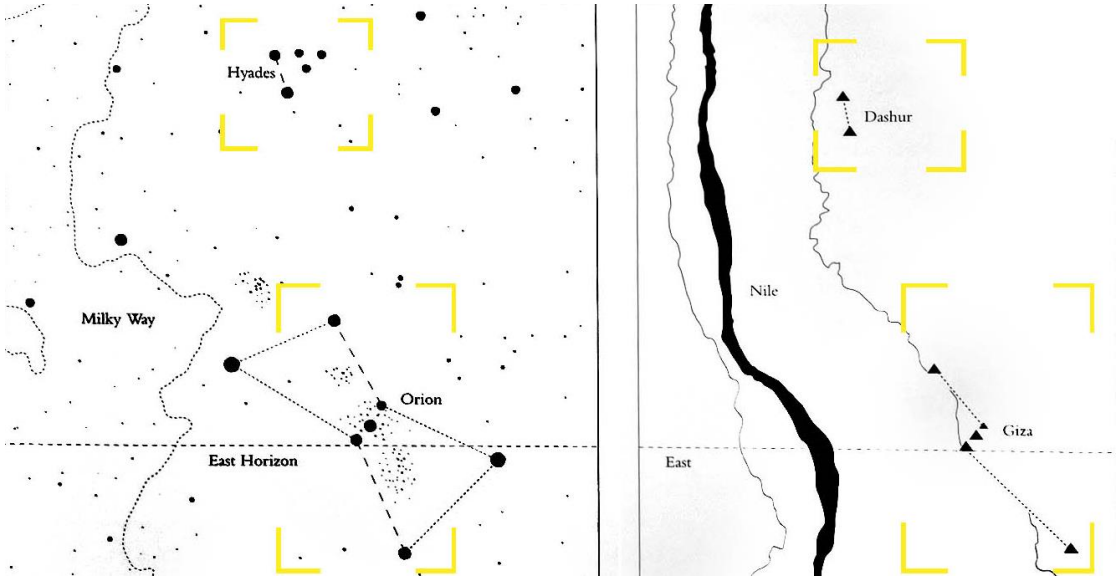

Figure 66 On the left is a star map dating to the time 2450 BC , to the right is the map of the western plateau showing the many pyramids populating the memphite necropolis from Dahshur at the top of the map, to Abu Rawash at the bottom of the map
(after Bauval, 1998)

[76] Creighton, Osborn, 2012, *op. cit.*, p.107
[77] Bauval, R., Gilbert, A., The Orion Mystery, Mandarin Paperbacks, London, 1995. P.p. 145, 146

5.6.2 The Queens' Pyramids

Another rather compelling theory, with regards to the many obscure aspects of the Giza Plateau and its components, would be the Queen's Pyramids. Both Creighton and Osborn present evidence showing a fundamental connection between the Queen's Pyramids and other aspects of the Orion's Belt stars.[78] The connection between the Queen's Pyramids and the Orion's Belt stars is linked to the phenomena known as precession.[79] The phenomena is the result of the fact that earth has a slight wobble as it rotates about its axis caused by the torque forces exerted by the gravitational forces of the sun and the moon on earth. The effect of such phenomena is noticed over long periods of thousands of years in which the stars alter their positions, where a complete cycle requires a period of around 26,000 years.[80] Although this phenomena is commonly believed to have been discovered by the Greeks and not the Egyptians, yet the effects of it could have been realized through tracking the motion of stars for long periods of time which the Egyptians most definitely did.[81] Precession as a cosmic cycle of around 26,000 years could be used as a marker of dates on the scale of thousands of years.[82]

This great cycle affects the Orion's Belt stars in their movement in the skies where they have minimum and maximum culmination (low and high points) points. According to their theory, Creighton and Osborn claim that the three Queen's Pyramids of Menkaure mark the lowest culmination points of the Orion's Belt stars' precessional cycle (their 26,000 year cycle) as they set horizontally in the southwest horizon, where the alignment between , Menkaure/ Mintaka and the Three Queen's Pyramids marks this specific event which took place some 10,500 BC. Whereas the maximum culmination point of the Belt stars' cycle should take place around the year 2500 CE. Interestingly, the three Queen's Pyramids of Khufu's Great Pyramid mark the position of the Belt stars during the maximum culmination where they rise in the eastern horizon around 2500 CE as confirmed by calculations made by astronomical software.[83]

These facts whether they were intentional or not is not the main focus of this part of the study, although all the evidence presented earlier supports the notion that this phenomenon was indeed deliberately intended to mark those main points in time. The two sets of Queen's Pyramids for Khufu and Menkaure's Pyramids were part of the designed microcosm through a heaven-earth correlation marking the cycle of the Orion's Belt stars. The entire plateau as such seems to support our hypothesis that not only is the Great Pyramid at Giza intense in its microcosmic significance, but other aspects of the plateau shows evidence of a conscious deliberate process of microcosm which extended to every aspect of the plateau.

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[78] Creighton, Osborn, *op. cit.,* p.114

[79] **Precession:** the cyclic wobbling in the orientation of Earth's axis of rotation with a period of 25,772 years. Precession was the third-discovered motion of Earth, after the far more obvious daily rotation and annual revolution. Precession is caused by the gravitational influence of the Sun and the Moon acting on Earth's equatorial bulge. To a much lesser extent, the planets exert influence as well. (From the Encyclopedia Britannica)

[80] Creighton, S., Osborn, G., The Giza Prophecy, Bear & Company, United States of America, 2012. p.115

[81] Rice, M. Egypt's Legacy: The archetypes of western civilization 3000-30 BC. Routledge, London, 1997. p.128

[82] Creighton, Osborn, *op. cit.,* p.118

[83] Creighton, Osborn, *op. cit.,* Pp. 119-121

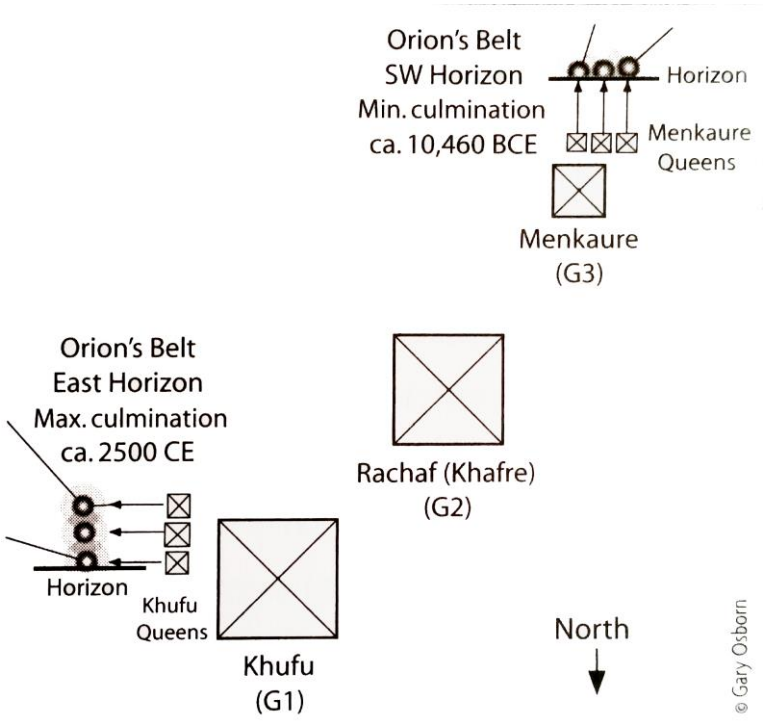

Figure 67 Osborn's diagram depicting the relationship between the Queen's pyramids and the Belt stars. The Queen's Pyramids mimic the rising and setting of the Belt Stars.
(Creighton and Osborn, 2012)

5.6.3 The Great Sphinx

On the eastern end of the Giza Plateau, stand one of the oldest monolithic structures known to the world; the Great Sphinx. A colossal statue of a recumbent lion with a human face, the Great Sphinx is carved out of the limestone bedrock where it stretches 57 meters in length and 6 meters in width, and a height of 20 meters. Although the Great Sphinx is one of the oldest statues in the world, the reasons to why and when it was actually built remains a mystery. Main stream Egyptology believes that the face of the Sphinx represents King Khafre (Khephre) and accordingly, he is believed to be its builder, which places the age of the structure to a similar age of that of the Pyramid of Khephre (somewhere between 2520 BC and 2494 BC). Yet time and time again, evidence is presented to us that during the time of Khafre, the Sphinx was in fact already there, and more interestingly old enough to have possibly required several renovations by many of the Ancient Egyptian kings, one of which was in fact Khafre himself, the alleged builder of the Sphinx.[84]

Geologists such as Robert M. Schoch and David Coxill, argue that the geological evidence with regards to the condition of the stone monument suggests that the monument must have been constructed at the latest between 7000-5000 BC if not earlier. We know for a fact that Egypt's climate has not always been so arid and dry, at times adjacent to these suggested dates, Egypt suffered extensive rain-fall, successive inundations which could have resulted in the characteristic patters of erosion seen on the body of the Sphinx. Unfortunately, Egyptologists refuse to accept this theory, since to them; the suggested age

[84] Bauval, R., Hancock, G., Keeper Of Genesis, Arrow Books, United Kingdom, 1997. p.13

of the Sphinx was a time when the Nile valley was populated by primitive hunter-gatherer Egyptians whose tools were limited to flint stones and sticks.[85]

Since the evidence regarding its date and ownership is limited, the nature of sphinx remains a rather controversial matter in Egyptology, which opens the door to further scholarly interpretations. Interestingly, the Giza-Orion correlation theory seemed to reserve a place for the Sphinx. Bauval and Hancock believed that the Sphinx was constructed somewhere around 10,500 BC. Bauval and Hancock hypothesized that the Sphinx in its form as a recumbent lion, symbolizes the constellation of Leo, where the layout and the orientation of it in relation to the Giza Pyramids and the Nile River, reflect the map of the constellations of Leo, Orion and the Milky Way, respectively at the time of its construction. Furthermore, at this time of around 10,500BC during the heliacal rising of the star Sirius (the star associated with the inundation of the Nile) which coincides with the spring equinox- the area in the sky from which the sun would rise in the east was populated by the constellation of Leo.[86]

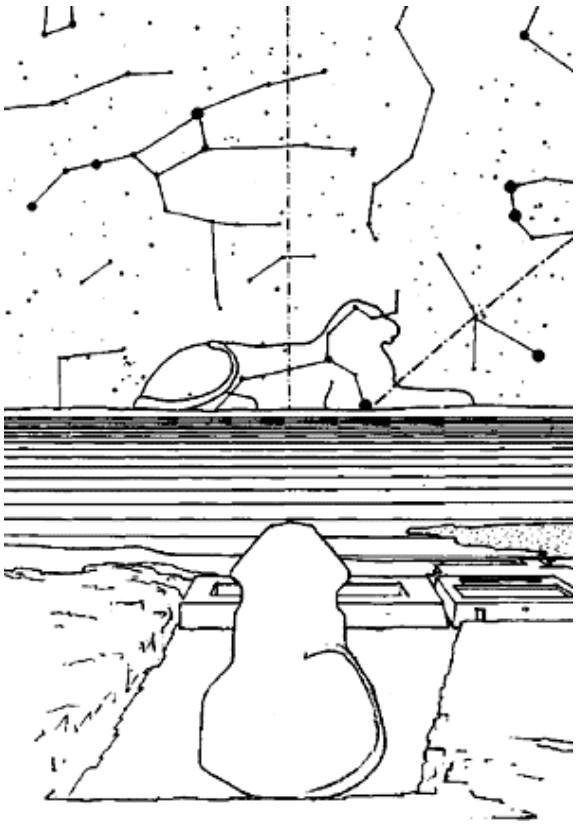

Figure 68 Diagram showing the Great Sphinx looking due east at the sky of the Spring Equinox sometime around 10,450 BC
(After Hancock, 1995)

This theory meant that during the hypothesized age of the Sphinx, the Sphinx which stands on the eastern end of the Giza plateau looking east towards the rising sun, would be staring at its heavenly counterpart; the constellation of Leo. This theory was first remotely implied by Santillana and Dechend in their "Hamlet's Mill" where they claim that ancient

[85] *Ibid.*, P.p 20-21
[86] Bauval, Hancock, 1997, *op. cit.*, p.278

civilizations realized that the constellations housing the rising sun in the east during the spring equinox were not fixed, and that many monuments and mythologies were symbols marking the constellations that housed the sun during the spring equinoxes.[87] This Sphinx-Leo association was similarly expressed in Gadalla's Egyptian Cosmology where he similarly suggests the building of the Great Sphinx during the Age of Leo somewhere between 10,720 BC and 8,560 BC, where Gadalla clearly states that the Sphinx was in fact a symbol of the constellation of Leo and deliberately constructed and Oriented with respect to the constellation.[88]

5.7 THE GIZA ORACLE

The most important question that is posed at this point is, what exactly was happening at Giza and why? Evidently on the different scales of construction whether on the architectural or urban scales, one is confronted with a conscious process of microcosm, everything connecting to the heavens, but more importantly, was it all symbolic and metaphorical or is there something functionally significant in this symbolism?

The entire heaven-earth correlation theme according to Creighton and Osborn had another important aspect to it besides the symbolic and metaphoric. The entire scheme to them is mostly a grand project for marking times at which significant events took place. The precession of the equinoxes was the mechanism through which this was possible.[89] Although commonly believed to have been discovered by the Greek astronomer Hipparchus 129 BCE, many scholars are coming to believe that it was in fact the Egyptians that first discovered precession and put it in action. With the knowledge of the precession of the equinoxes, it seems that the entire Giza sky-ground scheme falls into place, moreover, a more comprehensive understanding of ancient Egyptian culture and architecture is possible. The following passage Bauval and Gilbert quote from Georges Goyon's[90] book "Le Secret des Batisseurs des Grandes Pyramides: Kheops" sums up the questions posed at this point where Goyon asks:

> "Did the Egyptians of the Pyramid Age already have astronomical and geodetic knowledge more advanced than we accord them? Did they know the geography of their country much better than we think? Had they already, in the third millennium BC, measured and gridded their land, in a manner claimed later by the Greek philosopher-mathematicians such as Thales, Pythagoras, Eudoxis, Plato, Democratic…?"[91]

Many scholars have presented evidence time and time again to prove that the ancient Egyptians knew all about precession and tracked the skies for thousands and thousands of years keeping accurate records of the cycles of the heavens in order to understand the order of the heavens and relate their earthly matters to it. Egyptologist Moustafa Gadallah seems to support this claim saying that Egypt's very accurate calendar was necessarily based on the observation and understanding of the slow movement of the star Sirius in the sky. The importance of Sirius probably arose as a result of its association

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[87] Santillana, G.,D., Dechend., H., V., Hamelt's Mill, David R. Gdine Publisher, New Hampshire, 1977. p.145
[88] Gadalla, *op. cit.,* p. 113
[89] Creighton, Osborn, 2012, *op. cit.,* p.118
[90] **Georges Goyon:** Georges Goyon was a French-Egyptian Egyptologist, a senior fellow at the National Centre for Scientific Research, and King Farouk's private archaeologist..
[91] Bauval, Gilbert, 1995, *op. cit.,* p.228

with the annual flooding of the Nile; Sirius would rise heliacally around the same time of the inundation. As such, Sirius which was the symbol of fertility and life and associated with Isis, was necessarily linked to the life and fertility of the Egyptian's land where it was referred to as the "Great Provider".[92] On studying the motion of the star Sirius for many thousands of years, the Egyptians would have known about precession which results in a complete Sothic cycle of around 26000 years. Gadallah believes that the Egyptian Calendar proves this beyond reasonable doubt. The Egyptians knew that the year was over 365 1/4 days and that the earth takes 365.25636 days to complete one cycle around the sun.

Gadallah asserts that the consistency of the event of the annual illumination of the statues of Ramses II and Amen-Ra at the back of Abu Simbel's mountain carved temple some 180 feet away from the temple's only opening every year on February the 22nd (Ramses II's coronation date) for over 3200 years - would not have been possible had they not know about the exact length of the year. The ancient Egyptians accounted for the 0.00636 difference in yearly length which made it possible for such an event to take place on yearly basis without shifting days. Accordingly, Gadallah believes that this unhindered astronomical knowledge was necessarily associated with their understanding of the precession of the equinoxes and the Sothic cycle which is what they most probably referred to as the Great Year.[93]

If this hypothesis is true, although considered highly controversial by main-stream Egyptology, the process of microcosm in designing and aligning temple complexes and certain structures acquire an added level of significance. Microcosm as such not only tunes in Earth and heavens symbolically, but in fact it literally connects the earth and the heavens through a process of marking benchmarks in the heavenly cycles (governed by *Maat*) through creating constructed markers of these cosmic events and their corresponding earthly events. Michael Rice in his Egypt's Legacy claims that *"Whether or not the ancients knew of the mechanics of the Precession before its definition by Hipparchos the Bithynian in the second century BC is uncertain, but as dedicated watchers of the night sky they could not fail to be aware of its effects."*[94] According to Rice, the evidence that some form of highly refined astronomical observation was practiced in Ancient Egypt in 3000 BC and possibly much older than that can be seen in the "precision with which the Pyramids at Giza are aligned to the cardinal points, a precision which could only have been achieved by their alignment with the stars."[95]

Perhaps the words of the ancient Egyptian priest and astronomer Senty can best answer this controversial matter in the following passage:

"I have been designated among the chiefs of men, the guides of the country chosen by the king. One will not find anyone more favored than I telling the hour conforms to the desire of the god so that he may give order to erect constructions announcing to man his future, telling him about his youth and his death; telling the years, the months, the days, and the hours, the course over every star by observation of its path." [96]

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[92] Gadalla, *op. cit.,* p.106
[93] Gadalla, *op. cit.,* p.105
[94] Rice, *op. cit.,* p.128
[95] *Ibid.* p.31
[96] Clagett, M., Ancient Egyptian Science: Calendars, clocks, and astronomy, Volume II, American Philosophical Society, Philadelphia, 1989. p.490

In the light of these words and after displaying the many aspects of microcosmic significance on the architectural and urban scales in the Giza case study, everything seems to fall into place. Over and over again in almost every ancient Egyptian construction especially from the Old and Middle Kingdoms, we are presented with architectural marvels which speak for their creators' technological and scientific excellence, constructs which conform to the movement of stars and celestial objects. The Egyptians were highly discrete of their sciences and sacred knowledge, they coded it all in stone for the witted and the intellectual to derive and comprehend. And yet again, these words of the enlightened priest serve us further evidence to support the hypothesis claiming celestial connections and connotations in ancient Egyptian architecture and symbolism. Senty asserts that he is assigned to erect constructions which conform to the stars and trace their paths in order to tell man his "youth and his death" as possible metaphors for the past and the future. Furthermore, those constructs are to tell the years, the months, the days and the hours. Accordingly, one can look at those buildings as markers or clocks of ages and times marking past and future events, this has been evident not only in the alignment of the star shafts in the Great Pyramid with the Circumpolar stars, Sirius and Orion's Belt- but also the layout of the three Great Pyramids at Giza corresponded to the three Belt stars Orion, better yet the entire plateau from Dahshur to Abu Rawash had their counter parts in the heavens. Finally, the Sphinx, stood there staring at the rising sun behind which was its counterpart, the constellation of Leo, to mark a time which was possibly the beginning of it all, a time so distant in history, probably to present us a calendar of the Ancient Egyptian civilization carved in stone.

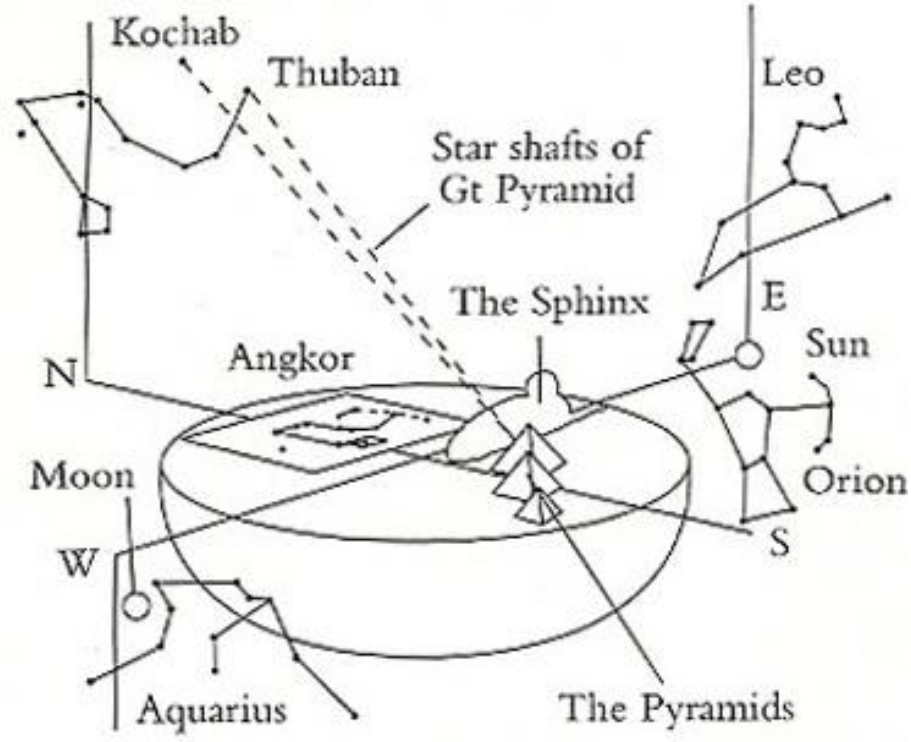

Figure 69 The Earth- Heavens correlation expressed in a diagram showing the constituents of the plateau and their counterparts in the heavens
(Source: http://humanpast.net/images/heavensmirror198.jpg - Last visited:

5.8 CONCLUDING SUMMARY

This chapter, as the climax of the thesis on microcosm in ancient history, presents the case study of the Memphite Necropolis or the Giza Plateu as the Ultimate example of microcosm. First a criterion is presented to explain the choice of the chosen example, and then the methodology of analysis is presented. The geography of ancient Egypt is shown from the Ancient Egyptian perspective where an emphasis is made on their understanding the Egypt was in fact a mirror of the heavens. Then, the most obviously curious and highly controversial and greatest structure of all time is commenced with; the Great Pyramid at Giza. The Great Pyramid showed a high level of microcosmic significance and symbolism in its precise central location acting as the apex of the delta and the center of the landmass. The accurate orientation of the Great Pyramid along with its symbolic form and geometry, present further evidence of the Great Pyramid being a symbol of the universe.

The anatomy of the pyramid shows three spaces of high symbolic values, those are the King's Chamber, Queen's Chamber and the Grand Gallery. Both the King and Queen's chambers prove that the Pyramid was intended to connect its interior with the heavens through pointing at the stars Sirius and Orion's belt and the imperishable Polar stars. This sophisticated symbolism of the pyramid as the microcosm of the universe and the aspect of ultimate connection to the heavens (hence the axis-mundi) is paralleled on the urban scale as follows. The three Great Pyramids were displayed as the terrestrial correspondents of Orion's Belt, while the remaining pyramids from Dahshur to Abu-Rawash, complete the body of stars of which Orion is constituted, along with the Hyades at Dahshur. The Symbolism is further asserted when the Sphinx is presented as the constellation of Leo.

The more the hypothesis of microcosm is tested on the city level and its sacred spaces and constructs, the more we realize that not only was the Ancient Egyptian civilization rich in symbols of the world presenting its entire civilization as the terrestrial model of the celestial archetype. Whether or not this is approved by Egyptologists or not, we are reminded so many times of the same process of symbolism, connecting the earthly matters with the heavens on every level, whether it is on the architectural or urban scales. The case study shows that this complex level of microcosmic symbolism was present since the dawn of time in Ancient Egypt at a highly developed level which not only suggests that it was the basis for the future examples expressed around the world, but it also proves that this complex knowledge must have had its roots earlier in history, at times commonly referred to as ancient times unworthy of modern scientific academics' assessment.

CHAPTER SIX: CONCLUSION

6.1 INTRODUCTION

The previous chapters of this thesis have adopted an alternative approach for understanding the traditional way of perceiving the natural world and the built environments in ancient history. The alternative approach is based on a heaven- earth correlation referred to as microcosm, a process which showed valid in the architectural and urban constructs of the world's major civilizations of ancient history as evidence for a universal theme connecting earth to the heavens. The case study was the culmination of this thesis in which the Great Pyramids of Giza in ancient Egypt showed evidence of an extensive architectural and urban planning that could have very possibly had microcosm as its main theme. The Giza case study could be considered a prototype for the hypothesized process on many levels.

The main goal of this thesis was to present an alternative approach in understanding the cities and sacred structures of the ancient world as parts of an integrated cosmological model. Examples from different civilizations revealed common "genes" in the of cities and their sacred centers which show evidence of a "heavenly" connection between the earthly construct and a celestial object or phenomena. This was achieved through going through a set of more specific objectives featuring as the main theme of every chapter.

Chapter Two is the beginning of this quest into understanding the archaic mentality in reference to the brain set of ancient man. First and foremost, the main problem that haunted the ancients and still relevant to us today was presented as the "simple dilemma". The simple dilemma questions the nature of death and whether it’s the end of life or rather the beginning of it. From these simple dilemmas arose the need for symbolism as the means of coding a non-physical meaning in the physical realities. At this point, it was necessary to introduce the terms symbol and archetype as the subject and object for delivering meaning. Further on, the dual nature of perceiving reality was expressed in the duality of the physical realities and its interconnectedness with the metaphysical beliefs which necessarily meant that the physical was bound to an aspect of a higher nature which to the ancient was associated with the heavens. In that sense, microcosm was introduced to explain the traditional understanding of the earthly world as a copy of a higher and more divine heavenly original. The chapter then concludes with presenting a model for the traditional understanding of man-made constructs as a function of the inherent microcosm in nature.

Chapter Three investigates the literature available on the notion of meaning in built environments in order to find a scholarly approach that shares the idea of meaning in built environments as a function of microcosm showing cosmological connections in man-made constructs as the underlying pattern in historical buildings. Three different approaches in perceiving built environments were presented, two of which seemed to support the microcosmic connotations. Examples were then shown in constructions from many of the world's ancient civilizations and traditions such as Ancient Mesopotamia, Ancient Egypt, the indo-Chinese civilizations, Ancient Rome, the Judeo-Christian tradition and even the Islamic tradition. Through the analysis of

the different cases, a common process of microcosm in man-made constructions seemed evident on different levels, a process which was manifested using a set of concepts of which a model was formulated referred to as the concepts of microcosmic significance.

Chapter Four continued Chapter Three in the sense that the set of derived concepts: centrality, verticality and horizontality – were further tested on the architectural and urban scales of a number of examples to show the validity of this model. Examples from mostly eastern cultures were used to show how these concepts were the generators of the general order of cities and sacred spaces in Ancient Egypt, Ancient Rome, the medieval Christian city & church and the Islamic city & mosque. This chapter showed that these concepts are present on both the scale of the city and the sacred space/ place to prove the correlation present between both of them as aspects of the same process of microcosm in ancient civilizations and traditions.

Chapter Five is the culmination of the hypothesis of a common governing process referred to as microcosm which is primarily concerned with connecting heaven and earth, establishing a perfect terrestrial model of a heavenly or celestial archetype through various methods. This process is first shown in the Ancient Egyptian mythology and their understanding of their land, and then further expressed through their understanding of their sacred structures. The Ancient Egyptian case study is the Giza plateau or the Memphite necropolis. The case study is presented from an inside out approach starting with the Great Pyramid at Giza. The process of microcosm and the traditional concepts of centrality, verticality and horizontality are shown in the location of the pyramid, its orientation, form and geometry. The interior of the pyramid is then analyzed to test the same process of microcosm. Next, the pyramid is shown in its relative position with the two other pyramids of Giza as another level of symbolism which reveals the same meanings of microcosm. Then the three great pyramids are shown in relation to the entire pyramids from Dahshur to Abu Rawash as another level of symbolism which reveals the same meaning. Then other aspects of the Giza plateau were analyzed to reveal the same meanings in their orientation and location. Finally, the chapter ended with a possible explanation for these repeated symbols and meanings which denote a conscious process of microcosm on the scale of the building to the entire region.

6.2 DISCUSSION

The initiator of this thesis is the quest for understanding and deciphering meaning in ancient architecture and urbanism. The main question of this research was to understand if ancient civilizations and traditions processed a comprehensive model that they incorporated in their cities and sacred spaces, and if so, was this model process common in other places or was it specific to a single tradition or a few?

The hypothesis was based on an alternative approach which has its basis in the understanding of ancient structures of ancient history as being parts of a universal attempt to connect the heavens and earth known as the heaven- earth correlation expressed as microcosm in built environments. The hypothesis suggests that if the cities and sacred structures from ancient civilizations reveal in their mythology and design any evidence of astronomical or cosmic connotations that support a heaven - earth correlation in their natural domain or their constructed domain – then it would be possible to suggest a conscious process of microcosm designing their cities and

temples as perfect replicas of heavenly counterparts. The evidence for this hypothesis shows that not only is the process of microcosm present on different levels and intensities in examples from different civilizations, but evidence shows the possibility of microcosm being an international trend.

Interestingly, our hypothesis is based not only on astronomical or cosmological incidents with buildings and cities, but an important variable is the presence of mythological evidence to support this hypothesis. The problem here occurs in the fact that mythology itself is not highly reliable in the sense that it contains a mixture of a few historical facts, and a lot of natural phenomena and occurrences (many of which are astronomical in nature) – all presented in the analogy of a "fairy tale." Nothing scientists would rely on in proving a theory in a scientific method.

The other variable is the presence of physical evidence of historical value not only on the scale of the sacred structure but the city or at least a region planned accordingly. The problem is that many ancient cities have been subject to continuous developments, alterations, modifications and so forth, which makes it extremely difficult to trace this process on the urban scale. Another important variable is that in the cases of both judo-Christian and Islamic traditions, the concepts and ideas which denote microcosm might be expressed in the mythology or the religious text but can mostly be interpreted in sacred structures. Hardly can these concepts be tested on cities due to the fact that these traditions were in many cases introduced and adopted by civilizations with a long history of its very personal local tradition, architectural and urban identities.

The fact that the main aspect of this hypothesis is the presence of actual precise astronomical knowledge, at least in the elaborate case of Ancient Egypt – is in itself a very controversial aspect owing to the fact that many of the alignments in the Egyptian case depend primarily on the knowledge of "precession" at such ancient times, an aspect attributed to the Greeks many hundreds of years after the Great Pyramids were built. Interestingly though and in response to this important argument is what Moustafa Gadallah says which was quoted in Chapter Five, where he says that whether or not the Ancient Egyptians (and other ancient civilizations by extension) clearly understood what precession is, they must have realized its effect and meant to trace its cycle through their urban and architectural creations. This means that it does not really mean anything if the Egyptians clearly spoke of precession in their ancient texts, it could be enough to notice how they responded to it in their constructs. The question in this case is how much evidence should be enough for us to give them the credit of this knowledge?

Finally, although much evidence has been presented to support the hypothesis, it is after all a speculative approach based on an alternative approach in reading into history. No matter how luring this theory might seem, it still is a theory, another way of reading the past, a hopeful and nostalgic way to add layers of meaning to it, but one which is possible given the presented evidence, and not so far-fetched given the actual physical constructions and the supporting mythologies. Interestingly though, different methods of reading into the past lead to completely different interpretations. Although this might seem rather "discouraging" given the body of knowledge and evidence in support of this theory, it is the very essence of our modern scientific approach which is adopted today by scholars to investigate any matter. Last but not

least, if this study is to support anything, it is to support a tolerant approach in interpreting the byproducts of civilizations of ancient history, an approach that allows us for once to question our preconceived ideas and convictions with regards to the ancients, their sciences and knowledge, and their civilizations.

6.3 PROSPECTS FOR FUTURE RESEARCH

The Ancient Egyptian case study in its elaborate levels of symbolism and its possible urban and architectural connotations of a conscious process of microcosm as old as the Old Kingdom, offers prospects for further investigation into other ancient Egyptian sites. We have seen how the Great Pyramids at Giza and the entire plateau featured a complex level of symbolism and a complicated level of astronomical science at very old times in the civilization's timeline. This suggests that if we consider investigating this theory on other Ancient Egyptian sites, a grander level of the same process of microcosm could test positive. This is based on our knowledge that centuries after the Giza project, Ramses II incorporated complex astronomical knowledge in the design of the Abu Simbel Temple, similarly, the Temple of Luxor constructed centuries after Giza, showed a bent axis attributed to aligning the temple's axis to shifting star positions. This kind of evidence studied in light of the theory of microcosm might show that sacred sites of the Ancient Egyptian civilization in their entirety must have conformed to the same regulations which governed the location, orientation, forms and symbols of the Giza project as a perfect terrestrial model of a heavenly counterpart.

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الملخص

يتناول هذا البحث قضية المعنى فى عمارة و عمران الفترات العتيقة. و تنشأ الحاجة لمناقشة تلك القضية كردة فعل لندرة الابحاث التى تناقش تلك القضية من منظور تقليدى يأخذ المفاهيم التقليدية فى الاعتبار فى عملية فهم الشكل و المعنى فى البيئات التقليدية. فعقب الثورة الصناعية و التى بدأت فى نهايات القرن الثامن عشر بأروبا, نشأ مفهوم الحداثه كنموذج جديد لفهم العمارة و العمران و الذى روج لفكرة ان الشكل خاضع للوظيفة, بمعنى اخر, فانه يمكننا فهم "المعنى" من الشكل بمجرد فهم الغرض الوظيفي من المبنى. و شمل هذا النموذج ليس فقط العمارة و العمران ظل هذه الفترة, و لكن فهمنا لعمارة و عمران الفترات العتيقه ايضا. و بالتالى, اختذلت عمارة و عمران الفترات العتيقه على انها منشئات وظيفيه تخلوا من المعانى العميقه.وظل هذا النموذج هو الحاكم حتى يومنا هذا ففقد المؤرخون و الاثريون المعاصرين قدرتهم على فهم البيئات التقليديه كما فهمها القدماء مما يتسبب فى ضياع المعنى الحقيقى لتلك البيئات.

يعتمد هذا البحث نهجا بديلا عن النهج التقليدى الذى يتبعه المؤرخون و الاثريون الحديثين فى فهم البيئات التقليديه للفترات العتيقة و يعد Rapoport و Eliade و Hancock و, Bauval, احد اهم رواد هذا النهج البديل و الذى يعرف بالنهج "الكونى". وفقا لهذا النهج, تفهم المعانى فى العمارة و العمران من منظور كوني و تفهم المدن و المبانى المقدسة على انها محاولات لربط الارض بالسماء, فتصبح عملية "نسخ السماء على الارض" هى الوظيفة. و يعتبر النهج الكونى احد اكثر النهج التى تجاوب على العديد من الاسألة المتعلقة بالمبانى العتيقة فيما يخص المعنى و الرمزية من الشكل.

يهدف هذا البحث الى تقديم طريقة بديلة لفهم المعنى فى البيئات التقليديه و تشمل هذه الطريقة فهم العمارة و العمران كجزئان خاضعان لنفس المفهوم التقليدى الذى ينص على ان الارض بما عليها هى نموذج مصغر للكون. يفترض هذا البحث انه اذا ثبت وجود رموز ذات معانى كونية فى عمارة و عمران هذه الفترات بشكل نمطى, فسوف يمكن فهمهم كنماذج كونية مصغرة على الارض, مما يؤكد ضرورة ابعاد المفاهيم الشائعة فيما يخص انتاجات الانسان القديم المعمارية و العمرانية التى تأثرت بشكل كبير بمفهوم الحداثه, و فهم عمارة و عمران الفترات العتيقه من خلال المفاهيم الكونية التى امن بها الانسان القديم.تتكون هذه الرسالة من ستة فصول شاملة المقدمة و هى الفصل الاول و الملخص و هو السادس. تنقسم الرسالة ما بين المقدمة و الملخص الى جزئان اساسيان, احدهما نظرى و الذى يشمل الفصل الثانى و الثالث, اما الجزء الثانى و هو التطبيقى يشمل الفصل الرابع والفصل الخامس و هو الحالة الدراسية.

تبدأ قضية فهم المعنى فى عمارة و عمران الفترات العتيقة فى الفصل الثانى من هذا الرساله. فى هذا الفصل يتم دراسة انماط التفكير التقليدية التى شكلها مفهوم الانسان القديم عن طبيعة الحياة و الموت. و تعد هذه الانماط احد اهم المؤثرات فى تشكيل العقلية الفلسفية و الرمزية للانسان القديم و التى شكلت البيئات التقليديه و المبانى المقدسة فى الفترات العتيقة.

امن الانسان القديم فى تلك الفترات برمزية الاشياء و التى اقترنت بأيمانه بوجود واقع غيبى اسمى و اكثر قدسية يوازى واقعه المادى الذى يراه و يحسه و يلمسه. ارتبط هذا الواقع الغيبى بالسماء نظرا لتشابه طبيعتهما, فالانسان يشعر بتأثير السماء و الاجسام الكونية فى دوراتها على حياته اليومية, فهو مؤمن بوجدهما و تأثيرهما و لكنه لا يستطيع

ادراكها او لمسها. وفقا لهذا النمط التقليدى, فان الارض بما عليها هى نموذج مصغر للكون مركزه الانسان, و كل ما يبنيه الانسان من مجتمعات عمرانيه و مبان مقدسه هى كزء من هذا النموذج المصغر. ووفقا لنفس هذا النمط التقليدى, فأن الانسان القديم يتعلم من هى الطبيعة المخلوقة المبادئ الاساسية لتشكيل المجتمعات العمرانية و التى اعتبرها الانسان القديم طبيعة بديلة. فكما يعتبر الانسان نفسه اهم المخلوقات الطبيعية متمتع بصفات شبه الهية فيصبح المركز الفعلى لمحيطه, هكذا الحال فى المجتمعات التقليدية التى يشكلها الانسان بيده. فدائما و ابدا ما يشيد الانسان القديم بيئته حول مبنى مركزى و هو المنى المقدس و الذى يرمز فى مكزيته و اهميته المعمارية الى موقع الانسان فى الكون.

يطرح الفصل الثالث الاتجاهات الاكاديمية المختلفة لفهم المعنى فى البيئات التقليدية و تقسم الى ثلاث انهاج اساسية, اولا: النهج الحداثى المادى و الذى يعتبر Lynch اهم رواده, ثانيا: النهج الاجتماعى السلوكى و يعتبر Rapoport من اهم رواده, و ثالثا: النهج الكونى التقليدى و يعتبر Eliade اهم رواده. و يشترك النهج الاجتماعى السلوكى مع النهج الكونى التقليدى فى اعترافهم بالبعد الكونى فى فهمهم للعمارة و العمران فى الفترات العتيقة. فيؤكد Rapoport, ان البيئات التقليدية فى العالم القديم تظهر فى تشكيلها ثلاث مستويات من المعنى, اعلاهم هو المعنى الكونى. اما Eliade و هو رائد النهج الكونى, فيؤكد ان البيئات التقليدية تمر فى تشكيلها باربع مراحل موازية فى الاهمية و هم: نسخ السماء على الارض, ربط الارض بالسماء من خلال المحور الكونى, التوجه نحو الاتجاهات الرأيسية, و عملية التقديس.

وفقا لهذا الاتجاه الكونى التقليدى و الذى تتبناه هذه الرساله, تفهم المعانى فى المجتمعات التقليدية من منظور كونى, فبدراسة امثلة مختلفة و من بينها الحضارة المصرية القديمه, و حضارة بلاد ما بين النهرين, و حضارات الهند و الصين القديمه, يعمل هذا الاتجاه على أبراز الرموز الكونية المختلفة فى عمارة و عمران الفترات العتيقة و التى تظهر فيها المدن و المبان المقدسة على انها نماذج مصغرة للكون. و بالتالى, فانه من خلال دراسة تلك الامثلة يتم التحقق من المرحلة الاولى من النموذج الكونى التقليدى و التى تنص على انه اولا, يتم نسخ السماء على الارض و ذلك من خلال استلهام شكل المدينة او المبنى من السماء. و تظهر خلال هذه الامثلة مجموعة من المبادئ كالمركزية, الرأسية و الافقية, كمبادئ محورية تعمل على ابراز اتصال هذا النموذج الارضى بالسماء.

الفصل الرابع يقوم بدراسة المبادئ المرتبطة بتشكيل البيئات التقليدية فى الفترات العتيقة المسماه "بالمبادئ التقليدية" و ابراز الدور الذى تقوم به هذه المبادئ فى ربط المدينة و المبنى المقدس بالسماء. و يتم استنباط هذه المبادئ من خلال تحليل مجموعة من الامثله من المدن و المبان المقدسة من الفترات العتيقة. ترتبط فكرة المركز ارتباط وثيق بتشكيل مدن و مجتمعات الفترات العتيقة نظرا لايمانهم بان مدينتهم هى نموذج مصغر للكون, و بالتالى فان هذه المدينة باكملها تصبح مركز الارض, من خلال الدور المقدس الذى تلعبه. فنجد فى المعتقدات الدينية لحضارات مصر القديمة و الحضارة الاغريقية و الرومانية و غيرهم, ان مدنهم الرأيسية ليست فقط مركز الارض ,بل احينا مركز الكون و مركز بداية الحياة . ينطبق هذا المفهوم فى مصر القديمة فى مدينة هليوبوليس, المدينة الاولى و مركز بداية الخلق, اما فى الحضارة الاغريقية القديمة تلعب مدينة Delphi نفس هذا الدور.

يأتى مفهوم المدينة كمركز انطلاق الحياة عادتا من الاساطير و المعتقدات الدينية لهذه الحضارات المتعلقة ببداية الخلق, فتحكى لنا تلك الاساطير ان فى البدئ كانت الارض تغمرها المياه و الاعاصير, و حين هدأت هذه المياه, ظهرت القمة الاولى, و فيها ظهرت الحياة لاول مرة. من اجل هذا نجد اهتمتم بالغ بابراز المركز من خلال تشيد مبنى مقدس و

الذى عادتا يحتوى على عنصر يرمز الى البعث و الحياة, سمى هذا العنصر فى مصر القديمة بالBenben و فى الحضارة الاغريقية بالOmphalos.

وعادتا ما يرتبط المركز بعدة مسميات منها: تلة الخليقة الاولى, الجبل الكونى, و شجرة الحياة. و يظهر من خلال هذه المسميات البعد الرأسى كعنصر هام مرتبط بالمركز مفسحا المجال لمبدأ الرأسية و دوره فى ربط السماء بالارض. و يرتبط هذا المبدأ عادتا بالمبنى المقدس الذى يسكن المركز و يعمل هذا المبدأ على تأكيد تلك النقطة الاكثر قدسية بالمدينة لارتباطها بالسماء. و يظهر مبدأ الافقية كنتيجة لقوة المركز و تأثيره الافقى على الارض, فيظهر هذا المبدأ فى توجيه المبانى المقدسة الى الاتجاهات الاساسية او اماكن شروق الشمس او النجوم و احينا توجه المبانى المقدسة تجاه المركز الاكثر اهمية, كما هو الحال المساجد مثلا فى توجيهها صوب الكعبة. و بالتالى يظهر فى هذه المبادئ, اللبنات للنهج الكونى التقليدى, و تكون هى طريقة ابراز النموذج الكونى و ربطة بالسماء.

تعد افضل الامثلة التى تظهر من خلالها المدينة و المبنى المقدس فى الفترات العتيقة كنماذج كونية مصغرة على الارض, هى تلك التى نجدها فى منطقة هضبة اهرامات الجيزة, و التى يرجع تاريخها الى بداية الفترات العتيقة. يتناول الفصل الخامس دراسة الحالة لهضبة اهرامات الجيزة فى ضوء النموذج الكونى و من خلال النظرية التى يقترحها Bauval و Gilbert و التى تفترض ان الغرض من الشكل العام لهضبة الاهرامات و مكوناتها له بعد كونى يعد الاهم فى عملية تشكيل المبانى ووضعها.

تخبرنا الاساطير المصرية القديمة ان تلك البقعة على الارض و هى منطقة الجيزة و التى سميت (the earthly Duat) هى النظير الارضى لنموذج نجمى فى السماء الذى سمى (the heavenly Duat). فكل ما تشكله الطبيعة فى هذه المنطقة له نظيره المماثل فى السماء, فنهر النيل هو انعكاس لدرب اللبانة, و المناطق المختلفة ما هى الا مجرات العالم النجمى الذى يسكنه الألهة. و هكذا, فكل ما يبنيه الانسان المصرى القديم, شاء ام ابى يصبح جزء من هذا الانعكاس, و بالتالى فعليه ان يتجاوب مع النموذج الاصلى فى السماء و ان يخضع لذات المنظومة التى تحكم السماء و التى عرفت بالمعات (the law of the Ma-at), و احد اهم قواعد هذه المنظومة الكونية هى انه "كما فى السماء, كذلك فى الارض."

تنتهج دراسة حالة هضبة اهرامات الجيزة منهج تحليلى "Inside Out" او من الداخل الى الخارج, فتبدأ بالمركز و هو الهرم الاكبر(هرم خوفو) ثم الاهرامات المحيطة (خفرع و منقرع), ثم اهرامات الملكات و تمثال ابو الهول وصولا الى سلسلة اهرامات الضفة الغربية و الممتدة من دهشور الى ابو رواش. يظهر من خلال دراسة وضع و توجيه و شكل و ابعاد الهرم الاكبر العديد من الرموز الكونية و محاولات وصل بعض الفراغات الداخلية بمجموعات نجمية ذات قيمة عقائدية هامة لدى المصريون القدماء مثل الجبار, الشعرى و مجموعة النجوم القطبية. و يقترح Bauvalو Gilbert, و Hancock, ان وضع الاهرامات الثلاث بهذا الشكل المحدد يتبع شكل النجوم الثلاث بالتشكيل النجمى الذى يعرف بالجبار. و تعتبر هذه الفرضية ان بقية اهرامات الضفة الغربية لنهر النيل و التى تمتد من ابو رواش الى دهشور تكمل شكل التكوين النجمى الذى يعرف بالجبار و التكوين النجمى ال\ى يعرف بالقلائص و هم تكوينات نجمية هامة فى العقيدة المصرية القديمة لارتباطهم باوزيريس اله البعث, و سيت. و من المعروف ان هذا التشكيل النجمى ارتبط بالاله اوزيريس و هو اله البعث و العالم الاخر و الاله ست اله الفوضى و الظلام.

و تطورت هذه النظرية فى السنوات القليلة الماضية لتشمل اهرامات الملكات الثلاث الملتحقة بهرم خوفو و الثلاثة الملتحقين بهرم منقرع لاثبات انهم متصلين بنقاط السطوع

العليا و السفلى للثلاث نجوم المكونة لحزام الجبار على خط الافق فى دورة تاخذ اثنا عشر الف عام لتصل تلك النجوم من اسفل نقطة فى السماء الى اعلى نقطة. يظهر تمثال ابو الهول فى هضبة الاهرامات كجزء رأيسى من تلك النظرية التى تفترض وضع التمثال فى اتجاه شروق الشمس لتسليط الضوء على الحقبة الزمنية التى اشرقت الشمس فيها من خلف التشكيل النجمى المعروف بالاسد. و هكذا, تظهر هضبة الاهرامات بمكوناتها كمخطط عام هدفه نسخ تشكيلات نجمية على الارض و اتباع مسار حركة النجوم المعنية من خلال توجيه مبان معينة صوب محطاتها الهامة فى السماء. و فى ضوء هذه الادلة تعمل المبادئ التقليدية الثلاث التى سبق ذكرهما, على ابراز هذه المنطقة كنموذج مصغر للمنطقة فى السماء التى يسكنها التشكيلات النجمية المعينة, و تقوم هذه المبادئ بتأكيد هذه المنطقة المقدسة كنقطة اتصال الارض بالسماء.

فى ضوء هذه الادلة المطروحة و تحليلها من المنظور الكونى, فانه من الممكن فهم تلك المنطقة بمبانيها المقدسة على انها محاولة لنسخ السماء على الارض لصنع هذا النموذج المصغر للكون. و بالتالى فانه يصبح من المنطقى ادراج هذا النموذج الكونى فى فهم االحضارة المصرية القديمة ضمن احد النماذج الهامة التى يمكن من خلالها تفسير العديد من الظواهر الغريبة و الاجابة على العديد من الاسألة الهامة المتعلقة بتلك المنطقة. و يمكن ايضا تعميم هذا النموذج ليشمل ليس فقط عمارة و عمران الحضارة المصرية القديمة, بل ايضا عمارة و عمران حضارات الفترات العتيقة نظرا لتوفر الادلة الكونية التى تدعم هذه الفرضية.

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الدرجة: ماجستير العلوم

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عنوان الرسالة:

المعنى فى عمارة و عمران الفترات العتيقة , دراسة حالة الرمزية الكونية فى هضبة اهرامات الجيزة

الكلمات الدالة:

المعنى, الفترات العتيقة, الرمزية الكونية, التاريخ القديم, هضبة اهرامات الجيزة

ملخص الرسالة:

فى اطار قضية فهم المعنى فى عمارة و عمران الفترات العتيقة, يقوم الباحث بدراسة تأثير المفاهيم التقليدية فى تلك الفترات على شكل العمارة و العمران. يقوم البحث بابراز النقاط المشتركة فى المدن و المبانى المقدسة فى الفترات العتيقة مع ابراز الطابع الكونى فى تلك النقاط المشتركة. يعتمد هذا البحث على المنهج التقليدى الكونى و الذى يعد احد اهم رواده. وفقا لهذا المنهج فان المدن و المبان المقدسة فى تلك الفترات كانت تأخذ شكلها وفقا لاعتبارات كونية و فلكية و بذلك تصبح نموذج للسماء على الارض. يستعمل هذا المنهج لمحاولة فهم المعانى المقصودة فى شكل هضبة اهرمات الجيزة و مبانيها المقدسة للوصول الى فهم اقرب للمعنى المقصود من هذه المنطقة و منشأاتها

المعنى فى عمارة و عمران الفترات العتيقة

دراسة حالة الرمزية الكونية فى هضبة اهرامات الجيزة

اعداد

ابراهيم محمود طاهر الحديدى

رسالة مقدمة إلى كلية الهندسة - جامعة القاهرة

كجزء من متطلبات الحصول على درجة ماجستير العلوم

في

الهندسة المعمارية

يعتمد من لجنة الممتحنين:

الاستاذ الدكتور: محمد سمير سيف اليزل	الممتحن الخارجي
استاذ مساعد دكتور: نائله محمد فريد طولان	الممتحن الداخلي
الاستاذ الدكتور: على حاتم جبر	المشرف الرئيسى

كليــة الهندســة - جامعــة القاهــرة

الجيـزة - جمهوريـة مصـر العربيــة

2016

المعنى فى عمارة و عمران الفترات العتيقة

دراسة حالة الرمزية الكونية فى هضبة اهرامات الجيزة

اعداد

ابراهيم محمود طاهر الحديدى

رسالة مقدمة إلى كلية الهندسة - جامعة القاهرة
كجزء من متطلبات الحصول على درجة ماجستير العلوم
في
الهندسة المعمارية

تحت اشراف

على حاتم جبر

استاذ تاريخ و نظريات العمارة بقسم
الهندسة المعمارية بجامعة القاهرة

كليــة الهندســة - جامعــة القاهــرة

الجيـزة - جمهوريـة مصـر العربيــة

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في

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