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ARCHITECTURAL EXPLORATION OF THE THEORY AND REALITIES OF MIND-BODY DUALISM

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SYNOPSIS

Architecture is at a cross-road after a long 'trek'. The long trek is a metaphoric reference to ages of architectural practice. In spite of about 4810 years of its existence, architecture had no appellation until 550 years ago when the Greek's *Arch-Tekton* metamorphosed into the word *Architecture*. The Greek Renaissance actually gave architecture its name. The way architects practised architecture between A.D. 1550 and 1900 led to frustration among architects and this attracted pessimism among them. Geoffrey Broadbent in 1973 eventually predicted extinction for architecture. This is partly because of usurpation of the architect's professional functions. Broadbent linked design process with the Mind and its obscurity but he did not investigate the mind as Descartes did in A.D. 1637 when he came up with the theory of Mind-Body Dualism. This issue has again been investigated at Covenant University. The investigation spanned the fields of Mathematics, Architecture, Medicine, Logic, Physics, Philosophy and Psychology. The chase is after the mind's obscurity in architectural creative design process.

A brief history of how architecture developed into a profession from its inception is essential to the comprehension of the roles the mind plays during architectural design process. Architecture started 40,000 years ago when man came out of the cave. Inhotep, an Egyptian, in 2800 BC, laid the foundation of modern day architecture when he introduced, analogy, astrakon, scale and

partial externalization of design process from the mind. However, graphical drafting is the limit of externalization of what happens in the mind.

Apart from analogical approach to design, there are Iconic, Pragmatic and Canonic Design Approaches. It is the analogical approach that has been widely celebrated in Canaanland where the object of analogy is the "Praying Hand". This object of analogy is generously splashed on Canaanland gate, and the Faith Tabernacle. It is at the Youth chapel that the praying hands clearly metamorphosed into an element of Euclidean geometry - the triangle on the elevation of Greek Pantheon. The story of the analogical approach in Canaanland is concluded on the elevation of University Chapel. The attempt to introduce punctuation to its elevation made the architect to bring in the bastion-like element upon which he imposed the element of Euclidean geometry.

A detailed but partial knowledge of the activities of the mind has not resolved the indomitable grip on architectural design process. This was why further investigation into the nature of the mind was embarked upon. The search for more knowledge was started with St Paul's concept of "the whole being - body, soul and spirit" (A.D. 52). The search has been stretched to Descartes' theory of Mind-Body Dualism (A.D. 1637). It was the accidental exploration of the medical field of sphygmology and philosophical monism that combined to expose the "physical" operation of the mind. Physical monism assumed that all phenomena of the mind can be reduced to the laws of physics and sphygmology appeared to be in agreement with it. Sphygmology is the study of Pulses and the heart beat. Heart beats respect the law of physics as they are the source of

natural wave causing vibration upon which the body's operational coordination depends. The brain is part of the body that incessantly undergoes vibration and reflects the effects of the waves. Thus, the mind's operations are found to be dependent on a special type of wave (standing or stationary). This discovery exposes the mind to physical analysis via deductions and inferences and this has led to the establishment in A.D. 2010 of "Universal Wave Theory".

The first beneficiary from the revealed knowledge of the wave theory is likely to be the field of medicine with longevity as its immediate emphasis. It also appears that this theory is most likely to be the desired bridge between the mind and modern technology of computer which is needed to reasonably externalize the creative operations of the mind. Finally, the evolution of Glass-box Design Method which is to be applied side by side with the Black-box Design Method is based on the Universal Wave Theory.

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1.0 INTRODUCTION

This year (A.D. 2010), architecture is formally 4810 years old. However, the word architecture was not known until the times of the Renaissance (1420 - 1550) about 500 years ago when the Greeks gave the profession its name. In recent times, frustration, confusion, stresses and outright psychological uncertainty has crept into the scope and pre-eminence of architecture. In frustration, Reyner Banham in 1965 queried the continued existence of architecture when he said the “United States would be happy to dispense with architecture and building altogether” if caravan and space suits are successfully regenerated. Cedric Price, too, in 1966 accused architects of value-judgement and practice of professional imagery when what is required by “immediate user's based on personal predilections are ignored”. The implication of Price's observation is that architects are compromising the relevance of architecture and that architecture may become an unknown profession. He further observed that it may at best remain known but may be practised by other professionals who are not architects. Today, there are many indirect questions that bother the minds of all practitioners of architecture. These questions might have been based on apparent reasons known to these professionals. The reasons tend to silently confirm the fear of the extinction of architecture as predicted by renowned architects and currently being speculated by non-architects. Among the said reasons are:

1. Reluctance of clients to pay full professional fees;

2. Un-professional load shedding by architects;
3. Age long Design Method intolerance of current computer Technology;
4. Client impatience of long design time;
5. Design information becoming too complex for the mind;
6. Since 1824 Joseph Aspadins discovery of concrete, no new major building material has been development; and
7. Silent usurpation of the functions of architects.

2.0 PROFESSIONAL PREDICTION

Obviously, architecture is at a cross-road of "To be or not to be", at the precipice of extinction, at the dawn of a new brand of prosperity for millennium compliance or marked out for forgetfulness. These issues that border on frustration led Geoffrey Broadbent (1973) to come up with a null hypothesis: "Architecture and architects will become irrelevant in the face of usurpation of architects' functions". Many design authorities have rejected the hypothesis of Broadbent and yet they have no viable solutions to the nagging problems in the house of architecture. It is clear to all that there is the need for long term solutions that will be millennium compliant. Broadbent's prediction of 1973 and what was happening in the professional world ignited the researcher's interest in architectural Design Method which commenced in

1976. This research is an attempt at incorporating mathematical logic in sequential form to solve some of the identified problems. An alternative hypothesis to that of Broadbent has been provided. The postulation, therefore, is that barring all unforeseen circumstances "Architecture and Architects will soon be at the threshold of professional distinction". The instrument of testing both hypotheses is Architectural Design Method. Broadbent's prediction is based on the Black-box Design Method (BDM) which is the only one that is currently being used all over the world. The alternative hypothesis, however is anchored on the Glass-box Design Method (GDM). The Glass-box Design Method is being developed to be computer technology compliant in application and speed of attaining the set goals. Actually Christopher Jones was the forerunner of both hypotheses because he wrote in 1970 about Designers as Black Boxes and as Glass Boxes. One can now say with a degree of confidence that Broadbent's postulation is based on rational thinking, deductive evidences and inference from ages of professional practice. He, actually, linked design with the mind and he knew about the 1637 Descartes theory of Mind-Body Dualism. However, he did not investigate the mind. Neither did he venture into the concept of the tripartite person. Investigations into the roles of the mind in the design process have led to the penetration of Plato's preeminent philosophy of the Indivisible Universe. It has further led one to know more about Descartes entreaties of Mind-Body Dualism and the Biblical concept of the tripartite nature of man - the whole being: Spirit, Soul and Body (1Thes. 5:23). It is now established that the greatest challenge of the architectural design method is from the rampaging impacts of the information technology which the mind has significantly

blacked out. Here is the predictive anchor of extinction for architecture and its professionals.

3.0 **ADVANCES IN ARCHITECTURE**

Building design as a profession started purely without specific identity. It was practised by amateurs. Actual documentation of building plans started about 4810 years ago. Precisely in 2800 BC, King Djoser at Saqqara near Memphis in Egypt made Inhotep, a great Egyptian, to design the step pyramid at Saqqara. At that time neither the profession nor the professional had any specific terminology. The practice had not matured enough to attract formal terminologies. Suffice it to classify the period into two phases of Form Generation and Concept Documentation. It should be recollected that man came out of the cave about 40,000 years ago. Hence the provision of shelter was exclusively in the mind. This engagement he carried out for 35,190 years (40,000 – 4810). There was no record of official documentation of the New Forms Generation during the early period. The point being made is that as at the period of shelter provision, it was acknowledged that:

- a) building forms were generated purely in the mind;
- b) there was no instrument of any kind to document what was in the mind; and;
- c) there was no document of any kind for buildings.

This long period of 35,190 years of New Forms Generation is classified into the first phase of professional endeavours.

The second phase of professional endeavour has taken 4810 years (2800BC – AD2010). Up till today, the Mind still dominates the Building planning process. Form Generation starts and ends with

the mind. However, planning process within the mind metamorphosed into Building plan when Inhotep in 2800BC introduced the use of Estrakon to document for the first time, his conception of the pyramid at Saqqara. Since then, the documentation processes have matured with various reproduction technologies, starting with Tables, T-squares, set-squares Tracing papers, Pencils, Tracing pens and Ink. With further advances in technology, documentations have also matured. Computer softwares packages such as Auto-CAD, 3-D, Rivit etc have had tremendous impact on the drafting aspect of the design work. In spite of the available software, the value-judgement of the mind still retains its controlling power on the design output. It is clear that there are drafting softwares packaging but they are not building design software packages

Professional Appellation: The Greek Renaissance (1420-1550) formally gave the profession its first terminologies - Architect and Architecture. It was during this period that the Greek formally recognized the practitioners of building design and building construction as they designed buildings, carried out all building attendant operations and eventually constructed the buildings. This is because there were no other practitioners in the Building Industry at that time except "Arch-Tekton" – which in Greek means Master Builder. It was the Arch-Tekton that metamorphosed into the *Architect* for the practitioners and *Architecture* for the profession. The evolution of the words *Architect* and *Architecture* as professional terminologies did not affect the design process. The design process remains exclusively in the mind. The mystery of the mind's obscurity is that it still blacks out the design process to any other person but the designer.

At a point and up till now, the mind has rendered modern technology impotent as it has failed to externalize design operations within it. Attempts have been made to investigate the mind through Descartes' theory of Mind-Body Dualism with the intention of externalizing the mind's design operations. But externalization of the mind's operations cannot be attained without full comprehension of the mind's obscurity and traditional design approaches normally employed by the designers.

4.0 DESIGN APPROACHES

Anytime 'Design Approach' is being discussed, it should be understood that these words put together are a professional terminology. It subsumes Design Technique, Design Strategy and Design Process. It is the design approaches that the mind uses to evolve architectural design. There are four types of design approaches. They are the Pragmatic, Iconic, Analogical and Canonic Design Approaches. Although the most commonly applied approach by the mind is the analogical one, the exposition of the four approaches to architectural design may enhance full comprehension of how the mind operates.

4.1 The Pragmatic Approach

This is an approach in which materials are used by trial and error until a stable form emerges which seems to serve the designer's purpose. Most forms of building seem to have started in this way. And in recent time, it is obvious that plastic, pneumatic and suspension structures were introduced by trial and error only to be given the necessary theoretical backing later. The intrinsic principle underlining this approach is TRIAL AND ERROR. It

should be stated that man has not come to the end of the process of trial and error or the pragmatic approach. There is still no theory to support the erection of the pneumatic structure in spite of about 200 years of its invention.

4.2 The Iconic Approach

The Iconic approach came after the pragmatic design approach. By definition the Iconic design approach is the application of tried and accepted forms to build. After a construction method had been established, people started to learn the art as apprentices who thereafter engaged in the replication of the established forms. Thus the craft-man system was developed. The craft-man provided buildings using the known building materials, forms and outlooks. This was how the craft-man upheld and kept the established way of providing buildings. The master that trained him became his ICON. It is from this word (Icon) that the adjective iconic was derived to qualify the design approach. Hence the practice of using traditionally established building form is known as the iconic approach. It should be mentioned that both Pragmatic and iconic approaches were practised without physical drawings. Every operation of planning was carried out exclusively in the MIND.

4.3 Analogical Approach

This approach involves the drawing of analogy-usually visual – into the solution of design problems. Analogical approach requires the use of some medium in terms of objects, plants, paintings, animals etc for the drawing of the analogy. Furthermore, analogy in architecture is physical and the resemblance incontrovertibly essential. It is on record that the first architectural drawing on “Ostrakon” (limestone chip) was known to have been done by

2800BC and this coincided with the first ever introduction and application of analogical design approach. The person responsible for the first analogical approach to design was Inhotep who used Mastaba as a medium of analogy. For the first time in the history of architecture, planning and design which used to be exclusively carried out in the mind were partially externalized. It should be recorded that the year 2800BC was a landmark year in the history of architecture because:

1. the analogical Approach was invented in 2800BC;
2. Partial externalization of mind's operation took place in 2800BC;
3. introduction of a medium (Ostrakon) to document the externalized operation of the mind took place in 2800BC; and
4. Architectural scale was introduced in 2800BC.

4.4 The Canonic Approach

The Canonic approach has nothing to do with Canon Law which is ecclesiastical. In this case the Canonic Approach refers to the Egyptian “canon of proportion” or standard grid of proportion. Egypt appears to be the origin of this approach. Art works and paintings seem to have initiated the use of grid in Egypt. Paintings executed on Ostrakon were later transferred to walls with the aid of grids. Later on, the new technique was adopted to transfer building drawings from the Ostrakon or papyrus to building sites. The success of this technique sensitized and motivated the designers to embark on the use of regular proportion. It should be emphasized that canon proportion is based on human anthropometrics. Once a dimension is selected from the body, it is proportionally reduced into a grid which in turn forms the basis of drawing on Ostrakon.

The canon was simply “Mises Aux Carrsaux” or grid used in transferring a composition from Ostrakon to the building site. Through the use of Ostrakon or papyrus, scaled drawing was initiated.

5.0 The Analogical Approach in Canaanland

The understanding of the issues at play with regard to design approaches will be enhanced by giving typical examples of the analogical approach. This approach is the most widely applied by architects. It is the characteristic features of buildings in Canaanland, Ota, Nigeria. A highlight of the role perception plays between the mind and the world of objects will clarify the issue of the analogical approach as it is perceived in Canaanland.

5.1 Perception

Perception is a complex phenomenon which spans beyond sensation caused by external stimuli to form a final cognitive pattern. It is a complex consequence of physical, physiological, psychological and sociological factors. Between the stimuli traced to the brain in form of impulse and our full consciousness of the external world, a series of elaborate mental process takes place. The senses, the nerves and the brain are involved. The issue here is that the perception of the world of objects commences the process of architectural creativity via analogy.

There are two theories of perception: the physiological theory of perception and hypothetical theory of perception. The former in addition to recognition is inclusive of illusion and hallucination while the latter entertains uncertainties as it is just a proposition. The main gate to Canaanland Ota, Nigeria, does not belong to the field of hypothetical perception. It is real as it has been experienced

as true. There is no illusion or hallucination about the gate. That is, all physical architectural elements used to compose the elevation of the gate are real and true. This includes the symbol of perception as “hands of prayer” borrowed and deliberately imposed on the gate to dominate its outlook.

5.2 The Gate

The hands of prayer are generously used as an analogy to design the gate. It should be noted that the entrance's giant door and door frames are created from the concept of hands of prayer. The creativity process, started with the perception of the divine object that led to sudden brain-wave. The brain-wave as a black-box process led to the emergence of a composition adapted to create and erect the gate of Canaanland, Ota. This gate gave birth to a concept which later dominates the elevations of buildings in Canaanland and Covenant University. The gate remains supreme as a preeminent structure for Canaanland. The same hands of prayer, in subdued manners can be found on the elevation of the Faith Tabernacle, Youth Chapel, University Chapel, student's, Hostels and staff's residences. The applications of the concept on different buildings are not the same but the “hands of prayer” can still be discerned. The use of the concept reached its climax on the elevations of the University Chapel from where it started to decline. It declined to a point of non recognition on the three bedroom flats of the University staff housing.

5.3 The Faith Tabernacle

The transformed hands of prayer are splashed on the elevation of the Faith Tabernacle. The application of this concept, here, may not be fully comprehended, if the layout of the building is not well

explained and carefully linked with the composition of its elevations. The Faith Tabernacle is a tidy and attractive sprawling building. It lies on a vastly expanse of land surrounded by a ring road which protects the sanctity of the building designed to accommodate 50,400 people. It is a place of worship, a church and a celebrated edifice of no mean architecture. It has the architecture that evokes joy, happiness and satisfaction. It stimulates worshipers to submit themselves to the will of God. The plan of the church is based on a formation of two grids one of which is primary while the other is secondary. These grids are based on 60° and 90° respectively. The three wings of the building, its six entrances and the plateau are designed on the basis of 60° grid. Secondary grid 90° is used to layout the pews, the main circulations and the gallery. The above explains why the building has six entrances on its elevations. Each of these elevations of the Faith Tabernacle are dominated by four complex elements; the entrances, fenestrations, stair cases and the roofs. Of the four listed architectural elements, the main entrance on the main elevation stands out clearly. This entrance is also based on the analogy of the hands of prayer which has undergone sophisticated transformation. In this case, the analogy is not as discernible as it is on the Canaanland gate. The cross now dominates all attentions pushing other elements to the background. The five other entrances do not carry the cross. It is clear that the architect deliberately celebrated the entrances with elaborate emphasis using part of the posture of a praying man as the object of analogy. He places these analogical finishes on the eyebrow of each of the six main entrances. Other aspects of the elevations of the Faith Tabernacle are not discussed to permit further treatment of the developmental trends of the "hands of prayers".

5.4 The Youth Chapel

The next stage of the evolution of the creative architectural elements can be observed at the Youth's Chapel. It is on this elevation that the hands of prayer metamorphosed into the ancient Greeks triangle of celebrity as it was originally placed on the pantheon. The flat, ruler-like “flat hands” of prayer that is generously used to adorn the entrances of the Faith Tabernacle finds its way into the elevations of the Youth Chapel. On the same elevations, the “flat hands” are carefully removed leaving the arms without the basic proof of analogy which is RESEMBLANCE cum convergence. However the logic of resemblance in the theory of analogy has been settled with a reference to the Canaanland gate. The point being made is that this architectural element at the Youth Chapel can be traced to the gate via the Faith Tabernacle. The geometry of the remnant hands of prayer on the youth chapel became a sustainable architectural element that is further cultivated on the buildings of the covenant University where the hands of prayer have been reduced to elements of Euclidean geometry.

5.5 University Chapel

The University Chapel is the central master piece on the campus. No one is ever satisfied appreciating it at first sight. The more you look, the more you want to see and the more you see the less the ability of the onlooker to accurately assess it. The best thing to do is to experience that building and conclude that the proof of the pudding is in the eating. The visual magnetism of the University Chapel is attained through a special way of architectural visual delight, visual happiness and architecture of environmental

contrast. A short exposition on this building may enhance its understanding. It is important to start the review of the outlook of the University Chapel by discussing the basic architectural elements used to compose its elevations. The front elevation is put in place with the use of subtle flight of steps at the entrance in combination with four giant pantheon-like columns. The fingerless hands of prayer which are angular in outlook and commonly used on Covenant University buildings are placed on the top of these columns with horizontal elements as a background. The combination of these elements pleasantly adorn the frontage of this building. The mentioned horizontal element actually links four powerful broad-based vertical elements. Two of these broad-based or bastion-like elements are used to accentuate the main entrance while the other two serve as punctuations. The final outlook of this broad-based element now called bastion distinctly came out of the elevation because of its unusual three-dimensional geometry - the geometry of bastions used in ancient fortification of cities. The bastions are finished with tinted, mirror-like reflective glasses. It is the large and reflective surfaces of this unusual element that give the University Chapel its special character. The apex of this bastion is deliberately thrust vertically into the open air to celebrate the glory of God. I cherish this piece. The issue is the Mind-body dualism.

The mind has played its roles on this building. The divine inspiration coupled with uncanny revelation from God has proved beyond doubt that the mind in the body will forever remain the abode of God for those who choose His way.

Although a chronological presentation of the evolutionary metamorphosis of the hands of prayer into physical structures in

Canaanland might have profoundly enhanced visual and mental comprehension of today's exposition, analogy is not a design method but a design approach. This is because the mind retains its grip of obscurity on how it internally works. It is necessary to recognize preeminence in the field of the study of the mind. Medicine, psychology, ontology, philosophy and logic (axiomatics) have paid their dues in the attempts to unearth the mystery of the mind to suit their professions. In spite of these efforts, the mind remains an enigma and the most vulnerable profession to this enigma is architecture. Hence "Aluta Continua".

6.0 PHILOSOPHY OF THE MIND

Despite the fact that there had been no introspective access into what happens in the mind, ages of investigative efforts had been expended in unlocking its gates of mystery. The most relevant efforts to the field of architecture are the attempts made by the ancient philosophers who were the rationalists or metaphysicians of the great 17th century - Descartes, Spinoza, Leibniz. They believed that the general nature of the world, including the mind, could be established wholly by non-empirical demonstrative reasoning. It was believed that one does not need reasoning based on demonstrative empiricism to establish the nature of the mind. They believed it should be based on rational deductive reasoning. Anyway, investigation of the mind is meant to establish its true nature. The investigation may be philosophical, psychological, physical and/or biological. The choice of methodology normally depends on the circumstances of the research. In this case, the research is more specifically restricted to philosophy, physics and medicine.

Philosophy of the Mind is the intellectual investigation and knowledge of the mind and its states. It is true that there is no direct introspective access to what is in the mind. One can only infer what is in the mind of others from the perceptible manifestation of their action in the form of their speeches, behaviour, writings, paintings, drawings and/or body gestures. This is why the philosophy of the Mind starts traditionally with the concept of Dualism. In Descartes' theory of Mind-Body Dualism, it is argued that the Mind is conscious, intangible, invisible and inaccessible, while the body occupies space, it is physically tangible and perceptible. Under this theory it is noted that the mind's activities take place in the brain which is physical and an inseparable part of the body. It is also acknowledged that the nature of the Mind and the body existed at least 1576 years before Descartes put it into a theory in A.D. 1637. In specific terms, Matthew wrote his gospel in A.D. 61 or 28 years after the death and resurrection of our Lord JESUS Christ. In Matthew 10:28 it is stated "and fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both the soul and body in hell" (King James Version). This gospel is best understood in Today's English Version of Good News Bible where it is written: "Do not be afraid of those who kill the body but cannot kill the soul; rather be afraid of GOD, who can destroy both the body and the soul in hell" (Matt. 10:28). With the word "both" in the two versions, the concept of dualism has been acknowledged since A.D. 61. However, it was Descartes who put it into a theory in A.D. 1637. His theory assumed that the mental is radically distinct in nature from the physical. He stated that the body which houses the mind is visible and tangible and yet the mind is not physical. The mind is the intangible centre where all things are planned,

apparently perfected, stored in memory or if necessary abandoned. This view is sufficiently reinforced by the dictionary meaning of conceptualization. It is stated that conceptualization is the formation and development of a new idea or plan in the mind. The mind is the centre where thoughts take place. It is from there that the thoughts eventually emerge from the state of obscurity into the physical for action taking by the body. It is the body that translates plan and creativity in the mind into the physical world. This obscurity in the roles of the mind has its negative and positive effects on architectural design process.

The study of the Mind led to the knowledge of Monism which is a philosophical jargon. There are three types of Monism: Physical Monism, Mental (Neutral) Monism and Interactionism. Physical monism assumed that all phenomena of the mind can be reduced to the laws of physics and biology (FDMT pp391). While expanding the knowledge boundary of physical monism and combining it with the knowledge of sphygmology, it has been discovered in Covenant University that we are at the threshold of fulfilling Isaiah's prophecy of longevity (Isaiah 65:20). It should be mentioned that this conclusion from the discovery has been put to physical tests and has been confirmed. The discovery is that all human beings or human bodies vibrate physically for the healthy operations of the cells, the organs and for the expulsion of the deadly free-radicals from the body. By extension the mind that resides in the brain also experience vibration. It is, therefore, apparent that the philosophy of the mind has a strong role to play in the solutions of the age long architectural problems of the mind's obscurity and mysterious operations. The first step towards eventual solution of the nagging professional problems is to investigate the true nature of the mind in view of the knowledge of physical monism.

7.0 NATURE OF THE MIND

The practice of all disciplines in the Building Industry have been penetrated and reformed by civilization and modernism. They include Structural & Services Engineering, Quantity Surveying, Building Construction Management and Estate Management. In architecture, the mind has closed its doors to civilization and modernism since its inception 4810 years ago. Inbreed has taken place in form of architectural styles. Frustration has led to agitation against styles. Struggles against conformity to styles have brought about architectural freedom of expression. All this happened with the control of the mind. The characteristic operation and nature of the mind remains obscure, yielding only to the owner of the mind. The non-material nature of the mind makes it a black-box which prevents anybody or anything from seeing through it. Modernism and technology have been incapacitated by the mind and this has led renowned architects to predict the extinction of architecture as a profession. There is the need to question the validity of this prediction and to investigate the mind beyond the doctrines of Pythagoras, Plato, Spinoza, Hegel, Mach and Descartes. It may be pertinent at this juncture to introduce the terminology known as “Design Method” as its utilization in this text will soon be necessary.

The nature of the mind can only be understood if it is considered within the context of external stimuli, perception and the mind itself. The mind will still function without the former two but its operation will be inaccurate. The nature of the mind therefore is influenced by the environmental, physiological and spiritual fields. In architecture the real issue is that external stimulus activates perception which in turn activates the mind. It is the mind

that sorts out all external information in form of analysis and makes value - judgement. Physiology mentioned in this lecture refers indirectly to the brain and human senses within which we have the soul. Besides, brain is the seat of experience recording, memory and judgement. Intensive research on the brain as part of the material being or the body has led to the knowledge of sphygmology which is the study of pulse (heart beat). Of course sphygmology has led the researcher to discover that the body respects physical law in the form of natural vibration to perform its operations. The brain as part of the body also respects the physical law. It can therefore be understood that the mind which is intangible and seated in the brain also experiences vibration. Thus, its operations depend on the laws and consequences of vibration. Vibration as a physical phenomenon cannot, in full, be theoretically handled but its consequences are amenable to theory. Vibration produces waves which is being used at Covenant University to develop a theory to solve problems in many fields. The theory is for now titled "Universal Wave Theory" which are being applied to solve fundamental problems in two disciplines - Architecture and Medicine. In Architecture, it is attempting to solve age-long problems of Design Method while in Medicine, the issue of desired longevity is being simultaneously tackled. However, medicine is likely to be the first beneficiary of the Universal Wave Theory (UWT).

8.0 UNIVERSAL WAVE THEORY

The discovery of vibration as a fundamental life support system started with the investigation of the mind and the whole body. The research was extended to the brain, the seat of the mind and was discovered that the brain is incessantly under the pressure of heart-

beat. By deduction the mind also undergoes the consequence or effect of vibration - the waves. This commenced the wave theory. This deduction appeared inadequate to justify the establishment of the “Universal Wave Theory”. However, the application of Electrocardiogram (ECG) to measure physiological health of a patient boosted the foundation of the theory. Finally, pre-exercise and, post-exercise ECGs confirm the suggestion that the body system thrives on vibration. At this point, basic principles of vibration and its waves become relevant. The vibration being applied is that of a pure tone. Pure tone with full or partial obstruction will experience sophisticated standing or stationary waves. The operations of the mind, therefore is based on the existence of stationary waves. This is being used to essentially externalize from the mind architectural design process. Full comprehension of Universal Wave Theory will be difficult without a graphical representation of it. Appendix - 1 explains every aspect of the U-wave theory. It is pertinent to mention that what makes the theory universal is its tendency to affect human life, his operations and physical being. Furthermore the adjective “universal” is used to qualify, the wave theory because this field of study (Natural Waves) applies to people throughout the universe.

9.0 MIND-WAVE IMPACT

Pure tone is used to start the process of comprehension of Universal Wave Theory. Complete multiple pure tones developed into beats such as heart beats. Beats have three features:

- major pressure from waves interference (pressure area) with specific feature of antinodes. Medicine refers to this as systolic pressure;

- minor pressure within the waves field resulting in mode formation or known in medicine diastolic pressure; and
- existence of particles within the wave field: Low Density Lipoprotein.

The mind's performances and operations reflect the nature of its host – the brain. The brain is physical and it is incessantly subjected to the features of wave. That is the brain operates on the basis of the presence of particles, nodes and antinodes. These are also the features of stationary waves with which the mind operates. The deduction here is that the Mind has active and inactive fields coinciding respectively with antinodes and nodes of the controlling stationary waves. It can therefore be understood why there are perception, experience, memory, forgetfulness, rational and irrational judgements. This is because of the nature of nodes and antinodes that exist in the stationary wave, that control the mind. This theory, in principle, can be applied to any part of the body because the whole body is under the incessant impact of the heart-beats which is the origin of body's stationary waves. This is why whenever the brain is sick, the mind is also sick, whatever happens to the host (the brain) happens to the guest (the mind).

The investigation of the Mind-Body Dualism is meant to positively impact on all aspects of architecture be it in architectural education and/or practice. By now, Universal Wave Theory has made it possible to appreciate the mind's potentials and limitations as well as its assets and liabilities. The Mind's greatest potential is the ability to create. Its creativity tendencies span over all human endeavours. However, reasonable exclusion of mathematical

logics and operational research or numerate sequential approach from the field of architecture by the mind makes the profession inadaptable to information technology. This is because the mind is incapable of carrying out two accurate operations simultaneously. At any given moment, creativity is the preference of the mind over mathematics.

The mind has been the greatest asset architecture ever had. Its creative tendencies, its obscurity, mystery and its refusal to permit penetration of the second person makes the mind one of GOD's unique forms creation. Besides, its potential for creativity is unlimited particularly when it is deliberately cultivated as done in the process of education. There is no doubt that the mind has its own liabilities, limitations and deficiencies. It has been discovered that the best way to turn the table against negative predictions for architecture is to focus attention on minds limitations and deficiencies with the intention of expunging its paralytic forces and replacement of them with natural or artificial systems. Since man is not GOD, natural system may be quite difficult to cultivate. Attention is rather focused on artificial system.

10.0 MIND'S LIMITATIONS

The investigation of the mind has shown that the assessment power of the mind remains unsurpassed in all fields of human endeavours. This power is the real issue in architectural design process. However, when the investigation is stretched into other performance areas of the mind, one discovers some of its deficiencies with respect to its capacity and capability. Three deficiencies became evident in the examination of the causes of architectural "long design time". One is now in a position to

deduce that the mind

- A) has Slow Memory Recovery Process ...; it takes Time;
- B) can experience Memory Loss... it takes Time;
- C) engages in Multiple Trial and Error ... it takes Time

The body also has its contributions to the loss of time during design process. The problems with the body are biological and physical. Anyway, the deductions above have been reached from the facts.

- a) That information in architectural practice has become too large for the capacity of the mind.
- b) That professional practice now requires larger memory capacity than the mind has
- c) That job performance requires faster information recovery from the memory domain of the mind
- d) The memory loss can no longer be accommodated in the practice of architecture
- e) That information processing now requires faster speed than the mind can cope with
- f) That immediate and correct outputs from the mind are required with less or without Trial and Error Process.

This exposition of the deficiencies of the mind is actually the

exposition of the deficiencies of the black-box Design Method. In addition to the deficiencies of the mind, the mind's processing of information in obscurity is a liability to the Black-box Design Method. One, therefore, can further conclude that the mind needs artificial support system(s) which will have larger capacity and operational capability. But anything artificial is man-made and in this case it must take care of the deficiencies of the mind. It must also have the general characteristics of transparency in its operational process. That is, the artificial system must be transparent, perceptible, visible and see-through like Glass-box. This is the origin of the terminology of "Glass-box Design Method", borrowing from the pre-eminence of Christopher Jones "Designers as Black-boxes and Glass-boxes".

11.0 ARTIFICIALSYSTEM

It is now clear that architectural creativity can no longer be left perpetually to be entirely shaped by the mind. Creativity must be slightly externalized or brought out from the dark and invisible realm of the mind into the perceptible physical world where it can be tailored to suit contemporary needs of architectural practice. Any artificial system that will support the mind in architectural creativity must have the inherent characteristics of the mind. The point being made is that the system simulating the characteristics of the mind must be able

- a) to receive information ... as input;
- b) to Store information ...into the memory;
- c) to process information ...for transformation;
- d) to obtain information transformation...as end product;
- e) to access the end product...in value

- judgement; and
f) to release to body the end product...as output.

Of the Six characteristics of the mind above, five are the same as those of the computer. The sixth which is the end product assessment remains within the exclusive monopoly of the mind. Hence it does not belong to the Computer System. The remaining five characteristics fit in well into the capacity of the Computer with the following components.

- a) The input components
- b) The processor
- c) The output Components.

This artificial system, a computer with its Components, has been developed within a period of 123 years (1822-1945). However, the processor does not process information (data) without GUIDES. The computer relies seriously on the guides known as software packaging and on the value – judgement of the mind. The guide, by special “creation”, processes certain peculiarities and these are what make each software unique. In the context of architectural design training, the guide must be a softwares on design method. Normally a guide must be perfectly worked out and tested before it can be given to a programmer to be transformed into software. It is the attempt to attain the set goal of perfect design guide for the preparation of software that the Glass-box Design Method was developed. Howbeit, there is still a knotty point in the method that must be untied to attain its state of perfection.

12.0 GLASS-BOX DESIGN METHOD

The research for the preparation of the architectural design transparent guide started in 1976. As the work progressed, it was postulated for axiomatic consideration that if the “Invisibility” in

the Black-box Design Method is changed to become “Visibility”, the Black-box will become transparent. Hence, it will no longer be Black-box but Transparent-box or more appropriately Glass-box. Again Christopher Jones has the pre-eminent usage of the words “Glass Boxes”. It took two years of persistent efforts to attain the initial set goal of 1976. In 1978, the guide was finally developed as 6 – Sequential Design Method. As it is now, the guide reflects the pattern of contemporary practice of architecture in terms of field reality which includes requirements for short design time, good quality of work with the unprecedented introduction of high Percentage of Building Functionality (%BF). The main thrust of the techniques is functional analysis which dictates the functional layout shape. The evolution of the form, plans and Structural layout as well as Structural Coordination sequentially follow. Unlike the traditional design method, the process of the evolution of the plans with the Glass-box Design Method is transparent and Stress-free. Here the inputs, the design process and the outputs are relatively visible except at certain points of creativity where the mind still looms large.

13.0 PROOF OF DUALISM

St. Paul in his first letter to the Thessalonians encouraged them to continue to keep their Christian faith and further prayed that GOD will keep holy their whole being - spirit, soul and body(1st Thessalonians 5:23). This has an implication of a man as a Tripartite person. It is a reality that the body is physical and that it exists but both the “soul and spirit” are intangible and they reside in the mind. Both of them have activities to perform within the mind. Of the St Paul's perception of the tripartite person-Body, soul and Spirit (A.D. 52), two aspects actually take place in the mind. That

is the body as material being exists and operate along with the Soul and Spirit – the occupants of the mind. It is now obvious that we are dealing with two entities – the Body and the Mind. It is clear that applying St Paul's concept of the tripartite person of A.D. 52, and Descartes' theory of Mind-Body Dualism of A.D. 1637 to analyse today's issues of the mind, one will be right to conclude that both propositions are correct. Hence, there is no doubt that Descartes' theory of Mind-Body Dualism (A.D. 1637) holds today as it was at Descartes' time of 373 ago and at St. Paul's time of 1,958 years ago. Of course, Matthew's observation (Matt. 10:28) of A.D. 61 is also relevant to the proof of the Mind-Body Dualism with this proof of Dualism, the true nature of the mind has been established.

Conclusion

Mind-Body Dualism is real and incontrovertible. The mind remains the controlling engine that drives the body. The soul and the spirit can be paired into a single intangible entity while the body is its obedient servant for action taking. Consequently, there is the resultant two “entities”: Mind and Body. The mind in the context of architectural design has been fully investigated. The investigation has been robustly carried out as it touched mathematics philosophy, psychology, spirituality, medicine and the technology of computer. It is the limitations of the mind that bring in technological solution as a way out. This solution is in terms of numerate design approach that recognizes logical sequences. At this point, the characteristic feature of computer will take over some aspects of mind's creativity leaving it only with the role of value-judgement.

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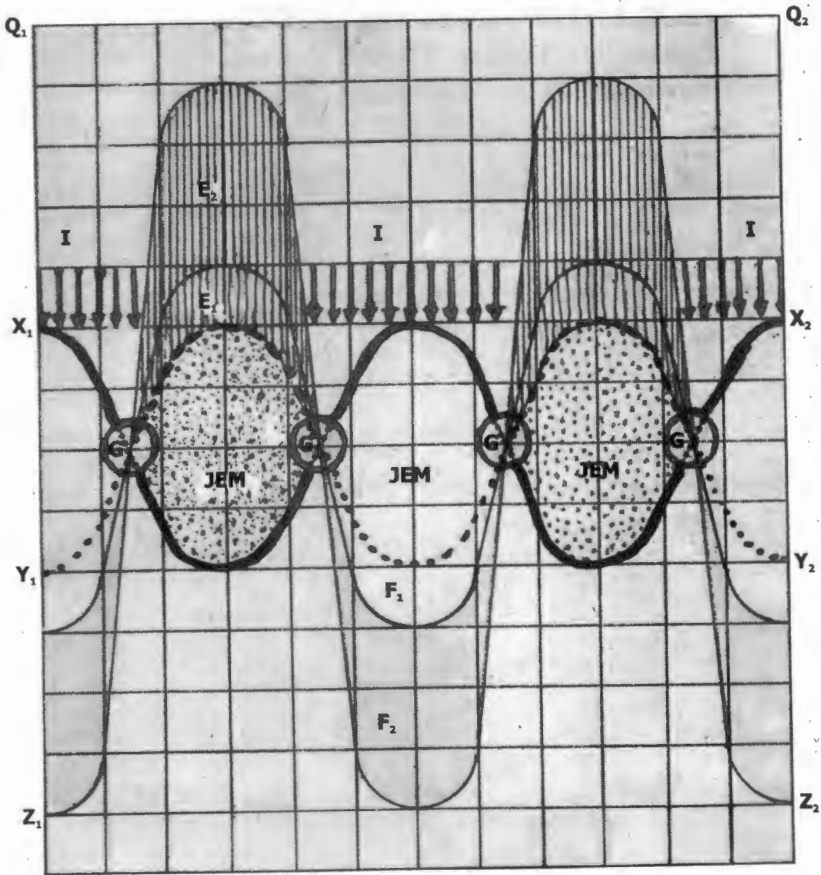
Thank You.

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APPENDIX I



Universal Wave Theory: Graphic Representation

- Q_1, X_1, X_2, Q_2 = External Environment
- Y_1, Z_1, Z_2, Y_2 = Internal Spiritual Field
- X_1, X_2 = The Skin & Upper boundary of the brain
- $Y_1 - Y_2$ = Lower boundary of the brain
- X_1, Y_1, Y_2, X_2 = Brain Field & Mind Scope upon which body vibration act through Wave
- I** = External Stimuli
- JEM** = Experience, Memory & Judgement Field
- G** = Judgement Externalization Platform
- E₁** = Judgement Externalization
- E₂** = Broadened Judgement Externalization
(Being Investigated)
- F₁** = Field of Conscience
- F₂** = Field of Spirituality

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