
WATER FOUNTAIN OF KNOWLEDGE: INTERFACING SCULPTURE AND HYDROLOGICAL ENGINEERING

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ABSTRACT: *The interfacing of Sculpture and Hydrological Engineering in an environmental spatial space in a given community is not only aesthetic spectacular but also therapeutic Water fountain at all times form part of the environment in which it impacts on the social and psychological sensibilities of the public. This study is a qualitative practice based research. The fountain of knowledge is a sculpture fountain project adapted from the analytical studies of university of Port Harcourt socio -academic environment and the reoccurring stress induced deaths. The fountain involves the mechanism of flow of what which is the interfacing of Hydrological Engineering. This study provides a therapeutic sculpture fountain that is construction research. Haven identified stress as part of the causes of death in University of Port Harcourt community, this study then attempted to provide a suiting milieu that is capable of reducing stress, within the spatial expanse of the parking lot of the department of Tourism and Hospitality Management, University of Port Harcourt This involved the making of skeletal amateur, modeling in clay and casting in cement, welding and assemblage constructions, for building of a rectangular water proof trough. The symbols of representation of academic excellence were a pen, books, and scroll with a graduation hood. The sculptural piece on the other hand, shows the flow of water from the pen to the trough symbolically represents academic transactions in the pursuit of knowledge within the university environment. The knowledge of sculpture was not enough to execute this fountain but rather also required some basic knowledge of Hydrological engineering.*

KEY WORDS: Water fountain, hydrological, therapeutic, academic excellence knowledge

INTRODUCTION

The interfacing of Sculpture and Hydrological Engineering in an environmental spatial space in a given community is not only aesthetic spectacular but also therapeutic Often times one becomes sensitive to one's environment especially as it regards life and death. In the University of Port Harcourt community one cannot help but take notice of the many obituaries within the community. The death toll was such that if it is not the students on black chanting 'no more no more for many thousand years', the staff within the community are also not left out in these death tolls. Many death convocation in the Arena, the architectural heartbeat of the University became a common site that the present Vice Chancellor, Prof. N. Lale cried out that they were becoming too many. The death of Prof. Marshal Enenanjor brought it too close to the department of Fine Arts and Design. The deaths are said to be associated with stress hence to search for therapeutic solution to

the stress through the use of Sculpture fountain as a contribution to providing a suiting milieu that could de-stress the community as well as promote on academic excellence.

It is thought and believed that once a person graduate from the University, his life will never remain the same as Mac and Engels (Ezewu, 1990) reviewed human knowledge as a product of the interaction of men with one another and man with their environment in terms of their economic activities. Within this context, the interaction between students and academicians as epitomes of knowledge go a long way in adding more life to the lives of students and other people who come in contact with them. The fountain of knowledge is a symbol of academic excellence which is done on three dimensions; to a sculptural project adapted from the analytical studies of university of Port Harcourt environment. It comprises of: a rectangular water proof-trough lined with designed tiles; representation of a pen (Biro), books, Scroll with a graduation hood which symbolizes academic excellence and its relationship to the students' knowledge, character, including problems during the academic years and up to his or her graduation.

The sculptural piece on the other hand, shows the flow of water from the pen to the trough symbolically represents academic transaction in the pursuit of knowledge within the university environment. The fountain of knowledge a symbol of academic excellence has three functions: the first is purely aesthetic, adding beauty to the university of Port Harcourt environment. The second is the flowing of water from the pen, symbolically represents the quest for knowledge. Men like Socrates, Aristotle and Shakespeare were honoured and represented because of their intellectualism. The third is the employment of psychotherapy for the sight of flowing water relaxes a tensed atmosphere. Especially now that most people in the University of Port Harcourt are suffering from Hypertension. A flowing water has the ability to attract attention psychologically has a suiting effect.

The researcher at this point in time would say that it is an indisputable fact that the joy or happiness portrayed by the student at the point of graduation (academic excellence); which starts from seeking for admission all through academic calendar. In Nigeria the youth are looking forward to a time when all the universities will have all laboratory equipment, materials for research, up-to-date books in their library and most importantly a free university education. It is only when the idealistic situation becomes a reality that fountain of knowledge over flows in the society. The so many recorded deaths in University of Port Harcourt community in recent times is alarming and it has been attributed to stress, and the death of prof. Marshal Enenanjor within the department of Fine Arts and Design This problem sparked of series of thought provoking issues: What can be done in Sculpture to reduce stress? Are there three dimension works that can help create a therapeutic milieu?

The aim of this project is basically to create a naturalistic, symbol of academic excellence. This project is also aimed at adorning the Dr. Jonathan Building alongside with the senate building of the University of Port Harcourt. Apart from the aesthetic appeal of this project, it will again stand as a symbol referent portraying the flow of water from the pen which of course add the psychotherapeutic significance is also considered in environment. The composition is aimed at reducing if not eradicating totally the number of patients suffering from high blood pressure by

gradually returning their blood pressure to normal. It will also help the lecturers and students to relax their minds against the background of economic and academic stress in the society. The scope of this project is purely realistic representation of a pen, book, and scroll with a graduation hood in very unique concept.

Significance of the Study

Despite its aesthetic values is as a means of conveying message to the viewers which can be exciting, emotional, aggressive, motivating and educating. It will also go a long way in bringing down the minds of whosoever comes in contact with it especially Nigerians, with the current situation in the country where anxiety and economic stress is the order of the day.

History of Fountain

A fountain (from the Latin “fons” a source or spring) is a piece of architecture which pours water into a basin or jets it into the air to supply drinking water or for a decorative or dramatic effect. Fountains were originally purely functional, connected to springs or aqueduct and used to provide drinking water and water for bathing and washing to the residents of cities, town and villages. Until the late 19th century most fountains operated by gravity and need a source of water higher than the fountain, such as a reservoir or aqueduct, to make the water flow or jet into the air.

Types of Water Fountain

When it comes to water feature, fountains are some of the most versatile. Because they come in a range of styles and are made from different materials; there’s an option to match virtually any landscape design. But choosing a fountain can be tricky because it’s not always easy to determine which type is best for your yard. The key to choosing the right type is considering the size of yard and existing landscape features so you can find a fountain that blends easily with rest of the yards.

Spouting:

A spouting fountain is generally that most dramatic because it features a pipe that strays up into the air for a striking, plum-like effect. This type of fountain is easy to add to an existing water feature, like a pond or swimming pool, because it only requires a submersible pump. You can pair a spouting fountain with a statue so that water sprays from a spot on the statue or opt for a design that features nozzles that spray the water in specific pattern, such as ring or bubble. This is where ‘Fountain of Knowledge’ can be located.

Floating.

This is an easy and fast way to install a large water feature. Just float the water feature to the desired location in the pool or lake. The body of floating fountains are filled with foam which allows the fountain to float just below the surface of the water.

Cascading

A cascading fountain is more subtle. Instead of using a pipe to spray water, the fountain makes use of multiple levels of water gently overflows from one to the next. A traditional fountain is an example of a cascading fountain, but you can also find smaller styles where water through series of props or other containers. Cascading fountains are usually self-contained, which means all of the necessary plumbing is housed inside the unit. This makes cascading fountains easy to add to your yard without having to hire a plumber or fountain specialist for the job.

REVIEW OF RELATED LITERATURE AND PRACTICE

Fountains are beautiful sites to behold, Fontana die Quattro fiumi (fountain of the four rivers) which was designed and built by the genius of art, sculpture and architecture, Gian Lorenzo Bernini. The fountain die Quattro Fiumi is located in the piazza Navona in Rome. The fountain was an important source of potable water for the locals before the days of indoor plumbing, but even more importantly it was a grandiose monument to the power and glory of the pope and his family. The fountain is built around a stander Egyptian Obelisk surmounted by a dove, a symbol both of the church and the pamphilij (the Papal family).

The surrounding sculpture represent the four major rivers of the four continents that were recognized at that time.

- The Nile representing Africa
- The Gangs representing Asia
- The Danuble representing Europe
- The Rio di la Plata representing America.

It also represents worldwide evangelism of the church. Howard (1990) described Bernini's fountain as one of the glories of Art. This was due to the way he brought the Roman science into play. Although Rome is rich with fountain, Bernini's Fountains were considered outstanding because the unique ideas and skills embodies into these fountains. The fact is noticed in the Triton Fountain which Howard (1990) explained it was a fountain come alive. Bernini used four dolphins which came up from the pool a huge shell open wide and from it emerge the sea god. According to Howard (1990) Triton is an apotheosis of moving water myth come to life.

The fountain of the four Rivers is probably the most beloved of Bernini's Roman fountains. A veritable "theatre in the round" the dramatic water fountains and sensational sculptural details continue to delight viewers centuries after its construction. Bernini's talent forever changed the face of the city of Rome and single-handedly launched the style that would dominate seventeenth century Italian sculpture.

Fountain of the four Rivers:



Figure 1: Gian Lorenzo Bernini, fontain dei Quattro Fiunii, The fountain of Four River stone, 1951, Courtesy: [Wittkower \(1981\)](#)

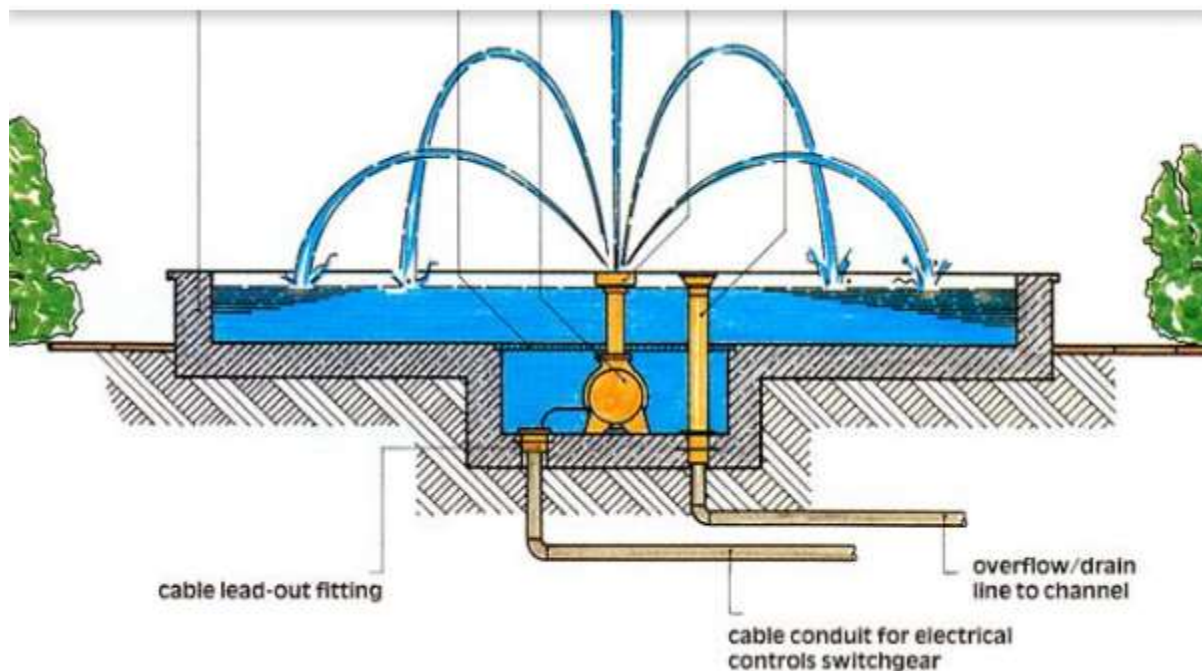


Figure 2: Fountain, Hydrological Design Courtesy: www.Pinderest

Howard (1990) states the fountain of Four River, situated in Italy, a great work in Baroque epoch was Bernini's most outstanding fountain work which had lots of Roman culture evolving around it. The fountain of four River, Howards argued that it is Bernini's most purely spectacular work. Fountain Del Tritone (Triton Fountain) is a seventeenth century fountain in Rome by the Baroque sculptor Gian Lorenzo Bernini Commissioned by his patron, Pope Urban VIII the fountain is located in the piazza Barberini, near the entrance to the palazzo Barberini.

Evnine (2013) looked at the ontological and aesthetic issues as the fountain of Duchamp's' ready-made. USA Army Corps (2018) looked at the Hydrologic requirements for Reservoirs. Solina, Meden (2016) reported the use of stone sculpture and synthetically digitally created virtual water droplets running over the stone. This is a highbred creation of the real and the virtual interfacing to bring to bear a work of Art. Franklin (2000) looked at the ready made of Marcel Duchamp as avant- garde artistic work and queer sexualities coming in time of history where all men space where men visited pissoirs in order to make sexual contact with other men. Rinne (2010) pioneered the study of technological and scientific developments in aqueduct.



Figures, 3, Malgorzata Chodakowska Lorenzo, Bronze Fountain Sculpture Courtesy: www.Pinderest

4 Chad knight, Art Digital, Courtesy: www.Pinderest

“THE FOUNTAIN OF KNOWLEDGE (A SYMBOL OF ACADEMIC EXCELLENCE)”

In Nigeria and in the University of Port Harcourt in particular, sculpture has come a long way but the need to introduce a new dimension into the society is long overdue. More so, the need to mount sculptural fountain has arose, since it is intended to highlight the importance of sculptural fountain as a monumental figure and an embellishment for the environment. Its engagement and location will seek to lift the general outlook of the school vicinity improving its aesthetic quality and also bringing into force an ideal posture and cultural virtue.

In realizing the research design for this project, the fountain of knowledge starts work from Marquette to the main book which stands as the fountain; in other words, it draws exclusively from a critical meditate ion with a lot of sketch that carefully brought together various design mechanism of information, data gathering and analyzing them in a manner that resulted in a practical project created and mounted/installed for display in a public space. This design therefore articulates the following procedure of documentary sources, library sources, oral but focused interview and observations for professionally creating a site specific sculpture for spectacular and exhibition display in the University of Port Harcourt.

In this direction, we are going to categorize them into the following:

- 1) Materials and equipment
- 2) Procedures

Materials

The following materials are used while executing the work: Mild steel metal, Iron rod , , Cement Electrodes, Sand, Cutter disks, Stones, Binding wires, Grinding disks, Fibre-mat, Resin, Water, Ropes, Art cutter, Granite, Plaster of Paris, Plywood, Engine oil, Blocks, Wire, Nozzles, Water pipe, Galvanized pipe, Sketch-pad, Pencil, Clay, Paint,

Equipment and Tools

Welding machine, Filling machines, Pumping machine ,Head pan, Hammer, Chisel, Measuring tape, Shovel, Pliers, Spoon trowel, Jig-saw machine and Mallet/

Procedure

The research started by making preliminary sketches of the work on a sketch pad. Consulted with the supervisor for advice and agreement on the dimensions. Acquisition of materials and tools needed was the next and commencement of Marquette production showing how the project will look at the end with variance in size at heart. The main procedure employed in the execution of this project are clay modelling and mold casting using fibre glass and cement respectively.

Construction of armature for the Marquette started immediately. The modeling is done using clay, white cement is used in picking the mold. The casting of mold is done using fibre glass and resins. The work measured 2.ft from the base.



Figure 5: Finished Marquette, Fibre glass, Photograph: Olokpa Joshua

Upon the conclusion of the Marquette corrections were effected from observation the construction of armature started from the modeling of the books with clay. Piling of clay started immediately in order to add up volume and definition of shape follows to get the forms of the figure. Clay modeling is employed in order to make sure all the forms are detailed out and at the same time

makes working experience easier.

Modeling of book with clay

While this is going on, wet clothes and polythene bags are used to cover the work to avoid evaporation of water which will lead to cracking of the clay. The work comes to an end at this stage.

Mold casting process starts with the application of engine oil while demarcations are made, using cut out zinc. This was introduced to ensure the proper segmentation of the molds. A special consideration is also made about the mother mold from which other molds will take off from. Application of cement, sand and water is used to get the details registered. Mixture of cement and sand quantity ratio of 2 cement to 1, water is used as the next application and is the strongest part of the mold. The application is that of 1 cement and 1 sand which is the reinforcement mixture with metal rods. Water is sprinkled from time to time to make the mold strong enough for casting. While this is going on, water is poured into the clay through the sing cut out spaces. This is to enable the clay to separate from the mold and make it easier for de molding. De molding is earned out gradually using water to avoid breaking of mold while washing and oiling of molds take off. The charging of molds starts as soon as oiling is finished; allow the oil to dry for 30mins. The first application is a mixture of Resin and plaster of paris; while adding accelerator and catalyst. The fibre mat applied gradually to make the (casting) work stronger. The casting is allowed to dry while breaking off mold is done using mallet and chisel.

Mild Steel Metal

Mild steel is one of the most common of all metals and one of the less expensive steels used. It is contained in almost every product created from metal. It can be used in welding; it is relatively hard and is easily annealed notwithstanding its carbon content which is less than 2%. It has the ability to magnetize well.

The mild steel metal was cut into pieces of shape to form the PhD graduation hood.



Figure 6, 7: Work in Progress: Cutting and Welding in the Studio



Figure 8: Ph.D. Graduation Hood, Metal Plate, Photograph: Olokpa Joshua

In addition, because of its' weak resistance to oxidization, it must be secured by painting or otherwise wrapped to avert rusting. Moreover, a coat of oil or grease will aid and prevent it from exposure, and help check rusting.

Construction of armature for the pen started immediately. The use of galvanized pipe and 3/4 rods in getting the shape/form of the pen. Making use of the welding machine and electrodes to weld both the galvanized pipe and some cut pieces of metal.



Figure 9: Welding the Galvanized Pipe, Photograph: Olokpa Joshua

The next was going to the site located at Good luck Jonathan building; department of Tourism and Hospitality Management, University of Port Harcourt.

First was digging out a tree, located at the spot where the fountain of knowledge is to be mounted. It took two weeks and three days to dig out the tree.



Figures 10, 11: Digging of the Tree Stage One



Figures 12, 13: Clearing and uprooting of stub, and waterlogged site

Construction of the water trough pool commenced immediately; first by taking note of the dimension which was 12ft by 12ft in length. Making use of the shovel, Head pan, rope for guide line for the digging of the water pool. Assembling of works: this is done at the site starting with the mother mold (slab for the foundation of the work). Mounting is done while reinforcement with rods stones also go on to add more strength to the work. At this junction, washing of the figure takes the next step while making way for finishing with paints.

Studio Practice, Analysis

In the documentation of this work “The fountain of knowledge” from the various stage of the point of conceptualization. This chapter contains the complete description of all the projects undertaking in this research work. The project are subdivided into construction, assemblage, modeling and moving the work to site.

Also descriptive of audio practice, analysis and findings will be employed in this study.

Conceptual Stage

The execution of this work in the round is thought of as well as making sure, the desired result was achieved. Sketches were made and the sketch with the Books, scroll and pen was approved. In approving this particular sketch; it is believed “the Fountain of Knowledge” symbol of academic excellence will always appeal to the minds of whoever comes in contact with it.

Modeling

Modeling with clay started immediately; while this was going on definition of forms also went on to properly give the body structure forms. The next thing was to pick the mold which was done using cement. In this regard engine oil was used as a separator while cut out zinc plates were also used to demarcate the various areas for easy de -molding.



Figure 14: Application of engine oil as a separator

After few days the mold was dismantled and was ready for casting and fibre glass and resin were used in executing the important work. Casting/fibre glass and resin .For the other books mold casting with cement started after the second application of Casting with only cement and water mixture comes up first to pick the impression while the sand and cement mixture follows in the ratio 3 to 1. While it was allowed, to dry, chicken mesh was cut into sizes and used in the reinforcement process while adding the last coating with the ratio of 1 to 1 cement mixture with sand. Also metal rods were used in the reinforcement process. The next stage was the breaking of molds which was done using mallet and chisel, this stage was considered fragile therefore molds were handled with care to avoid loss of forms due to breaking.

Assembling

The other major stage of this work was the assembling of the work, starting from the mother mold. The mother mold was used as a leading mold which made way for other molds to follow. As the

assembling was going on, metal rods were used in the reinforcement of the whole work to avoid collapse especially since it involved water.



Figure 15: Stage 1: Site flooded by Rain Water

The dressing and washing of the sculpture piece was carried to the site in order to prepare it for proper finishing with paint.

Stage 2: Work in progress

The laying of the blocks was carried out to provide a base for the water pool. Step one was the measurement which was 11 ft. by 11ft length followed by the digging.



Figure 16: Digging the foundation for the work

Contextual Analysis

. This constitute anticipators as one looks forward to accomplishing this project basically in a location, a particular work is intended to beautify as well as posit an allegory on “the fountain of knowledge .The academic pyramid base which the books is lying on suggest the interaction among the levels of academic pursuits with the base level measuring 4ft and half inch in diameter suggesting a solid foundation on the first degree level.

The master and the doctorate degree level followed respectively, which the highest is the professorship level “THE PEN” measuring about 14ft from the ground level gives the “HOOD” graduate cap a fitting balance, measuring about 2ft, in analyzing the aesthetic impart of the dynamic conceptualization, “The Fountain of knowledge, represents academic transaction in the pursuit of knowledge.

The work is located at the Department of Tourism besides the management building, Abuja Park, University of Port Harcourt. In any case the work is sited at this place due to its relevance. It is believed that most of our lecturers are tensed due to stress they pass through academically and other wise especially as the down turned Nigerian economy cannot meet up with their financial demands. Again the inputs of lecturers are considered much higher than what is given to them. They pass through a lot of difficulties, no steady light, and no new edition of materials in times of reading and no good classrooms for purposeful academic learning. All this mentioned above boils down to stress and being tensed “The Fountain of Knowledge” is employed generally to cool and reduce; to minimum all those who are in one way or the other affected by such stress, cleansing of ignorance, intelligence etc. the scripture said: He that believeth in me out of his belly shall flow rivers of water (John 7:38) (The Fountain water). The encouraging words of wisdom coming out of the mouth of a graduate or an educated person.

In order words it is psychotherapeutic in the community, while the water reduces hot temperature to a very conducive and a purposeful academic learning condition in the University of Port Harcourt. The flow of running water alone has a magnetic pull on humans

CONCLUSION

The history of sculpture cannot be complete without mentioning the need and importance of a site specific monument in a public space and architecture in our environment for aesthetics. This is traced back to the cave dwellers who painted as well as did some engravings on the walls in order to enhance the statue and aesthetic values of that particular place. The adornment of buildings and public places with sculptural fountains cannot be over emphasized. This is evident in its cooling effect and at the same time healthy enhancing or maintenance effect. Apart from serving the above stated functions; it has been agreed that if the work is wrongly implemented it can bring above environmental unrest thereby causing social tension.

The value and ideals brought about by this creativity cannot be isolated by the University of Port Harcourt. It is an academic community where great things and great minds meet, ideas and researches are documented, the awareness on sculpture should be created while accommodation should be made to properly put sculptural works in their rightful place within the environment, “the Fountain of knowledge” has treated in detail the importance of sculptural works and also what of sculptural fountain in an environment, reference were made from its genesis to its contemporary times in the way its decorative essence helps man to attain higher values for life.

From the Triton Fountain, to the fountain of four rivers, the little mermaid in Denmark to the Burj Khalifa the building of fountain and monumental sculptures seems to be a universal human

tendency and effort.

Fountain of Knowledge has added to the body of knowledge on Sculptural fountains within its spatial space in the department of Tourism and Hospitality Management University of Port Harcourt, Nigeria. More so it has not only added aesthetic value to the landscape of University of Port Harcourt but also through the flow of water added therapy to the University community.

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