

EFFECTS OF INDUSTRIAL REVOLUTION ON ECCLESIASTICAL ARCHITECTURE IN NIGERIA: A CASE STUDY OF FAITH TABERNACLE AT OTA

ALBERT BABAJIDE ADEBOYE

Department of Architecture, Covenant University, Ota, Nigeria

ABSTRACT

The historical process that led to the development of ecclesiastical architecture in Nigeria relied on a number of factors and industrial revolution one of these factors. This study examined the effect of industrial revolution on ecclesiastical architecture in Nigeria with a view to identifying the new technologies and materials that were employed. Faith Tabernacle at Ota became one of the best cases to study because it was acclaimed the largest church auditorium by the Guinness Book of World Records in January 2008 and arguably one of the ecclesiastical engineering wonders of the age in twentieth century. Since the study was historical in nature, qualitative methods in form of literature, non-participant method in case study and unstructured interview were employed in gathering the data and content analysis with descriptions were used in analysis. The findings showed that the need for unobstructed viewing spaces, quest for its own time, globalization and new theology with liturgy warranted the desire to embrace industrial revolution. New technologies like framed structures, use of machinery and new construction methods emerged. New materials like concrete, timber, steel sections for columns and beams, different forms of glass, vitrified tiles and aluminium were introduced. The study concluded that ecclesiastical architecture in Nigeria has had its own fair share of the effect of industrial revolution.

KEYWORDS: Effects, Industrial Revolution, Ecclesiastical Architecture, Nigeria, Winners' Chapel, Ota

INTRODUCTION

The emergence and development of industrial revolution had been in varying degrees and took different forms at different times in many parts of the world. The general resultant effect was characterized by the employment of machine and chemicals for mass production of goods and services in shorter time inadvertently lowering unit costs of goods, increasing the general quality of goods, contributing to urbanization, creating greater demand for raw processing products and increased international trade. Curtis (1982) noted that when the idea of modern architecture was muted in the nineteenth century, industrialization became a major factor of motivation because it created new economic structures and centres of power with departure from the culture of the previous centuries where architecture relied primarily on the Church, state and aristocracy for patronage. Industrial revolution created new methods of construction, allowed new solutions, created new patrons and problems and suggested new forms.

The main objective of this study is how industrial revolution has affected the development of ecclesiastical architecture in Nigeria. This study has become important because the Church remains one of the major patrons of architecture in Nigeria. Studies have shown that the Roman Empire was the cradle of ecclesiastical architecture and its development relied on the previous and existing technologies to create new epochs at different times (Fletcher, 1987). Its development in Nigeria was sequel to the emergence of Christianity in the country in 1845 following the abolition of slave trade in Europe (Adekunle, 2007). Since the emergence of ecclesiastical architecture in Nigeria, it has undergone some kaleidoscopic changes just like other areas of architecture. A number of factors have been attributed to these changes.

It has been observed that one of these factors is industrial revolution which brought about new materials and construction methods. There is therefore the need to investigate how industrial revolution in Nigeria has affected the development of ecclesiastical architecture.

This study therefore examined what was industrial revolution in the context of Nigeria, how and why it happened, what was the Church like before its evolution, what new materials and technologies emerged and how these technologies and materials changed the way the church designs were made and its construction done. Since this study is qualitative in nature various qualitative methods comprising documents, books, unstructured interview and non-participant observation in a case study were employed to gather data for this study and the method of analysis was by description and content analysis. Faith Tabernacle at Ota in Ogun State of Nigeria, otherwise known as Winners' Chapel, was selected as the case study because of a number of reasons. It is acclaimed the largest church auditorium in the world as acknowledged by the Guinness Book of World Records in January 2008. It is acclaimed to be one of the ecclesiastical engineering wonders of the world and has commanded one of the greatest attentions in ecclesiastical architectural landscape in Nigeria.

STUDY AREA

Canaanland is the study area and it is a name given to the entire settlement on which are situated the church building called Faith Tabernacle, Covenant University campus, Faith Academy full Borden Secondary School with Covenant University Day Secondary School, a Nursery/Primary School and all supporting business facilities. The settlement was initially a forest estimated at 2.3sq.km but has since expanded to over 20sq.km. Canaanland is situated at Ota by Km10 along Sango-Idiroko road.

Salako, R.A. (1999), Smith, R. (1969) and Wikipedia noted that Ota is a traditional sprawling town in Ogun State of Nigeria on latitude 6.7 and longitude 3.23333. Although the population was estimated to be about 163,783, it must have doubled since the establishment of Canaanland and erection of Faith Tabernacle which opened up a number of business and employment opportunities for quite a number of people particularly the Church members who migrated from Lagos to Ota. Ota is adjudged the third largest concentration of industries in Nigeria and it shares boundary with Lagos.



Source: Wikipedia (Internet websites)



Figure 1: Map of Nigeria Showing Ogun State Figure 2: Area View of Faith Tabernacle

LITERATURE REVIEW

Many studies have broadly described industrial revolution as an unprecedented technological and economic development that began during 1830s in the United Kingdom and eventually spread to the rest of Europe, United States, Japan and other parts of the world (Griffin, 2010:Griffin, 2013: Lewis & Abbott, 2003: Kreis, 2006: Wikipedia, 2005). Other areas of influence were technology transfer and foreign investments. Those studies noted that the term "Industrial Revolution" seems to have been first noticed in a letter of 6 July 1799 written by a French envoy and that industrial

revolution was the transition to new manufacturing processes which was basically involving hand production methods to machines in the period from about 1760 to sometime between 1820 and 1840. This revolution began in Great Britain spreading to the Western Europe and then to United State. Fundamental changes were first noticed in the area of agriculture, textile and metal manufacture, transportation, economic policies and the social structure but later to all human endeavours like architecture. Although Nigeria Industrial Revolution Plan was launched in January 2014, the country had experienced quite tremendous influence as a result of globalization of industrial revolution from other parts of the world. Nigeria had had her own fair share of global interaction because she could not remain in isolation (Adeboye, 2014).

The historical process that led to the emergence of industrial revolution in ecclesiastical architecture in Nigeria had no biological inevitability and impossibility to avoid. It had no clear beginning that could be pinpointed with specific precision. This process could not be separated from the development of construction industry in Nigeria. Godwin (2005) noted that the foundation of industrial revolution in Nigeria could be traced to a period before the transition from colony to sovereignty and from dependence to independence which started after the acceptance of the principle of self-determination by the colonial power in the 1940s. During that period the politicians were concerned not only with westernising the Nigerian society but also with re-kindling ancient cultures to justify and give validity to what came to be known as "Nigerianisation". They eventually became aware that to severe relationships and close the doors to outsiders, as seemed politically correct at that time, would spell doom for the country as foreign influence would always remain as it did everywhere else to a greater or lesser degree. If any country was to be influential in world affairs she must understand the need for interdependence and how to interact with her neighbours worldwide as she moved forward.

By the late 1940s already the transition to more advanced building construction in most tropical dependencies had commenced, but the technology was largely foreign and inspired by construction in other tropical countries. What was obvious was that the most significant contribution to the change of construction on the West Coast of Africa and more particularly in Nigeria was made by the Afro-Brazilians who started returning in the 1830s bringing with them the skills which they acquired from the Portuguese and established an architectural style which had its origins in Renaissance architecture (Godwin, 2005). Hillarbrandt (1990) and Adekunle (2007) noted that The Anglican Mission, for example, brought with them to Badagry in January 1845 a two storey prefabricated timber house from Sierra Leone. In 1852 a similar house was built in Lagos and later another one in Ibadan. Some of those buildings and materials were moved from one location to the other and this could be cited as the first example of recycling of used buildings and materials.

Some of the master craftsmen and a master mason later built the Lagos Catholic pro-Cathedral in 1897 which was reconstructed in 1932 (Akinsemoyin, & Vaughan-Richards, 1976; Adeboye, 2014). In order to meet the demands of rapid colonial expansion in Nigeria, it was the Europeans that favoured timber construction and the use of prefabrication which included imported steel and cast iron proprietary structures which was later adopted for ecclesiastical buildings. That system was a product of the imported industrial revolution from Europe. Godwin (2005) observed that broadly speaking, for nearly 100 years from the 1850s to the 1950s design and construction in the "Brazilian" and "Colonial" imported styles influenced the ecclesiastical architecture of the time. This cradle of imported industrial revolution affected social, economic and environmental areas of life of many people creating new social class on whose economy the Church relied through tithes and offerings. This also gave rise to urban centres being created by the new denominations created especially the Pentecostals which were ascribed to be an urban phenomenon (Oleen, 2015; Allen, 2009; Calvert, 2013). The importation could not continue for long as indigenous provisions had to be made.

Adeboye (2014) observed that the early Churches were controlled by foreign established Missions as Gothic style dominated the period. That style of ecclesiastical architecture was characterised by its usual strong focus on verticality, pointed arches, rib vaults, flying buttresses, large stained glass windows, ornaments and pinnacles. Construction works and materials depended largely on foreign input. In the latter part of Church development in Nigeria there was an unprecedented rate of ecclesiastical architecture stock characterized by the requirement for the use of industrial materials because the Church wanted to move with the time. Places of worship sprang up virtually dominating every street. Another reason for the demand for industrial products was that the theology and liturgy of many of the Churches began to shift to prosperity message and lifestyle inadvertently empowering the Church economically to invest in ecclesiastical architecture.

Adeboye (2009) noted that as the country was getting industrialized only few foreign building materials were being used as local building materials enjoyed full patronage. What could be classified as Pentecostal architecture emerged as their liturgy and theology encouraged increase in required space per person. This architecture departed from ornamentation and ancient art but shifted to the use of modern industrial materials. Theatre form floor plan emerged because Mega-Church as a new vocabulary in ecclesiastical dictionary and architecture evolved. As large unobstructed spans were required what could be considered as industrial ecclesiastical buildings sprang up to accommodate the population explosion experienced in the Church development.

Gaiaya (2002) and Adeboye (2014) noted that some Churches in Nigeria have grown so much that they have to build fantastic structures of long unobstructed span arising from a motivation to drive soul-winning programs which brought in a large number of worshippers to the Church. With the rapid development of the gospel of prosperity spreading like wild fire, there was the encouragement to erect buildings to augment the preached word because architecture has a way of augmenting the preached word (Bruggink & Droppers, 1965).

FINDINGS AND ANALYSIS

Cast iron had to be imported and introduced in the building industry in Nigeria because its strength in compression when being used as columns. When used in place of masonry for columns it could be considerably smaller whilst carrying the same load inadvertently reducing the entire construction which could allow for taller buildings to be erected. The use of cast iron also replaced the use of timber/wooden columns because of its ability in being fire proof thereby withstanding the high temperatures of fire and because it was cast according to shapes of moulds, different cross sectional shapes were achievable. Its high strength to weight ratio compared to masonry made it cheaper and made designs more flexible.

When the new system of blowing glass was developed, larger windows could be used in the building industry for larger windows to allow for more natural lighting and ventilation. A major advantage of the new development was that glass panels were made in bigger sizes for windows and roof elements that used to be made of two or three sheets that overlapped.

Faith Tabernacle, Ota (1998-1999)

The first transformation after the early Church development in Nigeria was characterised by the emergence of African Independent, Charismatic and Pentecostal Churches. Living Faith Worldwide was one of the Pentecostals founded by David Oyedepo (1954-date) in 1981. The Church grew having many branches across the globe. The process that led to the erection of Faith Tabernacle was a need for space expansion required because the previous Church facility at Raji Oba in Lagos could no longer cope with the rapid increase in the congregation. Sunday services were already running beyond five with each service including the overflow running to about 3000. The development was already creating environmental

concern for the neighbourhood. Vehicular parking spaces and sitting spaces were over-stretched. The current site was located and the construction of Faith Tabernacle commenced in October 1998 and built to habitable level in September 1999. Internal and external improvement of the building with current materials became a regular occurrence up to the time of this study. Although, all the Ministry's church building facilities are usually called Winners' Chapel no matter how large it may be, the one sited at Canaan land in Ota was named Faith Tabernacle.

The consortium of designers was the professionals who were members of the Church ready to offer free professional services as a sacrifice to the house of their God. The total cost was put at over One Billion Nigeria Naira in 1999. The design style of the architecture was devoid of any rigidity of a particular style but it had a flavour of structural analogy. The major determinants or influences were theological, liturgical and functional.

The plan design of the building evolved from theological concept of trinity with the central hexagon from which three arms emerged. Each arm was about 45metres wide and 110metres long with four doors at the main entrances approached by large porches and four doors on each side protected by verandas. Three stair halls attached to each side of each arm allowed vertical movement to the gallery above three of the sides of the arm. The finished floor levels of the six (6) Main Entrances are the same with the finished floor level of the altar

At the six major entrances, that is, three at the arm ends and three between one arm and the other, were symbolic structural elements of sloping beams and vertical columns in form of two clapped hands pointing to the sky and carrying steel crosses. This was considered generally acceptable in Christendom as a prayer offering posture and this symbolized the devotion of the Church to prayers. Functionality was expressed through the general concept of the typical Pentecostal churches that consider the interior of the church as a lecture theatre where teaching of the word of God was given priority. The clear span of space enabled each arm to have a visual connection with the altar. Three electronic screen boards were hung at the centre of each arm to improve the connection with the altar because the length of the arm which stood at 110metres to the centre of the altar would not permit a natural clear focus on the altar no matter how lighted the area could be.



Source: Field work in 2010



Figure 3: Floor Plan with Three Identical Arms Figure 4: View of Entrance between Two Arms

The building had three (3) equal arms (Love, Faith and Hope) equally spaced in form of letter "Y" and they emanate from the altar measuring over 45metres span and 110metres long. It had six (6) main approaches leading to main entrances. The total number of doors around the Tabernacle including the gallery amounted to ninety (90) with an average width size of 2.40 metres. The altar is at the centre of a central hexagon from where the three (3) arms emanate.

The entire building was a framed structure with massive concrete columns along the external walls with connecting and cantilevered beams supporting the galleries. From the finished altar level to the central cone of the roof is 42.00 metres high. Upper galleries ran 6.0 metres and 3 metres round the exterior and the interior of the external walls respectively. Twelve (12) external and five (5) internal stair halls with 1.5 metres run surrounded the church building. About 48 Vestries were located within the building. Acoustic quality was achieved through the wide span of each arm and roof vents. Long span aluminium sheets were used for the roof covering on steel trusses. Large internal volume, roof vents, large windows with aluminium frame and glass panels and doors contributed to the achievement of crossed ventilation, thermal comfort and acoustic tolerance. Windows were sliding type of two levels and of aluminium frame profile with clear glass panels. Over 5,000 parking spaces provided a generous parking ratio of cars to the population on a typical Sunday morning service. Landscaping was given prominent attention with green areas and planted trees

Other facilities that surround the church within the same neighbourhood are the Church Office Secretariat, Four (4) Banks, Shopping Complex, Bakery, Three (3) Restaurants, Camp House with about 250 bedrooms, Pastors Quarters, a Primary School, a High School and a University campus. Apart from the long concrete Urinals, the toilet Water Closets (W.C.) are about 252 in three (3) locations (32 in a building) around the tabernacle. Other toilets numbering 50 are incorporated in the building



Source: Field work in 2010



Figure 5: Steel Roof Trusses on Conc. Column **Figure 6: Roof Trusses of Cone and Roof Light**

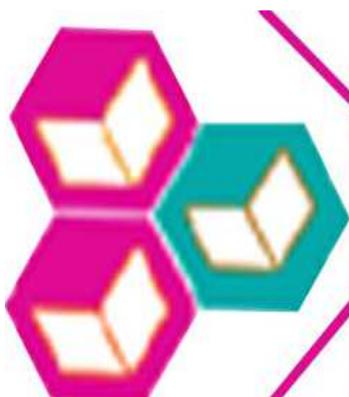
CONCLUSIONS

The study concluded that as the country Nigeria began to embrace the values of industrial revolution, industrial products got adopted for church buildings because the Church was a major patronage of architecture. As the Church developed embracing new theology and liturgy couple with soul-winning drive evangelism and the quest to augment the preached word through architecture, there was the need to adopt what industrial revolution could offer to achieve these objectives. New technologies and materials kept on being used by the Church. Industrial revolution also created new economic class and this translated to economic empowerment of the Church giving them the ability to procure the facilities.

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