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Art of Lithography: A New Pathway of the Challenges Facing the Printing Industry in Nigeria

Dr. Ogunlade Benjamin. A
Department of Fine and Applied Art,Ladoke Akintola University of Technology, Ogbomoso, Oyo State, Nigeria

Abstract
The art of Lithography has remained the most versatile process of printing today in view the various setback been faced from other modes of printing processes within the printing industry in Nigeria over the years. Printing being a strategic means of mass communication which has made possible for mass reproduction of designs through the lithographic process, certain specific challenges has remained unresolved by the operators in the sector. In the light of major challenges such as inadequate printing facilities, poor infrastructures, depressed economy, high production cost, short printing runs, illiteracy ,poverty and poor reading culture. Others include poor approach to printing and printing problems caused by bad plates, improper handling of plates and adulteration of development chemicals. This paper, however, sets out to investigate these challenges that has brought colossal setback to printing in Nigeria. A number of printed materials were content analyzed to prove the extent of degradation that printing production have suffered over time.
Keywords: Lithography, Printing and Printing Industry

Introduction

Lithography is one of the processes of printing which is commonly known as planographic printing or offset lithography. It is today considered as the most versatile and perhaps the most mysterious of all the printing process as everything happens on a flat surface according to Pipes (1992). This process of printing has made moribund other methods like relief, intaglio and other printing techniques. This act of lithography process depends largely on the principle of anti-party between water and grease or oil. It was developed from two Greek words – 'litho', meaning stone and 'grapho' or 'graphein' meaning to write. This process was developed in 1798 by a German map inspector known asAloys Senefelder. By 19th century it became the chief means of reproducing works of art and illustrating books and magazines according to Encarta (2009).

The introduction of its process revolutionized printing Pipes (1992). He stressed that it is the style or printing process that could quite easily combine types and pictures on the same page. This process was first experimented by artists, who out of quest for the reproduction of their art works made it popular. It goes through various processes of development which turned it from an art form to a versatile printing process and a commercially vibrant enterprise that has become the hub of mass media. Pipes (1992) affirms that the invention along with photography changed the course of printing history and has rendered letter press virtually obsolete and made offset lithography the predominant printing technology of the 20th century.

In modern lithography, the workflow requires several stages – prepress and press operations. The term prepress is used in the printing and publishing industries for the processes and procedures that occur between the creation of the print layout and the final printing. The prepress procedure includes the manufacture of a printing plate, image carrier or form ready for mounting on a printing press, as well as the adjustment of images and texts or the creation of high quality files.

The production or duplication of the images from the lithographic plate (the press operation) requires the mounting of the palte(s) on the offset printing machine for final printing. What is known as prepress today was referred to as lithography in the local parlance and the operators were referred to as lithographers. According to knowledge of the operations of the large format press camera (lithographic dark-room camera or process camera), used in copying from the camera-ready artwork or mechanical art work onto a negative or positive film. The film is then stripped and mounted on the light sensitive lithographic plate through the plate making machine. The process from the camera-ready artwork to the plate exposure is what is commonly referred to as lithography. This process is gradually facing extinction as the process or press camera is being taken over by modern technology.

During the 1980s and 1990s, computer-aided prepress techniques began to supplant the traditional dark room and light table processes and by early 2000s the word prepress became synonymous with digital prepress.

1. Historical Development

Lithography started as an art form experimented by artists. However, history has it that the process was discovered by Alois Senefelder of Munich who used a porous Bavarian limestone for his plate, in 1798, Britannica. But the account of Wikipedia stated that 'It was invented in 1796 by a German author and actor – Alois Senefelder as a cheap method of publishing theatrical works. Saff and Sacilotto (1977) stated in their account that 'lithography is the only one among the four major graphic techniques of which the origin – and

indeed the invention – are documented'. However, process reached a high state of development soon after its invention and within the recent time, a range of variations had been explored including transfer methods – direct drawing on stone and engraving on stone. It was stated further that 'the principles of lithography were accidentally discovered and then perfected in Munich in the 1790s by young actor-play-write, Alois Senefelder.

The common consensus is that it was discovered or invented by Alois Sensfelder of Munich. By 1799 he was able to obtain an exclusive patent for his method of printing which he called 'chemical printing from Munich according to Saff and Sacilotto (1977). The invention became very popular among experimental artists of the period. The first recorded specimens were series of prints known as specimens of polyantography published by an American born artist, Benjamin West between 1801 – 1807. (Saff and Sacilotto 1977). From then on, it assumed the role of major creative medium in the hands of prominent artists.

This early form of lithography which involved using oil based material to write or draw on the surface of a polished limestone was basically referred to as fine-art lithography. One of the greatest technicians in France was a printer named Godetroy Engelmann who worked with most leading artists of the day. He developed the first process printing, using primary colours to produce a full chromatic rang which he called chromo-lithographiques. It was later to be known as "Chromolithography". This was broadened to include all types of colour lithography according to Saff and Sacilotto (1977). This experiment formed the bases on which modern lithography developed. It became what is called offset lithography today. After about 1825, many firms that utilized the lithographic process were established for producing a variety of commercial work and for distributing popular materials on historical and religious subjects to a wide audience (Britannica). The steam-driven lithographic press was perfected by Hughes and Kimber of England in about 1865 and introduced into the United States in 1866 according to Britannica. These presses utilized automatic rollers to moisten and ink the stone.

In 1853, the method known as offset lithography (offset printing) was patented by John Strather of England. By 1860, the photo transfer process was patented, enabling a photographic image on sensitized paper to be inked and transferred to the printing surface (Britannica). It can be photographed in the plate making process. It produces high-quality, finely detailed impressions at high speed.

There are two major classifications of lithography. Fine-art lithography and offset lithography. This paper however, deals with photo-lithography.

2. Photo-lithography

Photo-lithography is the modern lithography which is photo-chemically and mechanically operated. It depends on photographic processes, instead of lithographic pencil to produce the image. The printing surface or image carrier is mostly made of photo-chemically treated aluminum, polyester or paper printing plates instead of limestone (Wikipedia). Saff and Sacilotto stressed that photolithography is the process of creating an ink receptive image on aluminum, entirely of photographic means. Today it is the most versatile and commercially oriented means of mass producing graphics ever known since Gutenberg. High – volume lithography is used presently to produce posters, maps, books, newspapers and packaging-just about any smooth, mass-produced items with print and graphics.

3. Concept of Lithography

The word lithography, derived from the Greek, means 'stone writing' according to Saff, et'eel. It operates from a flat printing surface where it derived the name planography. It operates on a simple principle of the immiscibility of grease and water according to Britannica. Saff et'el affirms this by saying that planographic printing method depends upon the antiparty of grease and water.

Lithography uses simple chemical process to create an image. The positive part of an image is a water repelling substance ('hydrophobic'), while the negative image would be water-retaining ('hydrophilic'). When the plate is introduced to a compatible printing ink and water mixture, the ink will adhere to the positive image while the water will clean the negative image. By this process, the printing surface or image carrier (limestone or aluminum plate) is processed to accept ink on the image areas and to reject or repel it and accept water on the non-image areas.

4. Technique of Photo-Lithography

Photo-lithography process or technique depends on photographic processes, flexible aluminum, polyester or paper plates instead of stone tablets. 'Modern printing plates have a brushed or roughened texture and are covered with photosensitive emulsion. (Wikipedia). A photographic image is placed in contact with the emulsion and the plate is exposed to ultraviolet light rays. The unwanted or non-image area is washed away after a chemical bath leaving the image areas ink receptive.

The plate is affixed to a cylinder on a printing press. Inking and water rollers are rolled over the plate simultaneously. The plate transfers or offset the image to rubber blanket which in turn transfers to the paper.

Because the image is first transferred or offset to the rubber blanket cylinder, this reproduction method is known as offset lithography. This is used presently to produce high volume prints like posters, maps, books, newspapers and packaging etc.

5. Lithographic Process in Nigeria

There is very scanty information on the actual data and time lithography came into Nigeria. this is because printing as a vocation and business has from its early history, been a private affair, dominated by individuals and few corporate organizations without any formally documented history. However, its history and development in the printing industry in Nigeria is directly connected to the establishment of printing press by early missionaries. According to Nwogu and Akinde (2007), this can be traced to the Scottish Presbyterian mission led by Rev. Hope Waddell, who arrived Calabar from Jamaica in 1846, bringing with him a lithographic press and a conventional press for letter press printing.

Similarly, Rev. Henry Townsend of the Church Missionary Society (CMS) established a printing press in Abeokuta, according to Omu (1978) in 1859. However, the first commercial press, the Tika-Tore printing works was established in 1910 at Lagos (Aguola and Aguola, 2002). This opened the gate for establishment of other printing presses to cater for the growing educational systems. Oxford University Press was established in 1949 at Ibadan, became University Press in 1950 and later, a full fledged publishing outfit in 1955. This was followed by Onibonoje Press, Ibadan and Baraka Press, Kaduna in 1958.other indigenous publishing houses emerged in the 1960s and 1970s namely: African Educational Press, Fourth Dimension, Ilesanmi Press, the Northern Nigerian Publishing Corporation based in Zaria. Nwogu and Akinde (2007).

By the end of 1970's more University Presses namely: Obafemi Awolowo University Press, University of Nigeria Press, University of Lagos Press, Ahmodu Bello University Press, University of Port-Harcourt Press, etc. Today, every state of the federation has both government and privately owned printing presses. However, apart from the record of Rev. Hope Waddell of Calabar who was said to have come along with a lithographic press, no recorded evidence of when and where particularly the Lithographic Process actually came.

However, the unprecedented population and economic growth has greatly challenged the demand of lithography industry in Nigeria. The situation in the lithography industry and the printing industry in general has really changed positively in the last two decades from what was obtained before. There is greater competition and many more players are coming into the sector according to Printers Digest. It stressed further that if well developed has the potential of generating good revenue and employment base for teaming unemployed youths.

Since the present political dispensation in Nigeria in 1999, the printing industry has witnessed a lot of positive changes as a result of some economic development policies being implemented by both Federal and State governments. All the sectors of the economy have recorded an astronomical growth over these years. Many firms that utilize the lithography products have been established, putting tremendous pressure on the lithography industry.

Some of the polices that have positively affected the demand of lithography in Nigeria are:

a. The introduction of UBE scheme and establishment of more tertiary institutions
b. Privatization of telecommunication sector and ban on importation of recharge cards
c. Banking sector reform
d. Establishment of full democracy and political party formation
e. Proliferation of religions activities
f. Ban on importation of packaged products.

All these policies have placed heavy demand on lithographic products like exercise and text books, recharge cards, bank notes, cheque books, light packaging, posters, flyers, billboards, calendars, product labels and other ancillary printed documents which are produced in large quantities for distribution to a wide audience in Nigeria. (Plates 1, 2, 3 and 4).

6. Challenges within the Printing Industries

Lithography and printing industry in general has had a long history since its inception in Nigeria. it has developed tremendously over the years but not without challenges.

- The first major challenge is the epileptic power supply which has caused a lot of industries to run down. Many printing organizations end up running on generating sets which is an added cost to the cost of operation.
- Lack of technical manpower or personnel to manage and maintain the machines are a major impediment to the industry. Random sampling across many printing presses including those managed by governments and their parastatals show the sorry and obsolete state of machines. (Plate 8)
- The high cost of purchasing new equipment to replace the obsolete ones is equally a major course for concern to the industry. Most of the so – called replacement is actually the refurbished ones that have really lived out their time in their previous places of use. In some cases, equipments are improvised

thereby creating substandard products.

- Inadequate training and retraining of personnel operating the equipment equally helps in reducing the quality of in-put and out-put in the lithography industry in Nigeria. (Plates 5, 6 and 7)
- The printing industry in Nigeria has become an all-comers profession where those who have little or no prior knowledge delve into as a result of the societal demand. For this reason, a lot of substandard printed products are abound everywhere in the society. Quality has become subordinated to mediocrity in this very important service industry. (Plates 5,6 and 7)
- Use of substandard consumables like paper, ink and reagents for the production of lithographic plates reduces the quality of production in the industry. (Plates 5,6 and)
- Introduction of digital technology in the print production has highly changed the work flow in the industry. The traditional lithography which included the film production in the darkroom (Plate 9) is gradually being taken over by the 'DI' process (direct imaging process). The process has highly improved the quality of production but it is not cost effective for long impressions.
- The new technology reduces the manpower thereby causing unemployment for those who are less proficient as they require computer literacy. The introduction of these new technologies reduces the influence of lithography and could send lithography to the dustbin of history like other processes preceding it. Just like its invention totally dwarfed letter press and intaglio processes, so the establishment of new technologies is likely going to overshadow that has been the most versatile printing process of the 20th and 21st centuries. According to Pipes (1992), computer-to-plate technology is a reality and has come to stay.

The results of these challenges could be seen from poor quality productions from many printing industries today. (Plates 5,6 and 7). It is pertinent to note that some multinational organizations still prepare to produce their vital documents abroad to avoid the disappointment of low quality production.

7. Conclusion

Nigerian Printers Association has to wade in to sanitize the industry like other professional bodies to regulate their practices. Federal government has to do something to improve the power situation in the country in other to prevent the industry from collapse. There should be rebate on the importation of the equipment and the consumables to help improve the quality of input and output. The professionals should be abreast with the modern technologies through training programme to improve their technical proficiencies.

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