WAX RESIST-GLAZE CRAWL REVISITED: A CREATIVE GLAZING TECHNIQUE ON CERAMICS

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ABSTRACT

"Glaze crawl" in ceramics is usually associated to a kind of glaze defect or fault which are caused by a number of physical or chemical difficulty. Noticing this defect became a source of concern in the art of glazing. Ceramists have over time proffered solutions to this problem and at the same time considered this defect as a design element in glazing. This study adopted a different approach to achieve intentional creative glaze crawl by utilising Paraffin wax from the Textile specialization for creative glazing in ceramics. Wax resist technique was intentionally employed to create the patterns in the form of "glaze crawling". At biscuit stage, melted paraffin wax was used to resist some parts of the ceramics wares in form of motives and allowed to dry, the wax resisted wares were immersed into prepared glazes and also allowed to dry. The wares were glaze fired under the temperature of between 1200 -1300^{o}C in the kiln. It resulted in a brown glaze against resisted areas of light background. In conclusion, this resulted in a creative glazing technique that heightens more admiration through the collaboration of textile and ceramics techniques.

Keywords: Wax resist, Glaze, Crawl, Creative Technique, Ceramics.

INTRODUCTION

"Glaze crawl" as popularly known in ceramics is a kind of glaze defect that are regarded as inimical to the success of application of glazes on ceramic wares. This defect is usually caused by dust on the biscuit, oil from hand lotions, and other surface impurities. Ceramists over time have come to take advantage of this defects in a positive way as a glazing style. Conscious manipulation of glazes to result in crawling effect is now being practised among ceramists. This study in a bid to be different employed the use of Textile paraffin wax (wax resist) on biscuit ware to achieve crawling of glaze for creative glazing. Wax resist nevertheless, is a technique popularly known for designing in the textile area, now the technique is also encroaching into other design areas with the use of different kinds of wax.

LITERATURE REVIEW

Originally, wax resist dyed fabrics came from Indonesia which were then exported to the Gold Coast and spread over West Africa into Central Africa. (wendren, 2008). Wax resist dyeing technique in fabric is an ancient art form. Discoveries show it already existed in Egypt in the 4th century BCE, where it was used to wrap mummies; linen was soaked in wax, and scratched using a sharp tool. In Asia, the technique was practised in China during the T'ang dynasty (618-907 CE), and in India and Japan during the Nara period (645-794 CE). In Africa it was originally practised by the Yoruba tribe in Nigeria, Soninke and Wolof in Senegal. (Batik Kuna, 2012). Batik is a “resist” process for making designs on fabric. The artist uses wax to prevent dye from penetrating the cloth, leaving “blank” areas in the dyed fabric. The process, wax resist then dye, can be repeated over and over to create complex multicoloured designs. (Dharma Trading, 2013).

Wax resist in the form of batik though mostly and popularly practised in the textile design area, is not limited to the textiles alone as other art areas such as painting, ceramics and so on currently exploits the magic of wax resisting in arriving at desired patterns or designs, though with difference in the wax types being used in the different areas.

"The fact that oil or wax and water don't mix can be used when painting to mask out areas to retain the white of the paper or the colour beneath, as well as to create interesting textures" (Boddy-Evans, 2015). While in ceramics, wax resist according to Peterson (2015), " is a waxy substance used to prevent slips, engobes, or glazes from adhering onto the clay body or a prior coating of slip, etc. A resist is especially helpful in keeping glaze from adhering to a pot's foot, and in the case of a lidded jar, from keeping the areas the lid and the jar meet free from glaze. In the past, wax resists where simply melted wax; today there are a number of wax emulsions, including many which are water-based".

Initially, wax were used on the foot rims and on the cover of wares to prevent the wares sticking to either the shelve in the kiln or the covers of wares sticking to the wares during glaze firing biscuit. But today, wax resist is employed as a method of making patterns on wares before glaze firing. The oily and glossy nature of paraffin wax is responsible for the glaze which is water based not to stick to the areas covered by wax. Glaze on the other hand, must be fused on wares when the required heat attained. According to Peterson and Peterson (2003), "glaze is a substance that melts to a glassy state at a given temperature in a fire but does not melt enough to run off the ware to which it is applied". While Gukas and Datiri (2001) in their opinion states that "a glaze body could be defined as a layer of glass which is fused or melted in place on the body of a ceramic ware". Frank and Hamer in Okewu (2014) further revealed that "glaze is also decorative, providing colour, shine and textural contrast with the body".

For a ceramic ware to be concluded technically, it must have to be glazed, the glassy finish is as a result of glaze applied and fired on body of ceramic wares. To be able to restrict the glaze from some parts of wares, some kind of technique must be adopted and "glaze crawl" made possible by wax resist is one of such technique.

"Crawling is where the molten glaze withdraws into 'islands' leaving bare clay patches. The edges of the islands are thickened and smoothly rounded. In moderate cases there are only a few bare patches of clay, in severe cases the glaze forms beads on the clay surface and drips off onto the shelf. The problem is most prevalent in once-fire ware" (Lakeside Pottery, 2015). "Glaze crawling is a common glaze defect. The effect looks like crawling worms of glaze on top of the raw clay body. Crawling may happen only in one spot, or on the entire glazed area" (Glazefixer, 2007). While Peterson and Peterson (2003) opine that "glaze crawl can either be a problem or a decorative effect. In “crawling”, blank or bald spots appear in the glaze surface after firing. Crawling may be caused by having a dusty or dirty surface, or applying the glaze heavily. Skin oils from excessive handling of green ware may clog clay pores, causing the glaze to be repelled. Hard spots in the clay surface created by excessive sponging or polishing of the green ware is also a cause. To attempt to salvage such a piece, apply additional glaze to the bare spot and refire, or cover the entire piece with a textured glaze and refire". While Shearer (2005) conclude that "Some special effect glazes use certain ingredients deliberately to create a crawling glaze". Harnetty (2013) further revealed that *many ceramic artists use this so-called defect quite effectively as an intentional decorative element. Glazes are sometimes formulated to intentionally crawl and create reticulated surfaces resembling lichens, leopard coats, or lizard skin.*

Glaze crawl as popularly known in ceramics is a kind of defect sometimes experienced after glaze firing. It is obvious that this defect has come to be used amongst ceramists as an intentional decorative element by manipulating the glaze recipe. This study adopted a different approach to achieve intentional creative glaze crawl by utilising wax to resist some motive areas that are not meant to be covered by glaze.

Glaze Crawl Defects:
Source: https://www.freeformsusa.com/ceramics/nordstrom.htm

Glaze Crawl as an Intentional Decorative Element
Source: https://www.pinterest.com/pin/129830401730316045/

MATERIALS AND METHODS

Clay Preparation: Kaolin and Clay were obtained in the form of fine grain materials with some lumps. The kaolin and clay were soaked in different bins but in the same quantity of 50/50 for two weeks and this was followed by blunging the clay and Kaolin together to form a homogenous mixture in a semi liquid state. It was followed by sieving to improve the clays plasticity resulting in the formation of the stone ware clay. The sieved clay body was poured in porous surface for dewatering to semi solid form.

Production of Wares: The clay was kneaded into workable consistency to remove air spaces and particles that might have found their way into the clay during dewatering. The kneaded clay was shaped on the potter's wheel by centering the clay on the wheel, opening up the clay, pulling a cylinder and finally shaping the ware into desired shapes. Drying and Biscuit Firing of the Wares: The wares were bone dried under room temperature for proper drying. The dried wares were parked into the kiln and fired 900ºC - 1000ºC (biscuit temperature). The biscuit wares were allowed to cool down and then offloaded from the kiln.

Application of Paraffin wax: The wax which comes in a solid form was melted into liquid in an open pot on the fire, a foam was shaped to have a sharp point for dipping into the liquid

wax and it was used freely to apply the wax on the biscuit wares in the form of motives. The wax was allowed to dry up before the wares were dipped into glaze.

Glaze Application and Firing: Brown Glaze was applied unto the "waxed wares" by dipping, biscuit ware 'A' was dipped into glaze and allowed to stay a little longer than 'B'. The wax resisted glazed wares were introduced to a temperature of 1200^{o}C stone ware temperature in the kiln to fuse and melt the glaze on the body, after which the kiln was allowed to cool down before offloading to prevent any defect.

A B

Figure 1: Biscuit ceramic wares ready for waxing

Figure 2: Melted Paraffin wax ready for application

Figure 3: Application of wax on the surface of ceramic ware in form of motives

Figure 4: Thick and light applied glaze on waxed biscuit wares at dried stage

C

Figure 5: Thickly glazed waxed resisted storage jar

D

Figure 6: Thinly glazed waxed resisted storage jar

DISCUSSION

The variation in the thickness of glaze between "C" and "D" is to ascertain the level at which the wax covered areas could resist the glaze when it is thick and thin. Waxing of biscuit ceramic ware before glazing enables the glaze to crawl away from the restricted areas during firing, thereby maintaining the intentional designs that was done on the wares with wax. Vessel "C" which is thickly applied with glaze did not show a very clear design as the glaze tried to encroach into the restricted areas. Vessel "D" on the other hand showed a clear and

contrasting patterns against a light background due to the fact that the glaze was thinly applied on the ware, this could not allow the glaze to encroach or run into the restricted areas. It resulted in a brown glaze against restricted areas of light background.

FINDINGS

Textile paraffin wax has the required quality of resist on ceramics against glazes, but it is discovered that heavily applied glaze on waxed wares prevented the full potential of wax on the wares as the glaze still encroached into the wax resisted areas leaving little impact of the wax, while the moderately applied glaze on the wares did not encroach into the wax resisted areas leaving full potential of the wax resist on the wares. Furthermore, resisting some areas of biscuit wares with textile paraffin Wax before glazing added unique, creative and aesthetic value to the end products.

CONCLUSION

It is obvious that thickly applied glaze on textile paraffin wax restricted areas of ceramic ware did not permit the full potential of the wax as the glaze ran into the restricted areas. To this effect, moderate application of glaze is recommended for optimum effect of textile paraffin wax as it does not try to defy the effect of the wax, see 'C' and 'D' in figure 5 and 6 above. The idea of manipulating glazes to achieve glaze crawl does not arise in this study as a simpler and straight to the point approach was arrived through the exploit of textile paraffin wax. In conclusion, this resulted in a creative glazing technique that heightens more admiration through the collaboration of textile and ceramics techniques.

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