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AN APPRAISAL OF SELECTED BRASS PRODUCTS FROM KROFOFROM ASHANTI-GHANA

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ABSTRACT

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Keywords

Aesthetics Appraisal Brass Casting Krofofrom Lost wax. In the Asante kingdom, evidence of the use of metals like gold, silver and brass are actively displayed in all aspects of their socio-cultural lives, be it for beautification and other art forms. There are a lot of beautiful cultural elements encoded in the designs and the production of brass casting at Krofofrom in Asante. However, very little attention has been given to them. The main objective of this article is to appraise selected brass products at Krofofrom in Ashanti. It further goes on to examine the production processes of brass casting at Krofofrom and the aesthetics of the brass products as well. The brass casting in Krofofrom is well known and unique; this is because it embodies a lot of history and the cultural heritage of the people, which is portrayed in visual art forms. These art forms have a lot of aesthetic appeals if analyzed. Descriptive method of qualitative research approach with interviews and observations as instruments were employed. Secondary data was obtained from books, journals and the internet.

Contribution/Originality: This study documents the systematic processes used in traditional lost wax casting that is practiced at Krofofrom in Ghana and also comparatively analyses such similar castings done in other countries. The study further analyses the concept behind the craft and the design, interpret these concepts in relation to the philosophy of the people which then can serve as an archival source for future research to best understand African art and not to be judged under the formal principles of design.

1. INTRODUCTION

Asantes is believed to be people with very rich culture. Throughout their history since the first millennium AD, there has been evidence of the use of iron and other metals like gold, silver, brass which were actively displayed in all aspects of their socio-cultural lives. They were in the form of tools for domestic purposes, farming, hunting, war and ornaments for beautification purposes (Posnansky [1] as cited in MacEachern [2]). According to Warren [3] in the Akan society of Ghana, metal activities like smelting and casting was first located in areas like Brong Ahafo, Atebubu, Ntonso, Techiman, Bekwai just to mention a few. Casting in brass gained very high prominence after all the Asante states came together to form the Asante kingdom (Rattray [4] as cited in Kissi [5]). The starting point of this craft in the Kingdom of Asante is not really known although according to considerable literature by Rattray, it is believed that the issue of gold weights dates as far back as the 1676. According to Davey [6] and Gyekye [7], Asmah [8] as cited in Asmah [8], Kissi, et al. [9] the art of casting in brass and bronze can however be linked

with the Yoruba, Ife, Benin and India where the technique of lost wax casting is believed to have been acquired through trade although there are slight changes either in the mould materials, modelling technique or even how molten metal is introduced into the mould but the principle of casting remains unchanged. This however, shows that the brass art in Asante can be dated as far back as in the 1700 since it was during that era when brass casting reached its high state of development. Because during that time the Asantes defeated the Bonos in the Bono-Asante war of 1722-1723. Their paramount chief as of that time, Bonohene Ameyaw Kwakye I was captured with all his finest craftsmen brought from nearby villages to Kumasi to teach and work for the Asantehene at the time Opoku Ware (Reindorf, 1966 as cited in Silverman [10]].

According to Asiedu, et al. [11] Krofofrom township is about 14 kilometers from the south of Kumasi when using the old Bekwai road. According to Asmah [8] the formation of the town came about by the coming together of four small towns namely Apaaso, Kwaaso, Adumasa and Aboabota this then gave birth to the name Krofofrom which literally means "Newtown". The people of Krofofrom belong to the Asante ethnic group and they speak the Akan language "Twi". The indigenes are predominantly Christians and traditional worshipers. The Craftsmen are mostly famers and some are also full time involved in the sale of brass artefacts [8]. This research is momentous in that, it will propel the potential, the meaning and value of the indigenous brass casting process, the culture of the people of Krofofrom and their design concepts. It will also help increase the knowledge, appreciation and understanding of Krofofrom brass casting for better understanding by adding to the body of literature on brass castings as commented by Rattray [4]: Casting in brass gained very high prominence after all the Asante states came together to form the Asante kingdom. The research brings to light a detailed account of the aesthetic appeal of the brass artefacts from Krofofrom if analysed in the context of culture.

To ensure accurate, objective, valid and reliable findings, the study employs descriptive survey approach based on qualitative research methodology and made use of purposive and simple random sampling techniques. Data gathering instruments used were, interviews and observations. The use of these two research instruments in the study enabled the researcher to make an appraisal of primary data collected from the selected respondents to draw conclusions and recommendations. Only information from those sources confirmed, analyzed and evaluated by the researcher was accepted and used in the research. The study focused on brass craftsmen at Krofofrom in Ashanti Region. The researcher planned to interview and observe 310 brass casters but only 93 were accessible. The sample size was made up of 36 brass casters above 30 years, 12 chiefs and opinion leaders and 45 brass casters from 15-30 were chosen for the study. With this number some their brass products were selected and appraised.

2. METHODS AND MATERIALS

In Krofofrom the lost wax casting is carried out using the basic material known as the beeswax and brass scraps. The designs are first of all conceptualized and modeled using soft malleable beeswax and allowed to harden. They are then coated with clay moulds which is a mixture of clay and palm fiber allowed to harden and de-waxed in a clay furnace. The molten brass metal is then poured into the hollow mould to solidify, allowed to cool and broken to reveal the design (personal communication, 2nd January 2017).

3. FINDINGS

3.1. An Appraisal of Some Selected Brass Products from Krofofrom

According to the Business Dictionary [12] appraisal is the analysis and assessment conducted according to established criteria to determine the acceptability or worth of an item or artefact. This section presents a vivid appraisal of the following artefacts from Krofofrom.

Figure 1 is an interpretation of an artefact which states that: If you get hold of a snake by the neck, what is left is only a rope meaning (if you seize the commander of your enemy his camp becomes weak). The statuette shows a brass artefact of a grown man about 35-55 years old holding the neck of a serpent firmly. The head of the statuette

runs through the body five times. The anonymous brass artefact is perceived to be either a farmer or warrior. It could be noticed from the artefact, how firm the hands hold the serpent emphasising some sort of struggle before conquest. The little man has minute detailing of just dented impressions depicting the ear, eyes and the mouth. It looks and calm with the center of action focused on the grip of the serpent. The leg of the artefact wide apart expresses some form of movement or an action; however, it displays some sort of balance and stability to the artwork. This Asante brass piece displays certain elements of ideal manhood that is the display of bravery, flat tummy, beard and with a constant display of heroism. The stiff neck on which the head sits focuses directly in an inclined angle to the head of the serpent.

An enduring principle of philosophy which the indigenous brass casters carry is that, proportions of the figurine are not so much of an importance to them but the message it carries. Their works normally were not made to achieve perfection of the human body. This artefact is about 3 inches in height and made from brass using the lost wax method. The mass of the artwork is of lighter degree. This however shows the amount of space the work occupies. Due to the amount of positive space the figurine fills up, there is a form of balance that is created to support the negative space around it. The dramatic powerful gesture of the artefact expresses how unique the craftsman is able to conceptualise an image of a maxim or proverb into this splendid artefact thus expressing the theory of instrumentalism. It then makes us accept that, the way of thinking about this art piece is based on serving a specific purpose in the particular social context in which it was made. A critical look at this suggests some kind of bravery and display of boldness because an attempt to grab hold of the commander can be deadly.



Figure-1. Man holding the neck of a snake

Source: Field Research 2016.

It was also confirmed by the artisans that before one can be a brass caster, patience and being meticulous is very vital. This is because the process itself is not a day's job and every stage until the finished product is obtained needs maximum attention and a high level of concentration.

In Figure 2 is a brass statuette known as the horn blower. The artefact however is a proverbial figurine of a child blowing a horn. The statuette is philosophically interpreted as, if a man gets missing, the sound from his people's horn will help his people locate him (One is defended by his people). The statuette can be seen holding an object in his mouth perceived to be a horn. The wide eyes demonstrate a sense of attentiveness, however not to the viewer but to the indigenous craftsman who modeled it. His hands are seen with one tucked in around the waist

level and the other holding the musical instrument. This denotes some sense of communication between him and a certain group of people. The work shows two broad incised eyes and two impressions above it believed to be the eyebrows.

The perfect distribution of these features visually contributes so well with the principle of balance. His two legs which are wide apart display some sense of stability. The right arm extending far out of the main body is a little exaggerated to hold the horn, emphasising the action. The upper torso is very flat showing some sense of geometric pattern. The standing posture of the statuette seems to be more imposing and shows some sense of relief after wondering. You could see around the waist level a cleft carved out which separates the lower torso from the upper torso. We can still assume that the craftsman's decision not to make a naturalistic figure was basically of the kind of proverbial saying it was carrying. The size of the statuette is 3/3/4 head length and was made using the lost wax method. However, the static, symmetrical, wide eyed statuette shows some sense of timelessness for a figure that is conveying a specific message.



Source: Field Research 2016.

bource. I feld Research 2010

The artwork with a man dividing a pawpaw as shown in Figure 3 weighs about 3 grams and is about 2 inches in size. This artwork was produced by an indigenous brass craftsman from Krofofrom. This statuette is presumed to be a young African man of about 19-21 years at age. It is however assumed that, the statuette is an indigenous African youth. Another fascinating thing about the statuette is that, it seems to be giving very little information but at the same time it contains a lot. The statuette looks more like a male due to its broader chest and angular geometric lines connecting the hands to the shoulder. The statuette is not as static as it articulates a sense of movement from the action been performed that is the pawpaw been divided.

In addition, the upper torso is not proportional to the lower torso. Emphasis is laid on the action portrayed by the statuette, thus drawing attention to it. Focusing around the waist is some sort of drapery or an overlap around the waist level suggesting some sort of clothing or a talisman. Facial representation of the eyes is made of dented impressions with incisions representing the mouth. It is however very interesting to note that the statuette, express an adage within their cultural setting which is, "the head is not a pawpaw that you can just divide and know what is in it". Meaning it is not simple to slice open the human head to know the intensions of your fellow man.



Figure-3. Man with machete dividing a pawpaw.

Source: Field Research 2017.

From time immemorial, Asante kings used containers for rituals, storage of jewelries, trinkets and as gold dust containers a typical example is the "kuduo", which most brass casters above thirty were able to identify. One motivation behind why "kuduo" has been in most religious activities is that it is a metal cast and through this procedure known as the traditional lost wax casting technique, there is the change of metal using fire which gives it religious ramifications [13]. The "kuduo" was also made to serve a symbolic aim of protecting the owner's soul or "kra", and they assumed a vital part in ceremonial activities expected to keep up the spiritual comfort of the individuals who possessed them.

Figure 4 shows a lively blend of geometric and figurative symbols forming the artefact. The three statuettes forming part of the lid tells a lot of story associated with the historical dominance of the Asantes conquering the Denkyira's in 1701. With these three statuettes, two are perceived to be males and the third a female. It can be deduced from the artefact that, the figurine with the largest head is the king playing a traditional game known as "oware" and the other, his wife with a servant holding an umbrella over the head of the king. Size of heads and body in traditional African art usually serve as a symbol of power and authority as depicted on the lid of the "kuduo". The statuettes have abstracted angular arms and a cylindrical torso. Their stiffed necks symbolises their focus and attention on the "oware" being played.

This according to history was just before Ntim Gyakari the king of the Denkyira's was captured and defeated by the Asantes. The statuette under the umbrella is perceived to have an overelaborated headgear depicting a chief's crown and facing the other expressing some form of interactions and movement between the two. They can be seen comfortably seated on a stool which can be associated with everyday life as just household furniture or as a spiritual link of an ethnic group. Also the umbrella shading the king is typical Akan ceremonial object expressing the traditional power of the chief.

The repetition of geometric decorations engraved onto the surface of the container, and additionally the exquisitely cylindrical base supported by circular loops and a handle, might have been inspired by Islamic influences due to their encounter through trades. The statuettes were of less importance as compared to the message they carry or the story behind creation, thus devoid of realism. Upon further consultations, the owner reviewed that the vertical lines which are meticulously incised on the surface of the artefact depict perfection, also the horizontal lines of different lengths forming somewhat triangular shapes also denotes the various stages in the life of man. The loops found at the base of the artefact serves as a holder and at the same time as a perfect expression of womanhood.



Figure-4. "Kuduo", used for storing gold dust. Source: Field Research 2016.

In Figure 5 are two anonymous abstract human heads which are oval in shape. A holder attached to the brass heads can serve as a key holder, necklace or even on any other traditional ornaments. Just below the headgear of the artefact is a flat forehead and a curvy connected eyebrow. These heads lack a lot of naturalistic features because in Krofofrom a form is more represented with shapes and symbols rather than the articulation of what we see on the human head. The brass heads appear to be wearing an archaic smile, but it might not be an expression of emotions of happiness but rather an expression of well-being. One of the things noticed immediately when looking at the artefact is its expression of some sense of roundness making it presumed to be a female and also the elaborative headgear they wore.

The eyes are incised into halves at both sides, with a thin cylindrical shape which starts just beneath the eye brows and through the center of the face to the upper lip as the nose. Similarly, this articulation of the parts expresses harmony and counter balance in relation to the face. Also all the various parts placed together create some sought of completeness. The brass artefacts are seen as wearing head gears with intricate designs on them, the spiral and inclined lines on them are however symbolic. Furthermore the spiral design on the forehead can also be interpreted as the Adinkrahene which symbolises completeness or perfection. The spiral design can also represent tenderness. This further confirms the brass head been a woman since usually male faces are made to wear beard. The most compelling thing about the brass heads is the quite reverence the artefacts appear in. The somewhat flat, oval and rounded or disk- like head shapes embodies the Asante concepts of beauty. According to the craftsmen in Krofofrom, the round and flat shape nature of the head are considered perfect and this is proficient in genuine practice by the tenderly modelling of a newborn child's delicate cranial bones (Nana Oppong Agyari, personal communication, December6th 2016). However, the intricate elongated headgears perhaps make it possible that these anonymous heads were inspired by ancient warriors in the Asante kingdom.

The artefacts exist in simple forms and shapes because it is realized they survived in a culture where by perfection of the human body was not a priority but the spirituality and the purpose with which they were made for is paramount. The brass heads are somehow expressed in a more youthful manner because of the fleshy face which seems a bit more idealistic. The brass heads are normally worn in pairs since it is denoted by the indigenous African

that things in pairs are beautiful and that it's an implication of balance, peace and harmony which is also paramount to them.



Figure-5. brass heads.

Source: Field Research 2016.

In Figure 6 is a small rectangular container with a lid. This type of geometric container usually has lid with proverbial sayings, adinkra symbols, animals, human motifs and objects like drums, tools etc depicting everyday life. This container was used for storing gold dust during the pre-colonial era in the Asante kingdom around the 1700s. There is always a tremendously rich history associated with gold dust containers, because of the historical evidence of the use of gold dust they exhibit. Most of the motifs on top of these lids express stories and proverbs normally about virtues. With this we can add that it was perhaps a way of an expressive mode of most Asante forms of communication. Figure 6 is a typical example of an Akan proverbial motif which we will try and decode. On top of the lid is a heron like bird with its neck turned backwards to form a loop. The neck of the bird is an exaggeration and portrays a curved plane which suggests lots of movement. This is an adinkra symbol known as "Sankɔfa", Sankɔfa which literally means 'go back and fetch it' which is the clear translation of the proverb. This has an idea to do with the fact that, it is not an abomination to revisit the past for something deemed appropriate in our culture that we have forgotten. Thus, the positive aspects of our culture be it social or religious needs to be maintained and not allowed to die out.

The expression of wavy lines on top of the lid running along all the four edges of the container enhances its beauty and also expresses some sense of brisk motion. The motif mounted on top of the lid is well placed in the middle; this then gives a sense of depth and a critical consideration of space around it. The wavy lines on the edge of the lid also represents the ups and downs in life, with the straight lines representing the upright nature of humans in the society.



Figure-6. Gold dust container with a "sankofa" motif as the lid

Source: Field Research 2016.

In Figure 7 is an elaborate brass ring. The ring is also an essential part of the body adornments of traditional rulers in the Asante kingdom. In the Asante culture this ring is a symbol of high status in the society and expresses some form of one's political rank in the society. The ring appears to display tiny triangular patterns all around the loops which create a rough texture, perhaps an ancient technique that was employed to improve the surface quality. It can be perceived that particular interest was given to the creation of the textured part to achieve dominance and thus the emphasis laid creates some focus of interest. There is uniformity, clarity and intentionality which signify a tremendous effort in the creation. Upon critical observation, the ring shows an asymmetrical balance, that is, not all the parts of the motif are balanced equally according to its parts and thus some few forms balancing other parts.

The ring encompasses variety of shapes, rhythms, movement of lines and planes within the united work of art. And on top of the ring is a bird motif, "santrofieanomaa" is the local name of the bird motif which is responsible for both good and bad signs in the traditional Akan folktales, (If you take, you take along problems and if you do not, you leave luck). Thus it represents both good and bad.



Figure-7. Finger ring with bird motif. Source: Field Research 2016.

Figure 8 is a picture of a metal container known as "forowa". According to the old man who owns it (personal communication, 23rd December 2016) he discovered it in the mid 90's when he was digging a hole behind his house.

It is about 7cm high and with a diameter of 17cm. There is most often a bit of confusion when it comes to the difference between the "forowa" and the "kuduo". Whilst the "kuduo" is obtained from casting, the "forowa" on the other hand is obtained from hammered sheet brass and was used for storing Shea butter. It shows a cylindrically shaped container with a removable lid which appears in a form of concentric circle. The lid of the container was casted to fit perfectly with it base, this brings some sought of completeness, and by uniting the two parts together also brings about some kind of harmony since the lid and base of the container relates with one another perfectly.



Figure-8. "Forowa" from Krofofrom, used in storing Shea butter.

Figure 9 shows a geometric container in the shape of a rectangle which was also used for storing gold dust. It is about 2cm in height, a length of about 6cm and with of 2cm. The lid of the container is decorated with wavy lines at the opposite sides and straight lines forming its boarders and a crocodile "Denkyem" with a mud fish in its mouth modelled on it. The rhythmic repetitions of wavy lines as seen on the lid suggest some flow of movement and also a sense of liveliness to the artefact. However, the other straight lines at both opposite ends also depicts a feeling of calmness. The relief crocodile motif is perfectly centered on the lid and this gives equal proportions to the spaces around it and thus creates balance as well. Also for the base of the container are four planes, two short ones and two long ones forming the rectangular container.

The body of the crocodile is covered with tiny squares showing some form of repetition which also creates unity within the work, with its tail tilted to one side perceived to be wiggling it and also serving as a balance for the motif. The crocodile motif represents an Asante proverb which says "Dɛnkyɛmbɔnenaodi ne bɔn mu adeɛ" which literally means "it is a bad crocodile which eats what is contained in its lair. The fish in its mouth is identified as mud fish which is its neighbor. It is being eaten by the crocodile, thus depicting the crocodile as a bad friend. The motif draws people's attention to neighbourly love in the society. All the various designs and marks that were created on the motif express some sort of harmony within the motif since they relate with each other perfectly.



Figure-9. Proverbial gold dust container.

Source: Field Research 2016.

Figure 10 is a brass ring which is inspired by an adinkra motif. It however conveys a brilliant sharp abstract quality, a bold simplicity of designs which communicates with the society. The name of this specific design is "Gyewuatiko" which literally means (War hero's hairstyle); the design represents bravery of a warrior. The ring is a rhombus shaped geometric symbol with horizontal and vertical lines on the surface serving beautification purposes. It appears to have a continues top planes which joins at an apex at the opposite ends of the ring. At the center of the surface of the brass ring are coiled sides at the opposite ends and an opening which looks like a mouth of an animal.

The circular shaped coil at both ends of the motif expresses balance in relation to the space around the motif. Though there is no critical measurement taken into consideration before creation of the motif, it still appears to present proportions of motif in appropriate sizes at all parts that is, from top in relation to the bottom. The surface quality of the ring is a man-made texture which was deliberately made by leaving tool marks on the surface of the ring. The surface texture of the ring feels rough when touched. Also the tactile texture that was created on the ring is used to produce a difference between the background and the positive relief parts of the Adinkra motif. The brass motif is 1.5inches in width and height with woven palm fronds (leaves) impressions along all the borders. In the Akan society, the palm tree depicts powerful nations and very fierce warriors according to (N.O. Agyare II personal communication, December 12th 2016).



Figure-10. Adinkra ring "gyewuatiko".

Source: Field Research 2016.

Figure 11 is a symbol known as "adinkrahene". This is coiled in shape. It literally depicts the chief of all the adinkra symbols. It summarizes evocative messages of greatness, authority, charisma and leadership. The symbol is believed to have played an inspiring role in the designing of other symbols signifying the importance of playing a leadership role. The whole diameter of the brass artefact is 2 inches with a rough surface. The symbol is simple yet abstract but made up of three concentric circles which express the importance of ideas and abstract concepts. The Simplified but yet well-designed "Adinkrahene" could be referenced to something from nature inspiring its creation, like the ripple patterns in water.

A critical look at the design further shows that the spaces in between the design are of almost equal depths. The spaces of the design have a starting point and coils to open up at the end forming some kind of labyrinth. A sense of completeness is also created through the continues connection of the brass design in a rhythmic and repetitive manner to form the coiled shape. Thus this connection or bonding of the design demonstrates a unified completeness. Movement is also expressed through the continues motion of the coiled plane signifying a restful gesture. The design is also enclosed with lines in an area which forms the coiled shape. Also the curved lines forming the design suggest calmness.



Figure-11. Adinkrahene "chief of adinkra symbols".

Source: Field Research 2016

In Figure 12 is another ring which has its design being an Adinkra. The message it conveys is traditional wisdom and aspects of life or the environment. It's circular in form with a diameter of 1.6 inches. Attached to the ring are three small semi-circles to enhance the design. On the broad surface of the ring is the Adinkra design which is known as "GyeNyame" which literally means "Except God" which speaks about God's Omnipotence. The adinkra design is perfectly centered in the middle of the ring forming the positive part of the shape and the negative part is the spaces around the motif.

The surface quality of the ring is of a rough texture which was deliberately made using sharp tools to make marks in a uniform manner. This arrangement of line markings in both vertical and horizontal style also creates some sense of balance which makes the surface quality artistically pleasing. Emphasis is also placed on the texturing of the surface from the tool markings thus making it achieve dominance. The repetition of the line patterns on the negative part of the surface also enhances beauty. The line patterns as seen on the ring go on to further augment the visual pleasure since it improves the surface quality. The "GyeNyame" design have two looped parts at the top which is repeated at the bottom with two horn-like curved shapes with the apex of each pointing to the opposite also links the two looped parts at the opposite ends of the design to create balance. The vertical wavy part joins the

two loops and the curved parts in the middle creating some form of an agreement of the entire arrangement. All the parts of the design are made to cooperate as an entire visual idea developing some form of unity.



Figure-12. GyeNyame "Except God".

Source: Field Research 2016.

4. CONCLUSION

Brass casting at Krofofrom in Ashanti is a reservoir of a lot of aesthetic and cultural importance and that the analysis of the brass artefacts, their production processes and interpretations reveal their meanings in everyday usage. From the information gathered in this thesis, the production process of wax preparation, wax modelling, coating of wax models, de-waxing and their brass finishing still remains unchanged thus still serving as evidence of a once flourishing aspect of Asante culture. The aesthetics of the brass artefcats and its production shows how the traditional brass casters have some elements and principles of designs displayed in their craft. The designs created are unique and they convey religious and social significance in the form of proverbs, believes and myths to the general public and are used to manage the societal behaviors. Also, the aesthetic significance of the designs lies primarily in their ability to send the intended message it carries across and are also for beautification purposes. Going forward since art is another avenue worth a lot of information, the design concepts which are interpreted by the culture of the people of Krofofrom should be included in academia by the Ghana education service by policy planners.

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REFERENCES

- M. Posnansky, "Archaeology, technology and Akan civilization," Journal of African Studies, vol. 2, pp. 33-54, 1975. [1]
- S. MacEachern, "Foreign countries: The development of ethnoarchaeology in Sub-Saharan Africa," Journal of World [2] Prehistory, vol. 10, pp. 243-304, 1996. Available at: https://doi.org/10.1007/bf02286418.
- [3] D. M. Warren, The techiman-Bono of Ghana: An ethnography of an Akan society: Kendall/Hunt Pub. Co, 1975.
- R. S. Rattray, Religion and art in ashanti: Oxford University Press, 1927. [4]
- [5] S. B. Kissi, "Evaluation of Beeswax and core materials for traditional lost wax casting," Thesis Submitted to KNUST, Ghana, 2011.

- [6] C. J. Davey, "The early history of lost-wax casting. In Metallurgy and civilisation: Eurasia and beyond," in *Proceedings* of the 6th International Conference on the Beginnings of the Use of Metals and Alloys (BUMA VI), 2009, pp. 147-154.
- [7] K. Gyekye, African cultural values an introduction. Accra: Sankofa Publishing Company, 1996.
- [8] A. E. Asmah, "Brass cating at ampabame Krofofrom a case study," Thesis Submitted to KNUST, Ghana, 1992.
- [9] S. B. Kissi, P. A. Fening, and K. Asomaning, "Improved core composition for traditional lost wax casting at Krofofrom, Ghana," *The International Journal of Science & Technoledge*, vol. 4, pp. 174-179, 2016.
- [10] R. A. Silverman, "Bono brass casting," *African Arts*, vol. 19, pp. 60-86, 1986. Available at: https://doi.org/10.2307/3336290.
- [11] A. B. Asiedu, K. A. Labi, and B. Osei-Tutu, "An asanteman—world bank heritage development initiative in promoting partnership with Ghanaian traditional leaders," *Africa Today*, vol. 55, pp. 2-26, 2009. Available at: https://doi.org/10.2979/aft.2009.55.4.2.
- [12] Business Dictionary, Available: http://www.businessdictionary.com/definition/appraisal.html. [Accessed 12 March, 2017], 2017.
- [13] D. H. Ross and H. M. Cole, *The arts of Ghana*. Los Angeles: University of California, 1977.

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